ECONOMICS

Regional

ASEAN Economics

Decoupling from US Recession

Analysts
Chua Hak Bin
(65) 6231 5830
chuahb@maybank.com

Lee Ju Ye
(65) 6231 5844
leejuye@maybank.com

Brian Lee Shun Rong
(65) 6231 5846
brian.lee1@maybank.com

Luong Thu Huong
(65) 6231 8467
hana.thuhuong@maybank.com

A Defensive Harbor

ASEAN is emerging as a defensive harbor and partially decoupling from the US economic downturn and potential recession. We expect ASEAN-5 GDP (excl. Singapore) to remain resilient and expand by +5.3% in the second half of 2022 (vs. +5.4% in 1H22) and +4.9% in 2023, despite slowing US and global growth. GDP growth in Singapore, Malaysia and Thailand has been historically more correlated with US business cycles, as their economies are more export-oriented, while GDP growth in Indonesia and Philippines are far less correlated. Vietnam did not slip into recession in past US recessions, but the correlation and dependence on US value-added have risen over the past decade. Singapore remains the most vulnerable to a US recession, although the reopening tailwinds; recovery in foreign employment; relocation of headquarters, talent and capital inflows from HK & China; and available fiscal support are mitigating factors.

Six Arguments for a Partial Decoupling

We highlight six arguments for a "partial" ASEAN-US decoupling: [1] Reopening boost still not over, with accommodation & food services, construction and air transport still below pre-pandemic levels, as ASEAN "lives with Covid"; [2] Strengthening intra-ASEAN trade will partly offset weaker G3 and China trade; [3] Rising FDI and shifting manufacturing supply chains to ASEAN; [4] Elevated energy and food prices, which benefits energy exporters (Indonesia, Malaysia) and food exporters (Thailand, Malaysia, Indonesia) ; [5] Less aggressive interest rate hiking cycle (except Philippines & Singapore); [6] Relocation of headquarters and talent from Hong Kong, and capital inflows from Greater China because of US-China geopolitical rivalry & divergent Covid strategies. A wildcard will be the timing of China's reopening – which will be a major boost to ASEAN's tourism and exports.

Depth and Duration of a US Recession

Probability of a US recession over the next 12 months has risen to 26%, based on the 3m-10y term spread. The US recession is likely to be shallow rather than deep, cushioned by labor shortages in reopening sectors and healthier household and corporate balance sheets. US household debt is much lower at 67% of GDP versus the 85% just before the global financial crisis. US households have amassed an estimated \$2.6trn of excess savings during the pandemic and have only drawn down \$160bn so far. Non-financial US corporate debt is at 78% of GDP in 1Q 2022, slightly higher than the 68% in 3Q 2007 but below its peak of 91% in 2Q 2020. Cash held by US companies have ballooned to \$1.3tn from \$840bn in 4Q 2019. The US banks are well capitalized, owing to more stringent regulatory standards imposed in the wake of the GFC.

Inflation May Be Slow to Moderate

Supply factors are responsible for half of the difference between current headline US PCE and pre-pandemic inflation, according to a San Francisco Fed study. Demand drivers account for around one-third, with the remainder resulting from ambiguous factors. Fed tightening can only influence demand-side inflation pressures. How fast inflation falls will also depends on the speed at which global supply chain disruptions and labor shortages can be resolved. Based on the "sacrifice ratio" of 1.2x for past US recessions (excl. credit and pandemic-driven recessions) – the unemployment rate would need to rise to 6.3% for trimmed mean PCE inflation to fall to the Fed's 2% target (from 4.3% in June), by our estimates. The US labor market tightness suggests that taming wage growth to pre-pandemic levels will be hard. Elevated inflation will make for a slower recovery from recession by constraining policy responses.

SEE PAGE 33 FOR IMPORTANT DISCLOSURES AND ANALYST CERTIFICATIONS

ASEAN: Decoupling from US Recession

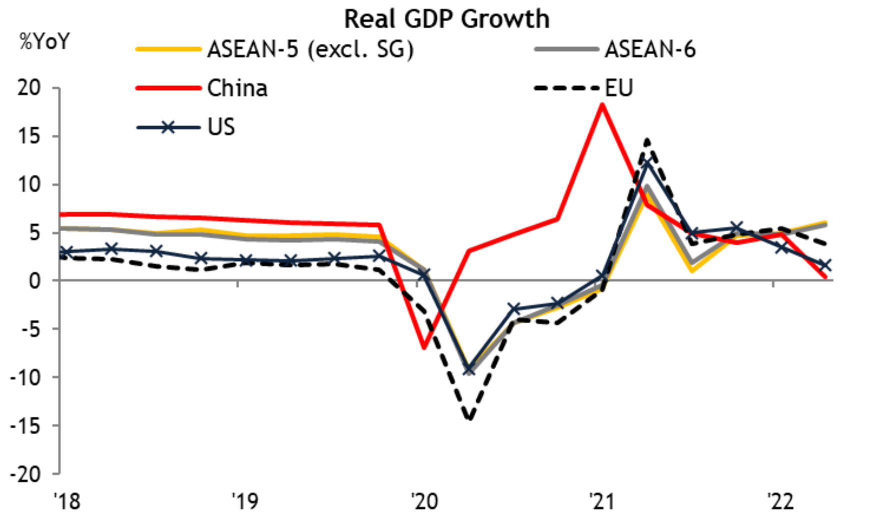
> ***"For the rest of the year, the recovery in international travel and domestic demand with the lifting of Covid-19 restrictions will help to mitigate some of the weaker external demand … At this stage, we do not expect a recession or stagflation in 2023. Nonetheless, risks in the global economy remain significant."***
>
> Singapore Minister of State for Trade and Industry Alvin Tan addressing Parliament, 4 July 2022.
>
> ***"From the corporate side as well as from our household, we are also relatively good… But, we still have to be vigilant because this condition will last until next year. Global risks regarding inflation and recession or stagflation are very real and will become one of the important topics to discuss during the Indonesian Presidency of G20."***
>
> Indonesia Finance Minister Sri Mulyani at a G20 press conference, 13 July 2022.

ASEAN is emerging as a defensive harbor and partially decoupling from the US economic downturn and recession. We expect ASEAN-5 (excl. Singapore) growth to remain resilient and expand by +5.3% in the second half of 2022 (vs. +5.4% in 1H22) and +4.9% in 2023, despite slowing US and global growth. The economic reopening will continue to boost growth especially in consumer and tourism-related services that have yet to return to pre-pandemic levels. Strengthening intra-ASEAN travel and trade will partly offset weakening external demand from the US and Europe.

FDI to ASEAN is rising, as manufacturing supply chains reconfigure and shift to ASEAN, as reflected in the surging applications in Indonesia, Malaysia and Vietnam. The US-China trade war, the pandemic, and China's zero Covid strategy and rolling lockdowns are reinforcing the case for diversification and "China+1" supply chains. Elevated energy (Malaysia, Indonesia) and food prices (Thailand, Malaysia, Indonesia) are supporting some ASEAN commodity exports. Hong Kong's zero-Covid strategy and strict border controls are diverting more MNCs, talent and capital flows to Singapore.

ASEAN growth has been more resilient than US, EU, and China in the first half of the year. ASEAN-5 (excl. Singapore) GDP growth picked up to +5.4% in 1H22 (vs. +2.9% in 2H21), higher than the US (+2.6%) and EU (+4.7%). ASEAN-5 GDP growth overtook and was more than double China's GDP growth, which slowed to +2.6% (vs. +4.5% in 2H21) (see Fig 1). The ASEAN-China growth divergence will likely continue in the second half given the divergent "living with" versus "dynamic zero" Covid strategies.

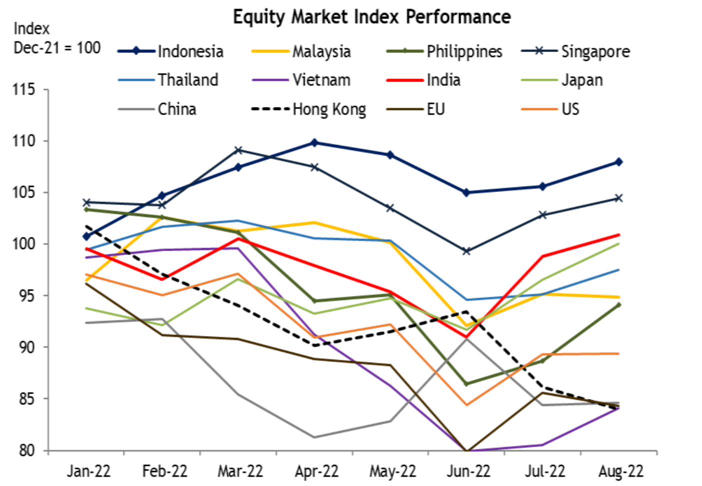
Fig 1: GDP Growth in ASEAN Surpassed US, EU & China in the First Half of 2022



Source: CEIC

ASEAN's equities and currencies have outperformed other advanced and emerging markets so far this year. Equities in Indonesia (+8% year-to-date) and Singapore (+4.4%) have outperformed. The stock market declines in Malaysia (-5.1%), Philippines (-5.9%) and Thailand (-2.5%) have been milder than the sharp corrections in Hong Kong (-16%), China (-15%), EU (-15.7%) and the US (-10.7%) (see Fig 2). While the USD has strengthened against all major and regional currencies, the depreciation has been milder in the Vietnamese VND (-1.2%), Singdollar SGD (-3.2%), and Indonesian Rupiah (-4.7%), as compared to other major currencies, including the JPY (-19.4%), EURO (-14.3%), RMB (-7.5%), and INR (-7.4%) (see Fig 3).

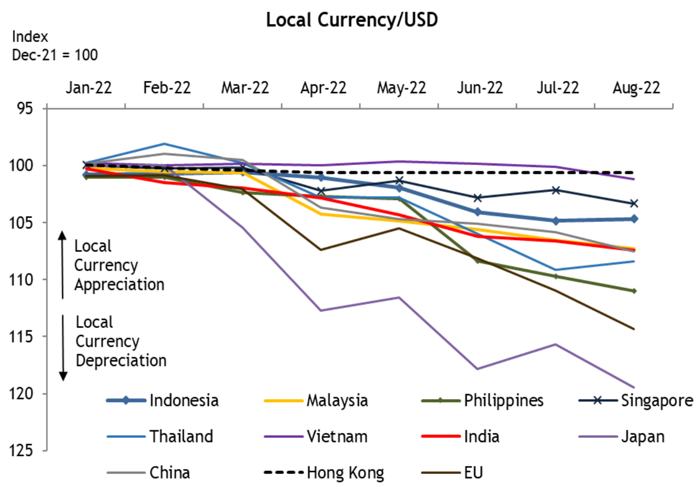
Fig 2: ASEAN-5 Equity Markets Outperforming US and China This Year



Note: Refers to each market's local equity index. End-month data for Jan to Jul. Aug refers to 22 Aug.

Source: CEIC

Fig 3: ASEAN Currencies More Resilient Than EUR and JPY

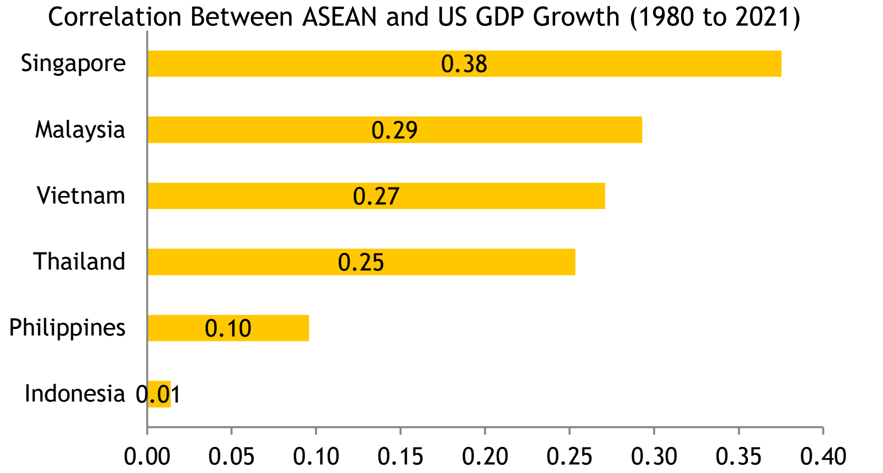


Note: End-month data for Jan to Jul. Aug refers to 22 Aug.

Source: CEIC

GDP growth in Singapore, Malaysia, Thailand and Vietnam are historically more correlated with US GDP growth, given that their economies are export-oriented (see Fig 4). Indonesia and the Philippines are the least correlated, as domestic demand accounts for a larger proportion of the economy.

Fig 4: GDP Growth in Singapore, Malaysia, Vietnam and Thailand Have Higher Correlations with US; Smaller Correlation for Philippines & Indonesia



Source: Maybank IBG Research estimates

Over the past 5 decades, Singapore saw GDP growth fall sharply during US recession episodes. Singapore's economy fell into recession during the 2001 US tech recession and 2008/09 Global Financial Crisis (GFC) (see Table 1). The export-oriented economies of Malaysia (-1.5%) and Thailand (-0.7%) also experienced GDP contraction in 2009 during the global financial crisis.

Vietnam's economy did not contract in any of the past regional or global recessions, although GDP growth slowed significantly during the Global Financial Crisis and Asian Financial Crisis. However, Vietnam has become more export-oriented with increasing FDI and trade liberalization over the past two decades, with export share of real GDP rising from 40% in 2000 to 130% in 2020. The US has become increasingly important as an export market, with its share of Vietnam's exports rising to 28.6% in 2021 from 20.7% in 2015. Vietnam will likely face a sharp growth slowdown in this episode if the US slips into a recession.

Indonesia and the Philippines have been more insulated from slowing external demand and US recession, with both economies continuing to expand even in 2008/09 during the global financial crisis. Recessions in the Philippines during the 1980s and 1991 were largely due to internal political unrest, not because of an external slowdown.

Table 1: ASEAN GDP Growth in Past Regional & US Recessions

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
1997/98 Asian Financial Crisis	**-13.1**	**-7.4**	-0.5	**-2.2**	**-7.6**	5.8
2001 US Tech Recession	3.6	0.5	3.0	**-1.1**	3.4	6.2
2008/09 Global Financial Crisis	4.6	**-1.5**	1.4	***-3.1**	**-0.7**	5.4
2020 Covid Crisis	**-2.1**	**-5.5**	**-9.5**	**-4.1**	**-6.2**	2.9
Country-specific recessions			1983-85 political unrest: -7% in 1984/85 1991 political turmoil: -0.4%	1985 recession: -0.6%		

**Refers to year-on-year growth between 3Q08 and 2Q09 from a year ago, to reflect the 4 quarters of decline. 2009 full year GDP growth was still a small positive of +0.1%.*

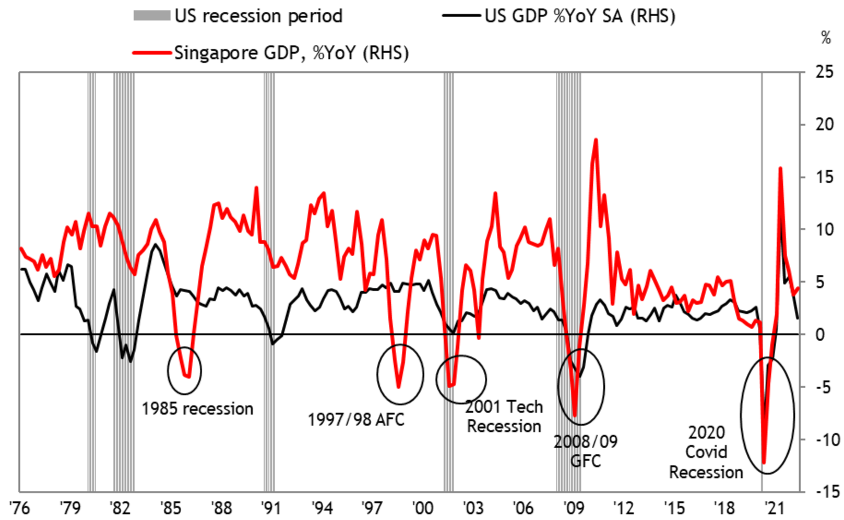
Note: Table showing annual GDP growth in 1998, 2001, 2009, and 2020.

Source: CEIC, compiled by Maybank IBG Research

Singapore will be the most vulnerable and sensitive to a US recession and down-cycle in the current episode. There are arguments however that the Singapore downturn could be milder than past episodes because of the positives from the reopening tailwinds; return of foreign workers; potential fiscal support; relocation of MNCs headquarters (US, Europe), talent and capital from Hong Kong because of the divergent Covid strategies and US-China trade war.

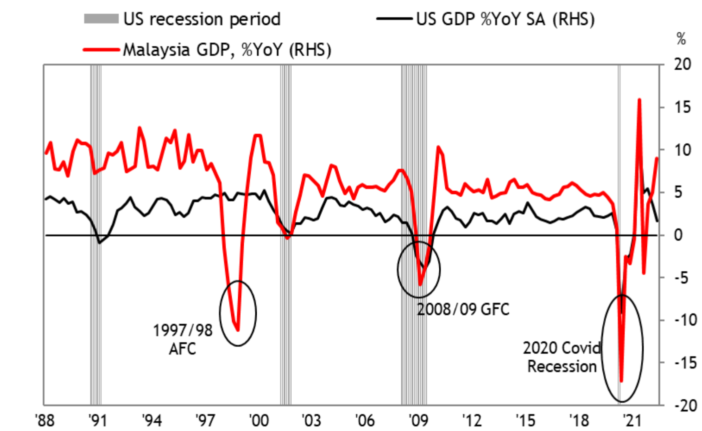
But there are also counter-arguments why Singapore’s downturn could be worse, because of a far more aggressive monetary policy to contain inflation (much stronger currency); steep increases in short-term interest rate to near 20-year highs; GST hikes in 2023-24; and institutionalized wage increases via the introduction of a local qualifying salary (de facto minimum salary) and expansion of the progressive wage model to large sectors (incl. retail and food services), which could hurt businesses.

