AMRO Country Report
ACR/24-10

AMRO
ASEAN +3 MACROECONOMIC RESEARCH OFFICE

AMRO Annual Consultation Report

Thailand – 2024

Acknowledgments

1. This Annual Consultation Report on Thailand has been prepared in accordance with the functions of AMRO to monitor and assess the macroeconomic status and financial soundness of its members; identify relevant risks and vulnerabilities; report these to member authorities; and if requested, assist them in mitigating these risks through the timely formulation of policy recommendations. This is being done in accordance with Article 3 (a) and (b) of the AMRO Agreement.

2. This Report is drafted on the basis of the Annual Consultation Visit of AMRO to Thailand from July 30 to August 9, 2024 (Article 5 (b) of the AMRO Agreement). The AMRO Mission team was led by Allen Ng (Group Head and Mission Chief) and joined by Haobin Wang (Desk Economist), Benyaporn Chantana (Back-up Economist), Ravisara Hataiseree (Fiscal Specialist), Marthe Hinojales (Senior Economist) and Michael Wynn (Research Analyst). AMRO Director Dr. Kouqing Li and Chief Economist Dr. Hoe Ee Khor participated in key policy meetings with the authorities. This AMRO Annual Consultation Report on Thailand for 2024 was peer-reviewed by an economist group from AMRO's Country Surveillance, Financial Surveillance and Fiscal Surveillance teams; endorsed by Mr. Jiangyan Yu, Deputy Group Head and Senior Economist, Policy and Review Group; and approved by Dr. Khor.

3. The analysis in this Report is based on information available up to 30 October 2024.

4. By making any designation of or reference to a particular territory or geographical area, or by using the term "member" or "country" in this Report, AMRO does not intend to make any judgments as to the legal or other status of any territory or area.

5. No part of this material may be disclosed unless so approved under the AMRO Agreement.

6. On behalf of AMRO, the Mission team wishes to thank the Thai authorities for their comments on this Report, as well as their excellent meeting arrangements and hospitality during our visit.

ASEAN+3 Macroeconomic Research Office (AMRO)

November 2024

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Executive Summary

1. Thailand's economy underperformed in 2023 due to budget delays and weak exports. Thailand's economy underperformed in 2023, with GDP growing by 1.9 percent due to weak exports and delayed budget approval. Goods exports contracted, while public investment sharply declined by 4.6 percent. These weaknesses persisted into Q1 2024, with year-on-year growth at 1.6 percent.

2. GDP growth is projected to strengthen to 2.8 percent in 2024 and 3.3 percent in 2025, driven by accelerated government disbursement and continued tourism recovery. Growth rose to 2.3 percent in Q2 2024, driven by improved public spending and exports, despite private investment contraction. Growth in 2H 2024 and 2025 is expected to further strengthen, with tourism expected to exceed pre-pandemic levels in 2025. Accelerated government spending including the digital wallet scheme will support short-term growth.

3. Thailand's labor market remains stable but shows signs of weakening wage growth. While unemployment rate and total employment remained steady, a shift from agricultural to non-agricultural jobs was seen. Private sector wage growth slowed to 0.1 percent in early 2024, down from 1.8 percent in 2023. However, tourism-related sectors defied this trend with over 5.0 percent wage growth, reflecting an ongoing tourism recovery.

4. Inflation has remained subdued in recent periods but is expected to trend towards the central bank's target of 1.0–3.0 percent next year. Headline inflation has remained sluggish due to energy subsidies and supply side factors such as the excess supply of certain essential items, while core inflation averaged 0.4 percent in the first eight months of 2024. Headline inflation is projected at 0.7 percent for 2024 and expected to rise to 1.5 percent in 2025 as subsidies are phased out and the economic recovery strengthens. Core inflation is expected to remain low at 0.7 percent in 2024 and 1.2 percent in 2025.

5. Thailand's external sector outlook remains stable with signs of improvement. The current account surplus held at 1.3 percent of GDP in 1H 2024, bolstered by the tourism recovery and rebounding exports. For 2024, exports and tourism are forecast to grow moderately, though the current account surplus is expected to narrow slightly due to strengthening imports. While the financial account has been in deficit for six quarters through Q2 2024, FDI remains a stabilizing force. Foreign exchange reserves are ample, with non-resident outflows and currency depreciation easing since early this year.

6. The fiscal deficit is set to widen due to the cost of the digital wallet scheme, pushing public debt near the 70.0 percent ceiling by FY2027. While the fiscal deficit narrowed to 3.3 percent of GDP in FY2023, it is projected to widen to 4.5 percent in FY2024 and 4.6 percent in FY2025, largely due to the digital wallet program. This expansion will drive public debt from 62.4 percent of GDP in FY2023 to a peak of 69.5 percent in FY2027, just below the official debt ceiling.

7. Overall financial conditions tightened somewhat, with unevenness across different segments. Overall credit growth continued to decelerate but remained positive for large corporates and consumers, while SME loans contracted 5.4 percent in Q2 2024 partly due to the gradual loan repayment following the phasing out of accommodative liquidity support measures, such as the pandemic-period soft loan and special loan packages. Asset quality has deteriorated slightly, with rising NPLs and stage 2 loans in the consumer

loan segment, particularly in housing loan NPLs and stage 2 auto loans. Despite this, banks remain well-buffered with high capital, liquidity, and provisioning ratios, but the uneven recovery highlights ongoing challenges for vulnerable groups.

8. The balance of risks to Thailand's growth and inflation is tilted to the downside. Short-term risks include potential export weakness, delays in government disbursement, and weaker private investment. High household debt and slow income recovery for vulnerable segments could pose challenges for consumption and banks' asset quality. Over the longer-term, Thailand faces public debt sustainability risk and a secular decline in growth potential. In addition, the failure to adapt to digital and decarbonization trends could render key export sectors uncompetitive, potentially affecting a significant portion of exports in the coming years.

9. The authorities are recommended to focus on anchoring macro-financial stability and rebuilding fiscal policy space as short-term policy priorities.

- The current monetary policy stance is assessed to be appropriate. It remains consistent with the baseline outlook of strengthening growth and inflation, and gradual household deleveraging. Should growth continue to underperform baseline expectation, however, there is room for further monetary policy easing.

- The authorities are encouraged to restore fiscal space through fiscal consolidation and tighter fiscal discipline. A comprehensive expenditure review is recommended to shift expenditure focus from crisis response to lifting growth potential. Given rising demand for expenditure to meet Thailand's long-term development needs, comprehensive revenue reforms are also imperative.

- Financial sector policy requires careful calibration to ensure continued access to credit while curtailing excessive indebtedness. The long-term reduction in indebtedness requires fostering income recovery and promoting financial literacy. Enhancing credit guarantee schemes and developing credit databases can help vulnerable but viable SMEs obtain greater access to credit.

10. Long-term policy should focus on revitalizing structural transformation to secure higher growth potential.

- Revitalizing structural transformation. This includes resuming the incomplete shifts from agriculture to higher-productivity sectors, boosting agricultural productivity, shifting manufacturing towards new growth industries, and unleashing the services sector's potential through nurturing high-end services.

- Focusing reforms on innovation, human capital formation, and infrastructure upgrading. This includes lifting services FDI restrictions, expanding the support for innovative start-ups, and improving the pool of high-skilled labor. In parallel, infrastructure development should focus on meeting multiple demands for inclusive growth, sustainability, and digitalization.

- Strengthening implementation of development plans. This involves executing the development plans that are already in place and strengthening coordination across multiple stakeholders during project implementation.

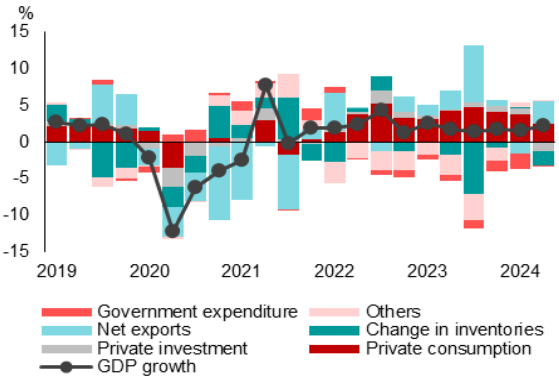
A. Recent Developments and Outlook

A.1 Real Sector Developments and Outlook

1. Thailand's economy underperformed in 2023 due to weak exports and budget delays, effects that lingered into Q1 2024. The Thai economy grew by a weaker-than-expected 1.9 percent in 2023,[1] affected by a sharp contraction in public investment due to delayed parliamentary approval of the FY2024 Budget Bill.[2] This delay persisted into Q1 2024, causing continued contraction in public investment by 27.7 percent and public consumption by 2.1 percent. Goods exports contracted by 2.8 percent in 2023, and further by 2.0 percent in Q1, partly due to high base effects and Thailand's lagged response to the global electronics cycle recovery (Figure 1). Correspondingly, Thailand's manufacturing sector contracted for the sixth consecutive quarter in Q1 2024, declining by 2.9 percent year-on-year. Weaknesses in budget disbursement and goods exports overshadowed the resilience of private demand and tourism, resulting in a subdued growth of 1.6 percent in Q1 2024.

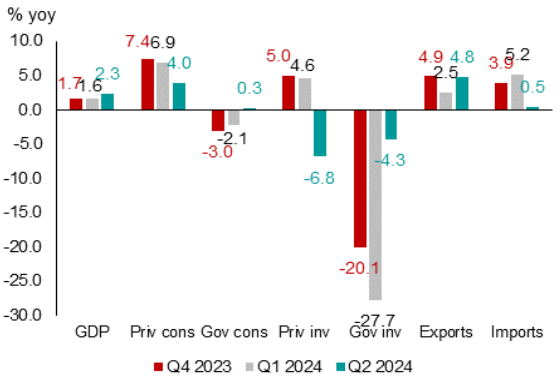
2. Growth improved in Q2 2024 but was tempered by emerging weaknesses in the private sector. Public consumption registered growth for the first time in two years as general budget disbursement improved. Public investment contracted less sharply driven by higher capital expenditure disbursement following the approval of FY2024 budget. Goods exports growth returned to positive, driven by agricultural and manufacturing products. However, private investment declined by 6.8 percent, primarily due to a sharp decrease in machinery and equipment expenditure. Private consumption growth also slowed to 4.0 percent, down from 6.9 percent in Q1 (Figure 2). Overall, growth in 1H 2024 stood at 1.9 percent year-on-year, continuing along a weak trajectory.

Figure 1. Contribution to Real GDP Growth



Source: National authorities via CEIC; and AMRO staff calculations.

Figure 2. GDP Growth by Demand Component

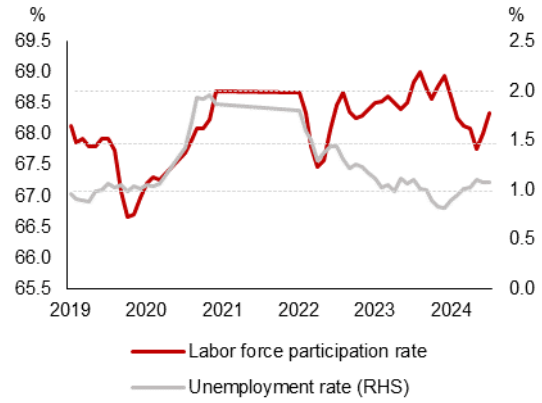


Source: DOSM.
Note: Priv cons = Private consumption; Gov cons = Government consumption; Priv inv = Private investment; Gov inv = Government investment.

[1] This was below private sector consensus forecast of 2.6 percent, and Bank of Thailand (BOT) and the National Economic and Social Development Council (NESDC)'s forecasts of 2.4 percent and 2.5 percent prior to the release of 2023 growth figures. AMRO's projection prior to the release was 2.7 percent.
[2] The delayed approval of Thailand's FY2024 Budget Bill was primarily due to a change in government following the May 2023 general election. The process of forming a coalition government extended until August 2023, significantly disrupting the normal budget approval timeline, resulting in delayed government disbursements in Q4 2023 and Q1 2024. However, with the final approval of the budget bill on April 26, we expect an acceleration of government disbursements for the remainder of the year in our baseline forecast.

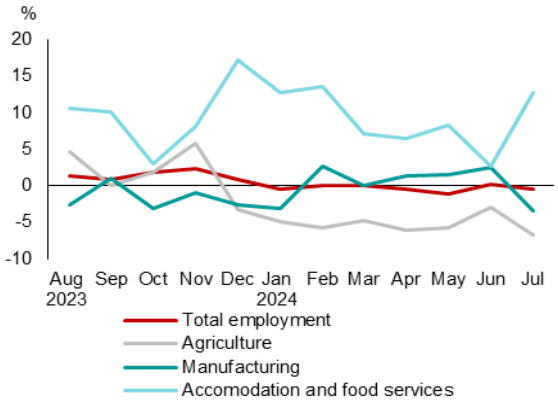
3. Labor market conditions remain broadly stable, but wage growth weakened. The unemployment rate in Thailand rose from 0.8 percent in December 2023 to 1.1 percent in July 2024 but remained at a still low level. Labor force participation rate stood at 68.3 percent in July 2024, down from 68.8 percent in December 2023 and near the two-year average (Figure 3). Total employment stood at 40.0 million in July, largely unchanged from the 40.1 million employed a year ago. This reflects a 0.8 million decline in agricultural employment over the past year, which was partially offset by an increase in non-agricultural employment (+0.7 million), especially in accommodation and food service (+0.4 million) (Figure 4). Private sector average wage growth was 0.1 percent in the first seven months of 2024 (year-on-year) compared to an average of 1.8 percent in 2023. The slowdown in private sector wage growth reflected weaker wage growth across most sectors, with the exception of the accommodation and food services sub-sector which registered wage growth of more than 5.0 percent in the first seven months of the year, benefiting from the ongoing recovery in tourism. The Labor Cost Index shows a similar pattern, growing by 4.9 percent in Q1 2024 (year-on-year) for the accommodation and food services sub-sector, well above the average of 1.1 percent.[3]

Figure 3. Unemployment Rate and Labor Force Participation Rate



Source: National authorities via CEIC; and AMRO staff calculations.
Note: Both series are 3-month moving average of monthly data.

Figure 4. Employment Growth

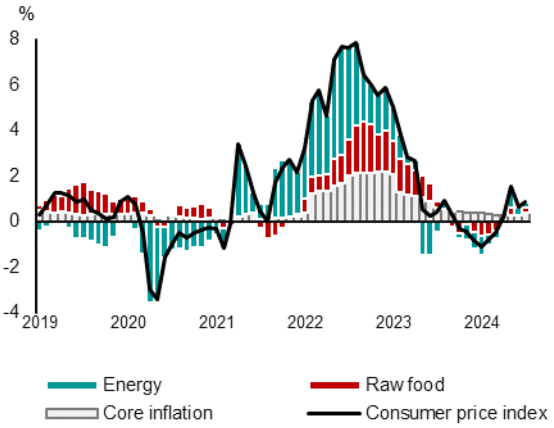


Source: Labor Force Survey, National Statistical Office (via Bank of Thailand).

4. Inflation remains subdued due to energy subsidies and the low prices of essential goods. Monthly headline inflation, on a year-on-year basis, was negative for seven consecutive months from October 2023 to March 2024, partly due to high base effect, and continued decline in energy and raw food prices. Headline inflation rate turned positive in Q2, reflecting low base effect and the government's decision to lift the price cap on retail diesel (Figure 5). Nevertheless, electricity subsidies, including discounted rates for low-income households, remained in place. Meanwhile, core inflation has stayed low at an average of 0.4 percent in the first eight months 2024, falling short of the pre-pandemic average of 0.7 percent between 2016 and 2019, due in part to unexpectedly low prepared food prices and increased competition from imported goods. Core inflation has declined since late 2022, with an increasing number of products experiencing inflation rates under 1.0 percent—the lower bound of the Bank of Thailand's target range. However, this share remains below the 2016–2019 average (Figure 6).

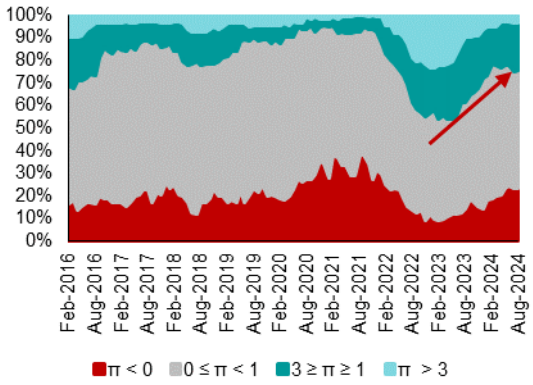
[3] The Labor Cost Index by the Bank of Thailand encompasses base salaries, overtime, bonuses, and other wages.

Figure 5. Inflation



Source: National authorities via CEIC; and AMRO staff calculations.

Figure 6. Core Inflation Pervasiveness



Source: National authorities via CEIC; and AMRO staff calculations.

5. Thailand's GDP growth is expected to strengthen in 2024, driven by continued recovery in tourism, an increase in budget disbursement and the rollout of the digital wallet scheme. The tourism sector, while not at pre-pandemic levels yet, is expected to grow strongly. Tourist arrivals are expected to rise from 28.2 million in 2023 to 36.7 million in 2024 (90.0 percent of pre-pandemic levels), with full recovery expected in 2025. Merchandise exports have shown signs of improvement since April and are expected to grow steadily over the course of the year. Additionally, with the FY2024 budget approved in late April, budget disbursement is anticipated to accelerate for the remainder of 2024, although the recent political transition may cause some delay.[4] The new government plans to implement a revised version of the digital wallet scheme announced by the previous government, which is incorporated in the staff baseline forecast and is expected to stimulate short-term growth.[5] In 2024 and 2025, the Thai economy is forecast to grow by 2.8 percent and 3.3 percent respectively, up from the 1.9 percent in 2023. In an alternative scenario without the digital wallet scheme, growth would be lower at 2.5 percent in 2024 and 3.0 percent in 2025.

6. Headline inflation is expected to remain low in 2024 but to trend towards the Bank of Thailand's target range in 2025. Headline inflation is projected to remain low at 0.7 percent in 2024, down from 1.2 percent in 2023 and below the target inflation band. This low rate is attributed to extended energy subsidies, surplus supply of certain raw food items, and subdued agricultural prices resulting from favorable weather conditions. However, it is expected to rise to 1.5 percent in 2025, reaching the central bank's target range, as the effects of government subsidies gradually diminish and economic recovery

[4] Prime Minister Paetongtarn Shinawatra took office on August 16 with new Cabinet appointments endorsed by King Maha Vajiralongkorn on September 4.

[5] The previous government announced a 450-billion-baht package for the digital wallet scheme, with 122.0 billion baht (FY2024) and 152.7 billion baht (FY2025) budgeted for the scheme, which remains unchanged under the new government. The combined 274.7 billion baht will be new fiscal spending (equating to 1.5 percent of 2023 and 2024's GDP) and will affect growth in our baseline forecast, with the remaining 175 billion baht assumed to be financed by budget reallocation with neutral growth impact. The new government plans to proceed with first-round cash handouts to social welfare card holders in 2024, targeting 16.0 million low-income and handicapped individuals, financed by the 122.0 billion supplementary budget, with another 43.0 billion baht from central budget reallocation. This is projected to support private consumption in late 2024 and early 2025, with a larger fiscal multiplier than the previous plan, as handouts in 2024 target low-income groups with higher marginal propensity for consumption. The 152.7 billion baht from FY2025 budget is also assumed to be spent under the scheme, impacting growth for 2025. With an estimated fiscal multiplier of about 0.3-0.5 (based on previous studies and staff assessment), the scheme's growth impact is projected to be 0.6 percent of GDP, spread across 2024 and 2025.

strengthens.[6] Core inflation is also expected to remain subdued at 0.7 percent in 2024 due to low prepared food prices and increased competition from imported goods, before rising to 1.2 percent in 2025 as the economy gains momentum. The impact of minimum wage adjustments on core inflation is expected to be modest, as overall wage growth remains relatively subdued.[7]

Authorities' Views: The authorities broadly agree with AMRO staff's assessment of the growth and inflation outlook. The authorities broadly agreed with AMRO's assessment of strengthening near-term Thai economic growth, driven by private demand, improved government spending, and tourism recovery which is expected to reach pre-pandemic levels by 2025. The range of authorities' growth forecasts for 2024 aligns with this outlook of strengthening growth. However, at the time of the annual consultation, the official forecasts have not incorporated the impact of the digital wallet scheme. Inflation is expected to return to the target range by Q4 2024 as supply factors such as excess supply effects in certain raw foods diminish. However, the authorities emphasized that the recovery remains uneven, with persistent concerns about high household debt, particularly among low-income groups, and increasing challenges for export-oriented firms, especially SMEs, due to deteriorating competitiveness.

A.2 External Sector

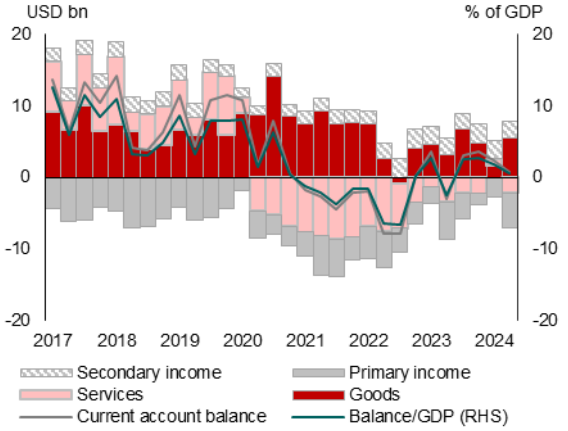
7. The current account surplus remained stable at about 1.3 percent of GDP in the first half of 2024. The slightly narrower surplus in Thailand's current account—at USD 3.3 billion in 1H 2024—from the previous six months—mainly reflects the small improvement in the goods account (Figure 7). The services balance, which turned positive in Q1 2024 for the first time in four years, provided a boost to the current account amid the continued recovery of tourism. After declining for three consecutive quarters, net goods trade picked up in Q2 2024—on the back of improving external demand for key exports such as electronics and industrial equipment, and to a certain extent, select agricultural products. Nevertheless, for the first half of the year, the revival in imports—led by higher demand for raw materials and capital goods—has generally outpaced the growth in exports (Figure 8). Thailand's exports started strong in Q3 2024, supported by a recovery in goods consumption in key trading partners.

8. Exports of goods and services are forecast to recover in 2024 following last year's slowdown, with the current account balance remaining positive. The recovery in tourism will continue to be an important growth driver this year and the next. Total arrivals this year could reach to about 36.7 million—about 30.0 percent higher than last year's total—and by next year, should exceed the pre-pandemic level of about 40.0 million (Figure 9). At the same time, goods exports will return to positive growth this year, supported by stronger demand in key overseas markets. The expansion in trade is nevertheless likely to be modest relative to neighboring peers, as changing demand preferences continue to pose headwinds to key exports, such as automobiles, auto parts, and hard disk drives. Imports, on the other hand, should continue to pick up pace—in line with the strengthening economy and as new FDI commitments proceed with implementation. On balance, the current

[6] For instance, the government has gradually increased the price ceiling on diesel price since April 2024.
[7] As of January 1, the national average daily minimum wage was raised by 2.4 percent, with provincial rates varying between THB 330.0 and THB 370.0.

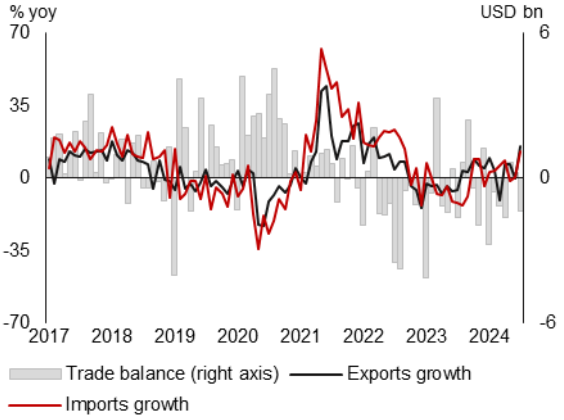
account surplus is expected to narrow to 0.8 percent of GDP this year, from last year's 1.4 percent.

Figure 7. Current Account



Source: National authorities via CEIC; and AMRO staff calculations.

Figure 8. Trade Balance

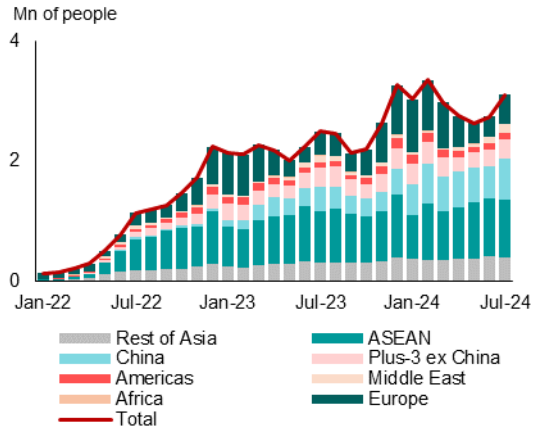


Source: National authorities via CEIC; and AMRO staff calculations.
Note: Trade figures are on customs basis.

9. The financial account has remained in deficit for six consecutive quarters, driven by both resident and nonresident outflows. Overall investor sentiment had remained poor in early 2023, with nonresident outflows in 1H 2024 stemming from uncertainties surrounding the US Fed interest rate policy, compounded by the still-sluggish recovery of the Thai economy. In the first nine months of 2024, bond and equity markets recorded outflows of USD 3.0 billion in total, although there have been signs of easing pressure, especially in the debt market. Thai residents also continued to increase their acquisition of foreign portfolio assets. In Q1 2024 alone, residents made about USD 6.7 billion in overseas investments—already more than the total for all of 2023 (Figure 10). These outflows were mostly driven by acquisition of debt securities by the non-bank financial sector.

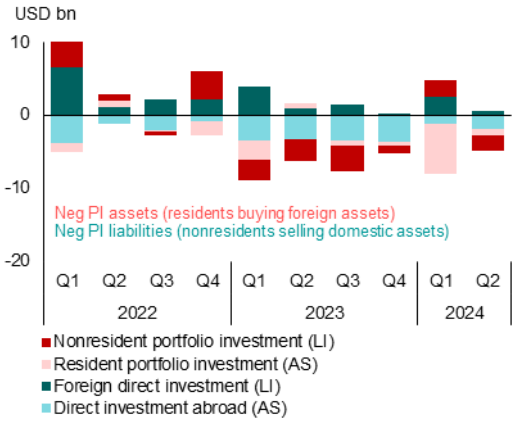
10. Foreign direct investment (FDI) inflows have held up strongly and will continue to be a stabilizing factor for the financial account. FDI inflows returned robustly in H1 2024—totaling USD 3.2 billion—after subdued inflows in the previous six months. Auto and electronics manufacturing—including those related to electric vehicles—continue to account for the bulk of new FDIs. New FDI applications in Q2 2024 increased by about 50.0 percent vis-a-vis the same period last year (Figure 11). Most new FDI projects continue to come from China, Japan, and Singapore. The total project capital of the Board of Investment's (BOI) certificate issuances—which allows the approved projects to break ground—in 1H 2024 alone is already about 90.0 percent of the total for all of 2023, and most of these will begin actual operations within the next three years. Direct investments abroad by Thai investors in H1 have continued—especially in service sectors—but these have eased relative to the levels seen in 2023 (see Figure 10). The continued strength of FDI inflows is expected to narrow the deficit in the financial account this year, amidst the volatility in portfolio investment inflows and buoyant outward investments by Thai residents.

Figure 9. International Tourist Arrivals by Source Region



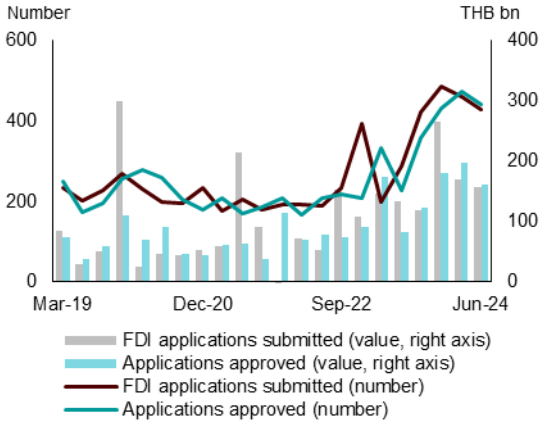
Source: National authorities via CEIC; and AMRO staff calculations.

Figure 10. Financial Account



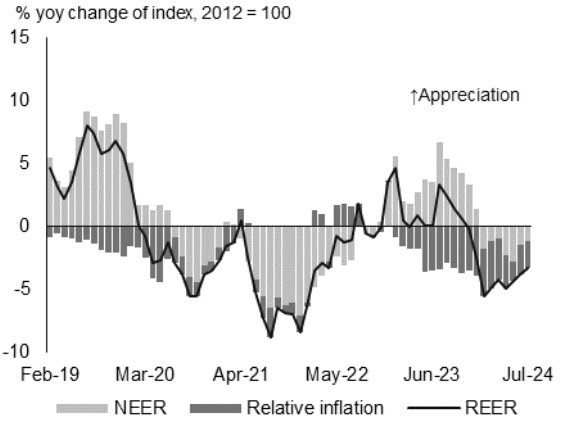
Source: National authorities via CEIC; and AMRO staff calculations.
Note: AS = assets; LI = liabilities.

Figure 11. New Foreign Direct Investment Applications



Source: National authorities via CEIC; and AMRO staff calculations.
Note: FDI = foreign direct investment.

Figure 12. Effective Exchange Rates



Source: National authorities via CEIC; and AMRO staff calculations.
Note: NEER = nominal effective exchange rate; REER = real effective exchange rate.

