ธนาคารแห่งประเทศไทย
BANK OF THAILAND

Monetary Policy Report

November 2022

Monetary Policy Report

The Monetary Policy Report is prepared quarterly by staff of the Bank of Thailand with the approval of the Monetary Policy Committee (MPC). It serves two purposes: (1) to communicate to the public the MPC's consideration and rationales for the conduct of monetary policy, and (2) to present the latest set of economic and inflation forecasts, based on which the monetary policy decisions were made.

The Monetary Policy Committee

Mr. Sethaput Suthiwartnarueput	Chairman
Mr. Mathee Supapongse	Vice Chairman
Mrs. Roong Mallikamas	Member
Mr. Kanit Sangsubhan	Member
Mr. Rapee Sucharitakul	Member
Mr. Somchai Jitsuchon	Member
Mr. Subhak Siwaraksa	Member

Monetary Policy in Thailand

Monetary Policy Committee

Under the Bank of Thailand Act, the Monetary Policy Committee (MPC) comprises the governor and two deputy governors, as well as four distinguished external members representing various sectors of the economy, with the aim of ensuring that monetary policy decisions are effective and transparent.

Monetary Policy Objective

The MPC implements monetary policy under the flexible inflation targeting regime. While regarding medium-term price stability as its primary objective, the MPC also aims at supporting sustainable, full-potential economic growth and preserving financial stability, attributing to long-term price stability and economic sustainability.

Monetary Policy Target

On December 14, 2021, the Cabinet approved the monetary policy target for 2021, which was mutually agreed between the MPC and the Minister of Finance to set the headline inflation within the range of 1–3 percent as the target for the medium-term horizon and for 2022. In the event that average headline inflation in the past 12 months or a forecast of average headline inflation over 12 months ahead breaches the target range, the MPC shall send an open letter to the Minister of Finance to explain reasons for the breach of the target range, together with measures taken and estimated time to bring inflation back to the target. In addition, the MPC will write an additional open letter to the Minister of Finance every six months if average headline inflation based on the above criteria remains outside the target range.

Monetary Policy Instrument

The MPC utilizes the 1-day bilateral repurchase transaction rate as the policy interest rate to signal the monetary policy stance.

The MPC has adopted the managed float exchange rate regime to stabilize and limit the volatilities in the exchange rate, as to let the baht reflect economic fundamentals

Evaluation of Economic Conditions and Forecasts

The Bank of Thailand takes into account information from all sources, the macroeconomic model, data from each economic sector, as well as surveys of large enterprises, together with small and medium-sized enterprises from all over the country, and various financial institutions to ensure that economic evaluations and forecasts are accurate and cover all aspects, both at the macro and micro levels.

Monetary Policy Communication

Recognizing the importance of monetary policy communication to the public, the MPC employs various channels of communication, both in Thai and English, such as (1) publishing a press statement at 14:00 and holding a press conference regarding the results of the meeting at 14:30 on the day of the Committee meeting (2) publishing edited minutes of the MPC meeting two weeks after the meeting, and (3) publishing the Monetary Policy Report every quarter.

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Data in this report is as of 29 Nov 2022 (1 day prior to the MPC Meeting)

Executive Summary

Assessment of the Economic and Inflation Outlook

Global Economy

Trading partners are expected to grow 2.9% in 2022, 2.5% in 2023, and 3.1% in 2024. Growth is expected to slow down in 2023 due to global demand being impacted by (1) high inflation; (2) tighter global financial conditions as a result of monetary tightening in many countries; and (3) China's economic slowdown as a result of the government's Zero-COVID policy to contain the recent outbreak, and problems in the Chinese property market. Trading partners are expected to see stronger growth in 2024 as the impact of inflation of consumption gradually dissipates and financial conditions become less tight.

The Thai Economy

The Thai economy is expected to continue recovering and register growth rates of 3.2% in 2022, 3.7% in 2023, and 3.9% in 2024. The recovery would be driven by **(1) stronger recovery in tourism** as reflected in the continued increase in foreign tourist arrivals and improvements in tourism rapid indicators. Foreign tourist arrival is expected to reach 10.5 million persons in 2022 and 22 million persons in 2023, an upward revision of one million persons for each year from the previous forecast. It is also expected that foreign tourist arrivals would continue to increase and reach 31.5 million persons in 2024. Most foreign tourists would come from ASEAN and Asian countries, while foreign tourists from China would likely be relatively low in 2023 as China's border reopening plan is still highly uncertain; and **(2) continued recovery in private consumption** supported by recovery in economic activities, especially services, and more broad-based improvements in employment and labor income. **While the global economic slowdown would impact merchandise exports,** especially goods that are sensitive to trading partners' growth outlook such as automobile, textiles, electronical appliances, and industrial goods. Meanwhile, exports of some other goods such as agriculture and agro-industry would still see positive growth. **Overall, tourism and private consumption would be the key drivers of growth and help offset the impact from the global economic slowdown.**

Risks to the growth outlook is balanced but there remains the need to monitor the global economic recovery, which is still subject to uncertainties and could slow down more than expected, as well as the traction of tourism recovery.

Inflation

Headline inflation is expected to average 6.3% in 2022, 3.0% in 2023, and 2.1% in 2024. Headline inflation has receded from its peak in the third quarter of 2022 and is expected to fall within the target range by end-2023. However, headline inflation forecast for 2023 is revised up from the previous assessment due to the increase in electricity charges as input costs remain high. **Core inflation forecast is largely unchanged from the previous assessment.** Core inflation is expected to gradually decline and average 2.6% in 2022, 2.5% in 2023, and 2.0% in 2024. Prices of goods in the core category have either remained stable or declined due to lower cost pass-through compared to the earlier parts of the year thanks to declining global energy and commodity prices. **Medium-term inflation expectations remain well-anchored within the target range.**

Risks to the inflation forecast is balanced. However, there remain risks to be closely monitored namely (1) higher- and faster-than-expected cost pass-through from producers including electricity charges, which remain uncertain; (2) slower-than-expected global economic growth that could result in further declines in energy and commodity prices; and (3) uncertainties pertaining to government relief measures such as subsidies for electricity charges and other living costs.

Financial Conditions and Financial Stability

Overall financial conditions in Thailand remain accommodative. Commercial bank interest rates and short-term bond yields have increased gradually in line with the policy rate path. Long-term bond yields have declined in line with US Treasury yields due to expectations that the Fed might slow down the pace of its rate hikes. In terms of quantity, credit provision and bond issuance are still growing and is expected to continue growing with the economic recovery. **On exchange rates, the baht against U.S. dollar experienced volatile movements as a result of the Fed's monetary policy direction.** Nevertheless, the baht saw sharp appreciation in November 2022 due to market expectations that the Fed to slow down its policy rate hike as inflation started to subside, and China's announcement of plans to relax its international travel restrictions. **Overall, the tighter and more volatile global financial conditions had a limited impact on domestic financial conditions in Thailand** due to low levels of external debt in business sectors and that the majority of firms have exchange rate risk management in place.

Financial stability remains sound overall. Commercial banks' capital and loan loss provision remain high. Debt serviceability of businesses and households has improved in line with the economy recovery. However, some SMEs and households whose income have yet to fully recovery are still sensitive to rising living costs and debt burden. The MPC assesses that an aggressive policy rate hike could negatively impact the recovery of those vulnerable groups. Monetary policy should thus be normalized in a gradual and measured manner, and complemented by the continued implementation of debt restructuring measures.

Monetary Policy Decisions in the Fourth Quarter of 2022

At the meeting on 30 November 2022, the MPC voted unanimously to raise the policy rate by 0.25 percentage point from 1.00% to 1.25%. Thailand's economic recovery continues to gain traction on the back of tourism and private consumption, the recovery of which could offset the impact of global economic slowdown. Headline inflation in 2023 is revised up from the previous assessment but is expected to fall within the target range in the latter half of 2023. The MPC judges that a gradual and measured approach to monetary policy normalization is still appropriate given the current economic recovery path and inflation outlook

Under the monetary policy framework with objectives of maintaining price stability, supporting sustainable and full-potential economic growth, and preserving financial stability, the MPC assesses that the Thai economy will continue to recover but there are risks to the inflation outlook to be monitored. **Hence the MPC judges that the policy rate should be normalized in a gradual and measured manner to a level that is consistent with sustainable growth in the long term. Given heightened uncertainties in the global economy, the MPC is ready to adjust the size and timing of policy normalization should the growth and inflation outlook shifts from the current assessment.**

1. Global Economy

Global Economy: Key Issues

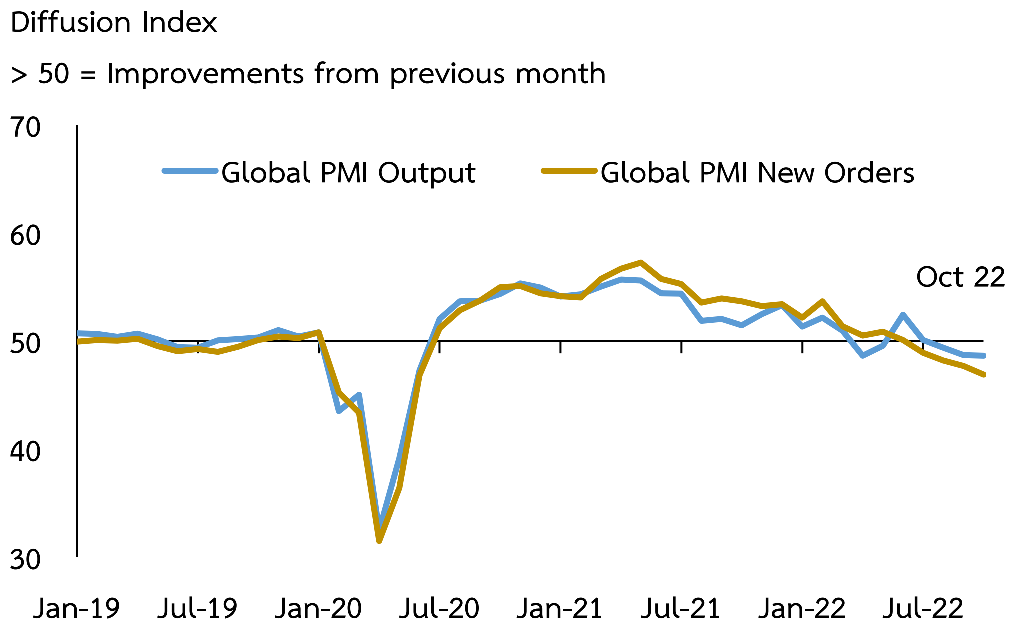
The global economy is expected to slow down due declining global demand as a result of more aggressive rate hikes in many countries, and economic slowdown in China.

Inflation would remain above targets next year thus many central banks would continue to tighten monetary policy

Downside risks to trading partners' growth outlook have increased from tight global financial conditions, the slowdown in global trade, and prolonged geopolitical tensions.

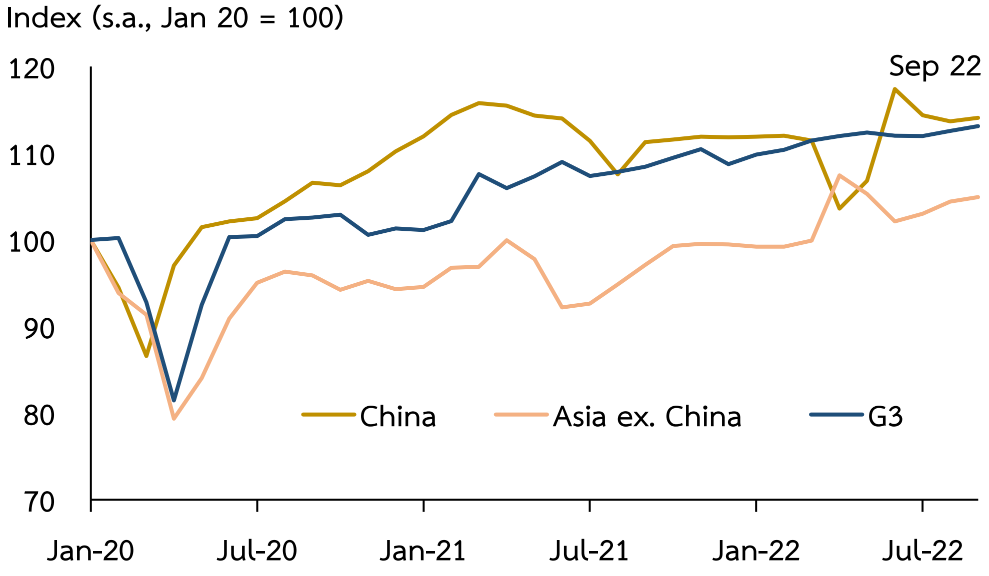
Global growth is expected to slow down. The manufacturing sector showed signs of slowing down in tandem with falling global demand, which could in turn impact consumption.

Global Manufacturing Purchasing Manager Index: PMI



Source: CEIC

Retail Sales Index

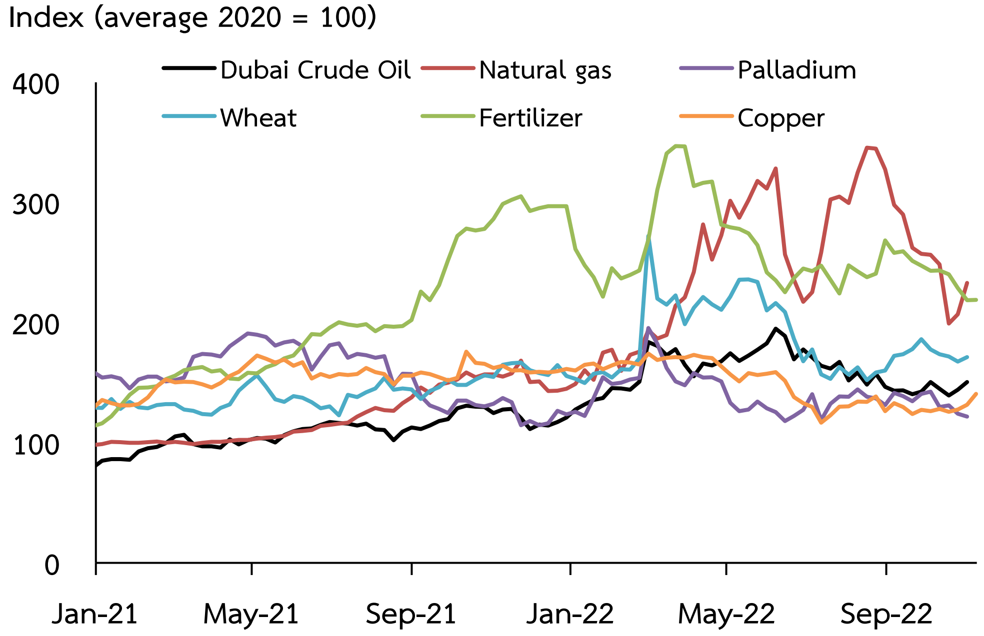


Source: CEIC

The manufacturing sector showed signs of slowing down in tandem with falling global demand. Persistently high inflation and continuation of monetary policy tightening by many central banks would further impact consumer purchasing power, business input costs, and private sector confidence. And this **could be a threat for private consumption growth momentum despite the recently strong recovery we have seen in advanced and Asian economies due to recovery in service sectors.**

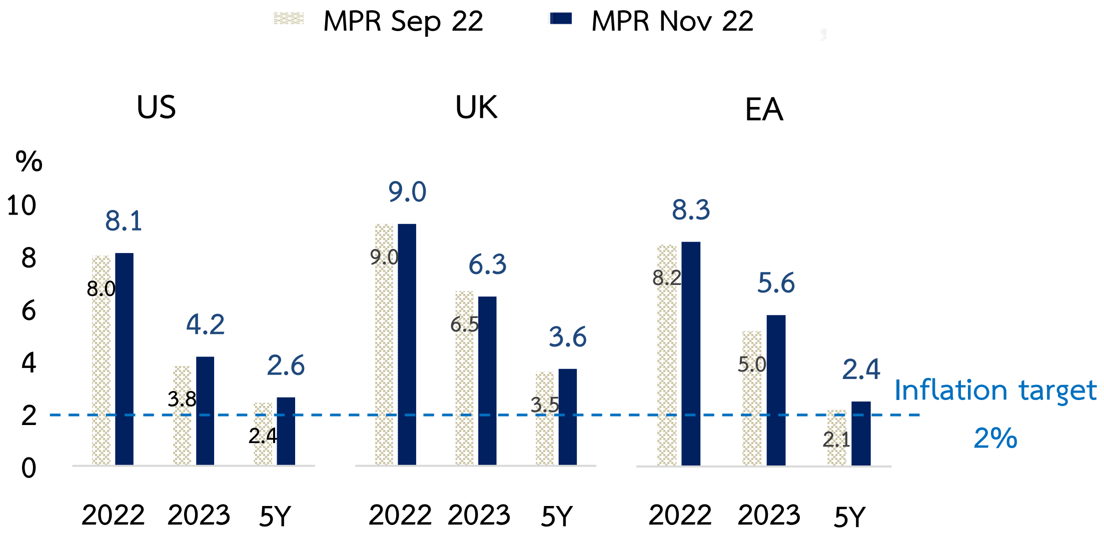
Inflation is declining in tandem with falling global energy and commodity prices but is expected to remain above target in many countries

Energy and Commodity Prices



Source: Bloomberg (Data as of 14 Nov 2022)

Inflation Expectations



Notes: [1/] Data for 2022 and 2023 from Bloomberg median as of 30 Sep (MPR Sep 22) and as of 11 Nov (MPR Nov 22)
[2/] 5-year average inflation expectations data from 14 Sep 22 onwards
Source: Bloomberg

Inflation is declining in tandem with falling global energy and commodity prices as a result of the slowdown in global demand. **However, inflation expectations in major advanced economies would still be above target next year.** Inflation in the US remains high due to the ongoing economic recovery and tight labor market conditions. Meanwhile, inflation in the UK and euro area would see additional energy price pressures as Russia has ceased its exports of natural gas to Europe.

Many central banks continue to tighten monetary policy to address high inflation.

Expectatiosn of the Fed's monetary policy in 2022 - 2024				
Rate	2021*	2022	2023	2024
Fed funds rate assumption (% at year-end)	0.00 – 0.25	4.25 - 4.50 (4.25 - 4.50)	5.00 – 5.25 (4.50 - 4.75)	3.75 - 4.00

Notes: * Outturns

Source: BOT projections (as of 29 Nov 22)

The European Central Bank (ECB) raised its policy rate in response to mounting inflationary pressure. The ECB raised its policy rate by 75 bps to 1.50% at the meeting on 27 October 2022. **It is still expected that the ECB would continue to raise rates despite having adopted a more dovish stance** by emphasizing that the rate hikes will be data-dependent and decided on a meeting-by-meeting basis. Financial markets expect the ECB to raise its policy rate by another 50 bps in December 2022.

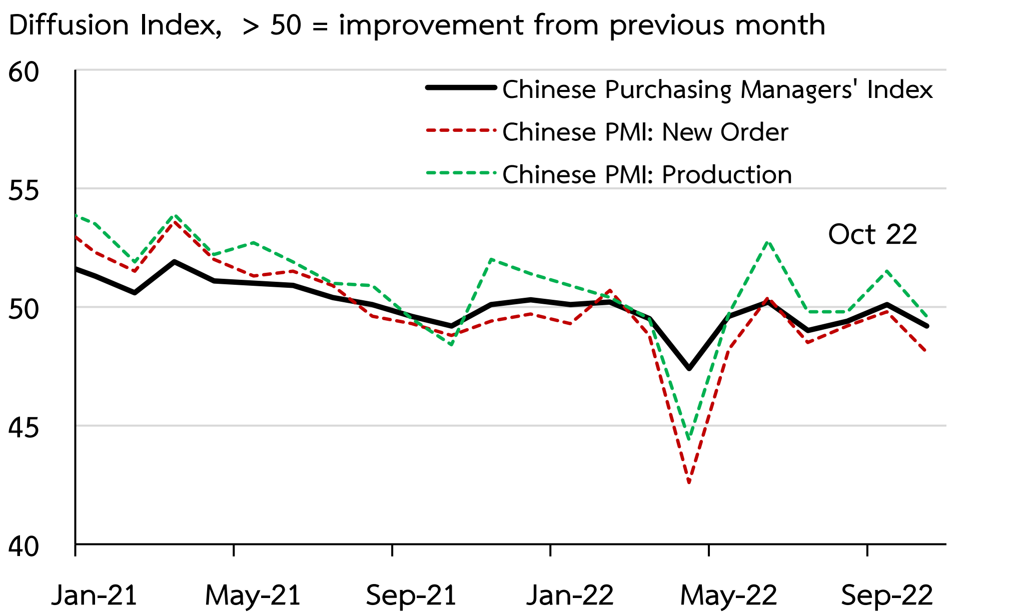
The Fed continues to tighten monetary policy, signaling that it would hike rates further and over a longer period than expected in the previous Monetary Policy Report. Given that inflation in the US might remain high and be more persistent than expected, the Fed might have to raise its policy rate more aggressively in 2023 than previously expected to 5.00-5.25% before gradually normalizing the policy rate in the latter half of 2024.