Fig 5: Singapore GDP Growth is Highly Correlated with the US & Contracted During the 2001 Tech Recession and 2008/09 Global Financial Crisis



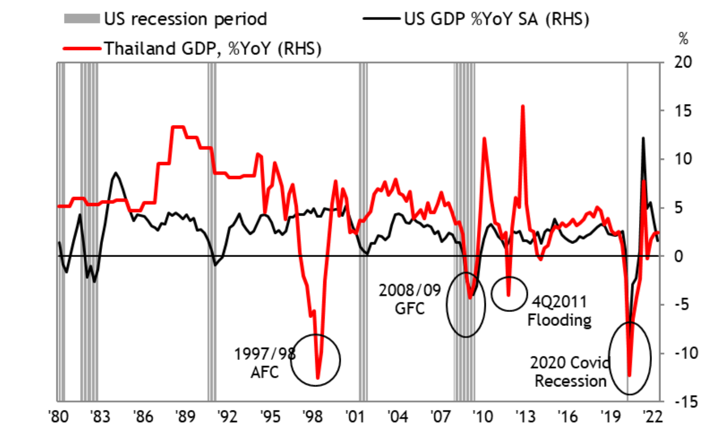
Source: CEIC

Fig 6: Malaysia Growth Slowed to +0.5% During 2001 Tech Recession; Fell by -1.5% in 2009 GFC



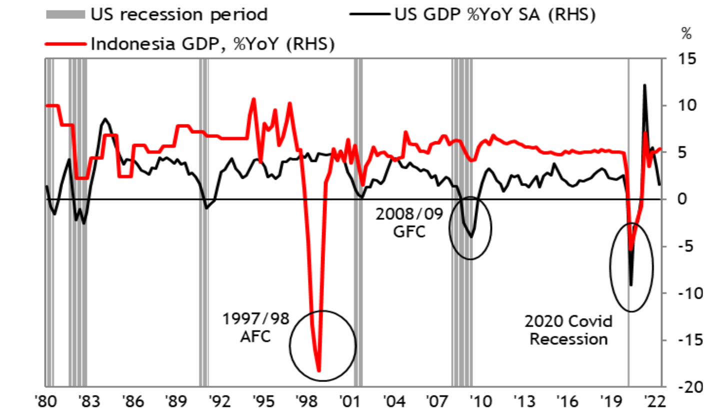
Source: CEIC

Fig 7: Thailand Among Worst Hit During Asian Financial Crisis (-7.6% in 1998); GDP Declined by -0.7% in 2009 GFC



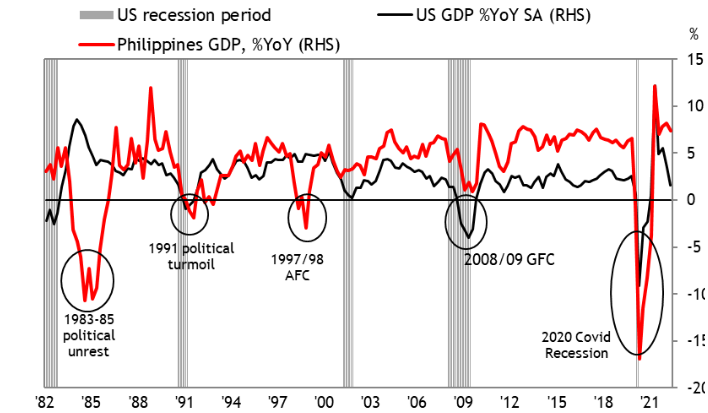
Source: CEIC

Fig 8: Indonesia GDP Plunged by -13.1% in 1998 AFC; Growth Eased to +4.6% in 2009 GFC



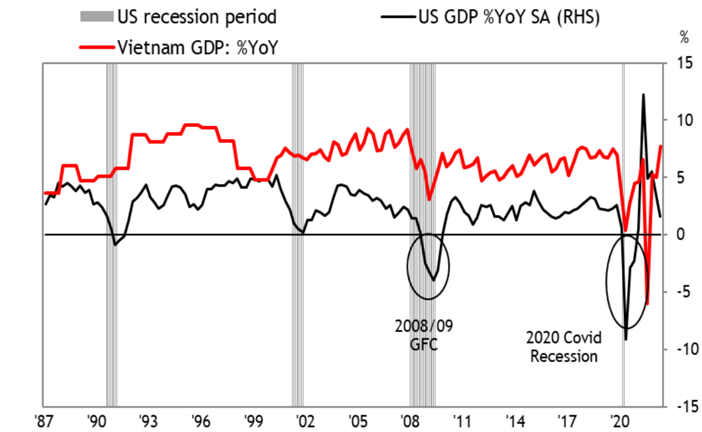
Source: CEIC

Fig 9: Philippines - Recessions in 1980s/1991 Due to Domestic Political Unrest; Continued to Grow (+1.4%) in 2009 GFC



Source: CEIC

Fig 10: Vietnam - GDP Growth Eased to +5.4% During 2009 GFC



Source: CEIC

Table 2: ASEAN GDP Growth to Stay Resilient in 2H22 and 2023, Except for Singapore

	2020	2021	1H22	2H22F	2022F	2023F
Indonesia	-2.1	3.7	5.2	5.1	5.1	5.2
Malaysia	-5.5	3.1	6.9	5.5	6.0	4.0
Philippines	-9.5	5.7	7.8	5.1	6.5	5.2
Singapore	-4.1	7.6	4.1	1.5	2.8	1.5
Thailand	-6.2	1.5	2.4	4.1	3.2	3.8
Vietnam	2.9	2.6	6.4	7.7	6.9	6.4
ASEAN-5 (ex SG)	-3.8	3.3	5.5	5.2	5.3	4.9
ASEAN-6	-3.7	3.9	5.3	4.8	5.0	4.5

Source: CEIC, Maybank IBG Research forecasts

Six Reasons for an ASEAN-US Decoupling

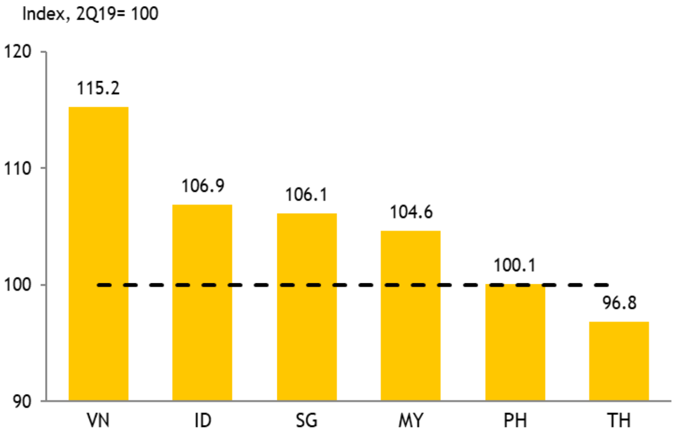
We flesh out six arguments for an ASEAN-US “partial” decoupling:

[1] Reopening Tailwinds

The reopening tailwind still has legs, with many sectors not yet fully recovering to pre-pandemic levels. ASEAN is adopting a “living with Covid” strategy and is unlikely to resort to strict lockdowns and quarantines, as compared to China’s “zero Covid” strategy. Any modest relaxation of China’s strict policies and border controls in 2023 could boost the reopening tailwinds from China tourists returning to ASEAN, especially to Thailand, Vietnam and Malaysia.

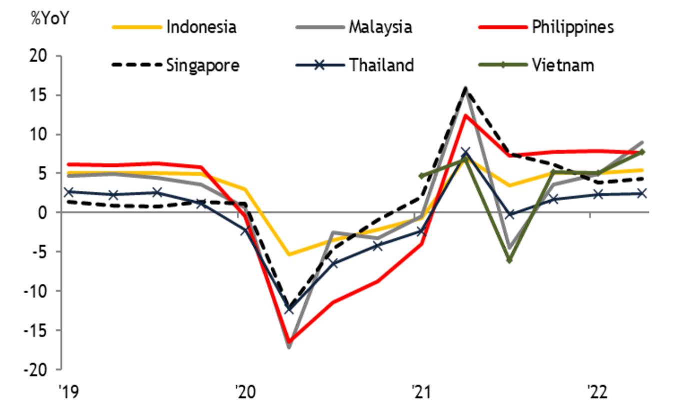
Most of the ASEAN economies have climbed to above pre-pandemic levels as of 2Q (see Fig 11), except for Thailand (which remains 3.2% below 2Q19 levels, see *Thailand Economics - 2Q GDP Disappoints, Maintain 2022 GDP at +3.2% on Tourism Revival*, 15 Aug 2022).

Fig 11: ASEAN Economies Have Climbed Above Pre-Pandemic Levels as of 2Q 2022, Except Thailand



Source: CEIC

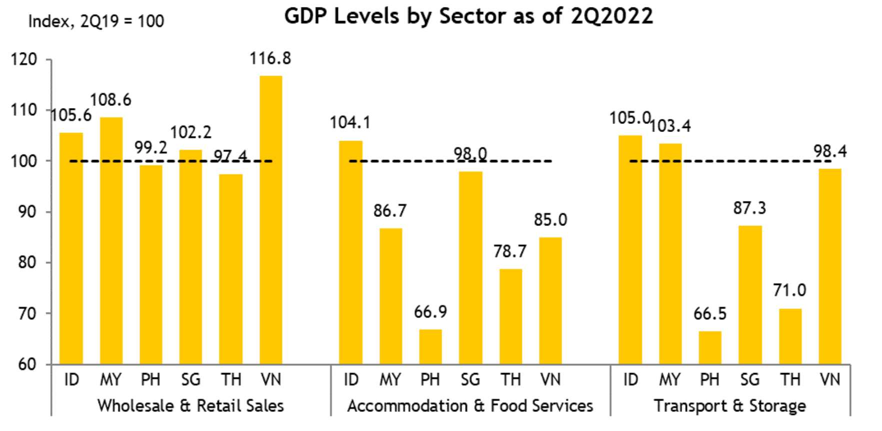
Fig 12: ASEAN GDP Growth Was Above +5% in 2Q for Most Countries, Except Singapore (+2.8%) and Thailand (+2.5%)



Source: CEIC

However, there are several sectors, especially consumer and tourism-related services that have yet to return to pre-pandemic levels and will continue to recover from the reopening tailwinds. Accommodation & food services sector have not yet normalized in the Philippines (67% of pre-pandemic levels in 2Q), Thailand (79%), Vietnam (85%), and Malaysia (87%). Transport & storage is also lagging in the Philippines (67%), Thailand (71%), and Singapore (87%) (see Fig 13).

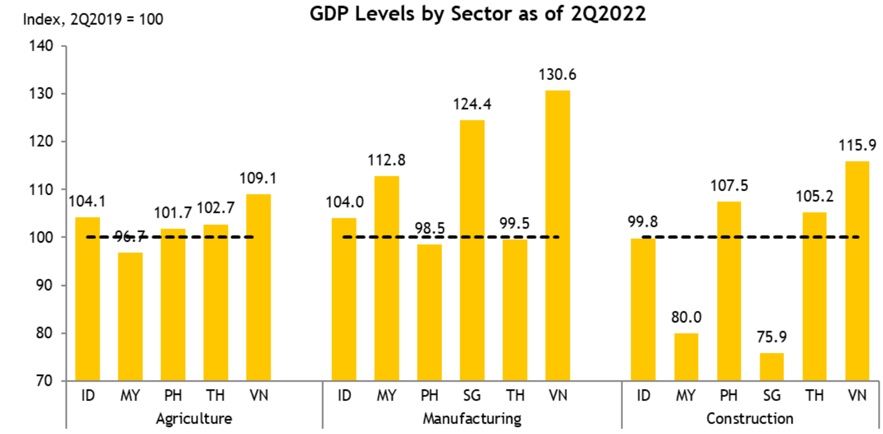
Fig 13: Accommodation and Food Services and Transport & Storage Sectors Remain Significantly Below Pre-Pandemic Levels in Some ASEAN Countries



Source: CEIC

The construction sector is lagging behind in Singapore (76% of pre-pandemic levels in 2Q) and Malaysia (80%), which are facing foreign worker shortages and supply disruption (see Fig 14). Singapore's construction contracts awarded plunged by -46% in 2Q to the lowest level since 3Q2020. On the other hand, the agriculture and manufacturing sectors have mostly risen above pre-pandemic levels in most ASEAN countries, driven by the commodity boom and rebound in external demand.

Fig 14: Manufacturing Far Above Pre-Pandemic Levels in Malaysia, Singapore & Vietnam; Construction Still Lagging in Malaysia and Singapore

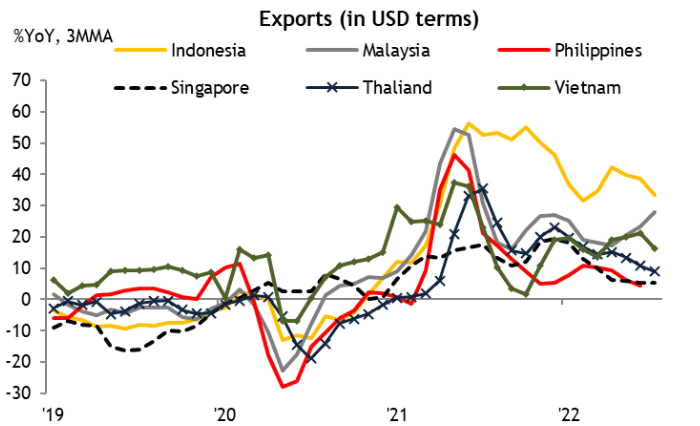


Source: CEIC

[2] Stronger Intra-ASEAN Trade and Tourism

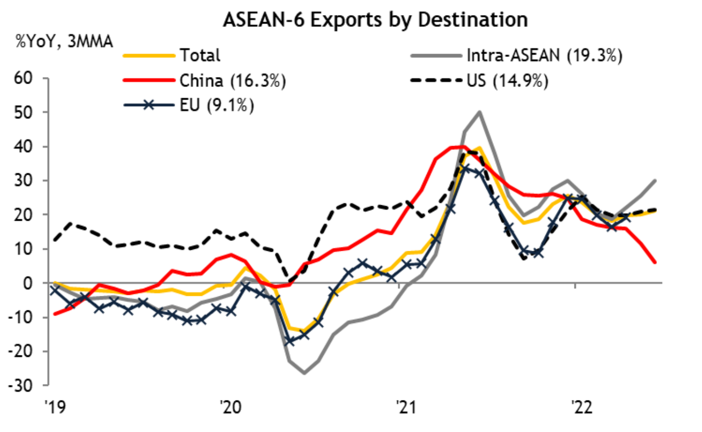
Intra-ASEAN trade and travel will likely remain resilient despite the slowdown in major economies such as US, EU and China. Exports continue to surge at double-digit growth in Indonesia (+32% in July), Malaysia (+30.7%), although Thailand (+4.3%) Singapore (+4%) and Vietnam (+9.9%) have seen some easing as of late (see Fig 15). Intra-ASEAN exports, in particular, has been resilient, surging by +30% in 2Q (vs. +18.8% in 1Q), helping to cushion the slump in exports to China (+5.9% in 2Q vs. +16.5% in 1Q) (see Fig 16). The intra-ASEAN market is a significant source of demand, having accounted for 19% of ASEAN's exports last year, higher than exports to the US (14.9%), EU (9.1%) and China (16.3%).

Fig 15: Exports Resilient Especially in Indonesia & Malaysia



Source: CEIC

Fig 16: ASEAN-6 Exports to China Slumping, But Intra-ASEAN Exports Surging in Recent Months

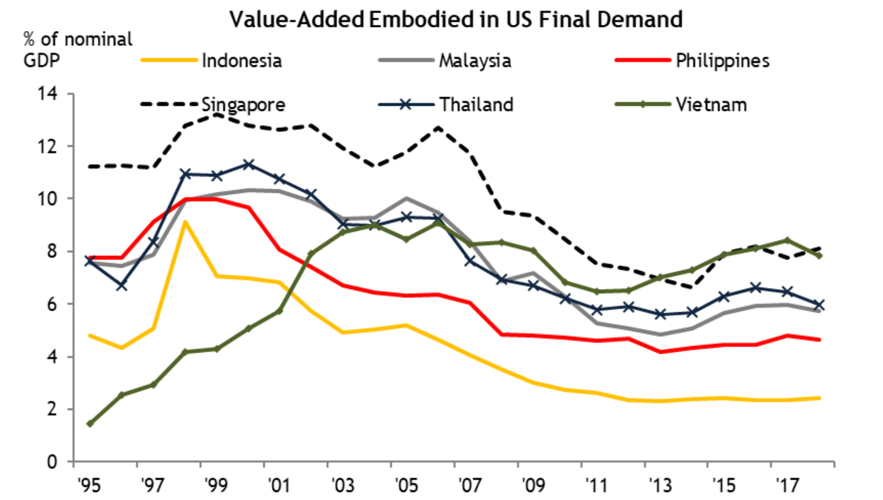


Note: Numbers in brackets refer to share of total exports in 2021.
Source: CEIC

Over the past two decades, the US has become a less important market for most of ASEAN, except for Vietnam. According to OECD's Trade in Value Added (TiVA) database, ASEAN economies' value-added embodied in US final demand as a share of their GDPs has declined by 20%-50% over 1995 to 2018 (see Fig 17). Share of US final demand has fallen the most for Indonesia (2.4% in 2018 vs. 4.8% in 1995) and Philippines' (4.6% vs. 7.7%).

For Singapore (8.1% vs. 11.2%), Thailand (6% vs. 7.6%) and Malaysia (5.7% vs. 7.6%), the share of US final demand has fallen alongside the rising influence of Chinese domestic demand, given the rise of China over the past twenty years. The only exception is Vietnam (7.8% vs. 1.5%) due to its rising role in global supply chains of consumer goods, but even then the share in 2018 is lower than just before the GFC (2007: 8.3%).

Fig 17: US Final Demand as Share of ASEAN GDP Has Fallen Over the Past Decade



Note: Last data available as of 2018.
Source: OECD TiVA, Maybank IBG Research

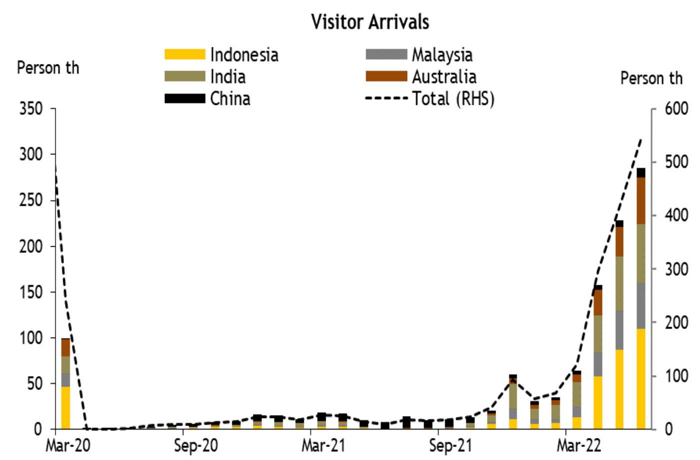
ASEAN's tourism rebound so far has also been driven by regional tourists. Thailand's top source of visitors in the first half of 2022 were from India (11.3% of total), Malaysia (9.6%), and Singapore (6.2%), while China accounted for only 2.8% of total arrivals (see Table 3). Singapore's visitor arrivals in the first half of 2022 were mainly from Indonesia (18.7% of total), India (14.6%), and Malaysia (9.2%) (see Fig 18). Asian countries made up 65% of Vietnam's visitor arrivals in the first half. The top source was South Korea, which accounted for 18% of total foreign visitors.

Table 3: Thailand Visitor Arrivals by Nationality: Tourists from India, Malaysia & Singapore Leading Recovery

	Apr-22	May-22	Jun-22	1H22	1H22
	Person th	Person th	Person th	Person th	% of total
Total	**293.4**	**521.4**	**767.5**	**2,080**	**100%**
India	27.3	78.3	113.4	236	11.3%
Malaysia	10.8	57.9	124.2	201	9.6%
Singapore	17.9	38.0	60.2	128	6.2%
UK	29.6	23.7	27.9	123	5.9%
USA	17.1	24.3	34.4	106	5.1%
Germany	19.8	15.6	19.1	96.8	4.7%
Australia	17.2	19.0	26.8	79.9	3.8%
France	14.1	13.0	13.0	72.2	3.5%
Russia	5.2	7.1	8.2	71.4	3.4%
Korea	8.7	16.2	25.7	58.7	2.8%
China	8.7	14.9	20.0	57.4	2.8%

Source: CEIC

Fig 18: Singapore - Visitor Arrivals Mainly from Indonesia, Malaysia, and India



Source: CEIC

China has been making tweaks to its pandemic management strategy, such as reducing quarantine requirements for inbound arrivals by half. Starting late June, travelers only need to spend 7 days (down from 14 days) in a quarantine facility, and then monitor their health at home for another 3 days[1]. As the country achieves more progress on vaccination rates and healthcare capacity, China could move away from its zero-COVID stance. There has been speculation that the zero-

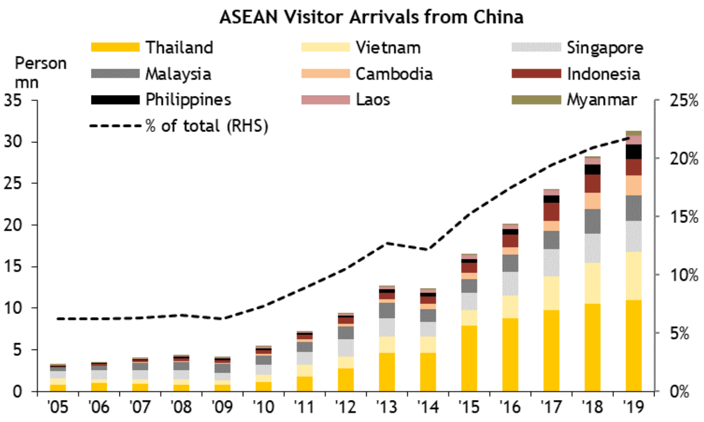
[1] Bloomberg, "*China Cuts Travel Quarantine in Biggest Covid Zero Shift Yet*", 28 Jun 2022.

