

Chapter 1.

Macroeconomic Prospects and Challenges



Highlights

- The start to 2020 has been eventful—the ASEAN+3 region’s resilience will be tested, especially in the first half of the year. 2019 had already been an unsettling year, as a result of the US-China trade tensions and a general weakness in external demand. Nonetheless, the region grew by an estimated 4.8 percent—albeit down from 2018—supported by its strong macroeconomic fundamentals, sound financial systems, and broadly disciplined macroeconomic policymaking.
- Trade developments were the main factor behind the slowdown in 2019. Regional exports were hit by the tariff measures and negative sentiment surrounding the repeated escalation and de-escalation in the US-China trade conflict. The impact was cushioned somewhat by factors such as tariff exclusions, trade and investment diversion, and a strong tourism sector, buoyed by arrivals from China and ASEAN.
- ASEAN+3 growth is projected to slow sharply in 2020, to 4.2 percent. AMRO estimates that the coronavirus (COVID-19) outbreak in China will reduce its growth by 0.7 percentage point, with attendant spillovers to the rest of the region. Main risks to the outlook arise from the uncertainty related to the spread, duration and severity of what has now become a global pandemic, its impact on G3 growth, and the possibility of a resumption in US-China trade tensions.
- The heightened uncertainty resulting from the global spread of the coronavirus has introduced greater volatility in markets. In March, the US Federal Reserve implemented two surprise inter-Federal Open Market Committee meeting interest rate cuts, totaling 150 basis points, and launched a massive USD 700 billion quantitative liquidity program when US dollar funding stress led to a broad sell-off across asset classes and volatility in equity markets reached global financial crisis levels.
- The COVID-19 global pandemic is expected to impact the trajectory and composition of regional growth. Following a very weak first half of the year, AMRO expects economic activity to rebound strongly in the second half, led by manufacturing—supported by recovery in the global semiconductor and capex cycles—and positive sentiment surrounding the US-China Phase One trade agreement. In the short term, the services sector—tourism, in particular—is expected to be hard hit but should gradually recover once the pandemic subsides.
- Timely and skillful use of the various policy levers will be crucial for the region in 2020. Importantly, most ASEAN+3 economies still have some policy space and buffers to react to shocks that are materializing. With the spectre of the COVID-19 global pandemic casting a long, dark shadow over the world, regional policymakers will need to strategically use that policy room to boost growth while safeguarding financial stability.

I. Rising Risks

The novel coronavirus (COVID-19) global pandemic has turned 2020 into a highly challenging year, but the ASEAN+3 region's resilience will ensure that it weathers the storm and recovers strongly. Supported by its strong macroeconomic fundamentals, the region withstood several shocks in 2019, arising mainly from the US-China trade tensions, and grew by 4.8 percent. In the immediate wake of the good news in December that the United States had agreed to the Phase One trade deal with China, tensions in the Middle East flared up with the US assassination of a high-profile Iranian army general. The tensions—and ensuing hike in oil prices—subsided quickly but were followed by another shock when China reported the outbreak of a new strain of coronavirus, the COVID-19, in Wuhan, a major industrial city in central China, which spread quickly throughout the country. The Chinese authorities' drastic actions to lock down Wuhan and quarantine several cities helped to limit the transmission of the virus, but it has nonetheless spread worldwide and many countries are taking unprecedented actions to try and contain its spread.