Most Asian central banks continued to raise their policy rates following the aggressive rate hikes by major central banks. This was also due to the ongoing economic recovery and rising inflation in many countries as a result of rising food and energy prices. These include rate hikes[1/] by countries such as South Korea (+2.50%), Philippines (+3.0%), Indonesia (+1.25%), and Malaysia (+1.0%)

[1/] Cumulative interest rate increases since the COVID-19 pandemic up to 17 November 2022

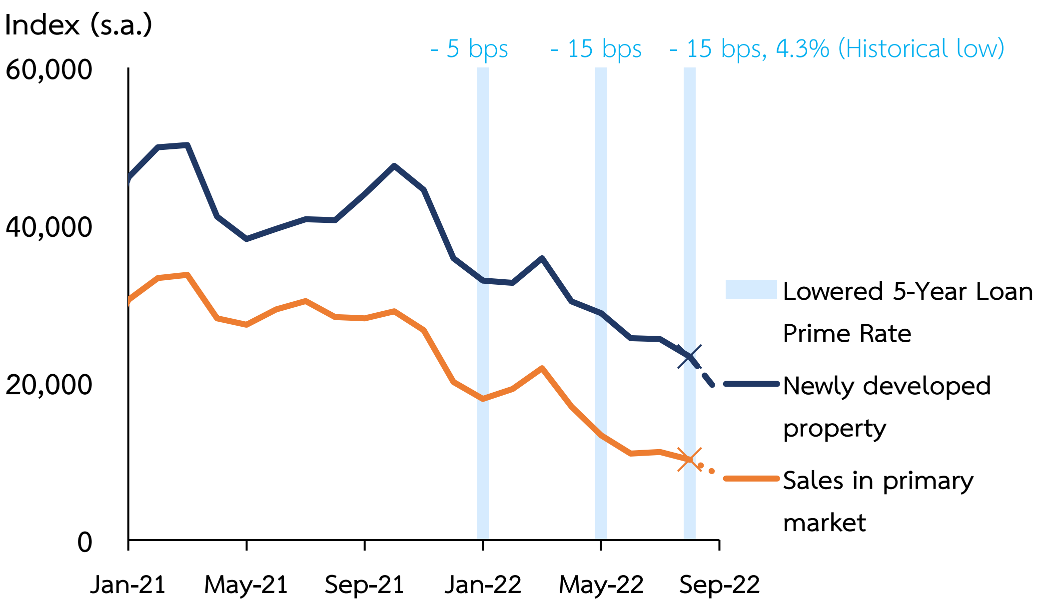
The Chinese economy is expected to slow down further due to the Zero-COVID policy, distressed real estate sector problems in the real estate sector, and the slowdown in global demand.

China's Manufacturing Purchasing Manager Index: PMI



Source: CEIC

Property Sales in China



Source: NBS, CREIS, CRIC, Wind, Local Land and Resources Bureaus

The manufacturing and exports sectors in China are affected by the Zero-COVID policy, problems in the real estate sector, and the slowdown in global demand. The implementation of Zero-COVID policy to contain the recent COVID-19 outbreak in China has impeded economic activities and affected consumer confidence. Prolonged problems in the real estate sector have resulted in a continued decline in property demand. While the PBOC's rate cut having limited effect in helping shore up real estate sector, the effect of measures to stimulate property demand is expected to become more apparent in 2023.

While trading partners' growth outlook for 2022 is largely unchanged from the previous assessment, it is expected to slow down in 2023 due to global demand being affected by tight global financial conditions and high inflation.

Assumptions of Trading Partners' Growth							
%YOY	Weight (2021) (%)	2021[1/]	2022		2023		2024
			MPR Sep 22	MPR Nov 22	MPR Sep 22	MPR Nov 22	MPR Nov 22
US	21.3	5.9	1.5	1.7	0.8	0.4	1.7
Euro Area	9.5	5.3	2.8	3.1	0.7	0.3	1.7
Japan	12.7	1.6	1.4	1.4	1.6	1.4	1.6
China	19.0	8.1	3.2	3.2	5.0	4.8	5.3
Asia[2/]	30.2	5.4	3.9	3.9	3.8	3.6	4.2
Total[3/]	100	5.6	2.9	2.9[4/]	2.7	2.5	3.1

Trading partners' growth forecast for 2022 is largely unchanged from the previous assessment. The US and euro area registered stronger-than-expected economic growth in the third quarter, while the Chinese economy was impacted by both the slowdown in global demand and subdued domestic demand as a result of new COVID-19 containment measures and prolonged problems in the real estate sector.

Trading partners' growth forecast for 2023 is revised down as global demand is expected to be affected by persistently high inflation and continuation of monetary policy tightening by central banks around the world.

Trading partners' growth is expected to pick up in 2024. The expansion of economic activity is expected to resume once the inflation pressure weighing on consumption spending dissipates and financial conditions become less tighten.

Note: [1/] Outturns and revision for some trading partners

[2/] Asia (excluding Japan and China) is weighted by the share of Thai exporting values to each country in 2021, namely Singapore (4.5%), Hong Kong (5.8%) Malaysia (6.1%), Taiwan (2.3%), Indonesia (4.4%), South Korea (3.0%), Philippines (3.5%)

[3/] Weighted by the share of Thai exporting values to each country in 2021 (incl. UK and Australia)

[4/] Total trading partners' growth in 2022 increased by 0.08% from 2.85% in MPR Sep 22 to 2.93% in MPR Nov 22

Risks to trading partners' growth outlook is tilted further to the downside from tighter global financial conditions, the slowdown in global demand, and prolonged geopolitical tensions.

Downside risks

Tightening global financial conditions have exacerbated vulnerabilities in the financial system that could impact trading partners' growth such as problems in the Chinese and South Korean real estate sectors, debt defaults in emerging market economies like Sri Lanka, and the deteriorating financial positions of businesses and households caused by the COVID-19 pandemic

Global trade slowed down more than expected due to (1) a slowdown in global demand as a result of high and persistent inflation; (2) China's Zero-COVID policy creating disruptions in both the manufacturing and services sectors; and (3) shortages of raw materials and logistics problems due to the global supply disruption that has lasted longer than expected

Geopolitical tensions, including rising tensions between the US and China after the ban on high-tech goods exports to China (tech war), as well as the Russia-Ukraine and China-Taiwan conflicts that could be prolonged and escalate further. The materialization of these risks would impact the global supply chain and exacerbate the ongoing chip shortage and rising commodity prices.

Upside risks

Trading partners' growth could be stronger than expected, especially for Asian economies where the recovery of international tourism and service sectors could be faster than expected.

2. The Thai Economy

The Thai Economy: Key Issues

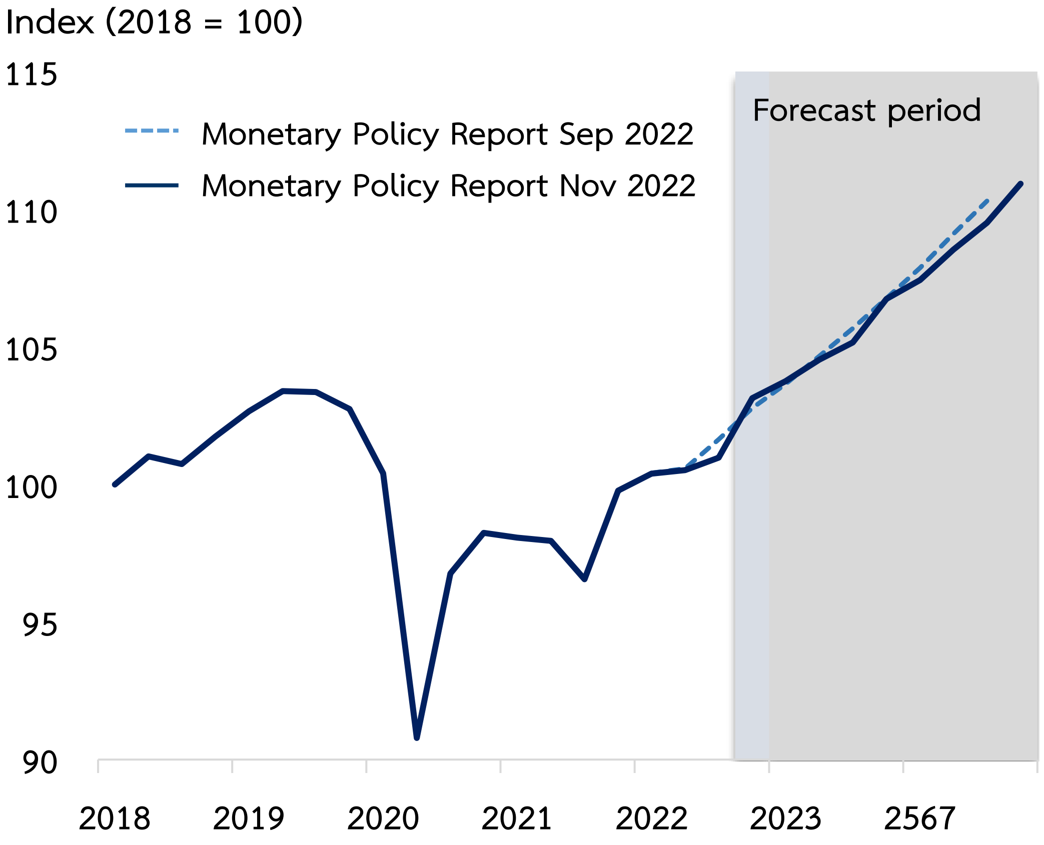
The Thai economy would continue to expand driven mainly by tourism and private consumption, which would also help offset the impact from the global economic slowdown.

Labor market conditions and household income continue to improve in line with the resumption in economic activities, especially tourism-related services

Headline inflation would fall within the target range in 2023 as expected despite upward revision of the 2023 forecast on account of domestic energy prices. Meanwhile, core inflation would remain stable.

The Thai economy is expected to continue expanding at 3.2% in 2022, 3.7% in 2023, and 3.9% in 2024. Growth would continue to be driven mainly by tourism and private consumption. The current account balance is expected to return to a surplus in 2023 and 2024.

Real GDP Index



Growth (%YoY)	2021*	2022		2023		2024
		Sep 22	Nov 22	Sep 22	Nov 22	Nov 22
GDP growth	1.5	3.3	3.2	3.8	3.7	3.9
Domestic Demand	1.6	3.4	4.1	2.5	2.4	3.2
Private Consumption	0.3	5.6	6.1	3.3	3.4	3.2
Private Investment	3.3	3.3	5.1	3.9	3.4	4.0
Government Consumption	3.2	-2.2	-0.2	-1.1	-1.4	0.8
Government Investment	3.8	1.7	-1.5	2.3	1.8	7.0
Exports of goods and services	10.4	9.1	9.0	6.5	7.0	6.6
Imports of goods and services	17.9	6.6	7.1	3.1	3.0	4.7
Current account (billion U.S. dollars)	-10.3	-14.4	-16.5	3.8	3.8	12.2
Value of merchandise exports	18.8	8.2	7.4	1.1	1.0	2.6
Value of merchandise imports	23.4	16.8	18.1	1.8	0.4	3.3
Number of foreign tourists (million persons)	0.4	9.5	10.5	21.0	22.0	31.5

Note: *Outturns

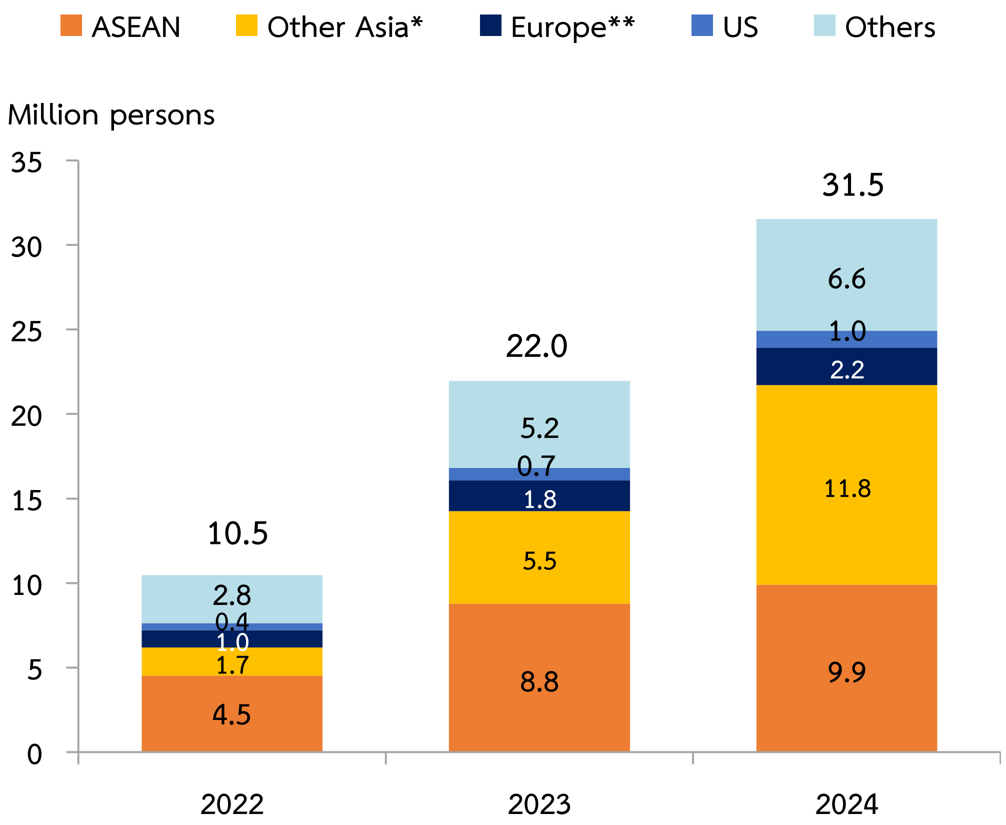
Source: NESDC, BOT forecast

Overview of economic forecasts

Foreign tourist arrivals	**Revised up** from 9.5 million to 10.5 million persons in 2022 on account of outturns and rapid indicators that continue to turn up higher than expected. **Foreign tourist arrivals are expected to continue recovering in 2023 and 2024**, reaching 22 million persons in 2023 and 31.5 million persons in 2024. The recovery would be driven by the continued recovery in global tourism demand and international flight capacity. It is expected the global economic slowdown would have a limited impact on tourism.
Private consumption	**Revised up** on account of the economic recovery, especially the services sector, as well as more broad-based improvements in employment and labor income, although headwinds from high living costs remain. **Private consumption is expected to continue expanding in 2023 and 2024** on the back of a continued recovery in labor income, and higher household purchasing power as inflation declines.
Merchandise exports (Value)	**Revised down** mainly on account of lower export quantity, especially goods that are sensitive to trading partners' economic outlook such as automobiles, textiles, electronic appliances, and industrial goods. Idiosyncratic factors also affect exports of goods such as electronics, which are affected by changes in consumer behavior, and petroleum and petrochemical products, which are affected by maintenance shutdowns of oil refineries in Q4/2022. Nevertheless, some product categories see demand improvements such as agricultural and argo-manufacturing products. **Strong export growth is expected in 2024 in line with trading partners' economic outlook.**
Private investment	**Revised up** on account of Q3/2022 outturns as well as the recovery in domestic demand and tourism. However, there remain headwinds from potential slowdowns in merchandise exports.

Foreign tourist arrivals is revised up throughout the forecast period.

Foreign Arrivals Forecast by Nationality



Note: * Includes Middle East and China

** includes only UK, Germany, and France

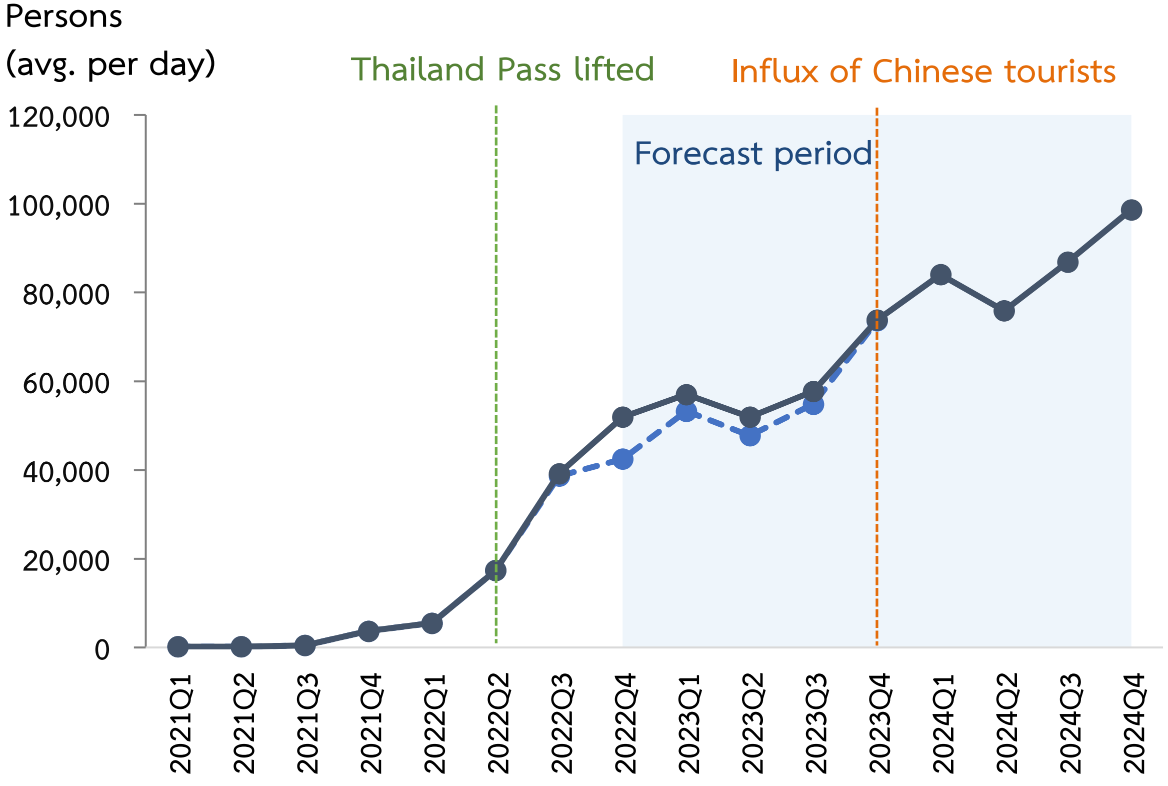
Source: Ministry of Tourism and Sports, BOT forecast

Foreign Tourist Arrivals Forecast					
	2022		2023		2024
	Sep 22	Nov 22	Sep 22	Nov 22	Nov 22
Million persons	9.5	10.5 ↑	21.0	22.0 ↑	31.5
% compared to 2019 figures	23.9%	26.2%	52.5%	55.0%	79.0%

- **Foreign tourist arrivals projections for 2022 and 2023 are revised up** on account of outturns and rapid indicators that reflect a stronger-than-expected recovery as tourism demand is improving globally. Meanwhile, limitations related to flight availability and labor shortages in the tourism sector are expected to be resolved and would not impede the recovery. Reimpositions of international travel restrictions by foreign countries are not likely, except for China where its border reopening plan remains uncertain. Thus it is expected that Chinese tourist arrivals would resume much later, around end-2023.
- **Foreign tourist arrivals in 2024 is projected at 31.5 million persons** reflecting a continued recovery in tourism driven by higher global tourism demand and board-based relaxation of international travel restrictions.