COVID stance could be eased to some degree after the Communist Party Congress in October or November.

While a China reopening over the next few months remains a wildcard, it would provide a substantial boost to ASEAN tourism and exports. China accounted for more than one fifth of ASEAN's visitor arrivals before the pandemic (see Fig 19). The biggest tourism boost will be to Thailand (27.6% of tourists from China), Vietnam (32.2%), and Singapore (19%) where China accounts for the dominant share of tourist arrivals pre-pandemic.

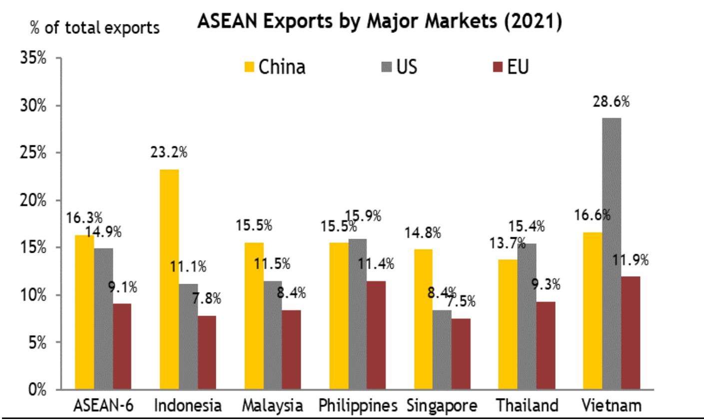
A China reopening and fewer lockdowns will help revive China import demand. China is the largest export market for Indonesia (23.2% of total exports in 2021), Malaysia (15.5%) and Singapore (14.8%), and the second-largest export market after the US for Thailand (13.7%) and Vietnam (16.6%) (see Fig 20).

Fig 19: China Accounted for More than One Fifth of ASEAN's Visitor Arrivals Pre-Pandemic



Source: CEIC

Fig 20: China Largest Export Destination for ASEAN (16.3% of Total Exports in 2021)

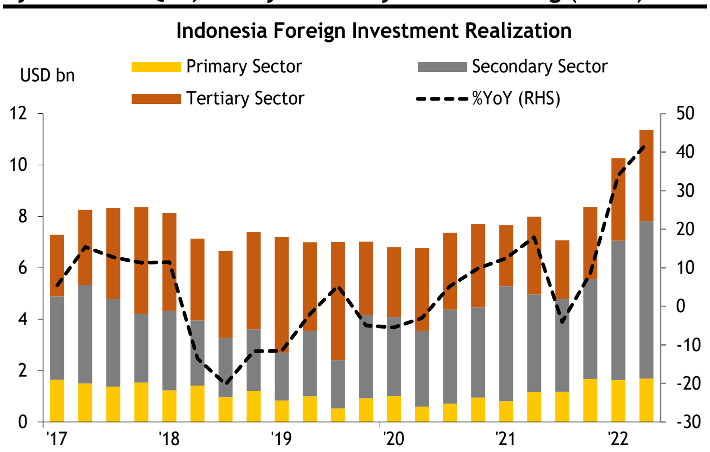


Source: CEIC

[3] Rising FDI & Shifting Supply Chains to ASEAN

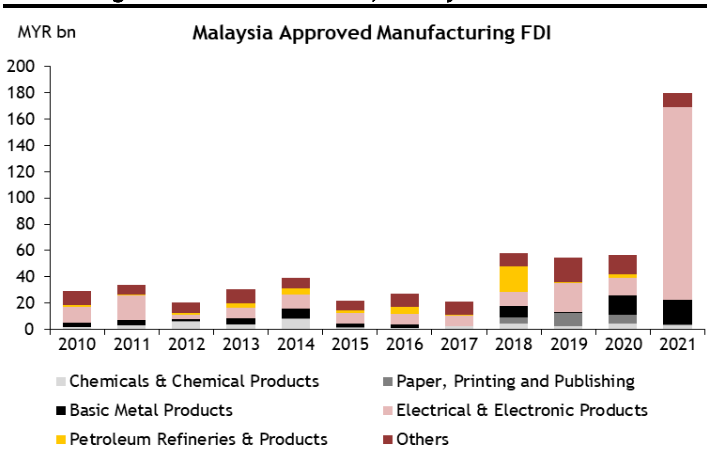
Foreign investment continues to flow into ASEAN, bolstered by supply chain diversification away from China and development of Electric Vehicle industries. Indonesia's foreign investment realization surged by +42% in 2Q22 (see Fig 21), driven by the manufacturing (+61%) sector particularly basic metal, amid the government's push to develop downstream industries such as nickel ore processing for EV batteries and energy storage systems.

Fig 21: Indonesia - Foreign Investment Realization Accelerated by +42% in 2Q22, Mainly Driven by Manufacturing (+61%)



Source: CEIC

Fig 22: Malaysia - Approved Manufacturing FDI Soared to Record High of RM180bn in 2021, Mainly in Electronics



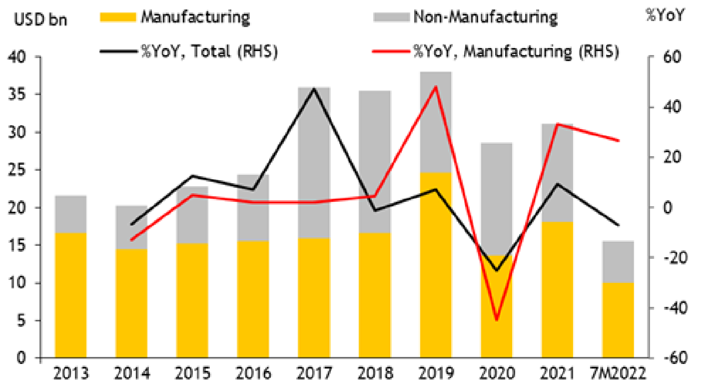
Source: CEIC

Malaysia's manufacturing FDI is gaining momentum following the record high approvals worth RM180bn (US$26bn) in 2021 (see Fig 22). Samsung SDI Energy opened its Phase Two EV battery cell manufacturing facility (RM6bn) in July 2022. Infineon started construction of a new state-of-the-art wafer fab that will be completed by 3Q 2024.

Vietnam's FDI applications in the manufacturing sector continues to rise, surging by +26.6% in the first 7 months of 2022 from the same period a year ago, extending the +33.2% jump in 2021 (see Fig 23). Apple's suppliers Foxconn and Luxshare Precision Industry are in talks to produce Apple Watch and MacBook in Vietnam for the first time, according to a recent Nikkei Asia article[2].

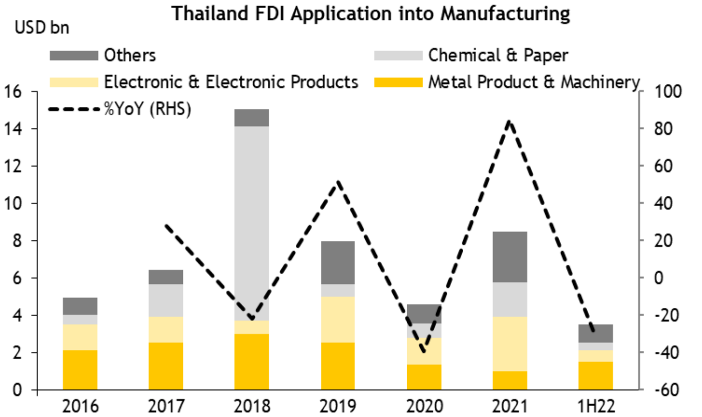
Thailand is seeing less foreign interest, with FDI applications into the manufacturing sector plunging by -31% from a year ago as electronics and chemicals saw steep declines (see Fig 24). However, investment pledges in EVs (+212%) and the digital sector (+202%) are gaining traction with the government's promotion of high-tech sectors and support of EVs[3]. The Board of Investment in August approved investment pledges worth Bt44.5bn (US$1.3bn), including a Bt18bn project from China's BYD to produce EVs.

Fig 23: Vietnam – FDI Application into Manufacturing Remained Firm, Surging by +27% in 7M22 (vs. +33% in 2021)



Source: CEIC

Fig 24: Thailand – FDI Application into Manufacturing Fell by -31% in the First Half of 2022



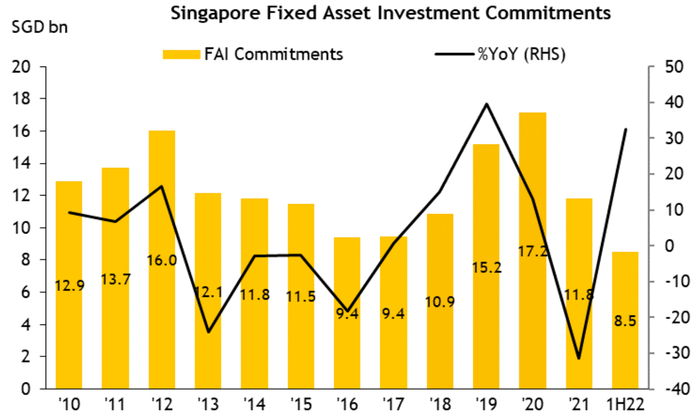
Source: CEIC

The US CHIPS Act, a US$52bn package to boost semiconductor manufacturing in the US and improve competitiveness against China, will help reinforce the supply chain shifts to ASEAN. The bill provides financial incentives to make manufacturing facilities in the US, while specifying that companies accepting federal subsidies will be restricted from making any "significant transaction" to expand their chip-making capacity in China or any other foreign country of concern for 10 years[4].

Singapore continues to see large inflows of fixed asset investment in the electronics cluster. Investment commitments jumped by +33% in 1H 2022, half of which was from the electronics cluster alone (see Fig 25 and Table 4). In Feb 2022, chipmaker United Microelectronics Corporation (UMC) announced plans to build a new a S$6.8bn (US$5bn) wafer fab facility in Singapore to commence in late 2024[5]. In Oct 2021, German chipmaker Siltronic announced a S$3bn investment until end 2024 for a new 300mm wafer manufacturing facility.

[2] Nikkei Asia, "*Vietnam to make Apple Watch and MacBook for first time ever*", 17 Aug 2022.
[3] Bangkok Post, "*Investment pledges slump in H1 as foreign projects wane*", 17 Aug 2022.
[4] Nikkei Asia, "*CHIPS Act leaves chipmakers facing choice between U.S. and China*", 2 Aug 2022.
[5] Business Times, "*Global chipmakers' investments in Singapore*", 22 Jul 2022.

Fig 25: Singapore - Fixed Asset Investment Commitments at S$8.5bn in 1H22, a +33% Rebound from 1H21



Source: EDB, Singstat

Table 4: Singapore - Investment in 2021 Dominated by Electronics, Commitments in Services Jumped in 1H22

	2021	1H22	2021	1H22
	SGD mn	SGD mn	% of total	% of total
Total	**11,796**	**8,513**	**100%**	**100%**
Manufacturing	**8,486**	**5,178**	**72%**	**61%**
Electronics	4,986	4,281	42%	50%
Biomedical Manufacturing	1,769	489	15%	5.7%
Chemicals	980	114	8.3%	1.3%
Transport Engineering	367	-	3.1%	-
General Manufacturing	315	237	2.7%	2.8%
Precision Engineering	69	57	0.6%	0.7%
Services	**3,310**	**3,336**	**28%**	**39%**

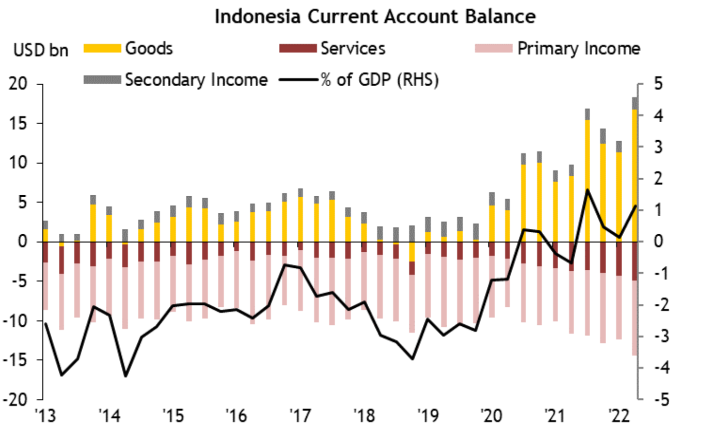
Source: EDB, Maybank IBG Research. Media reports suggest large MNC investments include Micron, Infineon, ST Microelectronics, Exxon Mobil and Neste (biofuels).

[4] Elevated Energy and Food Prices

Energy and food prices may remain elevated and not fall as sharply as in past recessions, because of the Russia-Ukraine war, climate change and green transition. Strong commodity prices have boosted the external balances of net commodity exporters including Indonesia and Malaysia.

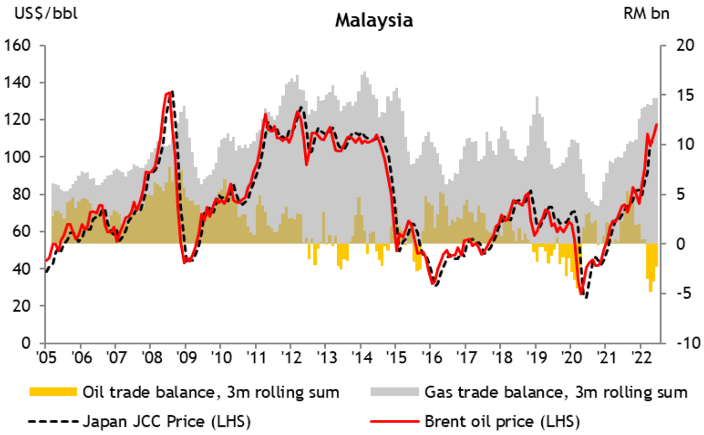
Indonesia's current account balance extended its surplus for the 4th straight quarter to 1.1% of GDP in 2Q22 (bringing 1H22 to 0.7% of GDP), as goods surplus widened to a historical high of US$16.8bn (see Fig 26). Malaysia's gas trade surplus has widened significantly in recent months as natural gas prices soared to decade highs (see Fig 27).

Fig 26: Indonesia - Current Account Stays in Surplus of 0.7% of GDP in 1H22



Source: CEIC

Fig 27: Malaysia - Gas Trade Surplus Widening, But Oil Trade Swung to Deficit

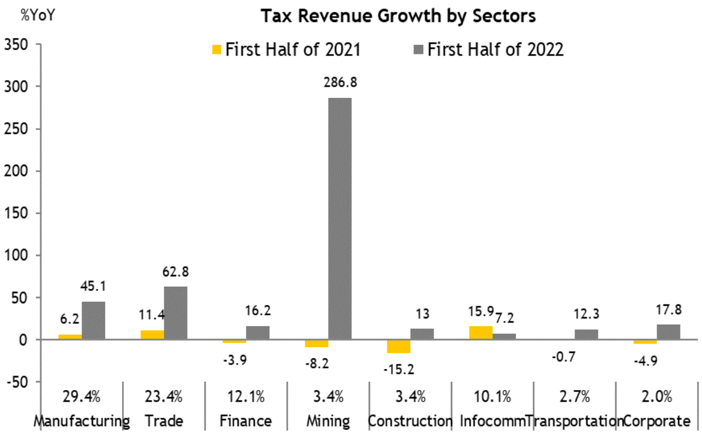


Source: CEIC, Bloomberg

For Indonesia, high commodity prices have also kept the fiscal balance in a surplus (0.57% of GDP in 7M22), thanks to the +49% surge in revenue driven by both the commodity windfall and firming economic activities. In Malaysia, high oil prices will provide a boost to government revenue (see Fig 29) with Petronas expected to contribute as much as RM59bn (US$13.3bn) in 2022 (vs. RM48.2bn in 2021), according to the minister for economy, Mustapa Mohamed[6].

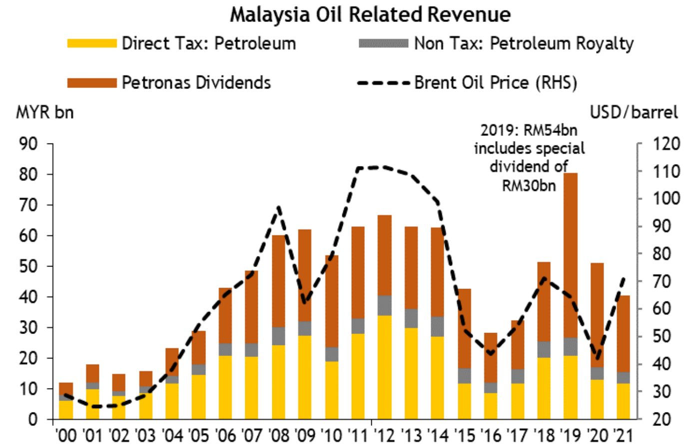
[6] Reuters, "*Petronas payout to Malaysia govt seen higher at 55-59 bln rgt this year*", 22 Jul 2022.

Fig 28: Indonesia - Tax Revenue Mainly Driven by Mining and Trade Sectors



Source: Ministry of Finance

Fig 29: Malaysia - Petronas and Oil-Related Revenue Highly Correlated with Energy Prices



Source: CEIC, Ministry of Finance

High food prices are also benefiting net food exporters in the region, including Myanmar (5.9% of GDP), Thailand (3.8%), Malaysia (2.5%) and Indonesia (2.3%) (see Table 5 & *ASEAN Economics - Soaring Food Prices: More an Opportunity than Crisis in ASEAN*, 17 Jun 2022). Thailand, the 13th largest food exporter globally, is benefiting from rising food demand and prices, with agriculture exports (+14.6%) extending its double-digit surge in July, helping to offset the weakening in industrial exports (+0.1%). Farm income soared by +16.3% in 2Q thanks to high agricultural prices, which has helped to drive the uptick in private consumption.

Table 5: ASEAN Food Exports and Imports, 2021

	Net Exports of Food		Food Exports	Food Imports
	% of GDP	USD mn	USD mn	USD mn
Myanmar	5.9%	4,089	5,122	1,033
Thailand	3.8%	19,395	39,726	20,331
Malaysia	2.5%	9,473	28,399	18,926
Indonesia	2.3%	27,852	47,737	19,885
Vietnam	0.9%	3,296	25,467	22,171
Singapore	-0.7%	-2,857	8,749	11,606
Laos	-1.5%	-285	745	1,030
Philippines	-2.0%	-7,830	4,911	12,741
Cambodia	-2.7%	-700	1,820	2,520

Note: Food exports/imports generally refer to the sum of food & live animals and animal & vegetable oils, and excludes rubber. Data for Cambodia and Laos are 2020 data from the OEC.
Source: CEIC, Observatory of Economic Complexity (OEC), compiled by Maybank IBG Research

[5] Less Aggressive Monetary Tightening & Rate Hike Cycle

Monetary policy tightening in most of ASEAN - except Singapore and the Philippines - has not been as aggressive as other emerging markets. Core inflation - which excludes energy and food prices - has not risen as sharply which has allowed the ASEAN central banks to be more measured in their interest rate hikes. The US Fed and BoE have hiked by +225bps and +150bps year-to-date respectively, and are not done yet with their hiking cycle (see Table 5).

Malaysia's BNM has hiked by +50bps so far, while Thailand's BoT and Indonesia's BI only started hiking by +25bps in their recent August meetings. Vietnam's SBV has yet to start raising policy rates, though it has maintained a conservative credit growth cap for this year.

The only exception is the Philippines' BSP, which has hiked +175bps so far to contain inflation (see *Philippines Economics - Another +50bps rate hike to 3.75%*, 18 Aug 2022). Singapore's short-term interest rates have also risen sharply on the back of higher US interest rates, with the 3-month SIBOR rising to 2.56 (as of 25 Aug) from 0.4% at the trough.