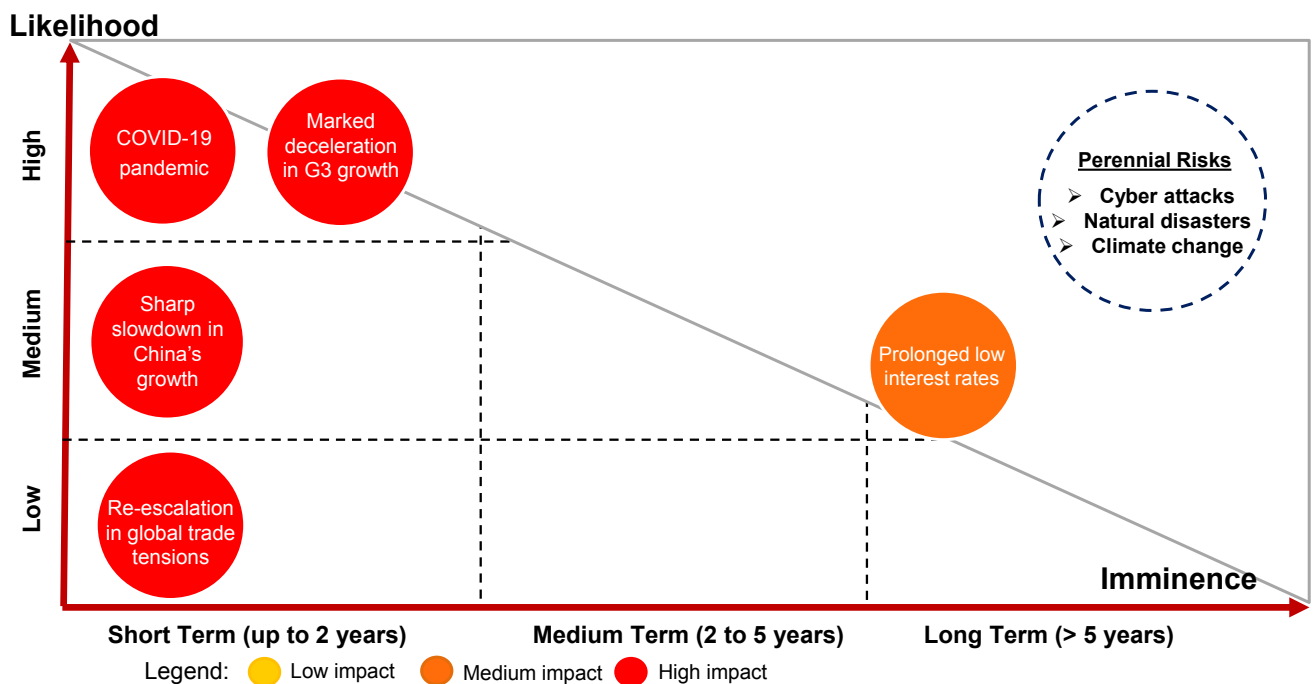
The COVID-19 pandemic represents the wild card for global growth in 2020. It has become the thread that ties several of the key risks identified in AMRO's Global Risk Map (Figure 1.1), and its unravelling could trigger the

realization of those risks, either individually or—more devastatingly—in combination. In the event that the pandemic is protracted and virulent, the highlighted risks will essentially become the baseline.

As it stands, China's growth will slow markedly, with inescapable implications for the rest of the region, even if activity were to rebound in the second half of the year. AMRO estimates that the outbreak could cost the Chinese economy 0.8 percentage point in growth in 2020 (AMRO, 2020a), down to 5.3 percent, even after taking into account support measures that the authorities have already introduced and others that they may implement (Box 1.1). Any further deterioration from this point that results in a significant weakening in banks' asset quality and rise in systemic risks could cause a greater slowdown that would be even more damaging to the region. The one reassuring factor may be China's strong track record (and policy space) in implementing the necessary policy mix to engineer a soft landing—as exemplified by the use of fiscal levers to offset the impact of US tariffs on its external sector this past year—and in addressing pockets of weaknesses in the financial system.

The likelihood of a marked deceleration in G3 growth has risen sharply, with the COVID-19 pandemic casting a

Figure 1.1. Global Risk Map



Source: AMRO staff estimates.
Note: G3 = US, euro area, Japan.

long, dark shadow over the global outlook. Encouragingly, recent US data show that the economy is starting from a position of strength—growing at a moderate pace while inflation remains subdued. However, the US Federal Reserve (hereafter “US Fed”) was sufficiently concerned about the risks posed by the coronavirus to the economy that it pre-emptively cut interest rates by 50 basis points on March 3, in between Federal Open Market Committee (FOMC) meetings, and then by another 100 basis points on March 15, along with the introduction of a massive quantitative liquidity program.

The outlook is even more fraught elsewhere in the G3. EU growth was widely expected to slow to its lowest rate since the global financial crisis (GFC), even before the coronavirus spread quickly through the region. Economic activity in Germany—one of Europe’s main engines of growth—slumped to a six-year low in 2019, while post-Brexit trade negotiations with the United Kingdom are only just beginning, with the risk of extended and widespread disruptions to commerce. Meanwhile, Japan has already been directly affected by the pandemic and indirectly by regional spillovers to economic activity. Consequently, both the European Central Bank (ECB) and the Bank of Japan (BOJ) have announced stimulus measures, via expansions in their asset-buying programs.

