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INDUSTRY HORIZON

April 2022

Krungsri Research



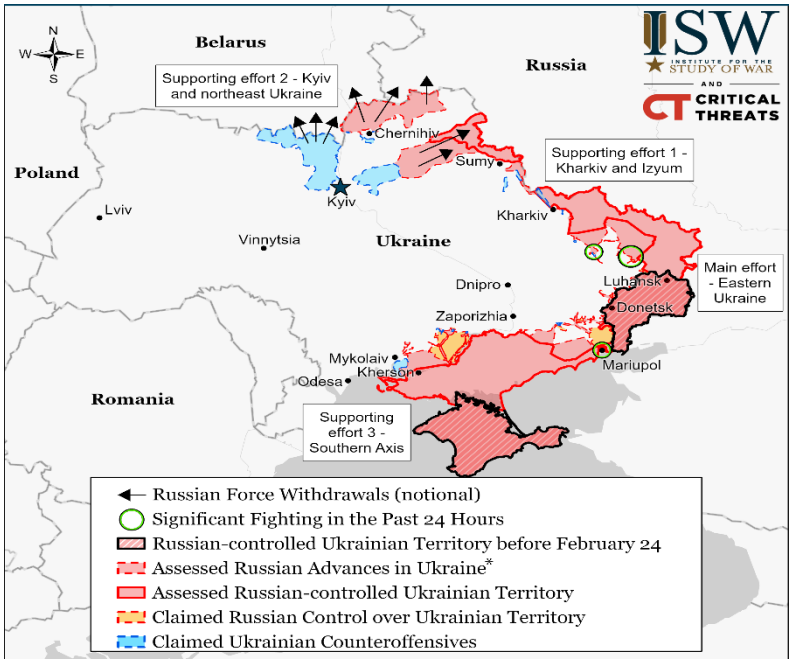
UKRAINE CRISIS IMPACTS ON 2022 INDUSTRY OUTLOOK

War in Ukraine, tougher sanctions, and more retaliatory measures increase concerns over inflation and economic growth, raised risk of global stagflation

The US and EU have targeted Russia's financial system and have started to ban its energy exports

Area	Sanctions
Financial measures	• The US and EU blocked **the Russian central bank** from selling dollars, euros and other foreign currencies in its reserves, constraining its ability to stabilize the ruble and fight inflation. • Selected **Russian banks will also be removed from the international financial messaging system SWIFT**, which will delay payments Russia gets for its oil and gas exports. • Sanctions on **a sovereign-wealth fund** limit Russia's ability to raise money abroad. • The US actions target **80% of all banking assets** in Russia and limit the country's access to the global financial system. • The EU plans sanctions that will cut off **70% of Russia's banking system** from international financial markets.
Oil and gas	• **The US bans all imports of Russian oil and gas.** • **The EU** has promised to cut its import of Russian natural gas by two-thirds by year-end**. The UK will phase out Russian oil imports by end-2022.** • Germany has shelved approval for the **Nord Stream 2** gas pipeline from Russia.
Trade with Russia and travel	• The US is working with other G7 nations and the EU **to rescind Russia's "most favored nation" (MFN) status**, which will allow for large tariffs on Russian exports. • The US, its allies in Europe and elsewhere have restricted **exports of certain technologies** to Russia. • The US has joined the UK, EU and Canada in banning **all Russian flights** from its airspace.
Other economic activities	• A rising number of **international companies** including McDonald's, Coca-Cola and Starbucks have suspended operations in Russia.

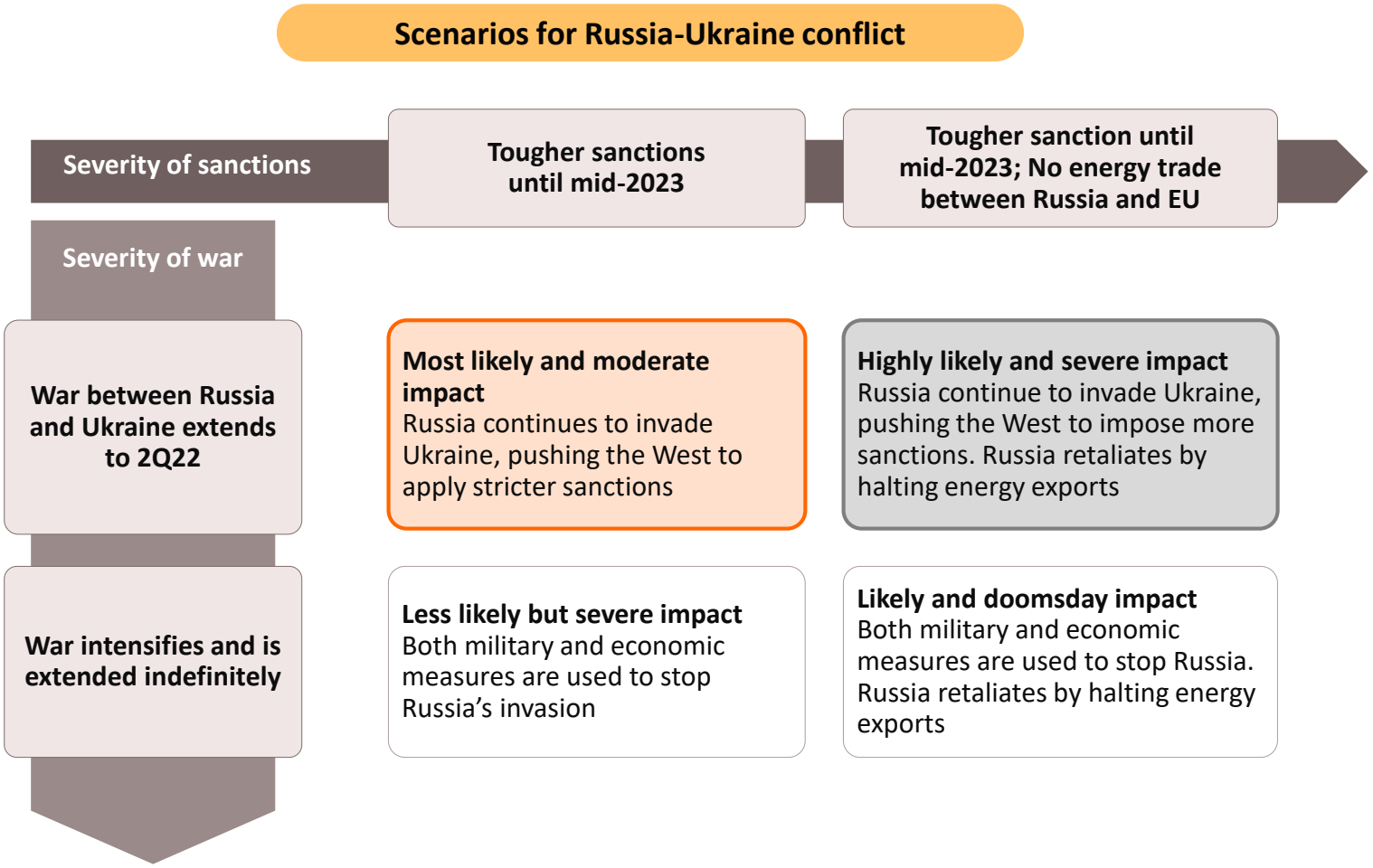
Conflict between Russia and Ukraine



- Russia's GDP is the 12th largest in the world, about 25% smaller than Italy.
- **However, Russian energy exports are important as it is the world's second largest exporter of natural gas and one of the largest exporters of oil.**
- Russia produces 10% of global oil and supplies 40% of Europe's gas.
- **It is the world's largest grains and fertilizer exporter, top palladium and nickel producer, third-largest exporter of coal and of steel, and fifth-largest wood exporter.** Cutting off those exports could drive up energy and other commodity prices.

Source: BBC, WSJ, Institute for the Study of War (April 3, 2022), Bloomberg, Reuters, Krungsri Research

The impact of the Ukraine war on Thai industrial outlook depending on the severity and duration of sanctions and war



Source: Krungsri Research

Russia-Ukraine crisis could hurt economic and industrial outlook via *four main channels:* trade & logistics, energy security, prices & inflation, and income effect & capital markets

Four main transmission channels

Disruption to Trade & Logistics: Sanctions on trade and financial system. Direct impact is limited as Russia accounts for only 1% of world trade. Indirect impact via supply chain disruption as Russia is a major exporter of energy and main raw materials for many industries.

