krungsri
Research

A member of MUFG
a global financial group

INDUSTRY HORIZON

October 2022



Krungsri Research

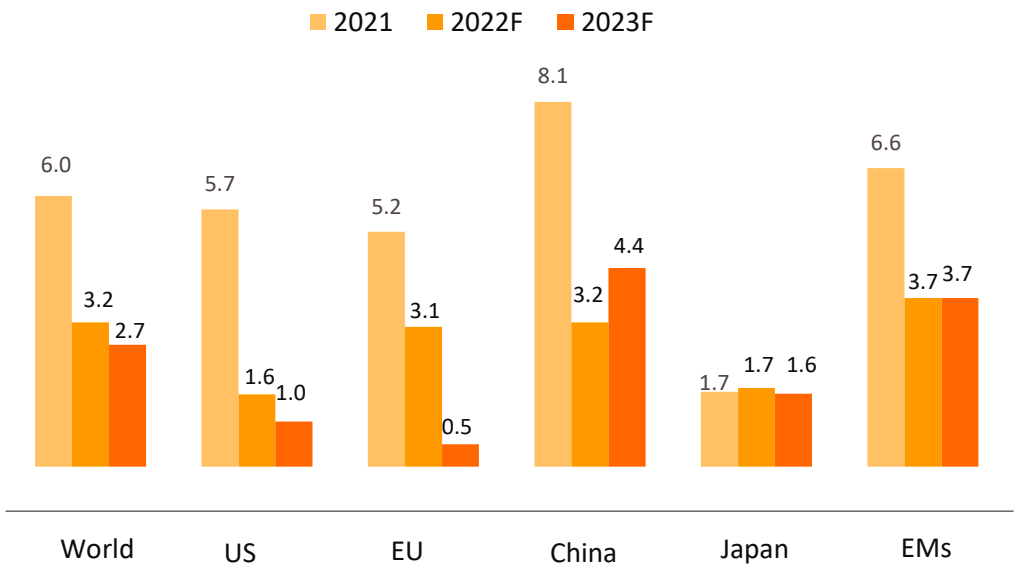


2022 MAJOR INDUSTRY OUTLOOK

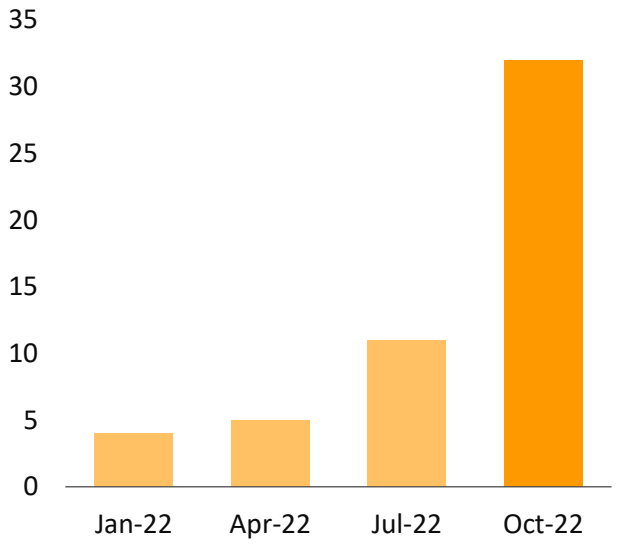
IMF sees big challenges for the global economy, shaped by lingering effects of the Russian-Ukraine war, a cost-of-living crisis, and economic slowdown in China

The IMF projects global growth will slow down from 3.2% in 2022 to 2.7% in 2023 (0.2 percentage points below July forecast). There is a 25% probability that 2023 growth could fall below 2%. More than a third of the global economy will contract this year or next. Downside risks remain elevated.

Economic growth projections for global and major economies (%)



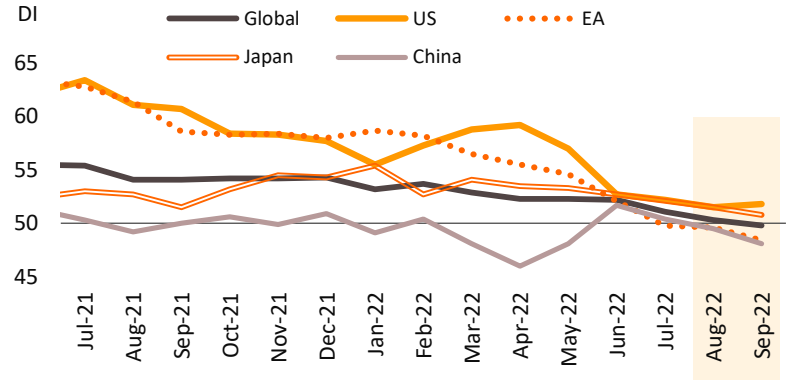
Countries in contraction territory as a share of global GDP, 2022-2023 (%)



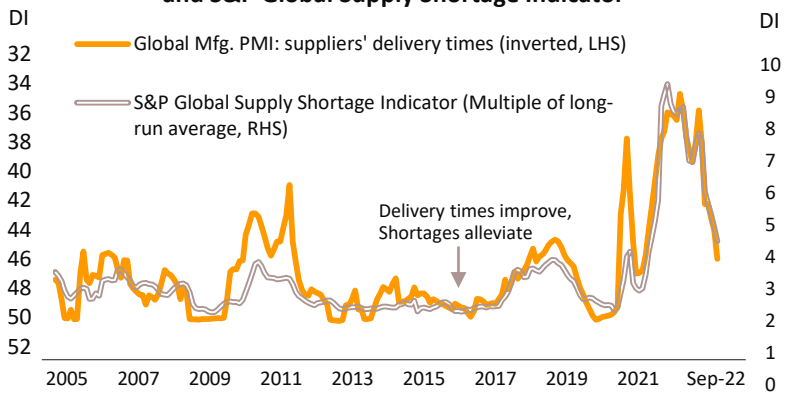
Source: IMF, World Economic Outlook (October 2022)

Global manufacturing activity has dropped to contraction zone despite easing supply disruption; weaker orders suggests trade flows will continue to slow down

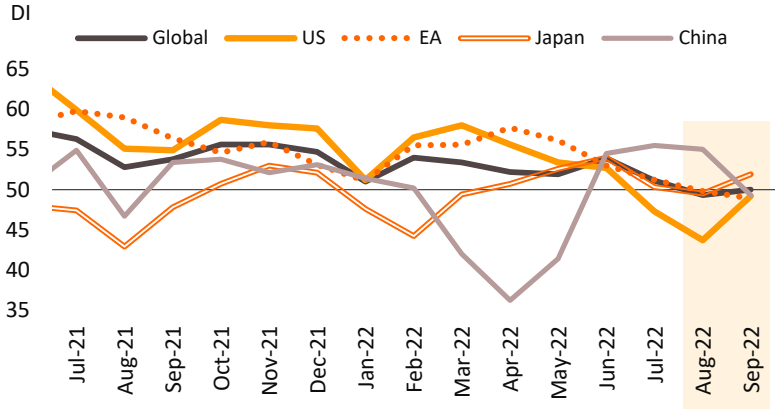
Manufacturing PMI



Global Manufacturing PMI Suppliers' Delivery Times and S&P Global Supply Shortage Indicator



Services PMI

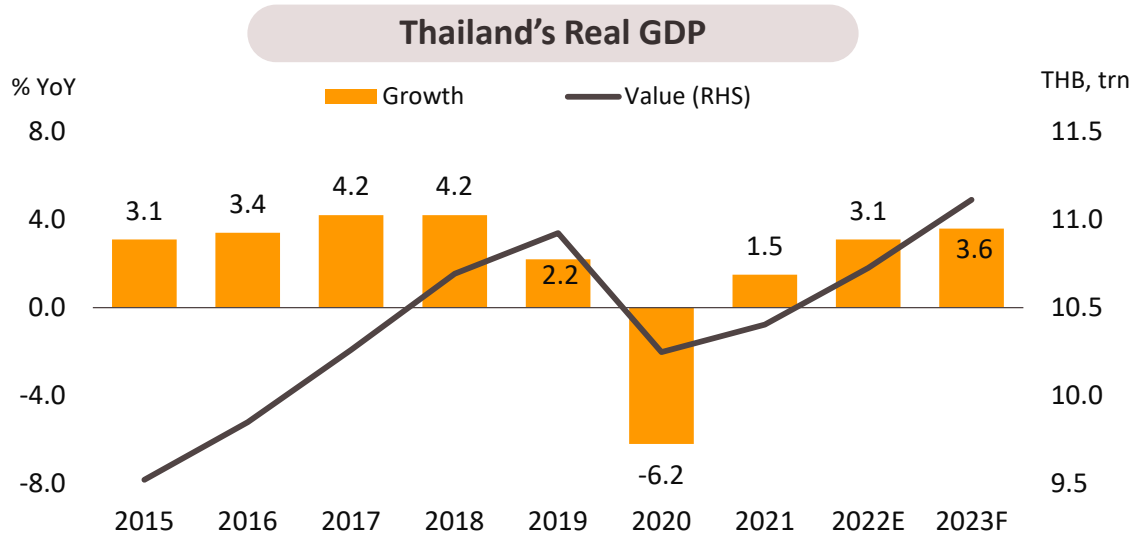


Global New Orders



Source: Markit Economics, Bloomberg, CEIC, Krungsri Research

Krungsri Research Forecasts for 2022-23



Krungsri Research Forecast		2020	2021	2022F	2023F
GDP growth	YoY (%)	-6.2	1.5	3.1	3.6
Private Consumption Expenditure	YoY (%)	-1.0	0.3	4.7	3.4
Government Consumption Expenditure	YoY (%)	1.4	3.2	-0.5	0.6
Private Investment	YoY (%)	-8.2	3.3	2.8	3.8
Public Investment	YoY (%)	5.1	3.8	0.2	3.0
Nominal Exports in USD (f.o.b.)*	YoY (%)	-6.5	19.2	7.5	3.5
Nominal Imports in USD (f.o.b.)*	YoY (%)	-13.8	23.9	17.0	6.0
Current Account Balance	USD, bn	20.3	-11.0	-16.5	6.0
Tourist Arrivals	Mn, persons	6.7	0.4	10.4	22.7
Headline Inflation	YoY (%)	-0.8	1.2	6.1	2.5
Policy Interest rate (end of period)	(%)	0.50	0.50	1.25	1.75
Dubai crude price - period average	USD/bbl	41.5	69.0	98.0	82.0

Note: * Base on BOT data

Source: NESDC, BOT, MOC, MOTS, Bloomberg, Krungsri Research

Thailand's overall economic activity has almost returned to pre-pandemic level but recovery is fragile and uneven across sectors

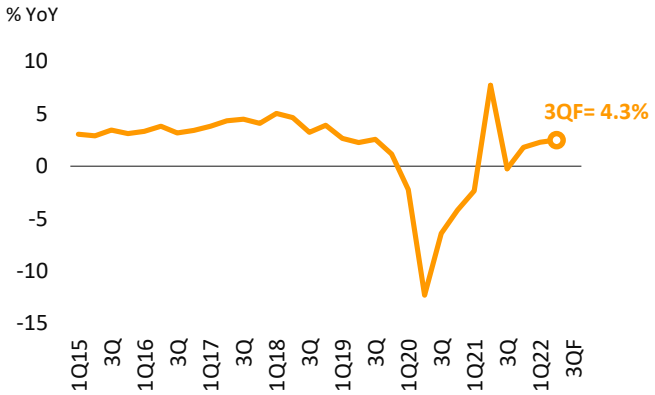
- **Thailand's overall economic activity has been ramping-up towards pre-covid level** driven by reopening tailwinds and unleashing of pent-up demand after a period of global restrictions since the COVID-19 pandemic started in 2020.
- On the demand side, key economic drivers, except tourism, has exceed pre-covid levels but exports could lose momentum amid the global slowdown. On the supply side, overall business activity is approaching pre-covid level.
- **However, recovery is uneven across sectors,** influenced by legacy covid crisis impact and spillover effects of external headwinds. Recovery in the manufacturing sector currently ranges between 22% above and 25% below pre-covid level. The range is wider in the services sector at between 27% above and 57% below pre-pandemic level.
  - *Automotive* and *Rubbers & Plastics* industries are registering stronger output and healthy financials.
  - But most manufacturing industries are still weaker than pre-covid levels, with lower profitability or higher debt burden.
  - *Textile & Apparels* and *Chemicals* industries are experiencing both weaker output and worsening financial health.
- **Recovery in the services sector is likely to outpace that in the manufacturing sector, driven by reopening tailwinds.**
  - Many service industries benefited from the relaxing of restrictions, recovering tourism activity and rising pent-up demand, including *Wholesale & Retail Trade, Transportation & Storage, Information & Communication*, and *Professional, Scientific & Technical*.
  - Despite stronger momentum, *Accommodation & Food Service industry* and *Real Estate Activities* remain vulnerable to shocks due to weak financial health, which could be pressured by rising material costs and interest rate tightening cycle.
- **The fragile and uneven recovery in Thailand suggests domestic rate hikes should be gradual to continue to nurture overall economic growth.**

Factors influencing Thai industrial outlook

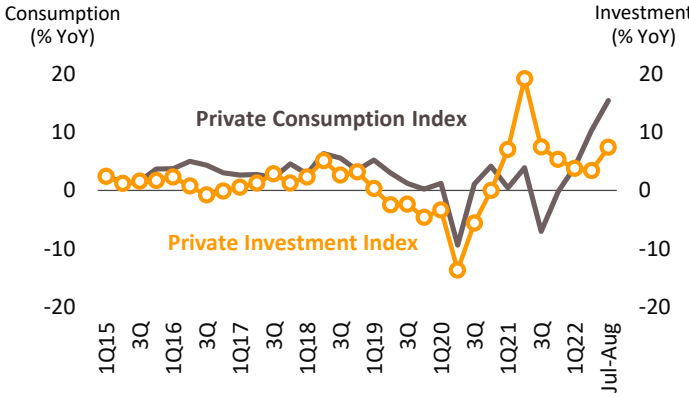
Economic activities have improved on easing containment measures, but growth might be limited by Ukraine war, China's weak economic growth, and high inflation.