11. External position remains strong with ample reserve buffers, and reduced depreciation and outflow pressure since end-Q2 2024. Gross international reserves rose to USD 243.0 billion in September 2024, after falling to a five-month low of USD 221.1 billion in April. Year-to-date, the Thai baht saw its lowest level vis-à-vis the US dollar in late April. Depreciation pressures have abated somewhat since then, like many regional currencies, reflecting the depreciating US dollar. On a currency basket basis, the baht has depreciated since the beginning of the year, with Thailand's low inflation further widening the gap between the nominal and real effective exchange rates (Figure 12). Reserve coverage remains high and sufficient to cover 2.8 times of short-term external debt. Gross external debt has remained low at 36.4 percent of GDP as of Q2 2024, a slight easing from the previous quarter as nearly all sectors of the economy—apart from nonbanking financial corporations—held back on their borrowing activity, especially for long-term maturities. As of September, non-residents held only about 10.0 percent of the government's total outstanding bonds and foreign currency-denominated debt stood at less than 2.0 percent of its total debt outstanding.

Authorities' Views: The authorities are cautiously optimistic on the overall trade and investment outlook in the short term. The tourism sector is expected to continuously recover but full recovery would hinge from the faster return of Chinese tourists (still at about 60.0 percent of pre-pandemic levels). Authorities highlighted that the tourism sector is undergoing structural changes, evidenced by lower tourist spending per capita even when accounting for seasonal patterns. Goods exports is expected to pick up in the short-term, driven by the overall recovery in global trade and rising new orders from major industrial economies, while actual FDI flows are expected to remain robust based on the BOI's recent approval rates of new applications. High freight costs due to conflicts affecting key shipping routes, as well as uncertainty over US trade policy—considering the upcoming elections—are two major risks. The need to accelerate actual investment to reap economic benefits from robust FDI applications was emphasized.

A.3 Fiscal Sector[8]

12. Higher-than-targeted revenue improved the fiscal position in FY2023, but the fiscal deficit is expected to widen in the near term. Thailand's fiscal deficit narrowed to 3.3 percent of GDP in FY2023 from 3.6 percent in the previous year, with revenue collection exceeding the budgetary target by 7.0 percent, at 15.0 percent of GDP (Figure 13). This increase was driven by nontax revenues, personal income tax, corporate income tax, and trade tax, reflecting recovery in private sector activities and income.[9] In FY2024, revenue is expected to meet the budget target, although expenditure disbursement might be below budget due to a six-month delay in budget execution, particularly with capital expenditure disbursement potentially falling below 75.0 percent of the budgeted amount.[10] However, the addition of the FY2024 supplementary budget for the digital wallet program will increase total expenditure from 18.3 percent of GDP in FY2023 to 19.5 percent of GDP in FY2024. With the inclusion of the digital wallet program, expenditure for FY2025 is budgeted at nearly 20.0 percent of GDP (Figure 14). Overall, the fiscal deficit is estimated to widen to 4.5 percent of GDP in FY2024 and 4.6 percent in FY2025.[11] With output gap continuing to be negative, albeit narrowing, the fiscal stance in FY2024 is assessed to be countercyclically expansionary, a shift from FY2023 when it was contractionary and procyclical.[12] The fiscal stance in FY2025 is projected to be neutral, reflecting a transition from countercyclically expansionary to the government's medium-term consolidation plan and the continued narrowing of the output gap. The fiscal deficit is expected to narrow from 2025 onwards.

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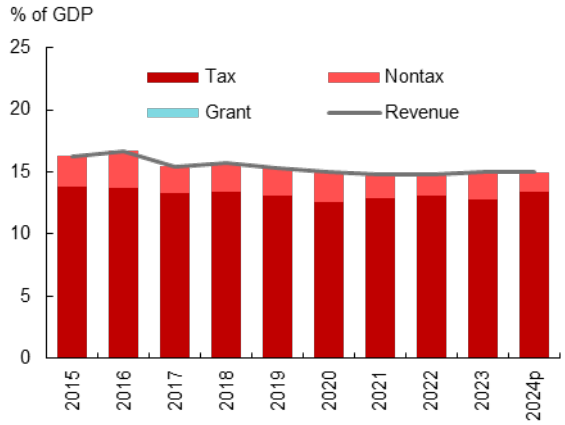
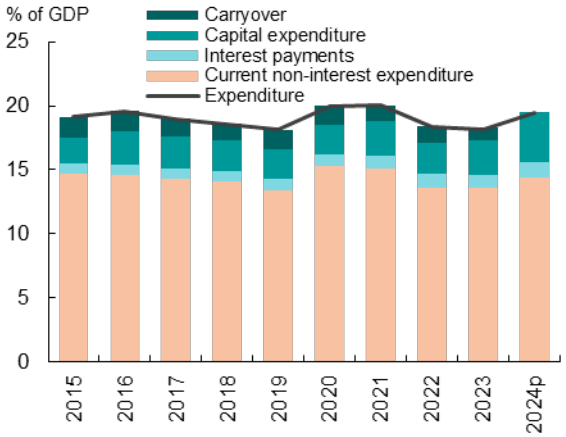
[8] The fiscal year falls between October and September.
[9] Non-tax revenues include concession revenues and revenue remittances from government agencies and state-owned enterprises.
[10] The FY2024 budget, approved in the end of April 2024, was delayed from its original start date in October 2023 due to the new government formation. To minimize the further delays in capital expenditure, the authorities have implemented selected measures, including facilitating expedited contract signing between contractors and government agencies.
[11] Without the digital wallet scheme, the fiscal deficits are projected to be 3.7 percent of GDP in FY2024 and 3.6 percent in FY2025 (Figure 15).
[12] The fiscal stance in FY2023 was pro-cyclical and contractionary due to the phasing out of the remaining pandemic measures, despite the output gap being negative and widening compared to FY2022.

Figure 13. Government Revenue



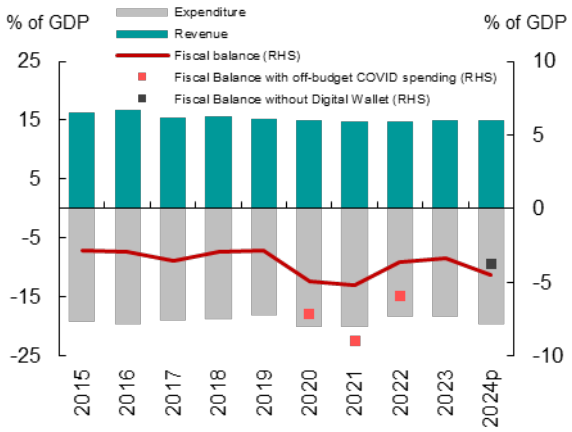
Source: TMOF; and AMRO staff projections.

Figure 14. Government Expenditure



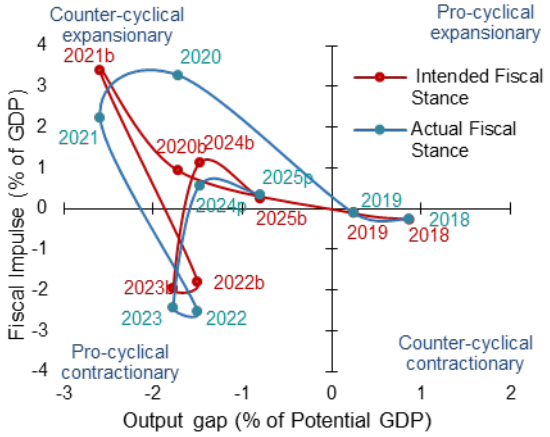
Source: TMOF; and AMRO staff projections.

Figure 15. Fiscal Balance



Source: TMOF; and AMRO staff projections.

Figure 16. Fiscal Stance and Output Gap



Source: TMOF; and AMRO staff projections.

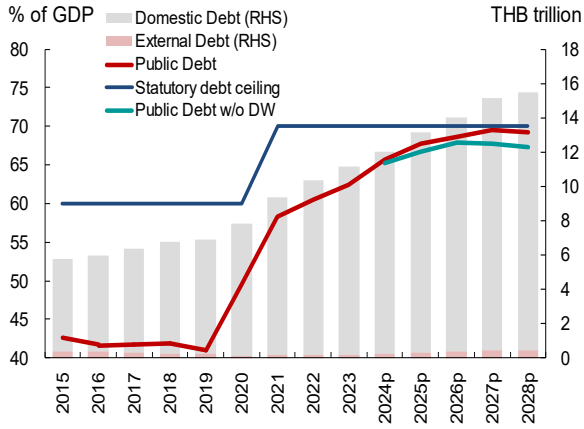
13. The record-high fiscal deficits are expected to push the public debt as a share of GDP to approach the 70.0 percent debt ceiling.[13] Following the pandemic, the public debt-to-GDP ratio rose to 62.4 percent of GDP in FY2023 from 60.5 percent of GDP in FY2022 on the account of continued primary deficits, higher interest payments, slower-than-expected economic growth, and new government guaranteed debt.[14] The debt ratio is projected to further increase to 65.6 percent of GDP in FY2024 and to a peak of 69.5 percent of GDP in FY2027, slightly below the legal debt ceiling of 70.0 percent of GDP, before trending down given the government's medium-term consolidation plan and continued improvement in economic growth (Figures 17 and 18). The increase in FY2024–25 is driven predominantly by funding of the digital wallet scheme. Under the baseline, the debt-to-GDP ratio will peak at 69.5 percent in 2027 and decline slightly to 69.2 percent in 2028. Without the digital wallet scheme, the debt ratio will peak lower and a year earlier, in 2026, at 67.8 percent and then decline to 67.4 percent in 2028. In addition, government's gross financing needs had almost doubled from an average of 6.2 percent of GDP in

[13] Public debt in Thailand includes debt incurred by the Ministry of Finance, a state agency, or a state enterprise through raising of loans or debt guaranteed by the Ministry of Finance. It does not include debt of a state enterprise which conducts money lending business, asset management, or credit insurance business where such debt is not guaranteed by the Ministry of Finance, and a debt of the Bank of Thailand.

[14] In FY2023 and FY2024, government agency debt included new government-guaranteed debt of the Oil Fuel Fund Office totaling over THB 135.0 billion, increasing the public debt by at least 0.7 percent of GDP.

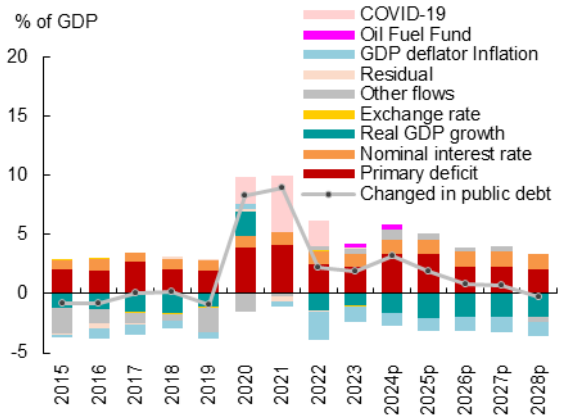
FY2016–2019 to 11.5 percent in FY2020–2023 and are projected to rise to 14.0 percent of GDP in FY2024, before declining in the medium-term as fiscal consolidation progresses.[15]

Figure 17. Public Debt



Source: TMOF; and AMRO staff projections.

Figure 18. Debt Dynamics



Source: TMOF; and AMRO staff projections.

14. The government announced several revenue-enhancing measures to support fiscal consolidation over the medium term. In line with the objective of fiscal consolidation over time, the authorities have introduced a number of revenue-related measures. Effective 2024, a new tax regime will be imposed on Thai tax residents bringing their foreign-sourced income earned after 1 January 2024 into Thailand.[16] The temporary excise tax cut on fuel which was introduced in February 2022, was ended in April 2024.[17] In addition, given the increasing State Oil Fund's negative net financial position which has crossed THB 100.0 billion, the diesel price cap has been increased from THB 30.0 to 33.0 per liter, alongside announced plan to introduce a carbon tax in 2025 of THB 200.0 per ton of carbon dioxide.[18] The government has also temporarily removed the VAT exemption on low-value imported goods sold below THB 1,500.0 starting from July to December 2024.

Authorities' Views: Authorities noted that expenditure disbursements remain on track to meet 2024 target, despite a six-month delay in budget execution. The authorities expect that total expenditure disbursements will reach 93.0 percent of the total budget, with 98.0 percent for current expenditures and 75.0 percent for capital expenditures.

[15] Higher government financing needs have thus far not led to tighter financial conditions in the capital market. The government bond yields have declined in 2024. For instance, the 3-year government bond yield dropped from 2.3 percent in January to 2.2 percent in March, and the 30-year yield fell from 3.4 percent to 3.2 percent. Corporate bond yields have also shown similar trend, with companies fundraising via the bond market remaining robust.

[16] Before the new tax regime, Thai tax residents could avoid paying Thai taxes on income from employment or business carried on abroad, or from property situated abroad, by receiving the income offshore and deferring any remittance into Thailand until the new year. The government ensures that the new regime will not apply retroactively, so foreign income earned in 2023 or earlier and brought into Thailand after December 31, 2023, will not be subject to tax.

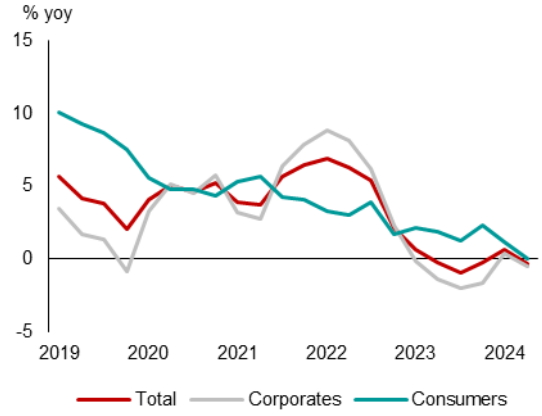
[17] The temporary excise tax cut has resulted in a revenue loss of about THB two billion per month, leading to a 12.4 percent below-target excise revenue collection in FY2024.

[18] In addition to the diesel price, the State Oil Fuel Fund subsidizes the retail price of liquefied petroleum gas (LPG), widely used by households, capping it at THB 423.0 per 15 kilograms.

A.4 Monetary Conditions and Financial Sector

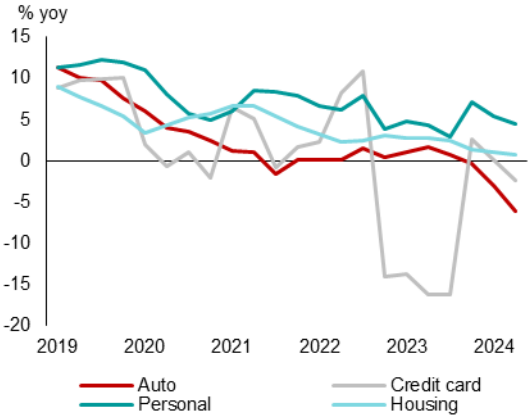
15. Financing remained weak, with unevenness across different segments. Overall credit growth turned slightly positive at 0.7 percent year-on-year in Q1 2024 but it turned slightly negative again in Q2 2024 (Figure 19).[19] For corporates, financing through corporate bonds contracted by 0.5 percent while bank loans growth slowed to 0.3 percent as of Q2 2024.[20] Unevenness is seen across corporate sizes, as large corporate loans remained positive but lending to SMEs contracted further at -5.4 percent in Q2 2024 due to tighter lending standards and higher cost of extending loans to SMEs (see Box B for details).[21] Consumer loans also slowed, with personal and housing loans growing modestly, while auto and credit card loans contracted (Figure 20). For households, lending by non-bank financial institutions outpaced banks, with credit growth rates of 1.8, 4.0, 3.0, and -1.2 percent by non-bank retail lenders, saving cooperatives, Specialized Financial Institutions (SFIs), and commercial banks, respectively in Q2 2024.[22]

Figure 19. Banks' Loan Growth



Source: CEIC.
Note: Loans provided banks only, not including subsidiary companies.

Figure 20. Consumer Loan Growth



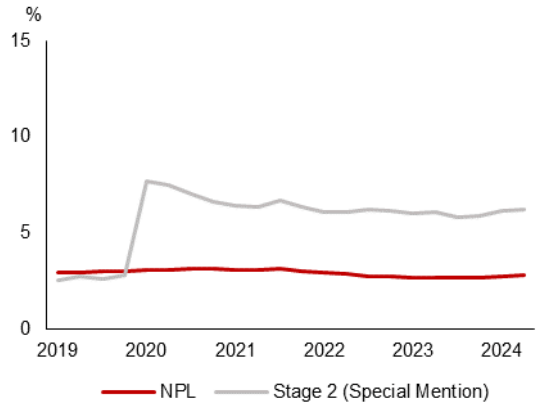
Source: CEIC.
Note: 'housing' here refers to personal consumption loans for land purchase for housing construction, provide for dwelling, and purchase of real estate. Drop in credit card loans in Q4 2022 is due to a bank's transfer of its credit card and personal loans to its subsidiary.

16. Banks' overall asset quality has deteriorated slightly, reflecting SMEs and consumers' difficulties in servicing their debt. Although the overall non-performing loan (NPL) ratio remained relatively stable at 2.8, there is a notable rise in NPLs among households, particularly housing loans and credit card loans.[23] (Figure 21 and Figure 22). Similarly, stage 2 (or Special Mention) loans increased to 6.2 percent of total loans in Q2 2024, up from 5.9 percent at end 2023, driven mainly by large corporates[24] (Figure 23) and consumer loans across all segments. Notably, stage 2 auto loans rose to 15.1 percent, around double the level seen in the pre-pandemic period (Figure 24). However, the

[19] Starting from Q2 2024 bank loans are reported on a full consolidation basis (including all banks' subsidiary companies). On a consolidated basis, overall bank loan growth slowed but remained positive at 0.3 percent in Q2 2024. For consistency with other data available as of Q2 2024, loan numbers shown in this ACR only includes those of commercial banks.
[20] Excluding corporate bonds in the banking, financial, and securities sectors.
[21] According to the BOT, SME loans generate returns of about 8.0–10.0 percent while the cost of extending loans to small SMEs is about 11.0–13.0 percent (comprising 2.0–3.0 percent in funding costs, 2.0–3.0 percent in operating expense, and 6.0–8.0 percent in credit cost).
[22] Non-bank lenders here refer to credit card, leasing, and personal loan companies supervised by the BOT.
[23] NPL and stage 2 loans provided by banks only.
[24] The increase in stage 2 large corporate loans is partly due to the resumption of the use of Significant Increase in Credit Risk (SICR) criteria in January 2024. With this change, a debtor can be qualitatively reclassified to a higher-risk category even if they remain able to service their debt.

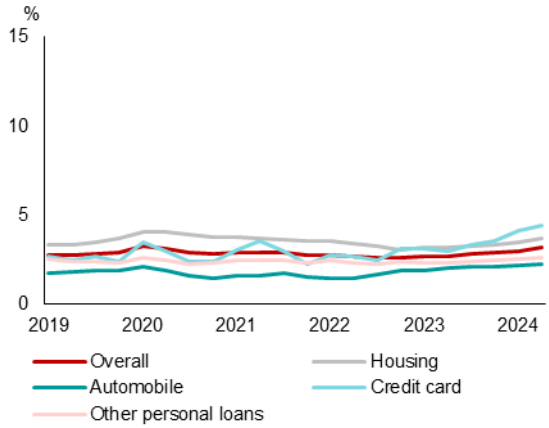
deterioration in asset quality is unlikely to impact banks' financial soundness in the near term as banks remain well buffered with high adequacy ratios of capital, liquidity, and provisioning, and have shown slight improvements in profitability. As of Q2 2024, the overall Capital Adequacy Ratio (CAR) and Liquidity Coverage Ratio (LCR) have remained well above regulatory requirements at 19.9 percent and 194.9 percent, respectively. Loan loss provisions remained high, with the NPL Coverage Ratio falling to 172.4 percent in Q2 2024. Bank profit continued to grow, with a 2.7 percent (year-on-year) growth in overall net profits as of Q2 2024. Despite this growth, ROA and ROE remained stable at 1.3 percent and 9.4 as of Q2 2024, given the higher provisioning expenses following the deterioration in asset quality and decline in non-interest income from investments due to the recent market volatilities.

Figure 21. Overall Asset Quality



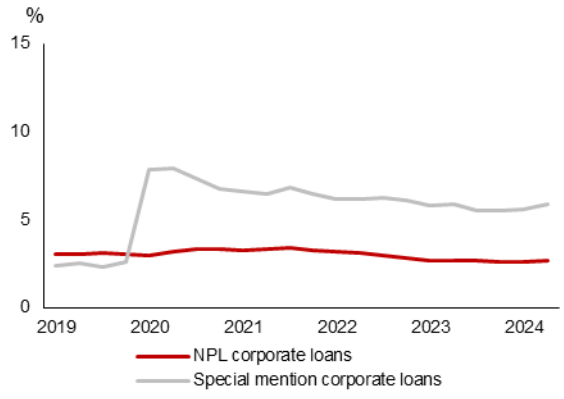
Source: CEIC.
Note: Numbers only include loans provided by commercial banks.

Figure 22. Consumer Loan NPLs



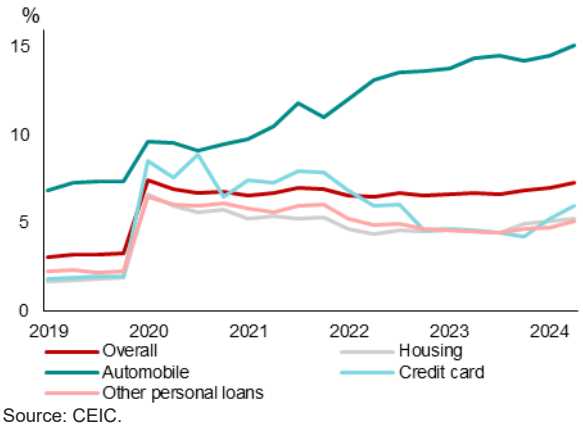
Source: CEIC.
Note: Numbers only include loans provided by commercial banks.

Figure 23. Corporate NPLs and Stage 2 Loans



Source: CEIC.
Note: Corportate loan numbers only include loans provided by commercial banks.

Figure 24. Consumer Stage 2 Loans



Source: CEIC.
Note: Numbers only include loans provided by commercial banks.

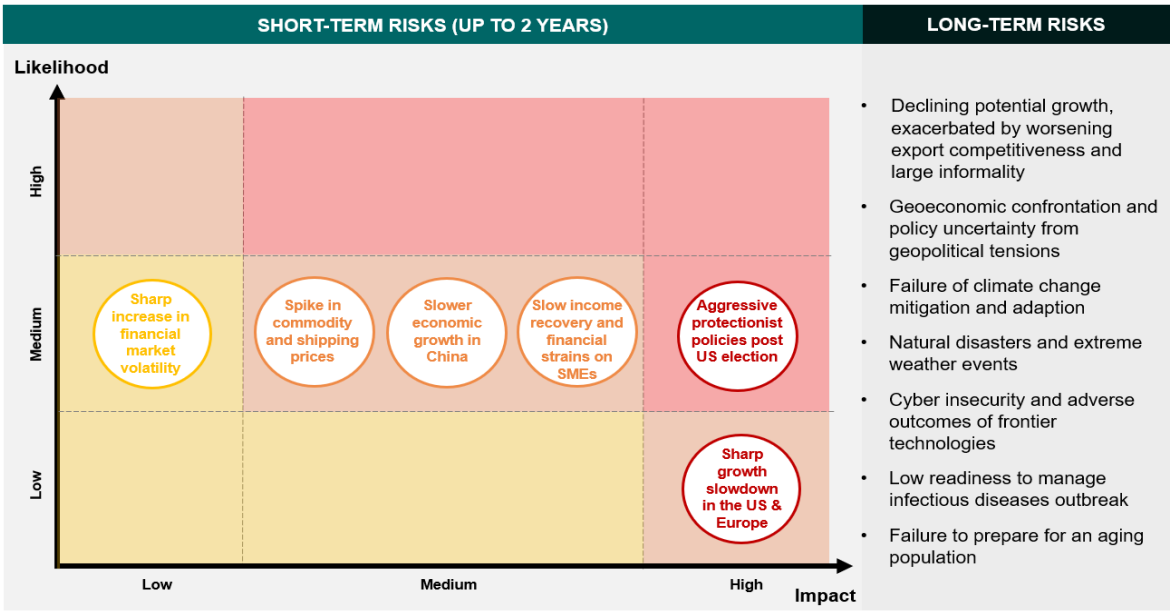
17. The overall financial soundness of SFIs remains stable, supporting their role in lending to underserved segments. As of Q2 2024, SFIs' total loans grew 2.4 percent year-on-year. The overall CAR stood at 15.1 percent while the overall NPL and SM ratio slightly increased from Q1 2024 to 4.7 percent and 5.3 percent respectively. SFIs have continued to support debtors through debt restructuring, while provisioning levels remained high, with an NPL coverage ratio of 221.3 percent. Profitability showed slight improvement,

as net income contracted by -11.2 percent year-on-year, an improvement from the 26.5 percent contraction in Q1 2024.

18. Pandemic-induced financial assistance policies have been phased out while new measures to curtail household leverage were introduced. The Sustainable Debt Restructuring measures, which incentivized financial institutions to aid borrowers affected by COVID-19 through special asset classification and provisioning requirements, ended in December 2023. Under this scheme, effective from September 2021 to December 2023, loans by banks, SFIs, and Non-Bank Financial Institutions (NBFIs) restructured under this scheme accumulated to THB 5.1 trillion, equivalent to around 2.2 times of actual total NPLs and stage 2 loans as of December 2023, indicating that a large part of the restructuring was pre-emptive, aimed at assisting borrowers so that their loans do not become NPLs.[25] The BOT also implemented new measures to curtail the high household debt level, including Responsible Lending measures (effective January 2024) to encourage fair and transparent lending practices and debt restructuring for retail and SMEs debtors, as well as Persistent Debt measures (effective April 2024) to help borrowers resolve their chronic indebtedness.[26] In the first half of 2024, the debt restructuring program (including those under Responsible Lending scheme) covered an accumulated total of THB 1.5 trillion in outstanding loans across 4.9 million accounts. Other measures, including introducing risk-based pricing for retail borrowers and a debt service ratio framework, are still in the pipeline.

B. Risks, Vulnerabilities and Challenges

Risk Map: Thailand



Source: AMRO staff.

[25] Sustainable Debt Restructuring measures came to effect in September 2021 for commercial banks and NBFIs, and January 2022 for SFIs.
[26] To further support debtors with persistent debt, the BOT revised its Persistent Debt measure, allowing banks to extend the debtor's restructured repayment period up to 7 years and reconsider credit line terms for those opting into the solution (previously limited to 5 years with mandatory credit line closure). The revised measure will take effect on 1 January 2025.

Short term risks

19. Overall risks to short-term growth are tilted toward the downside. All-in-all, the baseline growth forecast for the economy is subject to a number of key downside risks. These include the possibility of a weakening in export recovery. Thailand's goods exports have been affected by a combination of weak external demand and the unfavorable composition of Thailand's export products.[27] A sharp slowdown in the growth of major trading partners could dampen export momentum. Heightened policy uncertainty such as increased protectionist measures could also affect Thailand's trade outlook. Domestically, further delays in budgetary disbursement, including that for the digital wallet scheme, could impede public and private spending. There is also a risk that private demand may underperform given the slow income recovery, still elevated household debt, and financial strains among the SMEs and the lower income households. In addition, despite the strong growth in private investment in Q1 of 2024, more recent indicators point to possible weakening investment momentum.[28]

20. Real-time shipping data suggest that increasing supply chain bottlenecks pose significant risks to export recovery in the near term. Since early 2024, tensions in the Middle East and Red Sea attacks have led to rising production costs for Thai manufacturers via higher energy prices and freight costs. Vessel rerouting has caused global port congestion and container shortages. A leading export indicator developed by AMRO staff—based on the daily number of ships that cross Thailand's three major ports—suggested some weakening in export values at the start of the second half of 2024. Insurance and freight costs for Thai exporters have risen by over 200.0 percent between February and April 2024, potentially spiking further if bottlenecks were to worsen. Longer delivery times threaten Thailand's perishable goods exports to distant markets. These factors are pressuring exporters' sentiment, with the October 2024 purchasing managers' index indicator for new manufacturing export orders still remaining below the expansion threshold of 50.0 for the 14th straight month.

21. High household debt and slow income recovery for SMEs and individuals with low and uncertain income pose vulnerabilities to banks' asset quality and broader economic recovery. The slow recovery hampers debt servicing, elevating credit risk and increasing the likelihood of debt delinquencies, which can materialize into NPLs. Although household debt has slightly declined from pandemic levels, it remains high at 89.6 percent of GDP as of Q2 2024. As a result, the debt servicing burden is high which could dampen private consumption. While banks' high provisioning offers a buffer against potential losses, the slower loan growth reflects their increasingly cautious lending practices. . The resulting low credit growth could negatively impact banks' profitability by limiting interest income and overall earnings potential. Furthermore, those households which are unable to borrow from the banks may turn to lenders in the informal sector, further complicating the ongoing economic recovery and household deleveraging efforts.

22. Possible energy subsidy cuts could lead to higher-than-expected inflation. The partial withdrawal of energy subsidies, including the recent lifting of the ceiling on retail diesel prices, could lead to increased price pressures. More price pressures may emerge if

[27] Many of the goods that Thailand has a comparative advantage in producing are in traditional industries where global demand is declining, such as hard disk drives and internal combustion engine (ICE) vehicles.
[28] Private investment contracted by 6.8 percent in Q2, while private Investment Index (PII) from the Bank of Thailand also showed signs of weakening momentum for Q2. However, July PII returned to positive year-on-year growth.

electricity price subsidies are further reduced. The impact of these factors could be more pronounced if combined with external shocks such as rising global commodity prices or supply chain disruptions. The arrival of La Niña in the second half of the year may lead to greater price volatility of agricultural products which translate into greater inflation uncertainty. Nevertheless, given the relatively subdued inflationary environment in Thailand currently, the likelihood for underlying inflation to exceed the inflation target of the Bank of Thailand over the near term is assessed to be very low.