Energy Security: Russia is a top energy producer with 16.6% share of global gas production and 12.1% share of global oil production. Sanctions on oil and gas imports from Russia and possible retaliatory measures have raised concerns tighter supply will drive up global energy prices.

Price & Inflation: These could surge as Russia is also a major exporter of grains, fertilisers, palladium, nickel, coal and steel. Rising energy and other commodity prices would hit countries who depend on these imports.

Income Effect and Capital Markets: There would be negative indirect impact. Weaker income growth, especially in Europe, could hurt trade and tourism sectors. Rising risk in financial markets would dampen asset prices, reduce wealth, and push up funding costs.

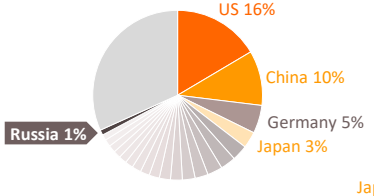
Source: Krungsri Research

Limited direct impact via *trade channel* but indirect impact could be significant; war in Ukraine is pressuring global *energy security*

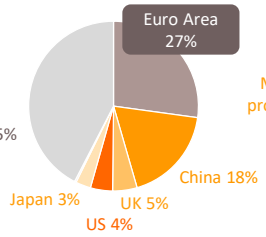
Indirect impact via trade channel could be significant if Russia is stopped from exporting raw materials and energy; this would push up oil prices and logistics cost.

Russia is one of the world's largest exporters of oil and natural gas. Russia supplies 40% of Europe's gas. Cutting off those exports could raise concerns over global energy security.

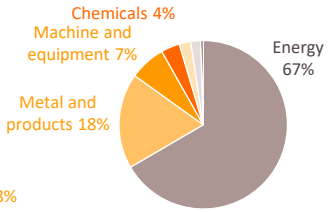
Global trade by country



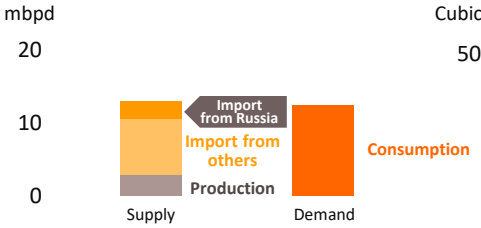
Trade exposure to Russia by country



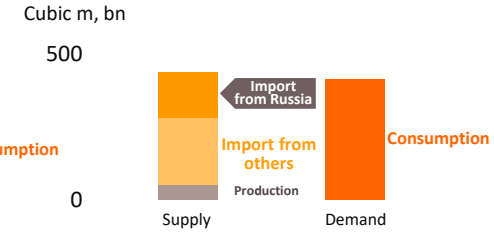
Russia export value by product



Europe crude oil market

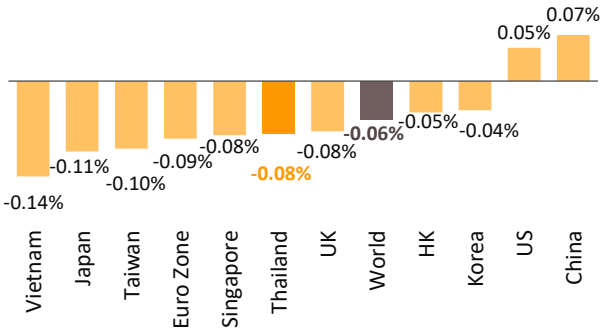


Europe natural gas market

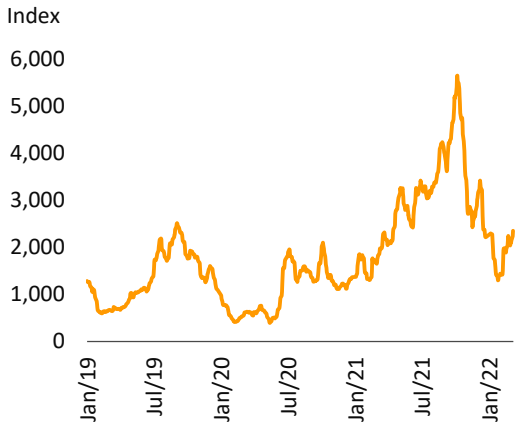


Russia is the world's largest grains and fertilizers exporter, top palladium and nickel producer, third-largest exporter of coal and of steel, and fifth-largest wood exporter

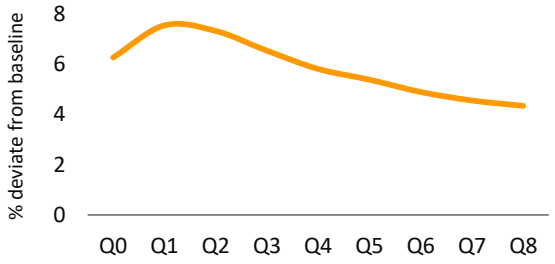
Exports impacts from -1% of Russia trade shock (%)



Baltic Exchange Dry Index



Impacts of -1% oil supply shock on oil price



Krungsri Research estimates a 1% (or 1m bpd) drop in global oil supply would push up oil price by 7.5% in the first 2 quarters and by 4% in the long run.

Note: calculate by Krungsri Research

Source: IMF, Russia's Federal Customs Service, OECD, Bloomberg, OPEC, EU, Krungsri Research

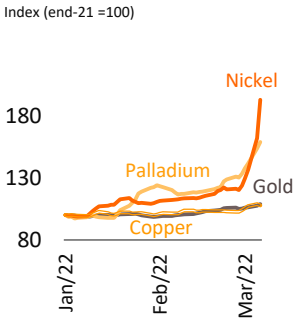
Note: Estimated by Krungsri Research

Rising *inflation* would hurt purchasing power and slow consumption recovery; *negative income effect* and high market volatility would also hurt trade and tourism

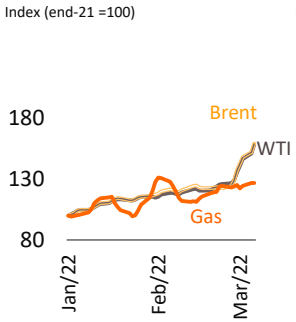
A surge in oil and other commodity prices would raise inflation pressure, hit countries with high weighting of food and energy in their inflation basket

The Ukraine crisis could hurt income growth in many countries, especially in Europe, and falling asset prices could hit household wealth. There could be indirect impact on trade and tourism.

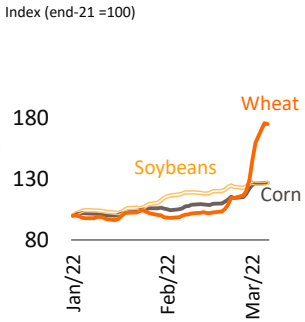
Metal prices



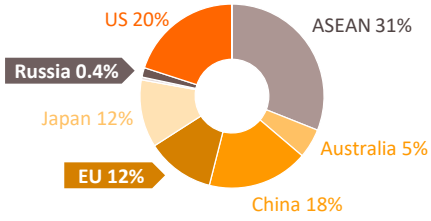
Energy



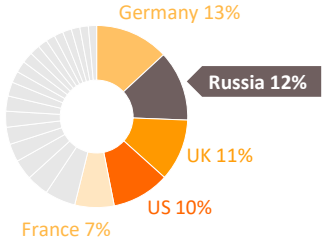
Agriculture



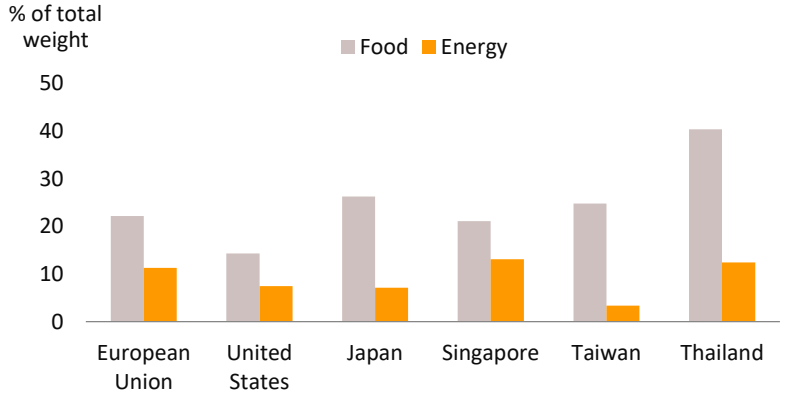
Thai exports by country



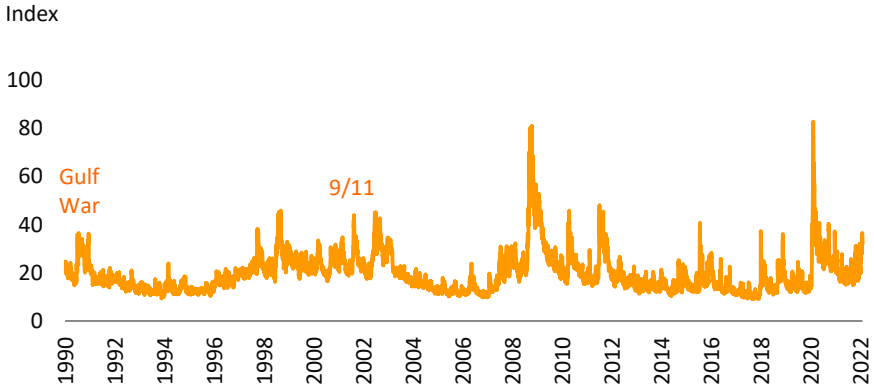
Visitor arrivals by nationality
(during previous 12 months)



