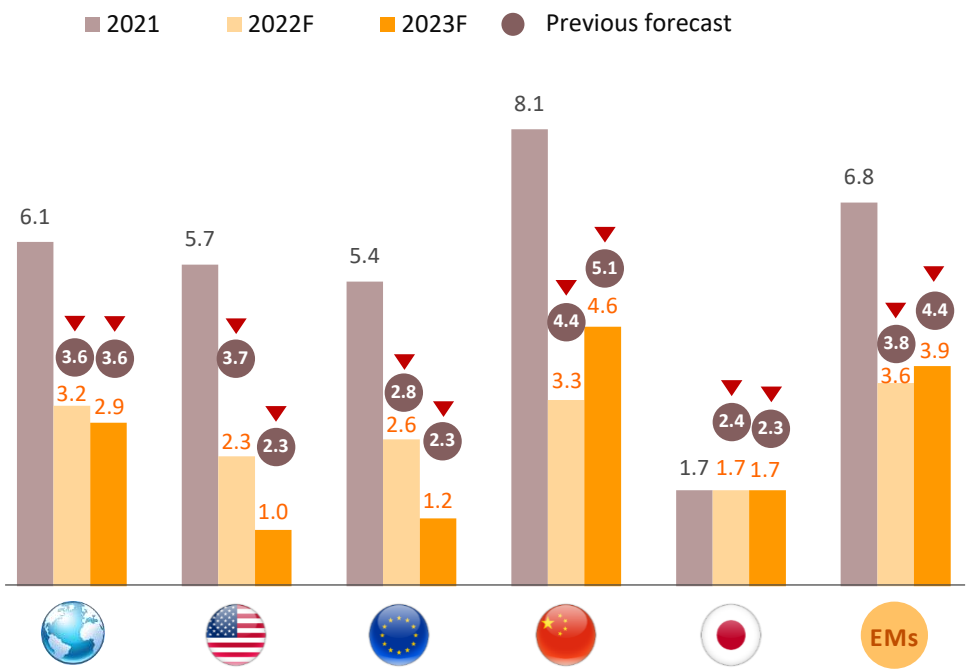

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July 2022
Krungsri Research



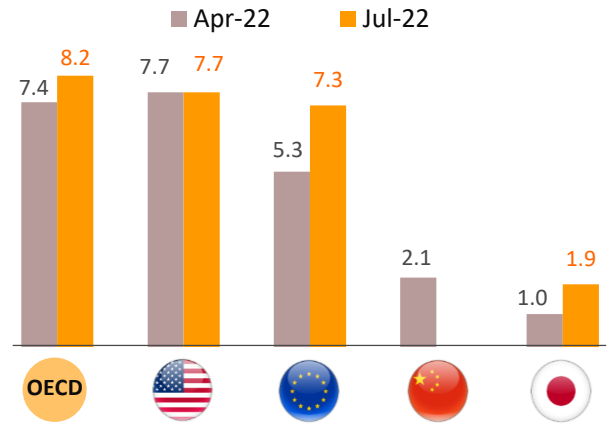

# 2022 MAJOR INDUSTRY OUTLOOK

# Global growth is slowing down; IMF slashed global growth outlook amid higher inflation, rising interest rates, Ukraine war, and China's strict covid policy

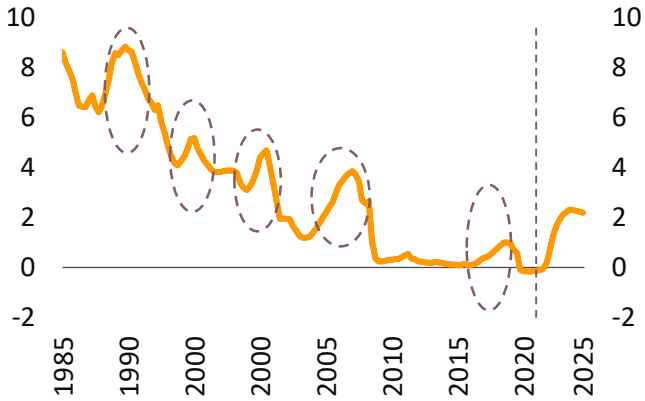
**Economic growth projections for global and major economies (%)**




**2022 Inflation forecast (%)**



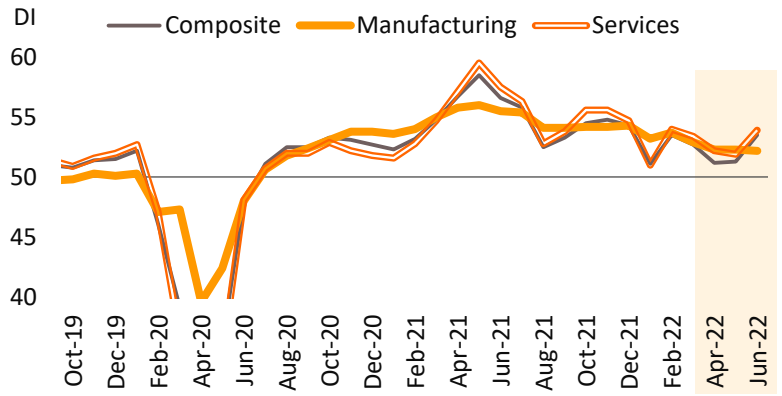

**Weighted average policy interest rate in advanced economies (%)**



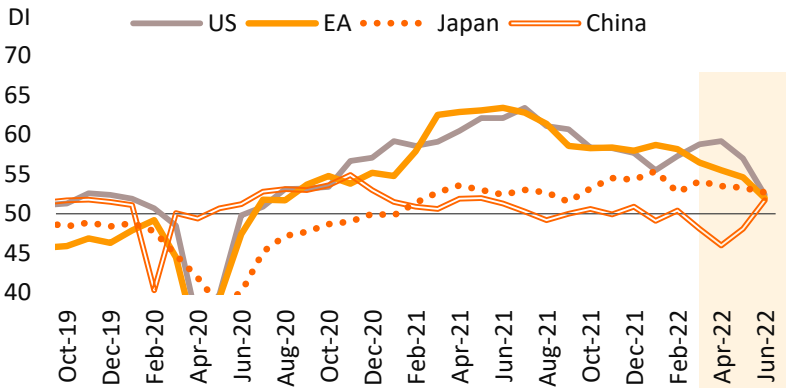

Source: IMF (July 2022), Capital Economics, Krungsri Research

# Major economies continue to slow down despite recovering economic activity in China, improving delivery times, and better supply situation

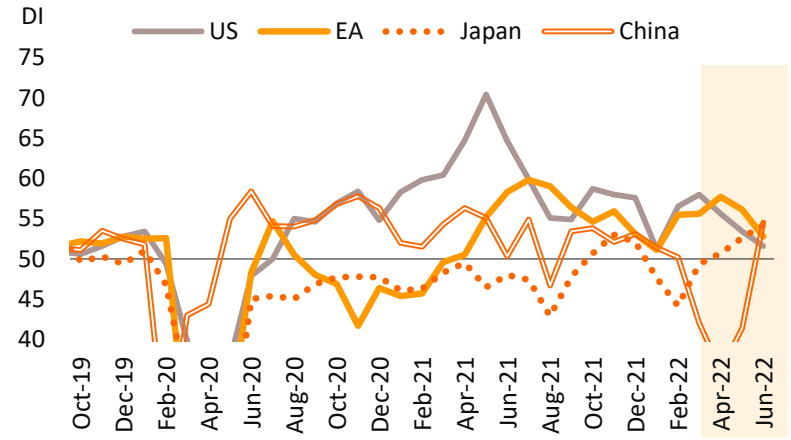
**Global Composite PMI**



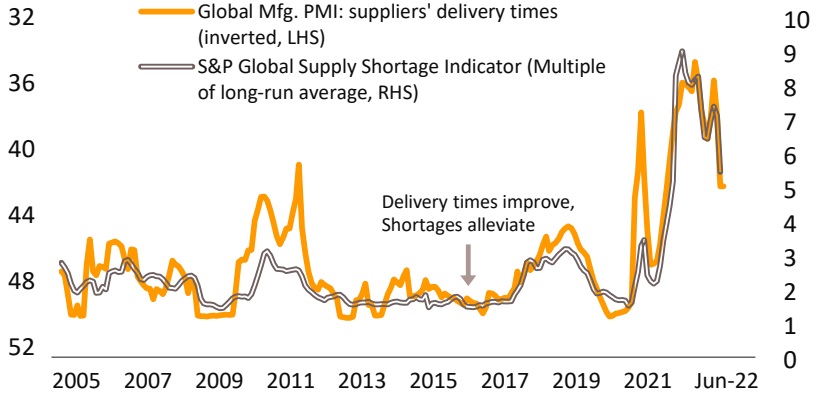

**Manufacturing PMI**




**Services PMI**




**Global Manufacturing PMI Suppliers' Delivery Time & S&P Global Supply Shortages Indicator**




Source: IHS Markit, Capital Economics, Bloomberg, Krungsri Research

# Thailand Economic Outlook

## 2022 Outlook: Divergent growth across key drivers amid external headwinds

**2022 Key Economic Forecasts**

| % YoY growth unless otherwise sated | 2020 | 2021 | 2022F |
|---|---|---|---|
| **GDP** | **-6.2** | **1.5** | **3.1** |
| Private Consumption | -1.0 | 0.3 | 3.8 |
| Private Investment | -8.2 | 3.3 | 3.5 |
| Exports (in USD term) | -6.5 | 18.8 | 7.5 |
| Headline Inflation | -0.8 | 1.2 | 6.6 |
| Policy Interest Rate (%, end of period) | 0.5 | 0.5 | 1.0 |

Note: 2022 forecast by Krungsri Research

**Krungsri Research's view:**

We fine-tuned 2022 GDP growth forecast to +3.1% (instead of 2.8%) to reflect better-than-expected growth in 1H22 and improving tourism activity, but overall economic recovery remains fragile

- Despite reopening effects, the economic recovery is being challenged by spillover effects of the Russia-Ukraine crisis on global growth, international trade and tourism, and inflation risk.
- China's strict containment measures could disrupt global supply chains and domestic manufacturing production. Despite rising farm income and domestic policy support, private consumption growth could be weighed down by soaring cost of living and high household debt.
- On policy rate outlook, the first rate hike could happen in August. The weaker baht and high inflation might pressure the MPC to hike rates but the pace would likely be gradual and slower than that in neighboring countries

### Headwinds

- Russia-Ukraine crisis, affecting commodity prices, global trade, and supply chains
- China's weak recovery with tight containment measures
- Volatile financial markets amid rising global interest rates
- Crisis legacies such as unemployment and high debt
- Domestic political uncertainty
- Structural problems e.g. lack of competitiveness in some sectors

### Tailwinds

- Reopening of economic activity in ASEAN, including Thailand
- Improving tourism sector
- Domestic policy supports
- Substitution effect from Ukraine war such as gains in agricultural sector
- Regionalization, ASEAN dynamism
- Thailand's sound economic fundamentals

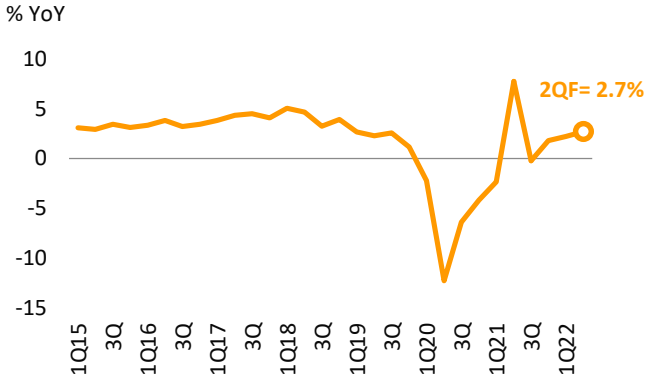
Source: NESDC, MOC, BOT, Krungsri Research

# Recent Economic Development

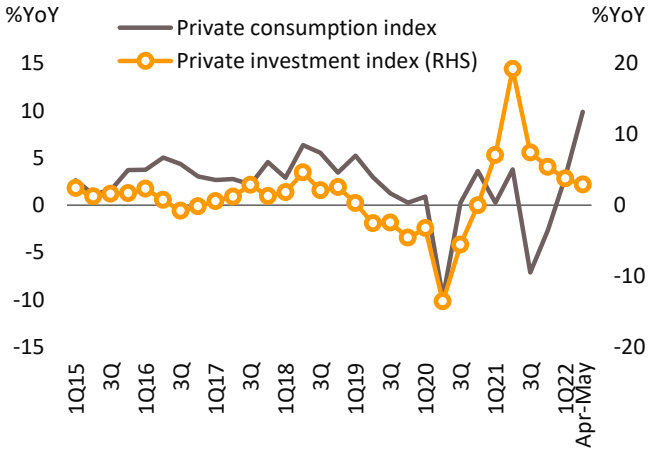
Economic activity has improved on easing containment measures, but the growth might be limited by high inflation, Ukraine war, China's zero-covid policy, and rising global interest rates.