Medium to long term risks

23. Risks to public debt sustainability have increased. Compared to last year, the sustainability of the public debt has worsened materially, given the large fiscal deficit to fund the digital wallet scheme and weaker near- to medium-term growth outlook. AMRO's staff stress test for debt sustainability suggests that the public debt-to-GDP ratio could exceed 70.0 percent if negative shocks to growth, interest rates, and contingent liabilities materialize. Furthermore, contingent liabilities from the State Oil Fuel Fund's deficit could increase due to prolonged energy subsidies given the possibility of higher oil prices, which would raise the public debt. Nevertheless, based on AMRO's assessment, under the baseline assumption, the public debt-to-GDP ratio is projected to stabilize and decline after FY2027. Furthermore, Thailand is not dependent on external financing and has a strong public debt profile.[29] The risk to debt sustainability will be further mitigated if the authorities remain firmly committed to fiscal consolidation and revenue reforms over the medium term (see Selected Issue 4: Debt Sustainability Analysis).

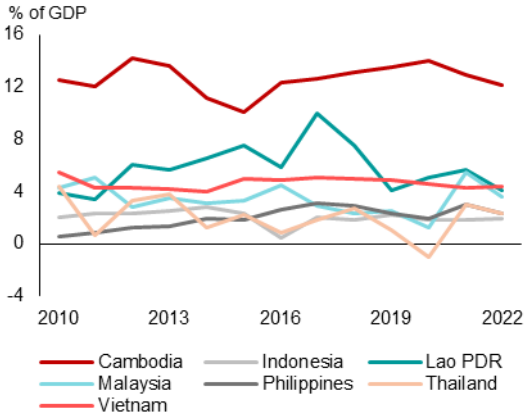
24. Thailand has been experiencing a secular decline in growth potential. AMRO's staff estimates suggest that under the status quo, Thailand's potential GDP is projected to grow at 2.4–2.8 percent through the rest of the decade, a 0.5–1.0 percentage point lower than a decade ago and a 2.5–3.0 percentage points decrease from the period prior to the global financial crisis, due to its shrinking workforce and lower growth contribution from investment and human capital.[30] This is broadly in line with the current consensus forecast of Thailand's long-term growth, which projects Thailand to grow at about 2.4 percent in the next decade, compared to around 4.0 percent for the ASEAN region. If this trend continues, Thailand may struggle to increase its per capita income significantly to achieve its aspiration to achieve high income status by 2037.[31] Additionally, falling growth potential amid still elevated public and household debt, means that the room for both sectors to escape high indebtedness via economic expansion will be diminished.

25. Failure to adapt to major structural trends—such as digital economy transition and decarbonization—could render Thailand's key export sectors uncompetitive. Despite solid inward FDI, Thailand's inflows remain modest compared to ASEAN peers (Figure 25). In the four quarters ending in Q2 2024, Thailand's net FDI inflows were only about half of those of Malaysia and the Philippines, and less than a quarter of Indonesia's. This may partly stem from the composition of Thailand's current manufacturing

[29] Thailand's public debt is predominantly in local currency at a low fixed rate and with long maturity. Foreign currency-denominated debt accounts for about 1.4 percent of total debt. The effective interest rate is relatively low at about 2.7 percent, with 85.0 percent of the debt having fixed interest rates as of FY2023, and long-term debt instruments comprising 96.0 percent. The outstanding foreign currency public debt is largely held by international official creditors, and only 10.0 percent of government bonds are held by non-residents as of Q2 2024.
[30] AMRO staff estimate for Thailand's potential output is based on a standard Cobb-Douglas production function with constant returns to derive the overall potential growth rates as well as respective contributions of factor inputs.
[31] See *Selected Issue 2: Thailand's Long-Term Growth Potential: The Case for Reform* for a scenario exercise on Thailand's various growth trajectories toward achieving high income status.

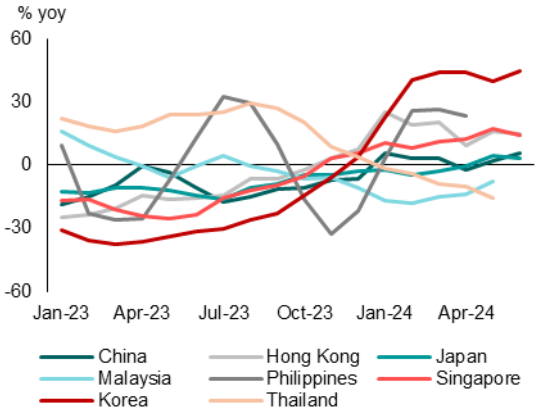
products which are concentrated in sectors facing disruptive trends. About 90.0 percent of Thailand's vehicle exports are those with internal combustion engines, which are facing increasing competition from electric vehicles. Hard disk drives, which are being gradually replaced by solid-state drives, account for nearly 55.0 percent of Thailand's exports of auto-data processing storage units. Product composition may also explain why the downturn in Thailand's electronics exports still has not yet bottomed as of June 2024—whereas many ASEAN+3 neighbors are already experiencing upturn in their electronics exports (Figure 26). AMRO staff estimates that if the status quo persists, about 60.0 percent of Thailand's exports in the next five years could lose competitiveness, including in auto and electronics manufacturing (See Selected Issue 3: Sustaining Export Competitiveness in a Rapidly Changing Global Environment).

Figure 25. Selected ASEAN: Net Foreign Direct Investment Inflows



Source: World Development Indicators, World Bank.

Figure 26. Selected ASEAN+3: Growth in Semiconductor Exports



Source: IHS Markit; and AMRO staff calculations.
Note: Data refers to export values in US dollars, covering goods that fall under HS codes 8541–42.

26. Thailand's large skill gaps and high labor market informality may limit its ability to capitalize on technological progress. Given that over half of employment is informal, primarily in agriculture, a significant portion of the workforce may take longer to fully leverage the benefits of frontier technologies such as artificial intelligence (AI). Only 14.0 percent of Thailand's workforce is in high-skilled occupations, which are more likely to be augmented by AI, limiting potential productivity gains. In contrast, the average share of workforce in high-skilled occupations among other ASEAN countries is about 20.0 percent (Box A). A recent study finds that a large portion of the population in Thailand do not even possess foundational skills, with nearly two-thirds of its youth and adult population lacking basic literacy skills, and an even larger proportion struggling with fundamental digital skills, leaving a significant portion of the population unable to perform simple tasks like understanding short texts or navigating basic online transactions.[32] This is exacerbated by the informal sector's lack of access to training and social protection. Without significant investments in digital skills training, education reform, and workforce formalization policies, Thailand risks falling behind in the digital revolution.

[32] World Bank, 2024, Fostering Foundational Skills in Thailand (Link).

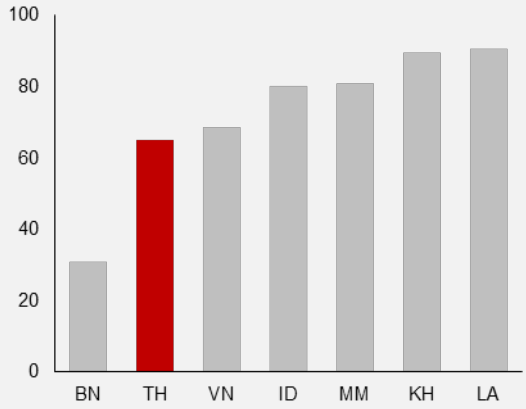
Box A. Generative AI's Potential Impact on Thailand's Labor Force[33]

The rise in popularity of Generative Artificial Intelligence (gen AI) in recent years has sparked concerns about its potential impact on labor markets. Unlike previous waves of technological innovation that focused on automating repetitive tasks, gen AI excels at problem-solving and creating novel content. Consequently, it has the potential to substitute human labor across a broad spectrum of occupations and skills. However, while gen AI could lead to job displacement through automation, it can also enhance jobs by automating some tasks and leaving more time for others, thereby boosting productivity and improving the quality of work (Gmyrek and others 2023).

Thailand's labor market-with its high informality and agricultural employment-presents a unique case when assessing the potential impact of gen AI. The country has a significant informal sector—referring to activities operating outside the formal sector. Although the share of informal employment in Thailand is lower than some other regional peers, over half of all employment in the country is informal (Figure A.1). Among these informal workers, over 40.0 percent are employed in agriculture. High informality and agricultural employment in the labor market may be a double-edged sword in the face of gen-AI driven labor market impacts. On one hand, a large portion of Thai workers may be shielded from immediate displacement due to their engagement in informal activities which are less likely to be affected by AI. On the other hand, these same workers may miss out on potential productivity gains and job quality improvements that AI could bring to formal sector jobs outside agriculture (Bank of Thailand 2023; Gmyrek and others 2023).

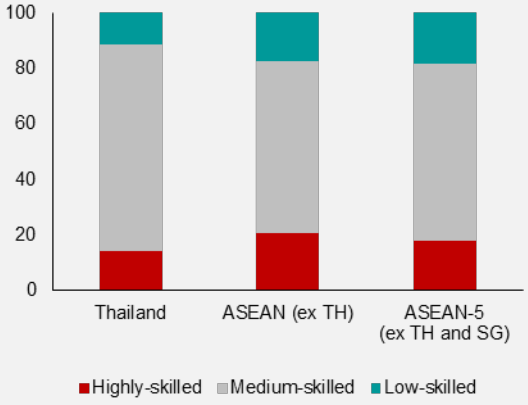
The relatively small proportion of high-skilled labor in Thailand further complicates the potential benefits of gen AI adoption. High-skilled occupations, which are more likely to be augmented by AI than medium-skilled jobs, make up only 14.0 percent of employment in Thailand (Figure A.2). In contrast, a larger share of the Thai workforce is employed in medium-skilled jobs, which face a higher risk of automation. However, across both skill categories, more jobs show potential for augmentation rather than full automation, suggesting promising prospects for productivity gains through gen AI integration (Figure A.5). This aligns with the global trend identified by the ILO, where the potential for augmentation is generally higher than for full automation across various occupational categories (Gmyrek and others 2023).

Figure A.1. Selected ASEAN: Share of Informal Employment
(Percent)



Source: ILO Labor Force Statistics.
Note: Latest data refers to 2022 for Brunei, Indonesia, Lao PDR, and Vietnam; 2020 for Myanmar; 2019 for Cambodia; and 2018 for Thailand.

Figure A.2. ASEAN: Share of Employment by Skill Level
(Percent)



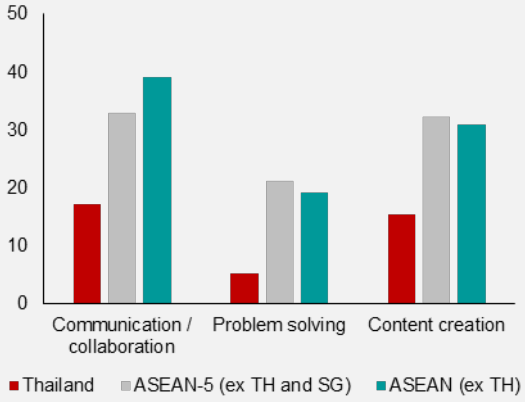
Source: ILO Labor Force Statistics; and AMRO staff calculations.
Note: High-skilled jobs include categories 1 to 3 of the ISCO-08; medium-skilled jobs include categories 4 to 8.

[33] Prepared by Megan Chong and Haobin Wang.

The Thai labor force also lags other regional economies in ICT skills and training, which can hinder the adaptation to AI technologies. Across various dimensions, the proportion of people possessing ICT skills in Thailand is lower than regional peers (Figure A.3). Training opportunities are also limited—only 18.0 percent of firms provide formal training activities for their employees, much lower than the regional average of 32.0 percent (Figure A.4). This is compounded by the large share of informal employment, as informal workers lack access to sufficient social protection, including training opportunities (OECD 2020). This underscores the need for more training opportunities to increase the adoption of gen AI technology.

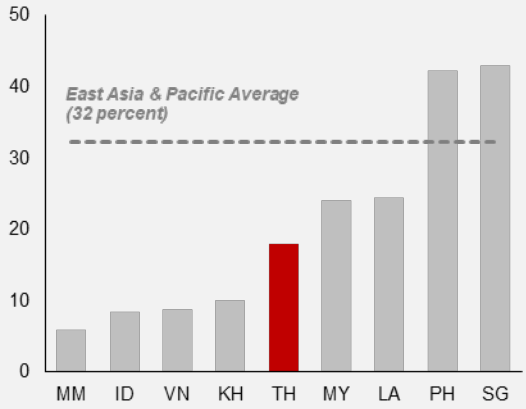
The potential effects of generative AI on employment are not uniform across gender groups. Research indicates that more than double the share of women could be affected by automation compared to men, particularly in high-income countries (Gmyrek and others 2023). This gender disparity is evident in Thailand, where the impact on female workers is expected to be more pronounced due to their higher representation in clerical and service sector jobs that are more susceptible to AI automation (Bank of Thailand 2023). For instance, women make up a significant portion of the workforce in sectors like banking, insurance, and customer service, which are likely to be more affected by AI technologies.

Figure A.3. Selected ASEAN: Percentage of Individuals with ICT Skills, by Type of Skill
(Percent)



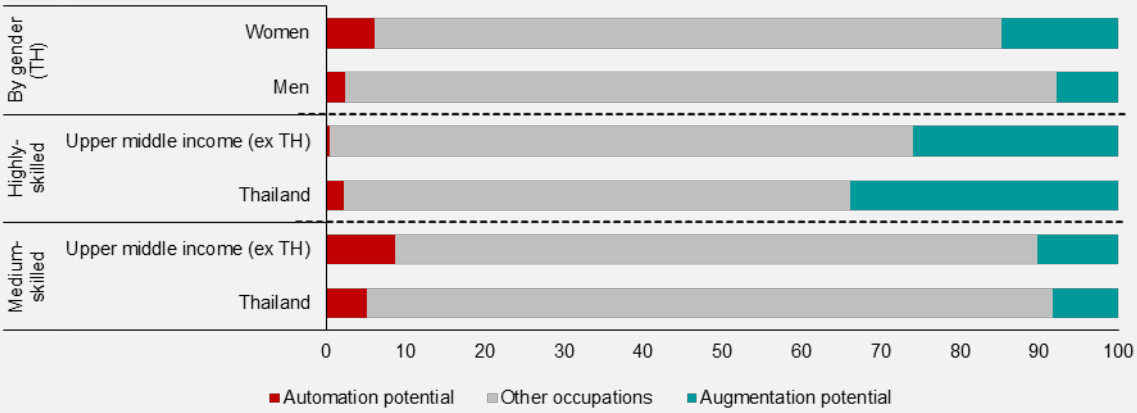
Source: ITU; and AMRO staff calculations.
Note: Communication/collaboration includes sending emails with attached files. Problem solving is the average of connecting and installing new devices; finding, downloading, installing and configuring software; writing a computer program using a specialized programming language; and transferring files between a computer and other devices. Content creation is the average of creating electronic presentations with presentation software; using basic arithmetic formula in a spreadsheet; and using copy and paste tools to duplicate or move information within a document.

Figure A.4. Selected ASEAN: Percent of Firms Offering Formal Training
(Percent)



Source: World Bank Enterprise Surveys.
Note: Data refer to 2016 for Myanmar and Thailand, 2018 for Lao PDR, 2019 for Malaysia, and 2023 for Cambodia, Indonesia, the Philippines, Singapore, and Vietnam.

Figure A.5. Share of Employment with Augmentation and Automation Potential by Skill Level and Gender
(Percent of jobs within each skill category)



Source: Gmyrek, Berg, and Bescond (2023); ILO Labour Force Statistics; and AMRO staff calculations.
Note: High-skilled jobs include categories 1 to 3 of the ISCO-08; medium-skilled jobs include categories 4 to 8. High income group includes Hong Kong, Japan, Korea, Brunei, and Singapore; upper-middle income group includes China, Indonesia, Malaysia, and Thailand; lower-middle income group includes Cambodia, Lao PDR, Myanmar, the Philippines, and Vietnam.

Maximizing the benefits of gen AI while minimizing its risks requires a range of targeted policies and initiatives. First, to address the lack of skilled manpower, there is a critical need for investment in education and training programs that focus on digital skills and AI literacy (Rattanakhamfu 2018). Additionally, enhancing the Thai technical and vocational education and training system could increase efficiency, reduce costs, and encourage broader participation (World Bank Group 2022). It is also important to adopt a proactive policy design to manage the transition brought about by AI technologies, including addressing the potential negative effects of automation, ensuring job quality under augmentation scenarios, and tackling the digital divide between different segments of the population (Gmyrek and others 2023).

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C. Policy Discussions and Recommendations

C.1 Anchoring Macro-Financial Stability and Rebuilding Fiscal Policy Space

27. The current monetary policy stance in Thailand is assessed to be appropriate and remains consistent with the baseline outlook of the economy. The Monetary Policy Committee (MPC) of the Bank of Thailand cut policy rate by 0.25 percentage point from 2.50 to 2.25 percent in October 2024, the first rate cut since the hiking cycle that began in August 2022. The committee noted that the lowered policy rate would help alleviate debt service burden of borrowers and would remain neutral and consistent with economic potential. In addition, the committee noted that the rate cut would not impede debt deleveraging given the expected slowdown in loan growth. AMRO assesses that the current policy stance is consistent with the outlook of output converging to potential, inflation returning to target range, and household debt deleveraging gradually. Nevertheless, should economic growth falter and continue to underperform baseline expectation and inflation remain below the target band, there is room for BOT to ease the policy rate further in support of the economy. This is especially pertinent if the weakness in credit growth persists and becomes more broad-based. AMRO staff model estimates of Thailand's neutral rate, including those that factor in the credit cycle, indicate that the current real interest rate likely remains above the neutral rate, suggesting that there is room to lower the policy rate further to a level that is more consistent with the neutral stance that the MPC is currently pursuing (see Selected Issue 1: Integrating Financial Stability Considerations into R-star Estimation).[34]

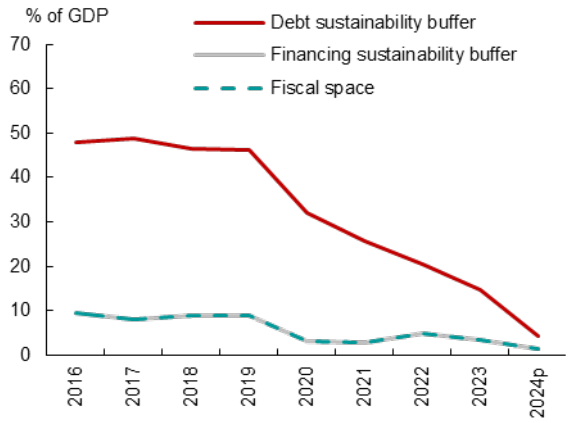
28. It is important to note that monetary easing alone is unlikely to be able to support the government's growth target of 3.0–5.0 percent in a sustainable manner.[35] While monetary easing can serve as a counter-cyclical tool to boost demand and raise the short-term growth, it is not the appropriate instrument for sustainably achieving the 3.0–5.0 percent growth target, which exceeds our estimated potential growth rate of the economy. AMRO's estimates suggest that without any supply side reforms, Thailand's growth is likely to average 2.4–2.8 percent for the remaining of the decade. While monetary policy easing may be able to support an above potential growth rate as output catches up to its potential level, with the closing of the output gap, growth is likely to revert to potential or the economy will become overheated. A loose monetary policy stance that is inconsistent with potential growth will undermine both price and financial stability for the economy in the medium term.

29. The authorities are encouraged to tighten fiscal discipline and restore fiscal space through fiscal consolidation. We welcome the reduction in size of the digital wallet scheme and the redesign of the initial batches to better target vulnerable groups. This aligns with our previous policy recommendations on the digital wallet[36]. Nevertheless, over the medium to longer term, the compression of fiscal space and high debt burdens have weakened the government's ability to provide policy support during economic downturns and reduced its capacity to spend on longer-term challenges (Figure 27).[37] AMRO

[34] Nevertheless, we acknowledge the wide uncertainty surrounding the model estimates.
[35] Prime Minister Srettha announced that the government will target economic growth of 5.0 percent on average over the next four years, while more recently Finance Minister Pichai Chunhavajira pledged a target for at least 3.0 percent in 2024.
[36] Please see Thailand Annual Consultation Report 2023 and our recent write-up on our views in the digital wallet scheme.
[37] AMRO assessed that Thailand's fiscal space have continued to decline, driven in large part by delays in fiscal consolidation, elevated public debt, higher interest rates, and contingent liabilities stemming from ongoing quasi-fiscal operations. Fiscal space averaged at 9.0 percent of GDP from 2016–2019, declining to 4.0 percent of GDP from 2020–2022. In 2023, fiscal space is estimated at 3.4 percent of GDP and is projected to decrease further to 1.5 percent of GDP in FY2024 due to slower-than-expected-growth and increased public debt.

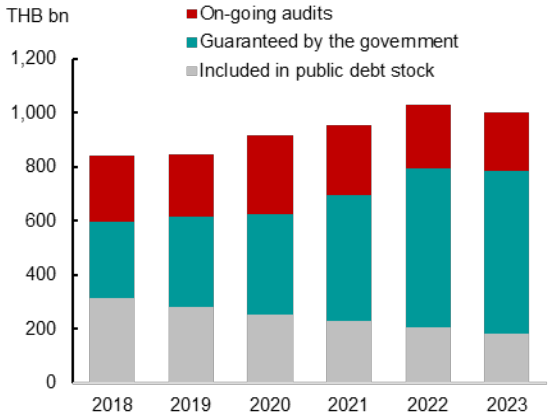
commends the authorities for timely revisions to the Medium-Term Fiscal Framework (MTFF), which sets clear fiscal consolidation targets and envisions a gradual decline in the debt-to-GDP ratio. Strict monitoring of the expenditure and public debt commitments outlined by the Fiscal Policy Committee will be crucial for strengthening the MTFF, thereby restoring fiscal space and upholding fiscal discipline.[38] The authorities are also advised to limit the use of quasi-fiscal operations, and to conduct evaluations on their implications for fiscal sustainability, and further strengthen monitoring of contingent liabilities' risk (Figure 28).[39] AMRO also recommends a comprehensive expenditure review, to shift fiscal policy focus from crisis response to developmental measures aimed at lifting the country's growth potential, promoting inclusive growth, and addressing structural challenges. This includes prioritizing spending to improve education quality, upgrade the labor force, enhance healthcare and social security systems, advance innovation, and develop future-ready infrastructure. These priorities are crucial for tackling the key factors slowing Thailand's long-term growth potential (as discussed in C.2 Revitalizing Structural Transformation to Secure Higher Growth Potential).

Figure 27. Fiscal Space



Source: TMOF; and AMRO staff projections.

Figure 28. Outstanding Quasi-fiscal Operations



Source: TMOF; and AMRO staff projections.

30. Given the increasing need for higher expenditure to support Thailand's long-term development, comprehensive revenue reforms are imperative.[40] Revenue reforms would be necessary to mobilize at least an additional 3.0 percent of GDP needed

[38] Examples of existing expenditure and public debt commitments as of FY2023 include: principal repayment, which should range from 2.5–3.5 percent of the total budget and stands at 3.1 percent; interest payment, which should not exceed 10.0 percent of revenue and is at 8.3 percent; the stock of quasi-fiscal operations, which should be less than 32.0 percent of the annual budget and is at 31.0 percent; government debt service to annual estimated revenue, which should be less than or equal to 35.0 percent and is at 26.0 percent; and foreign debt to total public debt, which should be less than or equal to 10 percent and is at 1.4 percent.

[39] The stock of quasi-fiscal operations amounts to 5.6 percent of GDP as of FY2023, with 1.0 percent already officially recognized as public debt. The remaining portion will be compensated or guaranteed by the government, thereby eventually becoming actual public debt. Over-reliance on these activities potentially undermine the credibility of fiscal consolidation efforts.

[40] According to OECD's Revenue Statistics, Thailand's tax-to-GDP ratio is 16.7 percent, lower than the Asia-Pacific average of 19.0 percent and the OECD average of 34.0 percent. Compared to Upper Middle Income Economies (UMIC), Thailand lags in personal income tax (PIT) at 1.8 percent of GDP compared to 3.4 percent of GDP for UMIC, and in VAT at 3.7 percent of GDP compared to 6.1 percent of GDP for UMIC. Thailand's corporate income tax (CIT) collection stands out at 4.2 percent of GDP, higher than the UMIC average of 3.2 percent of GDP. However, Thailand's effective CIT rate was estimated at 5.4 percent, significantly lower than the statutory CIT rate of 20.0 percent, indicating potential for improvement in CIT collection.

for public investment, social protection, and climate-related expenditures over time.[41,] There are four areas of revenue reforms that the authorities could consider. First is restoring the statutory VAT rate from 7.0 to 10.0 percent and reforming VAT exemptions, complemented by financial support to the vulnerable groups. Second, streamlining personal income tax deductions that primarily benefit high-income taxpayers and strengthening property tax, could collectively enhance tax progressivity and increase its share in the overall revenue structure. [42] Third, leveraging advanced technology can enhance tax administration efficiency and capacity, and expand the tax base. Expanding the pre-populated electronic tax filing and payment systems could lower compliance costs, and implementing behavioral initiatives could encourage voluntary participation from self-employed individuals and small business owners in the informal sector.[43] Lastly, Thailand's implementation of the current global tax reform in 2025 is a welcome move.[44] Aligning its tax system with global practices presents an opportunity to collect more tax revenue although the collection may fall off if the affected companies were to move to another jurisdiction. Hence, to secure long-term benefits from the global tax reform initiative, it is crucial to revisit and redesign the country's fiscal incentives for investment. The focus should be on targeted and cost-effective tax incentives that attract new capital investment for sustainable growth, rather than broad-based incentives such as income tax holidays. These tax incentives revisions should strike a balance between maximizing benefits from the global tax reform initiatives while minimizing adverse effects on growth, competitiveness, and administrative capacity.

Authorities' Views: Authorities broadly agreed with AMRO's monetary and fiscal policy recommendations. Regarding monetary policy, BOT reiterated that monetary policy would remain outlook dependent and focused on ensuring price stability and ensuring overall macro-financial stability, and that the current stance as per the last monetary policy meeting[45], is broadly neutral. On fiscal policy, TMOF broadly agreed with AMRO's fiscal assessment, emphasizing the importance of fiscal discipline and acknowledging the long-term risks posed by rising public debt if economic growth continues to remain slower than expected. Despite these challenges, TMOF highlighted Thailand's strong investment potential in advanced technology and future-oriented sectors, while stressing the need for innovation and ongoing revenue reforms to ensure resilient growth and fiscal sustainability.

[41] AMRO's assessment indicates Thailand needs an additional 2.9 percent of GDP annually to address the key challenges highlighted: 0.7 percent for closing the infrastructure gap, 0.8 percent to improve social protection to the UMIC average, and 1.4 percent for climate change adaptation and mitigation. To meet these needs, the proposed revenue reforms could generate 3.0 percent of GDP: restoring the VAT rate from 7.0–10.0 percent (1.2 percent of GDP), reforming VAT exemptions (0.6 percent), streamlining PIT exemptions (0.5 percent), improving property tax collection (0.3 percent), expanding the PIT base to the UMIC average (0.3 percent), and implementing a global minimum tax (0.1 percent).
[42] There are four personal income tax deductions that are heavily concentrated among high-income taxpayers include, retirement mutual fund contributions, provident fund contributions, life insurance premiums, and mortgage interest.
[43] The authorities can use information interventions to push or nudge individuals. For example, the United Kingdom's tax administration sent letters to over 200,000 taxpayers reminding them of the timing of their income tax payments and the penalties for late payments.
[44] The Organization for Economic Co-operation and Development (OECD) and the Group of 20 (G20) initiated the global tax reform to prevent jurisdictions from engaging in a race to the bottom by offering the lowest effective tax rates to attract investment. The reform ensures that large multinational enterprises (MNEs) pay a minimum effective corporate income tax rate of 15.0 percent in any jurisdiction they operate. As of May 2024, the global tax reform has been adopted by 147 economies, including 11 of the 14 ASEAN+3 members.
[45] As per the June MPC before our July–August Annual Consultation Visit.

31. AMRO commends the authorities' efforts to reduce household debt. We welcome the implementation of the Responsible Lending guidelines and the Persistent Debt measures.[46] However, it is essential to closely monitor the debt serviceability of vulnerable groups, particularly SMEs and low-income households. High debt and slow income recovery, combined with banks' increasingly stringent lending standards may limit access to credit and push these groups towards unregulated lenders in the informal sector. Careful calibration of these policy measures will be important to ensure sufficient access to credit while curtailing excessive debt, and future measures—including the introduction of broad-based measures such as a DSR limit at loan origination—should be carefully timed for when income recovery is more even across different segments to prevent exacerbating the financial strain for vulnerable groups. Authorities can also increase promotional efforts to encourage more households to consider or take up the debt resolving solutions offered by lenders. Meanwhile, utilizing the credit guarantee scheme and developing comprehensive credit databases for SMEs and other 'thin file' borrowers can help support the financial needs of these vulnerable, but still viable, groups (see Box B for details). On this front, we also commend the authorities' ongoing efforts in enhancing the existing credit guarantee mechanism as well as developing an Open Banking and Open Data ecosystem to better leverage technology in helping lenders assess creditworthiness of their borrowers and ensuring that these borrowers can still access formal sector credit.