Table 6: ASEAN CPI to Pick Up Significantly in 2H 2022

	2020	2021	1H22	2H22F	2022F	2023F
Indonesia	2.0	1.6	3.0	6.4	4.8	4.0
Malaysia	-1.1	2.5	2.5	4.3	3.4	4.1
Philippines	2.4	3.9	4.4	6.2	5.3	3.9
Singapore	-0.2	2.3	5.2	6.7	6.0	3.8
Thailand	-0.8	1.2	5.6	7.0	6.3	2.2
Vietnam	3.2	1.8	2.4	5.0	3.7	3.6
ASEAN-5 (excl. SG)	**1.3**	**2.1**	**3.6**	**6.1**	**4.8**	**3.7**
ASEAN-6	**1.2**	**2.1**	**3.7**	**6.1**	**4.9**	**3.7**

Source: CEIC, Maybank IBG Research forecasts

Table 7: US Fed-Led Global Monetary Policy Tightening

Major Economies & ASEAN-6	Benchmark Interest Rates, % p.a.					
	2019	2020	2021	Current	2022F	2023F
US	1.50-1.75	0.00-0.25	0.00-0.25	2.25-2.50	3.25-3.50	3.50-3.75
Eurozone	(0.50)	(0.50)	(0.50)	0	0.50	0.75-1.00
Japan	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	0.00
UK	0.75	0.10	0.25	1.75	2.25	2.75
China	3.25	2.95	2.95	2.75	2.75	2.75
Malaysia	3.00	1.75	1.75	2.25	2.50	3.00
Singapore	1.77	0.40	0.44	2.56	3.00	3.20
Indonesia	5.00	3.75	3.50	3.75	4.25	5.00
Thailand	1.25	0.50	0.50	0.75	1.25	1.75
Philippines	4.00	2.00	2.00	3.75	4.00	4.00
Vietnam	6.00	4.00	4.00	4.00	4.25	4.50

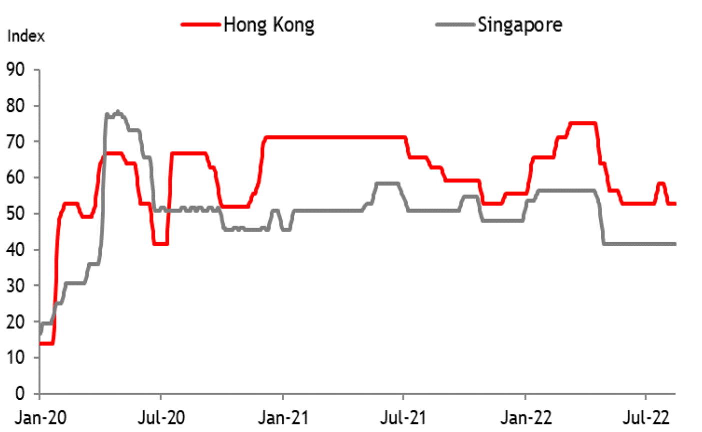
Note: Interest rate for China refers to 1-year MLF rate. Singapore's interest rate refers to 3M SIBOR.

Source: CEIC (for 2019-2021 & Current), US Fed's FOMC (forecast for US), Consensus (forecasts for Eurozone, Japan, UK, China), Maybank IBG Research (forecasts for ASEAN-6

[6] Flows from Hong Kong & China

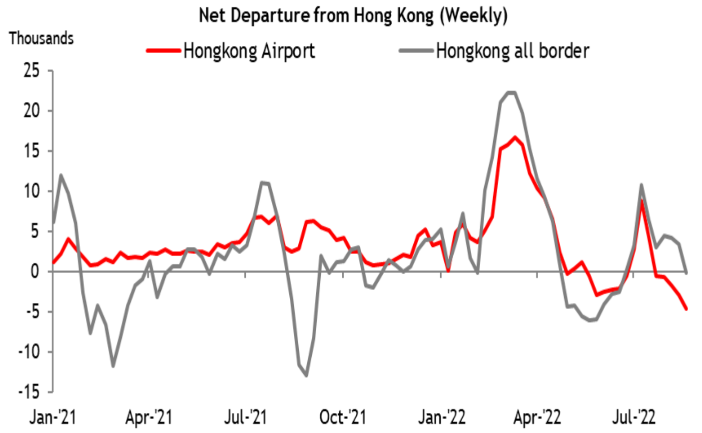
More expats and multinationals are exiting from Hong Kong because of strict Covid restrictions, US-China tensions and the imposition of the national security law in 2020 (see Figures 30 & 31 and *Singapore Economics - A Bottleneck Economy*, 4 Apr 2022). Singapore and, to a lesser extent, Malaysia and Thailand may benefit from the relocation of MNCs, talent and capital.

Fig 30: Hong Kong's Covid-19 Measures Consistently Stricter than Singapore Since July 2020



Note: A higher score indicates a stricter response (i.e. 100 = strictest response).
Source: CEIC, Oxford Covid-19 Government Response Tracker

Fig 31: Net Departures from Hong Kong Gathered Pace in 2022



Note: Last datapoint as of 18 August.
Source: Hong Kong Immigration Department

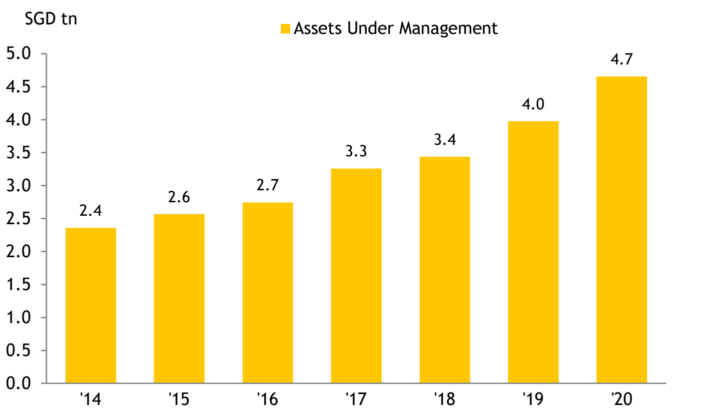
More family offices and wealth management firms are setting up shop in Singapore, with the number of new family offices doubling to 203 in 2020 and 453 in 2021, according to data from Handshakes[7] (see Table 8). In particular, there has been a huge influx of wealth from China in recent years. New family offices from Greater China accounted for about 44% of new total family offices in the first 4 months of 2022, up from 19% in 2018. Singapore's assets under management has climbed to S$4.7tn in 2020, double the amount in 2014 (see Fig 32).

Table 8: Family Offices & Wealth Flows from Greater China to Singapore

Year	Total number of new Fos	New FOs from Greater China	Proportion from Greater China (%)
2018	27	5	19%
2019	110	33	30%
2020	203	76	37%
2021	453	175	39%
4M 2022	**143**	**63**	**44%**

Source: Business Times, Handshakes

Fig 32: Singapore - Assets Under Management Climbed to S$4.7tn in 2020, Nearly Double the $2.4tn in 2014

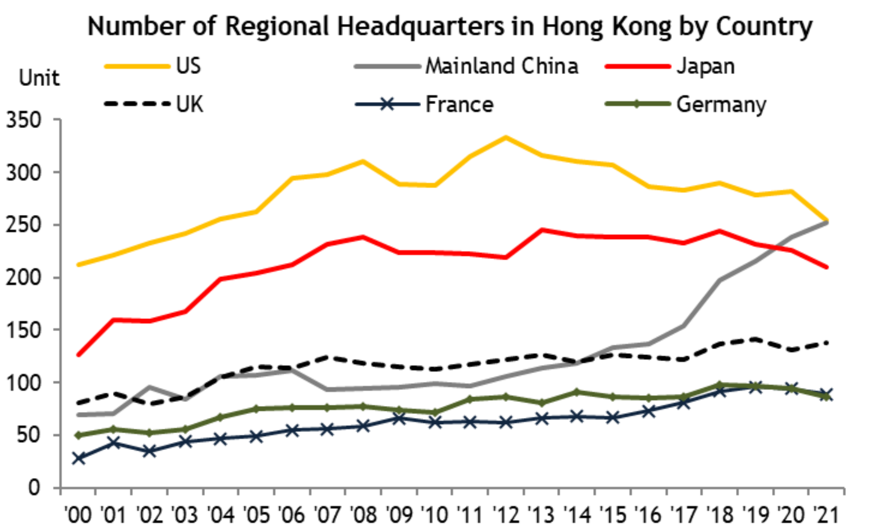


Source: MAS

Non-Chinese multinationals have been leaving Hong Kong for other cities, including Singapore, Sydney, Shanghai or Seoul. As of June 2021, the number of US companies with regional headquarters in Hong Kong fell to a 18-year low of 254 (from 282 in June 2020), according to the Hong Kong Census and Statistics Department (see Fig 33). Number of Japanese companies fell to 210 from 226 in 2020. Chinese firms with regional headquarters in Hong Kong, however, climbed to 252, a significant increase from 137 in 2016.

[7] Business Times, "*China's new rich drawn to Singapore*", 23 May 2022.

Fig 33: US Firms with HK Headquarters Falling, Chinese Firms Gaining Ground

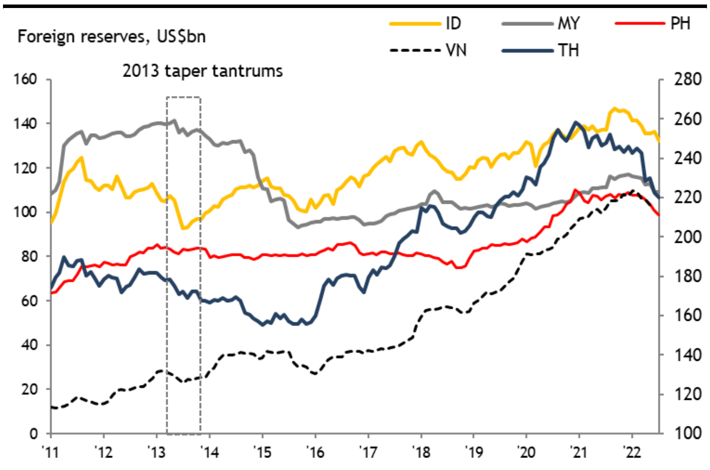


Note: Data is as of 1 June annually.
Source: Hong Kong Census and Statistics Department

Stress and Vulnerabilities

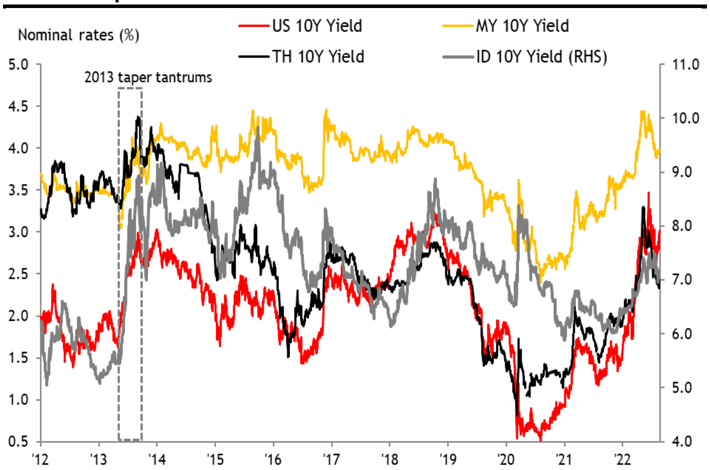
ASEAN central banks have been stepping in to defend their currencies against a strong US dollar and have seen their foreign reserves falling from their highs (see Fig 34). In particular, Thailand's reserves plunged by -10.6% year-to-date to a 3-year low of US$220bn in July, while Philippines (-9.9%), Indonesia (-8.8%), and Malaysia (-6.6%) have also seen declines.

Fig 34: Foreign Reserves Across ASEAN Have Fallen in 2022



Source: CEIC

Fig 35: ASEAN 10Y-Bond Yields Have Climbed in 2022 as US Yield Jumped



Source: Bloomberg

Rising bond yields will be negative for ASEAN countries with high public debt and debt servicing ratios, reducing fiscal space to respond to any impending downturn. Increased borrowings by ASEAN governments to finance the Covid-19 fiscal support packages have raised their public debt and debt servicing ratios. For instance, Indonesia's Budget 2023 draft is factoring in a weak currency (Rp14,750 against the USD) and high 10Y government bond yield (7.85%), which will add to the debt burden (see *Indonesia Economics - Biting the Bullet: Fuel Price Hike*, 24 Aug 2022).

Public debt has climbed the most in the Philippines (61.3% of GDP in 2Q22 from 42.9% in 2019), Thailand (61.1% of GDP in 2Q22 from 41.2% in 2019) and Malaysia (61% in 1Q22 from 52.5% in 2019) (see Table 9 & Fig 36). However, leverage in this region is relatively low compared to other emerging markets or advanced economies.

Table 9: Balance Sheet & Leverage Ratios in ASEAN (Asian Crisis, Global Financial Crisis, Pre-Pandemic & Current)

As % of GDP	Indonesia				Malaysia				Philippines				Thailand				Vietnam			
	2Q97	4Q07	4Q19	Latest	2Q97	4Q07	4Q19	Latest	2Q97	4Q07	4Q19	Latest	2Q97	4Q07	4Q19	Latest	2Q97	4Q07	4Q19	Latest
Public Debt	72.5*	34.1	30.7	**37.8**	31.4	38.0	52.1	**61.0**	52.4	66.9	42.9	**61.3**	40.5^	37.4	41.2	**61.1**	-	-	55	**43.1**
Govt debt - Foreign	26.3**	14.4	11.3	**4.3**	3.1	2.9	1.9	**1.8**	23.3	30.8	14.8	**19.7**	8.8	3.0	0.8	**0.7**	-	-	47.1	**38.4**
External Debt	56.1	32.7	36.1	**31.8**	43.6	28.8	62.3	**65.8**	44.2	36.9	22.2	**27.5**	-	26.4	31.6	**39.7**	81.1	29.8	47.1	**38.4**
Household Debt	-	10.9	16.4	**16.0**	-	63.6	82.7	**89.0**	-	2.0	9.7	**9.6**	-	51.7	79.8	**89.1**	-	-	-	**51**
Domestic Credit	-	39.4	42.9	**39.2**	156	113	137	**143**	-	51.0	69.6	**70.5**	-	104.5	155	**140**	21.2	96.2	142	**140**
Foreign Bank Claims	26.2	15.5	16.3	**14.8**	35.3	56.9	48.3	**46.0**	21	20.7	12.9	**11.4**	42.9	19.5	33.6	**37.5**	-	21.6	25.5	**25.0**
*Corporate Debt	-	14.7	26.0	**24.6**	-	58.2	68.5	**69.5**	-	36.8	45.3	**44.4**	150.1	74.0	74.4	**88.7**	-	-	-	**-**
Current Account	-1.8	3.1	-2.8	**1.1**	-6.5	15.2	1.9	**1.0**	-3.5	5.7	-0.3	**-5.0**	-7.0	9.4	8.0	**-7.0**	-	-16.4	5.2	**-1.7**

**Indonesia public/govt debt as at end 1997. **Indonesia foreign govt debt as at end 1996. ^ Thailand public debt as of 3Q97.*

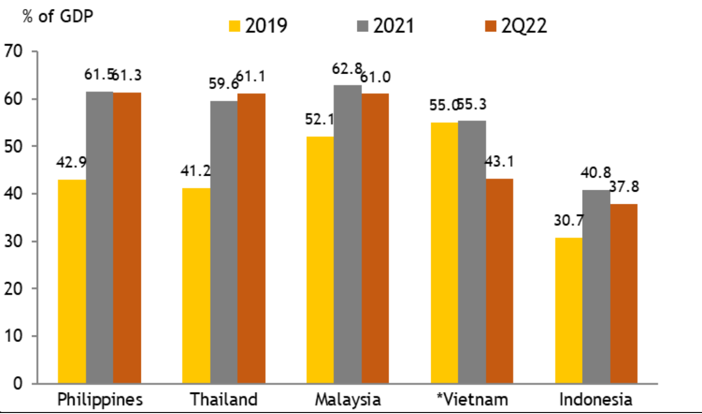
For Vietnam, latest figures computed using newly-reevaluated GDP series that was released in 2021. 2Q97, 4Q07 and 4Q19 computed using old GDP series, as new GDP series only available from 2021.

Note: Malaysia household debt figures as at end of respective year. Indonesia and Philippines household debt estimated using outstanding consumer loans. Thailand household debt includes loans from commercial and state banks, credit card companies, saving corporations and other non-bank institutions. Vietnam, latest figures computed using the new GDP data that released in 2021, other data computed using old GDP series.

Corporate debt (refers to total credit to non-financial corporations, or core debt) as of 4Q21, foreign bank claims as of 1Q22.

Source: BIS, CEIC, World Bank, Maybank IBG estimates

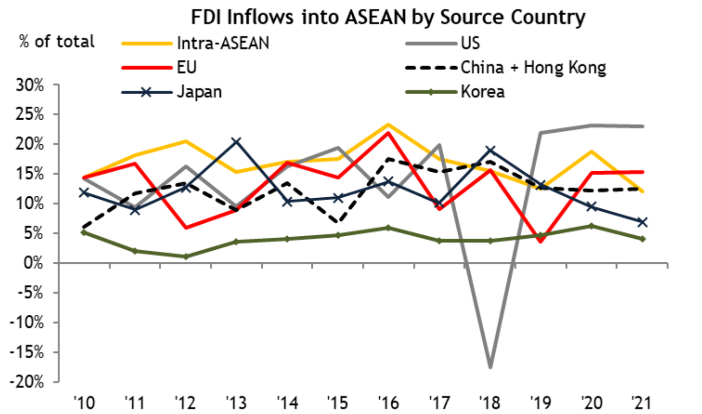
Fig 36: Public Debt Has Ballooned in Philippines, Thailand and Malaysia



**Vietnam data for 2Q22 computed using newly-reevaluated GDP series that was released in 2021.*

Source: CEIC

Fig 37: US FDI Inflows into ASEAN Has Been the Strongest Over the Past Decade



Source: ASEAN Secretariat

The US is also the largest foreign investor in ASEAN, accounting for around 14.5% of total FDI inflows over the past decade (2012 to 2021), surpassing Japan (12.5%) and the EU (12.3%), based on data from the ASEAN Secretariat (see Fig 37). A US recession will dampen FDI flows into the region.

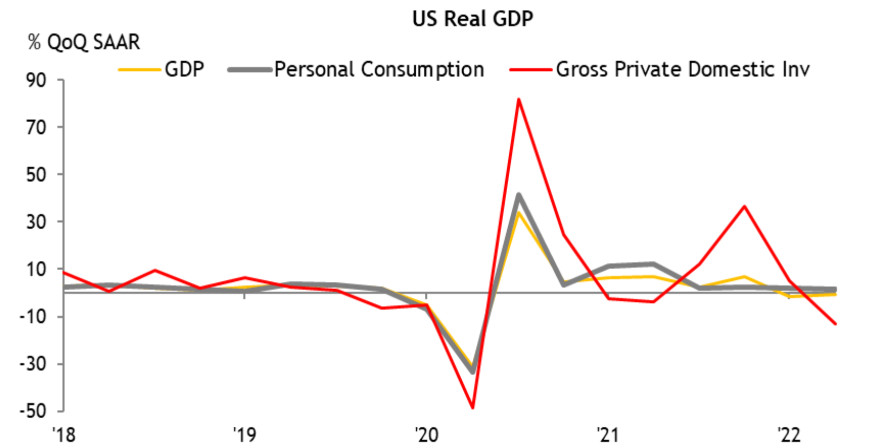
A US Recession Is Increasingly Probable

> ***"(Recession is) certainly a possibility, it's not our intended outcome at all, it's certainly a possibility, and frankly the events of the last few months around the world have made it more difficult to achieve what we want, which is 2% inflation and still a strong labor market."***
>
> Fed Chair Jerome Powell addressing the Senate Banking, Housing, and Urban Affairs Committee, 22 June 2022.

With inflation elevated and the Fed tightening policy aggressively, the US economy will likely enter a recession over the next 12 months. The debate will shift to the depth and duration of a US recession and potential impact on the rest of the world, including ASEAN and Asia.