- **War in Ukraine and Europe's energy crisis**: Global crude oil prices which have increased more than 30% since early 2022 and rising raw material prices raised costs for businesses.
- **Accelerating inflation**: Despite pent-up demand following the reopening effects and stimulus measures, consumers' purchasing power would be pressured by a surge in inflation and higher cost of living.
- **Conflicts between the US and China over Taiwan and China's economic slowdown**: have caused periodic global supply chain disruptions and could dampen export sector.
- **Rising interest rates**: Interest rate hikes to contain inflation would impose a burden of higher costs on business sectors.
- **Weakening baht** will benefit export-oriented industries, but cost of imports will increase, especially for the industries that have high import contents and are domestic-market oriented.
- **Floods in some areas**: Moderate La Nina phenomenon devastated cultivated areas; and this hurt related businesses such as agriculture and construction sectors.

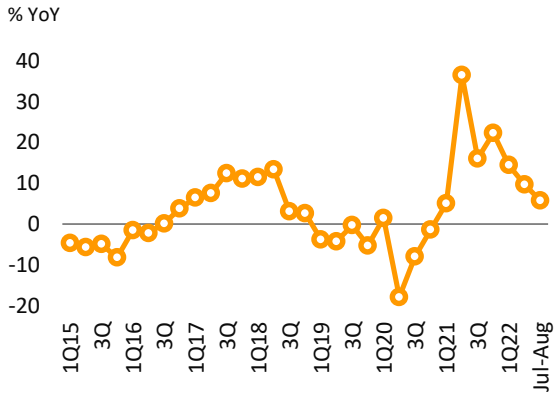
3Q22 GDP growth accelerating on reopening tailwinds and last year's low base



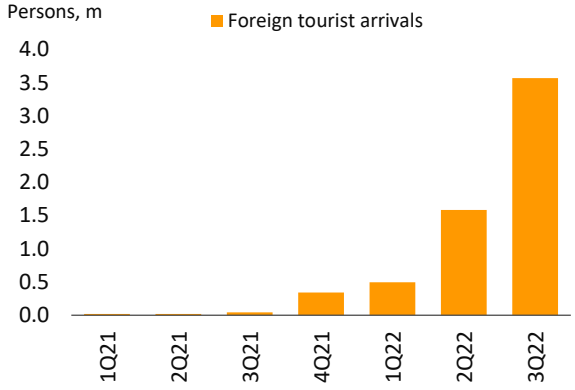
Domestic spending growth limited by high inflation and weak sentiment



Export growth weakening on global economic slowdown



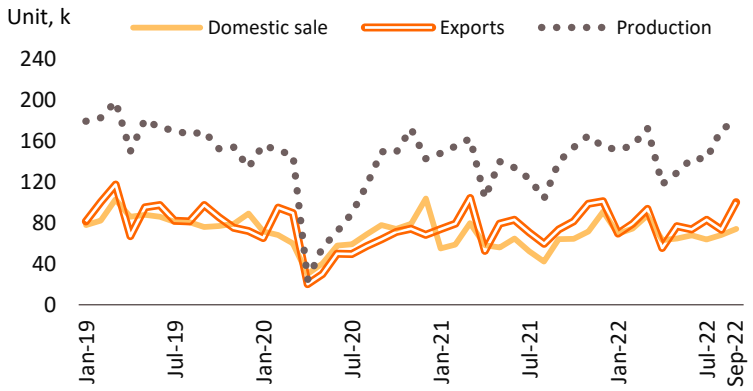
Tourist arrivals exceeding 1mn a month after easing of travel restrictions



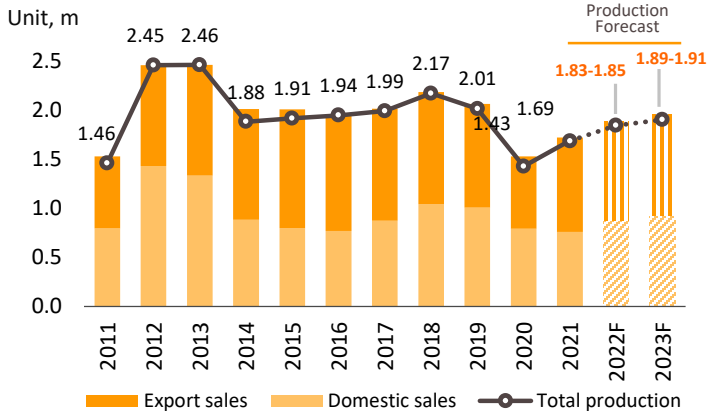
Source: NESDC, BOT, MOTS, Krungsri Research

Automobile: Growth in output of autos over 2022 and 2023 will be driven largely by the strength of the domestic market.

Automobile Production and Sales (Monthly)



Automobile Production and Sales (Yearly)

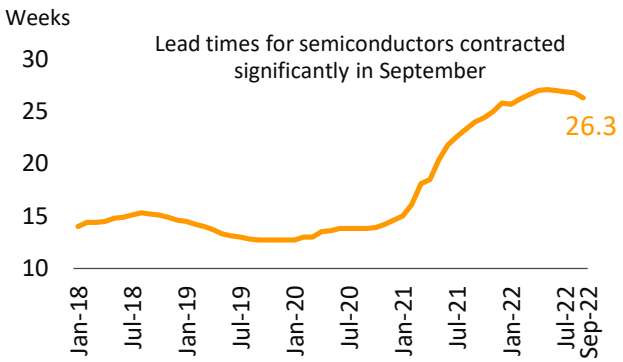


- **Auto output increased by just 3.0% YoY over 1H22, compared to 39.3% YoY growth in 1H21,** due to: (i) severe chip shortages caused by the lockdown of Shanghai (one of the world's main chip-producing areas) from Mar 28 – June 1; and (ii) the war in Ukraine at the end of February. In 1H22, **domestic demand rose 14.5% YoY (+13.6% YoY in 1H21) but exports dropped -5.0% YoY (+35.1% YoY in 1H21).**
- **However, the situation improved in Q3, and output jumped 34.5% YoY** (+3.1% YoY in 3Q21) on: (i) the ending of the Shanghai lockdown; and (ii) greater access to chips and other auto parts. Given this, domestic sales were up 30.0% YoY (-23.0% YoY in 3Q21) while exports increased 25.9% YoY (+19.4% YoY in 3Q21).
- **For 9M22, output rose 12.6% YoY to 1,364,037 vehicles, mostly due to the 19.1% YoY growth of domestic sales**, equivalent to 633,687 new vehicles. Domestic sales have been boosted by: (i) the relaxation of pandemic controls and the rebound in economic activity; (ii) government promotion of battery electric vehicles (BEVs) that has helped lift BEV sales by +297.1% YoY to 6,059 vehicles; and (iii) the 20.2% increase in demand for commercial vehicles driven by the growing popularity of online shopping and the boost in tourism sector. Over the same period, **exports grew by just 4.3% YoY to 706,444 vehicles.** Sales to the ASEAN region (25.6% share) rose 7.2%, but most other markets weakened, with the EU down -40.0%, the US dropping -36.3%, Japan down -34.4%, and Australia softening by -13.7% (together these account for 46.3% of exports).
- **Growth in output will likely slow through to the end of 2022 with the weakening of the domestic market.** This will be due to: (i) the effect of widespread flooding on demand; and (ii) rising inflation and interest rates that are adding to the cost of living. Globally, as central banks are hiking rates to combat strong inflation, this is leading to a slowdown in the global economy that will translate into a worsening outlook for auto exports. **For all of 2022, output would therefore grow by 9-10% to 1.83-1.85m vehicles**, (+18.1% in 2021). Greater access to chips and parts will mean that **domestic sales should rise by 15-16% to 0.87-0.88m vehicles** (-4.2% in 2021). Lastly, **exports is forecast to increase by 4-5% to 1.00-1.01m vehicles**, a sharp drop from 2021's expansion of 30.4%.
- **An estimated 1.89-1.91m vehicles will come off Thai production lines in 2023, which would represent an increase of 3-4% from 2022.** Problems with chip shortages will periodically disrupt production but these will clear by the end of the year as supply expands and demand for chips for use in consumer electronics (e.g., PCs and smart phones) weakens with the general economic slowdown**. The domestic market is forecast to grow by 5-6% to 0.92-0.93m vehicles**, helped by: (i) recovery in the domestic economy; (ii) government support for purchases of BEVs that will run from 2022 to 2025; and (iii) the rebound in the tourism sector, which will lift demand for both cars and buses, especially for vehicles over 9 years old since regulations now stipulate that these must be replaced (this affects around 120,000 vehicles). **Export growth is likely to soften to 2-3% (or to 1.02-1.03m vehicles)** on (i) the global economic slowdown; and (ii) high crude prices that will undercut consumer spending power.

Source: The Federation of Thai Industries (FTI), Krungsri Research

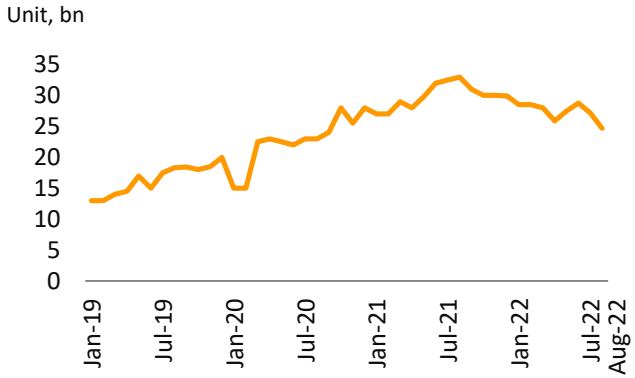
Chip shortages: Problems with chip shortages will likely begin to abate at the end of 2023, when demand for use in electronic goods will begin to ease and new supply will start to come onstream.

The Wait for Chips



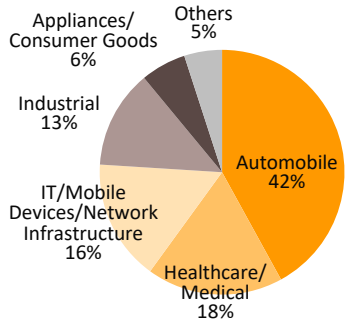
Note: Chart based on revised calculation method

China's IC Chip Outputs



Semiconductor Users

by Market Segment

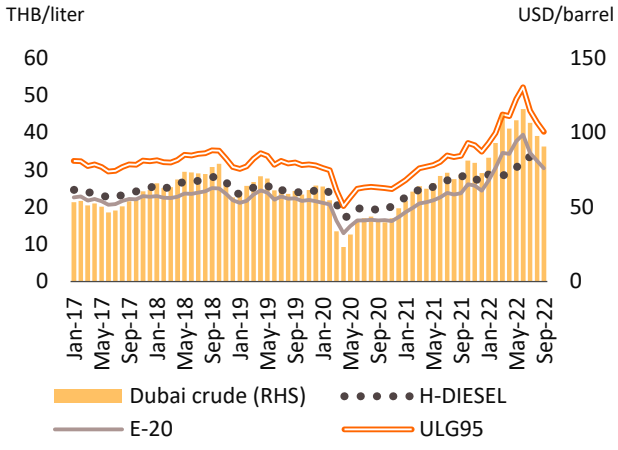


- **The intensity of global chip shortages appears to be lessening.** As of Sep-22, average delivery times had dropped for the 4th successive month to 26.3 weeks, down from a peak of 27.1 weeks in May-22 (Source: Susquehanna Financial Group). This was due to the slowdown in the global economy and the weakening in demand for some consumer electronics, including personal computers, for which demand has dipped over each of the past 4 quarters (-5.0% YoY in 4Q21, -6.8% YoY in 1Q22, -12.6% YoY in 2Q22, and -19.5% YoY in 3Q22), and smartphones, for which global sales have been slipping since 3Q21 (-6.8% YoY in 3Q21, and -1.7% YoY in 4Q21). Against this, demand for chips for use in auto production continues to grow, though this has been driven by the earlier strength in consumer spending power. **Despite this improvement, delivery times remain slow compared to the pre-COVID-19 norms** of 12-15 weeks. This is due to: (i) a shortage of semiconductors; and (ii) the impact on hydroelectric power generation of the Chinese heatwave and drought in July-Aug resulting in power outages cutting Aug chips production to 24.7bn units, the lowest output since Oct-20.
- **Shortages will continue to ease through the rest of 2022** as demand for chips for use in the main product groups slackens. In 2022, global sales of PCs and mobile phones will slip by -9.5% and -7.1% respectively (Source: Gartner) on: (i) declining purchasing power due to a worsening economic outlook and higher prices as manufacturers try to pass on the higher cost of energy and raw materials; (ii) the extension of the Russia-Ukraine war, which has cut into the supply of inputs and disrupted supply chains; and (iii) the continuation of China's zero-COVID policy, which has led to periodic lockdowns and thus reducing output of electronics goods. Gartner therefore expects that in 2022, growth in sales of semiconductors will come to just 7.4%, down from 26.3% a year earlier.
- **A combination of several factors means that these problems will continue into 2023.** (i) The US is acting aggressively to protect its technological advantages in chip production, and the CHIPS and Science Act of 2022 has now allocated USD 52bn to support the development of the domestic chip industry. In addition, to prevent Chinese access to technology operated by leading US corporations (e.g., KLA Corp, and Lam Research Corp and Applied Materials), controls on these were put in place with effect from Oct 7. This followed the Aug 12 imposition of multilateral export controls that restricted access by China and over 150 other countries to US electronic design automation (EDA) software used in chip design. **This will place a major obstacle in the way of the development of Chinese tech industries.** Indeed, over 8M22, a historic high of 3,470 of the 47,000 Chinese companies involved in the chip industry went out of business. (ii) The war in Ukraine shows no sign of ending, while tensions between the US and China over Taiwan are worsening. (iii) China's zero-Covid policy is still leading to the periodic closures of major urban and industrial regions. **However, the situation should improve towards the end of 2023** and Gartner expects that global sales of PCs and mobile phones will decline, with knock-on effects for demand for chips. In addition, new production capacity will come onstream, and this will also help to cut waiting times for chip deliveries.