- Although domestic spending could be driven by reopening effect and stimulus measures, purchasing power would be pressured by a surge in inflation.
- Export could grow at a slower pace due to weaker global growth and supply chain disruption despite gains from trade diversion.
- Tourism sector would continue to recover on the back of the easing of domestic pandemic and relaxation of the country's containment measure.
- High unemployment, high debt, and rising global interest rates weigh on pace of economic recovery.

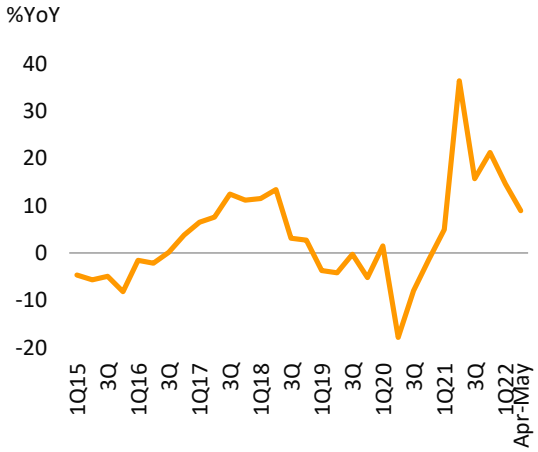
**2Q22 GDP could be weighed by external headwinds despite reopening effects**




**Despite rising pent-up demand, spending growth would be limited by high inflation**




**Export growth weakens on global slowdown and supply disruptions**



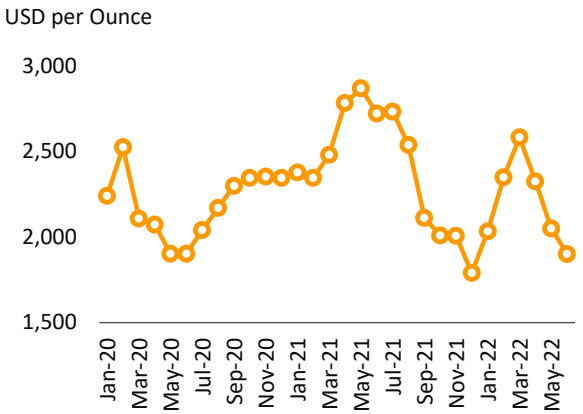

**Tourism sector improves following the easing of travel restrictions**



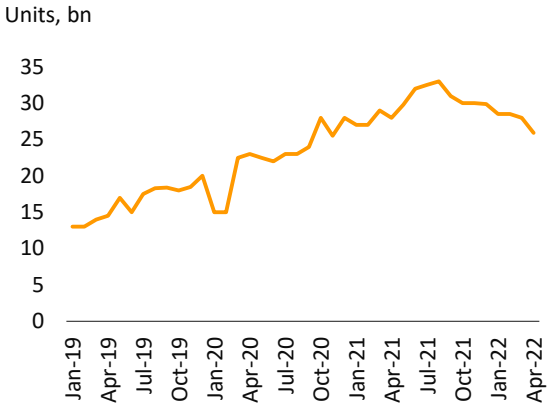

Source: NESDC, BOT, MOTS, Krungsri Research

# *Chip shortages:* expected to drag on into mid-2023 as a result of the extension of the Russia-Ukraine war and China's zero-Covid policy

## Global Palladium Prices




## China's IC Chip Outputs




## Global Semiconductor Supply Chain

**Step 1**
**Michigan to Taiwan 12,000 km**
Raw silicon
**Texas to Taiwan 12,800 km**
Chemicals

**Step 2**
**Taiwan to Malaysia 3,200 km**
Wafer fabrication for test/assembly

**Step 3**
**Malaysia to Munich 9,700 km**
Module assembly

**Step 4**
**Munich to China 7,700 km**
Original equipment Manufacturers assembly

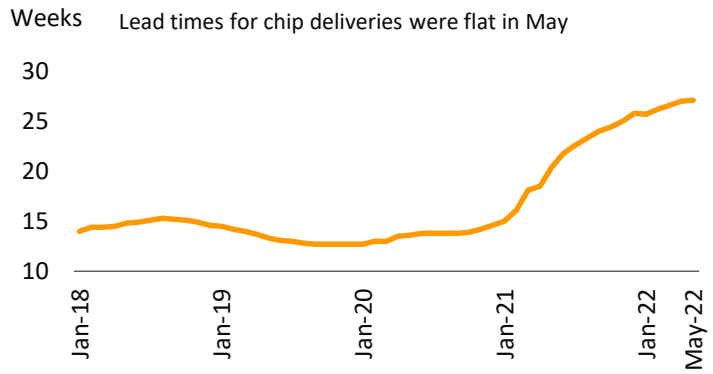
**Step 5**
**China to California, U.S. 10,000 km**
Final destination

- **The prolonged Russia-Ukraine war is** worsening pre-existing problems with chip shortages due to the importance in the chip manufacturing process of materials supplied by Russia and Ukraine. In particular, problems are being caused by shortages of neon and palladium, though over the short term, the impacts of this will be limited by the fact that stocks of neon should be sufficient to last until 3Q22. In addition, manufacturers should also be able to adapt by making purchases from Chinese suppliers, which have a 40-50% market share, and by recycling neon used in production processes. At the same time, some chip manufacturers have switched to buying palladium from suppliers in South Africa (which has a 30% share of global supply), Canada, and the US. This has then helped palladium prices to ease from the highs of April 2022.
- **China's implementation of its zero-Covid strategy** has continued with a lockdown of Shanghai that lasted from 28 March to 1 June. The area is home to companies including SMIC, TSMC and Hua Hong and as such. It is a globally important center of semiconductor production. **The effects of the lockdown were therefore to cut Chinese output of these by -12.1% in April, pushing the total to just 25.9bn units, the lowest level since December 2020.** In addition, Shanghai is also a hub of auto parts production, including engines, transmission units, traction motors, EV batteries, battery management system, and speed regulators, and major auto parts companies including Bosch, Aptiv, BorgWarner, Denso, ZF, and Yanfeng Visteon all operate factories in the area. The recent outbreak of Covid and the subsequent lockdown will therefore have consequences on global chip and auto parts supply chains.
- The prolonged war in Ukraine and China's zero-Covid policy will have effects on chip supply **chains that are now expected to run into mid-2023, before beginning to ease in 2H23.** Particularly notable is the shortage of neon, and manufacturers estimate that it will take between 9 months and 2 years to construct new neon production facilities and to bring supply from these to market

Source: Kitco, National Bureau of Statistics, Bloomberg, Global Semiconductor Alliance, Krungsri Research

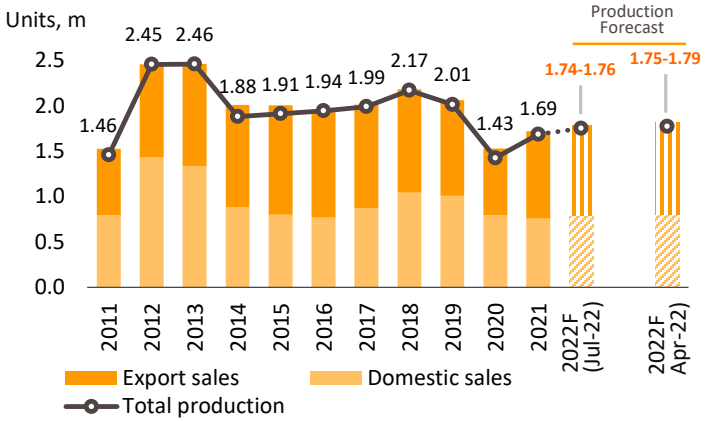
# *Automobile*: Growth in output remained low through 1H22 due to problems with the supply of parts, and expected to run to around 3-4% in 2022

**The Wait for Chips**




Note: Chart based on revised calculation method

**Automobile Production and Sales**

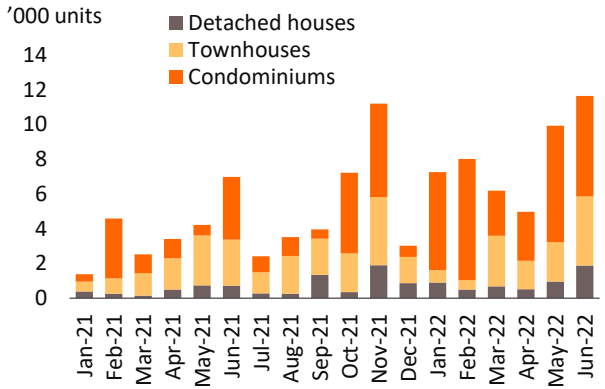



- **As of May 2022, delivery times for chips have slowed from a pre-Covid-19 average of around 12-15 weeks to a record high of over 27.1 weeks**. This has been due to: (i) supply shortages caused by the Russia-Ukraine war and China's attempts to control a new wave of Covid infections through the imposition of lockdowns, most notably in Shanghai, a center of auto and auto parts production; and (ii) rising demand for chips as manufacturers of smart devices, vehicles and new IoT-enabled products try to build up stocks. **Over 1H22**, output from auto production lines rose by just 3.0% YoY (to 870,109 vehicles), and while the domestic market expanded by 14.5% YoY (427,399 vehicles), exports shrank by -5.0% YoY (449,644 vehicles).
- **Growth in output is now predicted to rise by 3.0-4.0% in 2022** (down from the earlier forecast of 4.0-6.0% and compared to 18.1% growth in 2021). The industry is being hurt by the impacts on supply chains of the extended war in Ukraine and China's continued pursuit of its zero-Covid policy, both of which are causing disruptions that are now likely to run into 2023.
  - **Domestic sales are forecast to increase by 4.0-5.0%** (compared to a -4.2% contraction in 2021) on: (i) the relaxation of pandemic controls and the rebound in economic activity; (ii) stronger demand for commercial vehicles, which will be boosted by government income guarantee schemes for the agricultural sector and higher prices for agricultural goods; (iii) the new incentives offered by the government to promote purchases of battery electric vehicles (BEVs); and (iv) the release of new models to stimulate sales, especially at Motor Expo at the end of 2022. However, headwinds will also buffet the industry, including: (i) the rapid escalation in inflation and the effects of this on consumer spending power, and (ii) the cooling effect of rising interest rates on consumer purchasing decisions, especially for those entailing lengthy debts such as auto loans.
  - **Exports are now predicted to rise by just 2.0-3.0%** (the previous prediction in Apr-22 was for growth of 4.0-6.0% and compares somewhat unfavorably to growth of 30.4% in 2021). Downward pressure on growth rates is coming from: (i) problems with the supply of chips and of other auto parts, which is then being worsened by the need of manufacturers to allocate some of those for producing vehicles to serve domestic market that tended to recover; and (ii) the general slowdown in the world economy that is being caused by rising inflation and the need to hike interest rates to counter this. Nevertheless, in some of Thailand's more important auto export markets (e.g., Australia, the Middle East, and Africa, which together account for almost 50% of overseas sales), purchasing power is proving to be relatively resilient since these are exporters of oil and other commodities, and so they are benefitting from the higher price of these.