The US is already in a "technical recession", after real GDP contracted for the second consecutive quarter in 2Q 2022 (-0.6% QoQ SAAR vs. -1.6% in 1Q) (see Fig 38), due to slowing consumption growth and declining business investment.

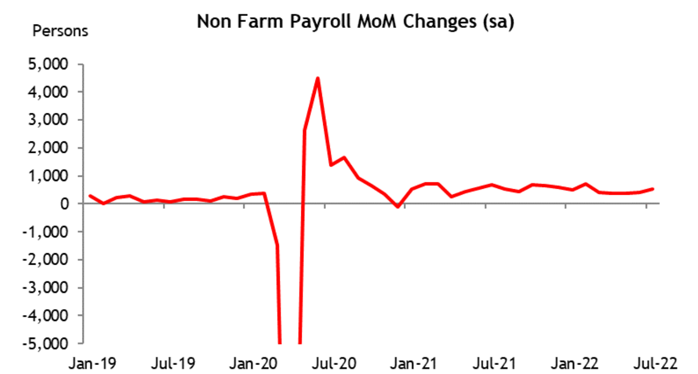
Fig 38: US GDP Contracted for Two Consecutive Quarters in 2Q 2022



Source: Bureau of Economic Analysis

Nonetheless, the National Bureau of Economic Research (NBER) is unlikely to classify 2Q as the beginning of an official recession, due to the strong labor market. Employment and the unemployment rate have recovered to their February 2020 pre-pandemic levels. Non-farm payroll employment rose +528k in July, strengthening from +398k in Jun (see Fig 39). Unemployment rate declined to a historic low of 3.5% from 3.6% in June (see Fig 40).

Fig 39: Non-Farm Payroll Employment Rose +528k in July



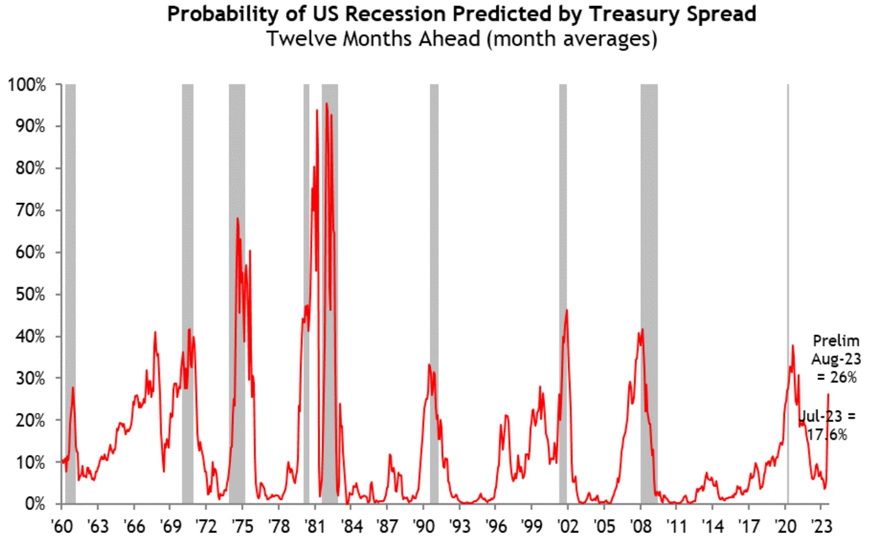
Note: April 2020 off-scale.
Source: U.S. Bureau of Labor Statistics

Fig 40: Unemployment Rate at Historic Low of 3.5% in July

Source: U.S. Bureau of Labor Statistics

Probability of US recession by August 2023 has climbed to 26%, based on the average term spread for August which has fallen to 0.18. In July, the average 10 year-3 month treasury spread ("term spread") shrank to 0.6 from 1.6 in June, due to the fall in 10 year treasury yield on growth fears. This has led the New York Fed's 12-month ahead Recession Probability Index to forecast a 17.6% probability of a US recession in July 2023 (see Fig 41), sharply higher than 5.9% in the preceding month.

Fig 41: New York Fed's Recession Probability Index Predicts 18% Likelihood of US Recession in July 2023, Our Preliminary Estimates Indicate Recession Probability Rose Further to 26% in Aug 2023



Note: We computed the Aug 2023 recession probability based on the average term spread over 1-Aug to 25-Aug. Recession probabilities for the preceding months are computed by NY Fed based on full-month average term spreads.

Shaded bars indicate past US recessions as classified by NBER. Recession Probability Index forecasts probability of US recession using the 10 year-3 month treasury spread as a predictor.

Source: New York Fed, Maybank IBG Research calculations

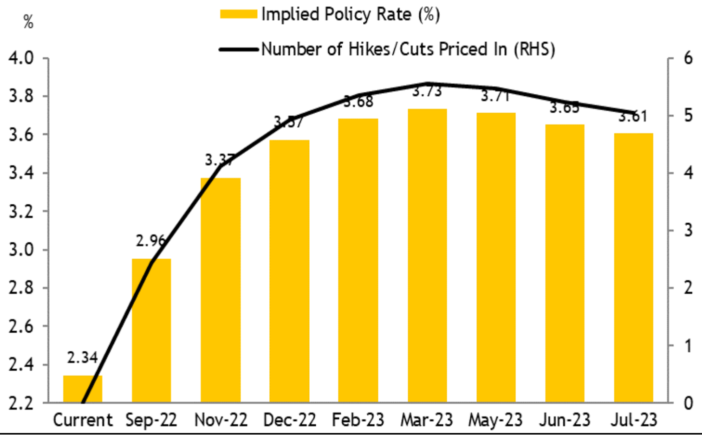
The Fed hopes to achieve a soft landing, slowing growth without causing a recession. However, 5 out the 9 US recessions since 1960 followed shortly after aggressive Fed tightening cycles (see Fig 44).

Our chief economist Suhaimi is looking at the Fed to tighten by another +100bps this year to 3.25%-3.50%, followed by another +25bps hike in 2023 to 3.50%-3.75%, before easing in 2024 to 2.75%-3.00%. The fed funds futures-implied fed funds rate (as of 24 Aug) by Dec 2022 is 3.57%, rising to a peak of 3.73% by Mar 2023, before easing to 3.61% by Jul 2023 (see Fig 42).

The Fed started its balance sheet reduction or Quantitative Tightening (QT 2.0) in April 2022, following the tapering and eventual ending of its Quantitative Easing in Nov 2021 to Mar 2022. The Fed began with monthly balance sheet runoff of US$47.5bn (i.e. $30bn for Treasuries and $17.5bn for mortgage backed securities) until Sep 2022, before doubling the pace to $95bn (i.e. $60nb for Treasuries and $35bn for mortgage-backed securities) afterwards (see *US FOMC Meeting - Pedal to the Metal*, 16 Jun 2022).

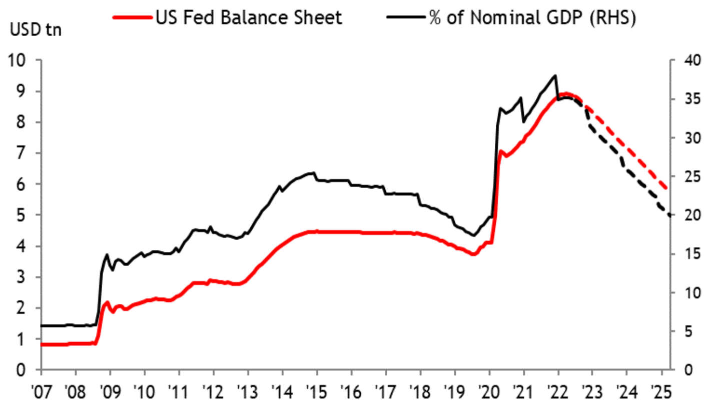
As at end July, Fed's balance sheet was at $8.9tn (35% of GDP) (see Fig 43) and the mechanics of QT2.0 implies $380bn reduction in balance sheet in Aug-Dec 2022 and $1.14tn run off per annum thereafter. Fed Chairman Jerome Powell told US Congress in early Mar 2022 that QT2.0 could take three years. Based on the above monthly quantum of balance sheet run off, this implies a total of $3.2tn reduction, implying Fed's balance sheet size will fall to $5.7tn (20% of GDP) by mid-2025.

Fig 42: Fed Funds Futures (as of 24 Aug) Suggest that Fed Will Start Cutting Rates in 2Q 2023



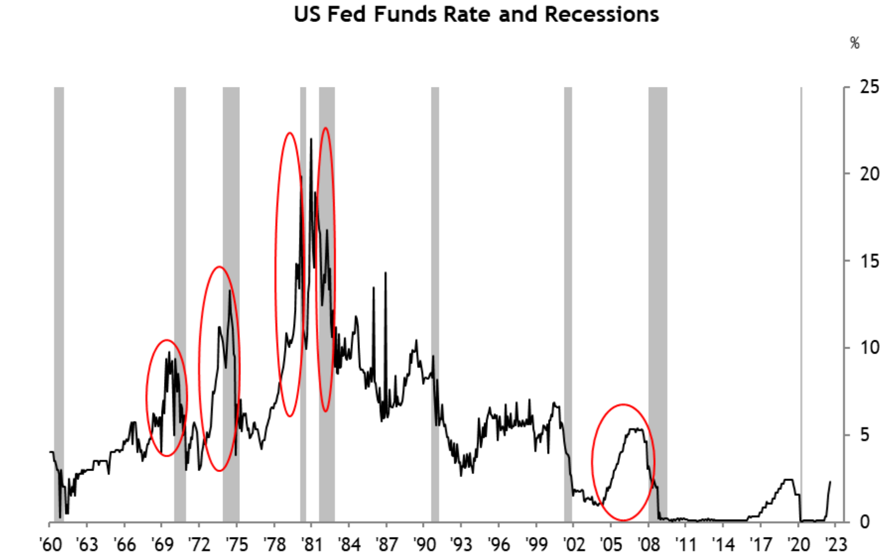
Source: Bloomberg

Fig 43: US Fed's Balance Sheet (USD trillion & % of GDP) -



Source: CEIC

Fig 44: Five Out of Nine US Recessions Since 1960 Followed Shortly After Aggressive Fed Tightening Cycles



Note: Shaded bars indicate past US recessions as classified by NBER. Red circles indicate aggressive Fed tightening cycles.

Source: Federal Reserve, NBER, Maybank IBG Research

During past US recessions, a decline in inflation with the GDP slowdown translated to shedding of jobs and a rise in the unemployment rate. The unemployment-inflation "sacrifice ratio" (i.e. unemployment increase per unit decline in inflation) ranged from 0.5 to 28 for the series of US recessions from 1980 till 2020 (see Table 10).

Excluding the credit-driven recessions (2001 dot-com and GFC) and the pandemic-driven recession of 2020, the average sacrifice ratio was 1.2, implying that the US unemployment rate would need to hit 6.3% for trimmed mean personal consumption expenditure (PCE) inflation to reach the Fed's target of 2% (from 4.3% in June). This would be on par with the peak unemployment rate in June 2003 after the 2001 recession, but only a fraction of the 10% peak in the wake of GFC.

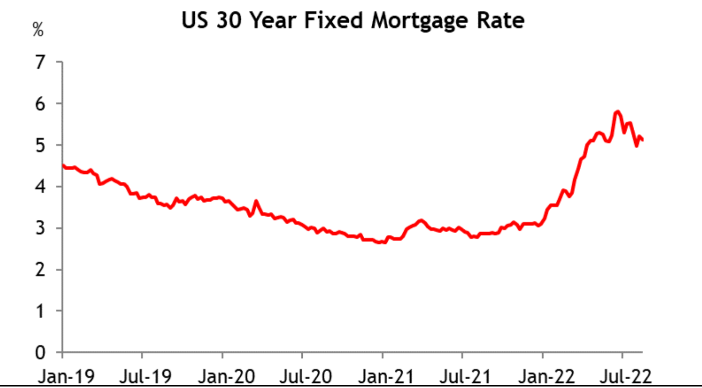
Table 10: US Inflation and Unemployment During Past Recessions

Recession	Inflation at Biz Cycle Peak	Inflation two-years later	Difference	Unemployment Rate at Biz Cycle Peak (%)	Unemployment Rate two-years later (%)	Difference (% point)	Sacrifice Ratio	GDP Decline (Peak to Trough %)
Mar-80	8.6	6.2	-2.4	6.3	9	2.7	1.1	-2.2
Jul-81	8.1	3.8	-4.3	7.2	9.4	2.2	0.5	-2.5
Jul-90	4	2.8	-1.2	5.5	7.7	2.2	1.8	-1.4
Mar-01	2.5	2	-0.5	4.3	5.7	1.4	2.8	-0.4
Dec-07	2.6	1.4	-1.2	5	9.9	4.9	4.1	-3.8
Feb-20*	2.1	1.7	-0.4	3.5	14.7	11.2	28.0	-10.1
2022	4.3^	…	…	3.5^	…	…	…	…

Note: Inflation as measured by trimmed mean PCE inflation. First datapoint for trimmed mean series is 1978.
** Here instead of two years, we put the inflation trough reached in Feb 2021, and the unemployment peak reached in Apr 2020.*
^ We assume that trimmed mean PCE inflation peaked at 4.3 in June 2022 and unemployment rate of 3.5% in July 2022 is the cycle low.
Source: U.S. Bureau of Labor Statistics, Federal Reserve Bank of Dallas, Maybank IBG Research calculations

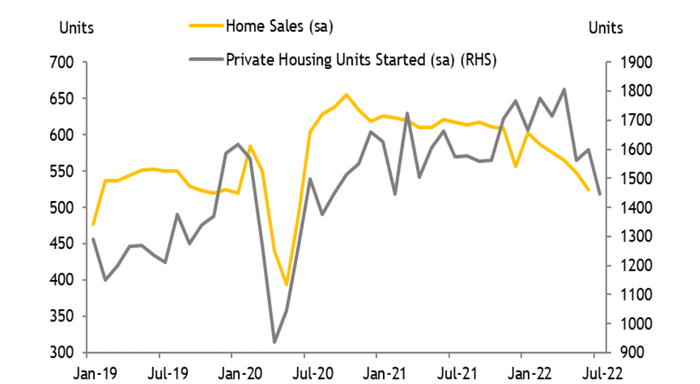
The impact from monetary policy tightening is already being felt in the interest rate-sensitive US housing market. The housing market has slowed as borrowing costs climb, with 30-year fixed mortgage rates climbing to 5.1% as of the week ending 18 Aug from 3.1% at the start of the year (see Fig 45). Home sales contracted -4.3% MoM in June, while new home construction in July as measured by annualized housing starts fell -9.6% MoM (see Fig 46). Median home prices dipped -0.5% MoM in June after 3 months of slowing price appreciation (see Fig 47), and are vulnerable to further declines as home-buying demand softens.

Fig 45: 30-Year Fixed Mortgage Rate Climbed to 5.1% from 3.1% in Early 2022



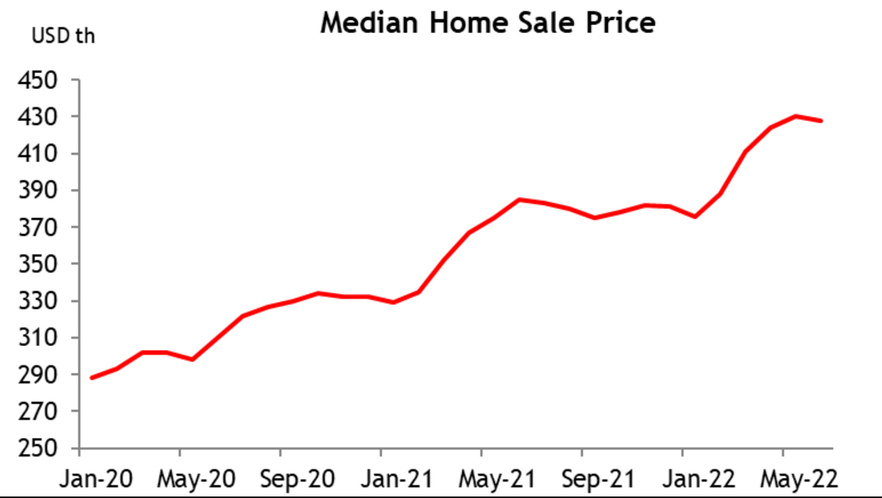
Source: Federal Home Loan Mortgage Corporation

Fig 46: Home Sales and New Home Construction Contracting



Source: Redfin, US Census Bureau

Fig 47: House Prices Have Flattened and Dipped Slightly in June

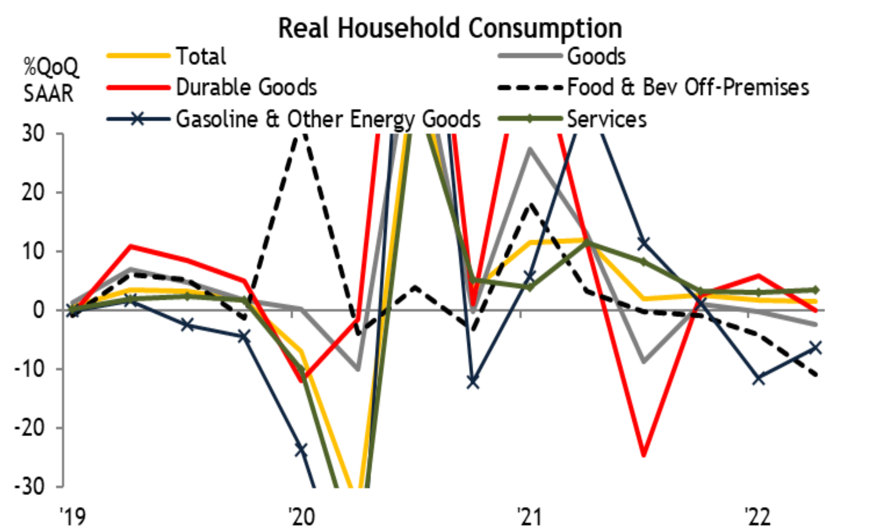


Source: Redfin

But the impact of rising rates has yet to be significantly felt in other segments of the economy, implying that further slowing of domestic demand is in store as policy tightening filters through.

The softening in real household consumption over the second quarter (+1.5% QoQ SAAR vs. +1.8% in 1Q) masked a +4.1% rise in services spending (1Q: +3%) due to pent-up demand for travel and restaurants (see Fig 48). Goods spending contracted -2.4% (1Q: -0.3%), but this was largely driven by food & beverage for consumption at home (-10.8% vs. -4.2% in 1Q) and gasoline & other energy goods (-6.4% vs. -11.5% in 1Q), an indication of belt tightening due to surging food and energy prices, rather than being caused by interest rate hikes. Durable goods consumption fell by a much slower pace of -0.1% (1Q: +5.9%).

Fig 48: Reopening Shifts: Services Consumption Picked Up While Goods Consumption Contracted



Source: Bureau of Economic Analysis

Median year-ahead nominal household spending growth expectations in the New York Fed's Survey of Consumer Expectations fell by -1.5% points to 6.9% in July, substantially below its series high of 9% in May.

Depth and Duration of the Next US Recession

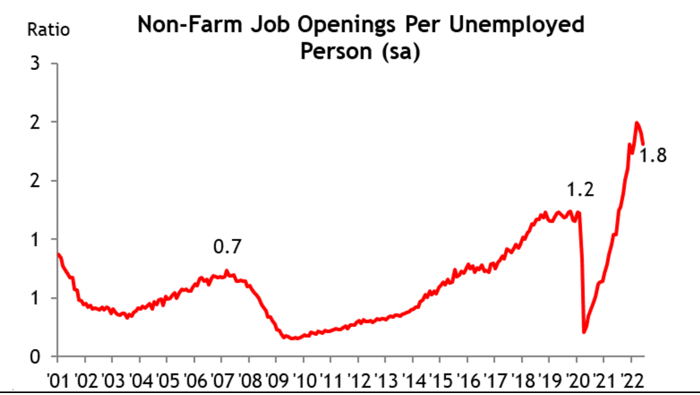
> *"The labor market is now extremely strong… This is not an economy that's in recession. But we're in a period of transition in which growth is slowing and that's necessary and appropriate… Credit quality remains very strong. Household balance sheets are generally in good shape."*
>
> US Treasury Secretary Janet Yellen on NBC's Meet the Press, 24 July 2022.