Authorities' Views: On financial policy, authorities noted their ongoing efforts to address household indebtedness, while being mindful of uneven economic recovery among different segments. Given the vulnerabilities in the lower income groups and SMEs, authorities currently place greater priority on reducing existing debt by resolving distressed debts and preventing performing loans from migrating to NPLs, rather than curbing credit creation. Authorities recognize that mortgage and auto loans, being big-ticket items, are constrained not only by tighter lending standards but also by slower demand, with some borrowers choosing to delay these major purchases in anticipation of stronger income recovery or decrease in interest rates. While the timing for the rollout of the risk-based pricing (RBP) policy remains under careful consideration, authorities view the policy as a vital step toward fostering a healthier credit culture, for both banks and non-bank financial institutions. The current aim is to implement more targeted measures that are tailored to different borrower profiles rather than relying on blunt tools such as a debt service ratio (DSR) framework, which will have a uniform impact across all households. Given the slower credit growth and tighter credit conditions, authorities are concerned that introducing the DSR measure in the current environment could have unintended consequences; therefore, implementation would be more appropriate during an upturn in the credit cycle, allowing it to act as a counter-cyclical tool. However, despite not having an explicit DSR ceiling, the existing Responsible Lending measures already require financial institutions to assess borrowers' debt affordability, achieving a similar outcome to the DSR framework in a softer, qualitative manner. To effectively address the household debt problem, the focus should be on improving household balance sheets and gathering detailed borrower-level risk profiles to tailor policies that meet the diverse needs of borrowers.

[46] The BOT's persistent debt measure requires creditors to offer to help debtors with severe persistent debt—defined as having higher interest payment than principal payment over the preceding five years—to fully repay their loans within the next five years at an effective interest rate of no more than 15.0 percent per annum. The credit line of debtors who opt into such a debt restructuring program must be closed to stop further debt accumulation.

C.2 Revitalizing Structural Transformation to Secure Higher Growth Potential

32. A transformative growth strategy for Thailand would hinge on policy reforms that focus on three areas: (1) advancing innovation, (2) prioritizing human capital formation and upgrading, and (3) focusing on future-ready infrastructure. These priority recommendations aim to address the key factors behind the steady decline in Thailand's long-term growth potential (see Selected Issue 2: Thailand's Long-Term Growth Potential: The Case for Reform):

- ***Advancing Innovation.*** Fostering competition and innovation will be crucial to improving long-term productivity and overall growth. Lifting restrictions on services FDI, for example, and easing existing barriers to trade including nontariff measures, would increase business dynamism and incubate new business ideas. Government support geared towards helping innovative Thai start-ups attract top local and foreign talent, access funding, and create and establish global connections would facilitate the discovery of new, homegrown industry champions—or local brands that are able to launch overseas and compete successfully in the global market.

- ***Prioritizing Human Capital Formation and Upgrading.*** Targeted improvements across the entire spectrum of learning and flexible labor policies will boost labor productivity and the growth dividends from human capital formation. Improving the pool of high-skilled labor would facilitate Thai enterprises' absorption of more sophisticated technologies from leading FDI firms, expediting economy-wide diffusion of knowledge. Efforts to attract high-skilled labor and professionals (including overseas-based Thai nationals) need to be accompanied by more fundamental improvements in Thailand's education system, vocational pathways, and on-the-job training programs. Amid rapid aging, extending the retirement age and establishing lifelong learning systems—by allowing the elderly to remain more productive for longer—could prevent the rapid shrinking of Thailand's working population, with positive spillovers to the rest of the economy.[47]

- ***Focusing on future-ready infrastructure.*** Infrastructure development must increasingly focus beyond the provision of basic infrastructure to one that meets the multiple demands of inclusive growth, sustainability, and digitalization, while being prepared for future technological advancements, shifting consumer demand, and also potential disruptions. Major progress in infrastructure projects, like in the Eastern Economic Corridor, can unleash the potential of secondary cities as new drivers of economic growth. Prioritizing climate-resilient infrastructure would increase not only Thailand's long-term macroeconomic resilience, but also boost its profile as secure and sustainable investment and manufacturing hub. Rapidly scaling up its clean energy infrastructure, for example, will help capture more investments in electric vehicles and renewable energy products.

33. Strong and consistent implementation will be key to ensuring that existing strategies translate into actual gains to long-term growth. The overarching national plans that will guide future policy direction are already well in place, including the 13th

[47] AMRO staff analysis suggests that by incorporating healthy life expectancy in Thailand (and potential improvements, such as through better health systems and physical infrastructure for the elderly), the "longevity dividend" could see an additional 10.4 million workers reincluded in Thailand's workforce by 2050. Using the conventional retirement age of 65 would see Thailand's working-age population in 2050 at 57.0 percent. By considering an older yet healthier Thai population (e.g. prospective aging), this share could be as high as 72.0 percent by 2050.

National Economic and Development Plan, the four "Special Economic Corridors" to complement the Eastern Economic Corridor initiative, the Bio-Circular-Green economic model, and most recently, the IGNITE Thailand vision for 2030.[48] These plans provide a strategic blueprint for developments that are crucial in securing long-term growth. Given the breadth of structural reforms required, close coordination across all levels of government will ensure a consistent and coherent implementation that will provide a strong, positive signal to the market and investors. Stronger collaborative efforts between the private and public sectors will enable the development of new ecosystems and business models to support the necessary structural changes. Accelerating the implementation of new investment projects recently approved by the BOI, especially those related to the targeted industries, would facilitate actual structural transformation, lifting total factor productivity growth and enhance long-term growth potential (see Selected Issue 2: Long-term Growth Potential: The Case for Reform). Amid multiple structural headwinds, focusing policy attention and resources towards faster execution of existing growth strategies—instead of creating new ones—would enhance Thailand's ability to chart a higher growth trajectory moving forward.

Authorities' Views: Authorities concurred that Thailand's policy focus should shift from short-term support to long-term structural challenges. They recognize how the economy's current potential is being limited by the ongoing decline in industrial production, in part due to the structural changes in underlying demand. The authorities' most recent estimates for Thailand's potential growth range between 2.5 percent to 3.5 percent. They agreed with AMRO's emphasis on strengthening implementation of existing development plans to translate them into actual growth benefits. Authorities reiterated the need to restructure the manufacturing sector, especially those that cater to export-related industries, and improve productivity through cutting-edge technology. Amid Thailand's strong ability to attract global investments, authorities are keen to develop domestic supply chains to support not only the growth of the target industries, but also increase the participation of domestic enterprises in global value chains, especially in high-value segments. Improving the productivity of other sectors such as agriculture and tourism towards more high-quality activities is also on top of the long-term growth agenda. More policy momentum on these long-term, structural issues could be expected moving forward. Lastly, authorities also agree that there is scope to improve the business environment and overall competitiveness, through more streamlined, consistent regulatory guidelines and in the provision of public services to both domestic and foreign investors.[49]

[48] The plan for the "Four Special Economic Corridors" was approved by the Special Economic Zone Policy Committee, chaired by the Prime Minister, in May 2022 to help steer Thailand towards a high-tech economy. Each corridor will focus on specific industries: the Northern Economic Corridor will focus on creative economy and sustainability; the Northeastern Economic Corridor will focus on advanced technology for agriculture and bioindustry; the Central-Western Economic Corridor will focus on tourism and high-technology industries, and connect the Eastern Economic Corridor with the Bangkok Metropolitan Region; and the Southern Economic Corridor will focus on being a central trading and logistics hub to facilitate stronger linkages with the economies along the Indian Ocean, alongside the development of high-value agriculture, bioindustry, and tourism. The actual project incentives and criteria were first announced by the Board of Investment in January 2023.

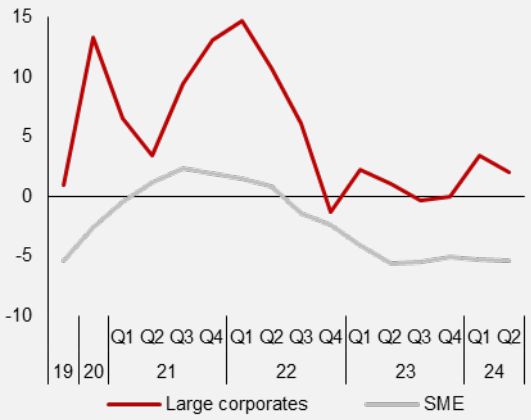
[49] Thailand is part of Pilot 3 of the World Bank's new flagship report, *Business Ready* (B-Ready), and this third edition will come out in the fall of 2026. Thailand—through the Office of Public Sector Development Commission—is currently preparing for its participation in the B-Ready process. The B-Ready Report, which aims to benchmark the business environment and investment climate in about economies worldwide, improves upon and replaces the retired Doing Business Report of the World Bank. The first edition (B-Ready 1) is expected to be published on 3 October 2024.

Box B. Enhancing Credit Access to SMEs through Credit Guarantee Schemes[50]

Thai Micro, Small and Medium Enterprises (MSMEs)[51] make up a significant portion of the Thai economy, with MSMEs in the formal sector totaling 3.2 million enterprises, representing 99.5 percent of total business establishments, and contributing to 70.4 percent of employment and 35.2 percent of GDP.[52] Unlike larger corporates that also have access to credit from various financing options, MSMEs, especially post COVID-19, remain largely dependent on bank loans for financing and face increasing difficulties in securing access to finance. This is reflected in SMEs' bank loan growth that remain on a contractionary trend since Q2 of 2023 (Figure B.1).

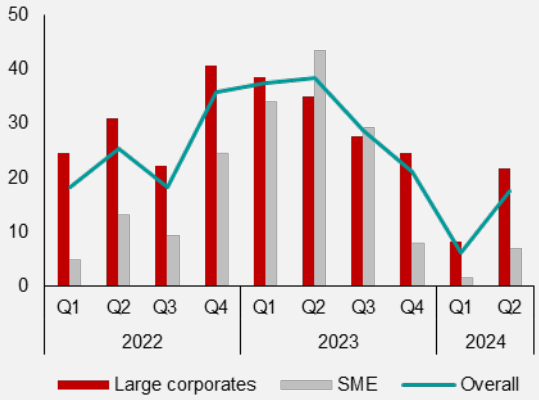
Access to credit remains a critical challenge for MSMEs. Despite the authorities' efforts to increase access to finance through various nano- and pico-finance and special facilities such as the SME soft loan facility during the COVID-19 pandemic, MSMEs still face financing difficulty due to their limited financial records, lack of collateral, and most importantly, the elevated credit risk is the key factor in the slowdown of SME financing. According to the BOT, the cost of extending loans to small MSMEs now exceeds the expected returns, mostly owing to their elevated credit risk. As a result, banks have shown lower willingness to lend to SMEs, compared to large corporates (Figure B.2)

Figure B.1 Growth of corporate loans, by size
(Percent, year-on-year)



Source: Bank of Thailand.
Note: Large corporates defined as those with credit lines exceeding THB 500 million and SMEs are those with credit lines of less than THB 500 million.

Figure B.2 Banks' willingness to lend
(Index)



Source: Bank of Thailand Credit Conditions Report Q2 2024.
Note: Diffusion index based on the survey responses among senior loan officers of banks and non-banks, weighed by share of credit in each respective segment.

To mitigate credit risk, an effective credit guarantee scheme can improve SME access to credit. Empirical studies have shown that a credit guarantee can lower the probability of default (Brault and Signore 2019), and in the longer term, can also boost the SMEs' performance and productivity through increased spending in fixed asset investments and R&D expenditures (Yu and others 2022). Thailand's existing credit guarantee scheme, administered by the Thai Credit Guarantee Corporation (TCG), has been instrumental in mitigating credit risk for financial institutions by employing a 30:70 risk sharing ratio for the Portfolio Guarantee Scheme (PGS) between TCG and the participating lending institutions, where TCG absorbs 30.0 percent of the losses in case of default, in return for an average fee of about 1.75 percent. The scheme has supported SMEs financing, most notably in the services (especially tourism related), manufacturing and agriculture sectors, particularly during the COVID-19 pandemic. The scheme

[50] Prepared by Benyaporn Chantana.
[51] MSMEs as defined by number of employees annual revenue, in accordance with Ministerial Regulation; Number of Employment and Annual revenue of Small and Medium Enterprises, B.E. 2562 (2019).
[52] Data covers micro, small, and medium enterprises as of end 2023.

has a cumulative loan guarantee portfolio of THB 1.5 trillion from facilitating credit access for about 850,000 SMEs – representing a penetration rate of 26.3 percent of all SMEs, as of April 2024.

Despite TCG's significant role, the current design of the scheme faces several limitations, First, the risk-sharing model, which involves a 30:70 split between TCG and each lending institution at the portfolio level, may incentivize adverse selection by financial institutions. As the flat fee of 1.75 percent is applied across all borrowers, it does not account for the varying risk profiles of different SMEs, which may encourage selection of higher-risk borrowers to participate in the scheme, resulting in higher costs for the government. Second, the restrictive eligibility criteria have excluded many micro-enterprises from accessing the scheme. The current scheme currently only covers SMEs with fixed assets (not including land) of no more than THB 200 million, and also limited to loans provided by financial institutions and their subsidiaries, preventing small to medium enterprises from tapping the credit guarantee scheme when seeking financing from other sources. Finally, the financing of the scheme is primarily through the annual government budget, which subjects the scheme to the government's fiscal constraints and political decisions, limiting the scheme's long-term continuity and causing delays in disbursing funds.

The current limitations warrant a redesign in the portfolio guarantee scheme. To move away from the current blanket fee structure, a comprehensive data system with borrower-level data is essential for accurate risk assessment and decision-making. The authorities' ongoing efforts to enhance SMEs' credit database and digital data infrastructures to connect existing databases are positive steps that can bridge the existing data gaps and enable a more tiered, risk-based pricing system. In the longer term, enhancing the credit guarantee scheme for greater efficiency and sustainability could involve expanding its coverage to non-bank lenders and other financing products other than bank loans. Additionally, exploring alternative financing sources, apart from the annual fiscal budget, can also be considered. However, improving access to financing must be paired with formalizing and modernizing SMEs to ensure their long-term viability. By investing in technology, skills, and infrastructure, SMEs can boost productivity, improve and competitiveness domestically and internationally, and reduce their reliance on government support and financial institutions, while will further enhance their contribution to the Thai economy.

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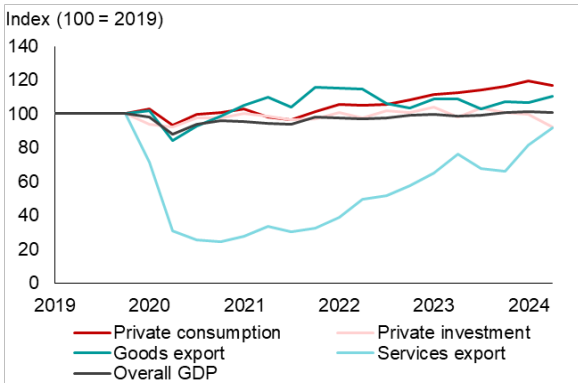
Appendices

Appendix 1. Selected Figures for Major Economic Indicators

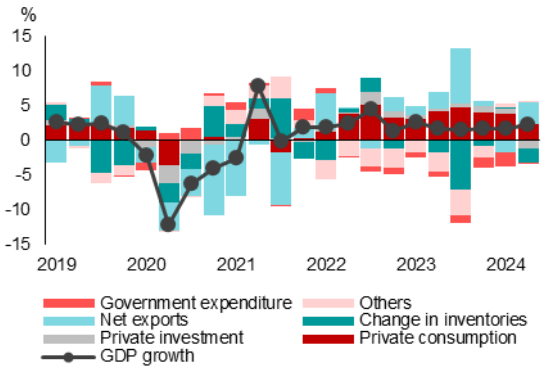
Figure 1.1. Real Sector

Solid private consumption, robust tourism recovery will remain as key growth support.



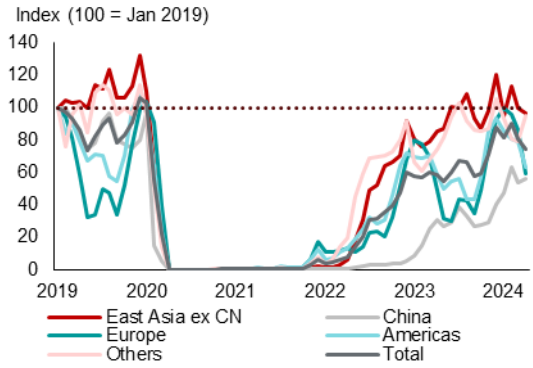
Source: Ministry of Tourism and Sports.

Q2 2024 saw improved government expenditure but much weaker private investment.



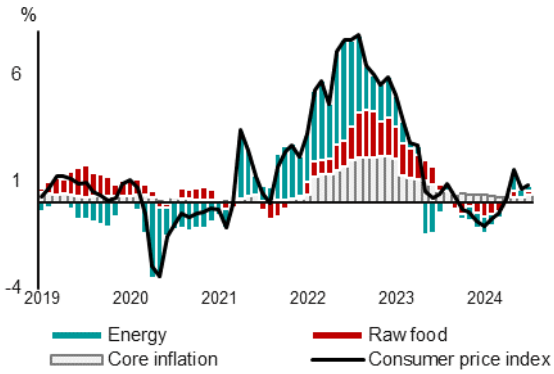
Source: NESDC.

Room for tourism growth remains



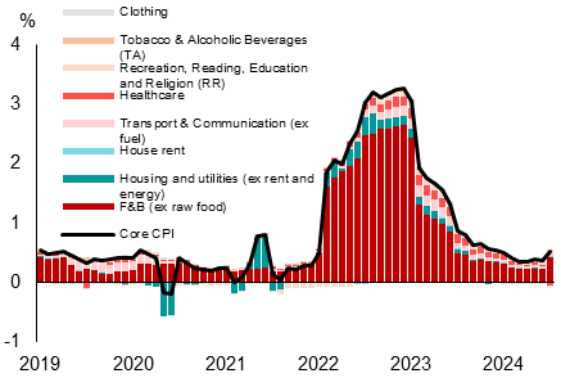
Source: CEIC.

Headline inflation returned to positive in Q2 2024 given higher contribution from energy.



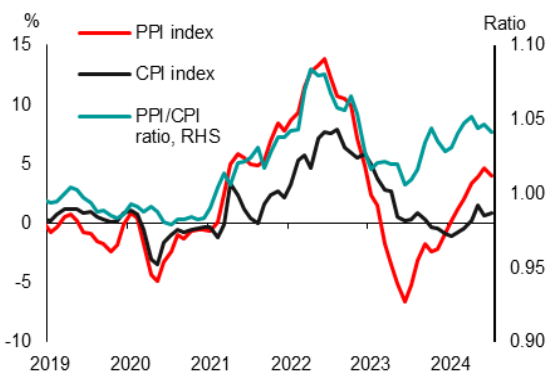
Source: Bank of Thailand via CEIC.

Core inflation has remained low due in part to low prepared food prices.



Source: Bank of Thailand via CEIC.

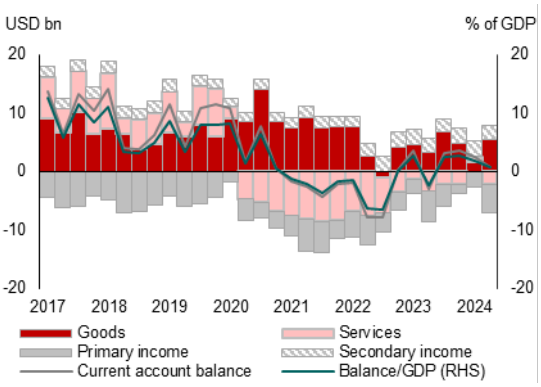
The rebound in producer price inflation has been stronger.



Source: Bank of Thailand via CEIC.

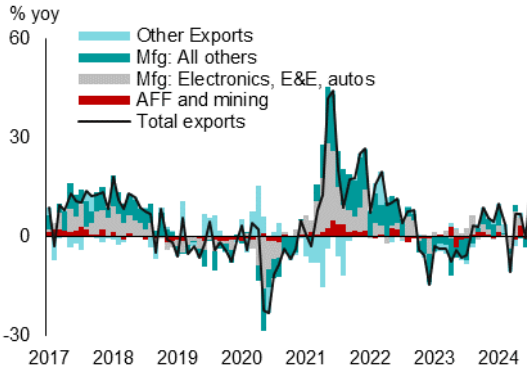
Figure 1.2. External Sector

The current account has remained stable, amid improving services and trade balances



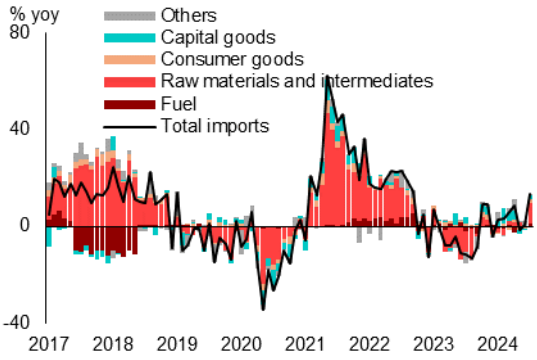
Source: CEIC; Bank of Thailand; and AMRO staff calculations.

External demand for key exports, such as electronics and autos, has been picking up…



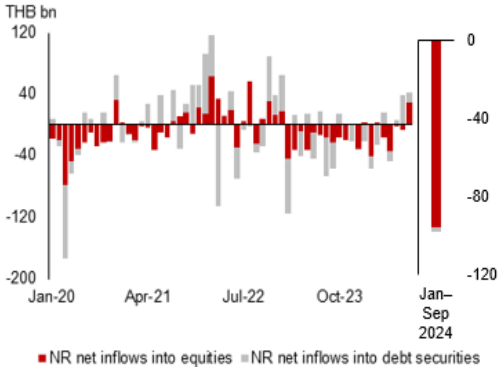
Source: CEIC; Bank of Thailand; and AMRO staff calculations.
Note: AFF = agriculture, fishery, and forestry; E&E = electrical machinery and equipment; Mgf = manufacturing.

…while the imports recovery in recent months is also boding well for the short-term outlook



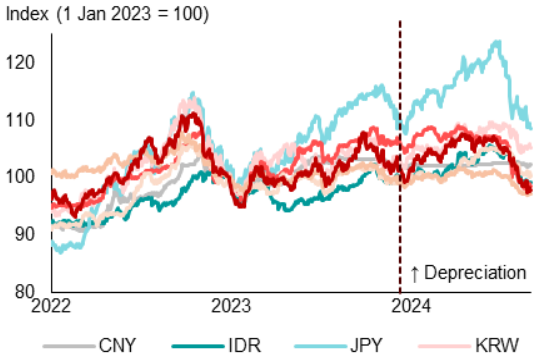
Source: CEIC; Bank of Thailand; and AMRO staff calculations.
Note: Others include non-monetary gold.

Some of the uncertainty that has been weighing on sentiment seems to have eased…



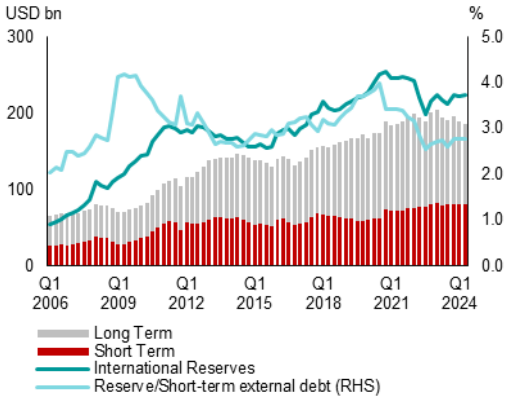
Source: CEIC; Bank of Thailand; and AMRO staff calculations
Note: NR = non-resident.

…while the baht has recovered some of its losses since April, like other regional currencies



Source: CEIC; Bank of Thailand; and AMRO staff calculations.

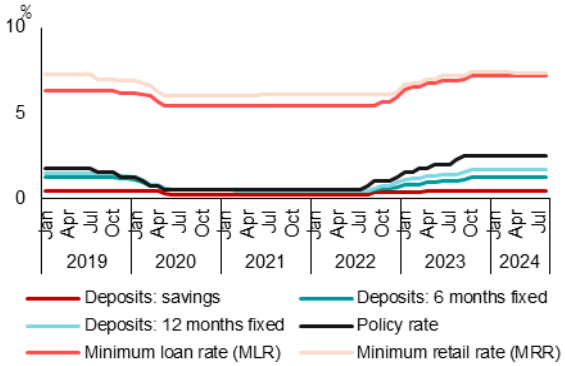
High reserve buffers, amid low external debt, continue to guarantee external stability



Source: CEIC; Bank of Thailand; and AMRO staff calculations.

Figure 1.3. Monetary and Financial Sector

Interest rates generally move in line with the policy rate, although the Minimum Retail Rate (MRR) was slightly lowered to help retail borrowers in Q2 2024.



Source: CEIC.

Probability of default has decreased for medium to large, listed Thai firms, and remains low overall.

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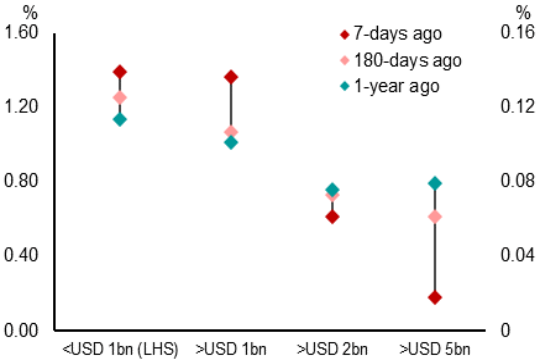
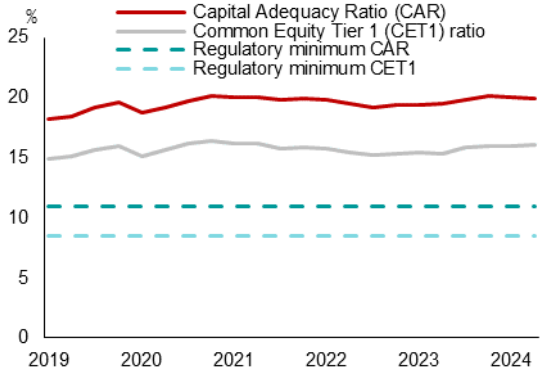


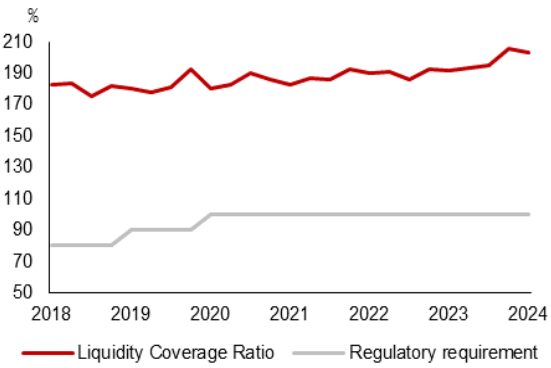
Source: Bloomberg.

Banks continue to have robust capital buffers, with an overall CAR of 19.9 percent…



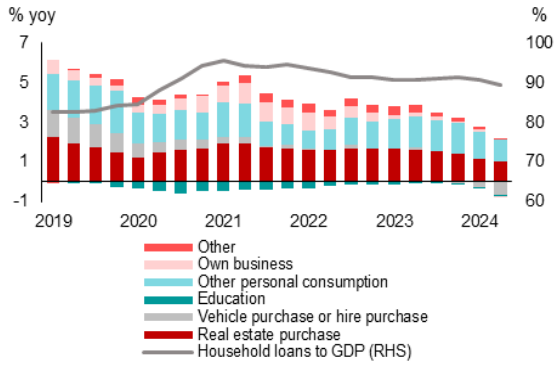
Source: Bank of Thailand.

…as well as a high LCR of 194.9 percent as of Q2 2024.



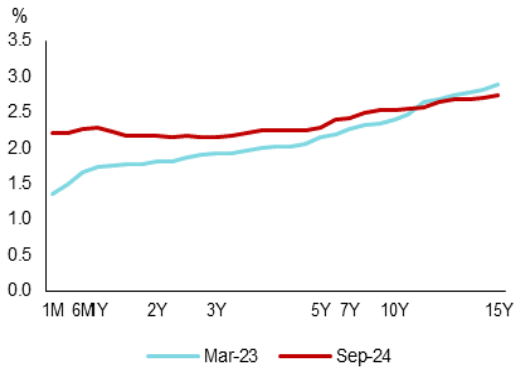
Source: Bank of Thailand.

Household debt remains elevated at 89.6 percent of GDP, with most growth largely driven by personal consumption.



Source: Bank of Thailand.

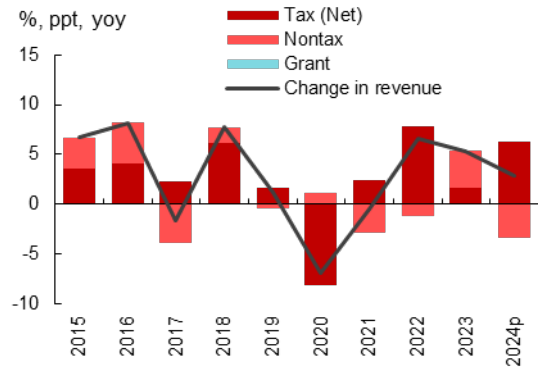
Government bond yield curve flattened following increases in monetary policy rate.



Source: Thai Bond Market Association.
Note: Data are as of September 13, 2024.

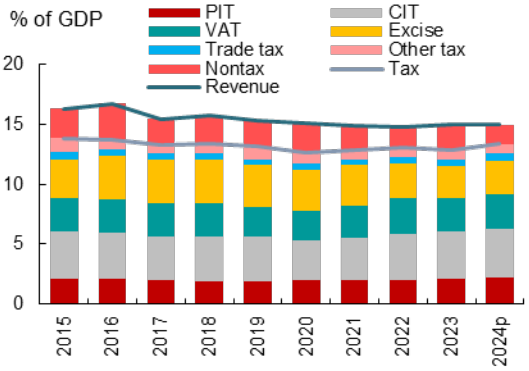
Figure 1.4. Fiscal Sector

Better-than-budgeted revenue in FY2023 was driven mainly by nontax revenues…



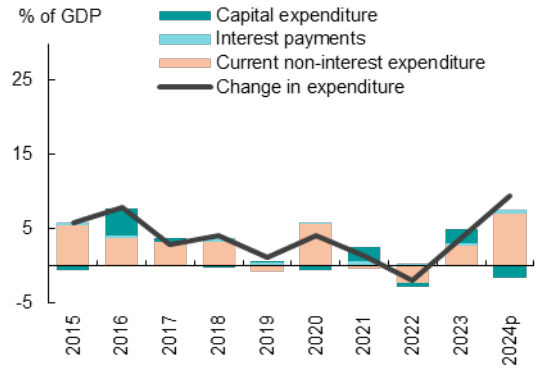
Source: TMOF; and AMRO staff projections.