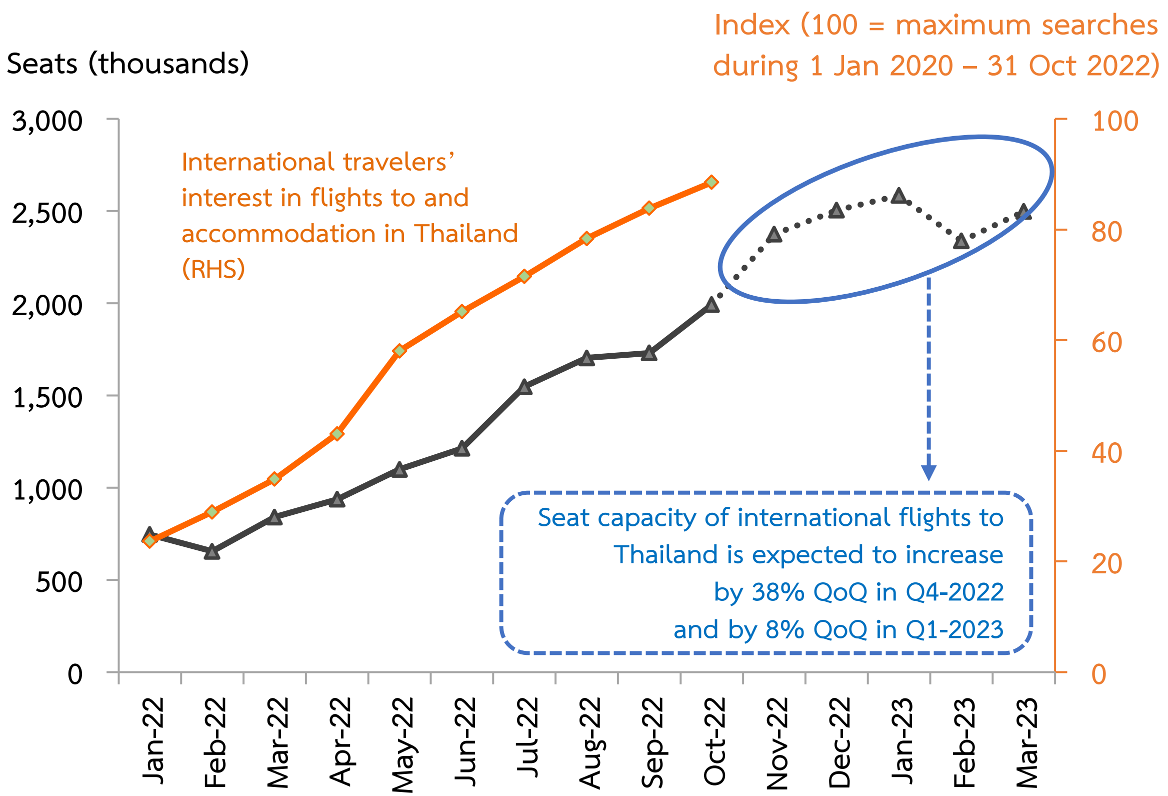
Foreign tourist arrivals would continue to increase, in line with improvements in rapid tourism indicators.

Tourist Arrivals* (average per day)



Source: Economics Tourism and Sports Division, Ministry of Tourism and Sports, BOT forecast

Seat capacity and international travelers' search interest in flights to and accommodation in Thailand

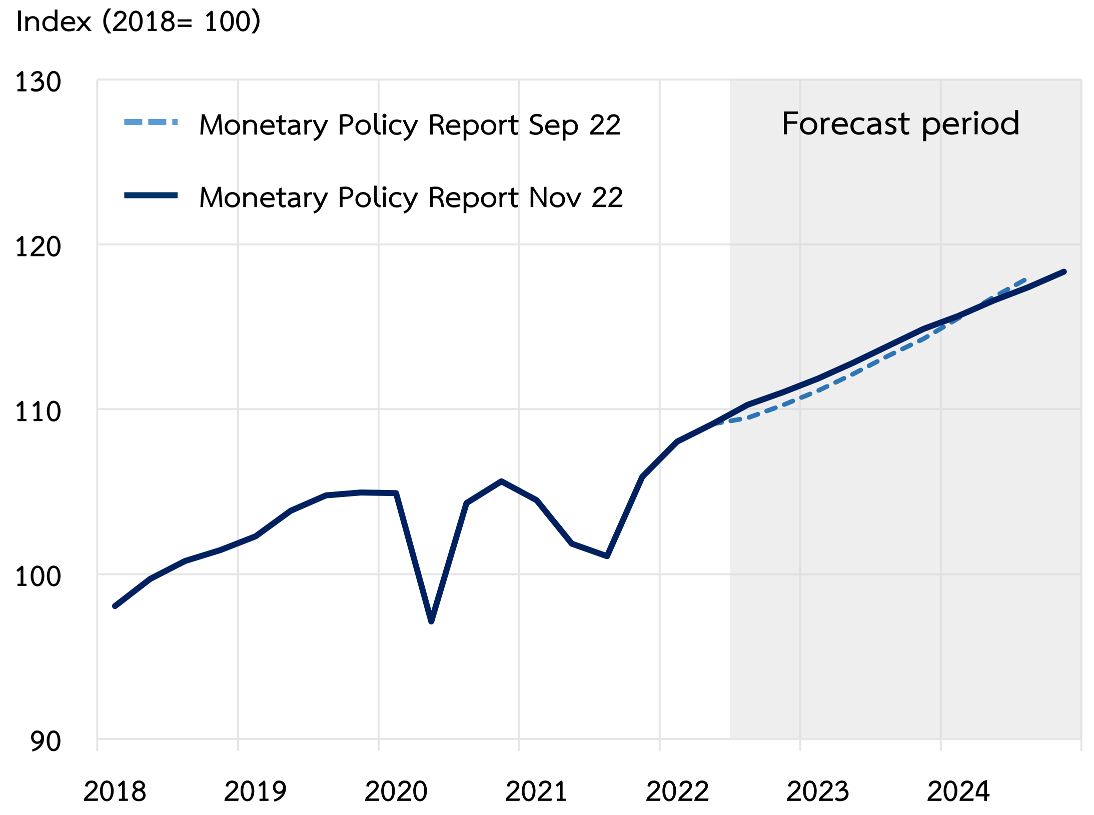


Source: Google Travel Insights and PATA

Private consumption is expected to grow on the back of the resumption in economic activities and recovery in the labor market.

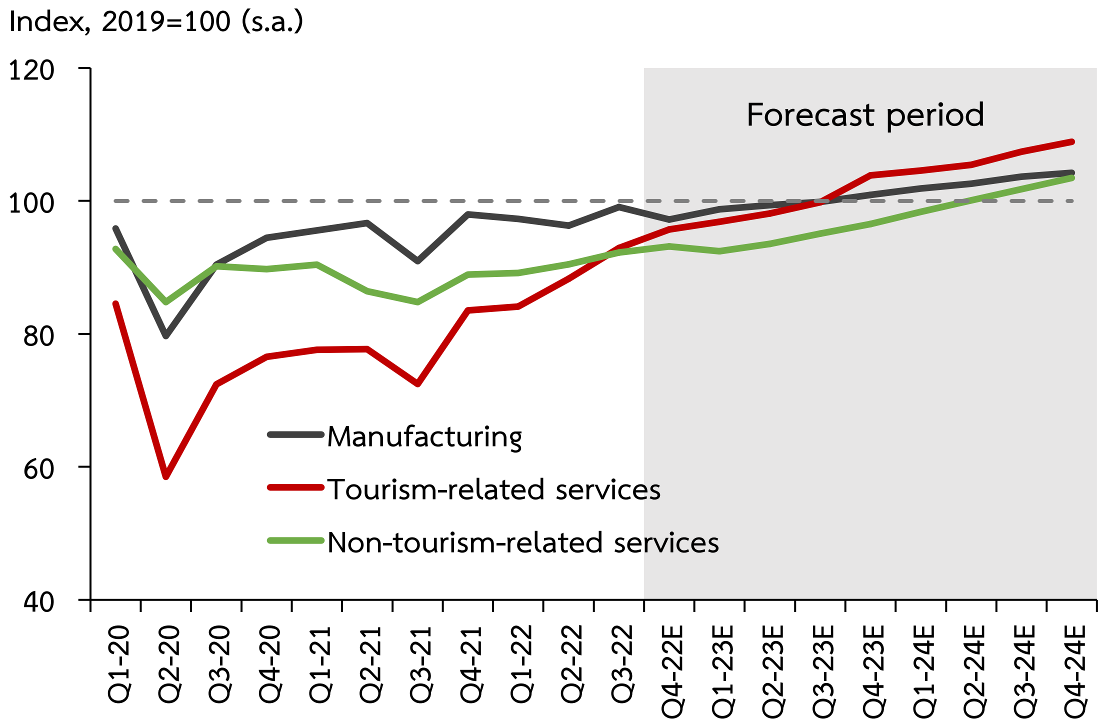
Private consumption would be supported by recovery in economic activities, especially in tourism-related services. Meanwhile, high living costs would continue to weigh on consumption spending, especially for low-income households.

Real private consumption (index)



Source: BOT forecast

Recovery path of economic activities by sector



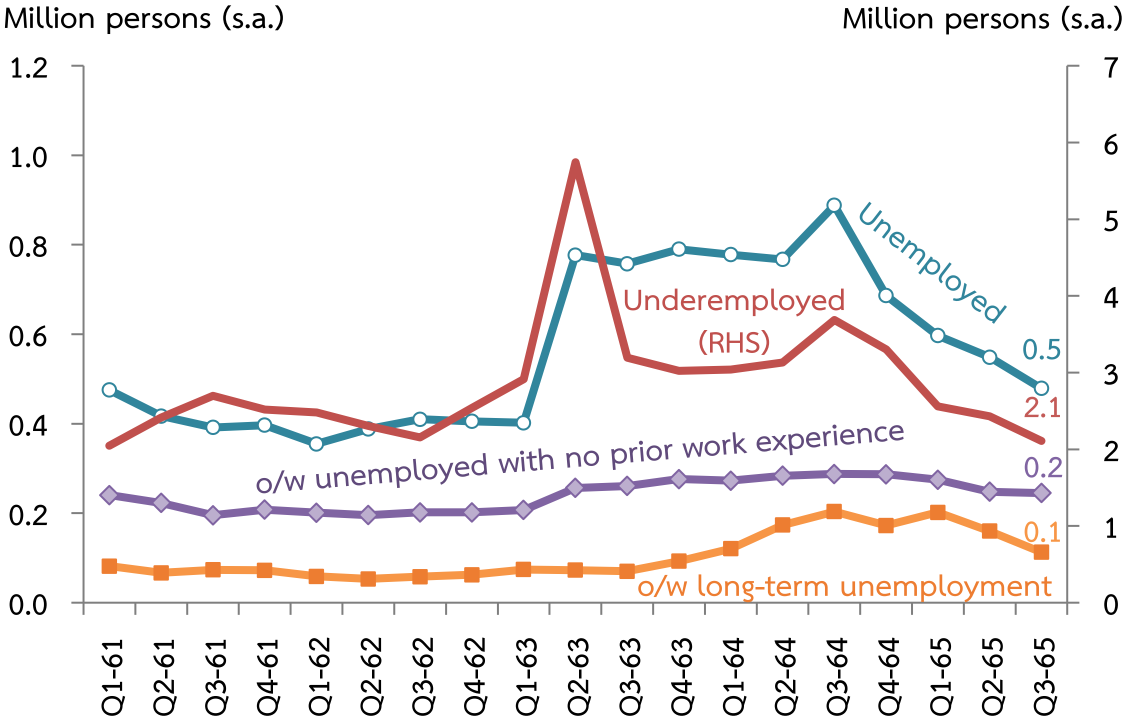
Note: E denotes estimated figures
Tourism-related services include hotels, restaurants, trade, and passenger transport
Non-tourism-related services include construction, real estate, and merchandise transport

Source: Office of Industrial Economics, Revenue Department, Department of Land, Business Liaison Program interviews, calculations and forecasts by BOT

Labor market conditions continue to improve with most labor market indicators now returning to pre-COVID levels.

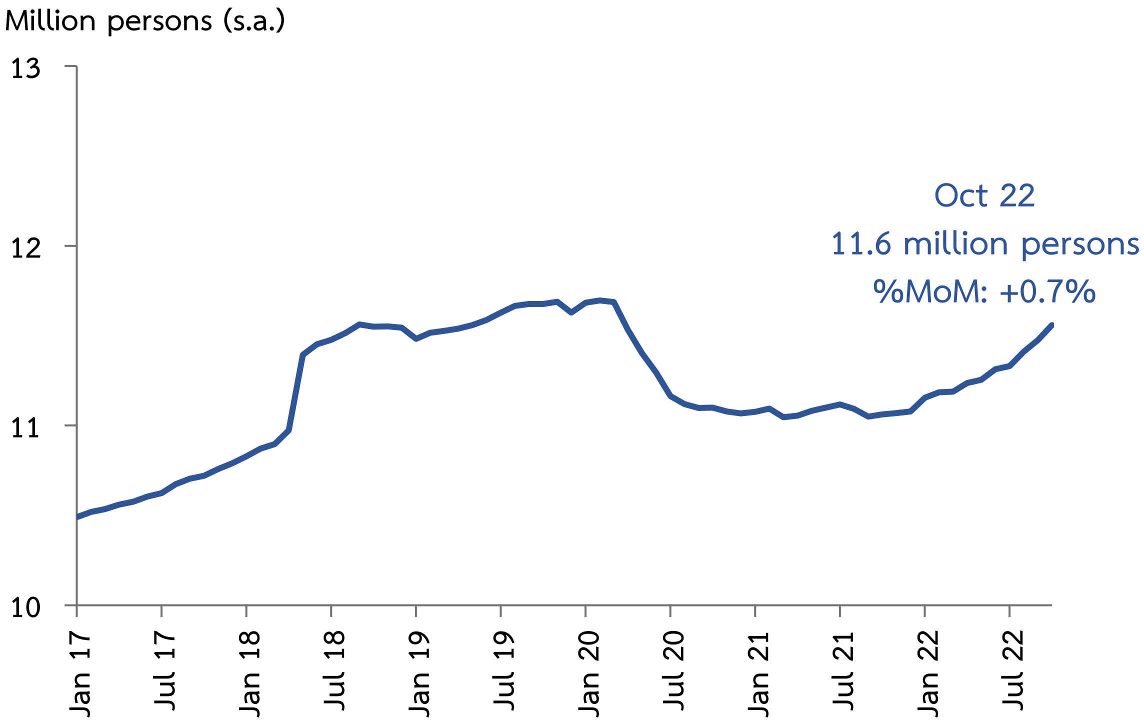
Unemployment and underemployment in Q3-2022 continued to decline, including the number of unemployed with no prior work experience and long-term unemployment. **This is in line with the rising number of insured persons under Section 33 of the Social Security Act in October 2022.**

Labor Market Indicators



Note: Long-term unemployment is defined as being unemployed for longer than 1 year.
Underemployement is defined as those who work less than 4 hours per day. Data has been revised in accordance with the NESDC's Report of the Population Projections for Thailand 2020-2040 (Revision).
Source: National Statistics Office's Labor Force Survey, BOT calculation

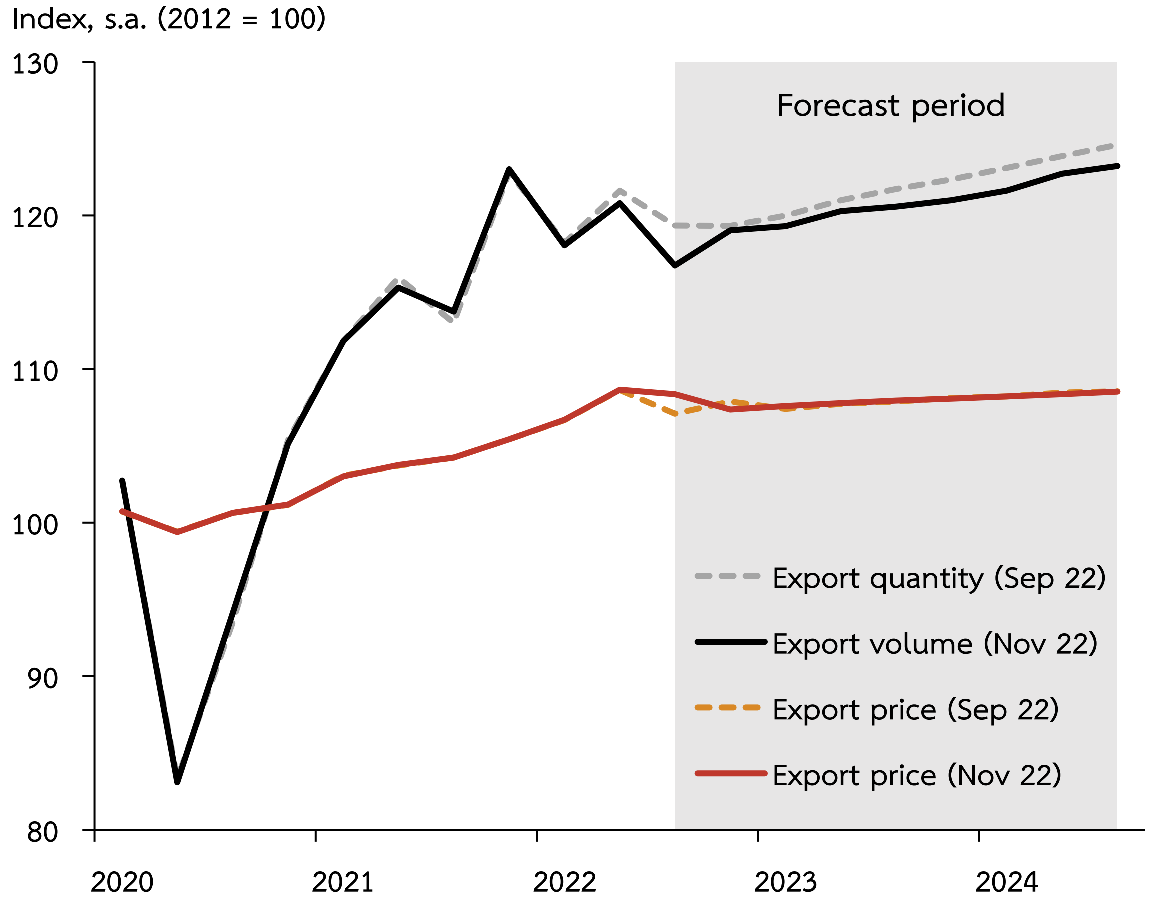
Insured persons under the social security system (section 33)



Note: Insured person under section 33 refers to an employee ages 15 to 60 from the date the employee starts working for a company with one or more employees
Source: Social Security Office, BOT calculations

Merchandise exports is expected to slow down in 2023 due to the slowdown in global demand.

Export quantity and price outlook (excluding gold)



Source: The Customs Department, Ministry of Commerce, BOT calculations

Merchandise exports forecast

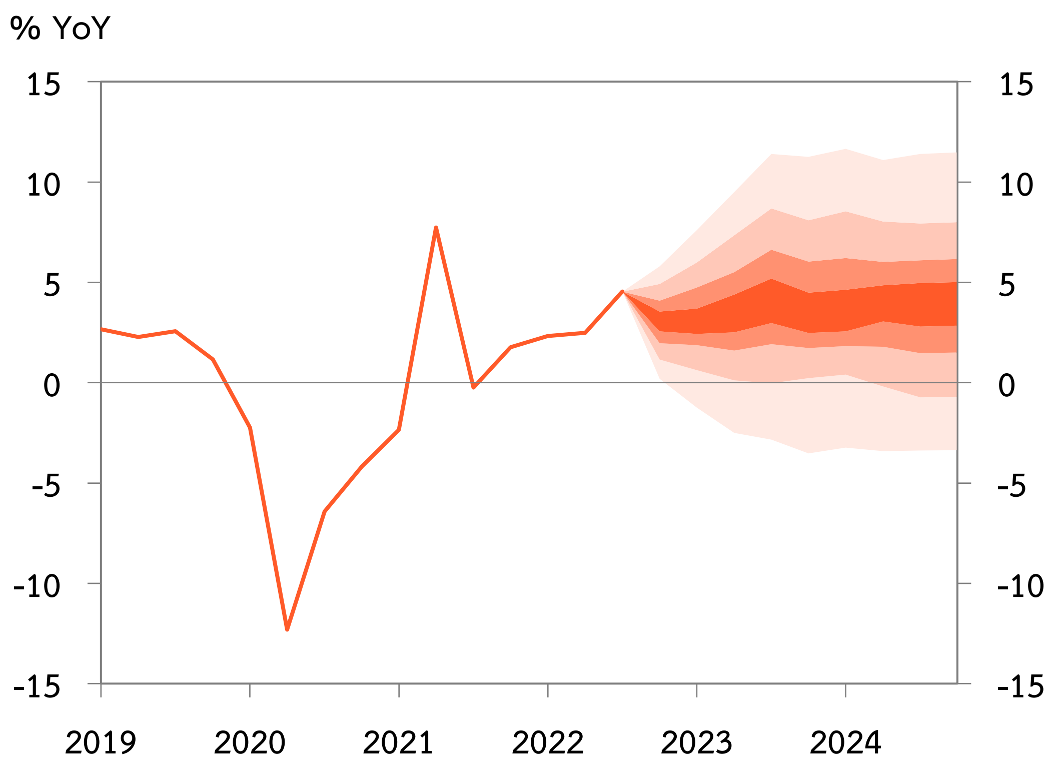
Growth (%YoY)	Export value	Export price	Export quantity
2022	7.4 (8.2)	3.9 (3.7)	3.4 (4.3)
2023	1.0 (1.1)	0.0 (0.1)	1.0 (1.0)
2024	2.6	0.5	2.1

Note: ( ) Sep 2022 forecast

- **The value of merchandise exports in 2022 is revised down on account of outturns in the third quarter.** This is mainly on account of lower exports quantity from (1) the global economic slowdown; and (2) dissipations of temporary factors supporting Thai exports as India and Indonesia have lifted their restrictions on exports of sugar and palm oil, respectively.
- **The value of merchandise exports is expected to slow down in 2023 and 2024** on account of lower export quantity, especially goods that are sensitive to trading partners' economic outlook such as automobiles, textiles, electronic appliances, and industrial goods. Nevertheless, exports of goods such as agricultural and argo-manufacturing products are still expected to pick up further.