The impending US recession is likely to be shallow rather than deep, cushioned by a strong labor market and robust household and business balance sheets.

Given the shortage of workers, businesses may have some scope to moderate labor demand by reducing job openings while retaining most of their existing workers, mitigating the rise in unemployment. In June, there were 1.8 non-farm job openings per unemployed person, compared to 0.7 in June 2007 before the GFC hit, and 1.2 in Feb 2020 before the onset of the COVID-19 recession (see Fig 49).

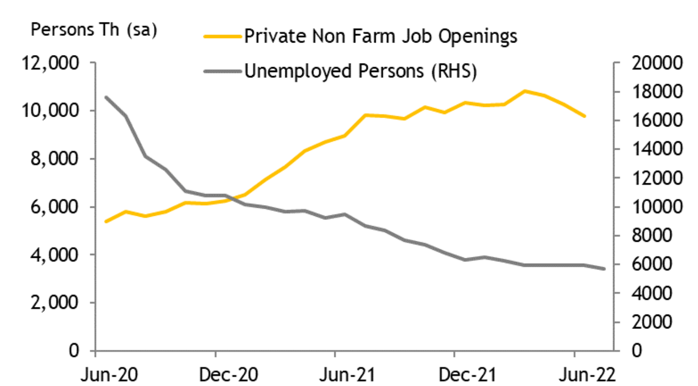
This has already been happening as growth began to slow over the past few months. The job openings per unemployed ratio has fallen every month by a cumulative -0.2 points from its peak of 2.0 in March. As of June, private job openings have fallen -9.7% from their record high in March, to hit the lowest since September 2021 (see Fig 50). At the same time, unemployment has continued to fall from 5.95 mil to 5.67 mil persons (-4.7%).

Fig 49: Job Openings Per Unemployed Are Higher Than Before Past Recessions



Source: U.S. Bureau of Labor Statistics

Fig 50: Job Openings Falling Alongside Unemployment Since March 2022



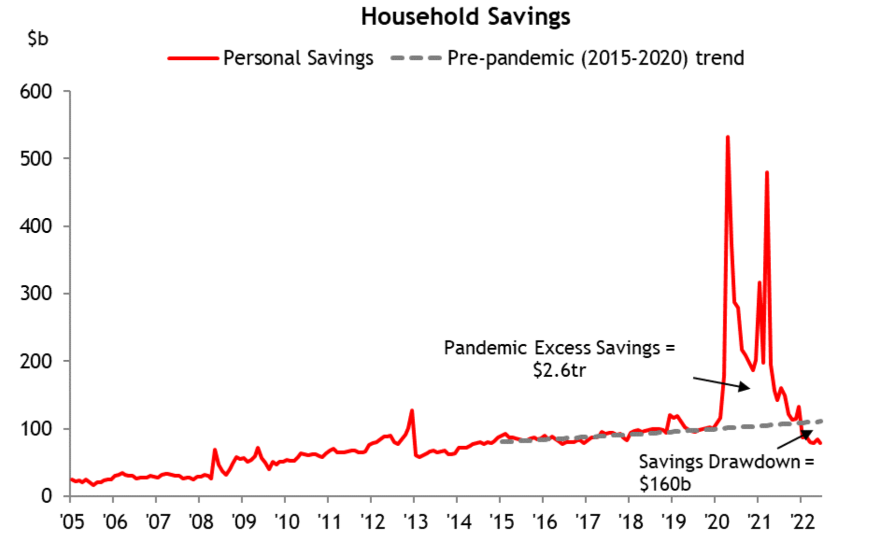
Source: U.S. Bureau of Labor Statistics

Sectors that hired aggressively during the pandemic have already begun to shed workers or impose hiring freezes. Tech companies like Amazon and Shopify have announced job cuts as the boom from businesses' digitalization efforts during the pandemic fades, while investment banks have reduced headcount as stock markets flounder and IPOs dry up. Mortgage staffers have been trimmed as refinancing volumes collapse with rising rates. Some retailers, such as Best Buy and Walmart are cutting jobs as consumers skip over big-ticket goods and work-from-home equipment purchases.

On the flipside, consumer services industries, which instituted mass layoffs during the pandemic, are eager to ramp up headcount as they face a shortage of workers. Airlines, restaurants and hospitality companies are unable to find workers fast enough to meet demand, partly because former employees have switched to other industries with less demanding work environments or retired early, and do not want to return.

Household balance sheets are in good shape to weather a recession. US households accumulated substantial savings over the pandemic as they were unable to spend on dining out, travel and other services, while benefiting from government handouts during the three substantial rounds of fiscal stimulus. By constructing a counterfactual savings level using the 2015-19 pre-pandemic trend, we estimated that households amassed $2.6tn of excess savings (11.5% of 2021 GDP) over Mar 2020 to Dec 2021 (see Fig 51).

Fig 51: Households Amassed Estimated $2.6trn of Excess Savings During Pandemic and Have Drawn Down $160bn So Far



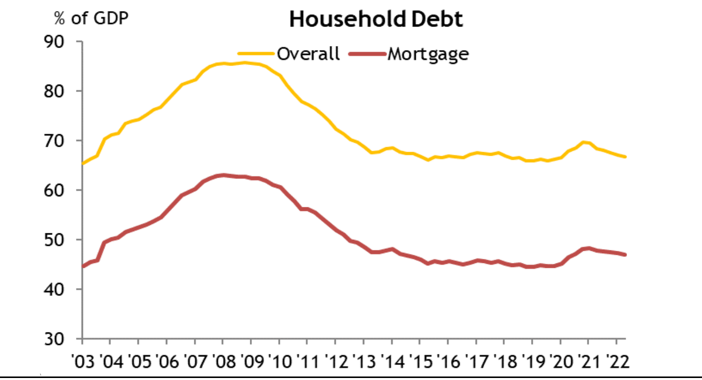
Source: Federal Reserve Bank of St. Louis, Maybank IBG Research calculations

Over the first half of this year, households have dipped into around $160bn (6%) of their savings pool to finance higher consumption in the face of higher inflation and pent-up demand (see Fig 52**). The remaining stock of excess savings remains substantial at $2.5tn, which could provide a buffer to foot rising living costs from elevated inflation and rising borrowing costs as the Fed hikes interest rates.**

Consumers' borrowing costs look manageable. Household debt is around 67% of GDP as of 2Q 2022, significantly lower than 85% in 3Q 2007, shortly before the GFC (see Fig 53). The household debt servicing ratio, which measures debt payments during a given quarter as a proportion of quarterly disposable income, is close to a historic low at 9.5% in 1Q 2022, compared to 13% in 3Q 2007 (see Fig 14). The debt servicing ratio fell to a record low of 8.4% in 1Q 2021 as many households refinanced to cheaper fixed rate mortgages with borrowing costs at a record low over 2020-21.

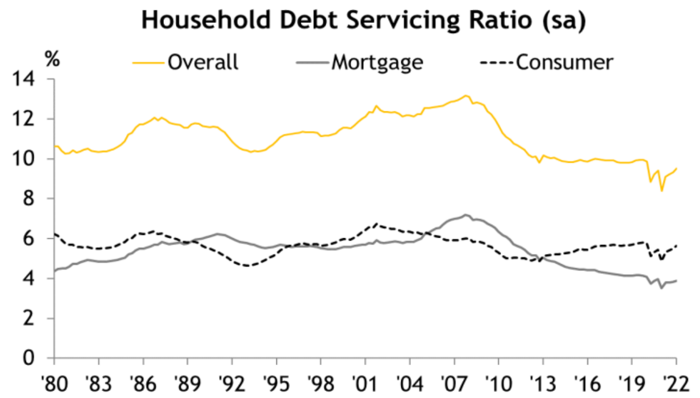
Savings buffers and low leverage will not stop households from cutting back on spending in a recession amid heightened uncertainty and weak sentiment. But these buffers may cushion the consumption loss and allow the economy to avoid a deep and lasting recession, unlike after the GFC, when GDP took 3 years (peak-to-peak) to recover to its pre-crisis peak, partly because households were forced to reduce consumption to pay down debt and repair balance sheets.

Fig 52: Household Debt Significantly Lower than 2007



Note: Quarterly data till 2Q 2022.
Source: Federal Reserve Bank of New York

Fig 53: Household Debt Servicing Ratio Close to Historic Low at 9.5% Compared to 13% in 3Q 2007



Note: Quarterly data till 1Q 2022.
Source: Federal Reserve Board

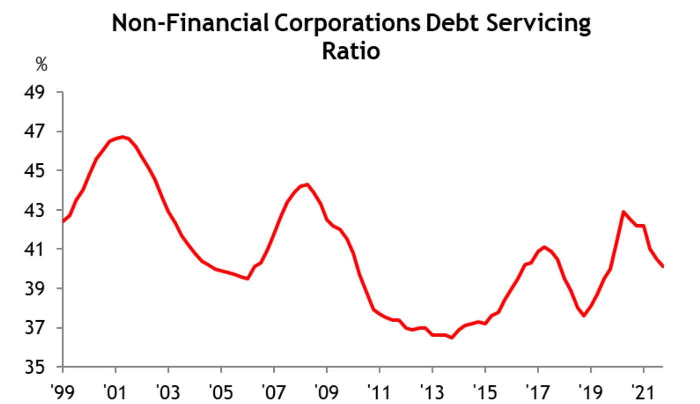
Corporate balance sheets are generally in a decent shape. Corporate indebtedness has risen over the past decade as companies took advantage of low borrowing costs amid the accommodative monetary policy environment post-GFC. Non-financial corporate debt stands at 78% of GDP in 1Q 2022 (vs. 68% of GDP in 3Q 2007) (see Fig 54). But reassuringly, debt has declined significantly from its 2Q 2020 peak of 91% of GDP. In 2021, companies reduced debt maturing this year by about 27% (-$250b) by refinancing at lower rates and longer durations, making them less sensitive to rising interest rates[8].

Despite higher debt, US corporates are in a better position to cover their debt obligations. The debt servicing ratio of non-financial corporations was at 40.1% as of 4Q 2021, lower than 43.4% in 3Q 2007 (see Fig 55). After the pandemic cash buildup, companies have significantly more cash on hand as compared to a decade ago ($1.26tn in 1Q 2022 vs. $591 bn in 4Q 2009), providing ample liquidity to buffer against lower earnings and higher borrowing costs (see Fig 56).

Fig 54: Corporate Debt Higher than 2007

Note: Quarterly data till 1Q 2022.
Source: Federal Reserve Board

Fig 55: Non-Financial Corporations' Debt Servicing Ratio Lower Than 2007



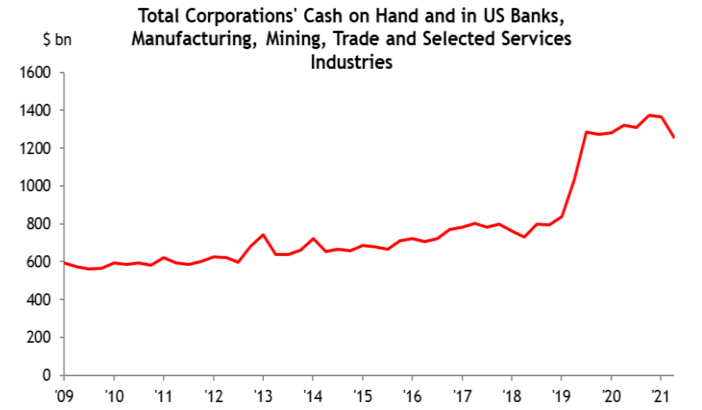
Note: Quarterly data till 4Q 2021.
Source: Bank for International Settlements

With the easy credit environment, BBB-rated corporate bonds, the lowest investment grade represent a record 58% of the total investment grade bond market, compared to just 40% in 2007[9]. BBB– debt represent 16% of the market. Some market watchers believe that mass downgrades to junk status when a recession hits could exacerbate the impact on the bond market. However, not

[8] The Economist, "What America's next recession will look like", 1 Jun 2022.
[9] Fitch Ratings, "Investment grade issuance continues despite rising interest rates", 25 May 2022.

many companies are at risk of downgrades, which reduces the near-term risk to the bond market. Taking the example of Fitch Rating's 114 publicly-rated BBB– issuances, only seven have a Negative Rating Outlook or are on Rating Watch Negative as of May 2022.

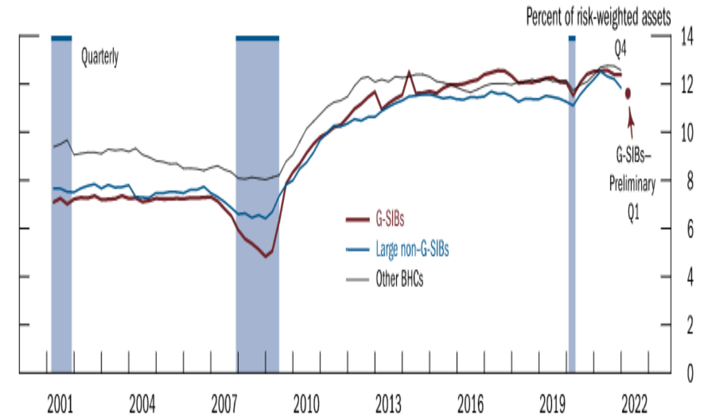
Fig 56: US Companies Have Significantly More Cash on Hand Than in A Decade Earlier



Note: Quarterly data till 1Q 2022. Refers to corporations in manufacturing, mining, wholesale trade, retail trade, information and all professional and technical services except legal services.

Source: U.S. Census Bureau's Quarterly Financial Report: U.S. Corporations

Fig 57: US Banks Are Much Better Capitalized Than 2007



Note: Seasonally adjusted by Federal Reserve Board staff. G-SIBs are global systemically important U.S. banks. Large non-G-SIBs are BHCs and IHCs with greater than $100bn in total assets that are not G-SIBs.

Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies

The financial system has become more resilient to stresses that would accompany a recession, owing to more stringent regulatory standards imposed in the wake of the GFC. US banks are well-capitalized, with holding core loss-absorbing equity worth around 12% of total risk-weighted assets as of 4Q 2021, a much higher margin of safety compared to around 8% in 2007 (see Fig 57). Recently-concluded Fed stress tests suggested that participating banks are capable of absorbing losses from a severe recession while maintaining capital ratios above regulatory minimums[10].

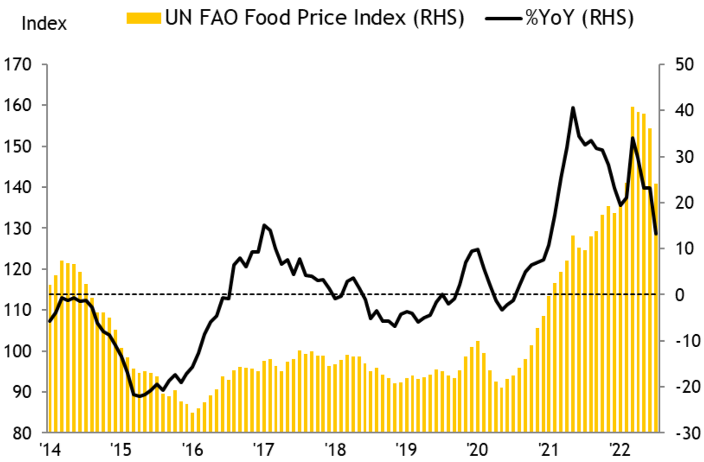
[10] Referenced from Minutes of Federal Open Market Committee's July 26-27 meeting, released 17 Aug 2022.

Inflation May Be Slow to Moderate

> ***"The world is not likely to return anytime soon to the low inflation levels and interest rates that we have enjoyed in recent decades"***
>
> Excerpt from Singapore Prime Minister Lee Hsien Loong's National Day Message 2022, 8 Aug 2022.

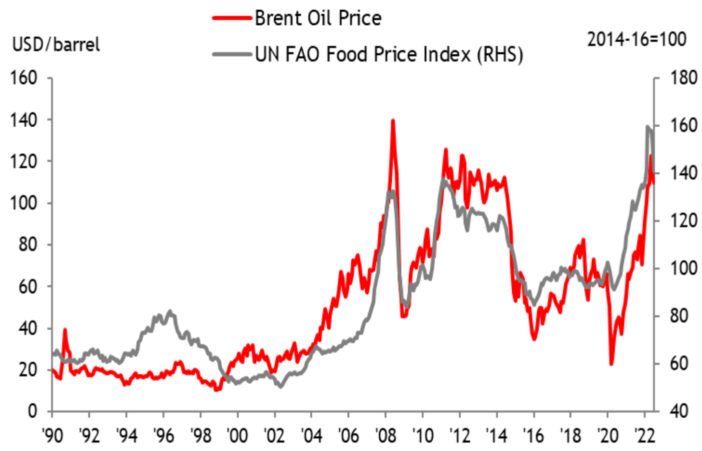
Inflation may have peaked or are close to peaking, with cooling energy and food prices. WTI crude oil futures prices have moderated on global growth concerns since peaking in June. The UN FAO Food Price Index fell to a 6-month low in July after peaking in March (see Fig 58). Slowing global growth and stabilizing energy prices will help keep food prices in check, given the tight correlation between energy and food prices (+0.88 between Jan 1990 and May 2022) (see Fig 59 and *ASEAN Economics - Soaring Food Prices: More an Opportunity than Crisis in ASEAN*, 17 Jun 2022).

Fig 58: UN Food Price Index Fell to a 6-Month Low in July



Source: UN Food & Agriculture Organization

Fig 59: Tight Correlation Between Energy and Food Prices



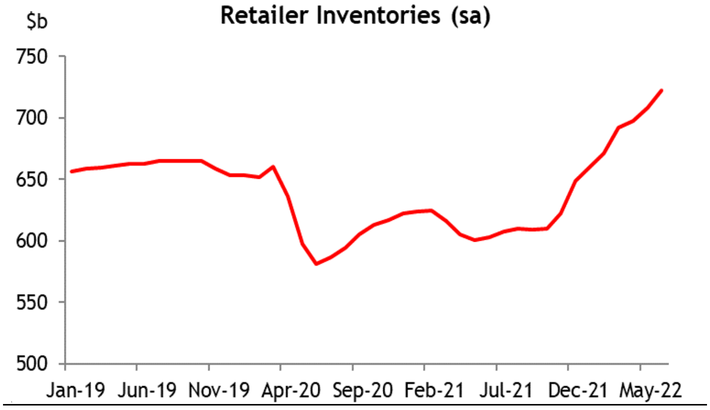
Source: Bloomberg

Retailer markdowns to clear excess inventory may be another source of disinflation. Retailer inventories have risen steadily since Oct 2021 as sales slow and supply chain delays ease, to a record high of $723b (+18.4% from Oct 2021) in June 2022 (see Fig 60). Walmart, Target and Gap have announced plans for more markdowns[11].

Consumers' long-term inflation expectations remain stable, reducing the risk of a persistent upward spiral that will be more difficult for the Fed to tackle. According to the University of Michigan's Consumer Sentiment Index, median expected inflation over the next 5 years stands at 3% per annum as of Aug 2022, within the 2.9-3.1% range seen over the past twelve months (see Fig 61). Though inflation expectations are higher than pre-pandemic levels of around 2.5%, they are nowhere near the beginning of the Volcker era. Inflation 5-year ahead expectations climbed from 7.2% in early 1979 to a peak of 9.7% a year later, as trimmed-mean PCE inflation rose from 7.2% to 8.4%.