Food and energy weights on CPI



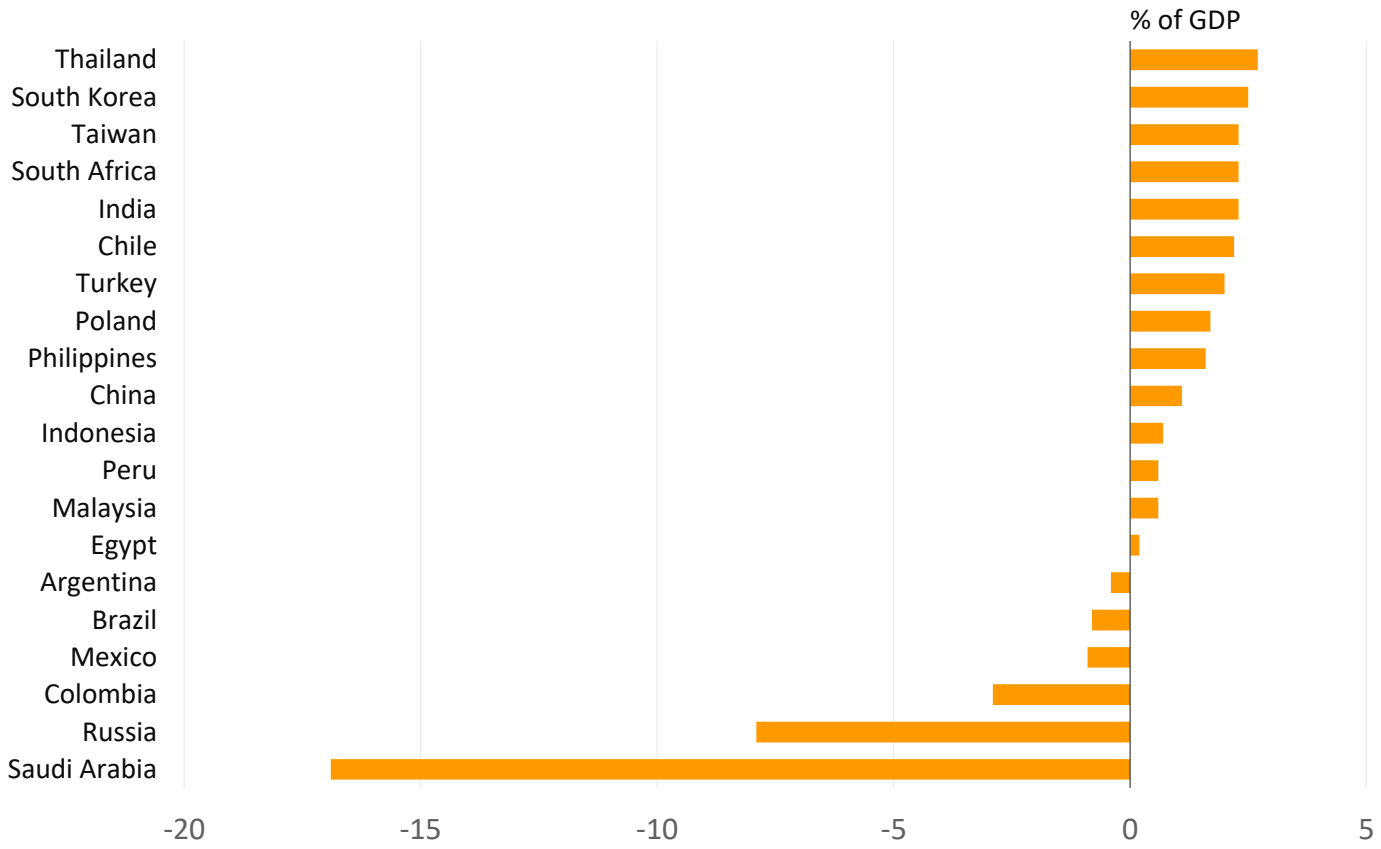
CBOE Volatility Index (VIX)



Source: Bloomberg, BOT, MOTS, Krungsri Research

Among emerging economies, *Thailand* depends heavily on oil imports and the war will translate to be upward pressure on production cost for industries especially energy-reliant sectors

Net Oil Imports as a Percentage of GDP for Emerging Economies



Source: BP statistical review of World Energy 2021, IMF, Bloomberg Economics, Krungsri Research

Construction is the top loser, followed by transportation due to higher costs; top gainers are oil & gas, sugar and textiles due to price hikes and trade diversion

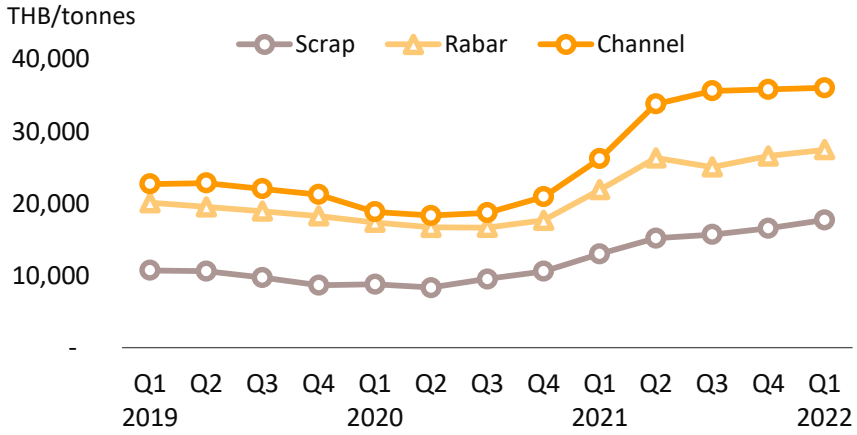


Thai industrial sectors that are likely to experience a significant level of impacts will include construction, transport, oil refining, maritime shipping, and real estate, all of which will have to contend with higher prices, especially from metals and the energy prices. However, these same higher prices taken together with trade diversion will mean that some industries will likely benefit from stronger output. This group is expected to include producers of oil and natural gas, sugar processors, and manufacturers of clothing, electronics and leather ware.

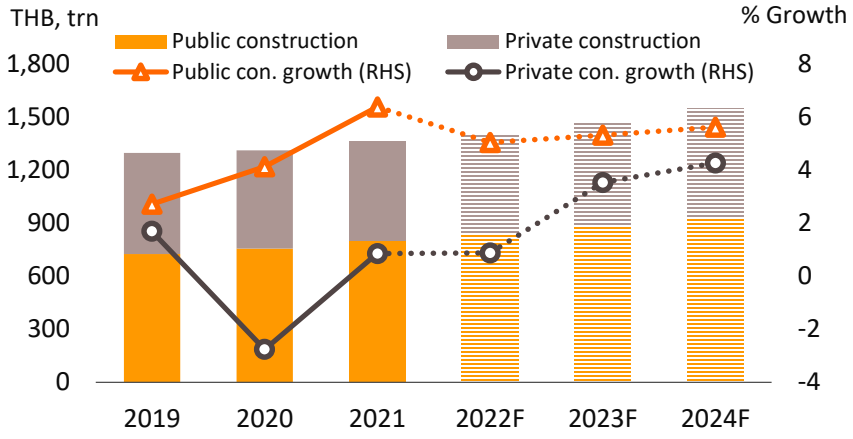
Source: GTAP, estimate by Krungsri Research

Construction Contractor: Coming under pressure from the rising costs of construction materials and transportation, amplifying problems with labor shortages