Risks to Thailand's growth outlook is balanced with upside risks from higher-than-expected foreign tourist arrivals and downside risks from slower-than-expected global economic growth.

GDP growth



Factors that could result in growth outperforming the baseline

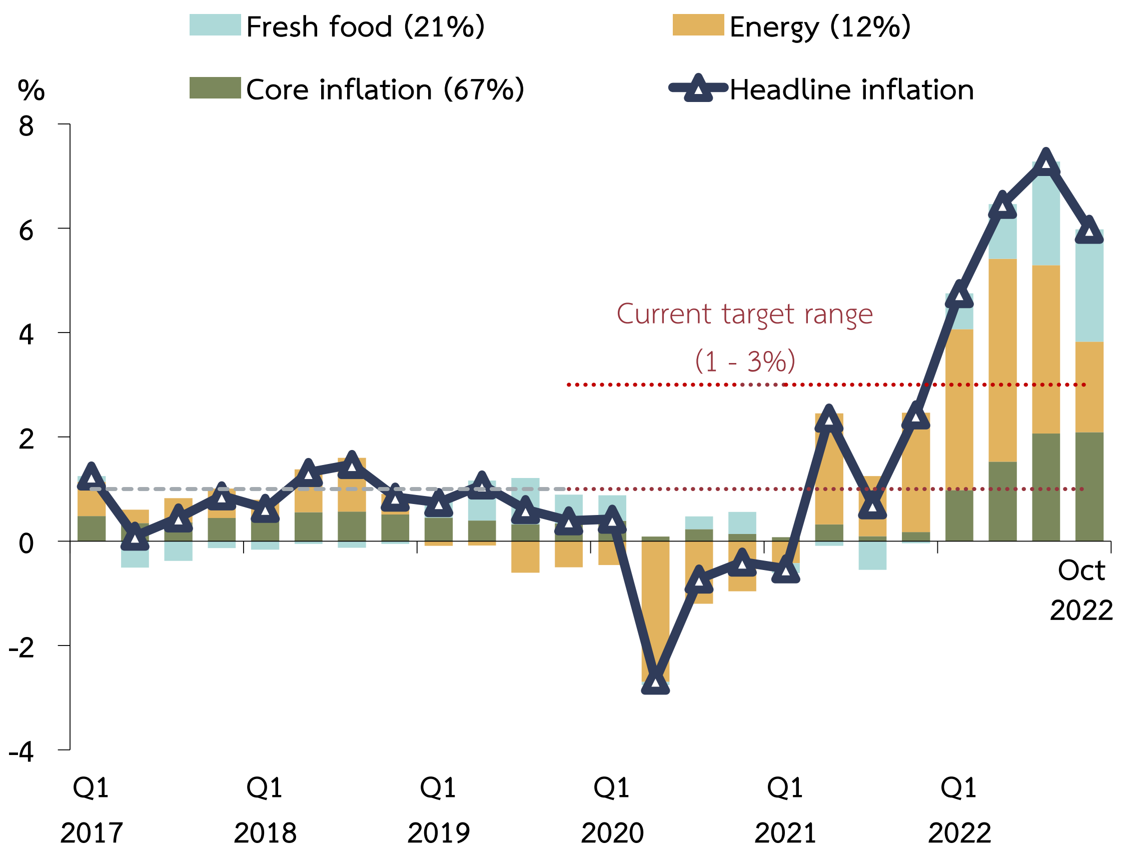
- **Foreign tourist arrivals could turn out higher than expected** if the rebound in tourism demand is much stronger than expected, and if China relaxes its international travel restrictions sooner than expected.

Factors that could result in growth underperforming the baseline

- **Global growth could slow down more than expected** and worsen Thailand's export outlook. The slowdown could be due to elevated inflation, tighter global financial conditions, and risks to China's growth outlook from Chinese-specific factors.

Headline inflation have receded from its peak in Q3/2022. Headline inflation in October 2022 declined from the previous quarter as domestic energy prices continued to decline in tandem with global oil prices.

Headline inflation and Inflation Target



Note: ( ) denotes weight in CPI basket

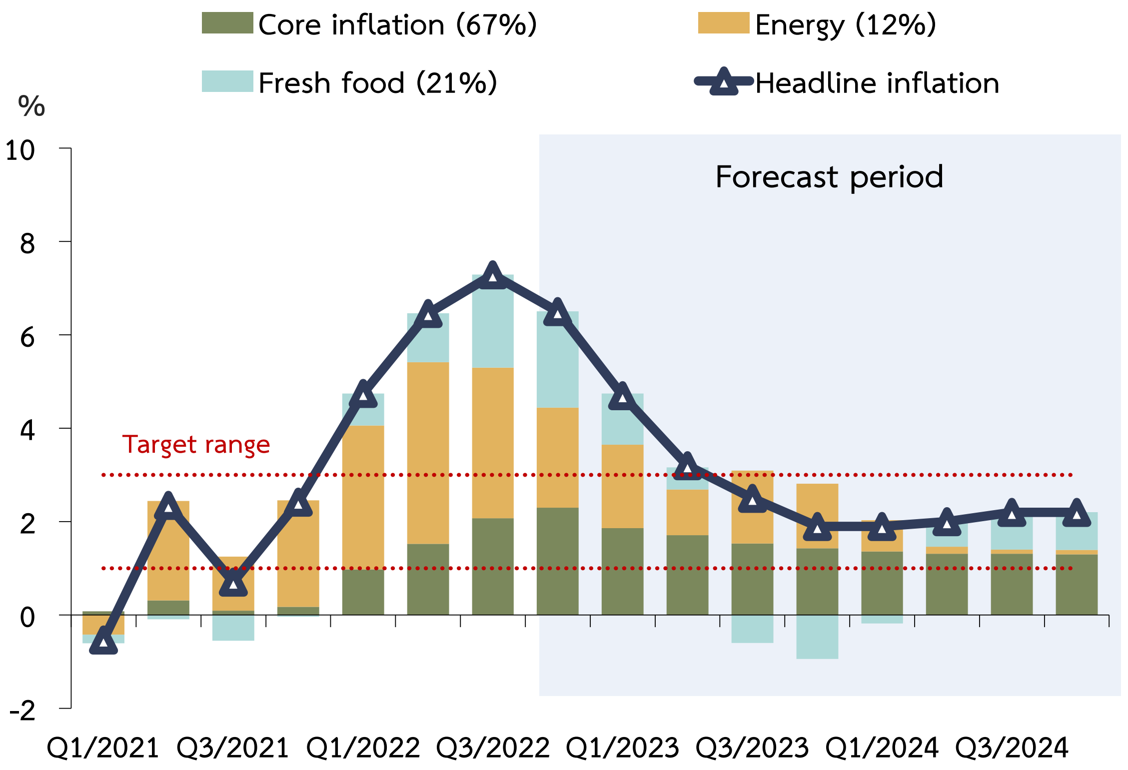
Source: Ministry of Commerce, calculated by BOT

Headline inflation in October 2022 was recorded at 5.98%, down from 7.28% in the previous quarter. Energy prices have declined as a result of the base effect of high oil prices in the previous year, as well as the decline in retail gasoline prices in tandem with global crude oil prices. Meanwhile, fresh food inflation has increased namely rice, wheat products, eggs, and dairy products, due to high input costs.

Core inflation in October 2022 was recorded at 3.17%, up from 3.08% in the previous quarter. The increase was mainly driven by prepared food prices which have increased in tandem with input costs. Meanwhile, prices in the non-food categories also increased, namely, prices of personal care products, and cleaning supplies.

Headline inflation forecast for 2023 is revised up from the previous assessment mainly on account of domestic energy prices but headline inflation is still expected to fall within the target range by end-2023. Core inflation is largely unchanged.

Contribution to Headline Inflation



Note: ( ) denotes weight in CPI basket

Source: Ministry of Commerce, calculations and forecasts by BOT as of Nov 2022

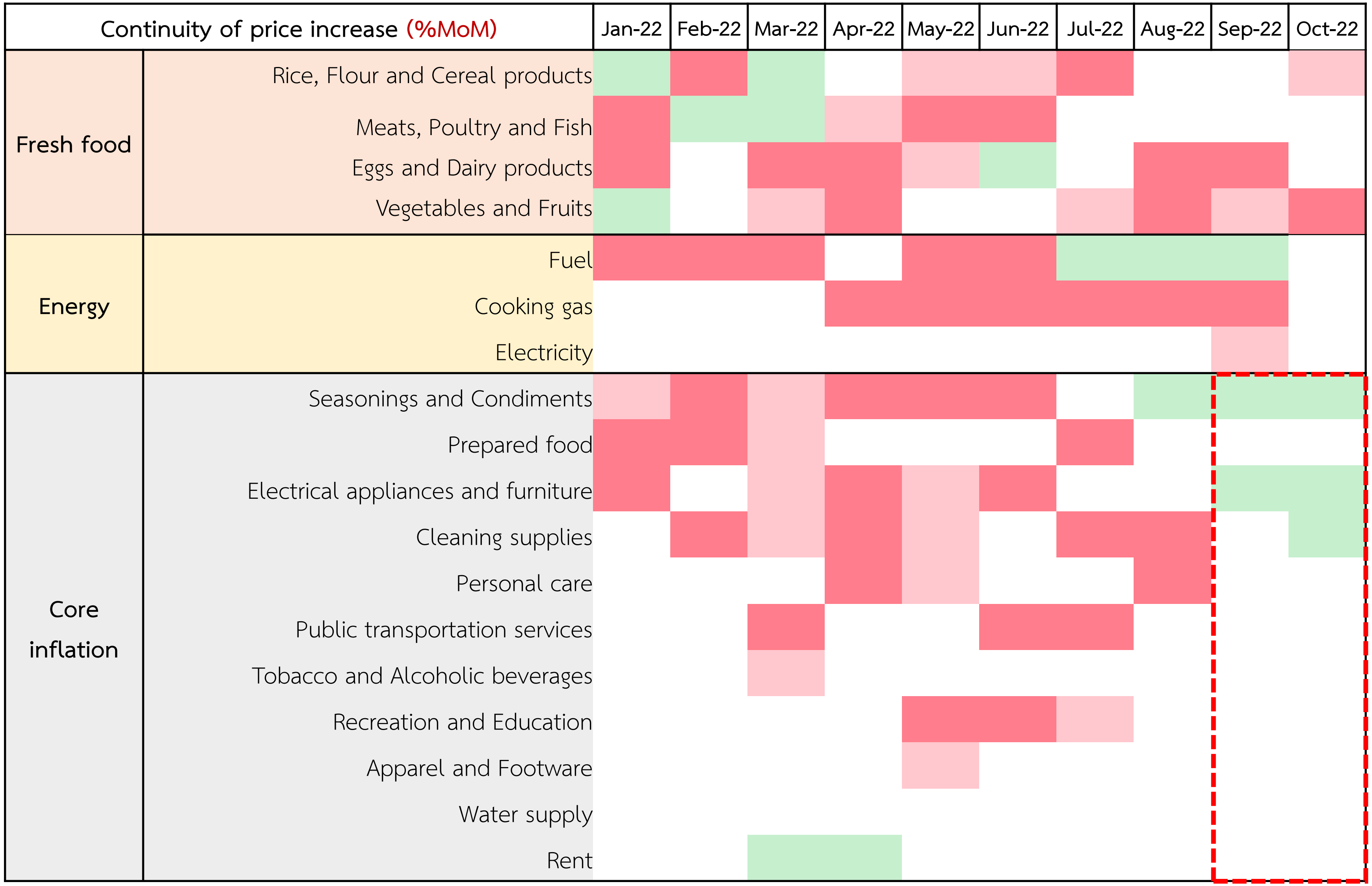
Inflation forecast

%YoY	2022	2023	2024
Headline inflation	**6.3** (6.3)	**3.0** (2.6)	**2.1**
Core inflation	**2.6** (2.6)	**2.5** (2.4)	**2.0**

Note: ( ) previous forecast from Monetary Policy Report Sep 2022

- **Headline inflation forecast for 2023 is revised up** on account of increases in electricity charges from elevated input costs.
- **Headline inflation is still expected to decline** with declining global crude oil and commodity prices as a result of the slowdown in global demand, and declining cost pressure as labor shortages resolve.
- **Recent depreciation of the baht had a limited impact on inflation** given the low import content in the CPI basket. While the key channel for exchange rate pass-through to Thai inflation is through imported fuel, the impact of which was partly offset by the government's measures through the Oil Fuel Fund. The limited pass-through is also because, in Thailand, only a small fraction of fresh foods are imported.

Latest indicators show that prices in the core category were either stable or declined.

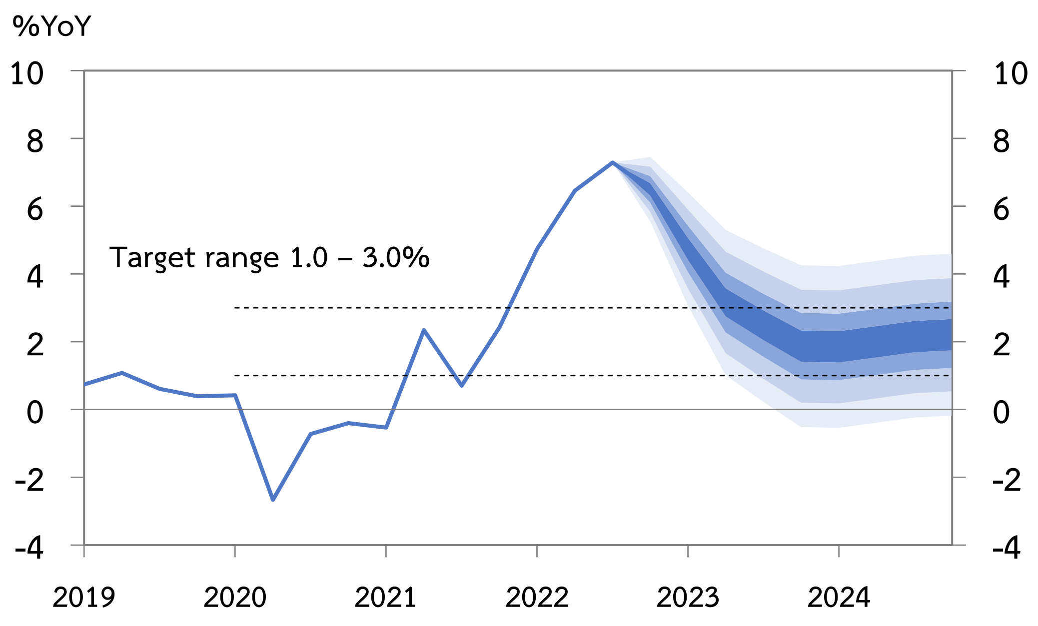


- More than 0.5 S.D. price decrease
- Less than 0.5 S.D. price change
- More than 0.5 S.D. price increase
- More than 1 S.D. price increase

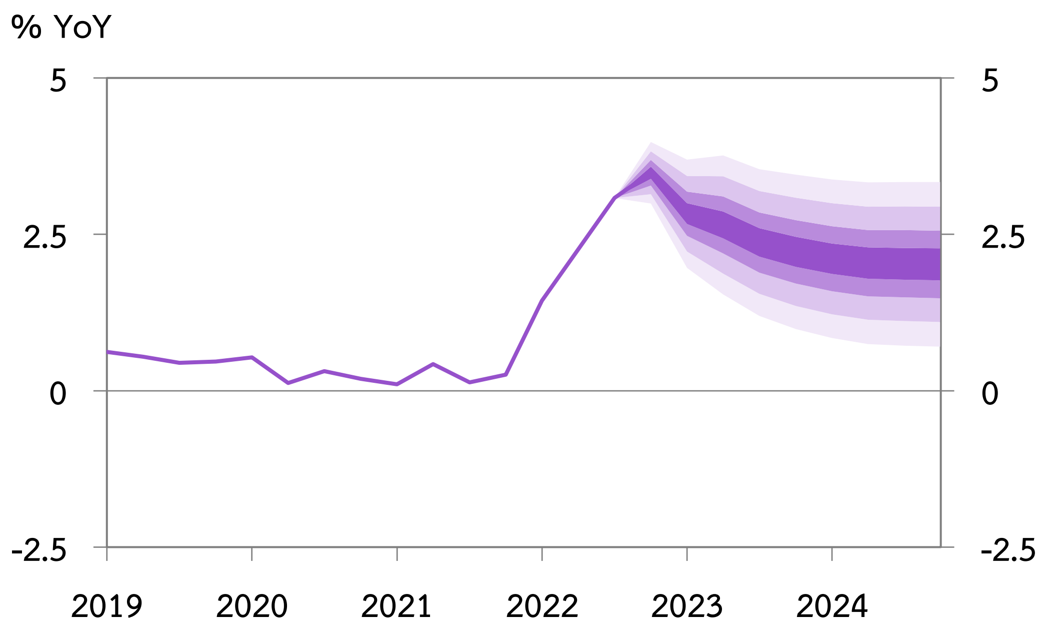
Source: Ministry of Commerce, BOT calculation

Risks to the inflation forecast is balanced but there remains risks to be closely monitored

Headline inflation forecast



Core inflation forecast



Factors that could cause inflation to be higher or lower than the baseline projection

- Higher- and faster-than-expected cost pass-through from producers given elevated overall input costs , and the likely increase in electricity costs.
- Uncertainties pertaining to government relief measures such as subsidies for electricity charges and other living costs.
- Slower-than-expected global economic growth resulting in a sharper-than-expected decline in global energy and commodity prices.

Summary of key forecast assumptions

Annual percentage change	2021*	2022	2023	2024
Trading partners' growth (% YoY)[1/]	5.6	2.9 (2.9)	2.5 (2.7)	3.1
Fed funds rate (% at year-end)	0.00 – 0.25	4.25 – 4.50 (4.25 – 4.50)	5.00 – 5.25 (4.50 – 4.75)	3.75 - 4.00
Regional currencies (excl. China) vis-à-vis the U.S. dollar (index) [2/]	153.5	162.7 (160.1)	168.2 (162.5)	168.0
Dubai cride oil prices (U.S. dollar per barrel)	69.4	98.0 (102.0)	95.0 (100.0)	90.0
Farm income (% YoY)	2.6	12.1 (12.4)	-1.3 (-1.6)	-3.0
Government consumption at current price (billion baht)	2,941	3,056 (2,992)	3,026 (2,974)	3,064
Public investment at current price (billion baht)	1,063	1,079 (1,114)	1,106 (1,148)	1,192

Note: [1/] Weighted by each trading partner's share in Thailand's total exports

[2/] Increasing index represents depreciation, decreasing index represents appreciation

* Outturns

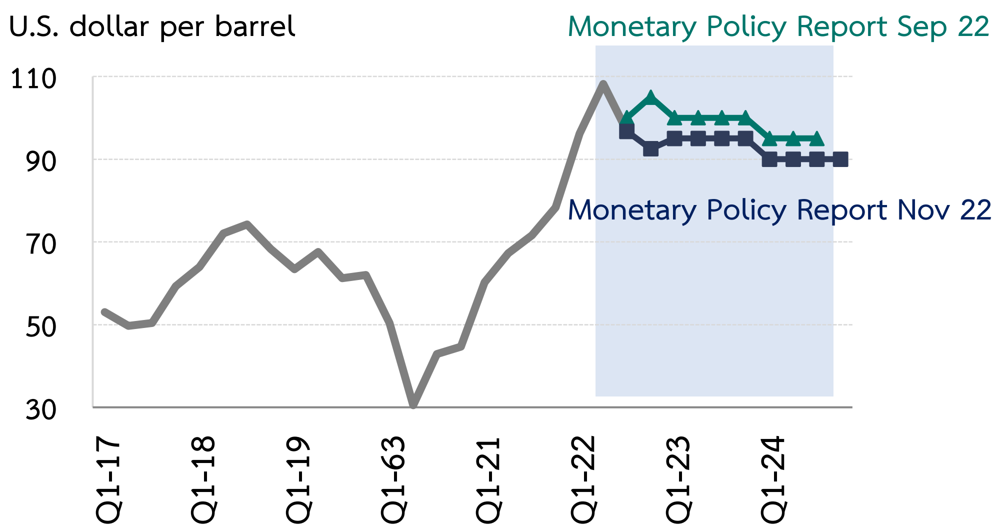
( ) previous forecast in the Monetary Policy Report September 2022

- **Trading partners' growth** for 2023 is revised down on account of slowing global demand, persistently high inflation, and tighter global financial conditions.
- **The Federal Funds Rate** would be raised further in 2023 due to persistently high inflation.
- **Regional currencies (excluding the Chinese Yuan)** would depreciate as the Fed signaled that it would continue to raise rates.
- **Dubai crude oil prices** would be lower throughout the forecast horizon given recent price outturns and the global economic slowdown.
- **Farm income (excluding government support measures)** would see lower growth in 2022 due to heavy rainfall and floods impacting agricultural output. Farm income in 2023 would contract due to declining prices, especially rubber and fruits.
- **Public spending at current prices** is revised up slightly for FY2022 and revised down for 2023 due to (1) potential delays in the budgetary process for FY2024; (2) front-loaded government consumption in 2022; and (3) revised investment budget for state-owned enterprises.