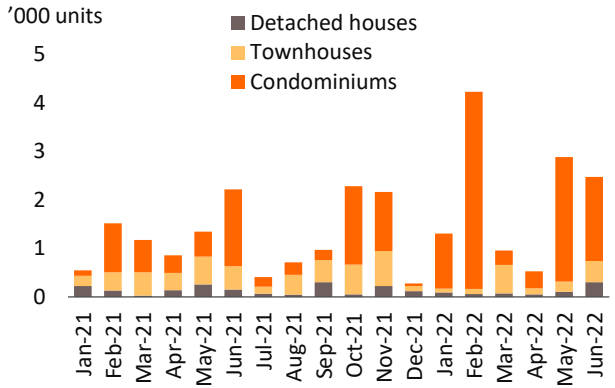
Source: Bloomberg, The Federation of Thai Industries (FTI), Susquehanna Financial Group, Krungsri Research

# *Housing in BMR:* Gradual recovery due to rising cost of living affecting eroded income and soften demand

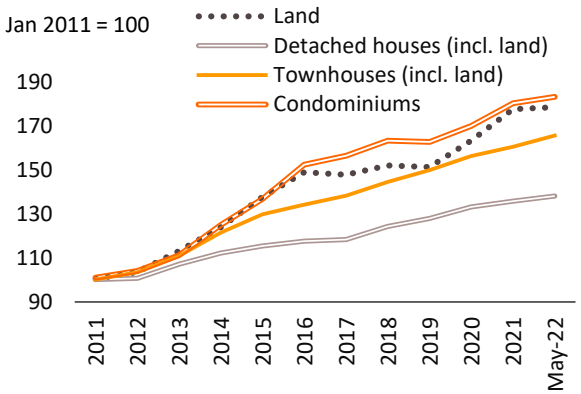
**New Supply**




**Units sold***




**Housing Price Index****



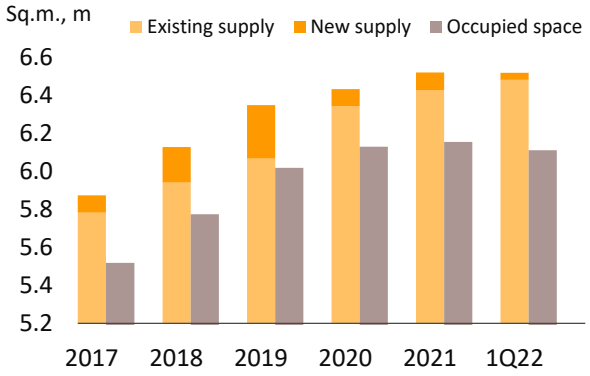

- **Over 1H22, the number of new units coming to market jumped 103.0% YoY** to 52,964 units, almost 70% of which were condominiums. After the opening of sales has been delayed and postponed over the previous 2 years, developers have been eager to work on their back log of developments and to open up new sources of income. As such, sales of new units surged 109% YoY to 18,040 units, of which 81% were condominiums. Compared to 1H21, the proportion of condominium to total sales has exploded 200%, though this is concentrated in the THB 1-2 million segment, where the market has benefited from investors looking for properties to rent out. In contrast, sales of detached- and townhouses slumped by respectively -1% and -19%. This is partly explained by the higher cost of land and rising house prices, which have themselves been forced up by more expensive construction supplies.
- **Through 2H22, demand is expected to recover gradually due to a return to growth in the economy from the full reopening of the country**. This will be helped by the impetus given to demand from foreign buyers. The condominium segment is likely to assume an increasingly central role within the overall housing market. Nevertheless, growth in supply, which will be fed by developers' expansive investment plans, is expected to outpace that of demand, which will be hampered by: (i) the effects of the rapid run-up in inflation on consumer spending power; (ii) the current cycle of rate hikes; and (iii) the continuing impacts of the war in Ukraine on costs of energy and of construction materials. The situation for 2022 is summarized below.
  - **For entire 2022, the number of new units coming to market would rise 14-15% YoY**. Developers are continuing to focus on low-rise projects to meet real demand and to respond to changes in demand arising from the 'new normal' and a greater tendency to work from home. However, alongside this, recovery in the condominium segment will become more tangible. Around 84,000 new units will be released to the market in the year, though this will still be less than the 100,000 units averaged over the years 2014-2019 prior to the pandemic
  - **Combined sales (new and old units) are expected to rise by some 4.5% from the 2021 figure**, though this represents a slowdown relative to predictions made at the start of the year. (i) The Russia-Ukraine war is pushing up energy costs and through this, the price of construction materials, with consequent effects on consumer purchasing power and developers' overheads. Given this, prices for newly begun projects and those currently underway are now expected to rise by an average of 5-10%. (ii) Oversea demands are somewhat uncertain, particularly caused by China's continuing enforcement of strict lockdowns (45% of overseas investors in Thai real estate are Chinese), and this may affect condominium sales. Developers are likely to switched to a greater focus on low-rise projects as a way of targeting the wealthier end of the market, where sales remain relatively unaffected.

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

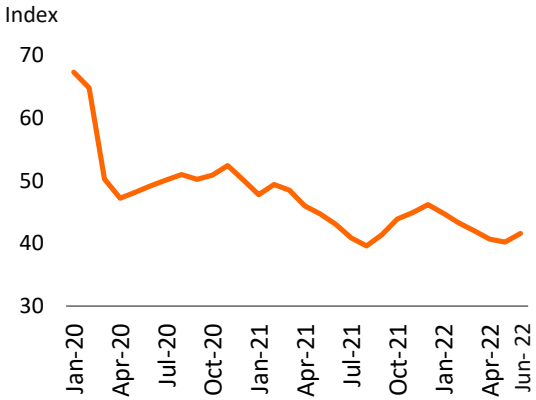
Source: AREA, BOT, Krungsri Research.

# *Retail Space:* Downwards trend on rental rates by fragile demand recovery amid over supply

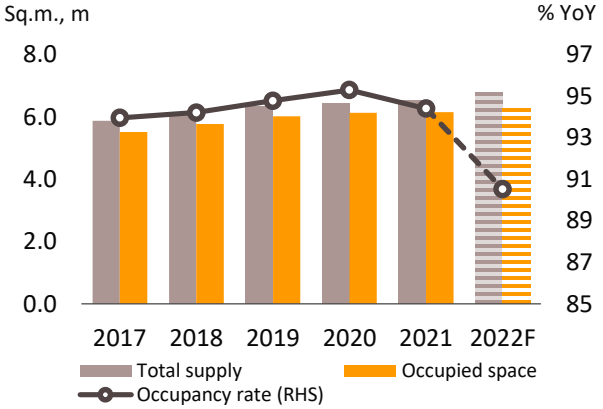
**Existing and New Supply**




**Consumer Confidence Index: CCI**




**Retail Space in the BMR**

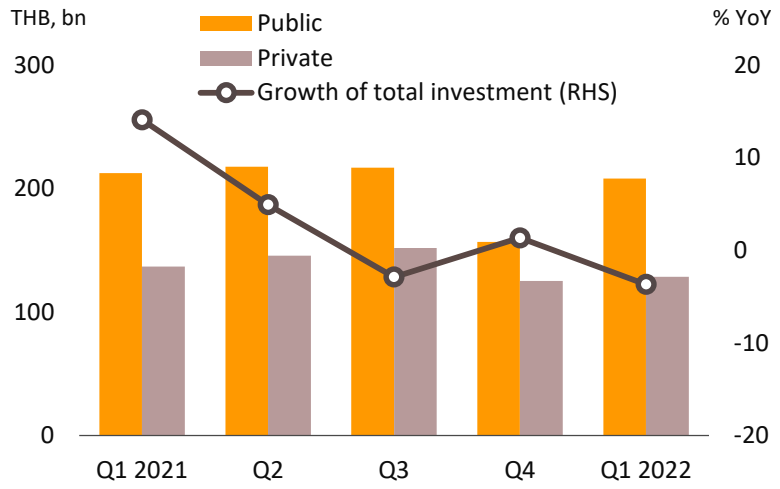



- **In 1Q22, 36,200 sq.m. of new retail space came to market (+624% YoY), but with demand edging up just 0.1% YoY to 6.1mn sq.m.,** the occupancy rate fell to 93.8% from 1Q21's 94.8%. However, following the steep run up in the cost of living and the subsequent erosion of consumer spending power and, since the start of the year, decline in consumer confidence, developers have now slowed or deferred the opening of new space. Indeed, as the business environment worsens, some retailers (especially small operations with limited networks) are closing branches and/or reducing their retail footprint, though brand names with large retail networks are tending to move forward with their expansion plans.
- **For the remainder of 2022, demand for rented retail space will slowly improve.** Demand will be lifted by the boost to the economy given by the lifting of Covid-19 control measures and the full reopening of the country to foreign tourists, but at the same time, business growth will be limited by the effect of the rising price of energy on the cost of living and, through this, on consumer spending. Against this backdrop, some renters may postpone lease extensions or look to reduce their overall retail footprint. The situation for all of 2022 is summarized below.
  - **Demand for retail space to rent should strengthen by 1.6% (99,757 sq.m.)** on: (i) overall economic growth in Thailand of 3.1% (up from 1.6% in 2021); and (ii) government measures that aim to boost purchasing power and stimulate the tourism sector, including phase 5 of the 'We Travel Together' program. For the year, 8.5mn foreign arrivals are now expected, up from the 0.42mn recorded in 2021.
  - **Developers will tend to add to the supply of new retail space to meet anticipated future demand,** especially from international brands that are expanding their retail networks in Thailand, though these are concentrated in large retail projects in the downtown area or central business district (CBD). Nevertheless, labor shortages and the sharp increase in the cost of construction materials means that the completion date of some developments will be postponed. **Overall, 0.27mn sq.m. of new retail space is expected to come to market in 2022 (up 4.1% YoY),** but because supply growth will outpace demand, lessors will need to leave some rents unchanged. Nevertheless, rents in the CBD will remain high, or possibly even increase. Because of this, the occupancy rate is expected to slip from 2021's 94% to 90% for 2022.

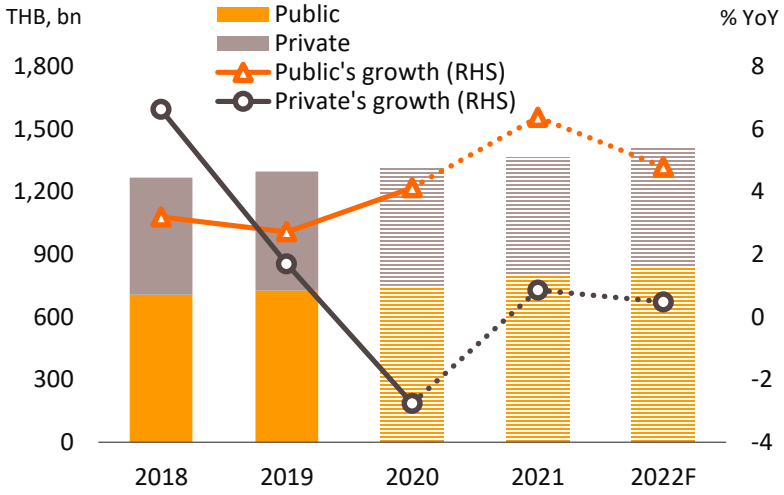
Source: CBRE Research, University of the Thai Chamber of Commerce (UTCC), Krungsri Research