Steel Domestic Sales Price



Construction Investment Value

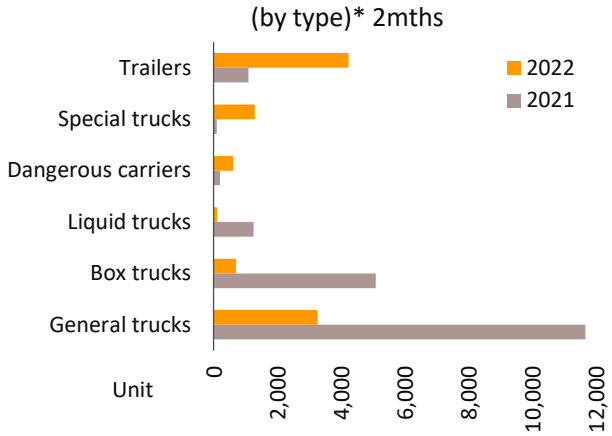


- Because Russia is the world's 2nd most important exporter of oil (as of 2020), while Ukraine and Russia are the source of a combined 12% of the world's steel (a total of 47m tonnes), the outbreak of war has seriously affected supplies of these two commodities to global markets with knock-on effects for the price of oil and of construction materials. This has then impacted the Thai construction sector, adding to pre-existing problems as the industry struggled to recover from labor shortages precipitated by the COVID-19 pandemic. *Thus, over 1Q22, the price of construction steel rose sharply, with the cost of rebar jumping 25.3% YoY to THB 27,446/tonnes and channel climbing at the even faster rate of 37.5% YoY to hit THB 36,046/tonnes. Alongside this, the index of prices for concrete and cement were also up by 5.7% and 4.8% (steel, concrete and cement account for respectively 23%, 16% and 13% of costs in the construction sector).*
- **Contractors will have to shoulder elevated prices for oil and construction materials throughout 2022, especially the most problematic during 2Q22, when prices should peak.** As such, smaller operators will be at risk of becoming insolvent and of being forced to give up construction contracts. Moreover, those working on government contracts have yet to receive compensation payments for these higher costs, that is the 'escalation factor' or 'K value', and the accumulated value of this is now considerable (source: Thai Contractors Association, Thansettakit, 2 April 2022). Contractors working in the private sector have the advantage of being able to raise the prices for finished homes and so of passing on these higher costs to end consumers, but the room for doing this is limited by the only slow recovery in purchasing power. The Thai House Builders Association thus sees housing prices rising by 5-8% from April 2022, given the steady increase in construction costs since last year, and overall, the current expectation is therefore that **2022 spending on construction will strengthen by just 3.3% (down from the earlier prediction of growth of 6.3%), split between a 5.0% increase in public-sector construction and a rise of just 0.9% in construction investment by the private-sector.**

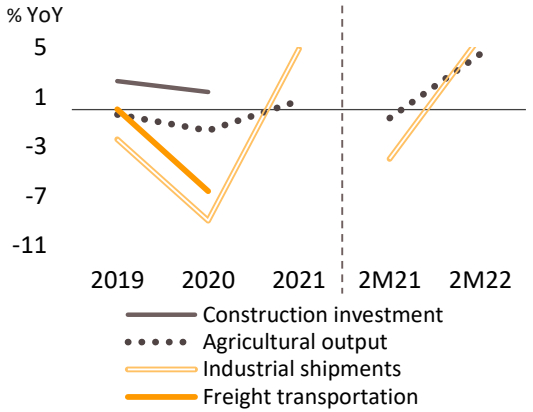
Source: Iron and Steel Institute of Thailand (ISIT), Real Estate Information Center (REIC), compiled by Krungsri Research

Road Transport: Facing high fuel cost and weakened demand on slower-than-expected economy

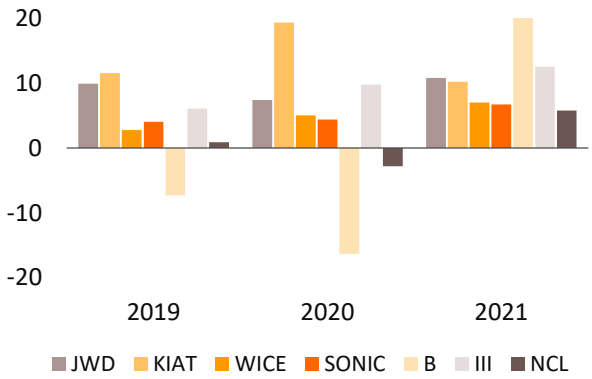
Number of New Trucks Registered



Activities Related to Demand for Transportation



Business Margins (%)

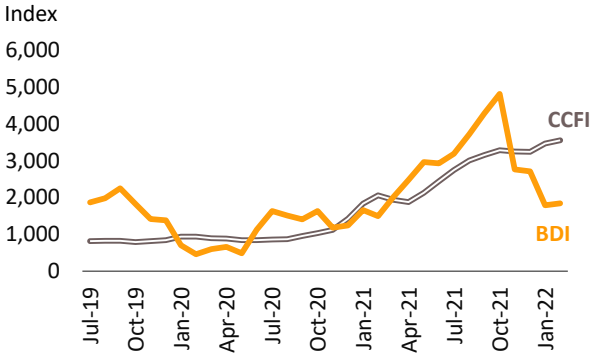


- **Over 2M22, the volume of goods shipped by road grew relative to a year earlier**, and this is reflected in the 5.9% YoY rise in the Industrial Shipment Index. The sector benefitted from an improving economic activity due to international trade (exports rose 12.2% YoY, imports were up 18.7%, and the value of border/cross-border trade climbed 9.5% (the latest data for January) and domestically, the latter shown by the 4.5% YoY increase in the Agricultural Output Index, the 20.3% YoY jump in foreign arrivals, and the 64.8% YoY expansion in the domestic tourism market. In addition, the number of registered trucks is also increasing steadily, especially in the case of general, trailer and special vehicles.
- **The Russian invasion of Ukraine has sent crude prices spiraling**, pushing these to a 14-year high of USD 139/barrel in March, and prices are now expected to remain high through the rest of the year. This will then have negative impacts on growth in demand for transport services, and as such, earlier forecasts are currently not expected to be achieved.
  - **(i) Growth in the Thai export sector is forecast to come to just 5% this year**, compared to the earlier forecast of 8%. In addition, China's continuation of its zero- COVID policy and, following the recent surge in case numbers, the closure of cities and border crossings have stranded a significant number of trucks that were transporting goods from Thailand.
  - **(ii) Demand for goods and services is being undercut by the impact of inflation**, which is itself a consequence of the rising cost of fuel and a wide range of other industrial and agricultural inputs (e.g., animal feed, steel, tires, and food).
- As the factors described above, rather than the earlier forecast of 4-5%, 2022, growth is now expected to reach just 2-3%. There is also a greater risk that **operators' margins will shrink** because: (i) at around 50% of costs, fuel comprises operators' single biggest overhead (the second most important cost is labor, at 32% of the total), and while diesel prices have already climbed 5.3% since the end of 2021, it remains unclear whether the government will continue to keep prices artificially suppressed (i.e., below the current cap of THB 30/liter) after May 2022; and (ii) supply is crowded, and the large number of players in the market makes it difficult to raise freight charges.

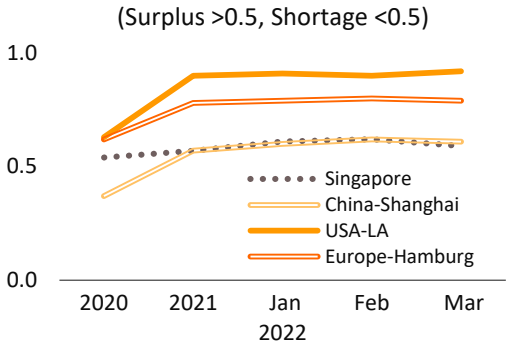
Source: Ministry of Commerce, Ministry of Transport, Krungsri Research, NESDC, Office of Industrial Economics (OIE), Office of Agricultural Economics (OAE), SET, MAI

Sea freight services: Freight rates remaining elevated all year round

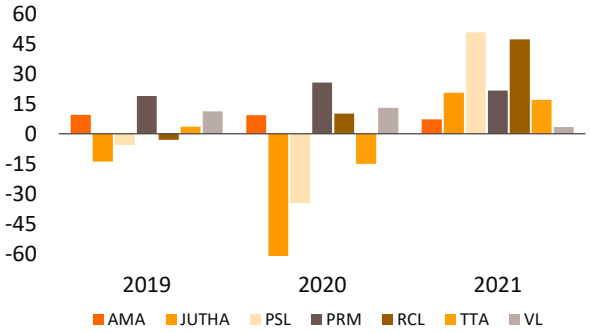
Baltic Exchange Dry Index & China Containerized Freight Index



Container Available Index (CAx)



Business Margins (%)



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.