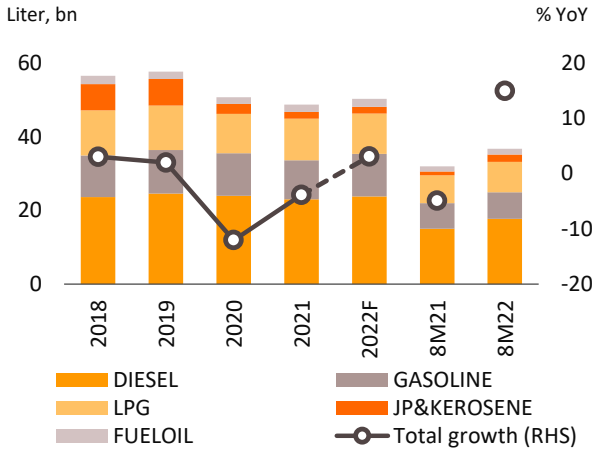
Source: Bloomberg, Susquehanna Financial Group, National Bureau of Statistics of China, U.S. Department of Commerce, Krungsri Research

Refinery: Gross refinery margins will tend to narrow in 2023 with softening crude prices and the slowing of global growth.

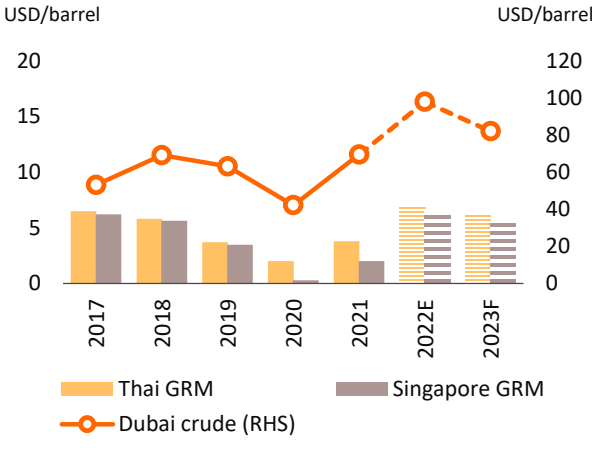
Thailand Petroleum Prices at Refinery



Domestic Petroleum Demand



Gross Refinery Margins

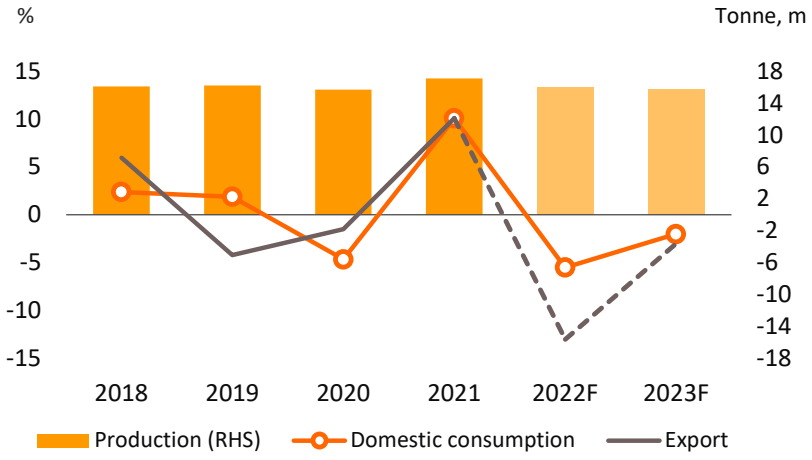


- **Over 9M22, Dubai Crude prices rose 53.9% YoY to an average of USD 100.9/bbl.** Prices peaked in Q2 following the Russian invasion of Ukraine but through Q3, the global economy has slowed, inflationary pressures have mounted, and the current rate hike cycle has continued, and so prices have softened. This has then undercut Thai ex-refinery prices for some products (e.g., gasoline and bunker fuel) but despite rising inflation, economic recovery and the reopening of the country to foreign arrivals has translated into strong domestic demand. This has been particularly so for transport fuels and over 8M22, total consumption of refined products has climbed by 15% YoY. Given this, Thai gross refinery margins (GRMs) averaged USD 15/bbl, and although this was down from the highs of June, it is still significantly higher than 2019's pre-COVID-19 level of USD 3.7/bbl.
- **Overall, GRMs will continue to tighten through the rest of 2022** as the world economy weakens and crude prices drop. However, production cuts by both OPEC and non-OPEC producers will keep Dubai prices elevated and these are expected to average USD 98/bbl for the year (up 42% YoY). This will then translate into average spreads for Thai producers of USD 6.5-7.5/bbl, up from USD 3.8/bbl in 2021. **Recovery in the economy, and especially in the tourist sector, is also expected to boost demand for refinery products, which will increase by 2.5-3.5%.**
- **Domestic demand for oil products will move with broader economic conditions in 2023,** although the continuation of the war in Ukraine will place a floor under global crude prices. Krungsri Research thus expects that Dubai prices will average USD 82/bbl in 2023, and this will then cause **Thai GRMs to narrow slightly to USD 6-6.5/bbl.** Demand for refined products will be lifted by economic growth that is forecast to run to 3.6% next year, as well as by recovery in the tourism sector (22.7m foreign arrivals are expected in the year). This will then add to demand for oil for use in industry and transport.

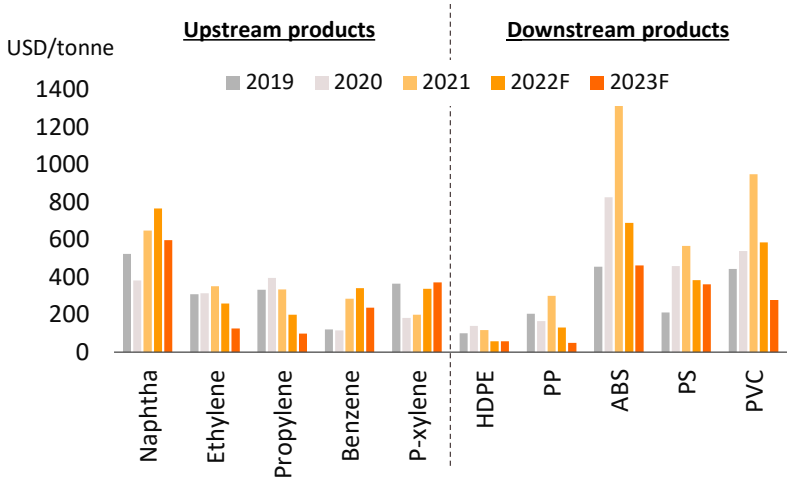
Source: Bloomberg, Energy Policy and Planning Office (EPPO), Forecast by Krungsri Research

Petrochemical: The high cost of crude is lifting the cost of inputs, while weakening demand is tightening spreads.

Thailand Petrochemical Market



Petrochemical Spreads

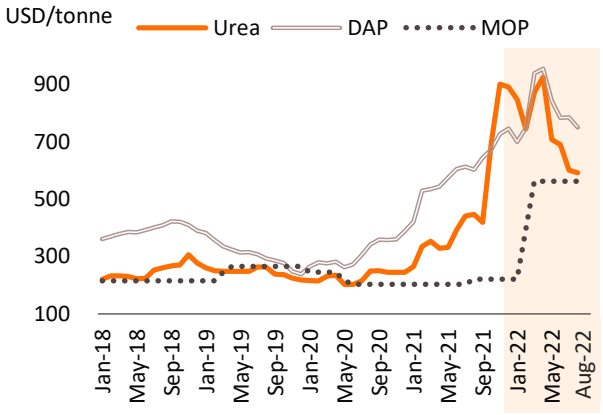


- **Having recovered strongly in 2021, the domestic market for petrochemicals softened markedly over 9M22.** Total consumption of petrochemical products (including distribution to both domestic and export markets) shrank -5.1% YoY on: (i) the strict lockdowns imposed in China, a major market for Thai exporters; and (ii) the global impact of inflation and central banks' interest rate hikes, which has then dragged on growth and undercut demand for petrochemicals from downstream industrial consumers. Because of this, prices have fallen for a broad range of products, but with elevated crude prices keeping the cost of inputs high (e.g., naphtha has averaged USD 824.7/tonne, up 34.2% YoY) spreads have shrunk for many products. This has included ethylene, propylene, HDPE and ABS, for which spreads are down by respectively -22.3%, -43.3%, -68.3% and -49.4% YoY.
- **Both domestic and international demand for petrochemicals will continue to weaken through to the end of 2022** as the global economy slows more rapidly than previously expected, with slowdowns especially marked in the US and Europe. In addition, crude prices will remain high now that the OPEC+ group has agreed to the first production cuts since the start of the COVID-19 pandemic, and output has thus now fallen by 0.1m bbl/day from Oct and then by 2m bbl/day from Nov. Higher prices will cut demand for petrochemicals from downstream industries **and so for 2022 overall, domestic consumption is expected to fall by between -5.0% and -6.0% YoY, while on export markets, demand will decline by between -12.5% and -13.5% YoY**, having grown 10.1% YoY in 2021. Prices will track this drop off in demand, but the cost of inputs will likely lag behind these declines, and so spreads will narrow.
- **Demand for petrochemicals will continue to weaken through 2023** as the world economy sees historically weak growth (the IMF expects global GDP to expand by just 2.7% in the year), though this will be particularly marked in China and the developed economies. Alongside this, global rates of inflation will remain high (this is expected to slip to 6.5% from 2022's 8.8%), and the net effect of these factors will be to weaken consumer spending power and drag on growth in downstream industries. Additional headwinds will come from the move by the government to reduce production of single-use plastics such as PE, PP and PET, and the simultaneous increase in supply of petrochemicals, especially from China, where the government is implementing export substitution programs that aim to increase domestic self-reliance. **Given all this, any increase in domestic demand for petrochemicals will likely be anemic, with growth limited to just 0-1%, while demand in export markets is expected to shrink by between -2.5% to -3.5%.** Crude prices are forecast to average USD 82/bbl and so spreads will continue to narrow in 2023. .

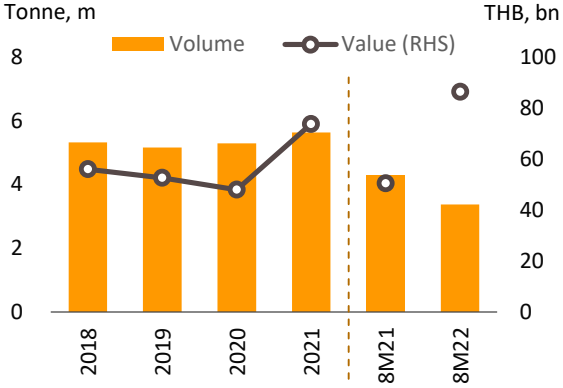
Source: Bloomberg, Office of Industrial Economics (OIE), Forecast by Krungsri Research

Chemical Fertilizer: Due to the high prices set on global markets, imports of the chemical inputs needed to make fertilizer will remain expensive.