# *Construction Contractor:* Limited growth on rising cost and delayed infrastructure projects

**Construction Investment Value**




**Construction Investment Value Forecast**

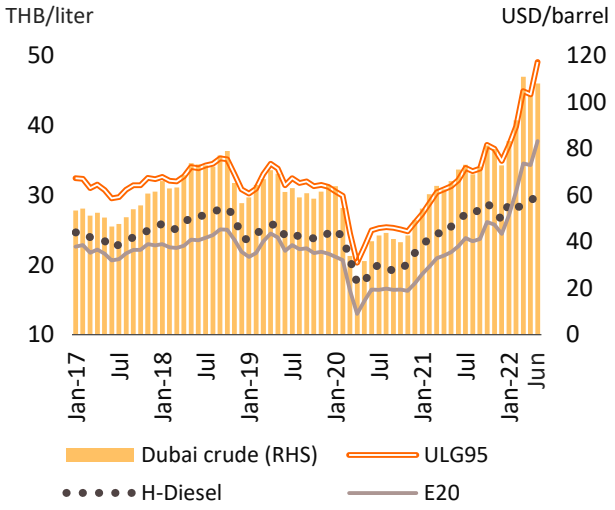



- **Construction spending** had delayed and the next effect of this had pulled down overall Q1 2022 investment in construction by -3.7% YoY to approximately THB 340 billion, dampened by rising cost of transportation and construction materials in line with higher oil prices as a result of Russia-Ukraine war. **Public construction** value was at THB 208.2 bn (-2.1% YoY) due to delayed disbursement for the infrastructure projects that are under construction (80% of total public construction investment value). Meanwhile, new projects have not yet been in process as planned. **Private construction** value was at THB 128.9 bn (-6.1% YoY) mainly from a contraction in residential and commercial construction with combined share of more than 70% of total private investment value, caused by sluggish purchasing power and rising cost.
- In 2022, **spending on overall construction is expected to strengthen by just 3.0%. Public sector** is forecast to rise 4.8% supported mostly by infrastructure megaprojects investment that are under construction (such as Bang Yai-Kanchanaburi Motorway, Rama III-Dao Khanong Expressway) and a rise of just 0.5% in construction investment by the **private-sector** driven mostly by commercial construction investment especially for retail space projects e.g., department stores and discount stores in regional centers. **Contractors will have to shoulder elevated prices of oil and construction materials throughout 2022.** Smaller operators will be at risk of becoming insolvent and of being forced to give up construction contracts. Contractors working in the private sector have the advantage of being able to pass on these higher cost burdens to end consumers, but the room for doing this is limited by slow recovery in purchasing power.

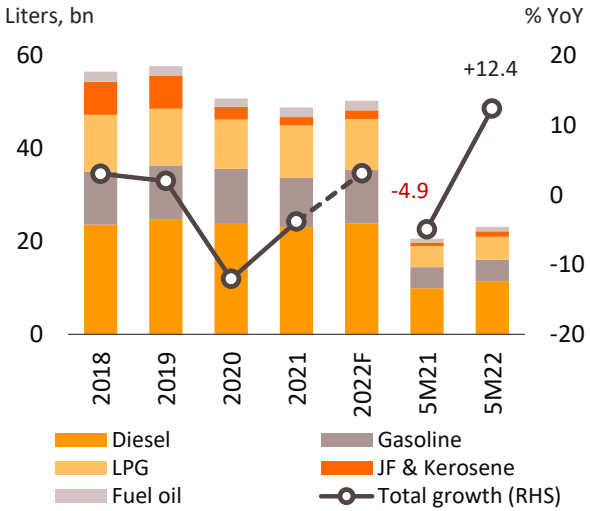
Source: Office of the National Economic and Social Development Council (NESDC), forecast by Krungsri Research

# *Refinery:* The continuing high price of crude will feed into a significant increase in gross refinery margins

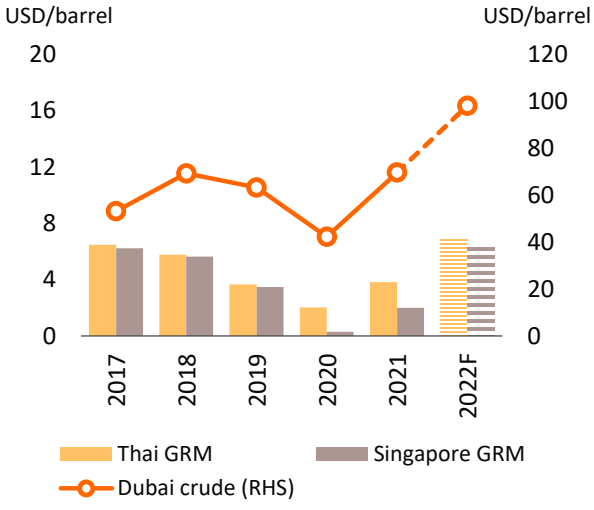
**Thailand Petroleum Prices at Refinery**




**Domestic Petroleum Demand**




**Gross Refinery Margins**

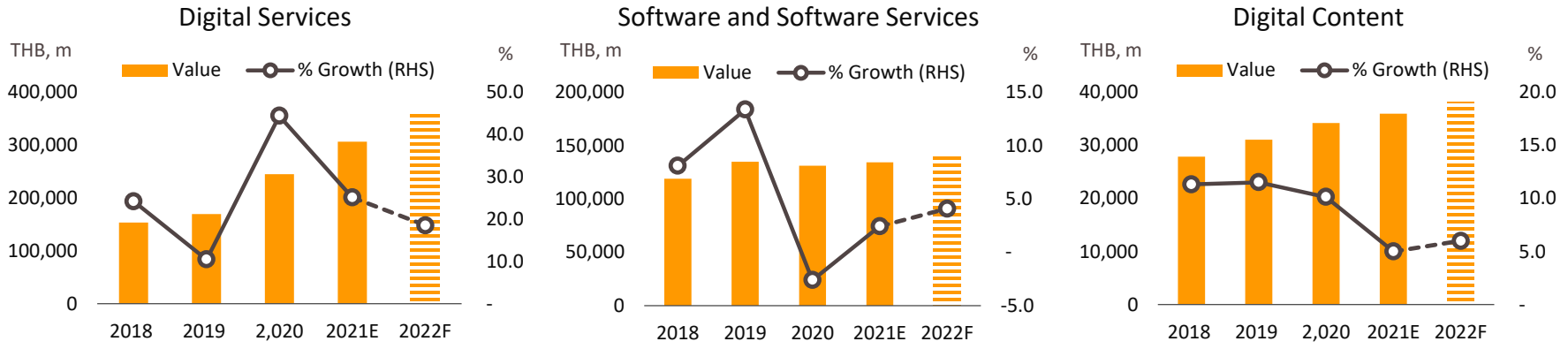



- **The prolonged Russia-Ukraine war through 1H22 lifted oil prices, with the cost of Dubai crude up 61.5% YoY to an average of USD 102.7/barrel,** and this then boosted Thai ex-refinery prices by some 30-50% relative to the start of the year. Domestic consumption of refined products was also up 12.4% YoY for 5M22 (the latest data available) on a combination of general economic recovery and the reopening of the country to foreign tourists, which then increased demand in the industrial and transport sectors. Demand was thus up: (i) 15.6% YoY for diesel and 0.2% YoY for gasoline; (ii) 20.0% YoY for fuel oil and 9.5% YoY for LPG; and (iii) 56.1% for jet fuel. Naturally, the high cost of crude has had an effect on pump prices, and as of the end of June, prices for gasoline and diesel stood at respectively THB 52.5/liter and THB 34.9/liter (up 36.3% and 22.9% from the start of the year). Against this backdrop, Thai gross refinery margins (GRMs) have risen to THB 6.7/liter, while stronger demand has lifted industry capacity utilization from 2021's 78.4% to 85.0%.
- **In the remainder of 2022, the rise in GRMs will slow down from the highs seen in Q2** (in 2Q22, Singapore GRMs averaged USD 29.1/barrel) but the continuation of the war in Ukraine and the sanctions on Russia will keep oil prices elevated and for the year, Dubai crude is forecast to average USD 98/barrel, up 42% from 2021. This will then push **Thai GRMs to an average of USD 6.5-7.5/barrel, up from just USD 3.8/barrel last year.** At the same time, growth in domestic demand for refined products will slow on high oil retail prices and the rising cost of living, and this is therefore forecast to average 2.5-3.5%, helped by: (i) the rebound in economic activity following the ending at pandemic control measures and 7.5% increase in exports; and (ii) the impetus to the tourism sector provided by government stimulus measures and the reopening of the country to foreign arrivals.

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

# *Digital Services and Software:* Income continues to rise on the growing uptake by consumers of the services provided by online platforms

**Revenue Growth for Thai Providers of Digital Services and Software**



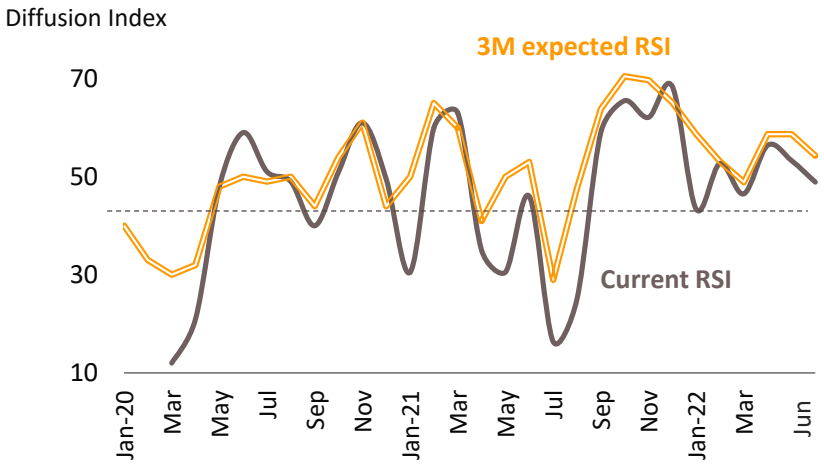

**Income will increase by 13.0-14.0% in 2022**, having risen by 16.2% in 2021. Market growth will be driven principally by the expansion in online business services to serve strengthening demand. However, the entry of new players to develop various types of new platforms will mean that competition will stiffen.

- **Digital services:** Income should increase by 18.0-19.0%, having jumped 25.1% in 2021, supported by two main factors. (i) Consumers increasingly favor the use of digital platforms for shopping, investing, and managing their finances, boost by the continuing social distancing measures and the broader spread of 5G networks. It is noteworthy that in 2022, Thailand ranked first for the share of national internet users who shopped online, consumed digital content, and took advantage of mobile banking services (Wearesocial, 2022). (ii) Players are competing to develop platforms in a range of different areas. Segments with the fastest rates of growth include those for retail chains in fields that include e-retail, e-transactions, and e-logistics. Growth in the e-tourism segment (i.e., online bookings) will have to wait for recovery in the tourism sector, though this has begun with the reopening of the country.
- **Software:** Income is expected to rise by 4.0-5.0%, following growth of 2.4% in 2021. Businesses are now beginning to invest in IT and software systems as a way of increasing their post-Covid-19 organizational abilities, to facilitate the mass customization of their services, and to offer comprehensive after-sales services. Likewise, public sector organizations are also moving to a greater dependency on cloud-based data services to better serve the public. Organizations are thus increasingly taking advantage of cloud-based software-as-a-service (SaaS) offerings that emphasize data management and end-point protection services. PwC Thailand evaluates that as of 2022, over 50% of Thai companies will be using cloud services, though companies will focus in particular on the hybrid cloud to enable distance working by staff in a way that is both flexible and that ensures data security.
- **Digital contents:** Income is predicted to grow by 6.0-7.0% this year, following a rise of 5.0% in 2021. Business is concentrated in the online game segment (the source of 80% of income), where growth is continuing on: (i) the creation of games that link to social media platforms (Statista estimates that the number of Thai online gamers will rise by 6.0% in 2022); and (ii) the development of a new business model that increases income through the offering of 'gaming as a service' (GaaS) and which makes it easier to complete in-game purchases. However, within the animation and characters segments, growth will be limited as Thai players generally work on order for companies based in Japan, where purchasing power has yet to fully recover.