Assumption for Dubai crude oil prices

Dubai crude oil prices are expected to be lower due to a shaper-than-expected global economic slowdown.

Projected Dubai crude oil prices



U.S. dollar per barrel	2021*	2022	2023	2024
Dubai crude oil prices (annual average)	69.4	98 (102)	95 (100)	90

* Outturns

( ) previous forecast in the Monetary Policy Report Sep 2022

Source: BOT forecast

Dubai crude oil price forecasts are revised down from 102 to 100 U.S. dollar per barrel in 2022, and from 98 to 95 U.S. dollar per barrel in 2023 due to:

- The global economy would slow down more than expected resulting in lower demand for crude oil.
- Demand switching (from gas to oil) would slow down due to declining natural gas prices, and warmer-than-expected winter in Europe.

Dubai crude oil prices would decline in 2024 due to higher oil output from non-OPEC producers and higher Russian oil exports after trade reroute to mitigate the impact of sanctions.

Risks to Dubai crude oil prices are still balanced.

- Upside risks: The Russia-Ukraine conflict could escalate, spread to other regions, and become more prolonged than expected; OPEC+ could further cut oil production in the future.
- Downside risks: Sharper-than-expected slowdown in global growth or another wave of COVID-19 outbreak could further exacerbate oil demand.

3. Financial conditions

Financial Conditions: Key issues

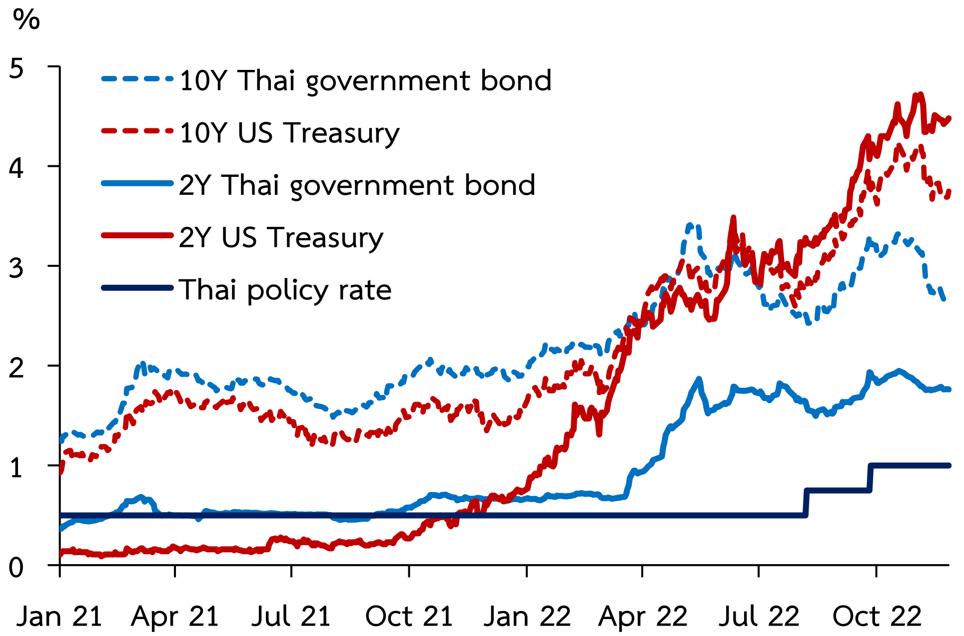
Overall financial conditions remain accommodative Financing costs have gradually increased in line with the policy rate path, but is still conducive to private sector financing.

Financing by businesses and households saw an expansion in the third quarter, and is expected to continue expanding in tandem with the recovery in economic activities.

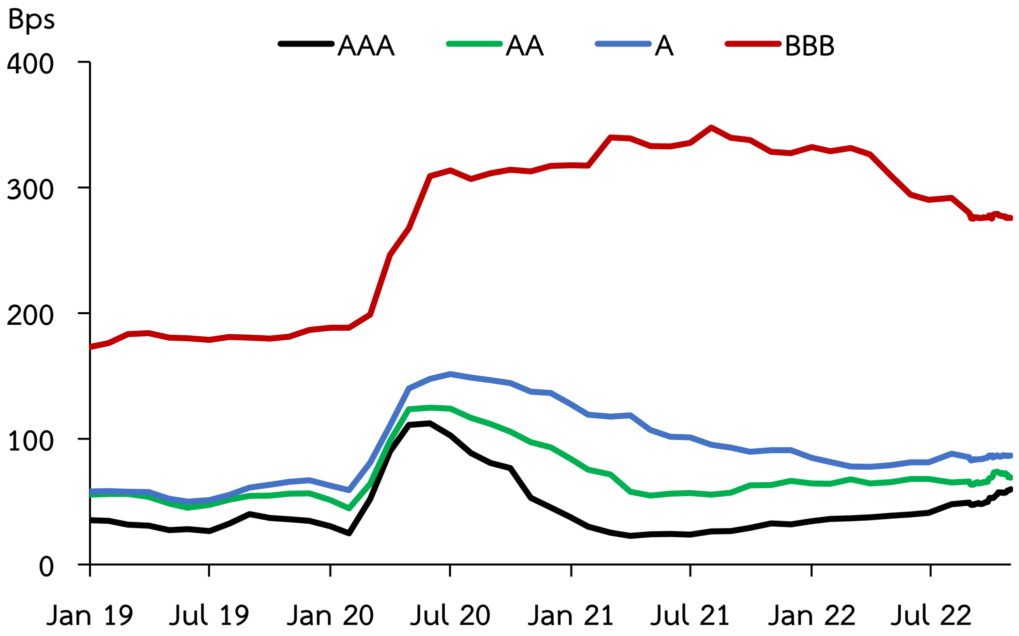
The baht's movement have been volatile due to expectations about the Fed's monetary policy direction and China's border reopening.

Short-term rates in the financial markets moved in line with the policy rate path.

Thai government bond and US Treasury yields



Corporate and government bond credit spread, by credit rating

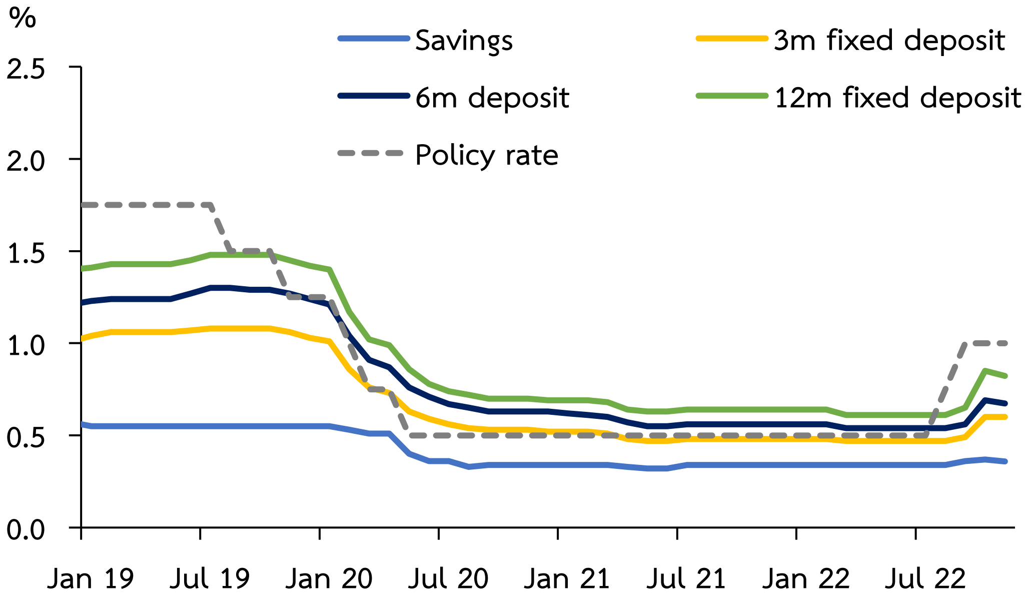


Source: Thai BMA and Bloomberg (data as of 29 Nov 2022)

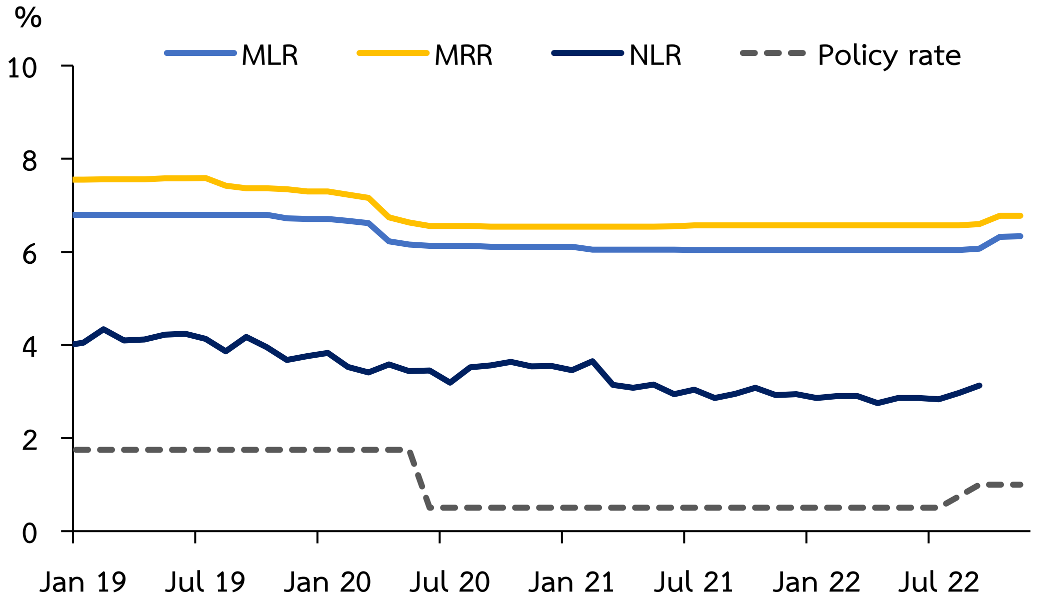
Short-term bond yields have moved in line with the policy rate adjustment path. Meanwhile, long-term yields declined in tandem with U.S. Treasury yields as investors expect the Fed to slow down the pace of its rate hikes after inflation has started to subside in the US. At the same time, foreign investors have invested more in long-term bonds in Thailand in November. **Credit spreads for bonds with less than 3 years to maturity with credit ratings higher than AA have increased slightly.** This is partly because businesses have issued more bonds in the recent period to lock-in their costs during the interest rate upcycle. Meanwhile, credit spreads of other bonds have largely been stable.

Commercial bank interest rates is gradually increasing in line with the policy rate path.

Commercial bank deposit rates



Commercial bank lending rates



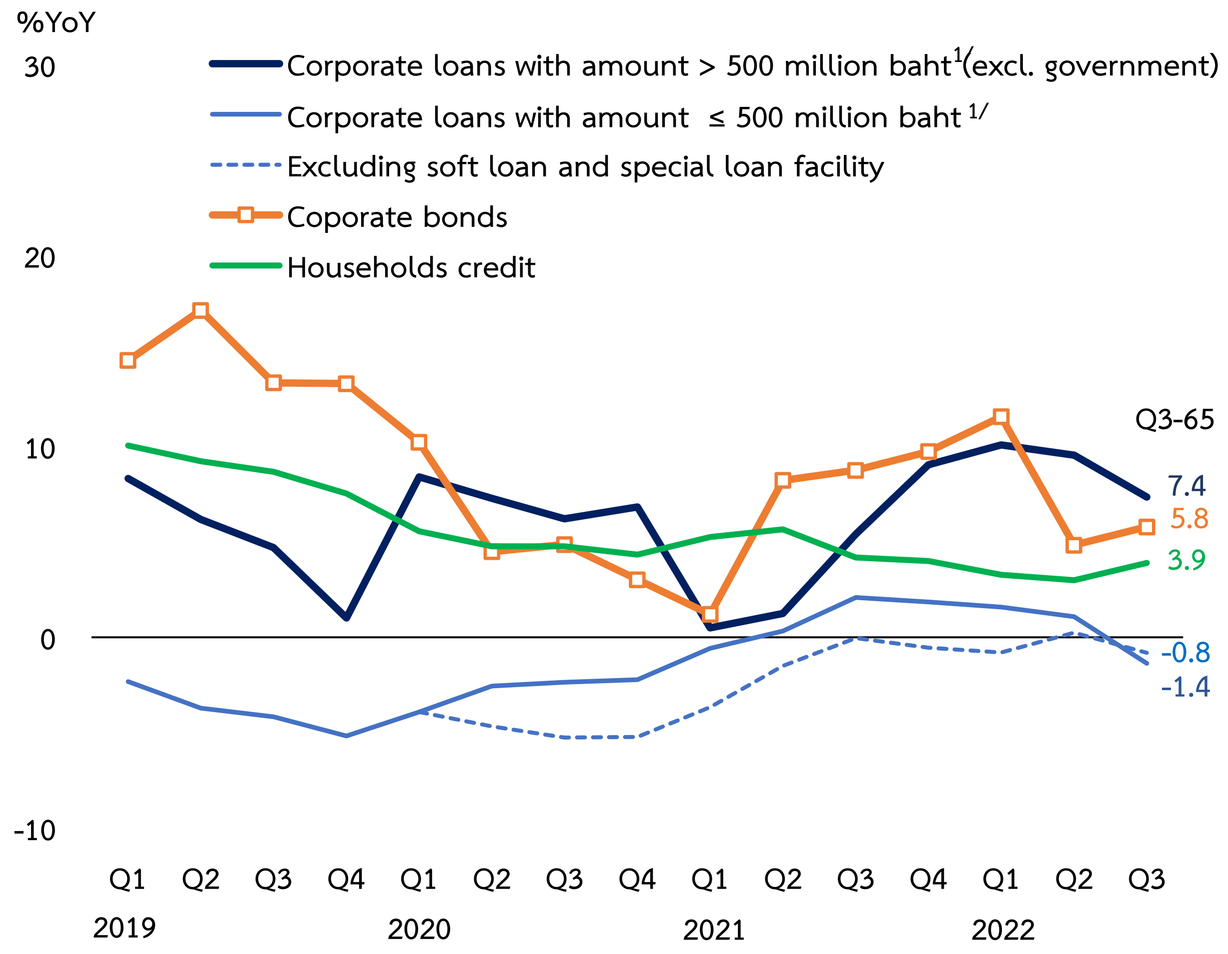
Note: (1) Monthly average of 13 commercial banks (data as of 29 Nov 2022) where in November 2022, savings rate and fixed deposit rates for some products have decreased slightly following UOB acquisition of CITI's retail banking businesses. (2) New loan rate: NLR (as of Sep 2022)

Source: BOT

Commercial bank deposit and lending rates have gradually increased following the MPC's decision to raise the policy rate to 1.0% at its meeting on 28 September 2022. Commercial banks gradually raised the benchmark lending rates, particularly the minimum loan rate (MLR) and the minimum retail rate (MRR), although MRR's increase was smaller than that of the MLR in order to help alleviate the impact on vulnerable borrowers where the MRR is most commonly applied. **New loan rates (NLR) as of end-September 2022 increased from the previous month across all loan types**, especially for the manufacturing and trade sectors.

Private credit growth was still positive in the third quarter and is expected to continue growing in tandem with the economic recovery.

Private credit



In Q3/2022, large corporate loans (credit limit > 500 million baht) posted strong growth rates despite slowing down from the previous quarter. This was largely driven by growing credit demand among businesses in the trade and manufacturing sectors that needed additional financing to keep up with the stronger economic recovery. **Meanwhile, bond issuances has continued to increase** due to businesses wanting to lock-in their financing costs before interest rates rise further.

SME loans (credit limit ≤ 500 million baht) contracted from the same period last year mainly due to soft loans reaching maturity.

Household credit grew across all loan types, especially credit card and other personal loans which picked up in tandem with the recovery in private consumption. Meanwhile, auto loans picked up on the back of improvements in automotive market conditions, and mortgage loans grew on the back of higher housing demand.

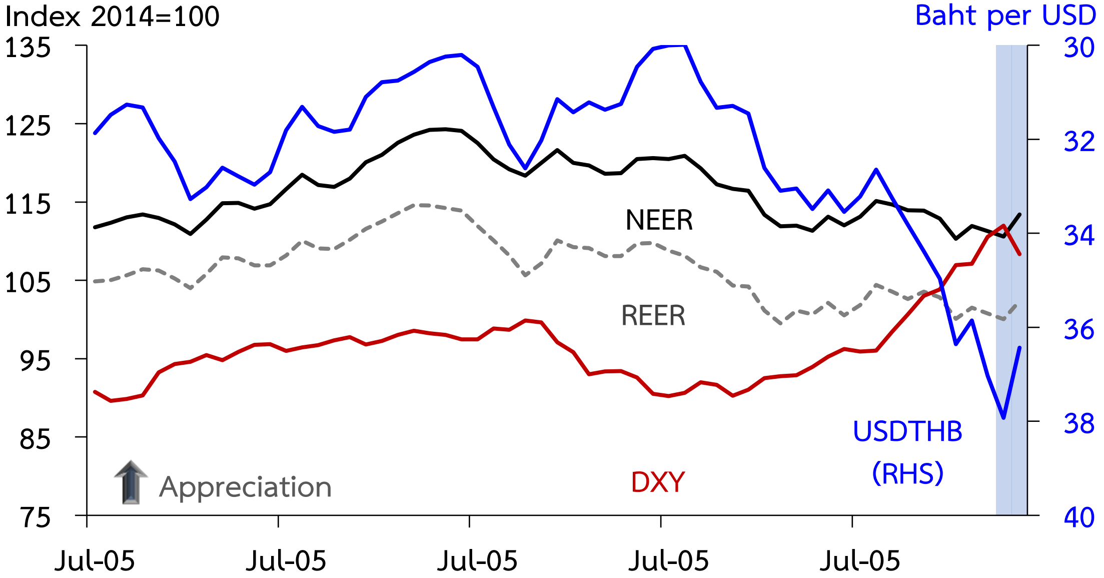
For Q4/2022[2/], it is expected that loan demand would continue to increase with loan demand from large corporates for investment purposes, while for SMEs, demand is driven by the need for working capital to keep up with the economic recovery. Households' demand for loans also increased from improvements in consumers' confidence.

Note: [1/] Credit limit at each commercial bank (financial services businesses are excluded)

[2/] Report on Credit Conditions Q3/2022 and Outlook for Q4/2022 (Thai version only)

The baht experienced volatile movements due to the Fed's monetary policy direction and China relaxing its international travel restrictions.

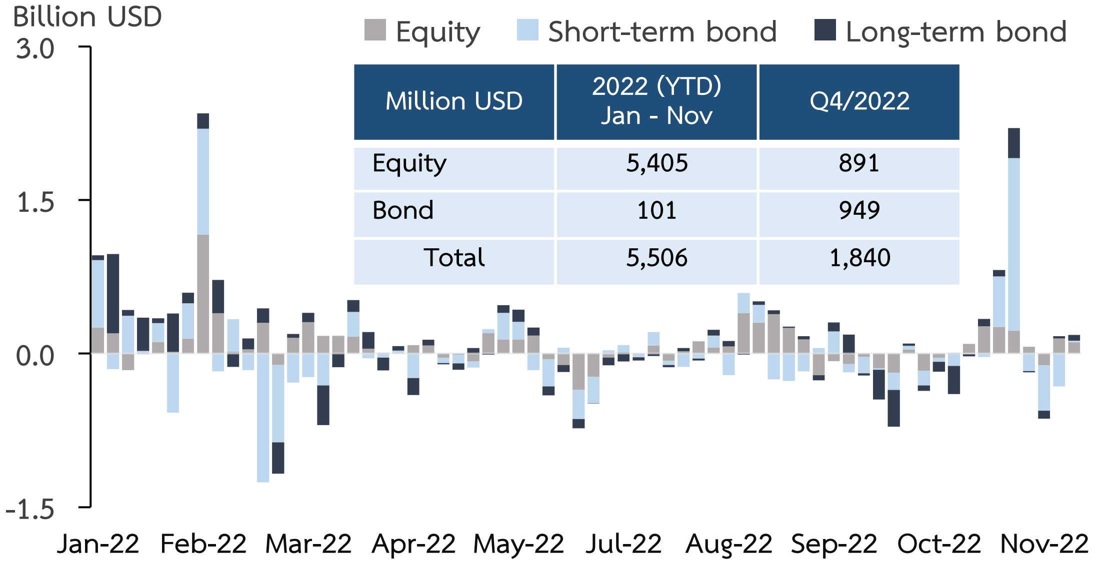
Baht per U.S. dollar (USDTHB) and exchange rate indices



Note: REER for Nov 2022 is calculated using Oct 2022 inflation data

Source: BOT, Bloomberg, and Refinitiv (as of 29 Nov 2022)

Capital flows into Thai securities (weekly)



Million USD	2022 (YTD) Jan - Nov	Q4/2022
Equity	5,405	891
Bond	101	949
Total	5,506	1,840

Note: Average weekly data, debt flow is converted to USD using the exchange rate after 5 p.m.