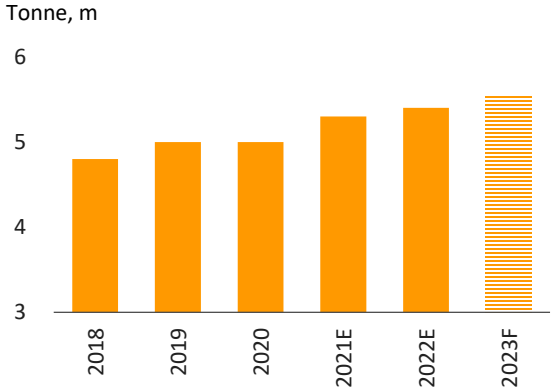
World Fertilizer Material Prices



Thai Chemical Fertilizer Imports



Domestic Chemical Fertilizer Consumption

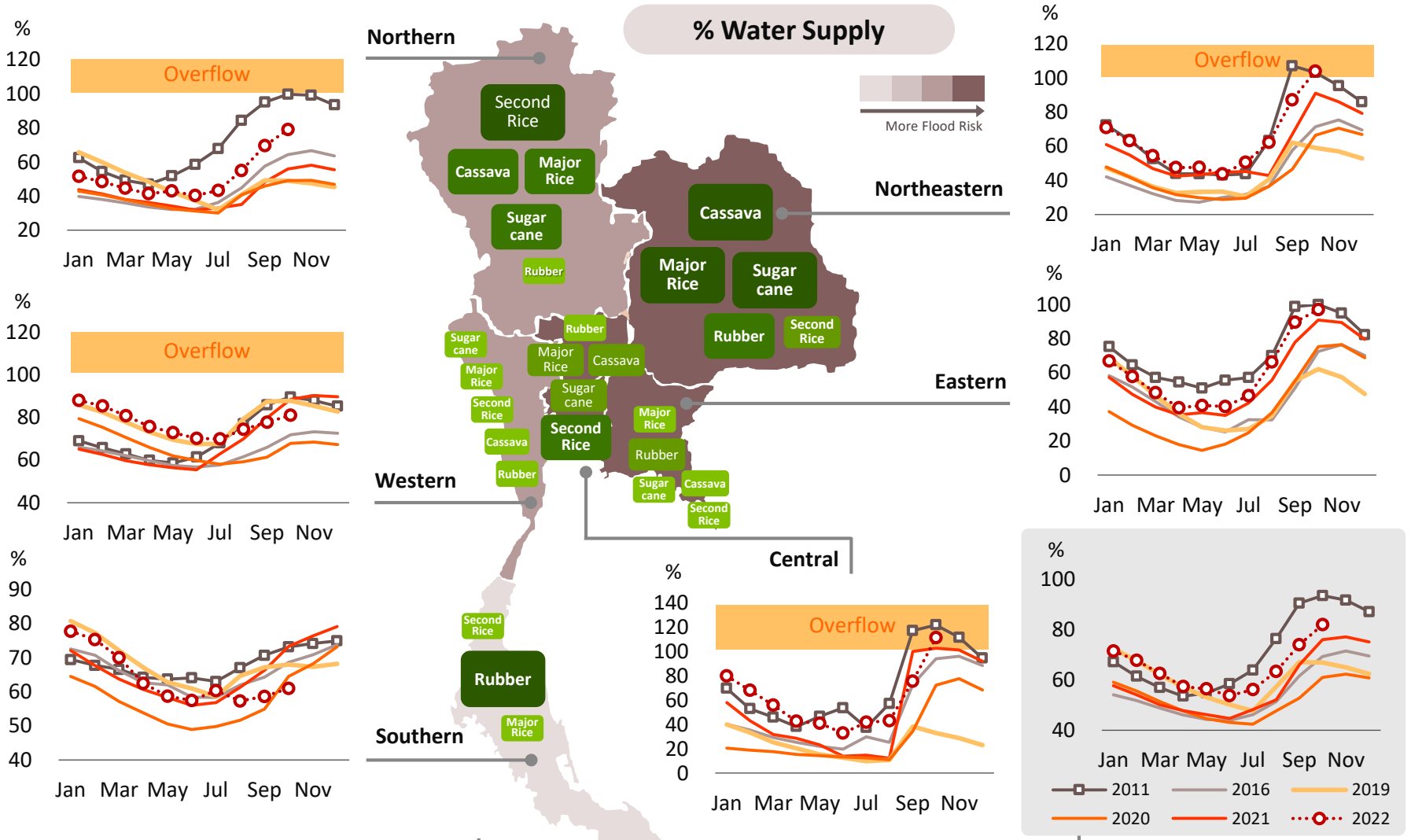


- **Over 8M22, the high cost of crude and natural gas helped to keep global prices for straight fertilizer at historic highs.** This situation was worsened by the move by Russia (the world's biggest exporter of chemical fertilizers) and other major exporters including China, Ukraine, and Belarus to maintain domestic food security by holding back their own exports of fertilizer. As such, average prices for urea, DAP, and MOP surged by respectively 107%, 47% and 143% YoY, and this then pushed up the cost of imports to Thailand of straight fertilizer by 137% YoY (to THB 24,207/tonne) and of mixed fertilizer by 102% YoY (to THB 29,201/tonne). At the same time, the government moved to protect farmers by imposing domestic price caps on fertilizer that limited the jump in retail prices to respectively 91% and 55% YoY. As such, imports slowed by -21.1% YoY through 8M22, though demand remained strong, particularly for use with crops that typically take heavy doses of fertilizer (i.e., rice, sugarcane, and oil palm). This was principally due to the 18% YoY increase in average farm gate prices that has then incentivized farmers to expand the area under cultivation.
- **Importers of fertilizer are expected to continue to slow through the remainder of the year** due to the ongoing impact of the high cost of crude on prices. The World Bank thus estimates that average 2022 prices for urea, DAP and MOP will be up 76%, 50% and 148% respectively. This situation is being made worse by the baht's loss of value relative to the US dollar (Krungsri Research sees the exchange rate averaging THB 35.3/USD over 2022, compared to THB 32.0/USD in 2021), although the higher cost of imports is not being fully reflected in domestic prices. Domestic consumption is tending to soften due to widespread flooding in agricultural areas, especially in rice-growing regions, and the rising cost of chemical fertilizers. Given this, farmers are switching to cheaper organic alternatives and **so for 2022 overall, consumption is expected to be up by just 1.9% to 5.4m tonnes, compared to 5.3m tonnes in 2021.**
- **The outlook should improve somewhat over 2023, and demand is forecast to strengthen by 2.8% in the year.** This will largely be due to strong prices for Thailand's main agricultural products that will then encourage farmers to expand the area under cultivation. This will be especially so for rice (which covers 50% of all Thai farmland), for which outputs should increase 1.5-2.5%, rubber (outputs will be up 2.5-3.0%), and oil palm (outputs will rise by 4.0-5.0%); taken together, these three crops account for some 80% of all domestic fertilizer use. **Nevertheless, growth will be squeezed** by: (i) high global prices that will translate into more expensive imports of straight fertilizer; (ii) government assistance for farmers that includes the extension of controls on the retail price of fertilizer; and (iii) the high cost of crude and other goods, which is adding to the cost of living and eroding farmers' spending power.

Note: DAP = diammonium phosphate. MOP = muriate of potash (potassium chloride)
Source: World Bank, MOC, Krungsri Research

Compared to the past 5 years, rainfall and reservoir levels are high, though they remain significantly lower than in 2011, the year of the Great Flood.

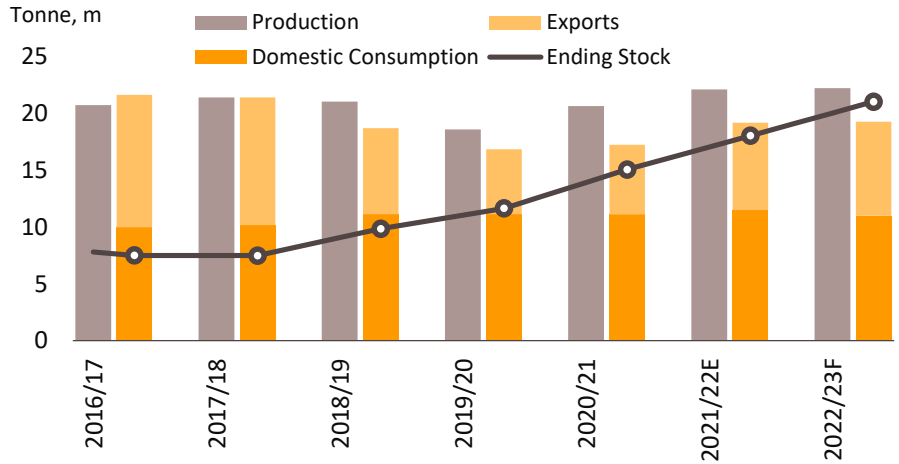
As of the end of Sep-22, Thailand's reservoirs were 74% full. This compares to the 69% achieved this time last year, **and it is expected that by Oct, this will have risen to a high of around 80-85% across the country.** This is a result of this year's moderate La Niña, though heavier than usual rainfall has also led to widespread flooding and damage to property and crops in the northeast, east, and central regions, most especially in rice, sugarcane, and cassava growing areas.



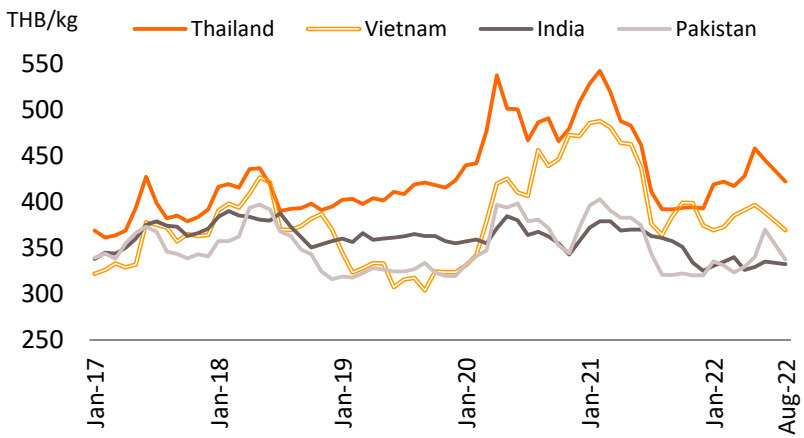
Note : 2022, 11 Oct is latest data
Source: Thaiwater, Krungsri Research

Rice: Demand for rice will remain strong but yields may be limited by the rising cost of fertilizer.

Thailand Rice Production, Consumption and Exports (Milled Rice)



World White Rice 25% Prices (F.O.B.)

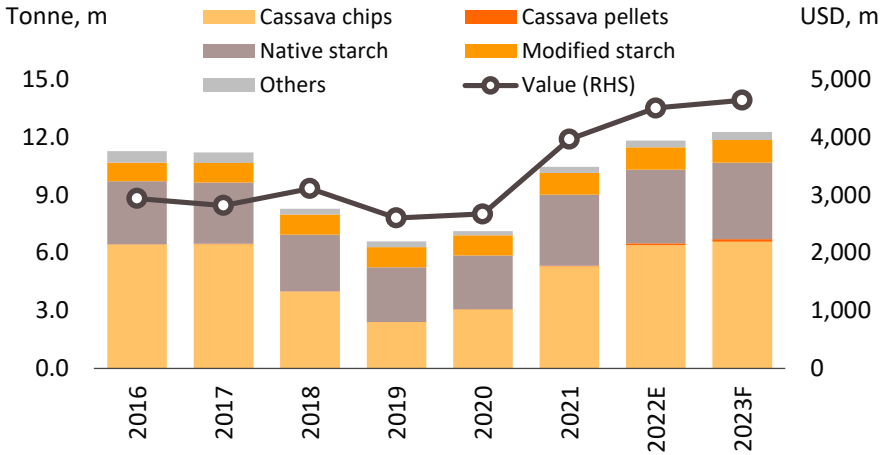


- **Exports of rice jumped 48.2% YoY over 8M22 to a total of 4.8m tonnes of milled rice.** Sales were lifted by: (i) additional demand for rice as an alternative to wheat and corn for use in animal feed, as rice and corn prices have risen due to the war in Ukraine; and (ii) problems with supply caused by export ban by India* (the world's biggest exporter) and the damage on Vietnamese crops by natural disasters. With demand surging, average export prices for Thai rice climbed to USD 428/tonne. Domestic demand also increased with recovery in the tourism sector, which then benefited restaurants and the food industry.
- **Through the rest of 2022, demand for rice will continue to strengthen, though at a slowing rate** as the effects of inflation and the higher cost of living are felt on consumer spending power. **For the year as a whole, domestic consumption is expected to increase by 3.5-4.5% YoY to 11.4-11.6m tonnes of milled rice, while exports will jump by 25.0-30.0% YoY to 7.7-8.0m tonnes of milled rice,** benefiting from: (i) worries over food security that are encouraging the stockpiling of rice; (ii) the switch to sourcing rice from Thailand as India suspended exports of broken rice and placed export duties on many types of rice; (iii) natural disasters in China (world's biggest consumer) and the Philippines that undercut their domestic harvest. Government support for rice farmers, price controls, and the more favorable climatic conditions seen in 2022 have combined to lift yields, **and these are now forecast to rise by 7.0-8.0% to 34.0-34.5m tonnes of paddy, or 22.1-22.3m tonnes of milled rice.** However, a combination of strong demand on domestic and international markets and flood damage to rice farms in the Northeast and Central regions is pushing up prices for white rice, and these have hit averages of THB 9,200-9,500/tonne on domestic markets and USD 428-432/tonne on export markets. This represents a strong increase from the Aug-21 averages of respectively THB 7,508/tonne and USD 392/tonne.
- **In 2023, domestic demand for milled rice is expected to total 11.0-11.5m tonnes.** Consumption will be largely unchanged from 2022 due to the strong inflation (driven by the cost of oil) and the impact of interest rate rises on the debt service ability of households. **The outlook for exports is slightly better, and these should grow by 3.8-5.2% to 8.1-8.3m tonnes of milled rice** on: (i) continuing demand for increased food stocks in light of the dragging out of the war in Ukraine; and (ii) the easing of problems securing container space, which will then facilitate growth in rice exports. However, the rising price of energy and of fertilizer will add to overall production costs, and so prices for white rice will trend upwards to an average of USD 430-450/tonne. Outputs will also improve, but only slightly and although the widespread availability of irrigation water will help, the sharp increase in the cost of fertilizer will encourage farmers to cut back on its use. **Given this, the total harvest is expected to be in the range of 22.0-23.0m tonnes of milled rice.**

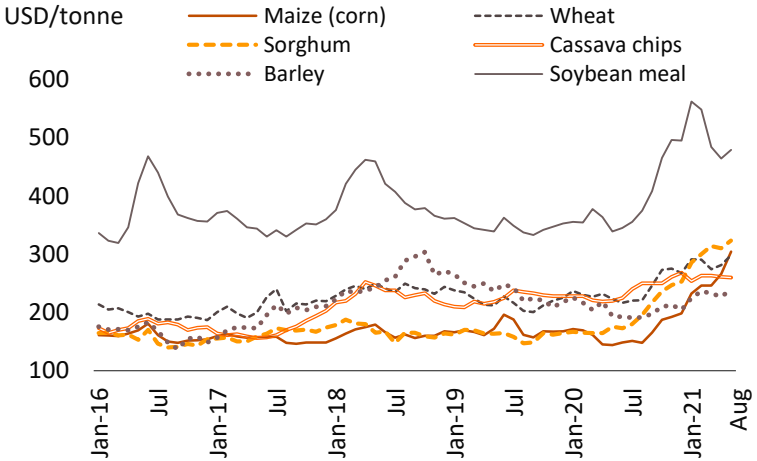
Note : * India halted exports of broken rice and imposed export duties of 20% on paddy, brown, semi-polished, and white rice (parboiled and basmati rice were exempt from the new duties).
Source: MOC, OAE, FAO, Krungsri Research

Cassava: Demand for cassava will strengthen on improving conditions in downstream industries.