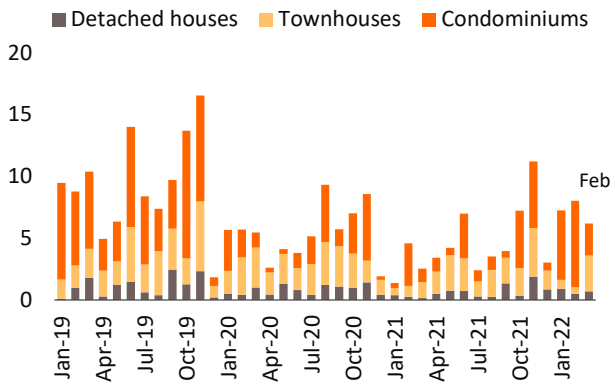
- **Average freight rate for 1Q22 rose from their 2021 level**, with the Baltic Exchange Dry Index up 15% YoY and the China Containerized Freight Index jumping almost 80% YoY on the global shortage of container box. The latter has itself been triggered by a combination of labor shortages and problems with transportation services in individual countries (due partly to rising COVID-19 infections) that have left containers to accumulate in ports or to be stuck on the significant number of vessels queueing waiting to offload outside facilities worldwide. In addition, China's reimposition of lockdowns in major urban centers has further disrupted transportation services and the circulation of containers.
- Through the remainder of the year, **the impacts of the Russia-Ukraine conflict and the resulting sanctions on Russia will tend to keep freight rates high**. This will be especially so due to the imposition of additional charges that will include banker, war risk, and peak season surcharges. **The situation will be further worsened by the following:**
  - **(i) Seaborne routes into Russia have been closed**, while those near the war zone have had to be diverted. Liners are thus having to use alternative ports or to take lengthy diversions through much more distant European facilities, and this is then generating additional congestion in these sites and lengthening loading and unloading times.
  - **(ii) The cost of transport fuels is expected to remain elevated**, and this will add significantly to freight costs.
  - **(iii) Problems with shortages of containers and of labor are likely to worsen**. The International Chamber of Shipping has thus stated that the sanctions on Russia will negatively affect the ability of Russian seafarers, who account for 10.5% of the global shipping workforce (198,123 individuals), to continue their work, while China's enforcement of its zero-COVID policy has intensified inspection processes and amplified the pre-existing slowdown in the containers' recirculating speed.
  - **(iv) Demand for freight services is likely to keep rising** for both commodities (energy, cereals, chemicals, etc.) and containerized consumer goods as countries look to increase buffer stock. In addition, operators are also rerouting shipments away from the China-Europe rail network (which goes through Russia) and onto seaborne routes instead, though this will have the result of increasing demand for containers on Asia-Europe routes by another 5-8% compared to its 2021 level, exacerbating problems with port congestion and container accumulation in ports (UNCTAD, Mar 2022).
- **Industry margins will come under pressure** from: (i) the combination of high inflation and a slowing economy, which is undercutting purchasing power and causing demand for goods on export and domestic markets to be weaker than expected; and (ii) higher costs of shipping fleets management.

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

Housing in BMR: Rising construction costs and slow demand recovery putting pressure on margins

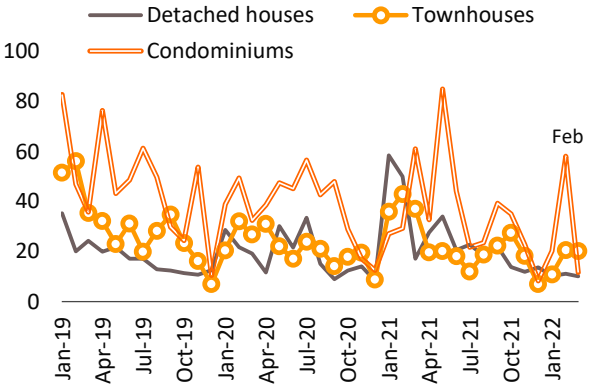
New Supply

(Thousand units)

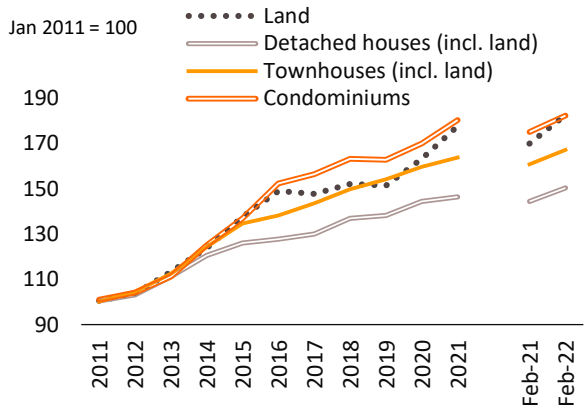


Take-up Rate

(%)



Housing Price Index

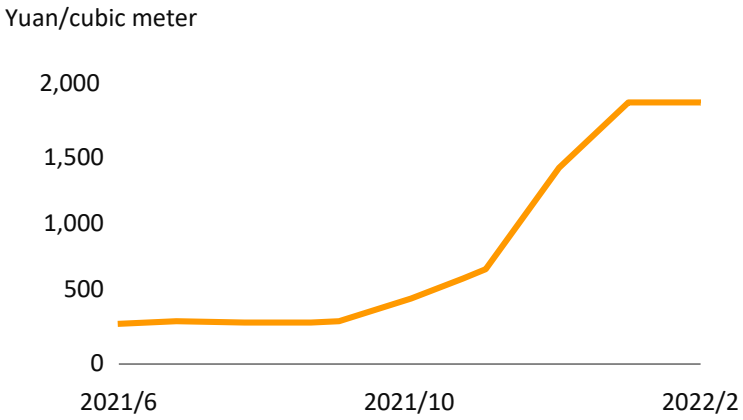


- **Over 1Q22, 21,472 new housing units were released to the market in the BMR (up 152.6% YoY),** with the condominium and detached house segments being the most prominent in this new supply as developers seeked to generate income and worked through their backlog of projects following the slowdown of the past 2 years. Over the same period, 6,499 units were sold, a rise of 100.6%, though sales of condominiums increased by over 200%YoY, mostly in the under THB 3m band.
- **The war in Ukraine will weigh on property sales through the rest of the year** because it is likely to keep the oil price high that will lift the cost of transport and materials (e.g., of cement and steel, the most important inputs), while persistent labor shortages tend to worsen labor costs, and these will then push developers to raise property prices by an average of 5-8% from Q2 onwards. High inflation and the only slow recovery in purchasing power is also expected to encourage buyers to postpone purchases. These combine with the tightening to release of new credit by lenders and high levels of household debt to cause property sales at the mid- to lower-end of the market to grow only sluggishly. However, a better outlook for the mid to upper segments will help to prevent a too-steep drop off in sales. **However, the absorption rate of condominium segment is forecast to remain low at 27% in 2022 (vs average of 42% during 2017-2019)** but that of detached house segment inched up at 30% (average of 25% during 2017-2019) as sales growth saw in high-end market.
- **Many developers are moving to encounter this situation by adjusting their operations and cutting their overheads,** for example by signing advance orders for the delivery of materials (mostly by larger operations that have significant bargaining power), by avoiding unnecessary upgrades or expenditure on developments, and by switching to the use of prefabricated materials as a way of cutting labor costs.

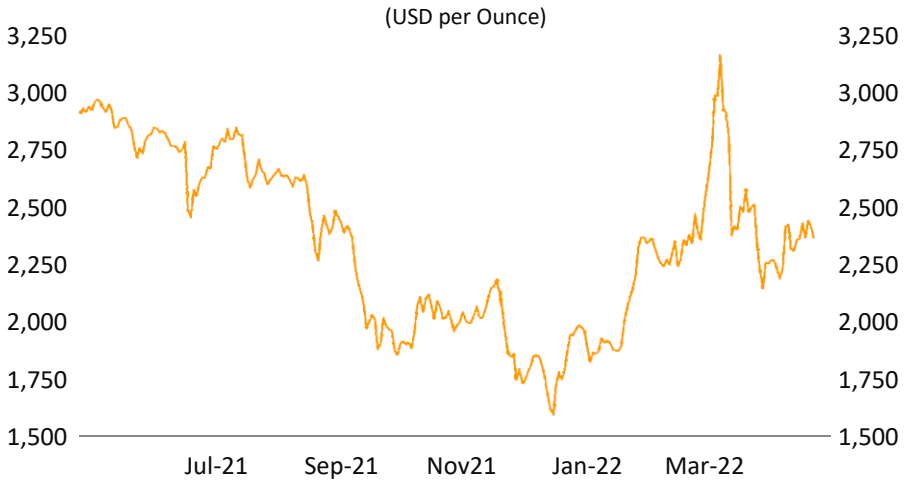
Note: The take-up rate is the proportion of new units sold in their first month on the market.
The housing price index is calculated from data from 17 commercial banks registered in Thailand and active in the BMR
Source: AREA, Krungsri Research.