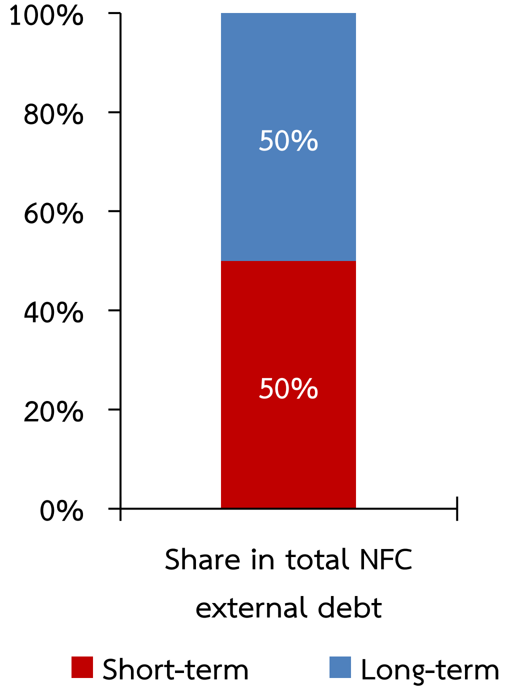
Source: ThaiBMA and Bloomberg (as of 29 Nov 2022)

In the first 2 months of Q4/2022, the baht averaged 37.12 per U.S. dollar, depreciating by 2% from the average value in the previous quarter. The depreciation was driven by the Fed's more aggressive rate hike in response to rising inflation. Nonetheless, the baht sharply appreciated in November 2022 due to market expectations that the Fed might slow down the pace of its rate hike given subsiding inflation, prompting the market to take on more risks (risk-on sentiment). China's announcement of the plan to relax travel restrictions also contributed to the baht's appreciation. **The nominal effective exchange rate (NEER) averaged 114.49, which is largely unchanged from the previous quarter** as the baht's depreciation was in line with the depreciations of trade competitors' currencies. **There is still net capital inflow into both the bond and stock markets.** Capital inflows accelerated during the fourth quarter as a result of risk-on sentiment in the financial markets.

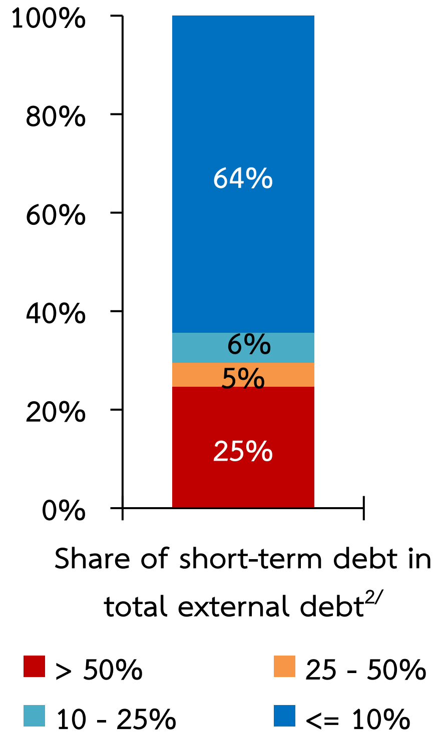
Thai firms were not significantly affected by the recent bout of financial market volatility and tighter global financial conditions.

Monetary policy tightening by major central banks raised borrowing costs abroad and resulted in the baht's volatility, which would in turn affect external debt financing. However, **Thai firms[1/] that have external debt account for only 20% of GDP which is relatively low, and were not significantly affected because (1) about half of those external debts are short-term; (2) only 25% of the firms have large share of short-term external debt; and (3) most of the firms manage their exchange rate risks.**

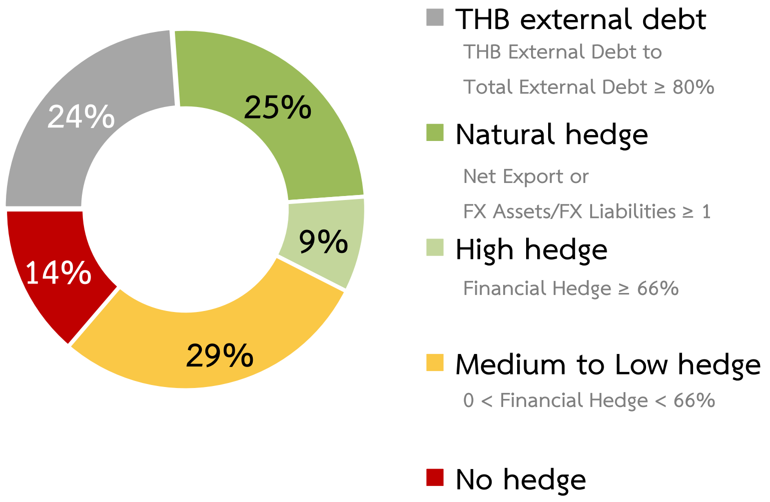
NFC external debt by maturity



Firms with external debt by share of short-term debt in total external debt



Share of NFC external debt by FX hedging ratio



Note: 1/ Excluding financial corporates
2/ Share is computed as weighted-average outstanding external debt of 700 firms
Source: BOT (as of Q2/2022)

Box 1: Assessment of international reserves adequacy

International reserves are foreign currency-denominated cash and assets, including gold that are held and managed by the central bank. International reserves serve many purposes such as (1) backing for the domestic currency; (2) a backstop for external risks such as balance of payment crises, and capital flow reversals; or (3) managing exchange rate volatilities. Maintaining adequate level of international reserves as buffers for external risks is particularly important for emerging market economies (EMs). This is because EMs are typically more susceptible to multiple external vulnerabilities including persistent balance of payment deficits, high levels of external debts, and volatile capital flows, all of which could lead to financial crises as seen in the past. Thus having adequate level of international reserves would help cushion the impact of external risks and foster confidence among trading partners and foreign investors, which helps strengthen economic and financial stability of a country.

Reserves adequacy can be assessed from multiple dimensions. This includes comparing the level of reserves to board money within the country, comparing the level of reserves to potential foreign currency needs in the future (e.g. to repay external debt or to pay for imports), or stress testing to assess the severity of capital outflows across various channels during a crisis, etc.

This box presents 3 key measurements of international reserves adequacy as appear in **Table 1,** including

Box 1: Assessing Thailand's Reserve Adequacy

Indicators	Criteria	2564	Q1 2565	Q2 2565	Q3 2565
Net international reserves[1/] (billion USD)		279.2	272.9	250.9	228.2
Short-term external debt[2/] (billion USD)		74.7	75.4	76.8	n.a.
(1) Net reserves / Short-term external debt (time)	> 1 times	3.7	3.6	3.3	3.0[4/]
(2) Net reserves / Imports (months)	> 3 months	11.3	10.7	9.3	8.1
(3) IMF Assessing Reserve Adequacy Metric[3/] (time)	1–1.5 times	2.6	2.5	2.3	2.1

Note:

1/ Net international reserves includes net forward position

2/ Short-term external debt comprises debt with original maturity of 1 year

3/ Assessing the adequacy of net international reserves according to the IMF's methodology, BOT calculation

4/ Calculated using Q2-2022 short-term external debt data, as the data is lagged by 1 quarter

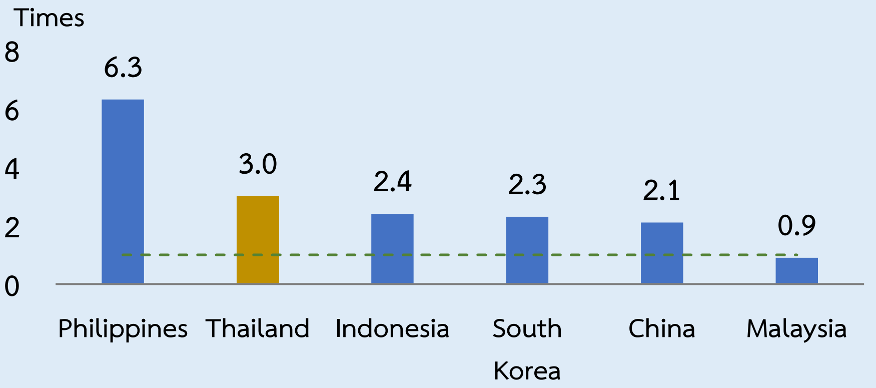
Source: BOT

Box 1: Assessment of international reserves adequacy

(1) Net international reserves to short-term external debt. A generally accepted benchmark is that the ratio should be higher than 1 (Greenspan-Guidotti Rule), which indicates that while the country may temporarily lack foreign currency income, they would still be able to tap into their international reserves to repay all their short-term external debt over the next 1 year. Latest data shows that Thailand's external debt to GDP ratio is relatively low compared to regional counterparts at 38% of GDP, of which only 40% are short-term external debt. As such, the ratio of international reserves to short-term external debt is as high as 3, which is well above international standards and is higher than many countries in the region **(Chart 1).**

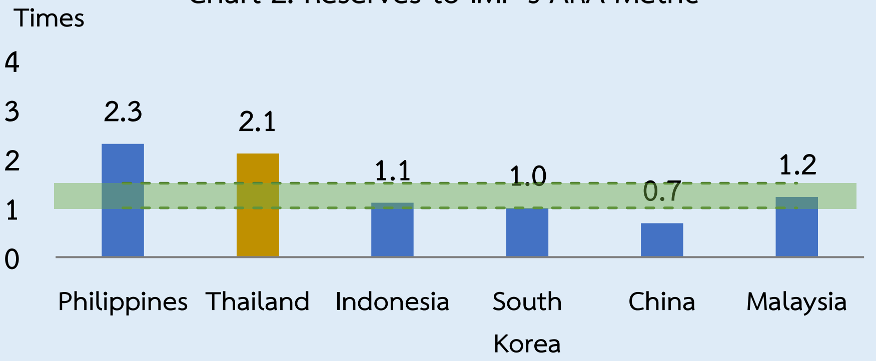
(2) Net international reserves to imports. A general rule of thumb is that this ratio should be greater than 3, which indicates that while the country may temporarily lack foreign currency income, they still have enough international reserves to pay for imports of goods and services for more than 3 consecutive months. Latest data shows that Thailand has enough international reserves to cover as much as 8 months of imports of goods and services, which is also well above international standards.

Chart 1: Reserves to Short-term External Debt



Note: Thailand's net international reserves and short-term external debt data as of Q3-2022 and Q2-2022, respectively. Indonesia and South Korea data as of Q3-2022, while China and Malaysia data as of Q2-2022.
Source: CEIC and Bloomberg, BOT calculations

Chart 2: Reserves to IMF's ARA Metric



Note: (1) Thailand's IMF ARA Metric is calculated by the BOT using short-term external debt data as of Q3-2022. (2) The rest were IMF's calculations as of 2021
Source: IMF and BOT

Box 1: Assessment of international reserves adequacy

(3) IMF's Assessing Reserve Adequacy (ARA) Metric[1/]. The IMF has developed the ARA Metric to assess the adequacy of EMs' international reserves to cushion against volatility during crisis times. The ARA Metric score is calculated using data points from past crises faced by EMs in 4 dimensions. The general rule is that an EM should have international reserves 1-1.5 times higher than the calculated score. The ARA Metric score calculation for Thailand assumes a floating exchange rate regime[2/] because Thailand has adopted a managed-float exchange rate regime. The four dimensions included in the ARA metric are:

(3.1) Short-term external debt reflects how much foreign currency is needed to repay debt over the next 1 year. The IMF's recommendation is for international reserves to cover at least **30%** of short-term external debt.

(3.2) Other portfolio liabilities include longer-term external debt and equities held by non-residents which could become capital outflows during a crisis. The IMF's recommendation is for international reserves to cover at least **15%** of other portfolio liabilities.

(3.3) Broad money reflects the risk that the population may lose confidence in the domestic currency during a crisis and switch to using foreign currencies instead (residential outflows). The IMF's recommendation is for international reserves to cover at least 5% of broad money to mitigate against those risks.

(3.4) Value of exports reflects the risks that a country may lack foreign currency income due to export disruptions. The IMF's recommendation is for international reserves to cover at least 5% of the value of exports of goods and services within a year.

Taking into consideration those 4 dimensions, the calculated IMF ARA Metric Score for Thailand in 2022 is 108.9 billion U.S. Dollar. Thailand's current level of international reserves is thus 2.1 times the calculated ARA metric **(Chart 2)**.

In summary, since the past decade, Thailand's international reserves have been consistently higher than the benchmarks in all 3 measurements namely international reserves to short-term external debt (3 times), international reserves to imports (8 months), or the IMF's ARA Metric (2.1 times). High levels of international reserves is one of the key factors underpinning Thailand's strong external stability, which would help cushion the impact of financial market volatilities and other potential external challenges in the future.

[1/] "Assessing Reserve Adequacy – Specific Proposals" *Staff Report*, IMF, April 2015.

[2/] Under the IMF's ARA Metric, countries with a floating exchange regime would require a lower level of international reserves compared to countries with a fixed exchange rate regime. This is because the former would have less need to intervene in the foreign exchange market, and the flexible exchange rate itself would already serve as a shock absorber.

4. Monetary Policy Decision

Monetary Policy Decision: Summary of Key Considerations

Economic growth

The Thai economic recovery has continued to gain traction. Tourism and private consumption will continue to be key economic drivers and help alleviate the impact of global slowdown.

Inflation outlook

Headline inflation receded from its peak in Q3/2022 and is expected to fall within the target by end-2023, but there remain risks pertaining to a potential increase in cost pass-through.

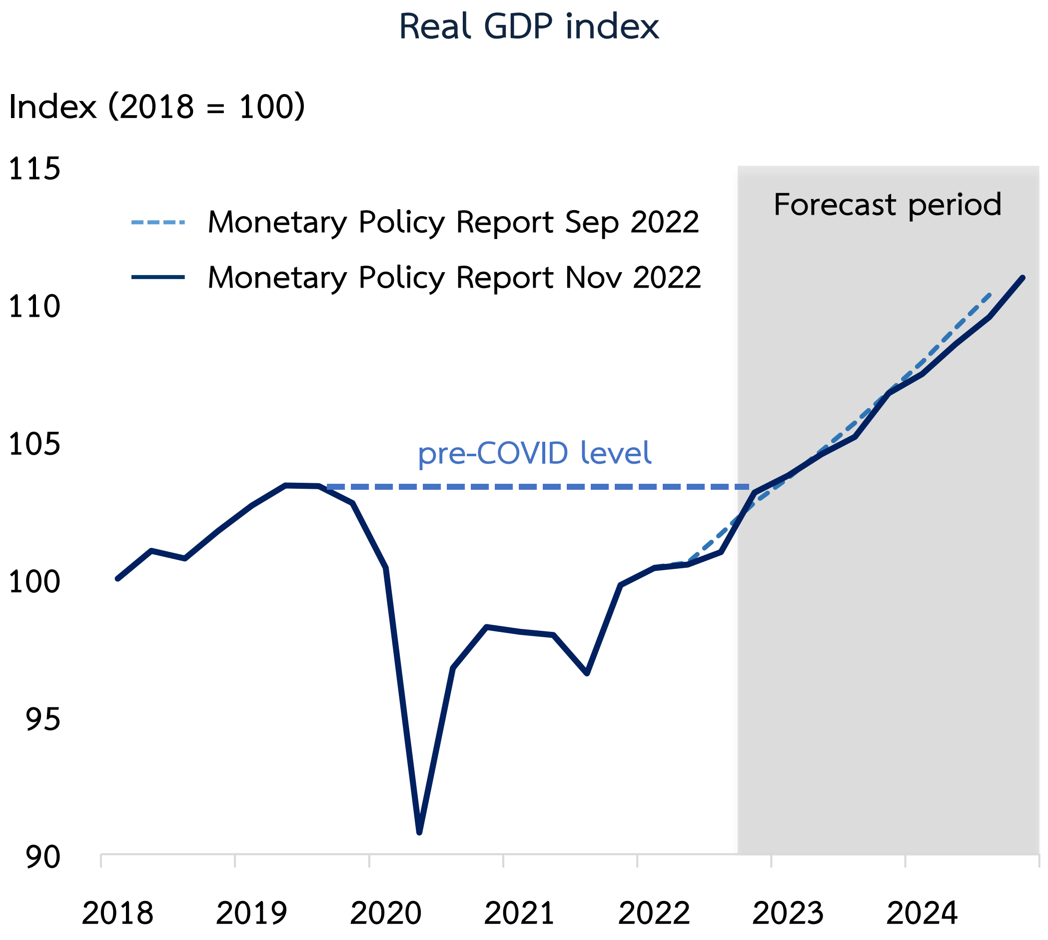
Financial Stability

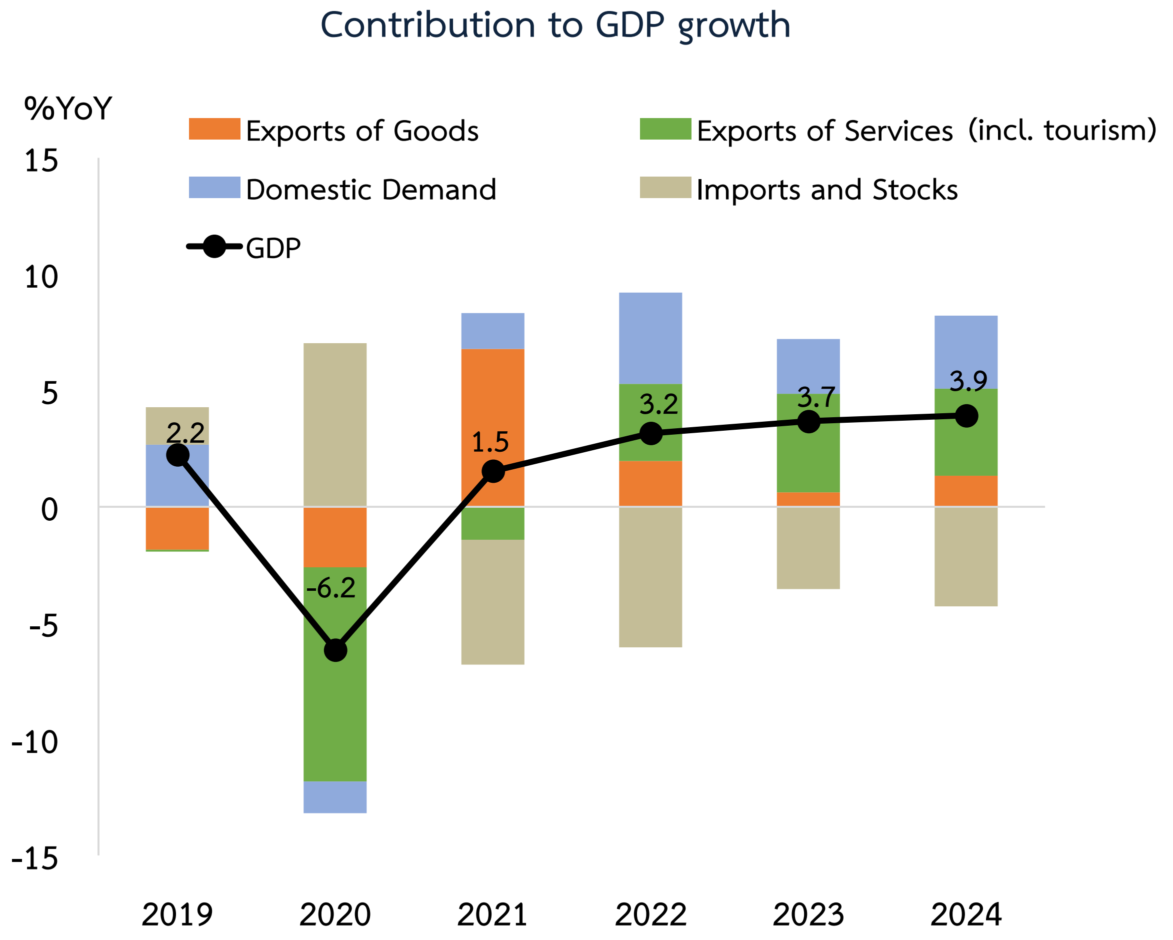
remains sound overall but financial positions of some businesses and households are still vulnerable given weak income recovery which renders them sensitive to higher living costs and rising debt burden.