Thai Cassava Exports

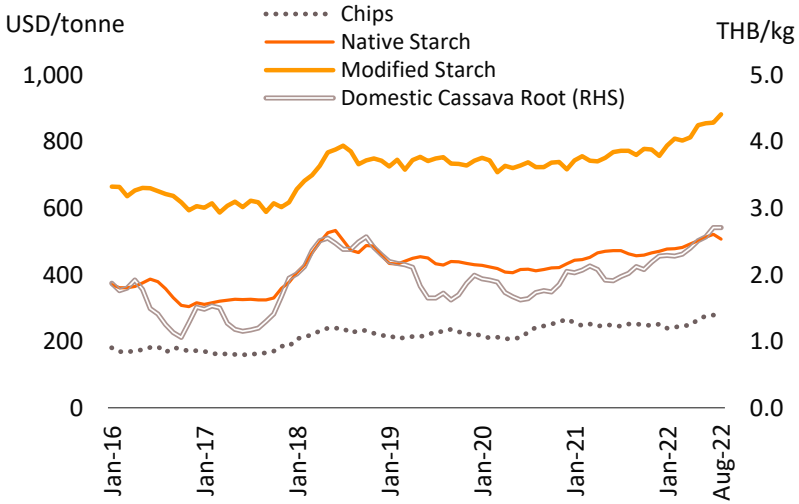


Global Animal Feed Price



- **Exports of cassava products increased by 12.8% YoY to 8.1m tonnes over 8M22.** Sales were helped by: (i) the pandemic-driven boost to demand for use in the production of alcohol, especially in China; (ii) the war in Ukraine, which has increased worries over food and energy security and encouraged many countries to step up imports of cassava for use in food processing and animal feed, and as a source of alternative energy; and (iii) demand for cassava as an alternative to other, more expensive foods, such as corn and wheat. **Given this, prices for fresh cassava have risen 22.7% YoY to THB 2.47/kilogram.**
- For the rest of 2022, demand for cassava will continue to strengthen on the extension of the war in Ukraine and the high price of crude. **2022 exports will also expand by 10-20% to 11.5-12.5m tonnes, while prices for fresh cassava will climb to THB 2.4-2.7/kilogram from THB 2.07 in 2021.**
- **Growth in exports is expected to slow to 3.0-4.0% in 2023,** though sales will continue to be boosted by: (i) the 2022 heatwave and drought in China and the widespread crop losses that this caused; (ii) demand from China for cassava for use as an alternative to corn in swine feed, now that the outbreak of ASF is easing; and (iii) the continuation of the war in Ukraine, which is encouraging some countries to increase their stocks of cassava.

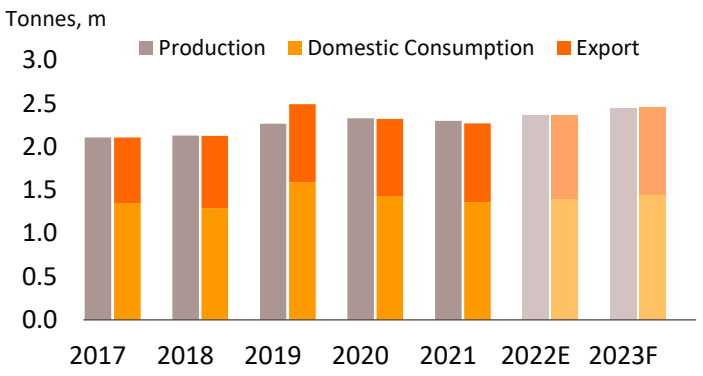
Thai Cassava Export Price



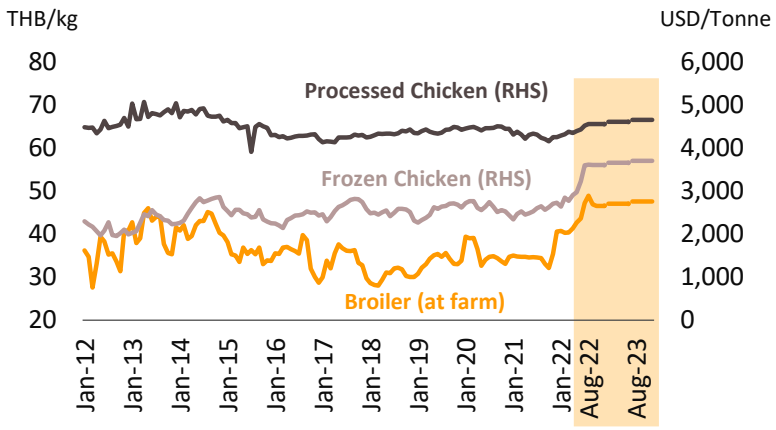
Source: World Bank, Thaifeedmill, MOC, OAE, Tapiocathai, Krungsri Research

Chilled, Frozen, and Processed Chicken Industry: Exports bode well on rising demand for food security and new export opportunities to the Middle East countries

Thai Broiler Industry Forecast



Domestic Broiler Prices (at farm) and Thai Chicken Export Prices (F.O.B.)

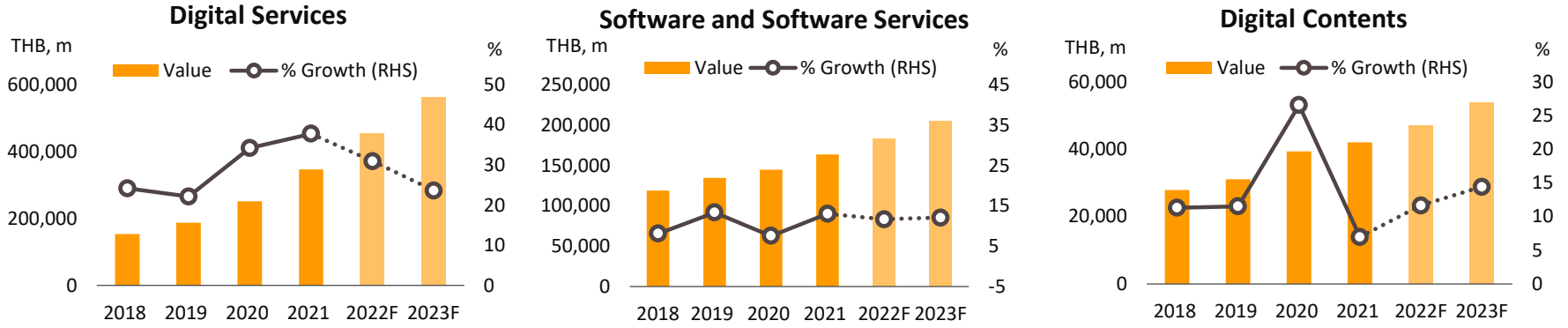


- **Over 8M22, demand for chicken products outpaced supply both in export and domestic markets** due to; i) the impacts of Russia – Ukraine war leading to concerns over food security; (ii) the outbreak of HPAI disease (High Pathogenic Avian Influenza) in many countries since 4Q21 until 2Q22 especially in Europe, resulting in lower supply in global market; (iii) labor shortages in agricultural sector in many countries caused by the ongoing COVID outbreak; and iv) depreciation of Thai baht supporting competitive advantages in export market. These supporting factors help boost **export volume of Thai chicken products to grow by 9.1% YoY** to 0.7 mn. Tonnes. Meanwhile, **domestic consumption increased** on recovery in overall economic activities following Thailand's gradual reopening to foreign tourists. Accordingly, prices of chicken products recorded a rising trend; broiler at farm price rose by 24.5% YoY to average at THB 43.1/kg. Chilled and frozen chicken prices increased by 37.5% to USD 2,436.2/tonne and 22.6% to USD 3,066.6/tonne, respectively. Processed chicken price slightly increased by 2.4% to USD 4,398.8/tonne.
- For the rest of 2022, exports of chicken would grow further on still-high demand for food security in global market amid uncertainty of geopolitical tensions especially from the prolonged war between Russia and Ukraine. However, the worldwide rising cost of living from high inflation that will weigh down on consumer's purchasing power in trading partner's countries may somewhat put a constrain on export growth. On the domestic front, demand for chicken will continue to increase, supported by improving demand from hotel and restaurant businesses following the full reopening of Thailand to foreign arrivals since July-22 and the designation of COVID-19 as an endemic disease since Oct-22. **Krungsri Research forecast that, throughout 2022, the export volume and domestic consumption for chicken products will grow by 6.5-7.5% and 2.5-3.5%, respectively.**
- **In 2023, export volume for chicken products will continue to expand by 2.0-4.0%.** Despite global economic slowdown with rising cost of living, export growth will be supported by; i) rising demand for food security amid ongoing geopolitical tensions; and ii) more export opportunities to the Middle East, especially Saudi Arabia, as Thai chicken products are Halal-certified suitable for Muslim nations. **Domestic sales, on the other hand, will grow by 2.5-3.5%,** lifted by economic recovery especially the rebound in the tourism, in particular the hotel and restaurant industries. Meanwhile, **the prices of chicken products is forecast to remain high** on rising costs of animal feed. However, operators will have to contend with the imposition of non-tariff barriers to trade, in particular the greater use of those related to animal welfare and environmental protection (e.g., assurance that animal feed is not sourced from deforested land, and that animals are raised in environmentally friendly conditions). Businesses will therefore need to pay greater attention to these issues and to increase competitiveness by raising production standards to meet these requirements.

Note : Forecast by Krungsri Research
Source: OAE, MOC, Krungsri Research

Digital Services and Software: Income will continue to strengthen with strong demand and growth in the uptake of services offered by online platforms.

Revenue Growth of Digital Services and Software in Thailand

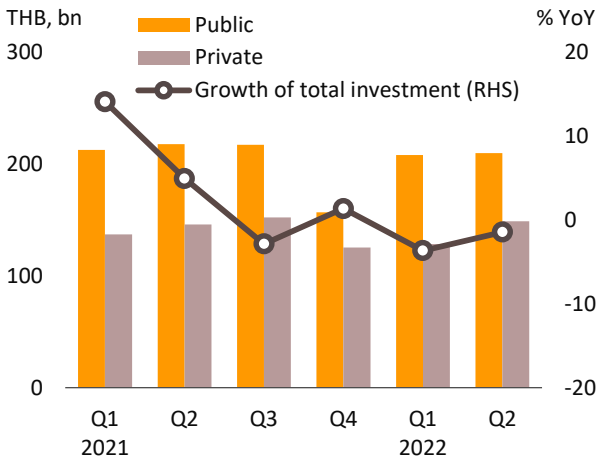


- **In 2022, income to the digital services and software industry is expected to rise 24%,** (+27% growth in 2021). The main driver is the digital services segment where growth should reach 30% in 2022, as consumer behavior now emphasizes on a deepening and broadening reliance on the use of digital platforms. In fact, Thailand is now rated 1st in the world in terms of the share of national internet users that shop online and use mobile banking services (source: Wearesocial, 2022), and there is an ever-greater number and range of platforms that are being developed to meet rising demand. The software development segment should expand by 12% this year as businesses and government agencies switch to the development of cloud-based systems for the delivery of targeted services to large numbers of people. PwC Thailand thus estimates that by 2022, over half of Thai businesses had adopted cloud-based services. Digital content businesses should also enjoy 12% growth this year, driven largely by online games and the increasing integration into social media platforms; Statista estimates that the number of online gamers in Thailand will grow by 6% this year. However, for animators and character developers, growth will remain soft due to weak economic conditions in the countries that typically hire Thai companies in this segment (i.e., China and Japan).
- **Overall income should grow by another 20% in 2023.** Digital services will again be the main driver of growth, though the software development and digital content segments will also continue to prosper.
  - **Digital services:** Income will jump by another 24% on: (i) businesses' greater competition to deliver services to customers via online platforms; and (ii) the ability of companies to use new technology (e.g., the metaverse and AI) to develop platforms that support a wider range of services. Companies that will enjoy the greatest opportunities to grow will likely be in areas related to e-retail, e-logistics, online media, and fintech.
  - **Software: 2023:** Income growth should mirror 2022's 12% thanks to the spread of cloud technology and expansion in 5G network coverage. This will then encourage greater uptake of software as a service (SaaS) offerings as companies intensify their efforts to complete the digital transformation of their manufacturing and service supply chains. Both large corporations and SMEs will thus increasingly invest in software as part of their business development plans. Companies offering SaaS, software integration, and consultancy services will thus enjoy high rates of growth.
  - **Digital content:** Growth should strengthen to 14% on better performance by the gaming segment, due to: (i) the development of games that exploit new technology (e.g., the blockchain) that then provides players with novel gaming experiences, such as collecting in-game items that can then be sold for cryptocurrencies; and (ii) the success of government efforts to promote e-sports, such as the e-sport online academy and the e-sport acceleration program. Animators and character developers will also see conditions improve as the outlook for entertainment services improves in export markets, especially for streaming over internet platforms (i.e., over-the-top or OTT services).