…while tax revenue was driven by personal income, corporate, and trade taxes, reflecting a private sector recovery.



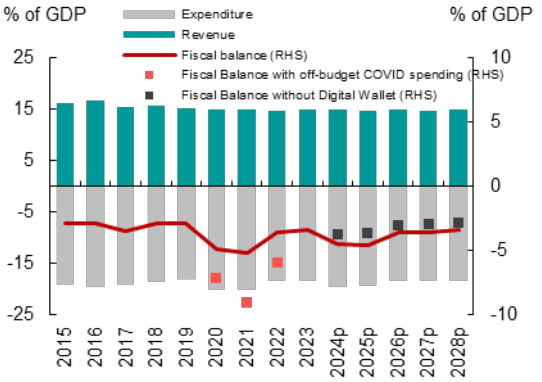
Source: TMOF; and AMRO staff projections.

The delay in FY2024's implementation led to slower CAPEX disbursement, but the supplementary budget is expected to increase current expenditure.



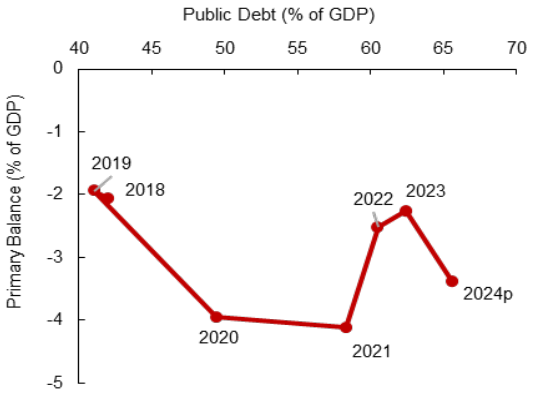
Source: TMOF; and AMRO staff projections.

FY2024–25 deficits are expected to widen given the digital wallet program, but the fiscal deficits are projected to narrow in the medium term.



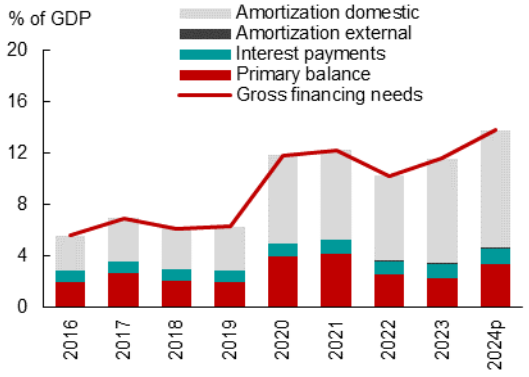
Source: TMOF; and AMRO staff projections.

The widening primary balance from the digital wallet is expected to increase public debt…



Source: TMOF; and AMRO staff projections.

…in line with rising gross financing needs from fiscal spending in 2024.



Source: TMOF; and AMRO staff projections.

Appendix 2. Selected Economic Indicators for Thailand

	2020	2021	2022	2023	Projection	
					2024	2025
Real sector	(In percent change unless specified)					
Real GDP	-6.1	1.6	2.5	1.9	2.8	3.3
Final consumption	-0.3	1.3	4.8	4.6	3.9	3.0
Private sector	-0.8	0.6	6.2	7.1	4.5	3.4
Public sector	1.4	3.7	0.1	-4.6	1.5	1.2
Gross fixed capital formation	-4.7	3.1	2.3	1.2	0.8	2.2
Private sector	-8.1	2.9	4.7	3.2	0.6	2.0
Public sector	5.2	3.5	-3.9	-4.6	1.3	1.7
Export of Goods and Services	-19.7	11.1	6.1	2.1	4.7	2.8
Goods	-5.8	15.3	1.1	-2.8	1.1	2.3
Services	-61.3	-20.0	59.9	38.3	16.1	4.9
Import of Goods and Services	-13.9	17.8	3.6	-2.3	4.7	3.9
Goods	-10.6	18.2	1.2	-3.8	3.3	3.6
Services	-26.7	16.1	13.6	4.2	11.7	5.3
Consumer price inflation (period average)	-0.8	1.2	6.1	1.2	0.7	1.5
Core inflation (period average)	0.3	0.2	2.5	1.3	0.7	1.2
Unemployment rate (period average)	1.7	1.9	1.3	1.1	1.1	1.0
External sector	(in billions of U.S. dollars unless specified)					
Current account balance	20.9	-10.3	-15.7	9.6	4.6	2.3
(In percent of GDP)	4.2	-2.0	-3.2	1.9	0.9	0.4
Trade balance	40.4	32.4	13.5	17.0	13.8	12.4
(In percent of GDP)	8.0	6.5	2.8	3.3	2.7	2.3
Exports, f.o.b.	227.0	270.6	285.2	280.2	284.9	293.4
Imports, f.o.b.	186.6	238.2	271.6	263.2	271.1	281.1
Services, net	-14.5	-32.5	-24.0	-8.3	-5.7	-5.2
Receipts	31.0	25.4	38.9	56.7	68.3	73.9
Payments	45.5	57.9	62.9	65.0	74.0	79.0
Primary income, net	-11.1	-17.6	-14.4	-11.3	-12.9	-13.0
Secondary income, net	6.1	7.4	9.0	9.8	8.4	8.0
Financial account balance	-11.6	-5.0	6.6	-13.9	0.2	0.1
Direct investment, net	-23.5	-4.0	3.7	3.1	2.0	3.1
Portfolio investment, net	-11.9	-12.0	5.8	-2.5	-3.5	-3.8
Financial Derivatives, net	-0.4	-1.2	0.3	0.1	0.2	0.2
Other investment, net	24.3	12.1	-3.2	1.2	1.5	0.6
Errors and omissions	9.0	8.1	-1.1	6.9	0.0	0.0
Overall balance	18.4	-7.1	-10.2	2.6	3.8	2.3
Gross official reserves excluding net forward position	258.1	246.0	216.6	224.5	228.3	230.6
(In months of imports of goods & services)	13.3	10.0	7.8	8.2	10.1	9.5
Short-term debt in percent of total debt	39.4	38.1	40.0	40.8	43.4	
Total external debt	190.1	196.2	200.3	194.3	185.5	
Short-term debt (% of international reserves)	29.0	30.4	37.0	35.3	35.3	
Fiscal sector[1]	(in percent of FYGDP)					
Revenue	15.0	14.8	14.8	15.0	15.0	14.8
Expenditure	20.0	20.0	18.4	18.3	19.5	19.3
Budget balance	-4.9	-5.2	-3.6	-3.3	-4.5	-4.6
Fiscal balance (including off-budget COVID spending)	-7.1	-9.0	-5.9	-3.3	-4.5	-4.6
Public debt	49.4	58.3	60.5	62.4	65.6	67.7
Monetary sector	(In percent change)					
Domestic private credit (in percentage change)	5.0	5.0	4.0	2.4	1.1	
(in % of GDP)	142.0	143.3	137.0	135.1	134.4	
Policy rate (percent per annum, end of period)	0.5	0.5	1.0	2.5	2.5	
10-year government bond yield (period average)	1.3	1.8	2.7	2.7	2.6	
Broad money	10.2	4.8	3.9	2.0	2.5	
Memorandum items:						
Exchange rate (THB per US$, average)	31.3	32.0	35.1	34.8	36.0	36.0
Exchange rate (THB per US$, end of period)	39.8	32.8	33.8	33.8	33.5	33.5
Nominal GDP (in THB trillion)	15.7	16.2	17.4	17.9	18.5	19.4
Nominal GDP (in US$ bilion)	507.5	500.5	489.0	512.6	508.6	531.8
GDP per capita (US$)	7,561.7	7,649.3	7,473.9	7,834.8	7,773.7	8,129.0

Source: National authorities, and AMRO staff estimates and projections. External debt, monetary sector, and exchange rate data for 2024 are latest data as of Q2 2024.
Note: 1/ The fiscal year falls between October and September. Projections are shaded in darker grey.

Appendix 3. Balance of Payments

Unit: USD billion	2019	2020	2021	2022	2023
Current account balance (I)	**38.3**	**20.9**	**-10.3**	**-15.7**	**9.6**
Trade balance	26.7	40.4	32.4	13.5	17.0
Exports, f.o.b.	242.7	227.0	270.6	285.2	280.2
Imports, f.o.b.	216.0	186.6	238.2	271.6	263.2
Services, net	24.3	-14.5	-32.5	-24.0	-8.3
Receipts	81.2	31.0	25.4	38.9	56.7
Payments	56.9	45.5	57.9	62.9	65.0
Primary income, net	-20.0	-11.1	-17.6	-14.4	-11.3
Secondary income, net	7.2	6.1	7.4	9.0	9.8
Capital account balance (II)	0.0	0.0	0.0	0.6	2.0
Financial account balance, net[1] (III)	**-14.8**	**-11.6**	**-5.0**	**6.6**	**-13.9**
Direct investment, net	-4.6	-23.5	-4.0	3.7	3.1
Portfolio investment, net	-8.8	-11.9	-12.0	5.8	-2.5
Financial derivatives, net	0.8	-0.4	-1.2	0.3	0.1
Other investment, net	-2.1	24.3	12.1	-3.2	1.2
Errors and omissions (IV)	**-9.9**	**9.0**	**8.1**	**-1.1**	**6.9**
Overall balance (=I + II - III + IV)	**13.6**	**18.4**	**-7.1**	**-10.2**	**2.6**
Reserve assets (+ indicates increases)	**13.6**	**18.4**	**-7.1**	**-10.2**	**2.6**
Memorandum items:					
Current account balance (% of GDP)	7.0	4.2	-2.0	-3.2	1.9
Gross official reserves excluding net forward position	224.3	258.1	246.0	216.6	224.5
GDP	544.1	500.5	506.2	495.8	515.3

Source: BNM, DOSM, and AMRO staff calculations.
Note: 1/ The financial account is presented based on the BPM5 format. Net outflows in net balances are indicated by a minus (-) sign.

Appendix 4. Federal Government Budget

Unit: THB billion	FY2020	FY2021	FY2022	FY2023	FY2024 (budgeted)	FY2025 (budgeted)
Gross revenue collected by the government	2864.6	2829.2	3071.3	3198.5	3337.4	3454.4
Revenue Dept.	1833.8	1875.8	2166.4	2211.6	2276.7	2372.5
Excise Dept.	548.4	531.6	503.5	477.1	598.0	609.7
Customs Dept.	93.9	102.4	110.5	126.8	114.2	122.2
Other Sections[2]	388.5	319.5	290.9	383.1	348.5	350.0
Net revenue[3]	2388.3	2372.5	2531.7	2666.8	2797.0	2887.0
(% of GDP)	15.0	14.8	14.8	15.0	15.0	14.8
Expenditure	3168.7	3208.7	3146.2	3262.4	3480.0	3752.7
(% of GDP)	20.0	20.1	18.4	18.3	18.2	19.2
Current	2575.9	2583.8	2415.1	2418.6	2540.5	2704.6
Capital	367.9	428.4	382.8	478.2	710.1	908.2
Carry over	224.9	196.5	213.7	174.0	0.0	0.0
Budget balance / Domestic borrowings	-824.2	-762.0	-594.8	-595.6	-683.0	-865.7
(% of GDP)	-4.9	-5.2	-3.6	-3.3	-3.7	-4.4
Budget balance / Domestic borrowings, including off-budget COVID spending and supplementary for digital wallet scheme (% of GDP)[4]	-7.1	-9.0	-5.9	-3.3	-4.3	
Non-budgetary balance[5]	99.3	42.3	-51.1	-112.9	N/A	N/A
Cash balance: before financing	-725.0	-719.7	-645.9	-709.6	N/A	N/A
Borrowing to finance the deficit	784.1	736.4	681.2	624.6	683.0	865.7
Fiscal cash balance	59.1	16.6	35.3	-85.0	N/A	N/A
Public debt (% of GDP)	49.4	58.3	60.5	62.4	N/A	N/A

Source: FPO; CEIC; and AMRO staff calculations.
Note: The fiscal year falls between October and September (as with Appendix 2 footnote 1). Using fiscal cash balance basis. 2/ Other sections include revenue from state-owned enterprises (SOEs) and other government agencies. 3/ Net revenue is the gross revenue excluding tax rebates granted by the Revenue Department, VAT allocation to provincial and local administrative organizations, export duty compensation and other taxes. 4/ Refers to the central government fiscal balance and spending under emergency loans and supplementary budget, but excludes extra-budgetary funds and the social security fund. 5/ The non-budgetary balance covers the operation of autonomous organizations that are established under specific laws, such as the National Health Security Office and Social Security Office. Therefore, their budget proposals do not need to be scrutinized by the government.

Appendix 5. Climate Clipboard—Risks, Responses, and Opportunities[53]

1. Climate change risks could endanger Thailand's long-term growth and stability. The recently released WorldRiskIndex Report 2024, which measures exposure and vulnerability of more than 190 economies globally, saw a slight increase in Thailand's risk ranking from last year (BEH 2024). This was mostly driven by an increase in susceptibility, which takes into account the size of vulnerable exposed populations and social disparities. On the other hand, scores for Thailand's adaptive and coping capacities—such as healthcare capacity, and quality of education—saw some improvements. Introduced in 2023, AMRO's Thailand Climate Clipboard aims to monitor developments made by policymakers to advance efforts in building long-term climate resilience (AMRO 2023a) (Table A5.1).

2. Since late last year, Thailand has made key steps towards achieving its climate change commitments. The economy will begin to implement its carbon tax by 2025—set initially at THB 200.0 (approximately USD 5.5) per ton of carbon dioxide equivalent—making it the second ASEAN economy to implement a carbon pricing mechanism. As the tax will be integrated into the current oil tax structure, it is unlikely to significantly dent fossil fuel consumption at the proposed price. Nevertheless, it sends a strong signal to the market on the direction of Thailand's climate policies, and could also potentially minimize the impact from the forthcoming Carbon Border Adjustment Mechanism of the European Union (AMRO 2023b). Similarly, the draft Climate Change Act has undergone two public hearings nationwide in Q1 2024, and is in line to be reviewed by the Thai Cabinet once stakeholders' feedback has been reflected. Once approved, the Act will put in place formal mechanisms and modalities for other key policy instruments, including a domestic emission trading system, greenhouse gas reporting, and carbon credit regulations.

Table A5.1. Thailand's "Climate Clipboard" (August 2024)

A. Physical risks	
Sources of risk	Potential macro-financial impacts
• Flooding (acute, chronic) • Drought (acute, chronic) • Tropical cyclones (acute)	• *Lower growth prospects*, with average annual losses associated with flooding at approximately USD 2.6 billion, or about 0.5 percent of 2023 GDP (WBG-ADB 2021). • *Decline in manufacturing activity and exports*, especially if flooding hits key manufacturing provinces. In 2011, nearly 70.0 percent of the total damage and losses were borne by Thai manufacturers (World Bank 2012). • *Decline in tourism*, as extreme flood events do not only damage tourism infrastructure but also lead to revenue losses in tourism-related activities, such as accommodation and transport. Droughts increase the risks of forest fires, which can also affect tourism, a sector accounting for about 20.0 percent of GDP. • *Deterioration in the current account*, resulting from a combination of a decline in manufacturing exports and a significant fall in tourism revenues. • *Increase in inflation*, arising from a decline in agricultural output due to floods and droughts. • *Potential weakness in the financial system* from higher credit risks, as borrowers might not be able to generate adequate income to repay loans. • *Decline in productivity*, with extreme flooding likely to affect an additional 2.3 million people by 2030–44 via loss of human life and deteriorating public health conditions from waterborne diseases (WBG-ADB 2021).
B. Transition risks	
Sources of risk	Potential macro-financial impacts
• Phasing out use of coal and other fossil fuels • Border carbon adjustments in other economies • Domestic carbon pricing instruments	• *Increase in inflation*, especially if green alternatives are not widely available or affordable during the phaseout. • *Decline in exports*, arising from global carbon pricing policies. AMRO analysis suggests that Thailand is among those most affected in ASEAN if the EU's Carbon Border Adjustment Mechanism covers a wider range of sectors (AMRO 2023b). • *Higher unemployment* or underemployment, due to the potential displacement of workers in sectors that need to make the transition rapidly out of fossil fuel use.

[53] Prepared by Marthe M. Hinojales and Michael Wynn.

	• *Lower FDI and funding sources* available to high-emitting sectors, which could lead to liquidity risk for businesses that are not able to make the transition fast enough.

C. Adaptation response framework and strategies

Adaptation framework	Key initiatives/strategies	Estimated financing needs and sources	
• Climate Change Master Plan 2015-50 (Jul 2015) • National Adaptation Plan (Nov 2023)	• Implementation of climate change adaptation focuses on building adaptive capacity in six priority sectors: water resource management, agriculture and food security, tourism, public health, natural resources management, and human settlement and scarcity. • Regular assessments and review of NAP implementation will be made, whenever necessary.	• USD 6.1 billion (1.4 percent of GDP) per annum under a worst-case economic scenario with 2.0-degree warming (UNESCAP 2024).	
		Domestic	External
		• Annual budgets	• Green Climate Fund • Multilateral development banks (ADB)

D. Mitigation response framework and strategies

2nd Updated Nationally Determined Contribution (NDC)	National framework/strategies	Estimated financing and sources
• Unconditional reduction of economy-wide greenhouse gas (GHG) emissions by 30.0 percent from the projected BAU level by 2030 relative to reference year 2005 level (in the absence of major climate change policies; BAU2030: approximately 555.0 $MtCO_2e$). • The above target could increase up to 40.0 percent, subject to "adequate and enhanced access to technology development and transfer, financial resources, and capacity building support." (UNFCCC 2022)	• NDC Roadmap on Mitigation 2021–30 ➢ Identifies mitigation actions in four sectors – energy, transport, industrial processes and product use, and waste management – to achieve the NDC target, the implementation of which will be guided by the NDC Sectoral Action Plans 2021–30. ➢ The energy sector accounts for nearly 70 percent of Thailand's total emissions in 2018. ➢ The Roadmap is expected to receive an update by end-2024. • Long-term Low GHG Emission Development Strategy (Oct 2021) ➢ Sets targets and measures to achieve Thailand's net-zero GHG goal, including peaking emissions at approximately 370 $MtCO_2eq$ by 2030 and meeting carbon neutrality by 2065. Key sectoral strategies and initiatives • Power Development Plan 2018–37 • Alternative Energy Development Plan 2018–37 • Energy Efficiency Plan (2018) • Smart Grid Development Master Plan 2015–36 • Thailand Integrated Energy Blueprint (Jun 2015) • Master Plan for Sustainable Transport System and Mitigation of Climate Change Impacts (2013–30)	• USD 30.0 billion per annum in energy system investments over 30 years (AIGCC 2021)

E. Enabling regulations for climate resilience

E.1. Legal frameworks	E.3. Carbon pricing frameworks	E.4. Sustainable finance frameworks
• The Climate Change Act, for revision after a public hearing process, is pending Cabinet approval. It introduces multiple carbon pricing mechanisms such as carbon tax the establishment of the National Climate Change Fund. The draft Act also includes compulsory greenhouse gas reporting (as of Apr 2024). • The 13th National Economic and Social Development Plan (2023–27) explicitly identifies mitigating risks from natural disasters and climate change as a development milestone (11 of 13).	• A carbon tax was set at THB 200 (~USD 5.5) per ton of CO_2e. It will be implemented in 2025, only on oil products such as diesel and gasoline (Jun 2024). • Excise tax currently levied on products that cause environmental damage, namely passenger vehicles, with tax rates varying according to the level of carbon emissions.	• Kingdom of Thailand Sustainable Financing Framework (Jul 2020) sets out the process of raising green, social and sustainability financing instruments. ➢ The framework is established in line with key ASEAN-wide standards and those issued by the International Capital Market Association.

E.5. Financial system

Initiatives	Guidelines	Status
1. Taxonomy	• Thailand Taxonomy Phase 1 (Jun 2023)	• Phase 1 is focused on two sectors, energy and transport, which account for about 70 percent of economy-wide emissions.

		• Phase 2 is being drafted and will focus on four sectors: manufacturing, agriculture, building and construction, and waste management.
2. Risk management assessments	• Sustainable Banking Guidelines (2019) • Policy Statement of the Bank of Thailand Re: Internalizing Environmental and Climate Change Aspects into Financial Institution Business (Feb 2023)	• The BOT's evaluation of financial institutions in accordance with the policy statement is anticipated to be implemented from 2024 onwards, using self-assessment to evaluate progress in the early stage. • An industry handbook was launched in 2023 to support practical implementation of the policy statement, and to be used as the minimum standard in risk management (BOT Directional Paper on Financial Landscape, Aug 2022). • A climate stress test was launched in 2024, with the initial phase a pilot exercise to identify and address both technical and knowledge gaps. The pilot exercises on physical risks and transition risks will take place in 2024 and 2025, respectively. Thereafter, the full stress test will be conducted every other year.
3. Climate-related disclosures	• The Stock Exchange of Thailand Guidelines for Sustainability Reporting, including "One Report" (2021) • Guidelines on Management and Disclosure of Climate-related Risk by Asset Managers (Jan 2023) • Policy Statement of the Bank of Thailand Re: Internalizing Environmental and Climate Change Aspects into Financial Institution Business (Feb 2023)	• The BOT plans to launch guidelines on disclosures and is also collaborating with stakeholders to create a central database on ESG disclosures (Mar 2023).
F. Potential opportunities from the low-carbon transition		
• Exports of solar-related products, such as solar panels	• Manufacturing of EVs and parts	• Energy storage, including EV batteries • Carbon capture and storage • Carbon credits and offsets

Source: AMRO staff compilations.
Note: Information updated as of 15 August 2024. Information sourced and compiled from AIGCC (2021); AMRO (2024, 2023); Baker McKenzie (2023); BOT (2022, 2023a, 2023b); MOE (2015, 2018a, 2018b, 2015); NESDC (2022); Office of the Thai Prime Minister (2024); ONEP (2015); Pichetsatha (2024); PDMO (2020); SEC (2023); SET (2024); TBA (2019) UNESCAP (2024); UNFCCC (2021, 2022, 2023); WBG (2012); WBG-ADB (2021).

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Annexes: Selected Issues

1. Integrating Financial Stability Considerations into R-Star Estimates[54]

The neutral rate of interest (r-star) provides insights into monetary policy stance, but the Holston-Laubach-Williams (HLW) model—a workhorse for r-star estimation—does not account for financial factors crucial to the Bank of Thailand's monetary policy formulation. Given the Bank's objective to facilitate the deleveraging of still-elevated household debt, we refine r-star estimation by incorporating an additional credit gap variable into the original HLW model. This aims to draw more practical policy implications from estimated r-star. We also explore model variations using potential output estimates from a production function approach, seeking an r-star estimate more reflective of underlying economic fundamentals. Results show that including the credit gap increases Thailand's estimated r-star, but it remains below the actual policy rate. Furthermore, our model variations show persistent negative output gap in recent period. This suggests current monetary policy stance may be slightly tight, even accounting for credit situations. Thailand's policy rate exceeds the range of r-star estimates from all model variations, indicating room for monetary policy easing if growth continues to underperform.

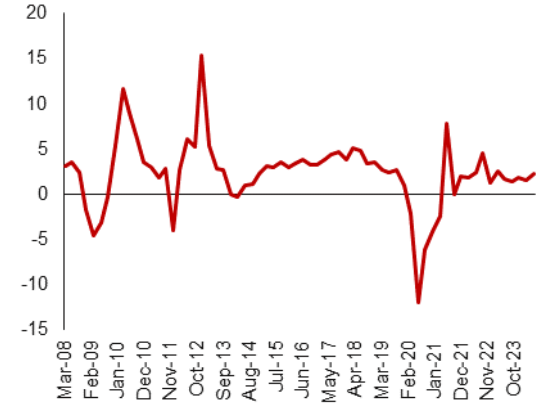
1. The neutral rate of interest is a critical benchmark for monetary policy, but its estimation is challenging in the context of Thailand. The neutral rate of interest (r-star) is the short-term real interest rate that would prevail in the absence of business cycle shocks, consistent with economic growth converging to its potential and prices remaining stable (Borio 2021). It serves as the equilibrium real interest rate closely monitored by central banks to guide monetary policy implementation. While the concept of r-star is intuitive, it is empirically unobservable, and its estimation is highly dependent on the model specification. In estimating r-star at low frequencies, the Laubach-Williams (LW) model has become the workhorse approach. However, the HLW model is primarily designed for advanced economies where data aligns well with the New Keynesian model over extended periods. This limits its applicability to emerging market economies (Barrett and others 2023). In the context of Thailand for instance, financial factors such as private sector leverage is an important consideration in the monetary policy formulation framework, yet it is not explicitly accounted for in the LW model.

Rationale for Integrating Financial Factor into R-star Estimation

2. Thailand has experienced sluggish growth and persistently low inflation since 2023, intensifying debates over whether the current policy rate is above its neutral level. Thailand's economy has been underperforming expectation, with growth of just 1.9 percent in 2023 and less than 2.0 percent year-on-year in the first half of 2024 (Figure A1.1). These figures not only miss the government's 3.0–5.0 percent target but also fall well below the pre-pandemic trend growth of about 3.0 percent. The lack of a sustained rebound has resulted in a persistent negative output gap. Inflation has also been weak, turning negative in Q4 2023 and Q1 2024, and although positive in Q2 2024, it remains below the BOT's target range (Figure A1.2).

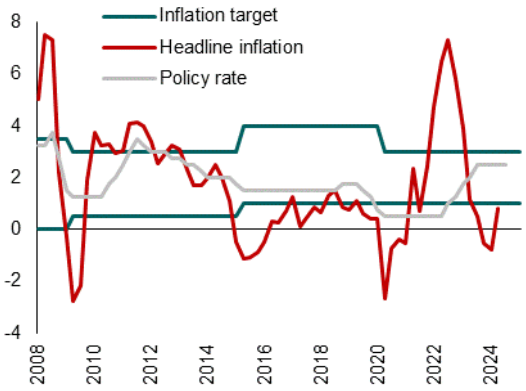
[54] Prepared by Haobin Wang, Michael Wynn and Yuhong Wu.

Figure A1.1. GDP Growth, 2008–Q2 2024
(Year-on-year, Percent)



Source: National authorities via CEIC.

Figure A1.2. Policy Rate and Headline Inflation versus Inflation Target, 2008–Q2 2024
(Percent)



Source: National authorities via Haver Analytics.

3. While the traditional HLW and Taylor Rule model both suggest room for monetary easing, high household debt calls for more nuanced consideration for the case of Thailand. Based on the Holston, Laubach, and Williams (HLW) 2023 model, Thailand's current policy rate is above its neutral level, suggesting the current monetary policy stance that may be restrictive (AMRO 2024). Similarly, the policy rate generated from the Taylor Rule model is also lower than actual policy rate. However, the BOT has been cautious in lowering interest rate despite sluggish growth and subdued inflation due in part to concerns about high household debt.[55] The high household debt, accumulated during the low-interest-rate environment following the GFC and exacerbated by the pandemic, reached a peak of 95.5 percent of GDP in Q1 2021. The BOT faces a dilemma: lowering rates might encourage unproductive loan growth and hinder deleveraging, while keeping rates high could increase the debt servicing burden, especially for low-income households.

4. The debt situation not only requires more nuanced monetary policy considerations but also has broader implications for potential growth and the trajectory of r-star. High leverage exerts a drag on consumption and trend growth (Mian and others 2015; Dynan 2012), with Mian and others (2021) illustrating that debt shifts resources from borrowers to savers, leading to persistently low interest rates. Supply-side effects of debt (Cecchetti and Kharroubi 2015; Juselius and others 2016) show that credit booms misallocate resources and slow potential growth, potentially creating a negative feedback loop (Lo and Rogoff 2015). These findings suggest that household debt and the credit cycle are endogenous factors influencing r-star dynamics. To address this, Borio and others (2017) establish a "finance-neutral" natural rate estimate, yielding a higher r-star estimate that falls less than in the LW model since 2000. Krustev (2019) further models the financial cycle as a deviation from long-run credit equilibrium, suggesting that LW estimates of r-star have a slight upward bias after 2000 due to overestimated trend output growth masked by credit boom and failure to account for persistent tailwinds during 2001–2007's financial leverage build-up.

[55] See, for example, the Bank of Thailand's Monetary Policy Committee (MPC) press release on June 12. The Committee expressed concerns about high household debt levels and stated that credit growth should align with ongoing debt deleveraging efforts to promote long-term financial stability.

Estimation Approaches

5. To align r-star assessment closer to Thailand's monetary policy goals, we incorporate other considerations into the baseline HLW model. The HLW model, which primarily ties r-star estimates to trend output growth, does not account for other critical factors such as demographic shifts, risk appetites, fiscal deficits, and financial imbalances. A wide literature (Kiley 2015; Cukierman 2016; Taylor and Wieland 2016; Borio and others 2017; Krustev 2019) suggests that omitting financial imbalances in the LW framework leads to biased estimates of r-star. Given Thailand's high household debt and the BOT's goals of maintaining inflation, growth, and financial stability, it is essential to revisit the HLW model by incorporating financial conditions to generate r-star estimates with more practical policy implications.

6. We extend the HLW model by incorporating the credit-to-GDP gap as a proxy for financial cycle dynamics. To better capture r-star trends under high leverage, we extend the HLW model to include the credit cycle variable. Similar to Krustev (2019), we use the Bank for International Settlements (BIS) credit-to-GDP gap data as a proxy for financial cycle dynamics. We explicitly model the linkage between the credit-to-GDP gap and r-star, as well as the output gap, in the HLW framework. This approach, following Borio and others (2017), allows for a more nuanced distinction between long-term trends and temporary deviations in the natural rate caused by financial headwinds or tailwinds.[56]

7. We further extend the HLW model by imputing a production-function-estimated potential output. The output gap estimates from the LW model faced controversies as they showed substantial deviation from results derived from production-function approaches (Kiley 2015; Pescatori and Turunen 2016). To get a r-star estimate that is more reflective of underlying economic fundamentals and less susceptible to certain limitations of statistical smoothing methods, we incorporate the potential output from the production function approach into the HLW model.