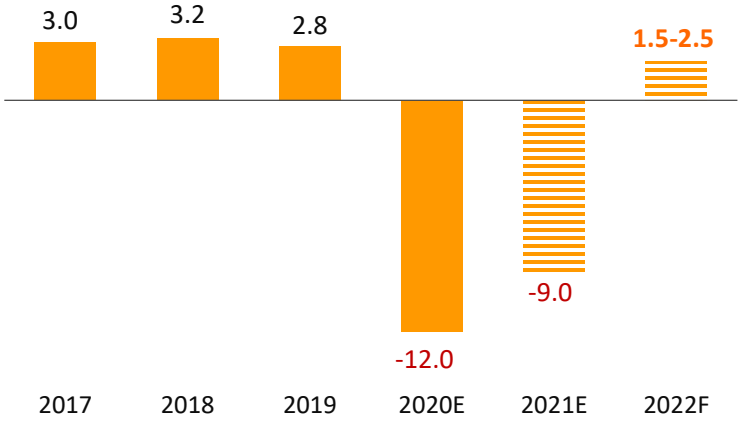
Source: DEPA, Krungsri Research

# *Modern Trade:* Growth should return with country reopening, tourism recovery, and government stimulus measures

**Retailer Sentiment Index (RSI)**




**Retail Business Growth (% YoY)**

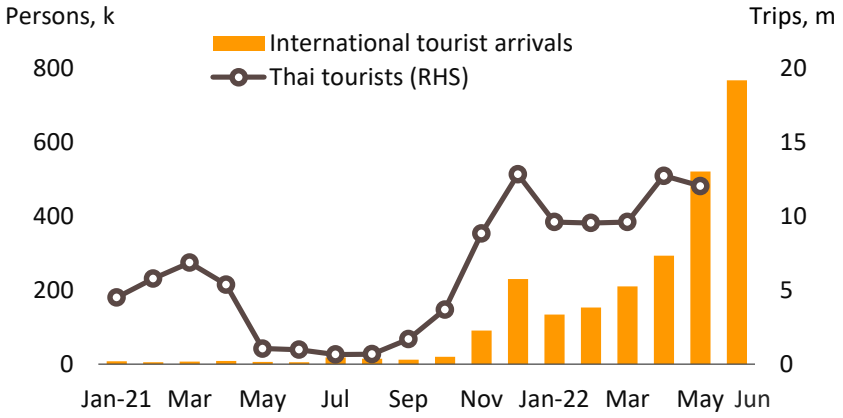



- **Although the modern trade sector benefited through 1H22** from recovery in the economy, the reopening of the country to foreign tourism, and government stimulus measures that aim to boost domestic tourism (e.g., the 'Shop and Refund' and phase 4 of the 'Half Each' programs), consumer purchasing power is being eroded by the high cost of oil and its effects on the cost of living. This is then reflected in the decline seen since March in the Retailer Sentiment Index (RSI), and although spending per bill has risen with inflation, the frequency of shopping has declined, pointing to a slowdown in consumer spending.
- **In the second half of the year,** the impact of the extended war in Ukraine on supply chains will keep inflation high; the shortages of raw materials, caused by the war, is pushing companies to raise their prices, thus imposing greater pressure on already-fragile consumer spending power. However, the full reopening of the country on 1 July means that 5-6mn foreign tourists are now expected (a total of 8.5mn is predicted for the year as a whole), while the spending power of upper-mid- to upper-income consumers remains strong, and this will help to offset weakness in other segments. For all of 2022, the modern trade sector is thus forecast to enjoy growth of 1.5-2.5%, having endured a drop of -9% in 2021. In detail:
  - **Discount stores, supermarkets, hypermarkets, and convenience stores:** Sales will tend to improve, helped by ongoing expansion in the size of store networks and the fact that these sell consumer necessities.
  - **Department stores:** Sales will recover only gradually since consumers remain wary about spending on non-essentials. However, retailers are expanding online and offline distribution channels, and this is helping them reach a wider range of customers.

Note: Estimate and forecast by Krungsri Research
Source: Thai Retailers Association (TRA), Bank of Thailand of Thailand (BOT)

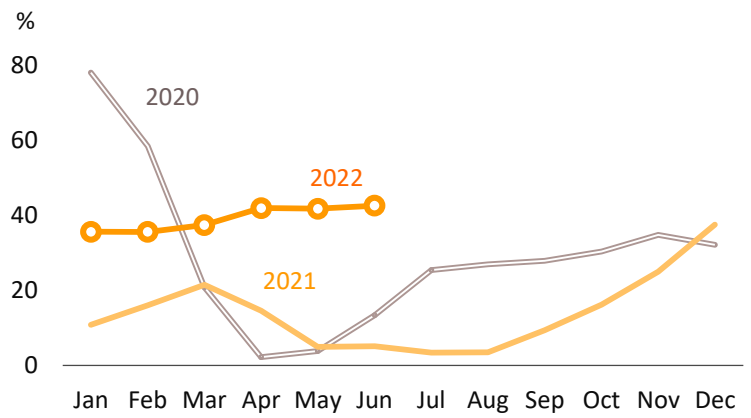
# *Hotel:* The tourism sector showed signs of recovery

**Number of Tourists in Thailand**




Note: The number of Thai tourists as of May 2022

**Occupancy Rate**



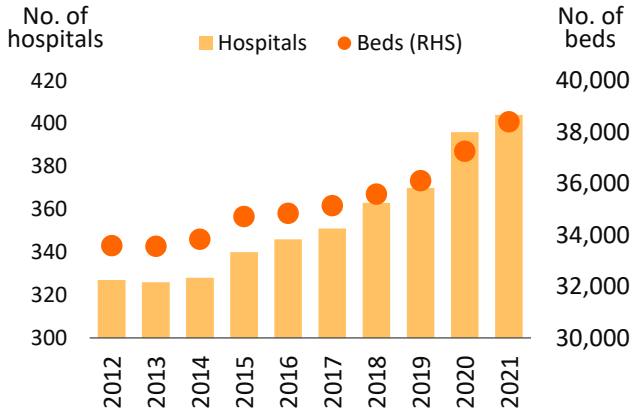

**The number of foreign arrivals and domestic trips made by Thai tourists are expected to reach totals of respectively 8.5m and 125m in 2022**, compared to 39.9m and 166m in 2019, prior to the outbreak of COVID-19.

- **In 1H22, the number of international tourist arrivals** rose to 2.1m, compared to just 40,447 in 1H21, supported by: (i) Thailand's relaxation of COVID-19 controls; and (ii) the easing of restrictions on outbound tourism in many countries. Thanks to the travel bubble agreed between Thailand and India, the Indian market was the most important during this period (11% of all foreign tourists were Indian over 1H22), followed by Malaysia and Singapore. With 3% of the total, Russia was in 9th place. Although having accounted for a full 28% of total foreign arrivals prior to the outbreak of COVID-19, China's continuation of its strict zero-COVID policy meant that Chinese tourists made up just 3% of the total in 1H22. In 5M22, **Thai tourists** completed a total of 53.6m trips (+126.8% YoY). This was again thanks to the loosening of COVID-19 travel restrictions, as well as government stimulus measures that are targeting the domestic tourism market. As a result, the **occupancy rate** has climbed from 12.2% in 1H21 to 39.1% in 1H22.
- **Over the remainder of 2022, the number of foreign arrivals is expected to increase steadily**, thanks to: (i) the relaxation of the rules governing entry to Thailand, including since July 1st, 2022, the use of ATK tests instead of the RT-PCR tests required under the Test & Go system; (ii) the creation of a travel bubble with India; and (iii) expansion into new markets (e.g., Saudi Arabia). However, the continuation of the war between Russia and Ukraine will put pressure on the number of arrivals from both Russia and non-Russian Europe (these two markets accounted for respectively 4% and 14% of arrivals over 2017-2019) and the effect of more expensive oil on travel costs will also limits growth in demand over the next 1-2 years, though as the pandemic eases in China, Chinese tourists (Thailand's most important market) will begin to return in 1H23. **Thai tourists** will benefit from government stimulus measures, including phase 4 of the 'We Travel Together' program, which will run from 1 July to 31 October 2022. **The occupancy rate** is now expected to mark 45%, compared on the one hand to 2021's 14.2% and on the other, the average for 2017-2019 of 70.4%.

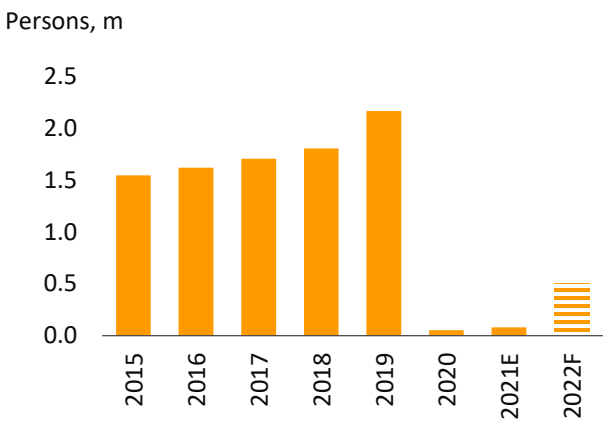
Source: Ministry of Tourism & Sports (MOTS), Bank of Thailand (BOT), forecast by Krungsri Research

# *Private Hospitals:* Income growing with the rebound in the number of domestic and international patients

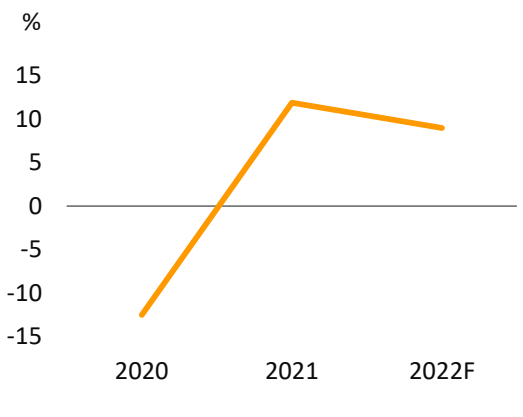
**Number of Private Hospitals & Beds**




**Number of Foreign Patients**




**Revenue of Private Hospital***

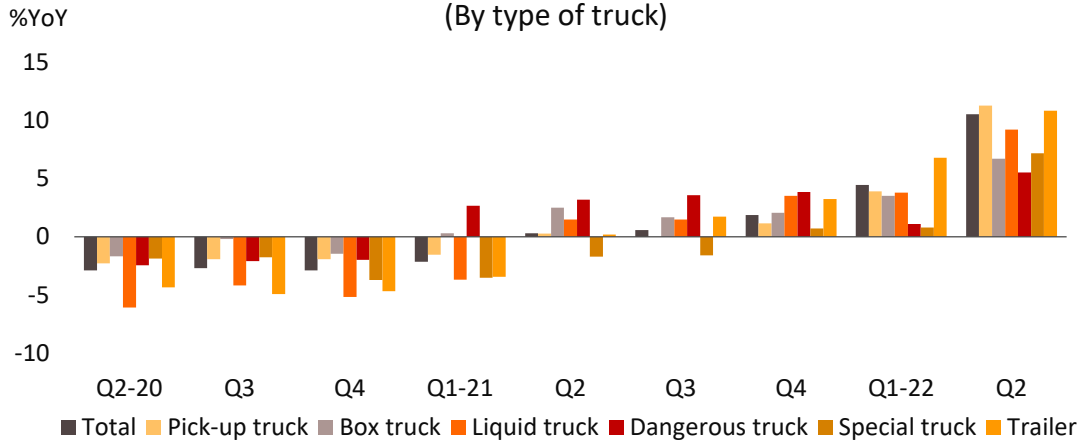



- **The business environment improved dramatically in 1H22, with the income of hospitals listed on the stock exchange jumping almost 70% YoY in 1Q22**. This was a consequence of: (i) income from the provision of treatments to in- and out-patients with Covid-19 and charges for alternative vaccinations; (ii) the gradual easing of pandemic control measures, which has allowed people to return to hospitals for treatment; and (iii) the gradual loosening of restrictions on entry to Thailand, which is feeding an increase in the number of foreign patients being treated in Thai hospitals, including both non-Thais working in the country and medical tourists.
- **Strong growth will continue through the second half of 2022**, helped by several factors. (i) Economic and social activities are gradually recovering with the full reopening of the country. (ii) Covid-19 is on the process of being declared endemic, which will allow hospitals to generate greater income from its treatment and the treatment of other diseases. (iii) Foreign patients are returning to Thai hospitals. The majority of these come from the Middle East (especially the UAE, Qatar and Saudi Arabia) and the CLMV countries, as the arrival of these patients had slowed during the pandemic. Krungsri Research estimates that around 6.5mn foreign arrivals will be recorded in 2H22 (this includes medical tourists), and for the year, the total will come to 8.5mn. (iv) As consumers get more familiar with digital services, many private hospitals are generating additional income from digital healthcare, including telemedicine services, and from the provision of home visits. **Given this, having increased 11.9% in 2021, 2022 income is expected to rise by another 8-10%.**