Into this mix, global trade developments—with the United States in the eye of the storm—has taken on even greater importance. Indeed, the COVID-19 pandemic has overshadowed the turnaround in global business sentiment following the US-China Phase One trade agreement, which was signed on January 15, 2020. For China, any re-escalation in trade tensions, possibly as a result of setbacks or slippages in implementation, could place similar pressure on its external sector and those of its regional neighbors, as that seen in 2018 and

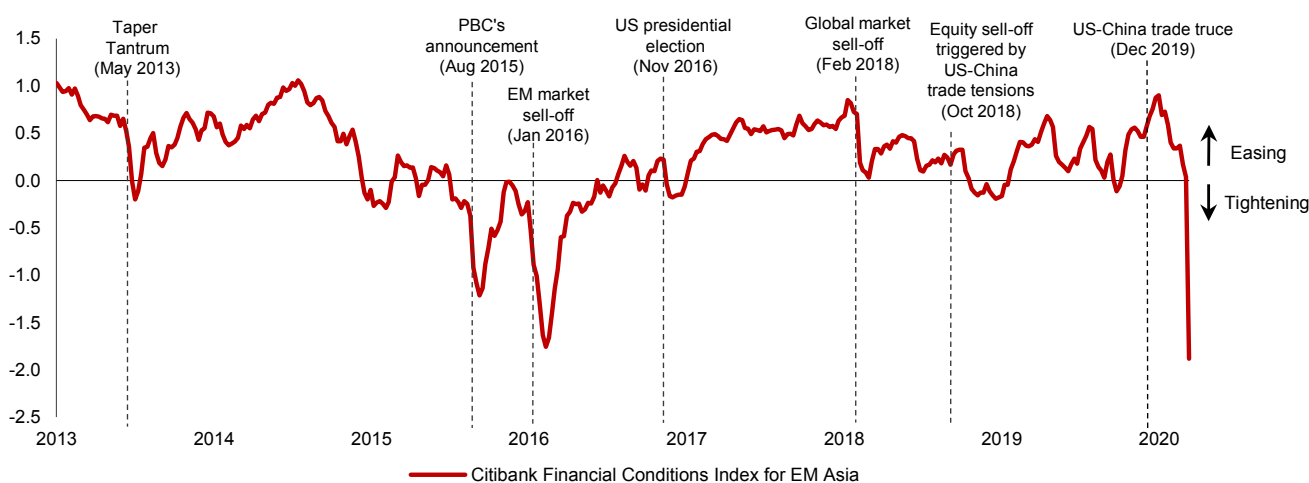
2019. Combined with the disruption to its services and manufacturing sectors from the coronavirus outbreak, the impact could push the economy—and the rest of the region—further into tail risk territory. Separately, trade negotiations are also ongoing between Japan and the United States (e.g., over US tariffs on Japanese automobiles), while the EU is now in US crosshairs.

Meanwhile, oil prices have fallen sharply, triggered by the COVID-19 pandemic and exacerbated by the supply dispute between Saudi Arabia and Russia—an unexpected turnaround from heightened concerns at the start of the year. If (pent up) demand picks up strongly when the pandemic recedes, or if there is an unexpected intensification in hostilities in the Middle East, oil prices could spike. However, given the very weak demand environment and excess supply situation, any rise in oil prices is unlikely to be sustained (Box 1.2).

In the current highly stressed environment, low interest rates are an important stimulant. The easier financial conditions in global markets had provided much-needed support for growth in 2019. However, the huge drawdown in equity markets and sharp widening in sovereign and credit default swap spreads have contributed to a recent tightening in financial conditions in emerging markets (Figure 1.2). Importantly, the large rate cuts by the US Fed provide room for EMs to ease monetary policy to mitigate against the effects of the anticipated downturn in the global economy.

Over the medium to longer term, a prolonged period of low rates could introduce its own risks. Already evident in some countries, low interest rates squeeze net interest rate margins and reduce the profitability of financial institutions, and cause asset-liability mismatches on balance sheets. As a result, financial institutions are forced

Figure 1.2. Emerging Markets: Financial Conditions Index



Sources: Citibank; and AMRO staff estimates.