Problems with *chip shortages* extended by the Russia-Ukraine war

Neon Gas Prices in China



Global Palladium Prices

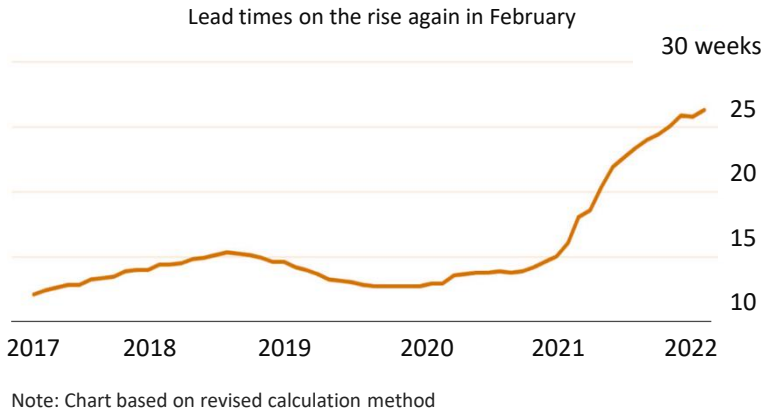


- The Russia-Ukraine war is worsening pre-existing problems with chip shortages due to the importance in the chip manufacturing process of materials supplied by Russia and Ukraine. In particular, problems are being caused by shortages of neon (semiconductor manufacturers rely on neon to control the specialized lasers used in chip manufacture) and palladium (used to produce the pins that conduct electricity on a chip, though 85% of palladium is used in the production of the catalytic converters that clean car exhaust fumes.
- **Worsening supply chain disruption from chip shortages is expected to put adverse impacts on production cost of several consuming industries including automobile, electronics, computers, smartphones, electrical appliances and other digital consumer products.**
- **Over the short term, chip manufacturers will be able to manage supply shortfalls of neon by turning to their stocks,** which are sufficient for 3-6 months, making purchases from Chinese suppliers, which have a 40-50% market share, and recycling neon used in production processes. **At the same time, palladium prices are easing,** and as of March 28th, these had fallen back to USD 2,126/oz as some chip manufacturers switched to buying palladium from other suppliers in South Africa (which has a 30% share of global supply), Canada, and the US, while auto manufacturers are able to substitute cheaper platinum in place of the palladium used in catalytic converters.
- **If the war in Ukraine drags on and sanctions are tightened against Russia, this may however have more significant impacts on chip production, and the resolution of supply problems would then be postponed from 2H22 to mid-2023** since manufacturers estimate that it will take 9 months to 2 years to construct new neon production facilities and to bring this supply to market.

Source: Zhuochuang Information, Airvers Tech News, Kitco, Krungsri Research

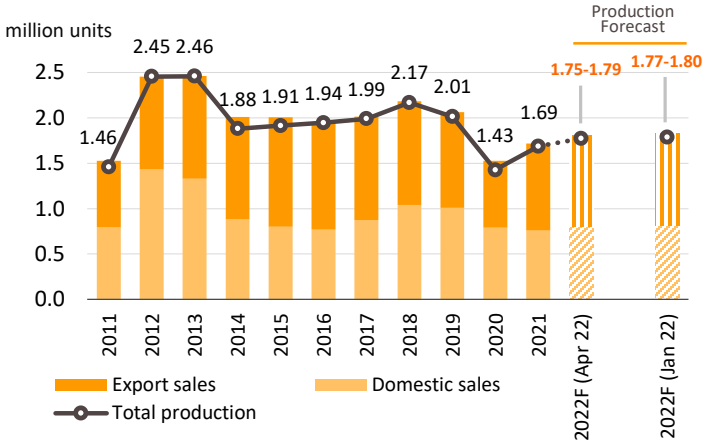
Automobile: Chip shortages undershooting earlier output predictions