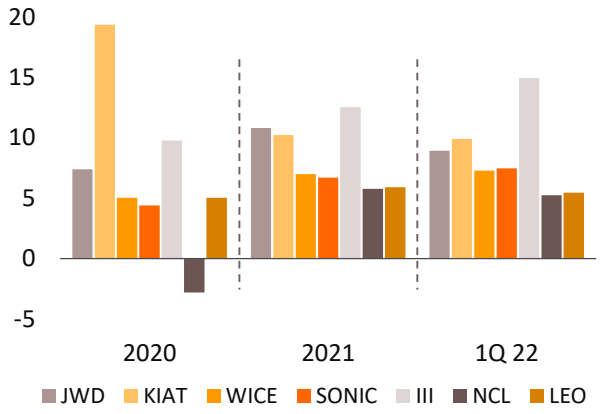
Note: * Listed companies
Source: MOPH, 2015-2022 estimate & forecast by Krungsri Research

# *Road transport services:* Limited growth in the volume of goods transportation

**Road Freight Transport Index (Base 2015)**




**Business Margins (%)**



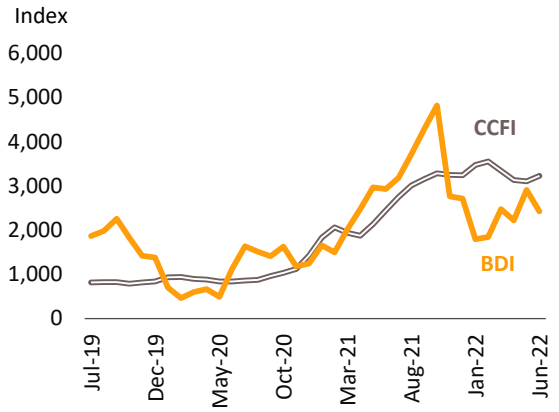

Note: Trailers include semi-trailer, full trailer and drawbar trailer

- **The quantity of goods transported by road has been increasing since 4Q21** with the relaxation of COVID-19 pandemic controls and the subsequent improvement in the economic outlook. For 5M22 (the most recent data available), the agricultural production index was up 5.8% YoY, industrial output and exports rose 12.9% YoY, and border/cross-border trade edged up 1.7% YoY. Given this, the industrial shipment index climbed 2.0% YoY. Increasing domestic consumption of refined oil products also strengthened 12.4% YoY, and as such, demand for tanker services rose. However, in 1Q22, activity in private- and public-sector construction slipped by respectively -2.1% and -6.1% YoY and so demand for transportation services weakened with this. Moreover, the war in Ukraine has pushed up global crude prices and in response, smaller hauliers have been forced to raise their fees. The road freight transport price index thus climbed 10.5% YoY in 2Q22. Fees for pick-ups have risen 11.3% YoY, while those for trailer, liquid, and special truck services are up by respectively 10.8%, 9.2% and 7.2% YoY.
- **Demand for road haulage services will continue to rise through 2H22** on an expansion in domestic trade, investment and consumption, the reopening of the country to foreign tourism, and continuing growth in the e-commerce sector. However, the rate of growth will be restrained by: (i) the cooling effect of the war in Ukraine on the global economy and through this, on Thai exports and economic activity more generally; (ii) the rapid increase in the cost of building materials, which is likely to lead to delays on some public- and private-sector construction projects; and (iii) the sharp rise in inflation and the negative effect of this on consumer spending power. In addition, transport fuels are likely to remain costly through the rest of the year as a result of the continuation of the Russia-Ukraine war, and this will put downward pressure on the profit margins of SMEs, which are less able to pass on higher costs to their customers. Given this, **the goods quantity shipped by road through all of 2022 is expected to edge up by 2-3%,** which would represent a slowing of 2021's growth of 3-4%.

Sources: Department of Internal Trade (DIT), SET, MAI, Krungsri Research

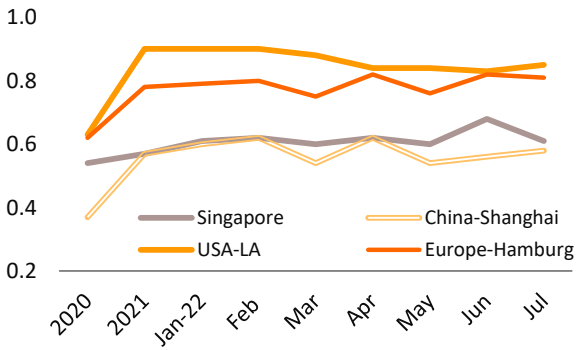
# *Sea freight services:* Freight charges will likely remain elevated through all of 2022

**Baltic Exchange Dry Index & China Containerized Freight Index**



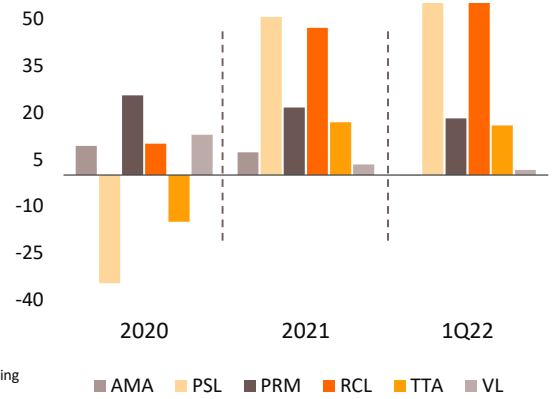

**Container Available Index (CAx)**

(Surplus > 0.5, Shortage < 0.5)




Note: An index value (US & EU) > 0.5 indicates that a significant share of containers is accumulating portside, and that although there is no shortage, containers are not being recirculated.

**Business Margins (%)**



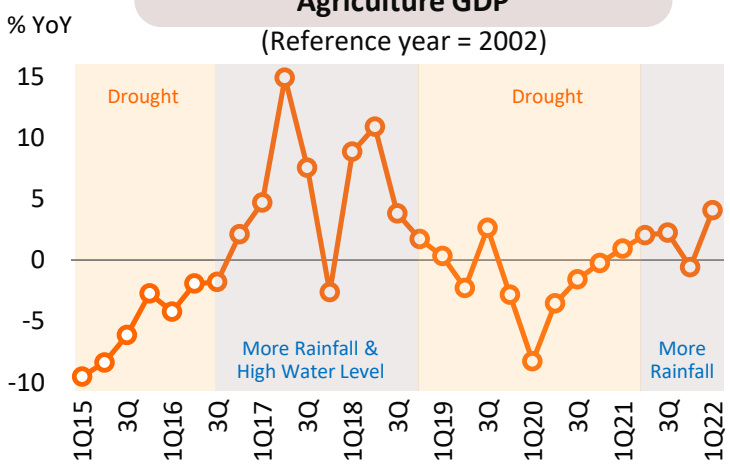

- **Through 1H22, freight rates loosened somewhat though they remained high.** The Baltic Dry Index (BDI) was up 7% YoY on greater demand for space for use in the shipping of dry bulk goods such as foodstuffs, fuels, and manufacturing inputs, this having increased following the imposition of sanctions on Russia. At the same time, container rates softened slightly, but these are still elevated. Thus, the China Containerized Freight Index jumped 68% YoY as a result of disruption caused by the lockdown of major ports, but this has then reduced demand for container space for shipping exports. Despite this, periodic problems with disruption in turnover of containers remain, and the Container Availability Index indicates that at the world's major ports, containers continue to collect dockside, though this is particularly a problem in Europe and North America.
- **Freight rates will stay high through the second half of the year**, partly due to the impacts of the Russia-Ukraine war. This is forcing major shippers (MSC, Maersk, CMA CGM and Hapag Lloyd) to use alternative routes that avoid Russia, though this is then adding to congestion in major European ports. ***Rates for the shipping of dry bulk goods will be lifted*** by: (i) worsening China-Australia tensions that have pushed China to switch to buying coal from alternative sources and then shipping this in smaller boats; (ii) stronger demand in Europe for coal and other goods to replace Russian supplies of gas and oil, and of other goods produced in Russia and Ukraine; and (iii) the start of the 'high season' for the shipping industry, which runs from the end of Q2 and into Q3 as the duration of harvests' season run. ***Container rates will also remain elevated*** due to continuing problems clearing these in some of the world's major ports. This is a consequence of: (i) a scarcity of some commodities (caused by the war in Ukraine), which have become more expensive and in response, some countries are building stocks of core goods (e.g., foodstuffs) to prevent domestic shortages; (ii) the easing of the pandemic in China and the reopening of major ports, which is then adding to demand for containers; and (iii) a shortage of container shipping capacity, which Drewry predicts will persist until 2H23. Nevertheless, increases in freight rates will be limited by the slowing world economy and a softening of demand.

Sources: Bloomberg, Krungsri Securities, Container-Xchange.com, SET, Krungsri Research

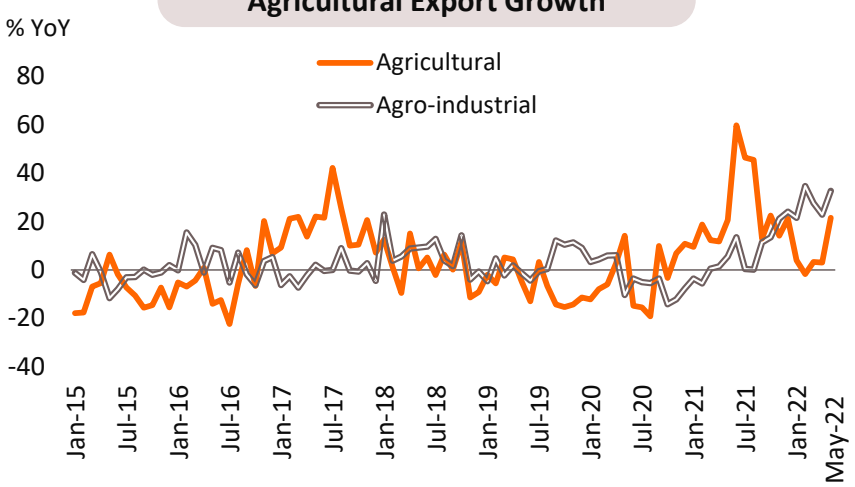
# *Agriculture:* Prices will tend to strengthen through 2022

The outlook for the Thai agricultural sector is strengthening on: (i) the Ukraine-Russia war and the COVID-19 pandemic, which is encouraging many countries to increase their food security measures and this has then led to an uptick in global prices for the major agricultural commodities; (ii) declining outputs in other exporting countries that have resulted from natural disasters and outbreaks of crop and livestock diseases (e.g., in Indonesia, Malaysia and Vietnam); and (iii) more favorable climatic conditions in Thailand that have boosted domestic outputs.