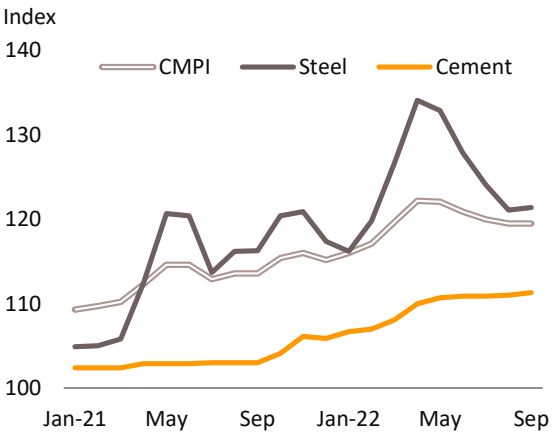
Source: DEPA, Krungsri Research

Construction Contractor: Investment was suppressed in 2022 by the high cost of transport and construction supplies, but recovery in demand will help to stimulate the market in 2023.

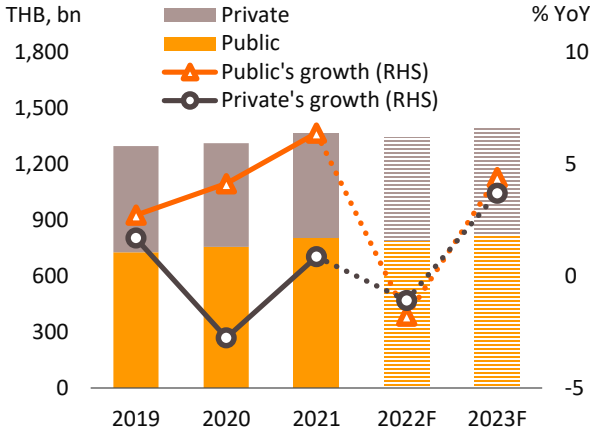
Construction Investment Value



CMPI



Construction Investment Value Forecast

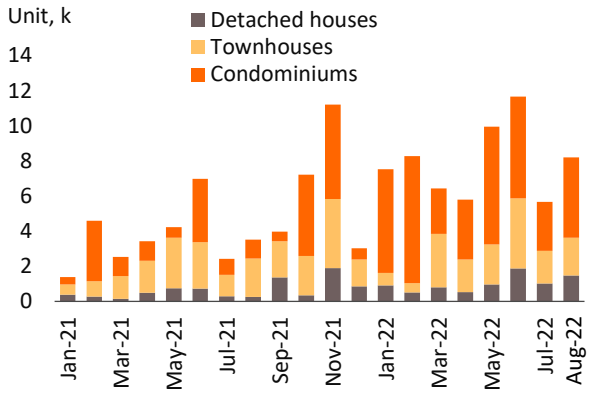


- **Total construction investment value slipped -2.5% YoY to THB 695.2bn in 1H22.** The rising price of oil that passed through to transport and construction materials has added to costs (as reflected in the +13.2% YoY and +6.1% YoY in the indices of construction steel and cement prices). Combined with weak demand, this undercut activity in the sector. In detail, the value of public-sector construction dropped -2.9% YoY due to delays in budget disbursements, while spending on construction by the private sector contracted -2.0% YoY because large projects (e.g., Bangkok's yellow and pink metro lines) have already been completed without other new large-scale projects being commenced (NESDC). This then offset increases of respectively 3.2% YoY and 18.1% YoY in residential and commercial developments that have moved forward as planned.
- **Investment in the construction sector will continue to slide through 2H22 relative to 2H21.** Declines will be driven by: (i) widespread flooding that caused delays to many projects; (ii) the ongoing energy crunch, which is keeping the cost of construction materials elevated; and (iii) weak consumer spending power.
- **For 2022 overall, the value of spending on construction is therefore expected to drop by -1.5% to THB 1,344.2bn**, with the public and private sectors seeing declines of respectively -1.8% and -1.1%. Moreover, given weak purchasing power, it is increasingly hard for those working on private-sector contracts to pass on the higher cost of construction materials by hiking their prices. This is an especially acute problem for smaller operations, and as such, some may become insolvent.
- **The situation should improve in 2023, and the sector is expected to swing back to growth** thanks to: (i) an improving economic outlook that will support greater private-sector investment in residential and commercial developments; and (ii) an increase in activity dictated by phase 2 (2023-2027) of the plan for the development of infrastructure and utilities in the EEC, which assigns a budget of THB 340bn to 77 projects, and in work on megaprojects in other parts of the country. This should then stimulate additional activity in the private sector, in particular in commercial and industrial developments. **Total construction investment is thus forecast to strengthen by 4.0-4.5%, split between increases of 4.0-4.5% and 3.5-4.0% in the public and private sectors respectively.**

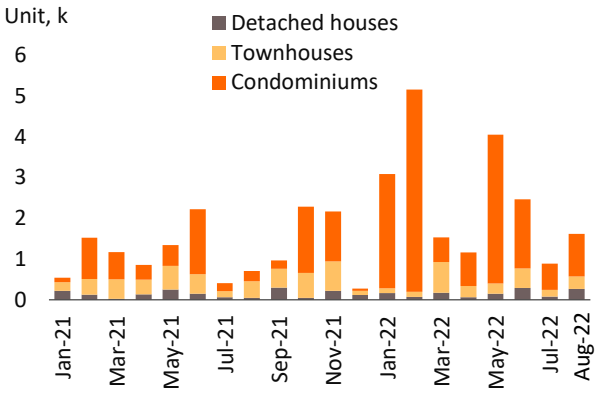
Sources: Office of the National Economic and Social Development Council (NESDC), Ministry of Commerce (MOC) forecast by Krungsri Research

Housing in BMR: The market will strengthen with overall economic growth but rising inflation and the working out of the current cycle of interest rate hikes will weigh on demand.

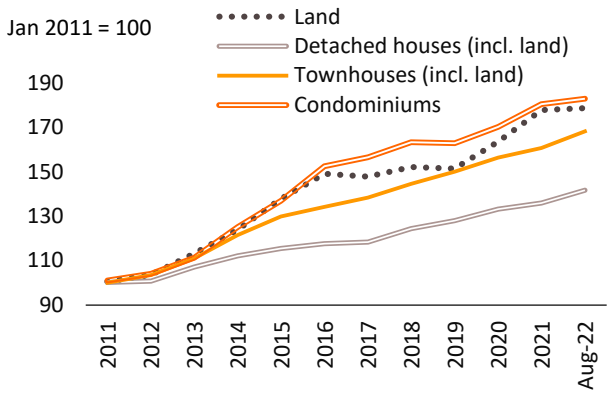
New Supply



Units sold*



Housing Price Index**

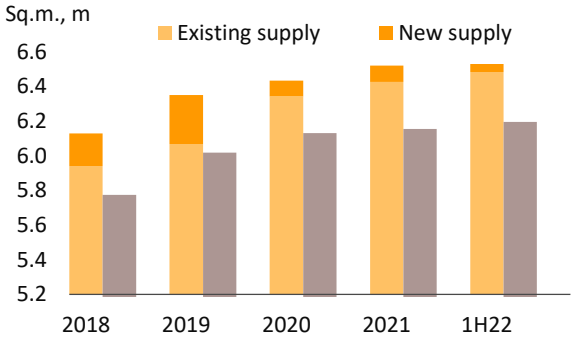


- **Over 8M22, the number of new properties coming to market jumped 118.4% YoY to 63,455 units.** 60% of these were condominiums, which were followed in importance by townhouses and detached houses. Sales of new units performed even better, surging 127.3% YoY to 19,961 properties, around 80% of which were condominiums. Sales of condos were thus up by over 200% YoY, though this was concentrated in the THB 1-2m segment. Demand was helped further by the reopening of the country to foreign tourists, which then boosted investment in the build out of new rented accommodation. Sales of detached houses rose at the slower rate of 22.8% YoY, but purchases of townhouses dropped -18.3% YoY due to the release to the market of a large number of properties in 8M21. In addition, the market for townhouses is dominated by buyers in mid- to lower-income groups that have been most affected by the rising cost of living and the increase in interest rates. Property prices have also risen in line with the rising cost of energy and of building materials.
- **For the rest of 2022, developers are likely to continue bringing new projects to the market as per their current plans,** especially on detached houses targeted at owner-occupiers who have retained their purchasing power, and condominiums targeted at non-Thai owners and landlords looking to rent out their properties. On the demand side, the market will be stimulated by the growing number of foreign arrivals. However, ever-rising property prices, high inflation, and the upward trend in interest rates are dissuading some consumers from taking out long-term loans when the economic outlook remains uncertain. **For all of 2022, the number of new units is forecast to increase by 48.0% YoY, but sales of both new and old properties will rise at the slower rate of 20.0%.**
- **The property market is expected to strengthen in 2023** on: (i) forecast economic growth of 3.6% (up from 3.1% in 2021) and the higher purchasing power that this will bring; (ii) an acceleration of government megaprojects, especially on transport and communications, which will have beneficial effects on demand for property in nearby areas; and (iii) the rebound in the tourism sector, which will add demand for condominiums. Work will continue on new projects, including lower priced condominium developments near educational institutions and workplaces. At the same time, though, growth will be constrained by: (i) the extension of the Ukraine-Russia war, which caused high energy and construction material costs; (ii) the current cycle of rate rises, which is adding to housing costs; and (iii) the high burden of household debt. In light of all this, consumers are likely to remain careful about taking on even more long-term debt, and as such, **the number of new properties coming to market will increase by an estimated 4.5% YoY to a total of 84,000 units, below the 100,000 new units per year averaged over 2017-2019. At the same time, sales will rise by 2.5%, while prices are expected to increase by 5-10%.**

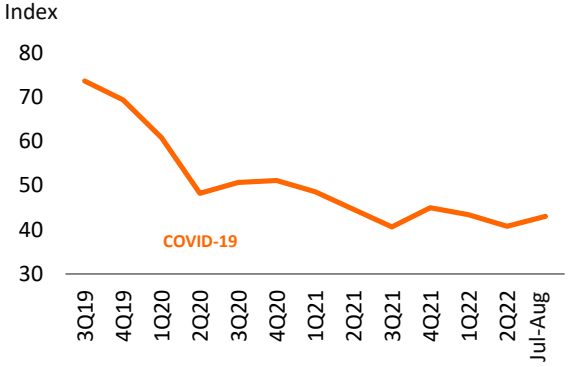
Note: *Units sold (sales by monthly) = units sold of new launched in this month only (excluding units sold of housing project launched before this month).
**The housing price index is calculated from data from 17 commercial banks registered in Thailand and active in the BMR
Source: AREA, BOT, Krungsri Research.

Retail Space: Growth in demand for rented retail space is likely to lag behind the expansion in supply and so occupancy rates will tend to worsen.