Monetary Policy Decision

The MPC judges that a gradual and measured policy normalization remains an appropriate course for monetary policy, whilst standing ready to adjust the size and timing in response to risks and uncertainties.

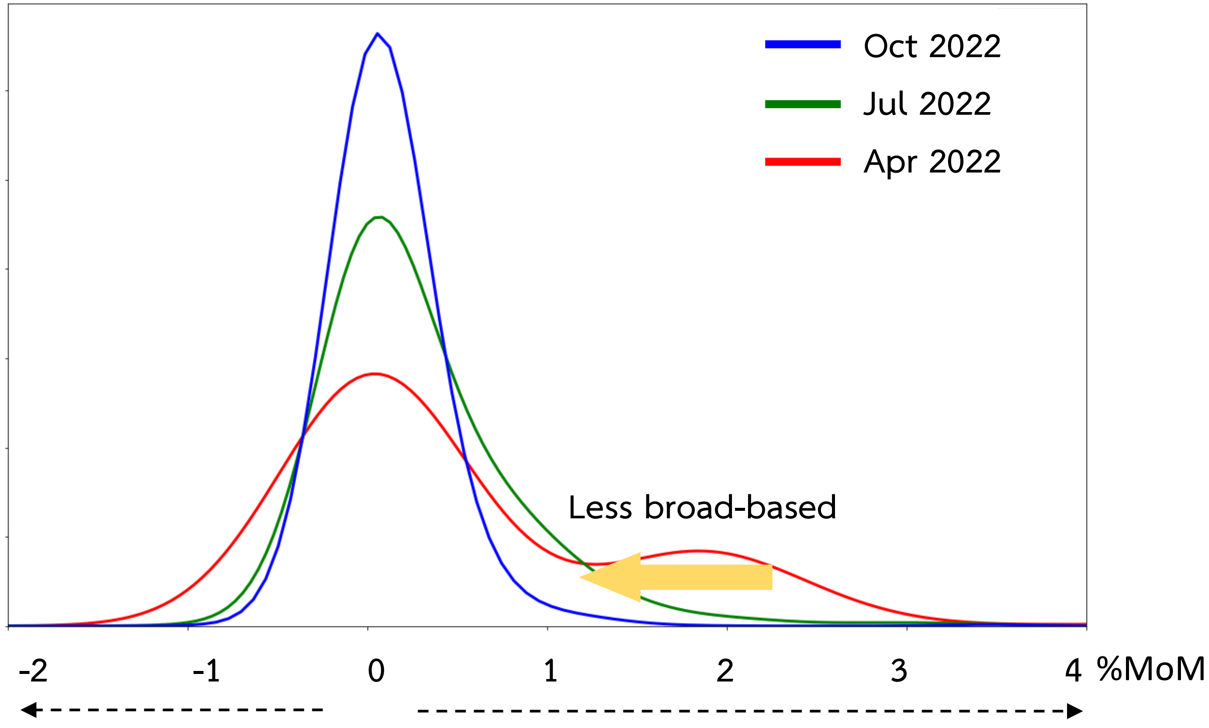
The Thai economy is expected to continue recovering and return to pre-COVID levels around end-2022 to early-2023. The recovery would be mainly driven by the recovery in tourism and domestic demand, which would help offset the impact of the global economic slowdown.





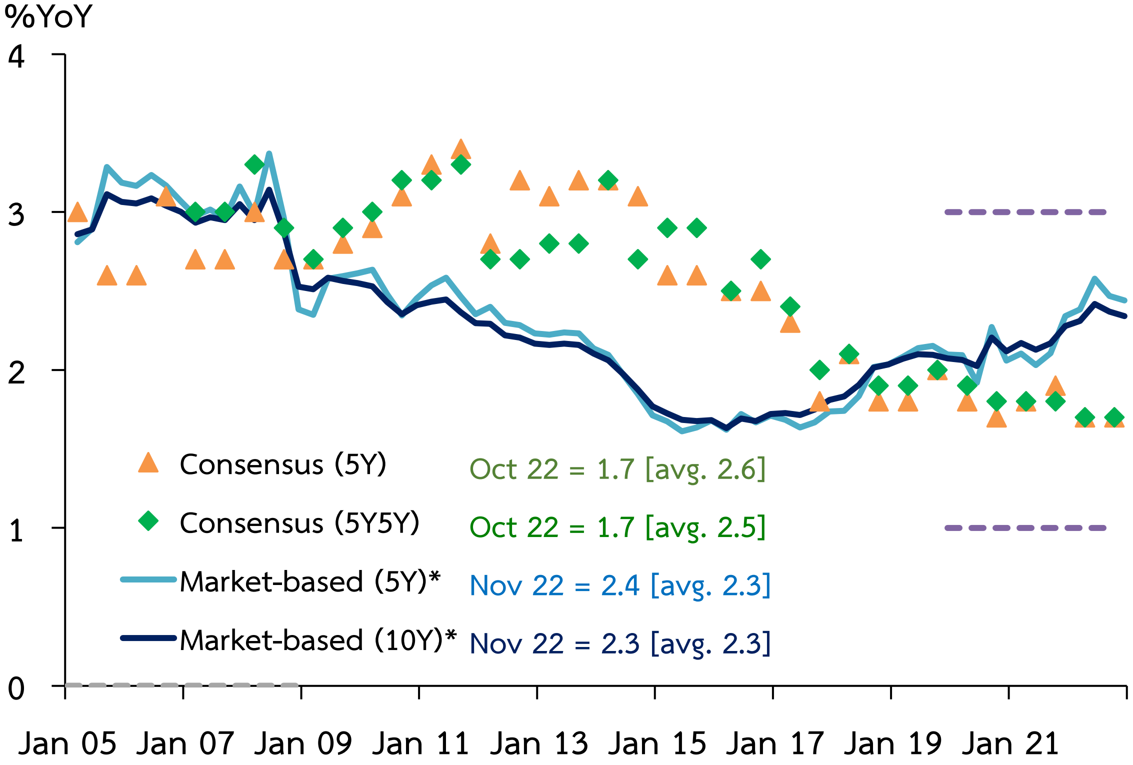
Headline inflation has receded from its peak in Q3/2022 and is expected to fall within the target range by end-2023. Core inflation is still expected to decline in line with the previous assessment. Medium-term inflation expectations is well anchored within the target range.

Distribution of price changes by item for goods and servies in CPI basket has become less broad-based



Note: Density plot of 3-month average %MoM change in price of 430 items of goods and services in the CPI basket
Source: Ministry of Commerce, BOT calculation

Inflation expectations

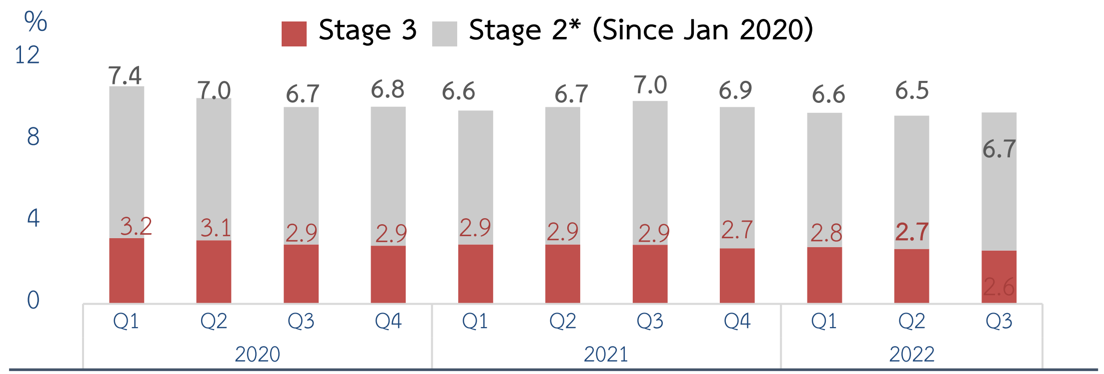


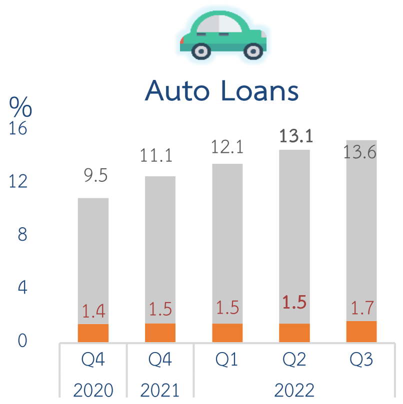
Note: [ ] refers to the average since Jan 05;
* forecasted using the affine term structure model, with data inputs from yield curve and macroeconomic variables. Source: Consumer Confidence Index (Ministry of Commerce), Business Sentiment Survey (BOT), Asia Pacific Consensus Economics

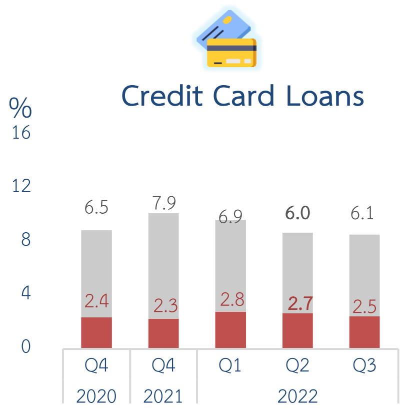
Financial stability remains sound overall but financial positions of some households are still fragile and are sensitive to higher living costs and rising debt burden. Further income recovery and sustainable debt restructuring would help reduce those vulnerabilities.

Stage 3 (NPL) and Stage 2 consumer loans increased especially for Auto loans and Credit Card loans

All consumer loans

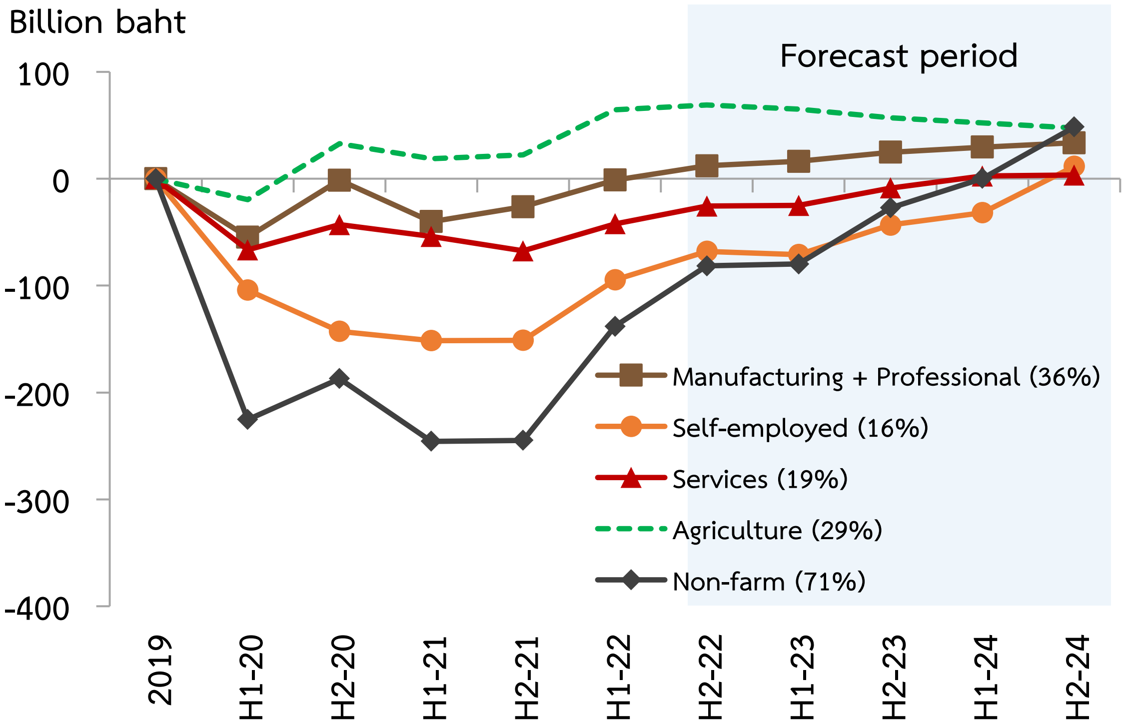






Note: Stage 2 loans are loans with significant increase in credit risk, which covers a broader set of loans than the Special Mentioned (SM) category from pre-TFRS 9 loan classification. Source: BOT

Income recovery by sector (excl. relief measures)



Note: [1/] Total labor income (including farm income) in 2021 was 5 trillion baht

[2/] ( ) denotes each sctor's share to total labor income in 2021 (excluding relief measures)

Source: National Statistic Office's Labor Force Survey, BOT calculation and forecast

Monetary policy normalization must be complemented by the continued implementation of measures to provide sustainable solutions for household debt. Meanwhile, fiscal and financial measures would be phased out given the current economic and inflation outlook.

2022

2023

WE ARE HERE

- ✓ **Growth** continues to recover and is more broad-based
- ✓ **Inflation** has peaked and will gradually fall as assessed
- ✓ **Financial stability** remains sound as overall employment and income improve

Fiscal and financial measures such as FIDF fee reduction and LTV regulation relaxation

BOT's liquidity measures such as soft loans and rehabilitation loan

Solution for household debt to support vulnerable groups affected by COVID-19 and provide sustainable debt solutions

Gradual and measured monetary policy normalization to ensure stable economic growth in the long run

The MPC judges that it is still appropriate to pursue a gradual and measured monetary policy normalization, whilst standing ready to adjust the size and timing in response to risks and uncertainties.

MPC Meeting
No. 6/2022
(30 Nov 2022)

The MPC voted unanimously to raise the policy rate by 0.25 percentage point.

Current policy rate:

1.25%

The Thai economy is expected to continue recovering on the back of tourism and private consumption, which would help offset the impact from the global economy. Headline inflation has receded from its peak and is expected to fall within the target range in 2023. However, there remain risks to be monitored, especially a potential increase in cost pass-through and uncertainties pertaining to domestic energy prices.

Overall financial system remains resilient. However, risks pertaining to the vulnerable groups remain to be monitored especially households whose income have yet to fully recover and thus are sensitive to higher living costs and rising debt burden. The MPC judges that a gradual monetary policy normalization complemented by continued implementation of debt restructuring measures would help support the recovery of the vulnerable groups.

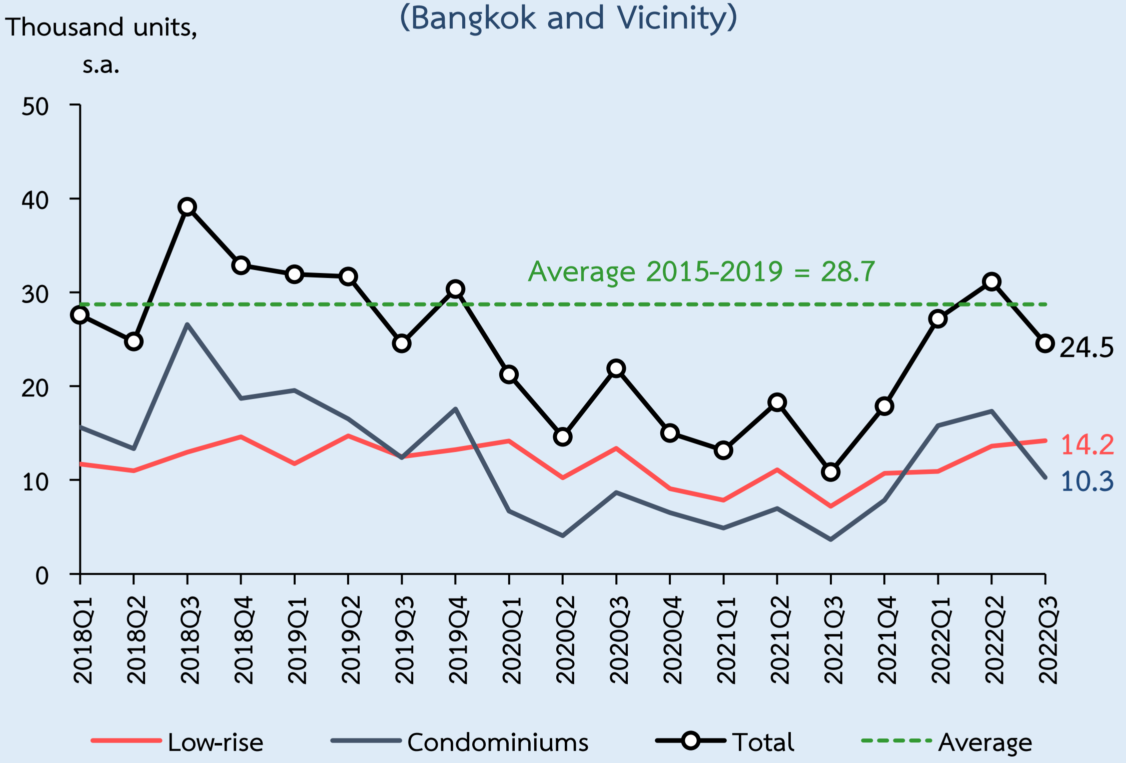
Given the heightened uncertainties surrounding the global economic outlook, the MPC stands ready to adjust the size and timing of policy normalization should the growth and inflation outlook shift from the current assessment.

Box 2: Housing market recovery post-COVID

The outbreak of COVID-19 since early-2020 had a broad-based impact on the Thai economy, including the housing market. The prolonged outbreak and ensuing containment measures have resulted in a decline in household income and residential property demand. As such, property developers either delayed or canceled many new projects, which is reflected in the immediate decline in the number of new residential properties for sale in Bangkok and vicinities. The average figure between 2020-2021 is 16.6 thousand units per quarter, declining by 42% compared to the pre-COVID average **(Chart 1).**

More recently, the impact of COVID-19 on the housing market has partly been offset by adjustments on part of both the developers and home buyers. Developers offered sales promotions and discounts to offload their property inventory and maintain liquidity. This also includes high-end property where demand from high-income buyers was not significantly affected by the pandemic. Meanwhile, buyers' preference shifted towards low-rise houses due to many workplaces adopting work-from-home arrangements. This is reflected in increases in loan approvals for low-rise houses. Overall, mortgage approval did not decline substantially in 2020. This is partly because many transactions were already completed before COVID-19 such as pre-purchase agreements for condominiums that were made one year before the construction was actually completed.

Chart 1: Number of new residential properties launched for sale (Bangkok and Vicinity)



Source : AREA, BOT calculation

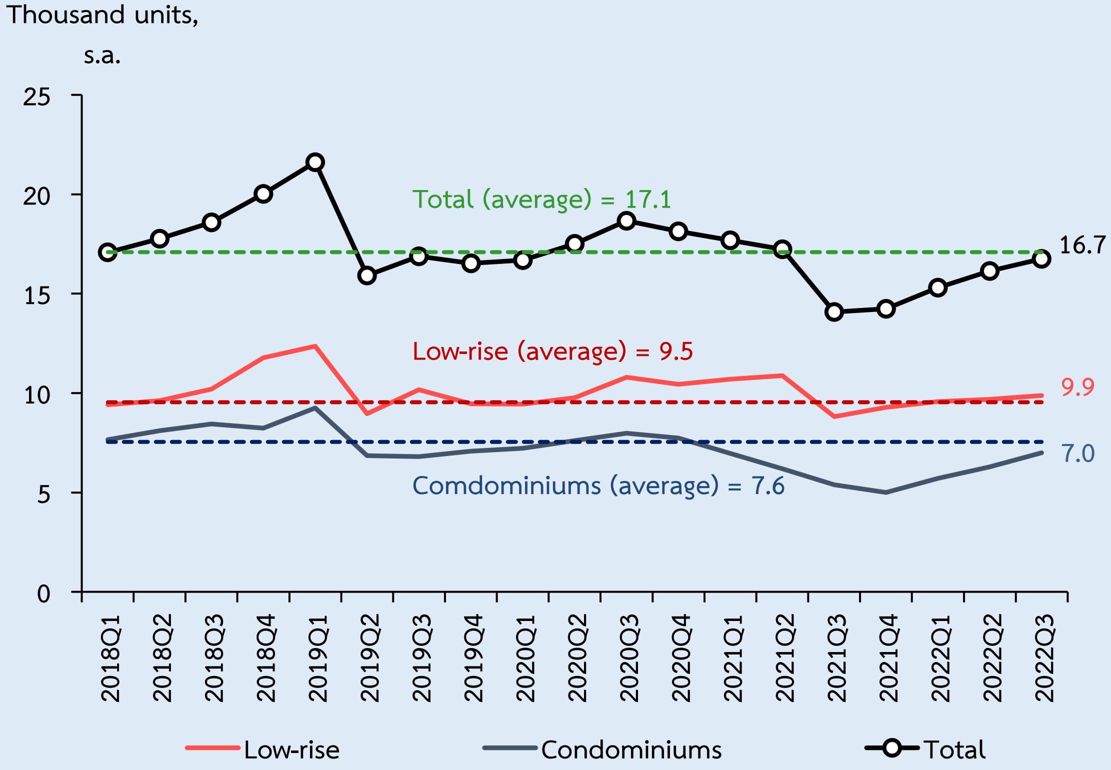
Box 2: Housing market recovery post-COVID

Nevertheless, the number of new mortgages approved in 2021 fell, with condominiums declining as much as 23% from the previous year. This is due to weak demand, more stringent credit approval standards among financial institutions, and fewer announcements of new housing projects in the year prior.