Model Results[57]

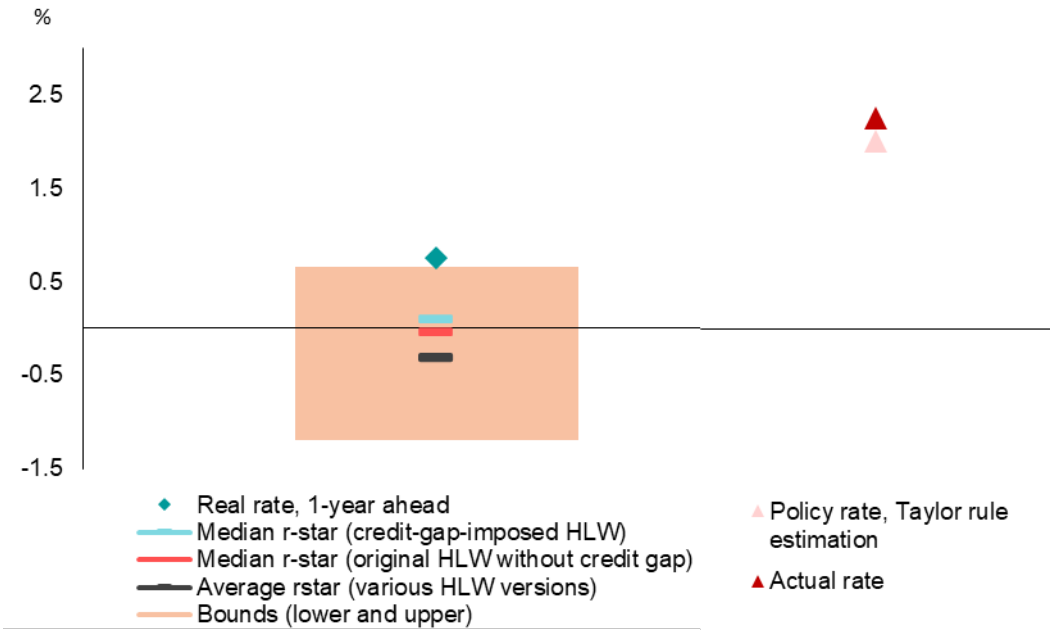
8. The incorporation of the credit gap slightly increases r-star estimates, but it remains below current policy rate. Our r-star estimates with credit gap yield a median estimate close to zero in early 2024. This is lower than Thailand's current real policy rate of about 0.75 percent. R-star estimate with credit gap saw a quick drop from second half of 2022 to early 2024, driven in part by the narrowing positive credit gap, widening negative output gap, and falling inflation over this period. The credit-gap model produces generally higher r-star estimates than the original HLW model (Figure A1.3), consistent with the rising credit gap during most of the estimation period (Figure A1.4). However, estimates across all four model variations remain in a narrow range (Figure A1.7), suggesting that the credit gap's impact on Thailand's r-star estimates is relatively limited (Figure A1.4). Possible

[56] Borio and others (2017) uses a vector autoregressive system to pin down a sustainable level of the credit-to-GDP ratio, which is jointly determined by the leverage gap—deviations from the long-run equilibrium between the credit-to-GDP ratio and asset prices—and the debt service gap. However, during booms, asset prices often outpace the rise in credit-to-GDP ratio, leading to A decline in the leverage gap despite a rising credit-to-GDP ratio, which could mask the buildup of financial imbalances. To keep the model more tractable, we omit the interactions between credit-to-GDP ratio and asset prices or debt service burden.

[57] Estimation period for the original and credit-gap imposed HLW runs from Q1 1994 –Q1 2024, while the estimation period for the remaining two approaches incorporating production function potential output runs from Q1 1992–Q1 2024.

reasons include a relatively weak relationship between credit and output gaps in Thailand over the estimation period.[58]

Figure A1.3: Models estimates suggest that current policy rate in Thailand may be above the neutral interest rate.
(Percent)



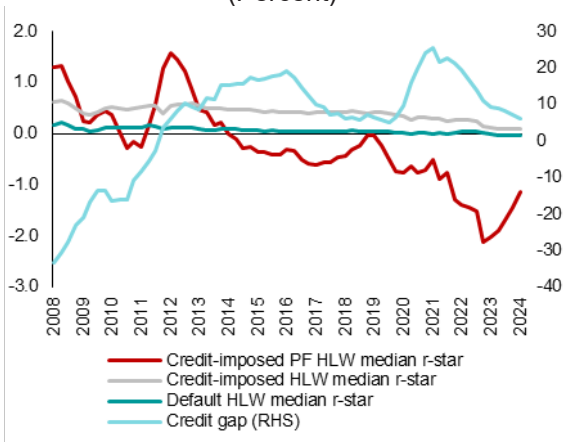
Source: National authorities via Haver Analytics; and AMRO staff calculations.
Note: The neutral rate of interest is estimated using the Holston, Laubach, and Williams (HLW) (2023) model. We adopt a similar but simplified approach to include credit gap in the modeling process, as in Juselius, Borio, Disyatat and Drehmann (2016).

9. Using the potential output from production function approach leads to higher variability in r-star estimate (Figure A1.5). The potential output derived from the production function approach takes into account the trends and relationship between capital, labor, and total factor productivity (TFP), which could undergo significant changes after crises. The HLW framework and the HP filter used to obtain potential output both seek to smooth out cyclical fluctuations, which could mask the structural shifts in the economy. When incorporating both credit gap and production function approach, the r-star estimates are higher during the Asian Financial Crisis and the period 2011–2012 (Figure A1.6). This suggests that there could be interactions between the credit cycle and structural changes during periods of rapid leveraging or deleveraging.

10. There is higher uncertainty in r-star and output gap estimates around major crisis periods. Economic shocks and rapid changes in leverage during these times can lead to fluctuations in trend output growth and r-star. Although the HLW model introduces time-varying variability by applying variance scale parameters to downweigh extreme outliers, the estimates still show a much larger range during the Global Financial Crisis and COVID-19 across different model variations. Interestingly, periods of household debt build-up, such as during the first-car scheme and historic flood in 2011–2012, also show greater estimate ranges. This suggests that incorporating the credit gap yields significantly different estimates during periods of increasing leverage, underscoring the importance of incorporating financial imbalances in r-star estimation and monetary policy making.

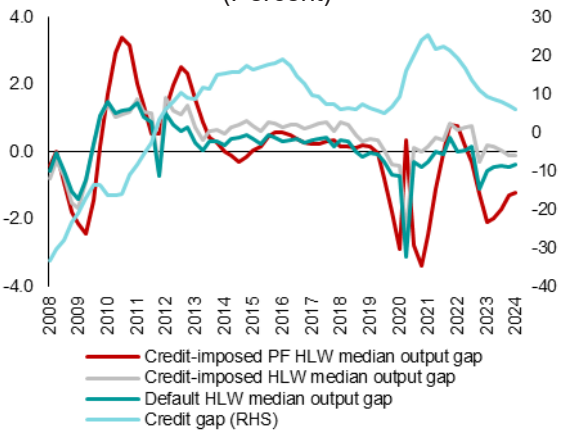
[58] In our models, the dynamics of r-star are more strongly influenced by output gaps than by credit gaps.

Figure A1.4. Neutral Rate Estimates: Default vs Variation Models
(Percent)



Source: National authorities via Haver Analytics; BIS; and AMRO staff estimates.
Note: PF = Production function; Figure shows estimated period from 2008 to Q1 2024. The r-star estimates are derived from three different model variations of the HLW model, namely the default HLW; the credit-gap imposed HLW, and the credit-gap imposed PF HLW.

Figure A1.5. Output Gap Estimates: Default vs Variation Models
(Percent)

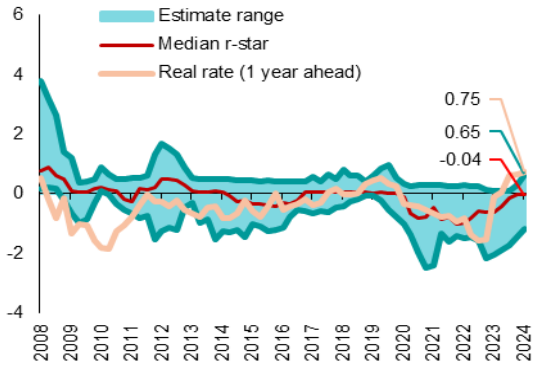


Source: National authorities via Haver Analytics; BIS; and AMRO staff estimates.
Note: PF = Production function; Figure shows estimated period from 2008 to Q1 2024. The output gap estimates are derived from three different model variations of the HLW model, namely the default HLW; the credit-gap imposed HLW, and the credit-gap imposed PF HLW.

11. The persistent negative output gap indicated by the model results suggests there is room for monetary policy easing. The output gap estimates derived from our models point to a negative output gap that has persisted over recent quarters (Figure A1.7). It is worth noting that compared to HP-filtered potential output, production-function-based potential output yields a larger and more persistent output gap.[59] The persistence of a negative output gap is consistent with Thailand's continued weaker-than-expected growth performance in recent quarters, which has been hampered by both domestic and external factors. This suggests that the current monetary policy stance may be restrictive, given the economy's position relative to its potential.

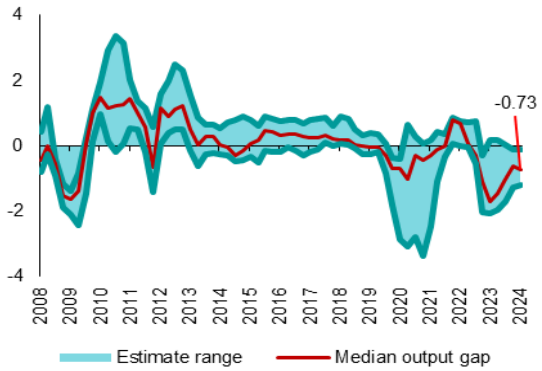
[59] HP-filtered potential output tends to track actual output more closely compared to fundamental-based potential output due to smoothing techniques.

Figure A2.6. Estimated R-Star, 2008–Q1 2024
(Percent)



Source: National authorities via Haver Analytics; and AMRO staff estimates.
Note: PF = Production function; Figure shows estimated period from 2008 to Q1 2024. The range of estimates is derived from four different model variations of the HLW model, namely the default HLW; the credit-gap imposed HLW, the PF HLW, and the credit-gap imposed PF HLW.

Figure A2.7. Estimated Output Gap, 2008–Q1 2024
(Percent)



Source: National authorities via Haver Analytics; and AMRO staff estimates.
Note: PF = Production function; Figure shows estimated period from 2008 to Q1 2024. The range of estimates is derived from four different model variations of the HLW model, namely the default HLW; the credit-gap imposed HLW, the PF HLW, and the credit-gap imposed PF HLW.

12. Overall, our analysis suggests that there is room for monetary policy easing should growth continue to underperform. Policy rate in Thailand remains above the r-star estimates from all our model variations, reflecting persistent negative output gap, sluggish inflation, and fast-narrowing credit gap. Our model results suggest that a lower policy rate would be more consistent with a neutral stance of monetary policy. Should economic growth continue to underperform baseline expectation and inflation remains below the inflation target, there is room for the Bank of Thailand to ease the policy rate.

13. The uncertainty surrounding the r-star highlights the critical need for a flexible and forward-looking monetary policy framework. Going forward, the trajectory of r-star can be increasingly uncertain. As illustrated in the BIS quarterly review (2024), the downtrend in potential growth, population aging, and greater risk aversion would continue to weigh on r-star. Additionally, prolonged deleveraging might dampen growth and r-star (Krustev 2019). On the other hand, rising dependency ratio and ballooning fiscal deficits post-pandemic could drive r-star higher. New developments and public investments in green transition and AI technologies also offer potential for productivity gains. The evolving complexities of r-star necessitate a robust monetary framework that can account for and adapt to a multitude of factors.

Technical Appendix

Estimation Process

The original structure of the HLW process is maintained for all four variations. In addition, for each estimation approach, a range of model parameters (particularly, the constraints for the slopes of the IS and Phillips curves and the coefficient of the COVID-19 variable) are tested. Derived estimates are subject to model convergence and screened based on economic judgment. It is important to note that the results are indicative only and not exhaustive of the findings from all model iterations that yield plausible results.

Incorporation of Credit Gap into IS curve

We build on the HLW (2023) model as the baseline model and keep the adjustment as little as possible to ensure tractability. In the IS equation, we include the credit-to-GDP gap to reveal more information about the linkage between the output gap and financial cycle. The changes to the baseline model are highlighted in red.

$$\tilde{y}_t = a_{y,1}\tilde{y}_{t-1} + a_{y,2}\tilde{y}_{t-2} + \frac{a_r}{2}\sum_{j=1}^{2}(r_{t-j} - r^*_{t-j}) + a_c c_t + \varepsilon_{\tilde{y},t}$$

$$\pi_t = b_\pi \pi_{t-1} + (1 - b_\pi)\pi_{t-2,4} + b_y \tilde{y}_{t-1} + \varepsilon_{\pi,t}$$

Where $\tilde{y}_t$ is the output gap defined by $\tilde{y}_t = 100 * (y_t - y_t^*)$, in which y_t and y_t^* are logarithms of real GDP and the unobserved natural rate of output respectively. r_t and r_t^* are the real short-term interest rate and natural interest rate, π_t is the core consumer price inflation, $\pi_{t-2,4}$ is the average of the second to fourth lags of the core inflation rate. c_t is the newly added credit-to-GDP gap, defined as the difference between the credit-to-GDP ratio and its long-run trend. The sources of the variables can be found below.

Inclusion of Credit-to-GDP Gap Equation

We include an equation to capture the dynamics of the credit-to-GDP gap:

$$c_t = b_c c_{t-1} + b_r(r_t - r^*) + \epsilon_{c,t}$$

The law of motion for the latent variables remains unchanged:

$$r_t^* = k \cdot g_t + z_t$$

$$y_t^* = y_{t-1}^* + g_{t-1} + \epsilon_{y^*,t}$$

$$g_t = g_{t-1} + \varepsilon_{g,t}$$

$$z_t = z_{t-1} + \epsilon_{z,t}$$

Where g_t is the trend growth rate of the natural rate of output, and z_t captures the remaining determinants of r_t^*. We assume that the disturbances $\varepsilon_{i,t}$ in all the equations are normally distributed with standard deviations $\sigma_{i,t}$ respectively and are serially and contemporaneously uncorrelated with all other disturbances. Following HLW (2023), we keep the COVID-19 adjustments including the variance scale parameters κ_t and the COVID-19 indicator d_t. As the Asian Financial Crisis (AFC) has affected Thailand's output gap more severely than COVID-19, we also include the variance scale parameters for the AFC period.

Inflation Expectations

The real short-term interest rate r_t is computed as the difference between the nominal short-term interest rate and inflation expectation. Instead of using the four-quarter moving average of past inflation—which could be more volatile and provide limited forward-looking information—as a proxy for inflation expectations, we use the one-year-ahead inflation expectations from the survey conducted by Consensus Economics.

Methodology Towards Backfilling Policy Rate

An ordinary least squares linear regression was used to estimate and backfill missing policy rates from periods before Q2 2000. The approach is justified based on observed

lending rates typically exhibiting strong correlation with the observed repurchase rates, through a reasonably high R square statistic of 78.0 percent (see Table A1.1). Hence, assuming the relationship remains consistent prior to that period, the regression equation can be expressed as follows:

$$\tilde{\imath}_t = \beta_0 + \beta_1 x_t + \varepsilon_{\tilde{\imath},t}$$

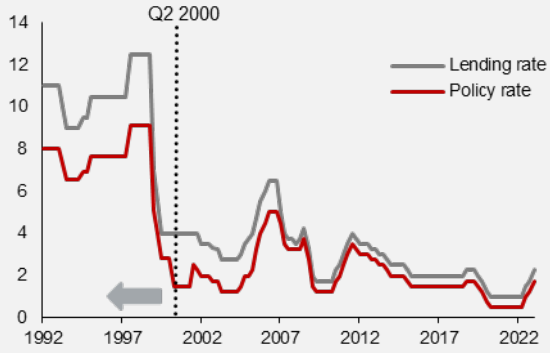
Where $\tilde{\imath}_t$ represents the estimated policy rate at time t, β_0 is the constant term, β_1 is the coefficient for the lending rate, x_t is the observed lending rate, and $\varepsilon_{\tilde{\imath},t}$ is the associated error term.

Table A1.1. Regression Summary Output

Statistics	
R Square	0.781
Standard Error	0.495
Observations	94
Coefficients	
Intercept	-0.105 (0.127)
Lending Rate	0.739*** (0.041)

Source: AMRO staff estimates.
Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Figures are rounded to 3 decimal placing where relevant.

Figure A1.8. Estimated Policy Rate Versus Lending Rate



Source: Haver Analytics; and AMRO staff estimates.

List of Variables Used

No.	Variable	Source	Haver Code	Transformation
1	Gross domestic product (GDP)	Haver	H578NGPC@EMERGEPR	Log transformation
2	COVID-19 indicator	Haver	THOWSTI@GLSECTOR	Quarterly mean aggregated[60]
3	Core CPI	Haver	H578PCXG@EMERGEPR	Annualised quarter-on-quarter log transformation
4	1-day repurchase rate	Haver	N578RTAR@EMERGEPR	Quarterly mean aggregated (percent, end of period)
5	Lending facility rate	Haver	N578RD@EMERGEPR	Quarterly mean aggregated (percent, end of period)
6	Inflation expectations	Consensus Economics	-	Year-on-year growth rate
7	Credit-to-GDP gap	BIS	-	Percent of GDP

Source: Authors' compilations.
Notes: Both GDP and headline core CPI series are seasonally adjusted.

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[60] Given that the Oxford COVID-19 Government Response Tracker (OxCGRT) project suspended data collection at the end of 2022, we adopted a similar approach as in Holston, Laubach and Williams (2023), by assuming that the Thailand COVID-19 indicator declines linearly beginning in Q1 2023, reaching zero in Q4 2023. For more details on OxCGRT, see Hale and others (2021).

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2. Thailand's Long-Term Growth Potential: The Case for Reform[61] [62]

Thailand's long-term growth potential has weakened over the past two decades. This decline is attributed to sluggish private and public investment, demographic shifts from being a dividend to a drag, and stalled structural transformation. Under the staff baseline scenario, Thailand is projected to miss its target of achieving high-income country status by 2037, potentially reaching it only by 2050. An upside scenario with bold reforms could accelerate this to 2042, while a downside scenario might push it beyond 2050. To reach high-income status by 2037, Thailand would need to sustain an average GDP growth rate of 5.0 percent per year, which seems challenging even under optimistic projections, underscoring the urgency of comprehensive economic reforms, revitalized structural transformation, and more effective implementation of development plans

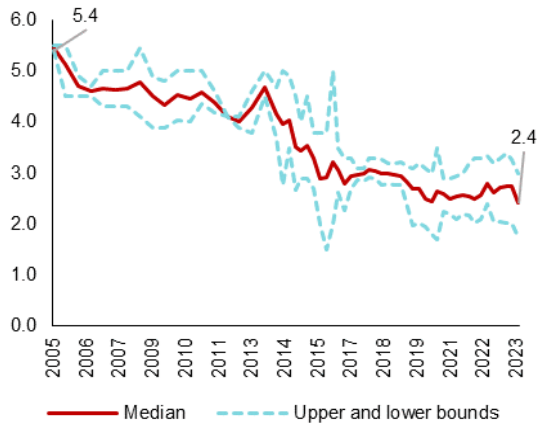
1. Thailand's long-term growth prospects have weakened over the past two decades, as evidenced by persistently downward revisions in consensus forecasts. The average 10-year-ahead consensus GDP growth forecast for Thailand has declined from 5.4 percent in 2005 to just 2.4 percent in 2024 (Figure A2.1), reflecting a trend decline in growth potential and consistent underperformance relative to expectations. This downward trend stands in sharp contrast to other ASEAN economies, which maintained an average 10-year-ahead growth forecast of about 4.0 percent, underscoring Thailand's unique challenges in sustaining a higher potential growth rate. In Part A of this selected issue, we examine the key drivers behind Thailand's secular decline in growth potential, focusing on sluggish capital investment, demographic headwinds, and stalled structural transformation.[63] We conduct a decomposition analysis to assess the evolving sources of productivity growth, distinguishing between intra-sectoral improvements and inter-sectoral reallocation. Part B presents growth potential forecasts under baseline, upside, and downside scenarios, utilizing a production function growth accounting model. This analysis enables us to evaluate Thailand's prospects for achieving high-income status by 2037 and to identify policy priorities that could expedite this goal.[64]

Explaining Thailand's Long-term Growth Slowdown

2. The Thailand's secular decline in growth potential has been exacerbated by major crises, each leaving a lasting impact on the country's economic trajectory. The COVID-19 pandemic, like previous major crises, triggered a noticeable downshift in growth trends. Prior to 2020, Thailand's economy grew at an average rate of around 3.0 percent. However, in the aftermath of the pandemic, from Q4 2021 to Q2 2024, growth averaged only about 2.0 percent, indicating a significant decline in trend growth rather than a sustained rebound. This pattern mirrors the aftermath of the Asian Financial Crisis, when Thailand's trend growth dropped sharply from above 6.0 percent to approximately 4.0 percent. These episodes highlight a recurring challenge: the difficulty in fully recovering to pre-crisis growth levels, resulting in a stepwise decline in long-term growth potential over time (Figure A2.2).

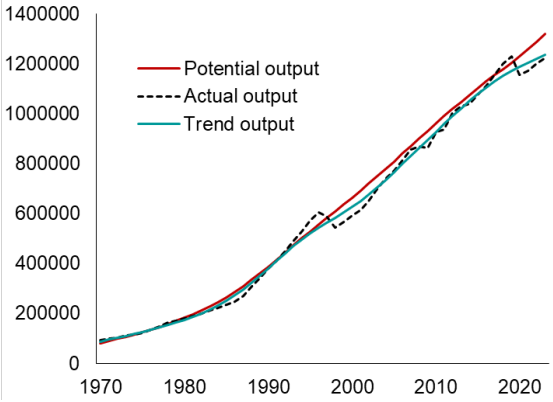
[61] Prepared by Haobin Wang and Michael Wynn.
[62] For brevity, Brunei Darussalam is referred to as Brunei and Hong Kong, China is referred to as Hong Kong in the text and figures.
[63] A complementary analysis on the structural headwinds from the perspective of export competitiveness are explored in *Selected Issue 3: Sustaining Export Competitiveness in a Rapidly Changing Global Environment.*
[64] Thailand's ambition of graduating from an upper middle-income to high-income country by 2037 is outlined in the 20-year national strategy (2018–37).

Figure A2.1: Long-term growth expectations have steadily declined.
(10-year-ahead consensus growth forecast, percent)



Source: Consensus Forecast and AMRO staff calculation.

Figure A2.2: Growth consistently settled into lower trajectories following crises.
(Real output based on 2002p Chained-Volume-Measure, in millions)

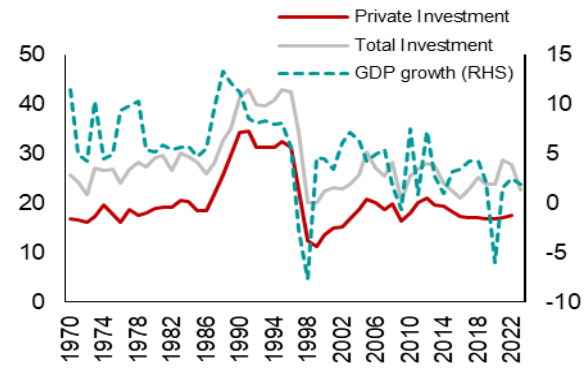


Source: Haver Analytics and AMRO staff estimation.
Note: Trend output is estimated using Hodrick–Prescott filter.

3. Sluggish investment in both the private and public sectors has emerged as a critical factor in Thailand's persistent growth slowdown. Private investment in Thailand has followed a volatile path, plummeting from an average of 30.0 percent of GDP in the decade prior to the Asian Financial Crisis to an average of 16.3 percent in the decade after, before recovering to 21.0 percent by 2012, only to trend downward again. Current investment levels are lower than those of the 1980s and 1990s and lag many ASEAN+3 peers, risking a cycle of low investment, weak GDP growth and productivity growth. Thailand's public investment has fluctuated with political changes. Historically, it had averaged 8.0 percent of GDP but fell to 5.5 percent in the years after the 2014 political upheaval. In 2023, it declined sharply again amid another political transition and delayed budget approval, highlighting the link between political stability and public investment levels.[65]

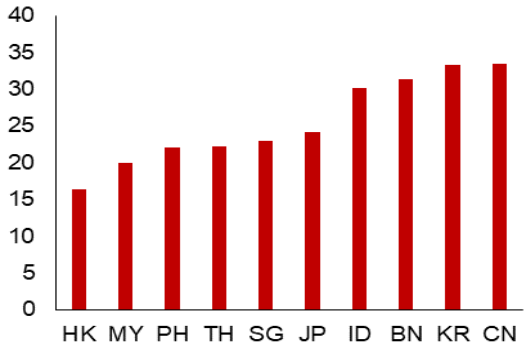
[65] Krist and others (2009) empirically demonstrate that political instability and financial crises tend to suppress private investment in Thailand. Jongwanich and Kohpaiboon (2008) identify public investment as a crucial catalyst for infrastructure development in Thailand, although they note that current levels of public investment remain insufficient.

Figure A2.3: Investment growth in Thailand has remained lackluster since the AFC
(Gross capital formation as a share of GDP, percent)



Source: World Bank.

Figure A2.4: Investment momentum trails regional peers
(Gross capital formation as a share of GDP as of the first quarter of 2024, percent)



Source: CEIC.
Note: BN = Brunei; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand.

4. A possible factor limiting investment in Thailand is the ineffective execution of ambitious development plans. Despite initiatives like Thailand 4.0 and the Eastern Economic Corridor (EEC) project, implementation has lagged expectations. As of August 2024, over 1.0 trillion Baht (about 5.6 percent of GDP) in cabinet approved mega infrastructure projects await implementation. The EEC plan envisions an additional 500.0 billion Baht investment over five years in sectors such as medicine, digital electronics, and new vehicle technologies. However, progress has been slow. For example, the EEC's high-speed rail link connecting three airports has faced delays due to land acquisition issues and contract negotiations. Similarly, other major projects like deep-sea port expansions and smart city developments have progressed more slowly than anticipated, highlighting a persistent gap between planning and execution in Thailand's development initiatives.

5. Demographic trends have turned from being a dividend to a drag on Thailand's economic growth. The old dependency ratio nearly doubled from 2000 to 2019, while the working-age population peaked in 2019 and has been declining relative to the total population since 2011. These trends lead to a steady reduction in labor supply, potentially hamper productivity, and increase fiscal burdens through higher pension payments and healthcare costs. An aging population and shrinking labor force are expected to drag down GDP growth by 0.4 percentage point annually between 2030 and 2050 in our baseline forecast (Figure A2.6). To maintain economic dynamism, Thailand urgently needs comprehensive reforms to boost labor force participation, improve productivity, and ensure fiscal sustainability, highlighting the critical relationship between demographics and long-term economic performance.

Table A2.1: Scale of Investment Projects Awaiting Implementation in Thailand

Category	Project Type	Scale (Billion Baht)	Time Horizon
Cabinet Approved Projects	Major infrastructure projects in EEC	>355.6	Not specified
Cabinet Approved Projects	Infrastructure projects outside EEC (urban mass transit, railway, air transportation, road transportation, Energy)	>736.9	Not specified
EEC Investment Plan	Investment projects targeted at medicine and health, future services, digital and electronics, electric and new vehicles, and BCG (excluding infrastructure)	500 (total goal), of which 210 is currently under negotiation	2024-2028

Source: NESDC.

6. Beyond investment and labor issues, Thailand's economy-wide productivity improvement is being held back by decelerating structural transformation. Historically, the flow of labor from low-productivity agriculture to higher-productivity industry and services sectors has significantly boosted overall productivity growth in Thailand[66]. However, this process has stalled since 2015, with the agriculture sector's employment share remaining high at around 30.0 percent (Figure A2.5). As of 2023, agriculture still occupies 30.0 percent of the labor force but accounts for only 8.6 percent of GDP. Moreover, agricultural output per worker is only 19.0 percent and 23.0 percent of that in the industry and services sectors, respectively, highlighting the persistent productivity gap across sectors (Figure A2.6).

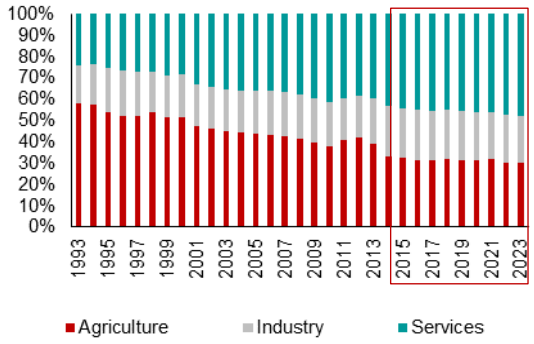
7. Decomposition analysis shows that structural transformation's contribution to Thailand's productivity growth has stalled over the past decade. Our decomposition analysis (see Box A2.2 for details) reveals that while sectoral reallocation contributed to over half of Thailand's productivity gains since the 1990s, its impact has nearly vanished since 2015 (Figure A2.7). Instead, productivity growth now stems primarily from intra-sectoral improvement. This stagnation in structural transformation is particularly concerning given the substantial productivity differences that persist across sectors, suggesting that Thailand is missing out on a historically significant source of economic growth and efficiency gains. As Figure A2.8 shows, Thailand has one of the lowest agricultural labor productivity, especially after adjusting for per capita income, and its sectoral productivity dispersion is among the largest in the region.[67]

8. Thailand's structural transformation has stalled due in part to policy distortions and insufficient reforms. Agricultural support policies have kept workers in low-productivity farming (Warr and Suphannachart 2023), while minimum wage increases have reduced formal sector opportunities for low-skilled workers (Samutpradit 2024). Educational shortcomings, especially in rural areas, have perpetuated a skills mismatch with modern urban sectors (Koen and others 2018). An aging agricultural workforce,

[66] This process of labor reallocation from low-productivity to high-productivity sectors as a driver of economic growth is theorized in Lewis (1954).
[67] Klyeuv (2015) draws similar conclusion using scaled covariance measures.