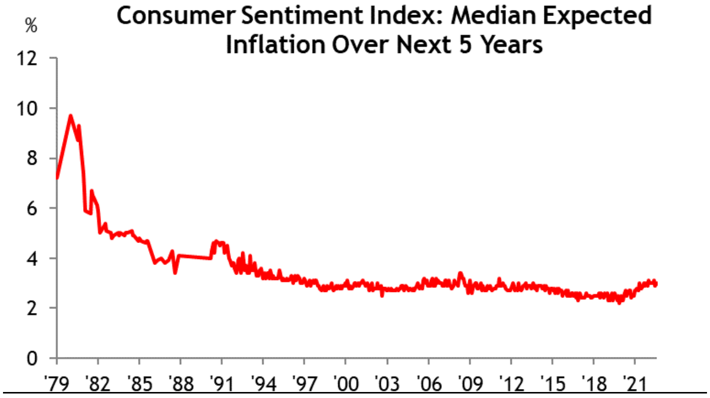
[11] CNBC, "People are paying more for clothes even as retailers like Walmart and Gap mark down prices to cut inventory", 13 July 2022.

Fig 60: Retailer Inventories Building Up



Source: Federal Reserve Bank of St. Louis

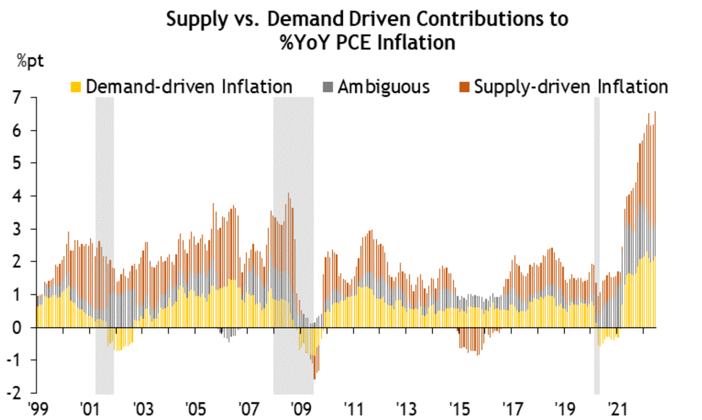
Fig 61: 5-Year Ahead Inflation Expectations Have Risen But Remain Nowhere Near Beginning of Volcker Era



Note: Survey question was "By about what percent per year do you expect prices to go up or down, on the average, during the next 5 to 10 years?"
Source: University of Michigan

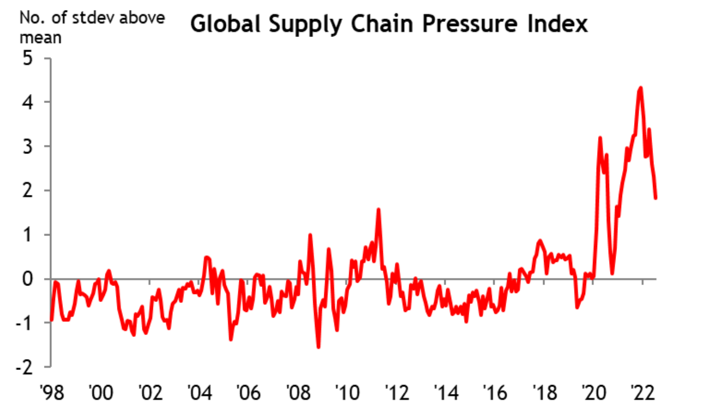
But inflation may be slow to moderate to the Fed's target. By separating the PCE price index into supply- and demand-driven categories, a June 2022 San Francisco Fed study[12] found that supply factors are responsible for about half of the difference between June 2022 12-month headline PCE inflation and pre-pandemic inflation levels (see Fig 62). **Demand drivers account for only around one-third of the run-up in inflation, with the remainder resulting from ambiguous factors that can neither be labeled as demand nor supply.**

Fig 62: US - Supply Factors Explain About Half of the Run-Up in Current Inflation Levels



Note: Grey shaded areas indicate NBER recession dates.
Source: Federal Reserve Bank of San Francisco

Fig 63: Global Supply Chain Pressures Have Eased But Not Fully Dissipated



Source: New York Fed

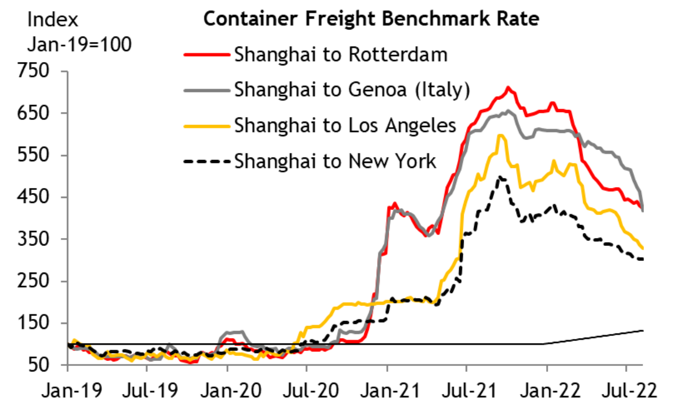
These findings imply that inflationary pressures will not subside entirely with Fed tightening, because monetary policy can only influence demand. **The path of inflation will be dependent on how quickly global supply chain disruptions and labor shortages can be resolved.**

Supply chain pressures are easing as goods demand moderates and logistics facilities catch up, but remain elevated relative to pre-disruption levels. The New York Fed's Global Supply Chain Pressure Index (GSCPI) indicated that supply chain stresses continued to decline in July for the third consecutive month, down -57% from its Dec 2021 peak (see Fig 63). However, the index remains higher than early last year and much higher than pre-pandemic levels, at 1.8 standard deviations above the average value. Average shipping container freight rates from Shanghai to US have declined -42% from their Sep 2021 peaks (see Fig 64), but remain +75% above end-2020 levels.

[12] Shapiro, Adam Hale, "*How Much Do Supply and Demand Drive Inflation?*", Federal Reserve Bank of San Francisco (21 Jun 2022).

The Empire State Manufacturing Survey of manufacturers in New York State revealed that delivery times held steady in August for the first time after worsening every month for nearly two years (see Fig 65). About 19.1% of firms reported shorter delivery times compared to the previous month against 18.2% of firms reporting lengthier delivery times. It's important to note though that this does not mean that delivery times have returned to pre-pandemic levels, remaining elevated compared to before.

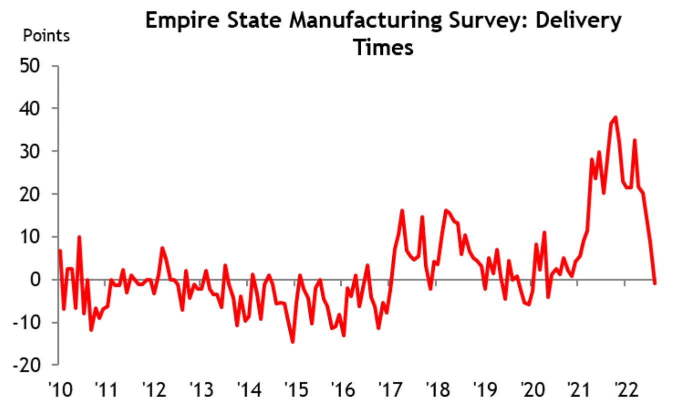
Fig 64: Container Freight Rates Have Declined But Remain Elevated Compared to End-2020



Note: Latest data as of 11 Aug 2022

Source: Bloomberg

Fig 65: Empire State Delivery Times Held Steady in August After Two Years of Worsening



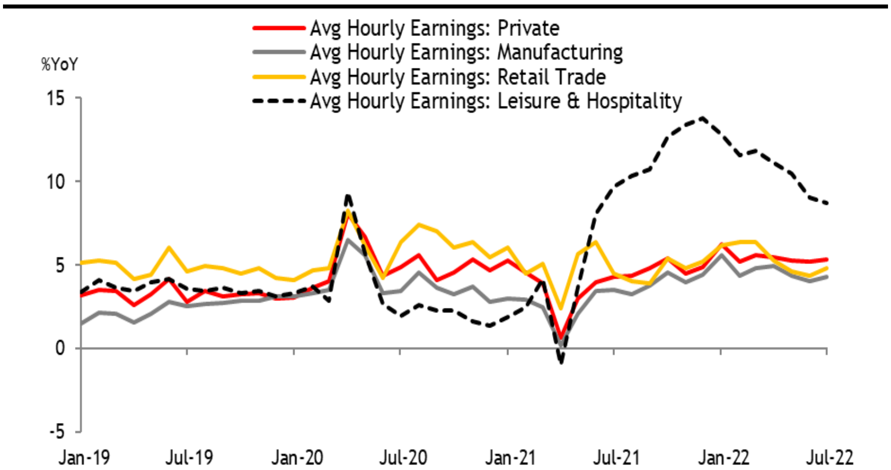
Note: Computed by subtracting % of firms reporting lengthier delivery times from % of firms reporting shorter delivery times

Source: New York Fed

There remain a number of factors that may hold back a complete normalization of supply chains, such as the Russia-Ukraine War, factory disruptions induced by renewed COVID-19 outbreaks in China, a flare-up of US-China geopolitical tensions and year-end holiday shipping pressures.

Accelerating wage growth since mid-2021 has contributed to services inflation. Growth in private average hourly earnings shows little sign of cooling, having risen between 5% – 5.5% YoY each month since its series high of +6.2% in January 2022 (see Fig 66).

Fig 66: Overall Wage Growth Shows Little Sign of Cooling



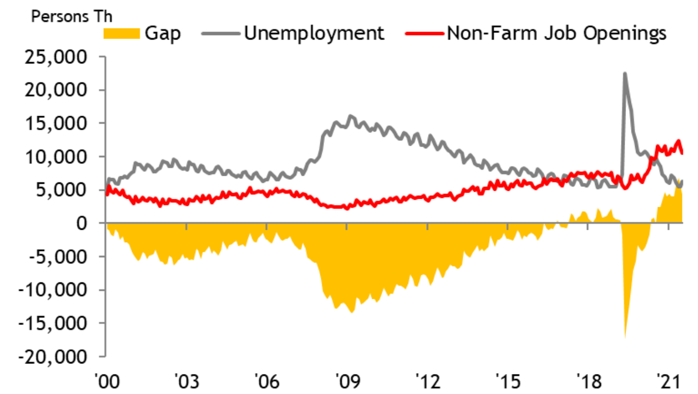
Source: U.S. Bureau of Labor Statistics

The tight labor market has put upward pressure on wages. With widespread temporary business closures at the height of the pandemic, more than 30 million US workers lost their jobs. As businesses ramped up hiring with reopening, the number of job openings rose sharply from the start of 2021, surpassing the number of unemployed workers in June last year. As of June this year, there are 10.6 million job openings, but only 6.3 million unemployed persons, **implying that**

businesses face a shortage of around 4.3 million workers, only slightly below the record high shortage of 6.9 million workers in April 2022 (see Fig 67).

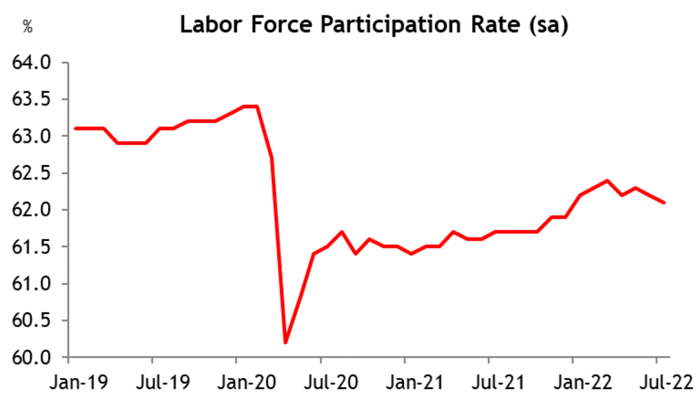
Departures of unemployed workers from the labor force during the pandemic has contributed to the labor crunch. The labor force participation rate (LFPR) plunged to 60% in April 2020, a level last seen in 1973, from 63.3% just two months earlier (see Fig 68). LFPR has been on a rising trend since the beginning of 2021 as the job market improved, but remains below pre-pandemic levels, at 62.6% in July 2022. **By our estimates, there would be 1.9 million more workers in July if LFPR was the same as in February 2020.**

Fig 67: Businesses Face Shortage of 4.3 mil Workers as of June



Note: Job openings data till June. Unemployment data till July. Gap = Job openings minus unemployment.
Source: Federal Reserve Bank of St. Louis, Maybank IBG Research calculations

Fig 68: Labor Force Participation Rate Remains Below Pre-Pandemic Levels



Source: U.S. Bureau of Labor Statistics

Workers left the labor force due to a variety of factors such as enhanced unemployment benefits, stimulus checks, lack of access to reliable childcare due to pandemic closures, early retirements or to open their own businesses[13].

A balanced labor market will be required for wage growth to significantly cool. However, it will not be easy to balance demand and supply, given the high degree of tightness. Even if LFPR was equivalent to February 2020, businesses would need to reduce their demand for workers by 2.4 mil (4.3 mil – 1.9 mil), or 1.5% of the labor force to balance the job market.

The gap between the Congressional Budget Office's estimate of the "natural" (non-cyclical) rate of unemployment (NAIRU)[14] and the actual unemployment rate is the most commonly used measure of US labor market slack. Plotting this gap against nominal wage growth since 2007, we observe that periods of slack are associated with declining or constant wage growth (with a lag), while periods of tightness (2017 – 2019 and 2021 – present) imply accelerating wage growth[15](see Fig 69).

The chart implies that the unemployment rate will need to rise +0.9% point from the current level to hit the current NAIRU estimate of 4.4%, in order for job market tightness to dissipate fully. The average elasticity of change in wage growth per unit change in slack is 0.3, suggesting that roughly 5.5% point increase in labor market slack is needed for wage growth to reach its 1Q 2020 level of 3.6% (from 5.3% currently). Mathematically[16], this would require the unemployment rate to

[13] US Chamber, "Understanding America's Labor Shortage", 5 Aug 2022.

[14] NAIRU is an estimate of conditions that would prevail in the labor market if the effects of the business cycle were removed.

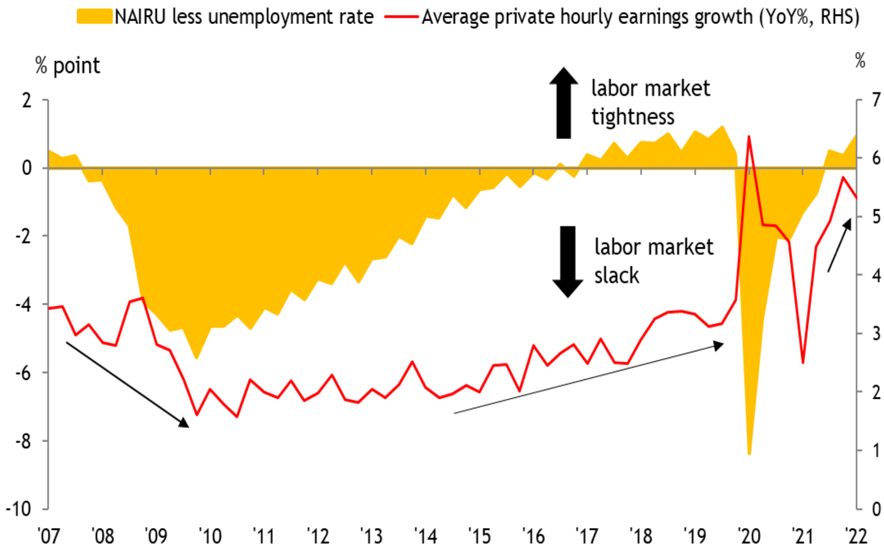
[15] In 2Q2020, nominal wage growth rose alongside increasing labor market slack, because millions of relatively low paid workers lost their jobs, while relatively high salaried workers remained employed.

[16] This solution is obtained by simply multiplying the average elasticity of 0.3 by the

hit 9% (i.e. today's rate of 3.5% + 5.5%), illustrating the high degree to which demand would need to cool, in order to bring down wage inflation.

This exercise serves to illustrate that elevated wage growth may be hard to tame to pre-pandemic levels. A rise in the unemployment rate to 9% is not our base case. Our base case as mentioned above is a moderate rise in unemployment accompanied by a shallow recession.

Fig 69: Periods of Slack Associated With Declining or Constant Wage Growth, While Periods of Tightness Imply Accelerating Wage Growth



Note: Quarterly data till 2Q 2022.

Source: U.S. Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, Maybank IBG Research calculations

All in, supply chain stresses and wage pressures may be slow to dissipate, meaning that inflation may stay well above the Fed's 2% target for an extended period even as the economy slows, raising the risk of stagflation.

Elevated inflation will make for a slower recovery from recession, by constraining policy responses. The Fed may not have appetite to ease policy much, for fear of worsening inflation. Fiscal policy may not be able to do the heavy lifting for the same reason, given that multiple rounds of stimulus over the past two years is perceived to have exacerbated inflationary pressures. In addition, political gridlock may be a constraining factor if Republicans win Congress in the November midterm elections.

difference between current wage growth and 1Q 2020 wage growth to get the required increase in unemployment, and does not consider other technicalities which would be difficult to quantify, like the dampening effect of this year's high base on next year's growth.

Research Offices

ECONOMICS

Suhaimi ILIAS
Chief Economist
Malaysia | Philippines | Global
(603) 2297 8682
suhaimi_ilias@maybank-ib.com

CHUA Hak Bin
Regional Thematic Macroeconomist
(65) 6231 5830
chuahb@maybank.com

LEE Ju Ye
Singapore | Thailand | Indonesia
(65) 6231 5844
leejuye@maybank.com

Dr Zamros DZULKAFLI
(603) 2082 6818
zamros.d@maybank-ib.com

Fatin Nabila MOHD ZAINI
(603) 2297 8685
fatinnabila.mohdzaini@maybank-ib.com

Brian LEE Shun Rong
(65) 6231 5846
brian.lee1@maybank.com

Luong Thu Huong
(65) 6231 8467
hana.thuhuong @maybank.com

FX

Saktiandi SUPAAT
Head of FX Research
(65) 6320 1379
saktiandi@maybank.com.sg

TAN Yanxi
(65) 6320 1378
tanyx@maybank.com.sg

Fiona LIM
(65) 6320 1374
fionalim@maybank.com.sg

STRATEGY

Anand PATHMAKANTHAN
ASEAN
(603) 2297 8783
anand.pathmakanthan@maybank-ib.com

FIXED INCOME

Winson PHOON, FCA
(65) 6340 1079
winsonphoon@maybank.com

SE THO Mun Yi, CFA
(603) 2074 7606
munyi.st@maybank-ib.com

REGIONAL EQUITIES

Anand PATHMAKANTHAN
Head of Regional Equity Research
(603) 2297 8783
anand.pathmakanthan@maybank-ib.com

WONG Chew Hann, CA
Head of ASEAN Equity Research
(603) 2297 8686
wchewh@maybank-ib.com

ONG Seng Yeow
Research, Technology & Innovation
(65) 6231 5839
ongsengyeow@maybank.com

MALAYSIA

Anand PATHMAKANTHAN *Head of Research*
(603) 2297 8783
anand.pathmakanthan@maybank-ib.com
• Strategy

WONG Chew Hann, CA
(603) 2297 8686
wchewh@maybank-ib.com
• Non-Bank Financials (stock exchange)
• Construction & Infrastructure

Desmond CH'NG, BFP, FCA
(603) 2297 8680
desmond.chng@maybank-ib.com
• Banking & Finance

LIAW Thong Jung
(603) 2297 8688 tjliaw@maybank-ib.com
• Oil & Gas Services- Regional
• Automotive

ONG Chee Ting, CA
(603) 2297 8678 ct.ong@maybank-ib.com
• Plantations - Regional

YIN Shao Yang, CPA
(603) 2297 8916 samuel.y@maybank-ib.com
• Gaming – Regional
• Media • Aviation • Non-Bank Financials

TAN Chi Wei, CFA
(603) 2297 8690 chiwei.t@maybank-ib.com
• Power • Telcos

WONG Wei Sum, CFA
(603) 2297 8679 weisum@maybank-ib.com
• Property • Glove

Jade TAM
(603) 2297 8687 jade.tam@maybank-ib.com
• Consumer Staples & Discretionary

Nur Farah SYIFAA
(603) 2297 8675
nurfarahsyifaa.mohamadfuad@maybank-ib.com
• Construction • Renewable Energy • REITs