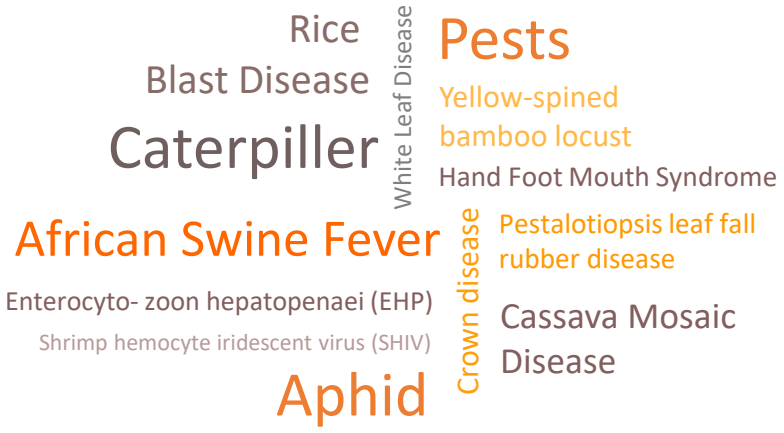
## Agriculture GDP



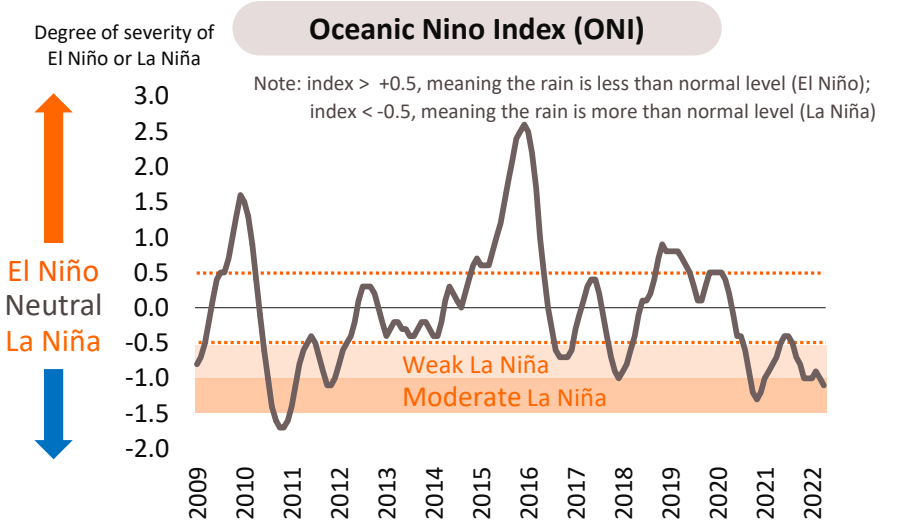

## Agricultural Export Growth




## Major Plant Diseases and Pests in 2021/22



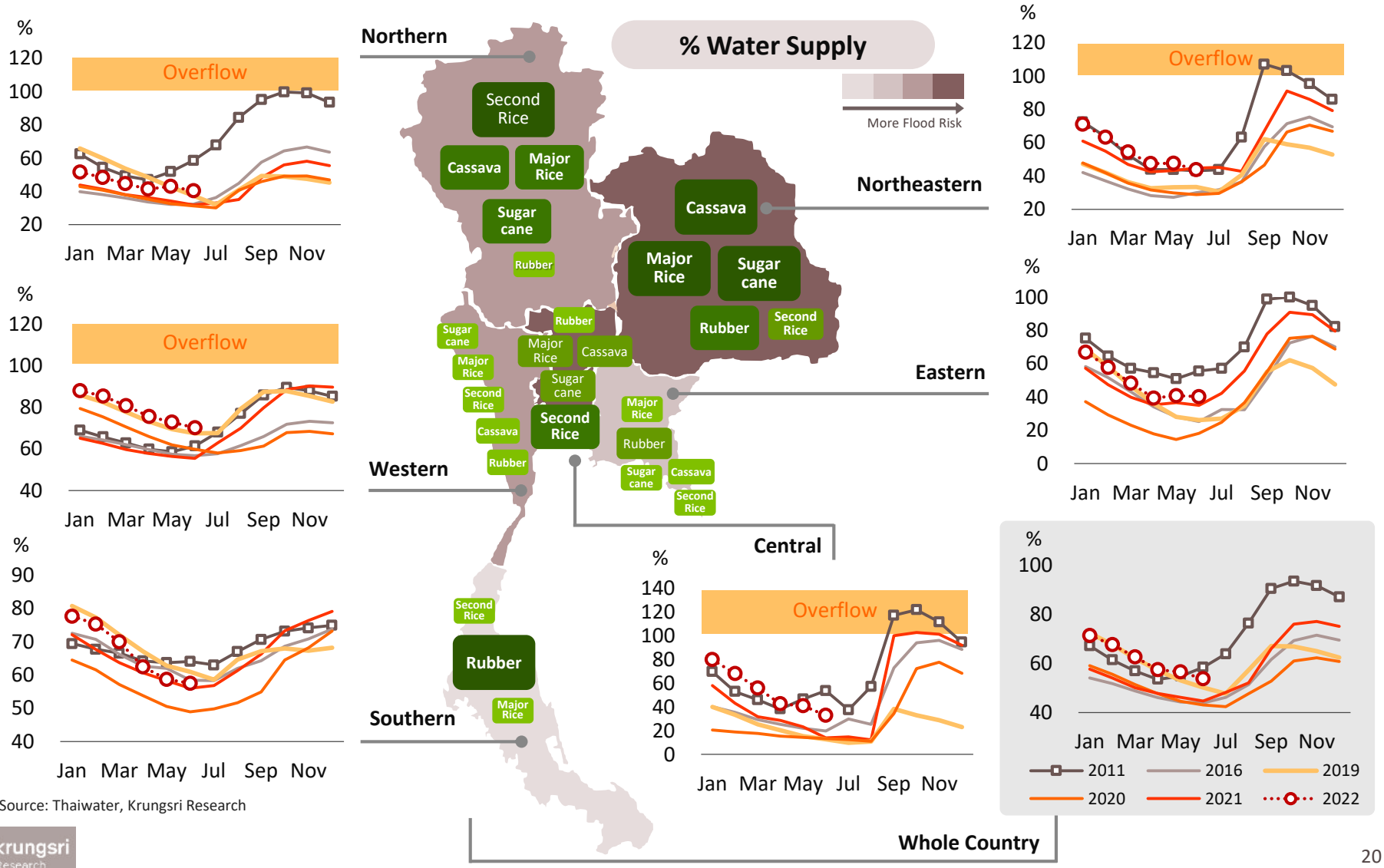

## Oceanic Nino Index (ONI)




Source: NOAA, ONWR, Thaiwater, WTO, Bloomberg, OAE, NESDC, Krungsri Research

# Both rainfall and reservoir levels elevate but remain lower than in the year of the great flood

As of June 2022, reservoir levels were at 54% of total capacity, significantly above June 2021's level of 45%. **For all of 2022, the emergence of a moderate La Niña will mean that rainfall and reservoir levels will tend to rise further,** and this will add to the risk of flooding in the northeastern and central parts of the country, and in areas where major crops (rice, cassava, sugarcate, and rubber) are grown.



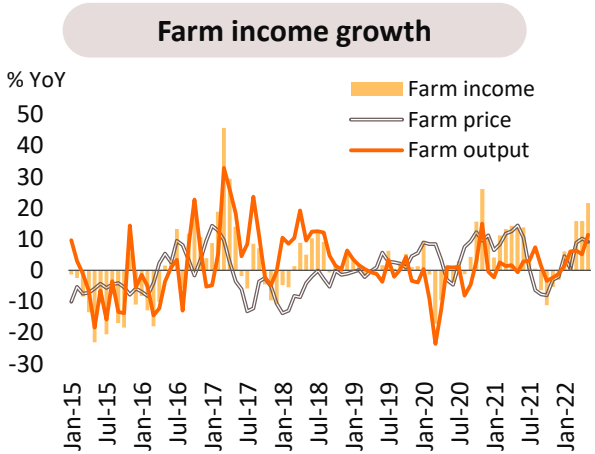

Source: Thaiwater, Krungsri Research

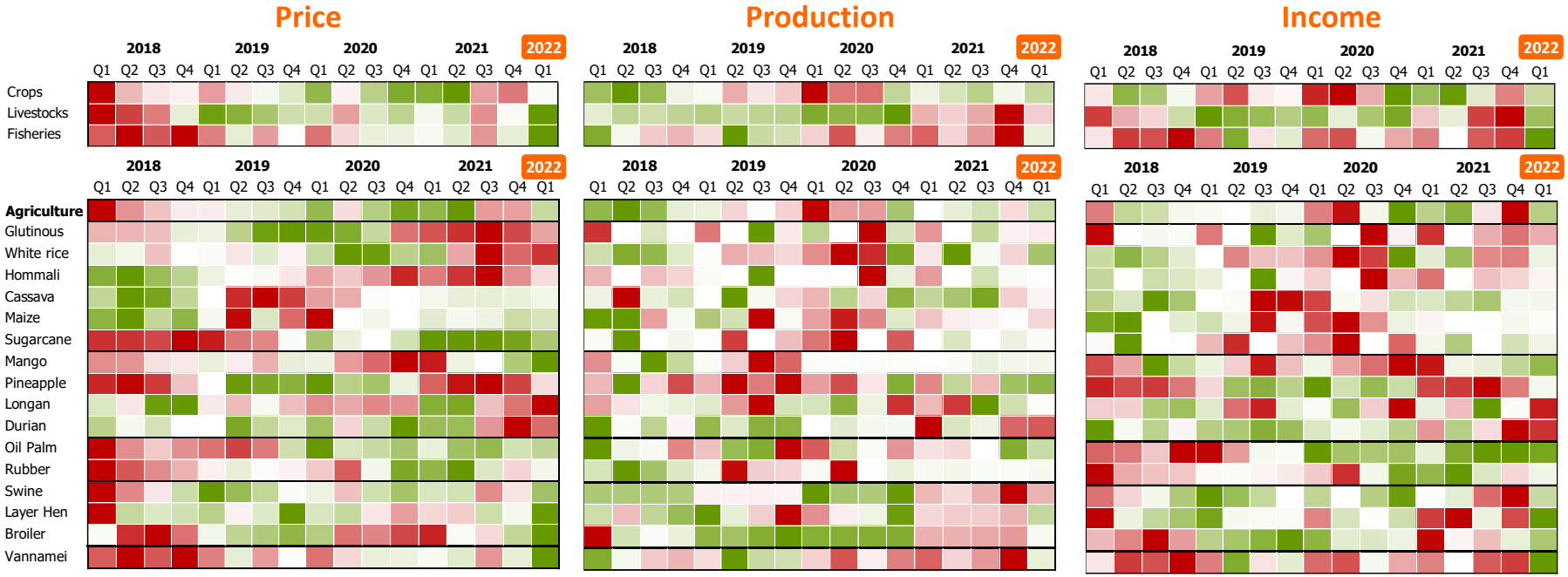
# Farm incomes expected to rise by 10.0-12.0% in 2022 due to both higher prices and outputs

**Over 5M22, incomes in the agricultural sector were lifted by rising prices and increased output of both food and bioenergy crops.**

- Major products for which incomes have increased include sugarcane (+77.1% YoY), oil palm (+70.1%), cassava (+15.7%), white paddy (+14.3%), rubber (+6.4%), maize (+3.6%), and mangoes (+71.0%). However, lower prices depressed income for growers of jasmine and glutinous rice, durian, and longan. This was due to lower demand from China that has resulted from the reimposition of lockdowns.
- **Prices for livestock also rose on outbreaks of disease in some countries,** and this then caused income to strengthen for sellers of chicken meat (+19.3% YoY), eggs (+14.9%), pork (+14.0%), and beef (+6.3%). **Within the seafood industry, stronger prices and higher outputs meant that incomes were up 12.0% YoY** for suppliers of vannamei shrimp.