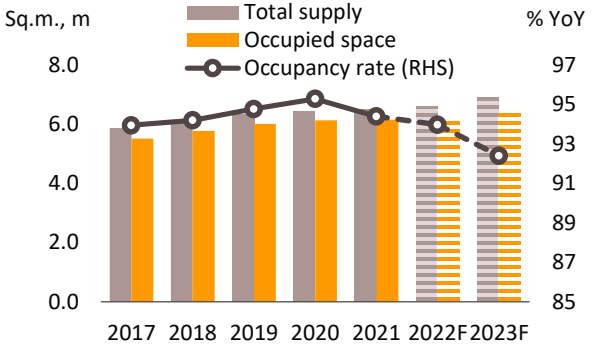
Existing and New Supply



Consumer Confidence Index: CCI



Retail Space in the BMR

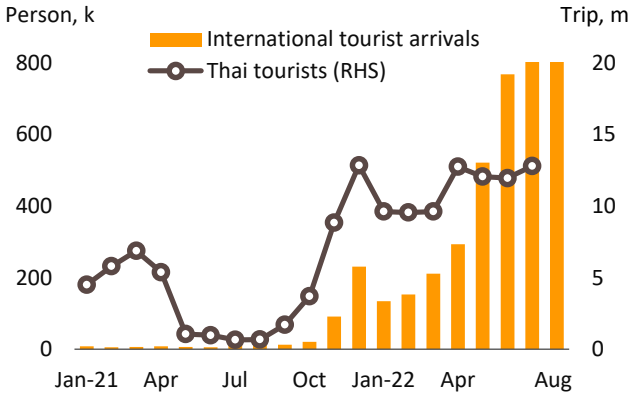


- **In 1H22, signs of recovery in the market for retail space weakened,** with the increasing energy costs and in the overall cost of living, and the significant pressure on consumer spending power. This worsening outlook was reflected in the new lows that the Consumer Confidence Index hit in 2Q22. As a result of the gloomy economic outlook, some commercial renters were forced to cut their retail floorspace, shutter their outlets, or give up their leases, the latter being especially common in businesses that can switch to online distribution. On the other hand, some retailers, such as distributors of brand-name goods, have been able to continue expanding their branch networks to meet demand from high-spending consumers. Overall, demand for rented retail space rose 0.7% YoY to 6.2m sq.m., while supply expanded by 47,200 sq.m., down -43% YoY. This then added just 0.2% to the total supply of retail space, bringing this to 6.5m sq.m. Meanwhile, the occupancy rate remained largely unchanged from 2021 at 94.9%.
- **Business conditions should improve slowly through the rest of 2022,** helped by the effects of reopening the country and of government measures to boost consumption that include phase 5 of the 'Half Each' and phase 4 of the 'We Travel Together' schemes. Nevertheless, the rise in the cost of living, the increase in interest rates, and the high level of household debt (88.2% of GDP as of Q2) means domestic consumer spending power will strengthen only gradually. Thus, **for all of 2022, demand for rented retail space will edge up by just 1.0%, or by 62,000 sq.m., while supply will rise by 1.5%, or 95,000 sq.m.,** due to the need to postpone work on some projects in light of labor shortages and the rising cost of construction materials. **Overall occupancy rates are forecast to remain largely unchanged at 94%.**
- **Demand for retail space is forecast to strengthen by 2.5% in 2023** (over 2017-2019, demand increases averaged 3.7% annually). The market will be buoyed by: (i) a growing economy that will lift private-sector consumption; (ii) continuing public investment on infrastructure projects that will support the labor market and inject more money into the economy; and (iii) an improving outlook for the tourism sector, with tourist arrivals forecast to hit 22.7m, up from 10.4m in 2022, which will then increase spending in shops in tourist areas. On the flip side, the effect of the rising cost of goods and services on consumer spending power may intensify if energy costs remain high, while the upward trend in interest rates will erode the spending power of debtors. Property developers will nevertheless tend to continue with plans to add to the supply of retail space as they try to meet any future strengthening of demand, especially from shops selling overseas brand names that are continuing to grow their networks. The majority of these outlets are located in large shopping centers and mixed-use developments in the central business district. In addition, work on some developments scheduled for completion in 2022 has been postponed, **and so it is now expected that in 2023, the supply of retail floorspace will grow by 4.2%, or 280,000 sq.m., which would then bring the occupancy rate down to 92%.**

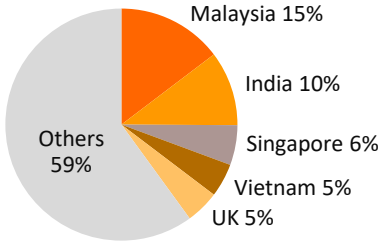
Source: CBRE Research, University of the Thai Chamber of Commerce (UTCC), Krungsri Research

Hotel: Both international and domestic tourism will strengthen, but occupancy rates will remain below their long-term average in 2023.

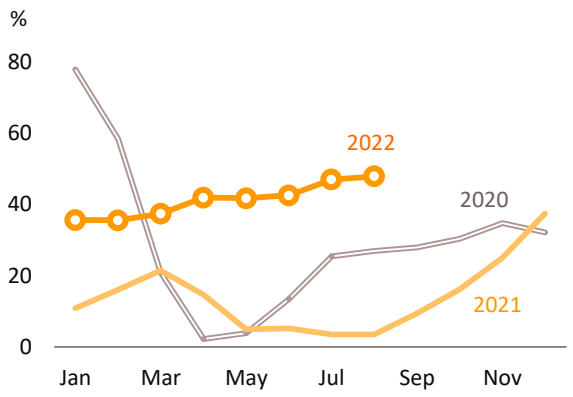
Number of Tourists in Thailand



% Share of Foreign Tourists by Nationality



Occupancy Rate



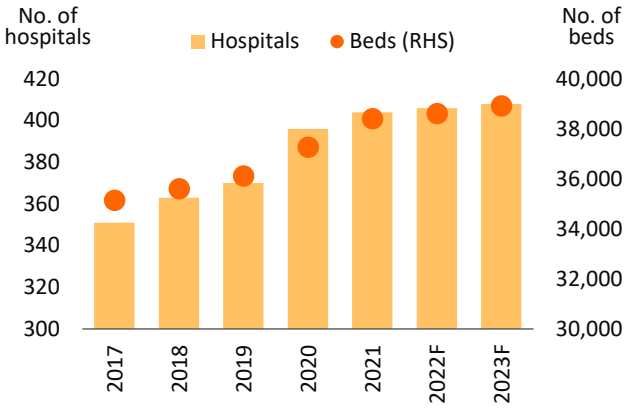
Note: The number of Thai tourists as of Jul 2022

- **In 8M22, the number of international tourist arrivals rose to 4.4m,** up from just 73,608 in 8M21, due to (i) the reopening of the country on July 1 that has brought about a sharp increase in tourist arrivals; and (ii) the relaxation of controls in many originating countries. Over the period, Malaysia was the most important market, and with 640,000 arrivals (compared to 1,229 in 8M21), Malaysians comprised 15% of all foreign arrivals. At the same time, the previously important Chinese and Russian markets accounted for respectively just 3% and 2% of all arrivals. Domestic Thai tourists took 78.3m trips in 8M22 (up 210.1% YoY), helped by the relaxation of pandemic controls and the government schemes that included phase 4 of the 'We Travel Together' program (from July 1 – Oct 31, 2022). These factors then helped to lift the average occupancy rate from 10% in 8M21 to 41.2% in 8M22.
- **Over the remainder of 2022, the number of foreign arrivals will continue to increase** thanks to: (i) the easing of the COVIDd-19 pandemic and the relaxation of restrictions on international travel; and (ii) the start of the tourism high season. Domestic tourism will also benefit strongly from: (i) government stimulus measures; and (ii) the ending of pandemic controls. Nevertheless, the effect of rising inflation on consumer spending power may weigh on growth in markets where purchasing power remains fragile. **For 2022, foreign tourist arrivals are expected to come to 10.4m, while Thais will make 125m domestic trips. The occupancy rate will also climb to 45%, from the 14.2% recorded in 2021.**
- **In 2023, foreign tourist arrivals are expected to increase to 22.7m.** If the Chinese government relaxes its zero-COVID policy, it is expected that Chinese tourists will gradually resume their international travels in 1H23. Thailand will also benefit from its long-standing status as a favored tourist destination; Thailand is in fact the world's 4th favorite destination, coming after only the US, the UK, and India (source: Visa Global Travel Intentions study). Domestically, Thai tourists will take an estimated 145m trips in 2023. Numbers will be lifted by a recovery in purchasing power and the likely extension of government stimulus packages targeting the domestic tourism industry. National occupancy rates will thus strengthen to around 55%, though this will still be very low when compared to the pre-pandemic average of over 70%.

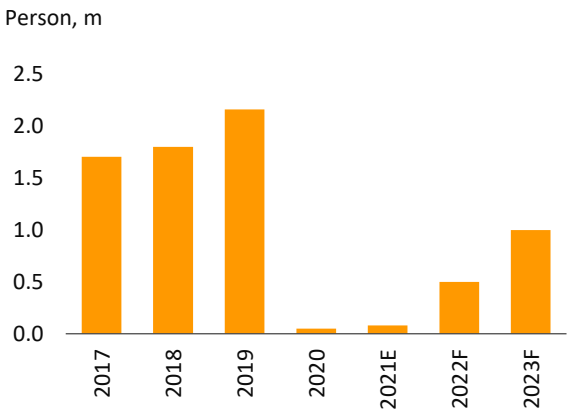
Source: Ministry of Tourism & Sports (MOTS), Bank of Thailand (BOT), forecast by Krungsri Research

Private Hospitals: Income will be boosted by the return of both Thai and overseas patients.

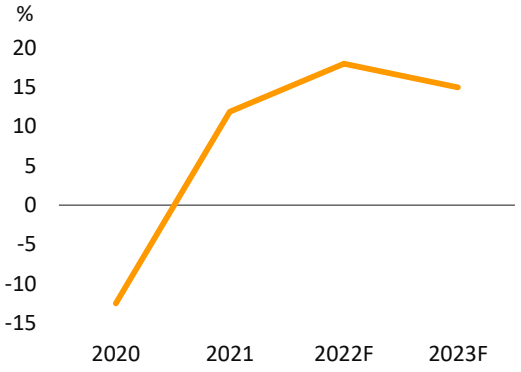
Number of Private Hospitals & Beds



Number of Foreign Patients



Revenue Growth of Private Hospital



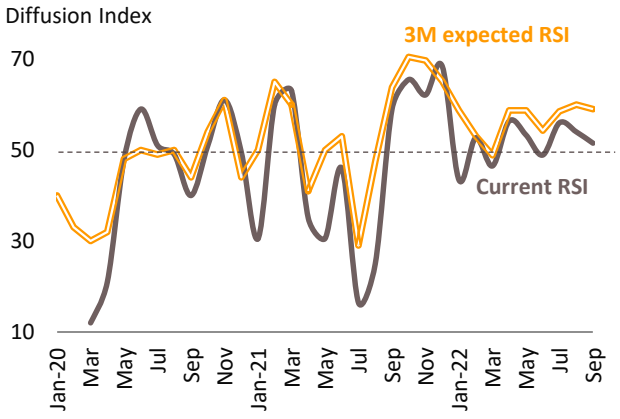
Note: Listed company in Stock Exchange Market

- **The Private hospitals' income rose in 1H22** thanks to: (i) receipts from government funded treatment of COVID-19 in- and out-patients and the provision of vaccination services; (ii) the steady relaxation of pandemic controls that allowed patients of all types to return to hospital for treatment; and (iii) the easing of restrictions on foreign arrivals and the increase in foreign patients (both medical tourists and non-Thais working in Thailand) that this then brought. Income for hospitals registered on the Thai stock exchange therefore jumped 56% YoY in the first half of 2022.
- **Income will continue to rise for the rest of 2022** as the economy recovers. As of Sep-22, 76.8% of the population had been fully vaccinated and so the authorities have designated COVID-19 as an endemic disease with effect from Oct 1. This will thus lead to a drop in income from patients with COVID-19, but will be offset by a rise in receipts from the treatment of other diseases as business and society return to more normal conditions. In 2H22, the industry also benefited from the rise in the number of overseas patients, which is increasing gradually with overall foreign arrivals (8.4m arrivals are expected in 2H22, compared to 2m in 1H22). **For all of 2022, income is therefore predicted to rise by 18-20% from its level in 2021.**
- **Income should continue to grow through 2023,** helped by: (i) the normalization of economic and social life within Thailand and the rebound in the tourism sector (2023 tourist arrivals are forecast to number 22.7m, which will include a significant number of medical tourists); (ii) income will increase from the treatment of COVID-19, which is now an endemic disease, much like other seasonal illnesses; (iii) consumers are increasingly concerned with their health and with preventing illness and this will allow hospitals to build additional income from wellness services; and (iv) the majority of private hospitals are seeing receipts grow from the provision of digital medical services (e.g., telemedicine or home medicine services), which have become increasingly attractive post-pandemic. **In light of this, private hospitals should enjoy income growth of 15% in 2023.**

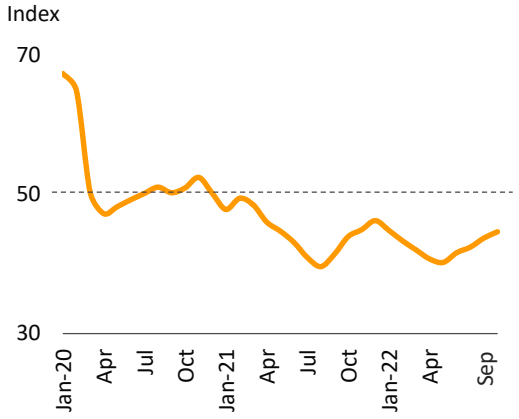
Source: MOPH, 2015-2023 estimate & forecast by Krungsri Research
Note: * Listed companies

Modern Trade: Sales will gradually recover in step with the rebound in the economy, but the high cost of living means that spending power remains weak and fragile.

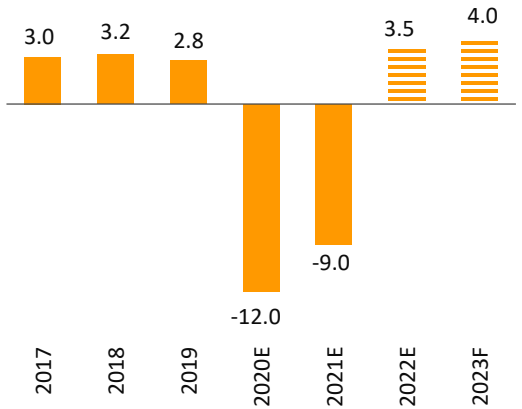
Retailer Sentiment Index (RSI)



Consumer Confidence Index (CCI)



Retail Business Growth (% YoY)



- **The business outlook has improved over 9M22 on:** (i) the abating of the COVID-19 pandemic and the rebounding economic activity; (ii) the steadily rising number of foreign arrivals that helps to boost sales from outlets in tourist areas; (iii) government stimulus measures, e.g., phase 5 of the 'Half Each' and phase 4 of 'We Travel Together' (July-October) programs; and (iv) the 14.4% increase in farm incomes, which has boosted spending power among some consumer groups. Nevertheless, sales remain under pressure from consumer purchasing power that has yet to fully recover, while strong inflationary pressures are pushing up prices for goods and services. In addition, the high level of household debt (88.2% of GDP as of 2Q22) is forcing consumers to be cautious about purchases, and this uncertainty is reflected in the Consumer Confidence Index. This has remained below 50 points since January 2021, and is currently at 44.6, down from 46.2 at the start of 2022.
- **Modern trade sales should strengthen through the last quarter of 2022,** helped by the designation of COVID-19 as an endemic disease. This then allowed businesses to return to normal operations. In addition, sales will be lifted by the approach of the holiday season and accelerating recovery in tourist arrivals. For all of 2022, modern trade sales are thus expected to grow by 3.5%, a strong turnaround from 2021's -9.0% contraction.
- **Sales growth is forecast to hit 4.0% in 2023** as a result of: (i) economic growth of 3.6% (up from 3.1% in 2022) that will then boost consumer spending power; (ii) a forecast total of 22.7m foreign arrivals (up 118% from 2022); (iii) continuing growth in online distribution; and (iv) ongoing expansion of branch networks, including the rollout of new types of shops as players try to meet demand from a wider range of consumer groups. However, assuming that oil prices stay high, the cost of living will remain elevated, consumers are having to contend with high levels of household debt, and within the sector, competition is intensifying from both other modern trade outlets and online operators. As a consequence, growth rates will come under pressure.