The Wait for Chips



Note: Chart based on revised calculation method

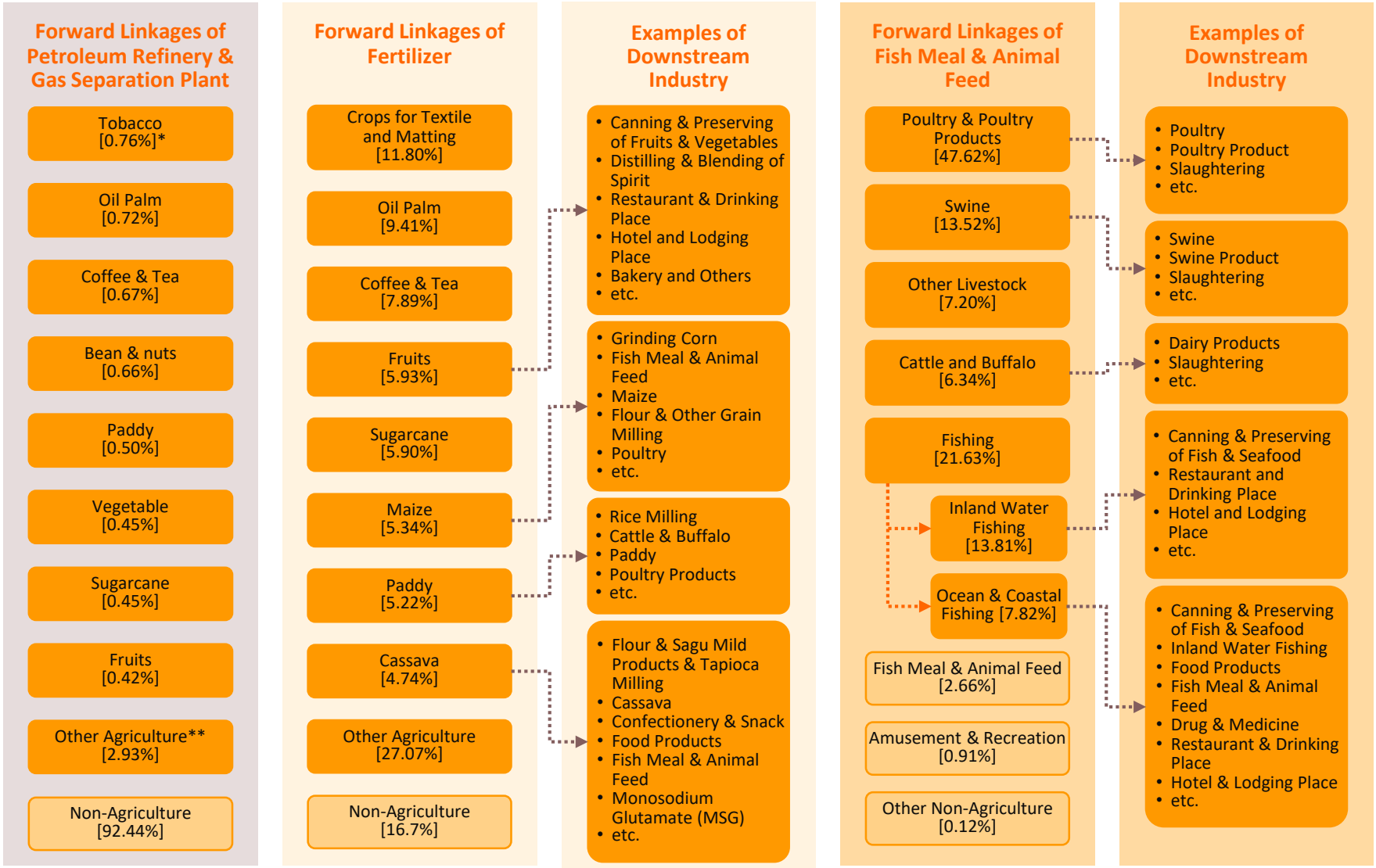
Automobile Production and Sales



- As of February 2022, delivery times for chips have slowed from a pre-COVID-19 average of around 12-15 weeks to a record high of over 26.2 weeks as manufacturers look to reduce their exposure to the risk of repeat shortages by building up their stocks of inputs. This is especially notable among manufacturers of smart devices, vehicles and new technology that connects to the IoT. This is then adding to manufacturing costs, and this may force producers to raise prices, though the Ukraine war may undercut demand for computers, smartphones and autos.
- Over 2M22, output from auto production lines rose by just 1.4% YoY (to 307,407 vehicles), and while the domestic market expanded by 26.1% YoY (143,944 vehicles), exports shrank by 2.8% YoY (149,284 vehicles).
- **The outbreak of war in Ukraine is extending problems with chip shortages, while high oil prices are providing the fuel for strengthening inflation and this is now beginning to affect economic activity. In light of this, the forecast now is for auto production to increase by 4.0-6.0% in 2022,** down from the earlier prediction of growth of 5.0-7.0% (against 2021 growth of 18.1%). Problems with chip shortages are also now expected to last until mid-2023.
  - **Domestic sales are forecast to increase by 4.0-6.0%** (the earlier prediction was for growth of 6.0-8.0% and compares to a 4.2% contraction in 2021) on: (i) new incentives offered by the government to promote purchases of battery electric vehicles (BEVs); (ii) an expansion in the construction, online retail, and logistics industries that will support stronger demand for commercial vehicles; and (iii) the release of a steady stream of new models by manufacturers. However, the introduction of new excise duties (expected in 2022) will likely increase the price of new ICE-powered autos, which account for 95% of the domestic market.
  - **Exports should rise 4.0-6.0%** (the prior prediction was for growth of 5.0-7.0% and compares somewhat unfavorably to growth of 30.4% in 2021), helped by: (i) an acceleration in moves by Japanese companies to use Thailand as a base for producing vehicles for export, especially to the ASEAN region, and (ii) the existence of the ASEAN FTA and ASEAN Mutual Recognition Arrangements (MRAs), which recognize individual country's auto testing standards and so make import procedures much easier. In the particular case of the Philippines (Thailand's 3rd largest export market), sales will also be helped by the closure of local production lines.

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

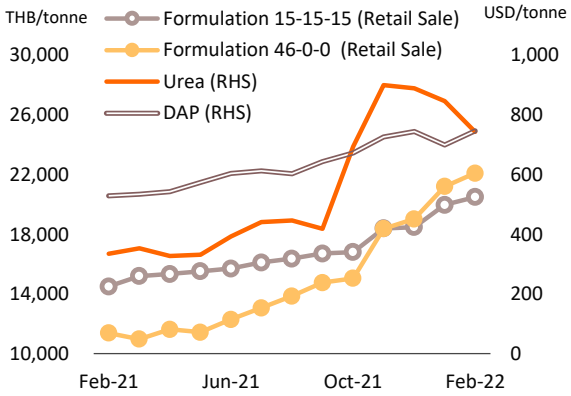
Agriculture: Crops affected by the rising cost of fertilizer and energy including oil palm, tea and coffee, fruits, sugarcane, and paddy; Poultry, swine and other livestock, and fish becoming more expensive with the higher cost of feed



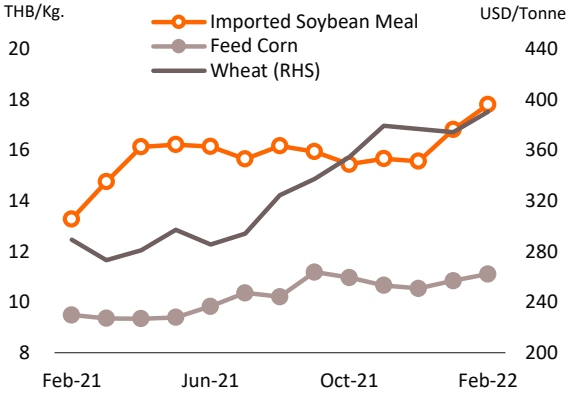
Note : *[…%] represents percent share of usage in that agricultural product, **Other agriculture excluded downstream agriculture processing and mills,
Source: NESDC (Input-Output Table), Krungsri Research

Agriculture: The rising cost of feed and fertilizer pushing up prices broadly, but beginning to ease in 2H22 on upcoming additional outputs

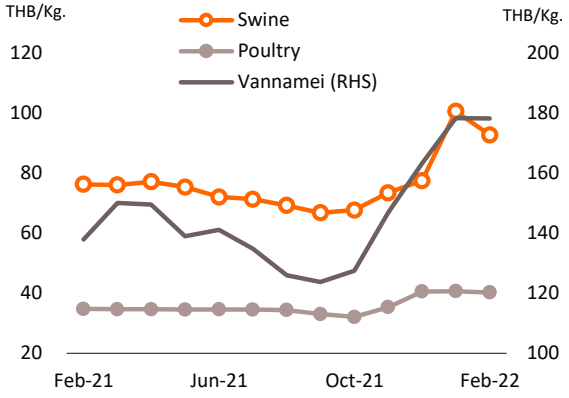
Fertilizer Raw Material Prices



Feed's Raw Material Prices



Livestock Prices

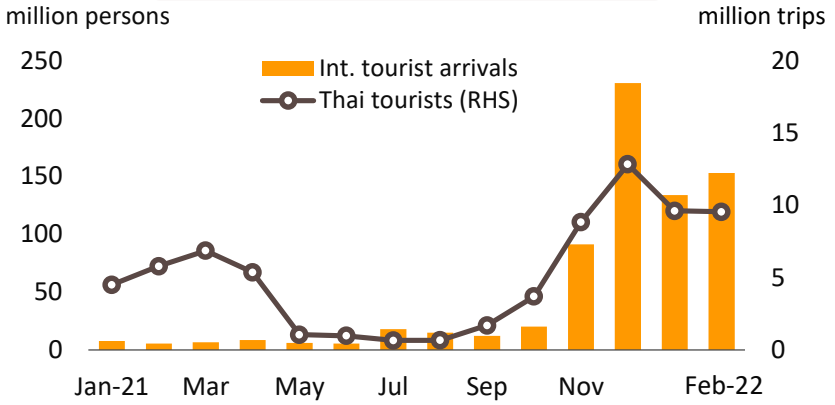


- **Thai farm prices rose 2.5% in 2M22.** Prices rose for crops, including oil palm (+41.3% YoY), mango (+36.1% YoY), sugarcane (+16.6% YoY), cassava (+11.6% YoY), corn for animal feed (+9.1% YoY), and rubber (+5.2% YoY), and for livestock, including pork (+28.7% YoY), chicken (+16.1% YoY) and vannamei shrimp (+27.7% YoY). Prices have been affected by: (i) the rebound in export demand as the effects of COVID-19 have dissipated; and (ii) additional demand to establish food security in the face of COVID-19 and fears caused by the Russia-Ukraine war. At the same time, production costs have also been driven up by the following.
  - **Crops:** The higher cost of oil has added to manufacturing costs and lifted the cost of fertilizer worldwide. In particular, the prices for urea rose 165% YoY over 2M22, and this has especially affected production costs for fertilizer-intensive crops, including oil palm, fruits, and sugarcane.
  - **Livestock:** Total production costs are heavily influenced by the cost of animal feed, and this has been rising with higher energy prices and stronger demand. Simultaneously, global supply has been narrowing with drought in many countries, including Brazil, Argentina, and Paraguay. In addition, the effects of the Russia-Ukraine war since late February also dampens released supply in global markets (Ukraine is the 4th biggest wheat exporter in the world), and the move by some major agricultural exporters (e.g., Europe, Argentina, and Egypt) to restrict cereal exports. As such, prices for wheat and soybean meal rose 32-33% YoY over 2M22.
- **Prices for agricultural produce will likely continue to rise through Q2 but the upward pressure on these should ease in 2H22.** Since March, Russia, one of the world's major suppliers, has had exports of fertilizer restricted along with those of over 200 other products, while China is also tightening overseas sales of fertilizer, and this supply restriction is then adding to production costs for farmers. Likewise, the price of animal feed is rising with the cost of inputs, supply of which is also tight, and these processes will likely mean that agricultural prices will peak in 2Q22 before softening again in 2H22 on: (i) an expected increase in outputs that will result from heavier rainfall (thanks to La Niña conditions) and the impetus given to production by higher prices; (ii) an increase in the availability of inputs on world markets as the Russia-Ukraine war eases and shift of purchases (e.g., of fertilizer and wheat) to sources other than those in Russia and Ukraine; and (iii) additional government assistance for the sector, including a temporary lifting of import regulations. The forecast is therefore that **for all of 2022, prices and production will rise by respectively 6.0-8.0% and 5.0-7.0%, and this will help to boost farm incomes by 10.0%-12.0%.**