Since end-2021 when the COVID-19 situation has improved and the government has relaxed containment measures and rolled out measures to support the real estate market, economic activities and the real estate market have continued to gradually improve with low-rise houses being the first to recover. Examples of government measures to support the real estate market include (1) reducing the fee on property transfers and mortgages to 0.01% for residential properties valued up to 3 million baht, both new and second-hand (effective 18 Jan – 31 Dec 20221/); (2) temporarily relaxing LTV limit (effective 20 Oct 2021 – 31 Dec 2022) with aims to stimulate the economy through the real estate sector whereby the LTV limits for first-home mortgages for properties valued above 10 million baht and for second and subsequent mortgages were increased to 100%. In 2022, the recovery in the real estate market has been more broad-based with improvements for both low-rise houses and condominiums. The number of new residential properties for sale picked up in the first half of 2022 and the number of mortgage approvals followed suit in the second half of 2022. As of Q3/2022, the number of new residential properties for sale and mortgage approvals were 24.5 thousand units and 16.7 thousand units, respectively (Chart 2), which are close to pre-COVID levels.

1/Measure's duration is subject to further extension.

Chart 2: Number of approved mortgages from commercial banks (Bangkok and Vicinity)



Note: 5-year average from 2015 to 2019

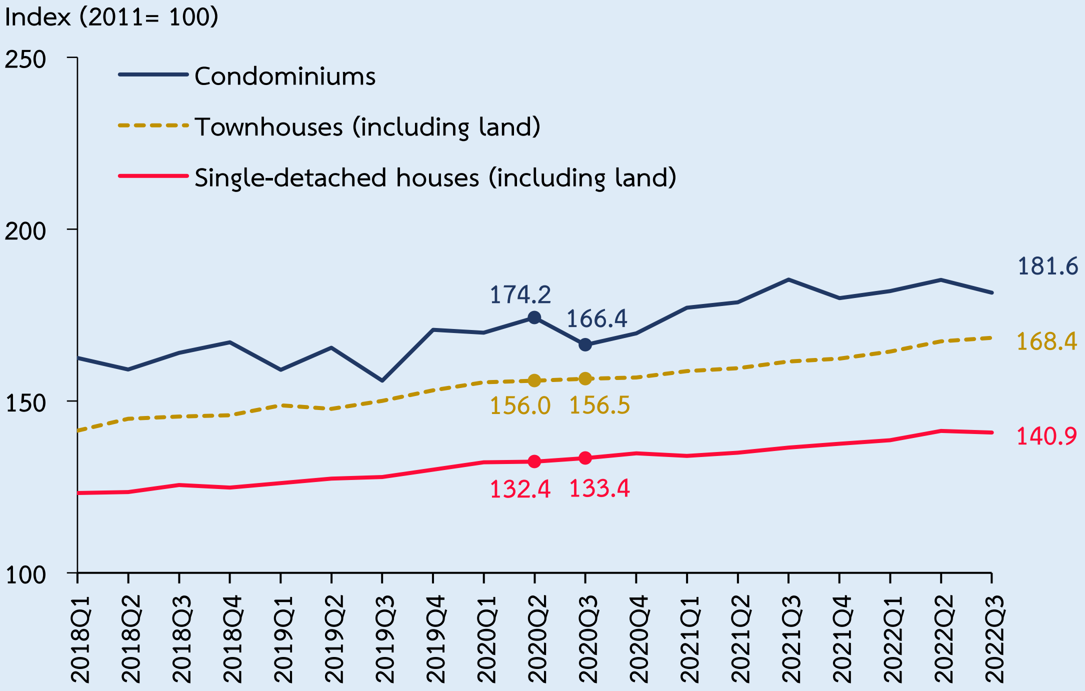
Source: BOT

Box 2: Housing market recovery post-COVID

A close look at price data reveals that property prices did not decline sharply during the COVID-19 pandemic, and current property prices have not shown signs of accelerating to a point of concern. The Bank of Thailand has developed the property price index[2/] based on the database of new loans extended by commercial banks and the Government Housing Bank using the hedonic regression to account for determinants of prices such as location and number of floors. The property price index for condominiums in Q3/2021 was 166.4, declining by 4.5% from Q2/2021 when strict containment measures were imposed and prompted developers to offer discounts to offload their excess inventories since the first lockdown. Meanwhile, prices of low-rise houses were rather stable. More recently, property prices have gradually increased in tandem with the recovery in demand but did not accelerate to a point of concern. The property price index for condominiums in Q1-Q3/2022 averaged 182.9, growing by 1.4% from the same period in the previous year and growing by 9.9% from the lowest point 2 years ago **(Chart 3)**.

In conclusion, the Thai real estate market was impacted by COVID-19 in 2020 but has continued to recover and is now close to levels seen pre-COVID. This is reflected in the mortgage approval numbers and the number of new residential properties for sale. Meanwhile, property prices did not decline sharply and have yet to show signs of accelerating to a point of concern. However, the housing market still faces challenges including rising construction costs due to rising oil and commodity prices, and elevated household debt which could weigh on household purchasing power in the future.

Chart 3: Housing Price Index (Bangkok and Vicinity)



Note: Calculated from newly approved mortgage loans from commercial banks and the Government Housing Bank

Source: BOT

[2/] "National Residential Property Price Index", *Stat Horizon*, BOT (Nov 2021) (Only in Thai)

Data tables

Percent	2020	2021	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3
GDP growth	-6.2	1.5	-6.4	-4.2	-2.4	7.7	-0.2	1.8	2.3	2.5	4.5
Production											
Agriculture	-3.5	1.0	-1.6	-0.2	1.0	2.1	2.2	-0.6	4.7	4.4	-2.3
Non-agriculture	-6.4	1.6	-6.7	-4.7	-2.6	8.3	-0.3	2.0	2.1	2.3	5.0
Manufacturing	-5.6	4.9	-5.0	-0.4	1.1	17.0	-0.9	3.8	2.0	-0.5	6.3
Construction	1.3	2.7	9.4	-0.9	13.5	3.1	-4.2	-0.8	-5.5	-4.5	-2.8
Wholesales and retail trade	-3.2	1.7	-5.7	-3.1	-2.4	5.0	2.7	3.0	2.8	3.1	3.5
Transport and storage	-22.9	-2.9	-23.9	-21.0	-16.9	10.3	-1.4	3.2	4.2	5.2	9.9
Accommodation and Food Service	-37.5	-14.4	-39.8	-34.0	-36.8	16.4	-19.0	-4.9	33.5	44.9	53.6
Information and Communication	1.1	5.6	0.6	1.8	4.5	5.6	6.8	5.3	5.7	6.3	4.9
Financial intermediation	5.1	5.7	3.7	6.3	6.4	5.9	6.1	4.4	1.3	1.6	0.5
Real estate and renting	1.5	1.8	1.7	1.4	2.2	2.7	0.7	1.5	1.0	2.4	3.0

Source: Office of the National Economic and Social Development Board National Statistical Office and Bank of Thailand

Percent	2020	2021	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3
GDP growth	-6.2	1.5	-6.4	-4.2	-2.4	7.7	-0.2	1.8	2.3	2.5	4.5
Expenditure											
Domestic demand	-1.5	1.6	-0.2	0.2	2.1	4.6	-1.6	1.7	3.4	4.1	6.1
Private consumption	-1.0	0.3	-0.6	0.8	-0.3	4.7	-3.2	0.4	3.5	6.9	9.0
Private investment	-8.2	3.3	-10.4	-3.2	3.1	9.2	2.6	-0.8	2.9	2.3	11.0
Government consumption	1.4	3.2	3.7	2.4	2.2	1.0	1.5	8.1	7.2	2.4	-0.6
Public investment	5.1	3.8	17.0	0.0	19.8	3.4	-6.2	1.7	-4.7	-9.0	-7.3
Imports of goods and services	-14.1	17.9	-20.8	-8.4	1.0	28.7	29.5	16.4	6.2	9.1	8.2
imports of goods	-10.6	18.3	-17.4	-3.8	4.6	29.9	28.0	14.0	4.2	7.1	8.0
imports of services	-27.8	16.0	-34.6	-26.4	-13.4	23.6	37.1	28.1	13.7	16.8	8.9
Exports of goods and services	-19.7	10.4	-23.5	-21.7	-10.3	28.4	12.3	17.6	12.1	8.5	9.5
exports of goods	-5.8	14.9	-7.4	-1.4	2.9	30.8	12.0	16.6	10.2	4.6	2.7
exports of services	-61.3	-23.1	-74.4	-76.2	-62.3	4.8	14.7	28.8	32.5	54.3	87.0
Trade balance (billion, U.S. dollars)	40.9	39.9	14.1	8.7	9.0	11.2	9.4	10.2	9.3	5.2	0.4
Current account (billion, U.S. dollars)*	21.1	-10.3	7.9	0.6	-1.7	-2.6	-4.4	-1.6	-2.6	-8.1	-7.0
Financial account (billion, U.S. dollars)*	-11.7	-6.0	-6.3	-2.3	-6.7	-2.7	2.6	0.8	3.7	0.9	n.a.
International reserves (billion, U.S. dollars)	258.1	246.0	251.1	258.1	245.5	246.5	244.7	246.0	242.4	222.3	199.4
Unemployment rate (%)	1.7	1.9	1.9	1.9	2.0	1.9	2.3	1.7	1.5	1.4	1.2
Unemployment rate, seasonally-adjusted (⁽	n.a.	n.a.	1.9	2.0	2.0	1.9	2.2	1.7	1.5	1.4	1.2

Note: *Data may be subject to change in line with periodic revisions or changes to data collection methodologies

Source: Office of the National Economic and Social Development Board National Statistical Office and Bank of Thailand

Indicators	2020	2021	2020		2021				2022		
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1. Financial market sector											
Bond market											
Bond spread (10 years - 2 years)	0.9	1.2	0.8	0.9	1.5	1.3	1.3	1.2	1.4	1.2	1.3
Equity market											
SET index (end of period)	1,449.4	1,657.6	1,237.0	1,449.4	1,587.2	1,587.8	1,605.7	1,657.6	1,648.8	1,568.3	1,589.5
Actual volatility of SET index 1/	30.4	12.0	13.7	23.0	13.6	12.4	11.8	10.4	12.0	12.6	9.9
Price to Earnings ratio (P/E ratio) (times)	28.8	20.8	21.2	28.8	41.4	30.2	20.5	20.8	19.6	18.5	17.5
Exchange rate market											
Actual volatility of Thai baht (%annualized) 2/	5.4	5.4	5.3	5.2	4.4	4.4	5.5	7.3	6.6	6.4	9.3
Nominal Effective Exchange Rate (NEER)	122.6	117.8	122.0	122.5	122.7	119.3	114.8	114.6	116.8	116.4	113.6
Real Effective Exchange Rate (REER)	110.2	104.7	110.0	110.4	109.0	106.0	101.7	102.3	104.4	103.8	101.9
2. Financial institution sector 3/											
Minimum Lending Rate (MLR) 4/	5.36	5.49	5.36	5.36	5.36	5.36	5.49	5.49	5.49	5.49	5.55
12-month fixed deposit rate 4/	0.49	0.45	0.49	0.49	0.44	0.42	0.45	0.45	0.45	0.45	0.50
Capital adequacy											
Capital funds / Risk-weighted asset (%)	20.1	19.9	19.8	20.1	20.0	20.0	19.9	19.9	19.8	19.6	19.2
Earning and profitability											
Net profit (billion, Thai baht)	145.2	181.1	28.0	17.1	44.2	60.4	38.5	37.9	49.0	65.0	60.0
Return on assets (ROA) (times)	0.7	0.8	0.5	0.3	0.8	1.1	0.7	0.8	0.9	1.1	1.0
Liquidity											
Loan to Deposit and B/E (%)	92.3	94.2	93.0	92.3	92.2	92.8	93.8	94.2	92.8	93.8	94.5

Note: 1/ Calculated by 'annualized standard deviation of return' method
2/ Daily volatility (using exponentially weighted moving average method)
3/ Based on data of all commercial banks
4/ Average value of 6 largest Thai commercial banks (since july 2021)

Indicators	2020	2021	2020		2021				2022		
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
3. Household sector											
Household debt to GDP (%)	89.4	90.1	86.6	89.4	90.8	89.5	89.6	90.1	89.2	88.2	n.a.
Financial assets to debt (times)	2.9	n.a.	2.9	2.9	2.9	3.0	3.0	3.0	3.1	n.a.	n.a.
Non-Performing Loans (NPLs) of commercial banks (%)											
Consumer loans	2.9	2.7	2.9	2.9	2.9	2.9	2.9	2.7	2.8	2.7	2.6
Housing loans	3.8	3.5	3.9	3.8	3.7	3.7	3.6	3.5	3.5	3.4	3.3
Auto leasing	1.4	1.5	1.6	1.4	1.6	1.6	1.7	1.5	1.5	1.5	1.7
Credit cards	2.4	2.3	2.4	2.4	3.0	3.5	3.0	2.3	2.8	2.7	2.5
Other personal loans	2.4	2.3	2.3	2.4	2.5	2.5	2.4	2.3	2.5	2.4	2.2
4. Non-financial corporate sector[5/]											
Operating profit margin (OPM) (%)	6.2	8.3	7.1	7.3	9.2	8.2	7.9	8.4	7.7	8.3	7.4
Debt to Equity ratio (D/E ratio) (times)	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Interest coverage ratio (ICR) (times)	3.7	6.6	4.3	5.1	6.5	6.3	5.9	6.9	6.7	6.6	4.9
Current ratio (times)	1.6	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.7
Non-Performing Loans (NPLs) of commercial banks (%)											
Large businesses	3.0	2.6	3.0	3.0	3.0	3.0	2.8	2.6	2.6	2.5	2.3
SMEs	7.0	7.2	6.7	7.0	7.2	7.3	7.3	7.2	7.2	7.2	6.9

Note: [5/] Only listed companies on Stock Exchange of Thailand (median value); with data revisions

Indicators	2020	2021	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3
5. Real estate sector											
Number of approved mortgages from commercial banks (Bangkok and Vicinity) (units)											
Total	70,950	63,207	18,977	19,560	15,958	17,238	14,413	15,598	13,611	16,136	17,113
Single-detached and semi-detached houses	17,367	18,310	4,790	4,616	4,445	4,954	4,169	4,742	4,661	4,949	4,805
Townhouses and commercial buildings	23,062	21,372	6,128	6,061	5,709	6,133	4,775	4,755	4,367	4,943	5,226
Condominiums	30,521	23,525	8,059	8,883	5,804	6,151	5,469	6,101	4,583	6,244	7,082
Number of new housing units launched for sale (Bangkok and Vicinity) (units)											
Total	73,022	60,394	23,122	19,774	9,996	16,028	11,085	23,285	23,646	29,264	24,362
Single-detached and semi-detached houses	17,746	13,240	5,483	5,086	2,275	3,222	2,963	4,780	3,559	5,118	8,557
Townhouses and commercial buildings	29,370	23,709	9,396	5,796	2,765	7,492	5,597	7,855	4,378	8,234	6,953
Condominiums	25,906	23,445	8,243	8,892	4,956	5,314	2,525	10,650	15,709	15,912	8,852
Housing price index (2009 = 100)											
Single-detached houses (including land)	133.19	135.84	133.37	134.77	134.10	135.04	136.50	137.72	138.63	141.35	140.85
Townhouses (including land)	156.20	160.60	156.47	156.86	158.78	159.59	161.55	162.48	164.44	167.37	168.44
Condominiums	170.08	180.37	166.40	169.76	177.18	178.79	185.40	180.10	181.99	185.26	181.57
Land	163.37	177.73	165.13	167.12	171.03	172.21	179.22	188.43	178.80	179.57	177.99
6. Fiscal sector											
Public debt to GDP (%)	52.0	59.6	49.5	52.0	54.5	55.4	58.4	59.6	60.6	60.9	60.4
7. External sector											
Current account balance to GDP (%)	4.2	-2.1	6.4	0.5	-1.3	-2.1	-3.7	-1.3	-2.0	-6.6	-5.8
External debt to GDP (%)[6/]	36.9	38.0	33.5	36.9	35.6	35.7	36.4	38.0	38.4	37.8	n.a.
External debt (billion, U.S. dollars)	190.7	196.3	172.2	190.7	184.5	185.2	188.5	196.3	198.0	194.2	n.a.
Short-term (%)	39.2	38.1	36.3	39.2	39.0	38.6	38.2	38.1	38.1	39.5	n.a.
Long-term (%)	60.8	61.9	63.7	60.8	61.0	61.4	61.8	61.9	61.9	60.5	n.a.
International reserves / Short-term external debt (times)[7/]	3.0	2.7	3.4	3.0	2.8	2.9	2.8	2.7	2.7	2.4	n.a.

Note: [6/] External debt / 3-year average nominal GDP

[7/] Short-term external debt used in calculation is short-term external debt less than 1 year remaining maturity

Probability distribution of GDP growth forecast

%	2022	2023				2024			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
> 16	0	0	0	1	1	1	2	2	2
14.0-16.0	0	0	0	0	1	1	1	1	1
12.0-14.0	0	1	1	1	0	1	1	1	1
10.0-12.0	0	2	3	3	2	2	4	2	2
8.0-10.0	1	5	7	5	3	4	5	5	5
6.0-8.0	9	12	12	14	7	9	12	14	14
4.0-6.0	25	18	20	28	19	20	24	26	26
2.0-4.0	28	21	22	23	27	26	23	22	22
0.0-2.0	21	17	16	13	20	19	13	13	13
(-2.0)-0.0	12	12	10	6	11	8	8	7	7
(-4.0)-(-2.0)	3	7	3	3	4	4	3	2	2
(-6.0)-(-4.0)	1	3	2	1	2	1	1	1	1
(-8.0)-(-6.0)	0	1	1	1	1	1	1	1	1
< -8	0	2	2	2	3	3	2	1	1

Probability distribution of headline inflation forecast

%	2022	2023			2024				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
> 10	0	0	0	0	0	0	0	0	0
9.0-10.0	0	0	0	0	0	0	0	0	0
8.0-9.0	0	0	0	0	0	0	0	0	0
7.0-8.0	19	1	0	0	0	0	0	0	0
6.0-7.0	61	9	1	0	0	0	0	0	0
5.0-6.0	19	29	6	3	1	1	2	2	2
4.0-5.0	0	37	18	10	6	5	6	8	8
3.0-4.0	0	19	29	22	15	14	16	18	18
2.0-3.0	0	4	26	28	25	24	25	26	26
1.0-2.0	0	0	14	22	26	26	25	24	24
0.0-1.0	0	0	4	10	18	18	16	14	14
(-1.0)-0.0	0	0	1	3	7	8	6	5	5
(-2.0)-(-1.0)	0	0	0	1	2	2	2	1	1
< -2	0	0	0	0	0	0	0	0	0

Probability distribution of core inflation forecast

%	2022	2023			2024				
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
> 5.5	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0
4.5-5.0	0	0	0	0	0	0	0	0	0
4.0-4.5	4	1	2	1	1	1	1	1	1
3.5-4.0	44	9	8	5	4	3	3	3	3
3.0-3.5	47	27	20	13	11	9	8	8	8
2.5-3.0	5	36	29	24	21	18	17	17	16
2.0-2.5	0	21	24	27	26	25	24	24	24
1.5-2.0	0	5	12	19	22	23	23	23	23
1.0-1.5	0	1	4	8	12	14	15	15	16
0.5-1.0	0	0	1	2	4	6	7	7	7
0.0-0.5	0	0	0	0	1	2	2	2	2
(-0.5)-0.0	0	0	0	0	0	0	0	0	0
< -0.5	0	0	0	0	0	0	0	0	0

Pursuing Sustainable Economic Well-Being

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