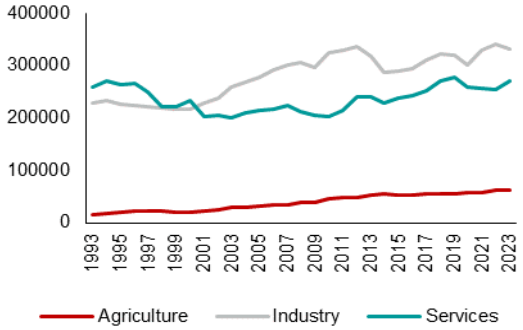
inadequate rural infrastructure, and agriculture's role as an employer of last resort further impede labor movement into higher-productivity sectors. The lack of significant land reforms and agricultural modernization policies has held back productivity growth, with fragmented land ownership restricting economies of scale (Pochanasomboon and others 2020). While agricultural subsidies provide short-term support, they may distort incentives, hindering long-term productivity growth and structural transformation. This complex interplay of factors highlights the urgent need for comprehensive policy reforms to revitalize Thailand's structural transformation.

Figure A2.5: Shift of labor to higher-productivity sectors has stalled from 2015 to 2023…
(Employment share by sector)



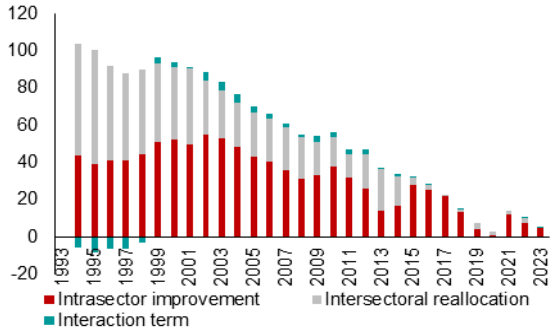
Source: World Bank.

Figure A2.6: …despite substantial productivity gaps across sectors.
(Output per worker, Baht)



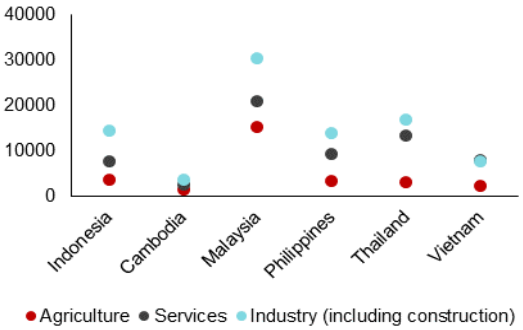
Source: World Bank and AMRO staff calculation.

Figure A2.7: Productivity enhancement via sectoral reallocation has nearly vanished.
(Percent growth from year t (x-axis) to 2023)



Source: World Bank, United Nations and AMRO staff estimation.

Figure A2.8: Dispersion of productivity between agriculture and other sectors is large in Thailand.
(value added per worker, constant 2015 USD)



Source: World Bank and AMRO staff calculation.

Box A2.1. Decomposition of Labor Productivity Growth in Thailand

We decompose labor productivity growth in Thailand into three components—intra-sectoral productivity growth; intersectoral labor reallocation; and dynamic interaction between the two, using a method similar to Klyeuv (2015) but with some modifications. Average productivity (output per worker) equals the weighted average of sectoral productivities, with the weights given by shares of sectoral employment.

$$P_t = \frac{Y_t}{L_t} = \frac{\sum Y_t^i}{L_t} = \sum \frac{Y_t^i}{L_t} = \sum \frac{L_t^i}{L_t}\frac{Y_t^i}{L_t^i} = \sum S_t^i P_t^i$$

P_t refers to total output per worker, or total labor productivity, which is computed by dividing total output Y_t by total employment L_t. S_t^i refers to employment share in sector i, while P_t^i refers to output per worker in sector i.

Productivity growth over a time span from $t0$ to $t1$ can be represented as the sum of three components:

$$\begin{aligned} P_{t1} - P_{t0} &= \sum S_{t1}^i P_{t1}^i - \sum S_{t0}^i P_{t0}^i = \sum S_{t0}^i P_{t1}^i - \sum S_{t0}^i P_{t0}^i + \sum S_{t1}^i P_{t1}^i - \sum S_{t0}^i P_{t1}^i \\ &= \sum S_{t0}^i \left(P_{t1}^i - P_{t0}^i\right) + \sum \left(S_{t1}^i - S_{t0}^i\right) P_{t0}^i + \sum \left(S_{t1}^i - S_{t0}^i\right)\left(P_{t1}^i - P_{t0}^i\right) \end{aligned}$$

- $\Sigma\, S_{t0}^i \left(P_{t1}^i - P_{t0}^i\right)$ represents intra-sectoral productivity growth: This is calculated by summing the productivity improvements within each sector, weighted by their initial employment shares.

- $\Sigma \left(S_{t1}^i - S_{t0}^i\right) P_{t0}^i$ represents productivity growth from inter-sectoral labor reallocation: This term reflects the movement of workers between sectors. It becomes positive when labor shifts towards higher-productivity sectors, and negative when the opposite occurs.

- $\Sigma \left(S_{t1}^i - S_{t0}^i\right)\left(P_{t1}^i - P_{t0}^i\right)$ represents interaction effect: This captures the combined impact of productivity changes within sectors and labor movement between sectors. It turns positive when workers tend to move into sectors that are experiencing faster productivity growth.

Given that the dynamics of the three terms are sensitive to the choice of initial year $t0$, we use a backward-looking approach to better illustrate the evolving importance of the three components. We fix $t1$ to be the latest year of our data span, which is 2023, and allow $t1$ to vary. This approach allows us to assess the relative importance of each component from year $t0$ to 2023.

Thailand as a High-Income Economy: Scenarios for Breaking the Middle-Income Barrier

9. A production function analysis of Thailand's growth drivers since 1970 reveals a significant shift in the sources of economic expansion. This quantitative assessment (see Box A2.2 for details) shows that capital accumulation, once a major contributor to potential growth at 3.0 percentage points pre-Asian Financial Crisis, has decelerated to about 1.0 percentage point from 1999 to present. Labor's contribution has experienced an even more dramatic decline, falling from a high average of 2.4 percentage

points between 1970 and 1990 to recently turning negative, reflecting Thailand's sharp demographic shift. While total factor productivity (TFP) growth and human capital development remain key drivers, their collective contribution has also diminished, dropping from about 2.7 percentage points in the early 1990s to approximately 1.6 percentage points currently. This decomposition exercise underscores the evolving landscape of Thailand's economic growth factors and highlights the urgent need for policies that address declining capital accumulation, demographic headwinds, and slowing productivity growth.

10. Baseline staff forecast suggests that Thailand will miss its target of achieving high income country status by 2037 by a wide margin. Our baseline scenario assumes an average annual GDP growth rate of 2.7 percent from 2024 to 2030, gradually declining to 2.2 percent by 2050,[68] with TFP and human capital growth following historical trends and capital investment maintained at the average level of the past decade.[69] Under the baseline scenario, Thailand's GNI per capita is expected to reach only about USD 13,600 by 2037, falling short of the estimated high-income threshold of approximately USD 8,500 for that year.[70] Thailand is not anticipated to reach high-income status until 2050, the end of our forecast horizon. The substantial gap between projected and required growth rates underscores the magnitude of the challenge Thailand faces in achieving its development goals.

11. In an upside scenario with bold reform initiatives and more forceful implementation of investment projects, Thailand will be able to achieve high-income status in 2042. This scenario, as outlined in Table A2.2, assumes successful implementation of key structural reforms, including improvements in education and skills training and acceleration of structural transformation. It also assumes more effective execution of planned investments and sustained inflow of FDI. Under this scenario, potential growth could increase to 4.0 percent per year over the forecast horizon, driven by higher TFP and human capital growth and stronger capital accumulation, before normalizing to 2.8 percent by the end of the forecast period. While this would still not be sufficient to reach high-income status by 2037, it would put Thailand on a path to achieve this milestone by the early 2040s. To reach high-income status by 2037, Thailand would need to sustain an average growth rate of around 5.0 percent per year, a significant acceleration from current levels that seems difficult to achieve even under the upside scenario.

Box A2.2. Growth Accounting Using Production Function

We assume standard Cobb-Douglas production technology with constant returns to scale. Potential output can be decomposed into total factor productivity, capital, labor, and human capital:

$$\ln Y = \ln A + \alpha \ln K + (1-\alpha) \cdot (\ln H + \ln L)$$

where Y is potential GDP, A is total factor productivity, K is capital stock, L is labor supply, H is human capital stock, and α is the output elasticity of capital.

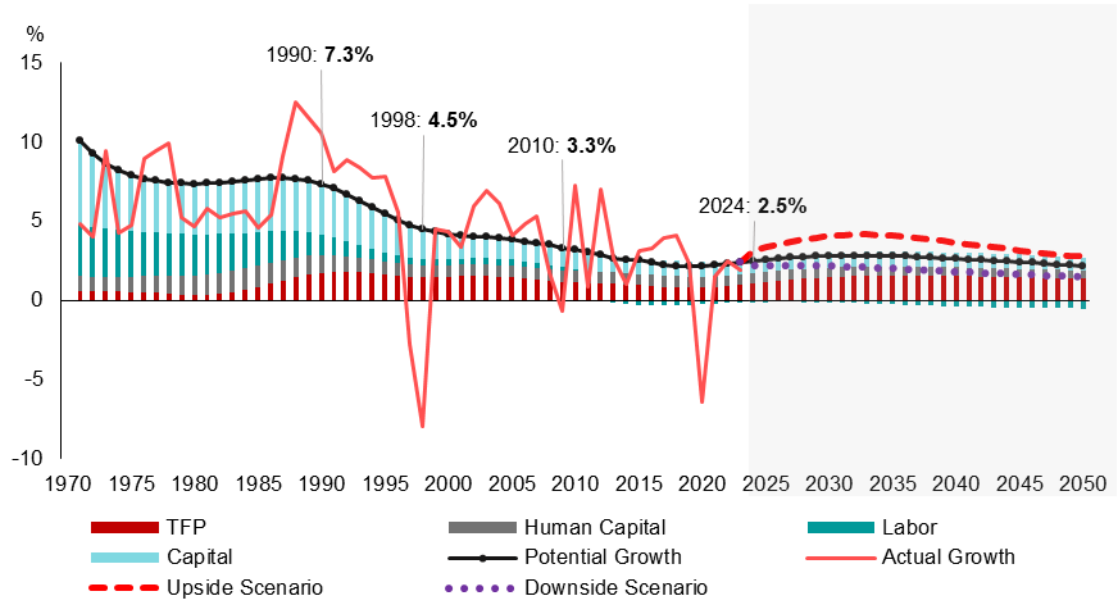
[68] Our forecasts are comparable to those of the World Bank, see World Bank (2023, 2024) and (Kilic Celik and others 2023).
[69] Given the large pipeline of investment projects awaiting implementation and the growing trend of investment applications with Thailand's Board of Investment, we believe it is plausible that the investment-to-GDP ratio will be maintained at its average level over the past decade.
[70] The nominal high-income threshold is projected to grow at 2.0 percent annually from 2024 onward, based on the World Bank's 2023 threshold of USD 14,005.

We rely on data input from Penn World Table (PWT) 10.01 (Feenstra and others 2015), which are updated to 2019. To extend the dataset beyond 2019, TFP was recalculated as the Solow residual of output, employment was extended using data from the United Nation. For capital stock data beyond 2019, they are estimated using investment data from national statistical agencies by the perpetual inventory method. Labor and capital shares follow those reported in Penn World Tables. Human capital is separately accounted for in the production function as described in the equation above.

For baseline projection beyond 2023 until 2050, we use the UN's medium variant population scenario for the growth projection of working-age population. A constant labor force participation rate is assumed for the future. Human capital is assumed to follow historical trends and grow at an average of 1.0 percent from 2024 to 2030 and 0.86 percent from 2031 to 2050. The investment-to-GDP ratio from 2024 to 2030 is assumed to remain at the average level of the preceding decade, considering the pipeline of mega investment projects waiting to be implemented in the years to come, and will gradually decline thereafter. Capital depreciation rate is assumed to maintain at the average level in the preceding decade over the projection horizon. Finally, A is assumed to follow historical trend and grow by an average of 1.6 percent per annum before 2030 and decline to an average of 1.5 percent in 2030–2050.

12. However, if progress in reforms and implementation of development plans were to stall or fall behind, the achievement of high-income status could be pushed well beyond 2050. In a downside scenario, where structural reforms stall and investment plans continue to face significant delays, Thailand's potential growth could fall to an average of 2.5 percent or lower. This would not only delay the country's transition to high-income status but could also lead to a middle-income trap, where Thailand fails to make the leap to advanced economy status. Factors that could contribute to this scenario include political instability, failure to address demographic challenges, and inability to boost productivity in key sectors. In this case, Thailand's GNI per capita might struggle to exceed USD 12,000–13,000 by 2050, leaving it well short of the high-income threshold.

Figure A3.9: Potential Growth Forecast for Thailand



Source: World Penn Table, United Nations, Haver Analytics, and AMRO staff calculation.

13. To slow down or reverse the secular decline in long-term growth potential, policy measures to address the identified drags—stalled structural transformation, shrinking labor force, and sluggish investment—are critical. Three key policy pillars will serve this purpose: 1) Revitalizing structural transformation by facilitating the movement of resources from low to high-productivity sectors and modernizing traditional industries; 2) Focusing reforms on innovation, human capital accumulation, and infrastructure to enhance productivity and competitiveness; and 3) Strengthening implementation of development plans through improved coordination among stakeholders and prioritization of approved investment projects. Our scenario exercise demonstrates that with a collective commitment to all three policy pillars, Thailand has the potential to overcome its growth challenges and accelerate its journey toward high-income status, paving the way for a more prosperous and dynamic economic future.

Table A2.2: Forecast Scenarios for Potential Growth

Scenario	Average growth from 2024-2030 (%)	Peak growth over projection horizon (%)	Average growth from 2030-2050 (%)	Underlying assumptions	Year in which "high-income country" status will be achieved if economy grows at potential
Baseline	2.7	2.8	2.6	• Moderate progress in the implementation of public investment projects, FDI attraction, and human capital development. • Real investment as a share of GDP from 2024 onward is maintained at the average level over the preceding decade. • TFP and human capital will grow along historical trend. • Labor force projection is based on UN's medium variant population scenario with constant labor force participation rate.	2050
Upside	3.7	4.0	3.6	• Bold reform and structural transformation measures, accelerated implementation of development plans, increasing inflows of	2042

				FDI, expedited human capital development. • Real investment as a share of GDP from 2024 onward will gradually increase to the average of ASEAN countries by 2030 and remain unchanged thereafter. • Under a revitalization of reforms and structural transformation, TFP and human capital are assumed to grow at a pace similar to that of the decade before 2015, when structural transformation was still progressing.	
Downside	2.2	2.2	1.8	• Real investment as a share of GDP, TFP and human capital growth from 2024 onward will continue to decline following long-term historical trend	After 2050

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3. Sustaining Export Competitiveness in a Rapidly Changing Global Environment[71]

Various global trends—such as the transition to clean energy and rapid technological transformation—have cast a shadow over the long-term outlook for Thailand's export competitiveness. Yet, while these ongoing shifts bring risks to Thai exporters, they also bring new opportunities—especially if the economy can rapidly upgrade its existing strengths in auto and electronics manufacturing, while simultaneously leveraging on its emerging renewables sector. Ultimately, Thailand's future economic competitiveness will hinge on its ability to re-engineer its existing export strengths into these new emerging areas, through the help of well-designed investment policies and incentives.

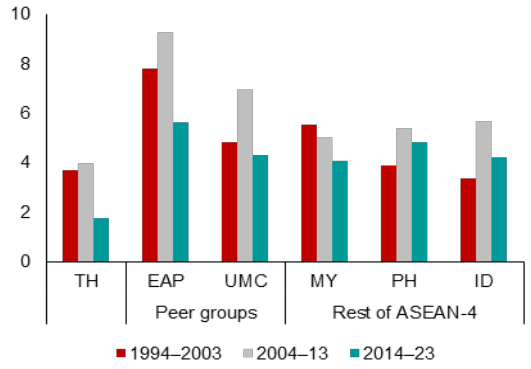
Background

1. In recent years, Thailand's relative economic performance compared to its peers has raised concerns about its competitiveness. Since the mid-2000s, its economic growth has consistently underperformed its peers in Asia. In the last three decades, not only has its growth momentum lagged that of Indonesia, Malaysia, and the Philippines (collectively, the ASEAN-4, including Thailand), but it also appears to have been impacted more severely by the various shocks of the last 10 years (Figure A3.1). This persistent underperformance is also reflected in the steady downgrade of market expectations when it comes to Thailand's long-term growth potential (See Selected Issue 2: Thailand's Long-Term Growth Potential: The Case for Reform). An examination of net foreign direct investment inflows across ASEAN also appears consistent with the more subdued growth outlook for Thailand vis-à-vis those of its neighbors. In the last decade, FDI inflows have averaged around 1.5 percent of GDP, versus 6.4 percent for the BCLMV economies, and about 8.1 percent for the rest of the ASEAN. Exports of goods and services—a measure of how an economy competes successfully in world markets—illustrate a similar pattern, with Thailand's export growth averaging at less than 1.0 percent in recent years, versus export growth rates of 2.4–10.9 percent elsewhere in the region (Figure A3.2).

2. One key concern is Thailand's ability to pivot its existing export strengths to adapt to and benefit from the global shifts that are taking place. The ongoing global trade and investment configuration, transition to a low-carbon world, and rapid technological transformation are among the key structural shifts facing ASEAN+3 economies (Hinojales 2024). To a certain extent, Thailand has been able to benefit from global supply chain relocation activities, given its strong existing capabilities in the manufacture of products that have been affected by trade tensions—such as electronics and electrical equipment (AMRO 2024). However, the shift to clean energy across the world and swift advances in frontier technologies raise critical questions on the sustainability of Thailand's traditional areas of export strength.

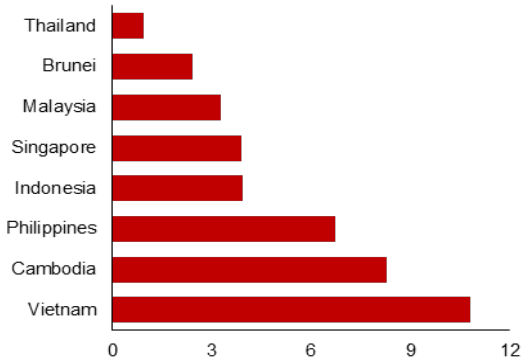
[71] Prepared by Marthe M. Hinojales.

Figure A3.1. Thailand and Selected Economies: Growth Rates, by Period
(Percent)



Source: World Bank; and AMRO staff calculations.
Note: EAP = East Asia and the Pacific; ID = Indonesia; MY = Malaysia; PH = the Philippines; TH = Thailand; UMC = upper middle-income countries (per World Bank definition).

Figure A3.2. Selected ASEAN: Annual Export Growth, 2014–23
(Percent)



Source: World Bank; and AMRO staff calculations.
Note: Figures refer to average growth over the period. Brunei Darussalam is referred to as "Brunei" for brevity.

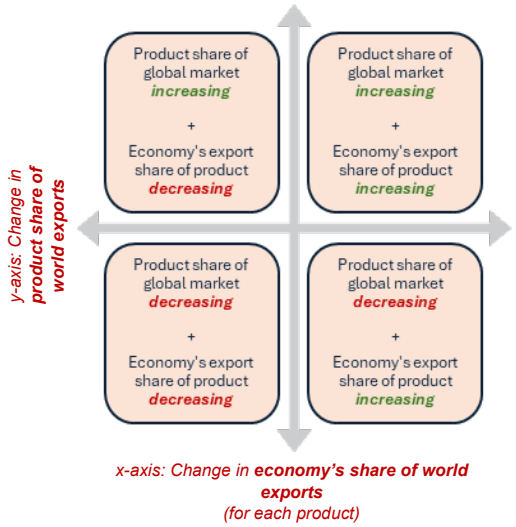
A Medium-Term Picture of Thai Exports

3. The consequences on economic growth, employment, and overall welfare would be especially severe if no transformation in Thailand's export profile were to take place. To provide an initial view on how Thailand's export competitiveness could evolve based on prevailing trends and in the absence of policy adjustments, a product export profile for Thailand from 2022 to 2030 was constructed. This forecast profile—which covers about 270 different commodities—builds on two variables: (1) the forecast *change in each commodity's share* to global exports over the reference period, and (2) the forecast change in *Thailand's share of global exports in that product*.[72] For any product, the most ideal scenario is being located in the upper right-hand quadrant: this represents a situation where the economy is competing successfully in a product where global demand is growing (Figure A3.3). Conversely, a position in the upper left-hand quadrant suggests that an economy is losing competitiveness in sectors that are forecast to face higher demand. The lower right-hand quadrant represents potential export gains, but these gains are in traditional products which are unlikely to be sustainable in the long term. Lastly, the lower left-hand quadrant would consist of so-called "sunset" products where an economy could consider eventually diversifying away from.

4. Without significant adjustments, about 36.0 percent of Thailand's exports could see their shares of global demand shrink by 2030—indicating potential loss in competitiveness. This group of products, in fact, includes those where the economy's biggest export strengths are currently: motor vehicles and parts, semiconductors, as well as electronics (and related) goods (Figure A3.4). Demand for these is expected to increase globally, yet Thailand's shares of the global market are projected to decrease—suggesting lower demand for Thai exports and that alternative markets will be meeting the forecast increase in consumption. For motor vehicles, in particular, the projected decline in Thailand's share in the next five years most likely reflects a scenario where it continues to primarily export vehicles that run on internal combustion engines, which currently

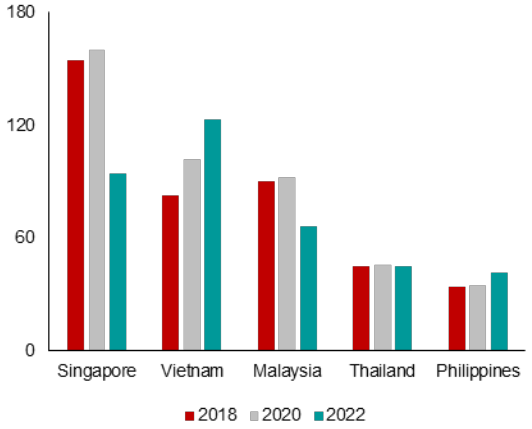
[72] This analysis leverages on IHS Markit's Global Trade Analytics Suite (GTAS) Forecasting database, including medium-term demand forecasts for 270 commodities at the country level. Forecasts are derived from a set of three statistical models, including a SARIMAX with principal components analysis (IHS Markit 2024).

Figure A3.3. Product Export Profile: A Diagram



Source: AMRO staff, building on an earlier work by KKP Research (2024).

Figure A3.5. Selected ASEAN: High-technology Exports
(Billions of USD)

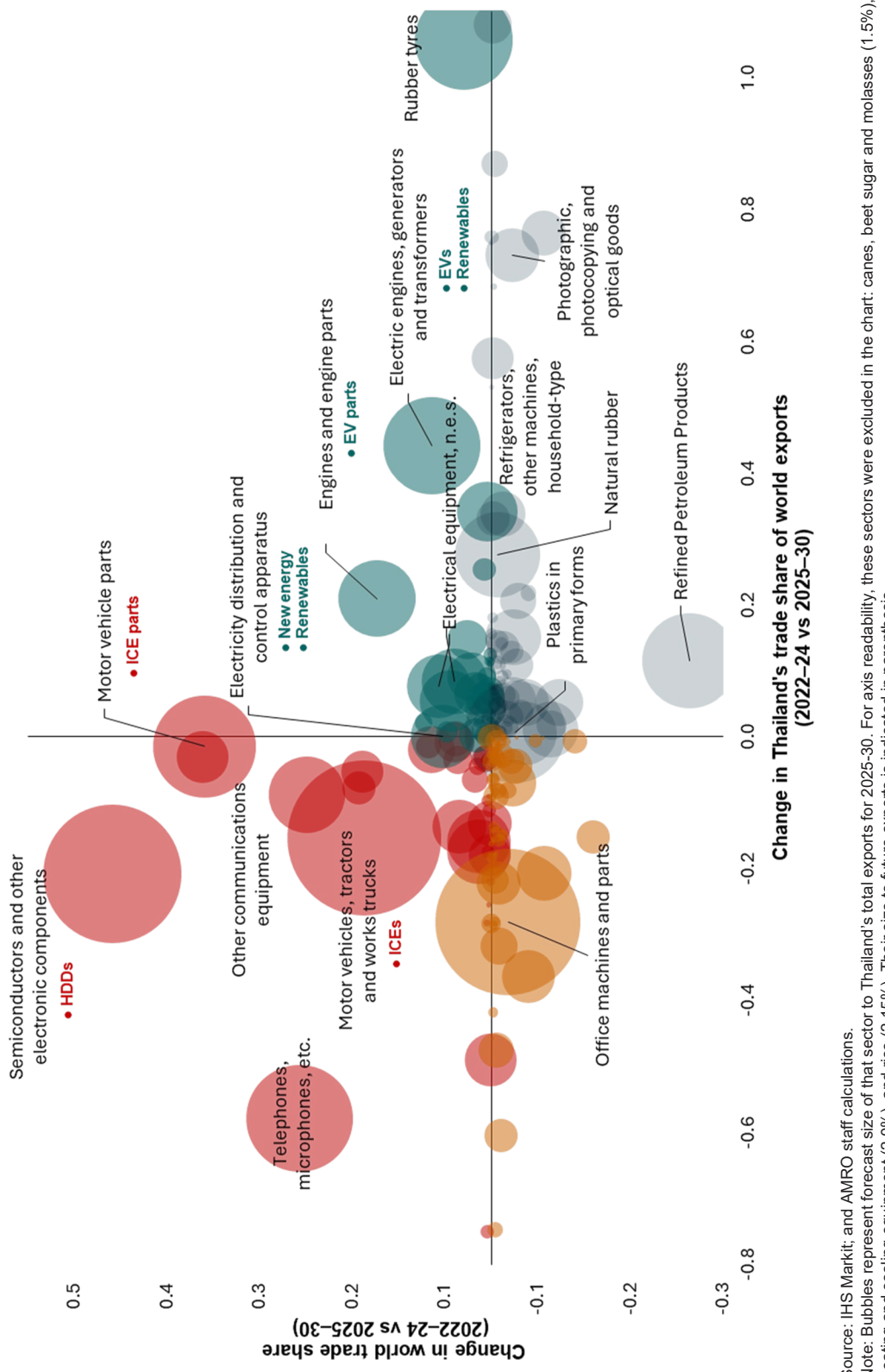


Source: World Bank; and AMRO staff calculations.
Note: As defined by World Bank, high-technology exports are "products with high research and development intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery."

comprise 90.0 percent of its exports.[73] Similarly, the projected fall in the economy's share of the global electronics market is a reflection of prevailing trends, i.e., that Thailand will focus on hard disk drive manufacturing (especially for standard, personal consumption), or that there will be no substantial improvement in the complexity of its technology exports, which is already lower than its current peers (Figure A3.5). These results clearly suggest that without a re-engineering of affected industries to meet future demand for clean energy and frontier technologies, exports will unlikely remain a significant driver of Thailand's potential growth. Without policies such as industrial and labor upgrading, for example, a third of Thailand's exports could be trapped in sectors that are expected to grow by only zero to 2.0 percent by 2030, and another 6.0 percent in sectors where demand is likely to contract (Figure A3.6).

[73] In fact, some market estimates suggest that electric vehicles will overtake ICEs, in terms of share of the global market, as early as 2026 (Bond and Butler-Sloss 2023).

Figure A3.4: Thailand: Forecast Export Profile to 2030
(Change in percentage points: 2022–24 versus 2025–30 *forecast*)



Source: IHS Markit; and AMRO staff calculations.
Note: Bubbles represent forecast size of that sector to Thailand's total exports for 2025-30. For axis readability, these sectors were excluded in the chart: canes, beet sugar and molasses (1.5%), heating and cooling equipment (2.0%), and rice (2.15%). Their size to future exports is indicated in parenthesis.