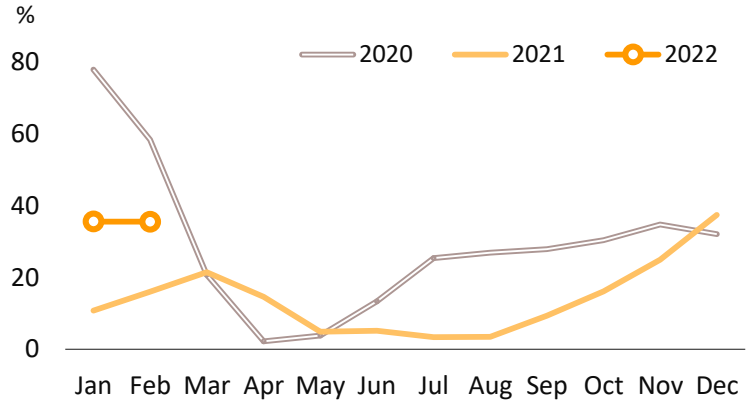
Source: OAE, World Bank, Thai Feed Mill, Krungsri Research

Hotel: Russia-Ukraine war dragging on recovery especially in European and Russian markets

Number of Tourists in Thailand



Occupancy Rate



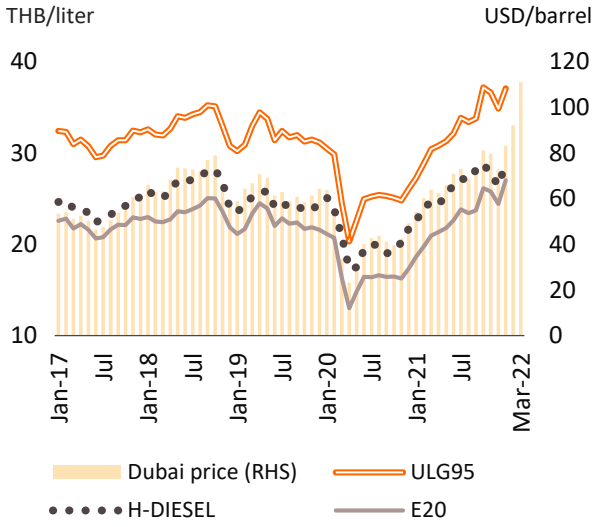
Recovery in the hotel industry will take longer than previously expected due to the war in Ukraine, which is now expected to extend through Q2, likely provoking stricter sanctions on Russia by Western nations. This will then help to keep oil prices inflated and to add to the cost of travel, with negative consequences for the tourism industry. At the same time, consumer spending power is being undercut by the impacts of rising inflation on the cost of living and by repeat waves of COVID-19 infection.

- The tourism sector showed signs of recovery through 2M22. 290,000 foreign arrivals were recorded in the period (compared to just 13,000 in 2M21), the number rising with the relaxation of restrictions on entry to Thailand, while domestic tourists made a total of 19.2m trips (up 86.1% YoY). This was again thanks to the easing of restrictions on travel and other activities, in particular the extension of the hours during which food and drink can be served, and as such, hotel occupancy rates rose from 13.5% in 2M21 to 35.6% in 2M22.
- **The number of foreign arrivals is expected to increase through 2022** on: (i) the relaxation of the rules governing entry to Thailand, in particular the use of the Test & Go system from March 1st, the lifting with effect from April 1st of the requirement that travelers have an RT-PCR test 72 hours before travel, and the lifting from May 1st of the need to have a RT-PCR test on day 0, with travelers instead required to have a professionally administered ATK test; (ii) the creation of travel bubbles with China and India; and (iii) expansion into new markets (e.g., Saudi Arabia). Nevertheless, despite these tailwinds, the outbreak of war between Russia and Ukraine will reduce the number of arrivals from Russia and non-Russian Europe (sources of respectively 4% and 13% of all foreign arrivals in Thailand, with Russia being the 7th most important source of foreign tourists in 2019). Domestic tourism will benefit from government measures to stimulate the sector, but oil is expected to remain expensive and this will drag on growth in both the foreign and domestic markets. In light of this, **for all of 2022, foreign arrivals are expected to number 5.5m (against an earlier prediction of 7.0m), while Thais are forecast to make 85m trips this year (down from the prior prediction of 90m).**
- **Hoteliers are still having to deal with a slump in income**, and although hotels have generally returned to offering a full range of services, income remains less than 50% of its normal level. Operators have therefore sought out additional sources of income, including offering 'hospitel' services, and cut overheads by laying off staff. Overall, the situation is expected to improve in Q4.

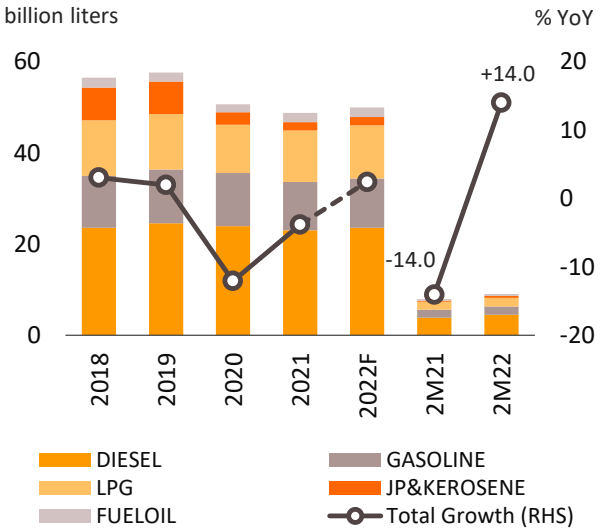
Source: MOTS, BOT, forecast by Krungsri Research

Refinery: Expected increase in gross refinery margins improving business conditions

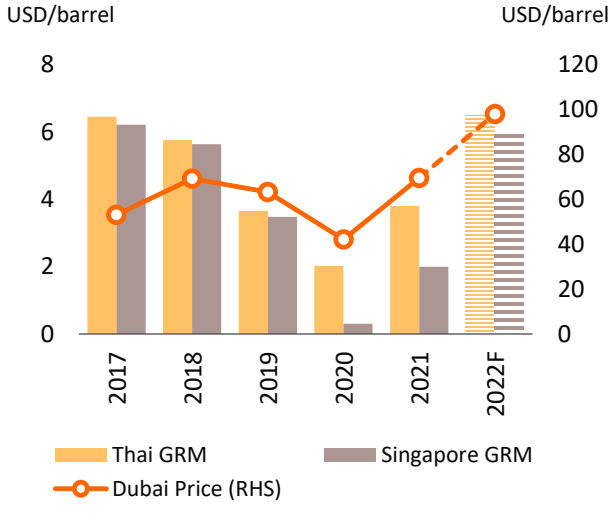
Thailand Petroleum Prices at Refinery



Domestic Petroleum Demand



Gross Refinery Margins



- **The Russia and Ukraine war stoked a rapid buildup in oil prices through 1Q22 that, relative to the start of the year, lifted the price of Dubai crude by 62.2% YoY to an average of USD 96.5/barrel,** and this in turn then added around 20-30% to Thai ex-refinery prices over the course of Q1. Through 2M22 (the most recent data available), consumption of refined products also rose 14.0% YoY on recovery in the tourism sector and an increase in overall economic activity that has fed into greater demand for transport services. In detail: (i) demand from the transport sector has been translated into an 18.1% YoY increase in demand for diesel and a 2.3% YoY rise in sales of gasoline; (ii) greater demand from industry has lifted consumption of fuel oil by 23.5% YoY and of LPG by 7.7% YoY; and (iii) demand for jet fuel by the tourism sector is up 63.0% YoY. Meanwhile, capacity utilization across the industry has increased from 2021's 78.4% to 84.0%.
- **2022 gross refinery margins (GRMs) picked up compared to earlier predictions.** Prices for Dubai crude are forecast to average USD 98.0/barrel, up 41% from their level in 2021. Although demand for oil products is likely to be weaker than earlier forecasts, this would still expand by 2.5-3.0% on: (i) a rebound in economic activity as the COVID-19 pandemic abates; (ii) an improving outlook for the tourism sector now that the authorities are relaxing restrictions on foreign arrivals; and (iii) demand for fuels from the transport and industrial sectors would still increase on improving domestic and export markets. Domestic GRMs are forecast to increase significantly and to average USD 6.5/barrel (up from the earlier prediction of USD 5.5/barrel)

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

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