**Farm incomes should rise through 2022 on expanding output and stronger prices,** supported by: (i) heavier overseas demand as countries bolster food security measures in the wake of export bans on agricultural goods by some countries (e.g., Indonesia, India, Ukraine, and Russia); and (ii) the full reopening of the country. These factors will tend to increase prices but the extent of this may be limited by a significant expansion in supply that will come from: (i) higher rainfall and greater access to irrigation; and (ii) effective domestic control of crop and livestock diseases. **Krungsri Research expects that in 2022, agricultural prices and output will rise by 6.0-8.0% and 5.0-7.0% respectively, and as such, farm incomes will grow by 10.0-12.0% (compared to a rise of 3.9% in 2021).**



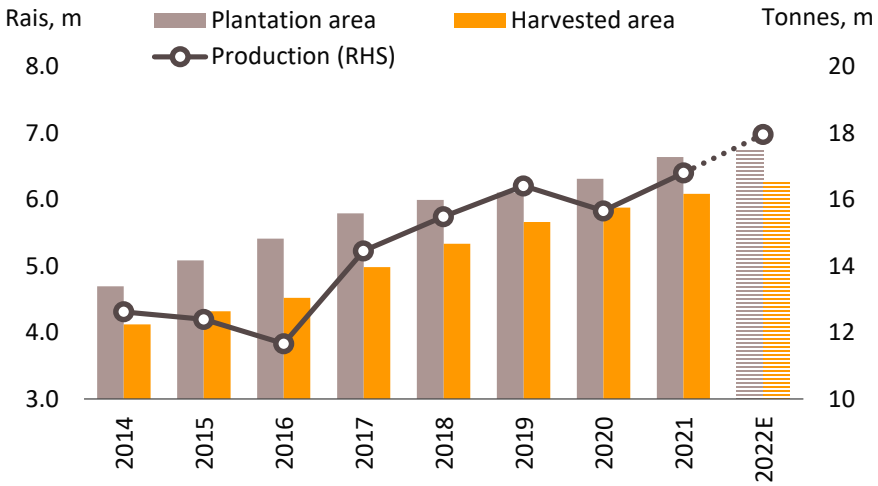

Source: OAE, Krungsri Research

Growth (%)

Contract 0 Expand

# *Oil Palm:* Output expected to rise steadily, limiting the room for price increases

**Thai Oil Palm Plantation Area and Production**

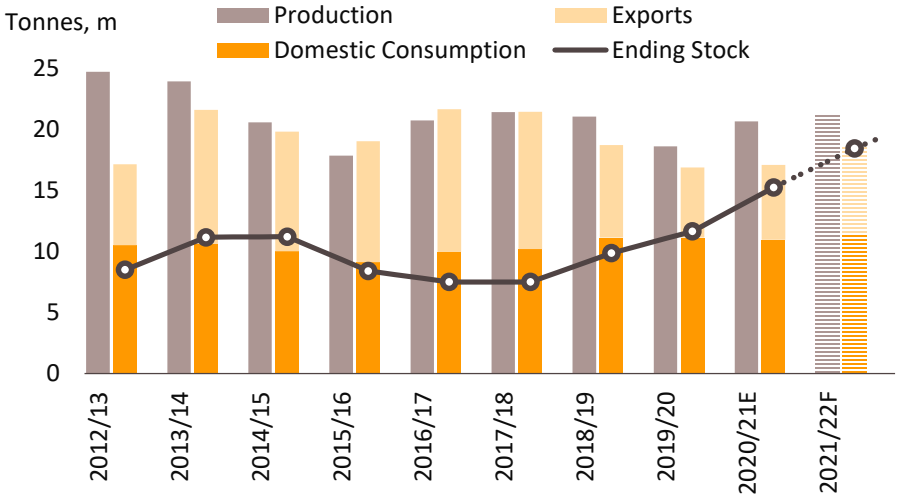



- **Over 5M22, prices for oil palm surged 58.7% YoY to an average of THB 9.7/kg** on: (i) fears over food security that have been exacerbated by the pandemic and the Russia-Ukraine war, and that have encouraged countries to build up stocks of vegetable oils as a way of heading off a run-up in the domestic price of these; and (ii) the decision by Indonesia (the world's biggest supplier of crude palm oil) to temporarily suspend exports in Q2.
- **Demand should continue to strengthen for the remainder of 2022, though fears over food security will begin to lessen as supply to global markets increases.** (i) The domestic supply of oil palm products will increase by 6.5-7.5% over the year thanks to a better climate, an expansion in the area under cultivation, and the maturing of existing plantations. In addition, high prices will encourage growers to maximize their outputs, and as such, total Thai output of crude palm oil should increase to an average of 3.1-3.3mn tonnes/year. (ii) Output by major producers in Malaysia and Indonesia will again flow into world markets, especially with the ending on 23 May, 2022, of Indonesia's temporary halt on exports. This will then increase the supply of crude palm oil at both the national and the international level, and with Thailand's year-ending stocks of crude palm oil likely to be around 0.28-0.29mn tonnes, **the average price of oil palm across 2022 should be THB 7-9/kg.**

Source: Ministry of Commerce (MOC), Krungsri Research

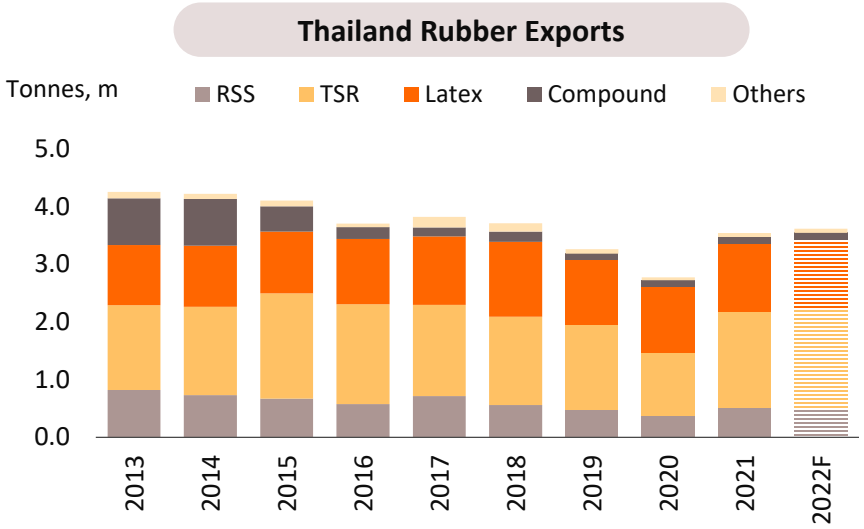
# *Rice:* Competition on world markets tends to intensify, especially from India and Vietnam

**Thailand Rice Production, Consumption and Exports (Milled Rice)**



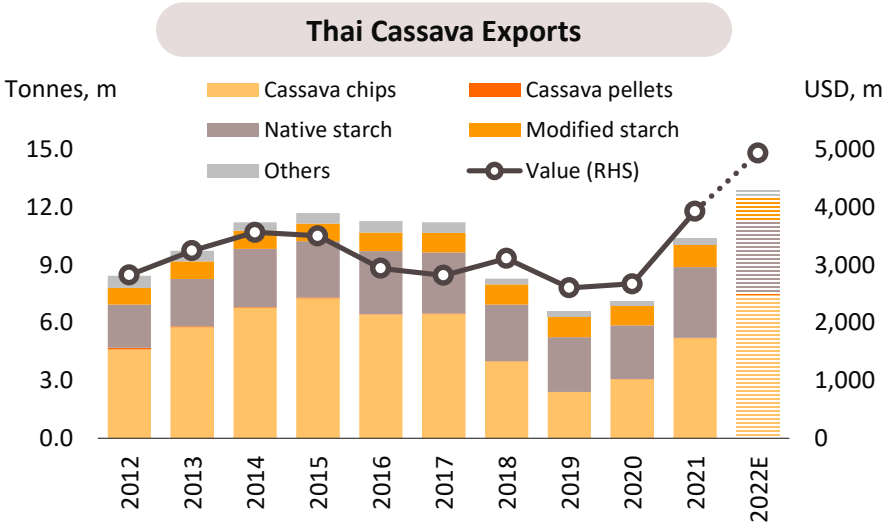

- **Exports of rice jumped 50.7% YoY in 5M22 to a total of 2.7mn tonnes of milled rice.** Exports were boosted by: (i) the war in Ukraine, which added to worries over food security and increased demand for rice as a replacement for wheat and corn (for animal feed); and (ii) the softening price of Thai exports, which fell -17% YoY to a level close to that of rice from India, Vietnam, and Pakistan.
- **Supply will expand over the rest of 2022** on: (i) better climatic conditions and heavier rainfall; and (ii) the incentives to farmers to step up production that are coming from government support for rice growers, including income guarantees, crop insurance, and credit schemes to slow the release of newly harvested paddy. **Thus, for the year, rice outputs are predicted to increase by 2.0-3.0% to 32.4-32.7mn tonnes of paddy, or 21.1-21.3mn tonnes of milled rice. Domestic demand will also improve, and this is expected to reach 11.0-12.0mn tonnes (up 1.0-10.0% on a year ago).** This will be split between 6.0-6.5mn tonnes that will be consumed directly and 5.0-5.5mn tonnes that will be used by the food processing industry. Additional demand will come from the improving economic outlook and the reopening of the country to foreign tourists, which will then feed into an uptick in activity in food-related industries including restaurants, hotels, food processors and other such businesses. **The outlook for exports is also positive, and these are expected to grow 14.0-18.0% YoY to 7.0-7.2mn tonnes of milled rice,** with demand likely to be especially strong in South Africa, the US, Japan, and Benin. However, competition will stiffen, and this will come in particular from India and Vietnam, where work on developing new low-cost strains is ongoing.

# *Rubber:* Growth driven mainly by improving demand in the export segment




- **Over 5M22, exports edged up 2.7% YoY to 1.5mn tonnes.** The outbreak of war in the Ukraine and the subsequent steep rise in the cost of crude has made natural rubber relatively attractive compared to synthetic products and so exports of TSR and RSS rose by 10.2% and 3.5% respectively to reach 0.71mn tonnes and 0.2mn tonnes. However, exports of latex and compound rubber slipped by respectively -7.7% and -3.7% to 0.49mn tonnes and 0.05mn tonnes on lower demand from the major markets of China, Malaysia, and Japan, where following the surge in orders in 2021, players have been engaged in a process of destocking.
- **Demand for exports will be strengthened through the remainder of the year** by: (i) the continuing high price of oil, which is making synthetic rubber relatively less attractive than the alternative of natural rubber; (ii) difficulties in the competitor nations of Indonesia and Malaysia, where supply has yet to fully overcome problems caused by labor shortages and outbreaks of leaf fall disease; and (iii) ongoing growth in demand for medical equipment, especially for latex gloves and rubber healthcare products, which is being added to by the ageing of society and the post-COVID 'new normal'. Given this, **rubber exports are predicted to increase by 2.0%-3.0% in 2022, having jumped 27.7% in 2021.**

# *Cassava:* Demand from China for use in the manufacture of alcohol, ethanol and animal feed is increasing




- **Exports were up 28.1% YoY in 5M22 to a total of 6.0mn tonnes.** Overseas sales benefited from: (i) the COVID-19 pandemic, which has added to demand for cassava for use in the production of alcohol and ethanol, especially in China (the Chinese market accounts for 69% of all exports of Thai cassava products); and (ii) fears over food and energy security that have been amplified by the Ukraine war and in response to this, many countries have increased imports of cassava for use as an animal feed, an energy source, and as an input into the food processing industry.
- **The outlook for exports over the rest of 2022 will remain positive.** On the demand side, sellers will benefit from: (i) the continuation of worries over food and energy security; and (ii) the high cost of alternative crops, especially of corn (with a 17% market share, Ukraine is a major supplier of this), which is encouraging downstream industries to switch to cassava instead. In addition, supply will expand on higher outputs. These will be boosted by heavier rainfall and the incentive effect of high prices, which have encouraged farmers to expand the total area planted with cassava. **For the year as a whole, outputs of fresh cassava are thus predicted to increase by 2.0-3.0%, having already grown 3.8% in 2021. Total exports are also expected to come in at 12.5-13.0mn tonnes, which would represent growth of 20-24%, compared to 45.9% growth a year earlier.**

Source: Office of the Rubber Replanting Aid Fund (ORRAF), Ministry of Commerce (MOC), Krungsri Research

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