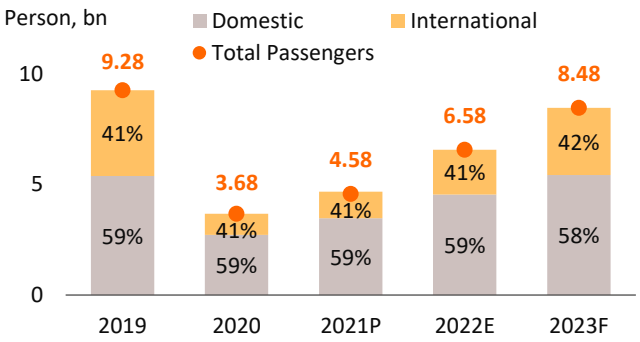
Note: Estimate and forecast by Krungsri Research
Source: Thai Retailers Association (TRA), Bank of Thailand (BOT), The Center for Economic and Business Forecasting; UTCC

Air passenger services: The business environment will improve with the overall recovery in the tourism sector.

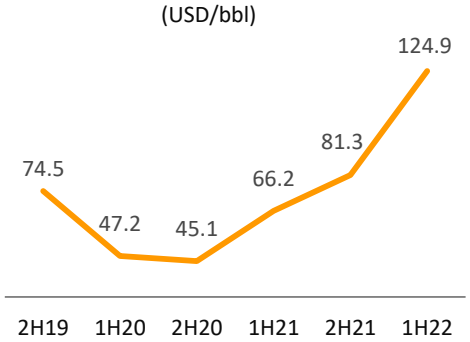
Air Traffic of Thailand

Traffic / Route		Domestic	International	Total
Passenger (mn)	6M-21	10.5	0.4	11.0
	6M-22	22.3	5.6	28.0
	% Growth	112.0%	1211.4%	155.0%
Flight (10,000)	6M-21	107.9	32.4	140.3
	6M-22	181.0	60.5	241.5
	% Growth	67.8%	86.9%	72.2%

Global Passenger Traffic by Type



Jet Fuel Price (average)

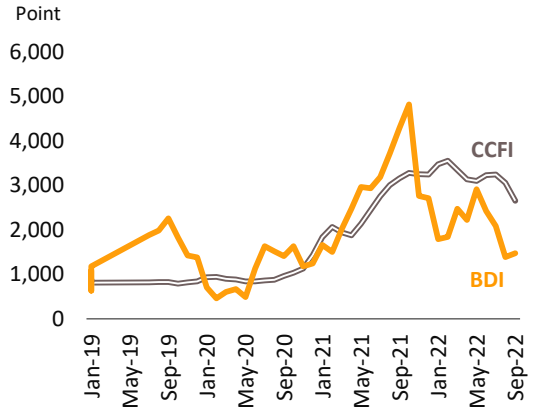


- **In 1H22, demand for air travel increased substantially.** This followed the decision by many countries including Thailand to abandon controls on international travel and to reopen their borders, though domestically, this process was also helped by the roll out of phases 2 and 3 of the 'We Travel Together' program. In addition, airlines have restarted almost all of their flights, and so the number of passengers passing through Thai airports jumped 155% YoY in the period (international travel was up 1,211.4% YoY, while domestic passenger numbers rose 112.0% YoY). Likewise, the number of flights rose 72.2% YoY (up 86.9% YoY on international routes and 67.8% YoY domestically). However, greater demand and the sharp increase in global energy costs mean that the price of jet fuel has also surged 88.8% YoY.
- **Demand for air travel will continue to strengthen through 2H22,** helped by : (i) government policy, including the suspension of quarantine requirements (i.e., the Thailand Pass and the Test & Go system) from July 1, the designation of COVID-19 as an endemic disease from Oct 1, phase 4 of the 'We Travel Together' program, the offering of tax breaks for for travel to seminars and training (double tax deduction for spending on tickets and accommodation), and the cutting of excise tax on jet fuel until the end of the year; and (ii) airlines flying more regularly on existing lines and/or opening up new lines now that almost every country in the world has reopened (most recently, South Korea, Taiwan, Hong Kong and, from October, Japan, have all opened up again). Thailand therefore expects to welcome 8.4m foreign arrivals in 2H22, which would be a significant improvement on 1H22's 2m arrivals. However, the market will still struggle against the elevated cost of oil and high levels of inflation that are adding to the costs of travel, even while consumer spending power is softening. This will therefore weaken demand for air travel, though even so, **for 2022 overall, travelers are expected to take 62m journeys by air (up 195% from 2021) and airlines will make 0.55m flights (up 113%).**
- **Airlines will see strong growth in 2023, with passenger numbers up 46% to 90m and the number of flights rising 44% to 0.79m.** This will be a consequence of: (i) continuing recovery in the tourism sector, which Krungsri Research expects will take total foreign arrivals to 22.7m, while domestic tourists will make 145m trips in the year; (ii) the relaxation of controls on international travel by China (to date, China has added flights and eased controls for businesspeople and students traveling from Thailand); and (iii) the expectation by the CAAT that airlines will fly at full capacity given the fact that current slots are full and airlines are now expected to increase the frequency of arrivals and departures. Nevertheless, businesses will still have to contend with problems arising from: (i) the slowdown in the global economy and persistently high rates of inflation that are adding to the cost of travel, which is then dragging on demand for flights; and (ii) the extension of the Ukraine-Russia war and the effects of this on the cost of transport fuels. Unfortunately for airlines, intense competition is also making it difficult for them to pass on higher costs to travelers.

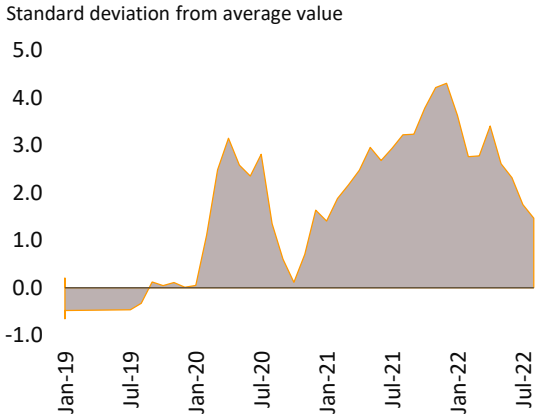
Source: Civil Aviation Authority of Thailand (CAAT), Airports Council International (ACI), Bloomberg, Krungsri Securities, Krungsri Research

Sea freight services: Income will tend to soften with the slowing of global trade.

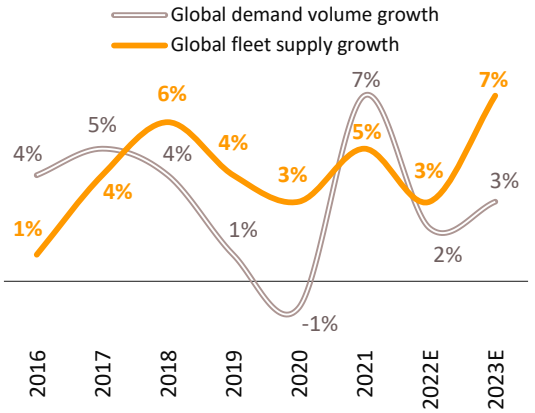
Baltic Exchange Dry Index & China Containerized Freight Index



Global Supply Chain Pressure Index (GSCPI)



Container Supply/Demand Balance (% change from TEU)



- **Over 1H22, both bulk and containerized shippers saw very healthy rates of growth,** and companies listed on the SET active in these areas reported increases in income of respectively 45.3% YoY and 87.4% YoY. The war in Ukraine pushed many countries to build reserves of food, energy, chemicals, and other inputs and raw materials ahead of the tightening of sanctions on Russia, and this fed into a sustained increase in shipping prices, most notably in the 7% increase in the Baltic Dry Index (BDI). Alongside this, the China Containerized Freight Index (CCFI) jumped 68% on the effects of China's severe lockdowns on the manufacturing sector and the resulting stockpiling of consumer goods.
- **Business conditions will continue to improve through the rest of 2022.** However, growth will slow as the rising cost of raw materials and energy and the overall higher cost of living help to undercut global demand, which is occurring alongside a general slowdown in the world economy. At the same time, the Global Supply Chain Pressure Index slipped to a 22-month low in August, reflecting the widespread easing of supply chain bottlenecks and the clearing of congestion in ports worldwide. This is then helping to reduce freight rates, and so in Q3, bulk rates slumped -55.9% YoY as European demand for coal to replace Russian oil and gas failed to fully materialize. However, the CCFI has increased 35.8% YoY thanks to the push by Chinese manufacturers to accelerate shipments ahead of October's Golden Week holiday. **For 2022 in total, bulk and containerized shippers are thus expected to see income increase by 10.0% and 38.3% respectively, down from 2021's jump of 62% and 120%.**
- **Rates of income growth will decline in 2023 on a slowdown in the world economy,** with the IMF seeing global growth dropping to 2.7% from 3.2% in 2022 and the WTO predicting that global trade will expand by just 1%, compared to 3.5% in 2022. Research by Hapag-Lloyd also shows that having risen by 3% in 2022, the supply of shipping containers will expand by 7% in 2023. Moreover, in 2021, orders for new ships totaled 4.2m TEUs with another 1.7m TEUs ordered in 2022 and these should now come into service over 2023-2025. Bulk shippers continue to be affected by the sanctions on Russia, which have undercut demand for the bulk transport of coal and other goods. On the other side of the market, demand is expected to rise by just 3% in 2023, and the widening gap between this and supply will cause freight rates to drop from their 2022 highs. Thus, **the BDI is expected to slip by -10%, while the CCFI will fall by between -10% and -15%.** Persistently high fuel costs will also force operators to more tightly balance the supply of capacity with market demand. This may lead to fewer vessels being at sea, an increase in blank sailing and skip calling, the demolition of older ships, and a greater focus on more profitable lines (e.g., Middle Eastern, African and intra-Asian routes). **This should then support income growth of 5-10% from 2022 levels.**

Sources: Bloomberg, Krungsri Securities, The Applied Macroeconomics and Econometrics Center (AMEC), Hapag-Lloyd, Krungsri Research

KRUNGSRI RESEARCH

Macroeconomic Team

Sujit Chaivichayachat	Head of Macroeconomic Research Department
Churailuk Pholsri	Senior Economist (Forecasting)
Sathit Talaengsatya	Senior Economist (Regional Economy)
Thansin Klinthanom	Economist
Supasyn Itthiphatwong	Economist

Industry Team

Pimnara Hirankasi, Ph.D.	Head of Industry Research Department
Taned Mahattanalai	Senior Analyst (Digital)
Poonsuk Ninkitsaranont	Senior Analyst (Healthcare, Mobile Operators)
Piyanuch Sathapongpakdee	Senior Analyst (Transport & Logistics)
Narin Tunpaiboon	Senior Analyst (Power Generation, Modern Trade, Chemicals, Medical Devices)
Thian Thiumsak	Senior Analyst (Energy, Petrochemicals)
Puttachard Lunkam	Analyst (Hotels, Construction Contractors, Construction Materials, Industrial Estate)
Patchara Klinchuanchun	Analyst (Real Estate)
Chaiwat Sowcharoensuk	Analyst (Agriculture)
Wanna Yongpisanphob	Analyst (Automobile, Electronics & Electrical Appliances, Food & Beverages)
Suppakorn Kornboontritos	Analyst (Agriculture)

Intelligence Team

Pimnara Hirankasi, Ph.D.	Acting Head of Analytics and Intelligence Research Department
Nathanon Ratanathamwat	Senior Analyst
Chinnakrit Ampornpannawat	Analyst
Parinya Mingsakul	Analyst

MIS and Reporting Team

Thamon Sernsuksakul	Administrator
Chirdsak Srichaiton	MIS Officer
Wongsagon Keawuttung	MIS Officer

Subscribe Us

For research subscription, contact

krungsri.research@krungsri.com

Disclaimer

All material presented in this report, unless specifically indicated otherwise, is under copyright to Krungsri Research. None of the material, nor its content, nor any copy of it, may be altered in anyway, or copied to any other party, without the prior express written permission of Krungsri Research. This document is based on public information believed to be reliable. Nevertheless, Krungsri Research would not affirm the accuracy and completeness of this information. We accept no liability whatsoever for any direct or consequential loss arising from any use of this document or its content. Information, opinions and estimates contained in this report are our own, which are not necessarily the opinions of Bank of Ayudhya Public Company Limited and its affiliates. It reflects a judgment at its original date of publication by Krungsri Research and are subject to change without notice.