Arvind JAYARATNAM
(603) 2297 8692
arvind.jayaratnam@maybank.com
• Petrochemicals • Technology

Shafiq KADIR, CFA
(603) 2297 8691
msshafiqk.abkadir@maybank-ib.com
• Healthcare • Software

LOH Yan Jin
(603) 2297 8687
lohyanjin.loh@maybank-ib.com
• Ports • Shipping

TEE Sze Chiah *Head of Retail Research*
(603) 2082 6858 szechiah.t@maybank-ib.com
• Retail Research

Nik Ihsan RAJA ABDULLAH, MSTA, CFTe
(603) 2297 8694
nikmohdihsan.ra@maybank-ib.com
• Chartist

Amirah AZMI
(603) 2082 8769 amirah.azmi@maybank-ib.com
• Retail Research

SINGAPORE

Thilan WICKRAMASINGHE *Head of Research*
(65) 6231 5840 thilanw@maybank.com
• Banking & Finance - Regional
• Consumer

CHUA Su Tye
(65) 6231 5842 chuasutye@maybank.com
• REITs - Regional

Eric ONG
(65) 6231 5924 ericong@maybank.com
• Healthcare • Transport • SMIDs

Kelvin TAN
(65) 6231 5837 kelvintan1@maybank.com
• Telcos • Industrials

Samuel TAN
(65) 6231 5843 samuel.tan@maybank.com
• Technology

LI Jialin
(65) 6231 5845 jialin.li@maybank.com
• REITs

PHILIPPINES

Jacqui de JESUS *Head of Research*
(63) 2 8849 8840
jacqui.dejesus@maybank.com
• Strategy • Conglomerates

Rachelleen RODRIGUEZ, CFA
(63) 2 8849 8843
rachelleen.rodriguez@maybank.com
• Banking & Finance • Transport • Telcos

Daphne SZE
(63) 2 8849 8847
daphne.sze@maybank.com
• Consumer

Miguel SEVIDAL
(63) 2 8849 8844
miguel.sevidal@maybank.com
• REITs • Property

Fiorenzo de JESUS
(63) 2 8849 8846
fiorenzo.dejesus@maybank.com
• Utilities

VIETNAM

Quan Trong Thanh *Head of Research*
(84 28) 44 555 888 ext 8184
thanh.quan@maybank.com
• Banks

Hoang Huy, CFA
(84 28) 44 555 888 ext 8181
hoanghuy@maybank.com
• Strategy • Technology • Industrials

Le Nguyen Nhat Chuyen
(84 28) 44 555 888 ext 8082
chuyen.le@maybank.com
• Oil & Gas • Logistics

Nguyen Thi Sony Tra Mi
(84 28) 44 555 888 ext 8084
trami.nguyen@maybank.com
• Consumer

Tyler Manh Dung Nguyen
(84 28) 44 555 888 ext 8085
manhdung.nguyen@maybank.com
• Utilities • Property

Tran Thi Thanh Nhan
(84 28) 44 555 888 ext 8088
nhan.tran@maybank.com
• Consumer

Nguyen Thi Ngan Tuyen
Head of Retail Research
(84 28) 44 555 888 ext 8081
tuyen.nguyen@maybank.com
• Retail Research

Nguyen Thanh Lam
(84 28) 44 555 888 ext 8086
thanhlam.nguyen@maybank.com
• Chartist

INDIA

Jigar SHAH *Head of Research*
(91) 22 4223 2632 jigars@maybank.com
• Strategy • Oil & Gas • Automobile • Cement

Neerav DALAL
(91) 22 4223 2606 neerav@maybank.com
• Software Technology • Telcos

Vikram RAMALINGAM
(91) 22 4223 2607
vikram@maybank.com
• Automobile • Media

INDONESIA

Rahmi MARINA
(62) 21 8066 8689
rahmi.marina@maybank.com
• Banking & Finance

Willy GOUTAMA
(62) 21 8066 8500
willy.goutama@maybank.com
• Consumer

Richard SUHERMAN
(62) 21 8066 8691
richard.suherman@maybank.com
• Metals & Mining

Satriawan, CTA
(62) 21 8066 8682
satriawan@maybank.com
• Chartist

THAILAND

Jesada TECHAHUSDIN, CFA
(66) 2658 6300 ext 1395
jesada.t@maybank.com
• Banking & Finance

Vanida GEISLER, CPA
(66) 2658 6300 ext 1394
Vanida.G@maybank.com
• Property • REITs

Yuwanee PROMMAPORN
(66) 2658 6300 ext 1393
Yuwanee.P@maybank.com
• Services • Healthcare

Wasu MATTANAPOTCHANART
(66) 2658 6300 ext 1392
wasu.m@maybank.com
• Telcos

Surachai PRAMUALCHAROENKIT
(66) 2658 5000 ext 1470
Surachai.p@maybank.com
• Auto • Conmat • Contractor • Steel

Suttatip PEERASUB
(66) 2658 5000 ext 1430
suttatip.p@maybank.com
• Food & Beverage • Commerce

Jaroonpan WATTANAWONG
(66) 2658 5000 ext 1404
jaroonpan.w@maybank.com
• Transportation • Small cap

APPENDIX I: TERMS FOR PROVISION OF REPORT, DISCLAIMERS AND DISCLOSURES

DISCLAIMERS

This research report is prepared for general circulation and for information purposes only and under no circumstances should it be considered or intended as an offer to sell or a solicitation of an offer to buy the securities referred to herein. Investors should note that values of such securities, if any, may fluctuate and that each security's price or value may rise or fall. Opinions or recommendations contained herein are in form of technical ratings and fundamental ratings. Technical ratings may differ from fundamental ratings as technical valuations apply different methodologies and are purely based on price and volume-related information extracted from the relevant jurisdiction's stock exchange in the equity analysis. Accordingly, investors' returns may be less than the original sum invested. Past performance is not necessarily a guide to future performance. This report is not intended to provide personal investment advice and does not take into account the specific investment objectives, the financial situation and the particular needs of persons who may receive or read this report. Investors should therefore seek financial, legal and other advice regarding the appropriateness of investing in any securities or the investment strategies discussed or recommended in this report.

The information contained herein has been obtained from sources believed to be reliable but such sources have not been independently verified by Maybank Investment Bank Berhad, its subsidiary and affiliates (collectively, "Maybank IBG") and consequently no representation is made as to the accuracy or completeness of this report by Maybank IBG and it should not be relied upon as such. Accordingly, Maybank IBG and its officers, directors, associates, connected parties and/or employees (collectively, "Representatives") shall not be liable for any direct, indirect or consequential losses or damages that may arise from the use or reliance of this report. Any information, opinions or recommendations contained herein are subject to change at any time, without prior notice.

This report may contain forward looking statements which are often but not always identified by the use of words such as "anticipate", "believe", "estimate", "intend", "plan", "expect", "forecast", "predict" and "project" and statements that an event or result "may", "will", "can", "should", "could" or "might" occur or be achieved and other similar expressions. Such forward looking statements are based on assumptions made and information currently available to us and are subject to certain risks and uncertainties that could cause the actual results to differ materially from those expressed in any forward looking statements. Readers are cautioned not to place undue relevance on these forward-looking statements. Maybank IBG expressly disclaims any obligation to update or revise any such forward looking statements to reflect new information, events or circumstances after the date of this publication or to reflect the occurrence of unanticipated events.

Maybank IBG and its officers, directors and employees, including persons involved in the preparation or issuance of this report, may, to the extent permitted by law, from time to time participate or invest in financing transactions with the issuer(s) of the securities mentioned in this report, perform services for or solicit business from such issuers, and/or have a position or holding, or other material interest, or effect transactions, in such securities or options thereon, or other investments related thereto. In addition, it may make markets in the securities mentioned in the material presented in this report. One or more directors, officers and/or employees of Maybank IBG may be a director of the issuers of the securities mentioned in this report to the extent permitted by law.

This report is prepared for the use of Maybank IBG's clients and may not be reproduced, altered in any way, transmitted to, copied or distributed to any other party in whole or in part in any form or manner without the prior express written consent of Maybank IBG and Maybank IBG and its Representatives accepts no liability whatsoever for the actions of third parties in this respect.

This report is not directed to or intended for distribution to or use by any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation. This report is for distribution only under such circumstances as may be permitted by applicable law. The securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors. Without prejudice to the foregoing, the reader is to note that additional disclaimers, warnings or qualifications may apply based on geographical location of the person or entity receiving this report.

Malaysia

Opinions or recommendations contained herein are in the form of technical ratings and fundamental ratings. Technical ratings may differ from fundamental ratings as technical valuations apply different methodologies and are purely based on price and volume-related information extracted from Bursa Malaysia Securities Berhad in the equity analysis.

Singapore

This report has been produced as of the date hereof and the information herein may be subject to change. Maybank Research Pte. Ltd. ("MRPL") in Singapore has no obligation to update such information for any recipient. For distribution in Singapore, recipients of this report are to contact MRPL in Singapore in respect of any matters arising from, or in connection with, this report. If the recipient of this report is not an accredited investor, expert investor or institutional investor (as defined under Section 4A of the Singapore Securities and Futures Act), MRPL shall be legally liable for the contents of this report, with such liability being limited to the extent (if any) as permitted by law.

Thailand

Except as specifically permitted, no part of this presentation may be reproduced or distributed in any manner without the prior written permission of Maybank Securities (Thailand) Public Company Limited. Maybank Securities (Thailand) Public Company Limited ("MST") accepts no liability whatsoever for the actions of third parties in this respect.

Due to different characteristics, objectives and strategies of institutional and retail investors, the research products of MST Institutional and Retail Research departments may differ in either recommendation or target price, or both. MST reserves the rights to disseminate MST Retail Research reports to institutional investors who have requested to receive it. If you are an authorised recipient, you hereby tacitly acknowledge that the research reports from MST Retail Research are first produced in Thai and there is a time lag in the release of the translated English version.

The disclosure of the survey result of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information. The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey may be changed after that date. MST does not confirm nor certify the accuracy of such survey result.

The disclosure of the Anti-Corruption Progress Indicators of a listed company on the Stock Exchange of Thailand, which is assessed by Thaipat Institute, is made in order to comply with the policy and sustainable development plan for the listed companies of the Office of the Securities and Exchange Commission. Thaipat Institute made this assessment based on the information received from the listed company, as stipulated in the form for the assessment of Anti-corruption which refers to the Annual Registration Statement (Form 56-1), Annual Report (Form 56-2), or other relevant documents or reports of such listed company. The assessment result is therefore made from the perspective of Thaipat Institute that is a third party. It is not an assessment of operation and is not based on any inside information. Since this assessment is only the assessment result as of the date appearing in the assessment result, it may be changed after that date or when there is any change to the relevant information. Nevertheless, MST does not confirm, verify, or certify the accuracy and completeness of the assessment result.

US

This third-party research report is distributed in the United States ("US") to Major US Institutional Investors (as defined in Rule 15a-6 under the Securities Exchange Act of 1934, as amended) only by Maybank Securities USA Inc ("MSUS"), a broker-dealer registered in the US (registered under Section 15 of the Securities Exchange Act of 1934, as amended). All responsibility for the distribution of this report by MSUS in the US shall be borne by MSUS. This report is not directed at you if Maybank IBG is prohibited or restricted by any legislation or regulation in any jurisdiction from making it available to you. You should satisfy yourself before reading it that MSUS is permitted to provide research material concerning investments to you under relevant legislation and regulations. All U.S. persons receiving and/or accessing this report and wishing to effect transactions in any security mentioned within must do so with: Maybank Securities USA Inc. 400 Park Avenue, 11th Floor, New York, New York 10022, 1-(212) 688-8886 and not with, the issuer of this report.

UK

This document is being distributed by Maybank Securities (London) Ltd ("MSUK") which is authorized and regulated, by the Financial Conduct Authority and is for Informational Purposes only. This document is not intended for distribution to anyone defined as a Retail Client under the Financial Services and Markets Act 2000 within the UK. Any inclusion of a third party link is for the recipients convenience only, and that the firm does not take any responsibility for its comments or accuracy, and that access to such links is at the individuals own risk. Nothing in this report should be considered as constituting legal, accounting or tax advice, and that for accurate guidance recipients should consult with their own independent tax advisers.

DISCLOSURES

Legal Entities Disclosures

Malaysia: This report is issued and distributed in Malaysia by Maybank Investment Bank Berhad (15938- H) which is a Participating Organization of Bursa Malaysia Berhad and a holder of Capital Markets and Services License issued by the Securities Commission in Malaysia. **Singapore:** This report is distributed in Singapore by MRPL (Co. Reg No 198700034E) which is regulated by the Monetary Authority of Singapore. **Indonesia:** PT Maybank Sekuritas Indonesia ("PTMSI") (Reg. No. KEP-251/PM/1992) is a member of the Indonesia Stock Exchange and is regulated by the Financial Services Authority (Indonesia). **Thailand:** MST (Reg. No.0107545000314) is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission. **Philippines:** Maybank Securities Inc (Reg. No.01-2004-00019) is a member of the Philippines Stock Exchange and is regulated by the Securities and Exchange Commission. **Vietnam:** Maybank Securities Limited (License Number: 117/GP-UBCK) is licensed under the State Securities Commission of Vietnam. **Hong Kong:** MIB Securities (Hong Kong) Limited (Central Entity No AAD284) is regulated by the Securities and Futures Commission. **India:** MIB Securities India Private Limited ("MIBSI") is a participant of the National Stock Exchange of India Limited and the Bombay Stock Exchange and is regulated by Securities and Exchange Board of India ("SEBI") (Reg. No. INZ000010538). MIBSI is also registered with SEBI as Category 1 Merchant Banker (Reg. No. INM 000011708) and as Research Analyst (Reg No: INH000000057) **US:** Maybank Securities USA Inc is a member of/and is authorized and regulated by the FINRA – Broker ID 27861. **UK:** Maybank Securities (London) Ltd (Reg No 2377538) is authorized and regulated by the Financial Conduct Authority.

Disclosure of Interest

Malaysia: Maybank IBG and its Representatives may from time to time have positions or be materially interested in the securities referred to herein and may further act as market maker or may have assumed an underwriting commitment or deal with such securities and may also perform or seek to perform investment banking services, advisory and other services for or relating to those companies.

Singapore: As of 26 August 2022, Maybank Research Pte. Ltd. and the covering analyst do not have any interest in any companies recommended in this research report.

Thailand: MST may have a business relationship with or may possibly be an issuer of derivative warrants on the securities /companies mentioned in the research report. Therefore, Investors should exercise their own judgment before making any investment decisions. MST, its associates, directors, connected parties and/or employees may from time to time have interests and/or underwriting commitments in the securities mentioned in this report.

Hong Kong: As of 26 August 2022, MIB Securities (Hong Kong) Limited and the authoring analyst do not have any interest in any companies recommended in this research report.

India: As of 26 August 2022, and at the end of the month immediately preceding the date of publication of the research report, MIBSI, authoring analyst or their associate / relative does not hold any financial interest or any actual or beneficial ownership in any shares or having any conflict of interest in the subject companies except as otherwise disclosed in the research report.

In the past twelve months MIBSI and authoring analyst or their associate did not receive any compensation or other benefits from the subject companies or third party in connection with the research report on any account what so ever except as otherwise disclosed in the research report.

Maybank IBG may have, within the last three years, served as manager or co-manager of a public offering of securities for, or currently may make a primary market in issues of, any or all of the entities mentioned in this report or may be providing, or have provided within the previous 12 months, significant advice or investment services in relation to the investment concerned or a related investment and may receive compensation for the services provided from the companies covered in this report.

OTHERS

Analyst Certification of Independence

The views expressed in this research report accurately reflect the analyst's personal views about any and all of the subject securities or issuers; and no part of the research analyst's compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in the report.

Reminder

Structured securities are complex instruments, typically involve a high degree of risk and are intended for sale only to sophisticated investors who are capable of understanding and assuming the risks involved. The market value of any structured security may be affected by changes in economic, financial and political factors (including, but not limited to, spot and forward interest and exchange rates), time to maturity, market conditions and volatility and the credit quality of any issuer or reference issuer. Any investor interested in purchasing a structured product should conduct its own analysis of the product and consult with its own professional advisers as to the risks involved in making such a purchase.

Definition of Ratings

Maybank IBG Research uses the following rating system

BUY	Return is expected to be above 10% in the next 12 months (including dividends)
HOLD	Return is expected to be between 0% to 10% in the next 12 months (including dividends)
SELL	Return is expected to be below 0% in the next 12 months (including dividends)

Applicability of Ratings

The respective analyst maintains a coverage universe of stocks, the list of which may be adjusted according to needs. Investment ratings are only applicable to the stocks which form part of the coverage universe. Reports on companies which are not part of the coverage do not carry investment ratings as we do not actively follow developments in these companies.

Malaysia
Maybank Investment Bank Berhad
(A Participating Organisation of
Bursa Malaysia Securities Berhad)
33rd Floor, Menara Maybank,
100 Jalan Tun Perak,
50050 Kuala Lumpur
Tel: (603) 2059 1888;
Fax: (603) 2078 4194

Stockbroking Business:
Level 8, Tower C, Dataran Maybank,
No.1, Jalan Maarof
59000 Kuala Lumpur
Tel: (603) 2297 8888
Fax: (603) 2282 5136

Singapore
Maybank Securities Pte Ltd
Maybank Research Pte Ltd
50 North Canal Road
Singapore 059304

Tel: (65) 6336 9090

London
Maybank Securities (London) Ltd
PNB House
77 Queen Victoria Street
London EC4V 4AY, UK

Tel: (44) 20 7332 0221
Fax: (44) 20 7332 0302

New York
Maybank Securities USA Inc
400 Park Avenue, 11th Floor
New York, New York 10022,
U.S.A.

Tel: (212) 688 8886
Fax: (212) 688 3500

Hong Kong
MIB Securities (Hong Kong) Limited
28/F, Lee Garden Three,
1 Sunning Road, Causeway Bay,
Hong Kong

Tel: (852) 2268 0800
Fax: (852) 2877 0104

Indonesia
PT Maybank Sekuritas Indonesia
Sentral Senayan III, 22nd Floor
Jl. Asia Afrika No. 8
Gelora Bung Karno, Senayan
Jakarta 10270, Indonesia

Tel: (62) 21 2557 1188
Fax: (62) 21 2557 1189

India
MIB Securities India Pte Ltd
1101, 11th floor, A Wing, Kanakia
Wall Street, Chakala, Andheri -
Kurla Road, Andheri East,
Mumbai City - 400 093, India

Tel: (91) 22 6623 2600
Fax: (91) 22 6623 2604

Philippines
Maybank Securities Inc
17/F, Tower One & Exchange Plaza
Ayala Triangle, Ayala Avenue
Makati City, Philippines 1200

Tel: (63) 2 8849 8888
Fax: (63) 2 8848 5738

Thailand
Maybank Securities (Thailand) PCL
999/9 The Offices at Central World,
20th - 21st Floor,
Rama 1 Road Pathumwan,
Bangkok 10330, Thailand

Tel: (66) 2 658 6817 (sales)
Tel: (66) 2 658 6801 (research)

Vietnam
Maybank Securities Limited
Floor 10, Pearl 5 Tower,
5 Le Quy Don Street,
Vo Thi Sau Ward, District 3
Ho Chi Minh City, Vietnam

Tel : (84) 28 44 555 888
Fax : (84) 28 38 271 030

Sales Trading
Kevin Foy
Regional Head Sales Trading
kevinfoy@maybank.com
Tel: (65) 6636-3620
US Toll Free: 1-866-406-7447

Indonesia
Helen Widjaja
helen.widjaja@maybank.com
(62) 21 2557 1188

London
Greg Smith
gsmith@maybank.co.uk
Tel: (44) 207-332-0221

New York
James Lynch
jlynch@maybank-keusa.com
Tel: (212) 688 8886

India
Sanjay Makhija
sanjaymakhija@maybank.com
Tel: (91)-22-6623-2629

Philippines
Keith Roy
keith_roy@maybank.com
Tel: (63) 2 848-5288

www.maybank-ke.com | www.maybank-keresearch.com