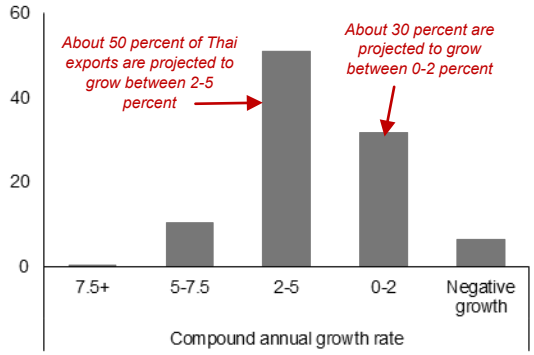
The Role of Transformative Policies

5. On a positive note, about 20.0 percent of Thai exports appear to be well-positioned to take advantage of the ongoing structural shifts. This set of export products, which corresponds to those in the upper right-hand quadrant of the forecast export profile, implies that expanding the renewables sector holds promise in driving Thailand's future competitiveness in the global market by 2030 (Figure A3.4). For example, the economy already has existing manufacturing capabilities in electric engines, generators, and transformers, which would successfully cater to the projected robust demand for cleaner energy. Its current strengths in exporting electricity distribution systems and in energy storage could be well-utilized as markets around the world upgrade their power grids to accommodate renewables. In fact, Thailand is already among the top 15 largest exporters of solar energy products, and was also the first-mover in ASEAN in the development of a wind-hydrogen hybrid power plant (AREO 2023). In other words, some of these exports could represent "low-hanging fruits." Rapidly building on and leveraging on these existing assets could provide an upside that should help Thailand minimize the disruptions to economic growth that would arise from having to simultaneously re-engineer and re-tool its carbon emissions-intensive industries.[74]

6. Aggressive investment promotion efforts by the authorities, especially catered to the targeted "S-Curve" industries, will be key to transforming Thailand's competitive capabilities. These 12 industries—which include next-generation automotives (electric cars included), intelligent electronics, robotics, and advanced agriculture and biotechnology—are seen to drive innovation and economic transformation in Thailand (Eastern Economic Corridor 2024). These sectors will be crucial in reinvigorating the economy's traditional areas of export strength—such as automotives—and in finding new sources of growth, such as advanced semiconductors (including those for clean energy) and AI products. The Board of Investments, along with the Eastern Economic Corridor, has put in place attractive incentives to facilitate both domestic and foreign investment.[75] Applications have continued to flow robustly into these priority areas, especially in electronics, electric automotives, digital industry, and chemicals (Figure A3.7). These four sectors tend to collectively account for nearly 60.0 percent of total applications; more importantly, they provide strong positive signals for Thailand's much-needed industrial and exports transformation. Certificate issuances, which give the green-light for approved projects to break ground within three years, in the first quarter of 2024 suggest that nearly USD8.0 billion worth of projects—about 1.5 percent of GDP—are soon to be injected into the Thai economy. The positive impact on future growth and competitiveness—including in job creation—could be even larger, if certificate issuances remain at a steady and stable pace.

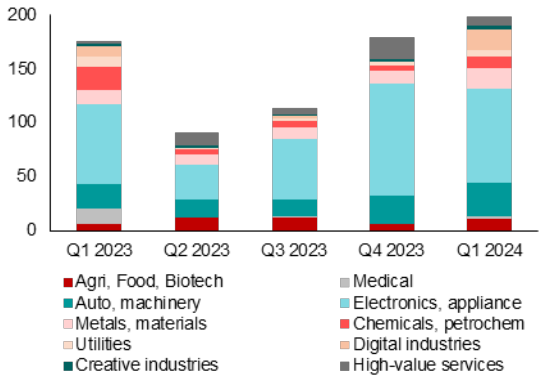
[74] Another 26.4 percent of Thai exports by 2030 fall under the lower right-hand quadrant (Figure A3.4). While the projected increase in Thailand's share to the global market for these products by 2030 seemingly represents an advantageous scenario, it is important to note that global demand for these products is forecast to *decline*—as in the case of refined petroleum products, for example. Thus, while short-term export gains could be had from Thailand continuing to rely on these sectors, these are unlikely to be sustainable, underscoring the need to diversify away from these products over time.
[75] These include 100-percent foreign ownership, no foreign employee quotas, tax exemptions, and corporate income tax reductions up to 13 years (Birot 2024).

Figure A3.6. Thailand: Export Composition, by Forecast Speed of Growth over 2022–30
(Percent share to total exports)



Source: IHS Markit; and AMRO staff calculations.
Note: These forecasts assume that prevailing trends continue.

Figure A3.7. Thailand: Foreign Direct Investment Applications
(Billion Baht)



Source: National authorities via CEIC; and AMRO staff calculations.

7. The presence of supportive enablers will ensure that these investment efforts translate into actual value for Thailand's long-term competitiveness. To some extent, strong investment application volumes underscore investors' continued confidence in Thailand's capabilities as an international production base. Strengthening this confidence, however, requires strong improvements in the local workforce, infrastructure, and in current technological capabilities—with positive spillover effects beyond exports, to the wider economy (Table A2.2).[76] Thailand's aging population is often seen as a pressing impediment to its future competitiveness, but this need not be the case—especially if the potential of productive aging could be harnessed (AMRO 2024).[77] The quality of Thailand's infrastructure has also been identified as a key factor weighing down its overall competitiveness, especially when it comes to scientific infrastructure, health and environment, and education (IMD 2024).[78] Thailand's spending on research and development, for example, has only averaged at less than 1.0 percent of GDP in the last 10 years (World Bank 2024). More broadly, infrastructure spending priorities must increasingly focus beyond the provision of basic infrastructure to one that meets the demands of a global economy increasingly focusing on innovation and sustainability. Similarly, fiscal policy has a greater role to play in catalyzing innovation. Small- and medium-sized enterprises, which comprise a large part of the economy yet face large constraints in innovating, would need more targeted support in accessing finance and technology. Lastly, Thailand's competition policies—and enforcement capabilities—must evolve alongside the emergence of promising new sources of growth.[79]

[76] Economic performance is one of the many dimensions of competitiveness. In a scenario that incorporates bold structural reforms, Thailand could be growing around 3.6 percent in the next 20 years, higher than a 2.6 percent growth without reforms. See *Selected Issue 2: Thailand's Long-Term Growth Potential: The Case for Reform*.
[77] See footnote 55 for AMRO analysis on productive aging.
[78] In the 2024 IMD World Competitiveness Rankings, Thailand ranks 43rd (out of 67 economies) in terms of infrastructure—scoring low especially in scientific infrastructure (40th), health and environment (55th), and education (54th). In the last five years of the IMD World Competitiveness Rankings, Thailand's infrastructure score has hovered between 43rd or 44th, whereas it has managed to improve in other competitiveness dimensions like economic performance, as well as the efficiency of government and business.
[79] In the 2024 Bertelsmann Stiftung's Transformation Index (BTI) Report, for example, Thailand's score for "competition policy" has fallen from 7 in 2006 (10 = best) to 5 in 2024. The scores are based on survey responses to the question "To what extent do safeguards exist to protect competition, and to what extent are they enforced?" The BTI assesses the transformation toward democracy and a market economy as well as the quality of governance in 137 economies.

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4. Debt Sustainability Analysis[80]

Thailand faces higher debt sustainability risks compared to last year, with public debt projected to trend close to the legal ceiling of 70.0 percent of GDP, driven in part by large one-off spending for the digital wallet program. However, both public debt and gross financing needs are expected to decline in the medium term, supported by fiscal consolidation efforts and stable economic growth. Additionally, Thailand also has a favorable public debt profile—dominated by local currency debt with low fixed interest rates and long maturities. Nevertheless, fiscal space has narrowed since the pandemic. To restore fiscal space and ensure sustainability, it is crucial for authorities to focus on accelerating revenue mobilization, rationalizing expenditure, and improving the management of contingent liabilities.

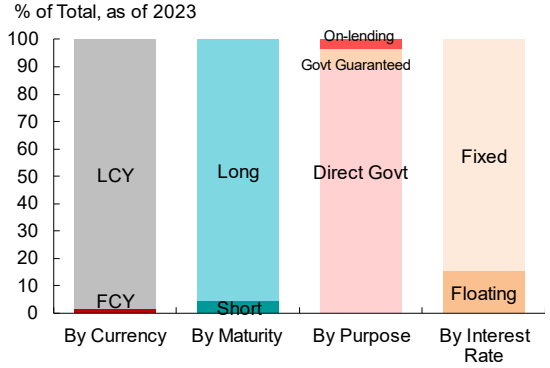
Background

1. Thailand's public debt-to-GDP ratio and gross financing needs (GFNs) have increased sharply since the pandemic. Thailand's public debt-to-GDP ratio has increased from 41.1 percent in FY2019 to 62.4 percent in FY2023. The large increase in public debt is primarily driven by THB 1.5 trillion in COVID-19 borrowing, large fiscal deficits, significant quasi-fiscal liabilities, and, more recently, the large, budgeted funding for the digital wallet scheme. GFNs have nearly doubled, rising from 6.3 percent of GDP in FY2019 to 13.8 percent in FY2023, driven primarily by increased domestic borrowing during the pandemic.

2. Thailand's public debt primarily relies on domestic borrowing with long-term maturity. As of FY2023, local currency-denominated debt accounted for 98.6 percent of total public debt, of which 95.7 percent was long-term debt. By purpose, direct government debt accounted for the majority at 89.6 percent of total public debt, followed by government-guaranteed debt at 6.9 percent, and on-lending to State-Owned Enterprises (SOEs) at 3.5 percent. Lastly, in terms of interest rate structure, 84.8 percent of the total debt was at fixed interest rates. (Figures A4.1). Of the public external debt, a majority is government-held and denominated in Japanese yen, followed by U.S. dollars. In terms of maturity, a significant portion of external debt has long-term maturities of 10 to 15 years, reflecting a stable debt structure that reduces short-term refinancing risks (Figures A4.2).

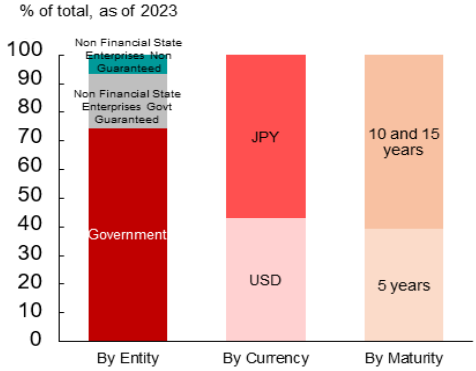
[80] Prepared by Ravisara Hataiseree.

Figure A4.1. Public Debt Structure



Source: PDMO, TMOF; and AMRO staff estimates.
Note: SFIs stand for Specialized Financial Institutions.

Figure A4.2. Public External Debt Structure



Source: PDMO, TMOF; and AMRO staff estimates.
Note: External debt by currency and maturity is based on debt management activities in FY2023, while external debt by entity represents the stock as of 2023.

Macroeconomic and Fiscal Projections

3. Baseline projections of public debt are based on the assumption of GDP growth improving in 2025 and trending toward the pre-pandemic potential of 3.0 percent afterwards. GDP growth in the short-term is assumed to exceed the pre-pandemic average as the economy continues to close the negative output gap but will trend toward pre-pandemic potential from 2026 onward as the output gap gradually narrows. The GDP deflator projections are consistent with expectations that CPI inflation will reach the central bank's target range of 1.0–3.0 percent in 2025 and stabilize around 2.0 percent thereafter. Additionally, effective interest rates align with the assumption of a gradual decline from the current 2.5 percent to 2.0 percent in the medium term (Table A4.1).

4. The projected primary deficits for FY2024–28 average 2.7 percent of GDP, down from the pre-pandemic average of 3.0 percent, reflecting the assumption of a gradual fiscal consolidation. The Thai authorities aim to reduce the fiscal deficit to around 3.0 percent of GDP, but the pace is expected to be slower due to limited major tax reforms under the baseline and the short-term expenditure increase from the Digital Wallet program in FY2024–25. With elasticity around 1.0 for tax revenue and 0.9 for non-tax revenue, and over 65.0 percent of total expenditure being discretionary, the planned fiscal adjustments will require careful management of spending and moderate tax base expansion. Given that the economy is still in the recovery stage, the baseline fiscal assumption includes the possibility of new government-guaranteed debt for SOEs or government agencies whose profitability may not have fully recovered, along with repayment assumptions during the projection period (Table A4.1).

Table A4.1 Macroeconomic and Fiscal Indicators

	2018	2019	2020	2021	2022	2023	2024p	2025p	2026p	2027p	2028p
Macroeconomic indicators (%)											
Real GDP growth	4.3	2.8	-4.7	0.0	2.6	1.8	2.8	3.3	3.0	3.0	3.0
GDP deflator	1.7	1.1	-0.8	0.8	4.3	2.2	1.7	1.8	1.8	1.9	1.9
Effective interest rate	2.1	2.2	2.2	2.2	2.0	1.8	1.9	2.0	2.0	2.0	2.0
Fiscal indicators (% GDP)											
Revenue	15.7	15.3	15.0	14.8	14.8	15.0	15.0	14.8	14.8	14.7	14.9
Expenditure	18.6	18.1	20.0	20.0	18.4	18.3	19.5	19.3	18.4	18.3	18.3
Fiscal balance	-2.9	-2.8	-4.9	-5.2	-3.6	-3.3	-4.5	-4.6	-3.6	-3.6	-3.4
Fiscal balance (including off-budget COVID spending)	-2.9	-2.8	-7.1	-9.0	-5.9	-3.3					
Primary balance	-2.1	-1.9	-4.0	-4.1	-2.5	-2.3	-3.4	-3.4	-2.3	-2.3	-2.0
Public debt	41.9	41.1	49.4	58.3	60.5	62.4	65.6	67.7	68.7	69.5	69.2
Gross financing needs	6.1	6.3	11.8	12.2	10.2	11.6	13.8	12.7	11.6	11.0	10.7

Source: TMOF; and AMRO staff estimates.
Noted: The macroeconomic and fiscal indicators for 2024–2028 are based on AMRO staff estimates and projections.

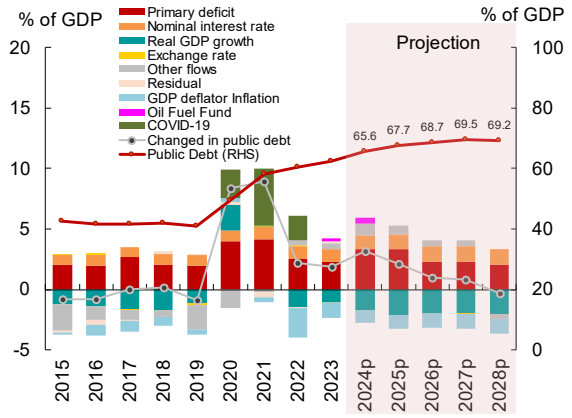
Baseline Debt and GFN Projections

5. The debt-to-GDP is projected to decline from its peak in 2027 but will remain close to the legal ceiling at 70.0 percent of GDP.[81] Thailand's public debt-to-GDP ratio is projected to continue to rise and peak at 69.5 percent in 2027, driven primarily by the one-off widening of fiscal deficits to fund the digital wallet program, before declining gradually after that. Although the primary balance is expected to improve over the medium term, it will remain in deficit throughout the projection period, contributing to debt accumulation. While positive GDP growth and moderate inflation pressures provide some public debt mitigation, these factors are insufficient to fully offset the contributions from primary deficits and nominal interest rate. Additionally, other flows, such as debt guarantees for SOEs and government agencies such as the Oil Fuel Fund, further contribute to rising public debt. As the economic recovery progresses, repayments from guaranteed debt and reduced government guarantees are expected to contribute less to debt-creating flows over the medium-term. If the digital wallet program is excluded, the public debt ratio would follow a more moderate trajectory, peaking at 67.8 percent in 2026 and declining to 67.4 percent by 2028 (Figures A4.3 and A4.5).

6. GFNs are expected to decline in the medium term due to fiscal consolidation efforts. Thailand's GFNs surged during the COVID-19 pandemic before declining as fiscal deficits narrowed. However, GFNs are projected to increase and remain elevated in FY2024–2025, driven by the THB 122 billion FY2024 supplementary budget and THB 157.0 billion (nearly 2.0 percent of GDP) budgeted spending in FY2025. Despite relatively small external amortization, fiscal deficits and domestic amortization will keep GFNs elevated, before tapering off in line with planned consolidation in the medium term. GFNs are expected to decline from around 14.0 percent of GDP in 2024 to 11.0 percent in 2028 (Figures A4.4).

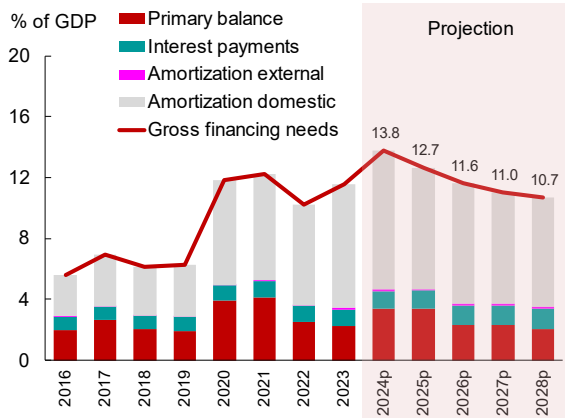
[81] Thailand's fiscal and monetary policy committee increased the public debt-to-GDP ceiling to 70.0 percent from 60.0 percent in September 2021, allowing the government to raise more funds to deal with COVID-19 outbreak.

Figure A4.3. Public Debt Dynamics



Source: PDMO, TMOF; and AMRO staff estimates.

Figure A4.4. Gross Financing Needs Components



Source: PDMO, TMOF; and AMRO staff estimates.

Macro-Fiscal Risks – Stress Tests

7. Thailand's public debt-to-GDP ratio will breach the indicative threshold of 70 percent under most standard macro and fiscal shocks.[82] This 70.0 percent threshold is suggested by the IMF for emerging markets, and adopted by the authorities.[83] Standard stress test scenarios, including slower-than-expected economic growth, higher borrowing costs, and excessive quasi-fiscal operations, are expected to push public debt-to-GDP above the 70.0 percent benchmark. Debt dynamics are particularly sensitive to growth, interest rates, and contingent liabilities (Figure A4.5). A growth slowdown, possibly driven by weaker-than-expected domestic or external demand, could push up the debt trajectory significantly. The on-going use of quasi-fiscal operations for farmers, SMEs, and low-income households, as well as the State Oil Fuel Fund's deficit (driven by prolonged energy subsidies), could pose additional contingent liability risks. In addition, delays in shifting expenditure policies to support long-term growth and setbacks in tax reforms could lead to further deterioration of the primary balance, further increasing the debt ratio above the ceiling in the medium term. Exchange rate shock has relatively small impacts due to Thailand's low foreign currency debt exposure.

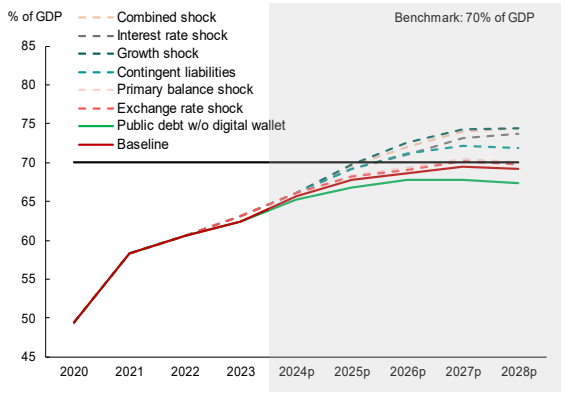
8. All stress test scenarios show GFNs remaining below 15.0 percent of GDP (Figure A4.6). Interest rate shocks significantly raise GFN-to-GDP by increasing debt servicing costs, while growth shocks indirectly reduce government revenues, leading to higher primary deficits and borrowing needs. Nevertheless, the GFN-to-GDP ratio in all scenarios remains well below the threshold of 15.0 percent for emerging market economies despite the shocks.[84]

[82] The scenarios for the stress test are as follows: 1) Real GDP growth shock: one standard deviation or a -1.5 percentage point shock to 2025 and 2026; 2) Primary balance shock: one standard deviation or a -0.5 percent of GDP shock to 2025 and 2026; 3) Interest rate shock: a +1.0 percentage point shock from 2025; 4) Exchange rate shock: one standard deviation or a +1.5 percentage point shock in 2025 and 2026; 5) contingent liabilities shock: a shock of 1.0 percent of GDP in 2025 and 2026, assuming quasi-fiscal operations equivalent to the five-year average from 2019 to 2023, which was around 1 percent of GDP, will continue to be implemented over these two years; 6) Combined shock: combination of growth (half size), primary balance (half size), interest rate and exchange rate shocks.

[83] According to the IMF-WB DSA in MAC (2013), the threshold for the public debt-to-GDP ratio in emerging markets is 70.0 percent.

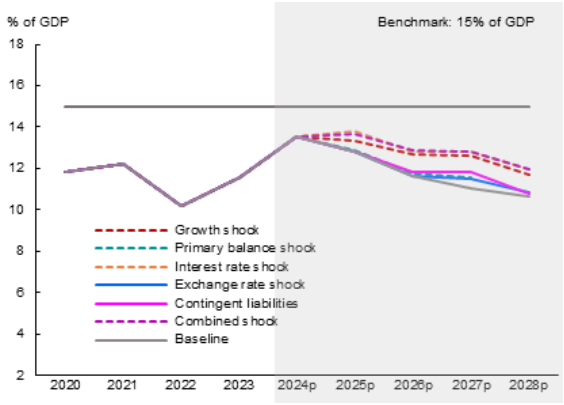
[84] According to the IMF-WB DSA for Market Access Countries (MAC) (2013), the GFN threshold in percentage of GDP for emerging markets is 15.0 percent.

Figure A4.5. Public Debt Stress Test



Source: MOF; and AMRO staff estimates.

Figure A4.6. GFN Stress Test

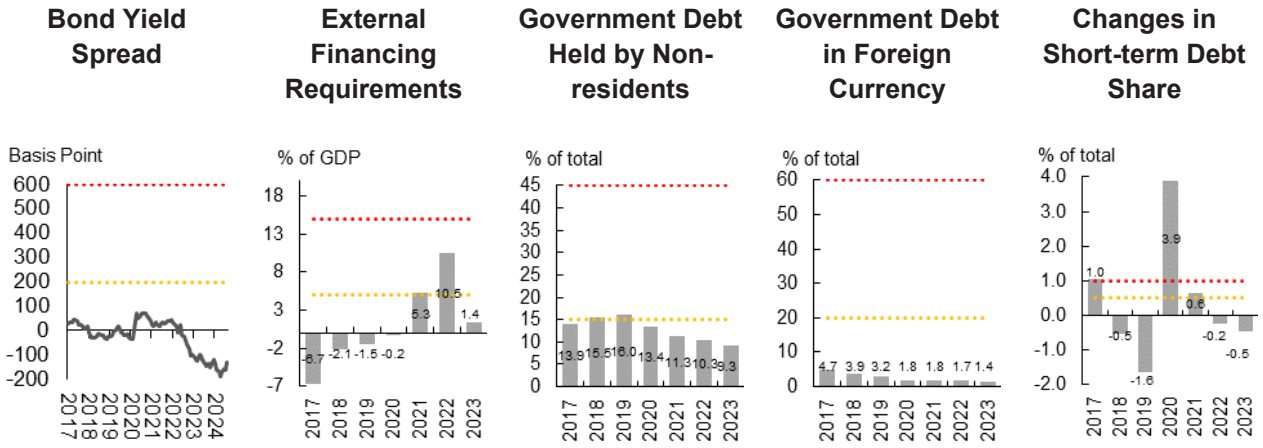


Source: MOF; and AMRO staff estimates.

Market Perception of Risk and Debt Profile Vulnerabilities

9. Despite rising public debt, the financial market continues to view the country's sovereign risk as relatively low. As of 2023, Thailand's bond spread, and debt profile vulnerabilities indicators all stayed below early warning thresholds (Figure A4.7). The 10-year bond yield spread between Thai and the U.S. government bonds continued to be negative. While Thailand's 5-Year CDS spreads were volatile during the pandemic, they have since stabilized, nearing pre-pandemic levels (Figure A4.8). Despite the significant increase in public debt and market concerns over delay in government transition, Thailand has avoided credit rating downgrades.

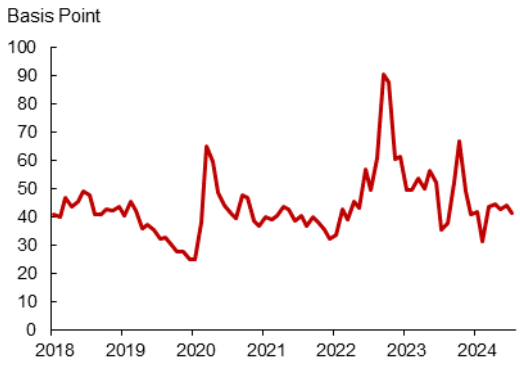
Figure A4.7. Debt Profile Vulnerabilities



Source: TMOF; and CEIC.

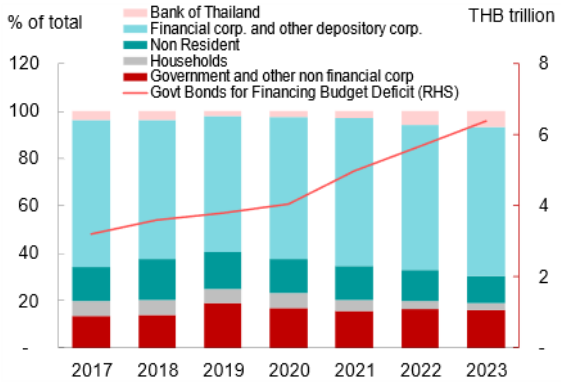
Note: 1) – – – Lower early warning (25.0 percent of the benchmark), – – – Upper early warning (75.0 percent of the benchmark). See IMF (2013) for a detailed discussion; 2) Bond yield spreads are computed by the difference between the Thai Government Bond Yield Curve 10 Years and the U.S. Treasury Notes Yield 10 Years; 3) External financing requirements = current account deficit + amortization of public external) debt + amortization of private external debt; 4) Public debt held by nonresidents is based on the jurisdiction of issuance; 5) Public debt denominated in non-local currency; 6) Short-term debt is based on the debt instrument.

Figure A4.8. Thailand 5-Year Credit Default Swap (CDS)



Source: CEIC.

Figure A4.9. Government Bond Holders for Financing Budget Deficit (End of period)



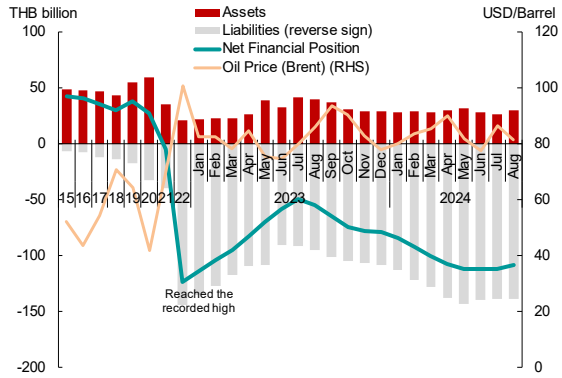
Source: CEIC; and AMRO staff estimates.

Figure A4.10. Public Debt Management
(as of December 2023)

Index	Fiscal Commitments	2023 (Percent)
Expenditure rule		
1	Capital expenditure to total expenditure: ≥ 20 percent	20
2	Principal repayment to total expenditure: 2.5-4.0 percent	3.14
3	Fiscal liability from quasi-fiscal activities of expenditure: ≤ 32.0 percent	30.8
4	Interest payment to revenue: ≤ 10 percent	8.31
Debt rule		
1	Public debt to GDP: ≤ 70.0 percent	62.9
2	Debt service to revenue: ≤ 35.0 percent	26.39
3	Foreign debt to total public debt ≤ 10.0 percent	1.42
4	Foreign currency debt service to exports: ≤ 5.0 percent	0.05

Source: PDMO, TMOF; and AMRO staff estimates.

Figure A4.11. Net Financial Position for Oil Fuel Fund



Source: Oil Fuel Fud Office; and CEIC.

Overall Assessment

10. Under the standard DSA, risks of both debt-to-GDP and GFN-to-GDP are assessed as moderate. However, these risks are mitigated by Thailand's relatively favorable debt profile (Table A4.2). Public debt is expected to remain below the ceiling in the baseline scenario due to the assumption of continued economic recovery. Nevertheless, stress tests indicate the public debt ratio could exceed the ceiling if downside risks such as growth shocks materialize. Contingent liabilities from quasi-fiscal operations and increased debt guarantees for SOEs and agencies, including the Oil Fuel Fund, is an additional source of risk (Figure A4.11). GFNs will spike in FY2024 due to large fiscal deficits, but the government's commitment to medium-term fiscal consolidation should gradually reduce them. Notably, GFNs are projected to stay below indicative thresholds in both baseline and stress scenarios.

11. A balanced approach to fiscal consolidation, focusing on revenue mobilization and expenditure reforms, is essential for ensuring debt sustainability. While Thailand has committed to a revised fiscal consolidation plan and maintained key fiscal indicators within thresholds, the digital wallet scheme poses challenges to fiscal consolidation, slowing

the decline in the debt-to-GDP ratio. Although the primary deficit is expected to narrow to an average of 2.7 percent of GDP in FY2024–28, down from pre-pandemic average of 3.0 percent, this progress hinges on successful implementation of revenue-enhancing measures. The pace of fiscal consolidation will significantly influence the debt trajectory beyond our 2028 forecast horizon. Under the scenario of a 2.0 percent primary deficit persisting beyond 2028, the public debt-to-GDP ratio would only decrease to 60.0 percent by 2038. To safeguard debt sustainability, fiscal consolidation through revenue mobilization and a comprehensive expenditure review is crucial for reducing the primary deficit without compromising necessary investments in inclusive growth. Without these reforms, GDP growth and inflation alone will be insufficient to lead to more rapid moderation in public indebtedness, underscoring the need for a balanced fiscal policy.

Table A4.2. Heatmap of Public Debt Sustainability

		2018	2019	2020	2021	2022	2023	2024p	2025p	2026p	2027p	2028p
Public Debt												
Gross Financing Needs												
Debt Profile	Bond Yield Spread											
	External Financing Requirements											
	Debt Held by Non-residents											
	Debt in Foreign Currency											
	Changes in Short-term Debt Share											

Source: AMRO staff estimates.
Note: 1) For Public Debt and Gross Financing Needs, the cell is highlighted in green if the benchmark is not exceeded under any shocks or the baseline, yellow if it is exceeded under any specific shock but not the baseline, and red if it is exceeded under the baseline; 2) For Debt Profile, the cell is highlighted in green if the country value is less than the lower early warning benchmark, red if it exceeds the upper early warning benchmark, and yellow if it is between the lower and upper early warning benchmarks.

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