Note: Variables included are short-term money market rates, government bond yields (short and long tenor); 2- to 10-year yield spread; credit and credit default swap spreads; difference between 3-month Treasury bill and the 3-month LIBOR based in US dollars, 2-year and 10-year yield differentials with US yields; country specific MSCI index; equity volume; country specific MSCI financials index; exchange rate and exchange rate volume; plus some purely external variables: JPMorgan Emerging Market Bond Index-Plus spread and oil prices. EM = emerging market.

to take on greater risks in an effort to earn higher returns. Concurrently, the overall stock of debt among some ASEAN+3 economies is high and rising, and low interest rates could encourage further borrowing—through bank or shadow bank loans and/or security issuances—which could render the debt unsustainable when conditions change and interest rates rise.

Lurking behind these more immediate and higher-profile risks are the perennial, and increasingly recognized, threats to financial stability posed by climate change and natural disasters. More frequent and severe weather and natural disasters in recent years have shown that no economy in the region is immune from their impact and long-lasting consequences. The Great East Japan Earthquake cost Japan 3.4 percent of GDP, but economic loss and damage has amounted to more than 10 percent of GDP in the case of Lao PDR (from a severe storm in 1993), Myanmar (from a cyclone in 2008), and Thailand (from the floods in 2011) (AMRO, 2018a). The severity and increasingly multi-generational nature of the economic impact demonstrates the importance of investing in climate-proof infrastructure and adaptation measures, as well as in setting aside buffers for reconstruction and inclusive social safety nets.

The risk of climate change and natural disasters could also spill into the financial system, potentially magnifying its impact on the real economy. With more frequent, intense, and widespread disasters, banks could face rising credit defaults as collateral values are eroded, eating into their capital. Likewise, the balance sheets of insurers and reinsurers would become increasingly exposed, eventually resulting in a sharp rise in insurance costs, and further increasing the vulnerability of the real economy (Box 1.3).

In the face of these challenges, it is encouraging that the majority of ASEAN+3 economies seem well-positioned to deal with the main risks on the horizon. There appears to be little sign of overheating, which augurs well for those that have adopted more stimulative measures to support their economies in the wake of the COVID-19 pandemic (Figure 1.3):

- *Many economies have moved forward in the business cycle compared to a year ago.* Some, such as Lao PDR, Malaysia, and the Philippines appear to have traversed the late-cycle stage of their respective business cycles quite quickly and are showing signs of moving into the early phase. Brunei and Myanmar have meanwhile progressed to mid-cycle. The impact of the US-China trade tensions and the pandemic have pushed China,

Hong Kong, Japan, Korea, and Singapore into a downturn, although in Hong Kong's case, domestic unrest was probably a bigger factor.

- *Most countries have maintained their positions in the financial cycle over the past year.* They remain in either the slowing or recovery phase, pointing to a low risk of incipient credit bubbles throughout the region. Malaysia and Thailand have moved into the slowing phase, while the Philippines has shifted from the slowing to the recovery phase. Only Japan, which has picked up from the slowing phase, and Cambodia, which has graduated from the recovery phase, are in the expansionary phase of their respective financial cycles, although the situation may change swiftly.
- *Property valuations have remained largely unchanged and moderate.* The exception is Korea, where macroprudential measures appear to have been broadly effective in addressing the previously high prices. Only China's and Hong Kong's property prices remain "rich," notwithstanding their economic downturn.

Growth in the ASEAN+3 region as a whole is projected to slow significantly in 2020. AMRO forecasts that economic activity in the region will be reduced by 0.7 percentage point and expand at a much lower 4.2 percent, on the back of sharply weaker growth in China and the G3 economies (Table 1.1 and Appendix 1). Hong Kong's economy, which is most closely tied to developments in China, is expected to post negative growth again in 2020, following the recession in 2019. Japan's growth surpassed expectations in 2019, expanding at 0.7 percent, but is set to slow significantly, to 0.1 percent, partly as a result of weaker domestic demand. Korea, which is struggling with a severe COVID-19 outbreak, is estimated to register much weaker growth again this year, at 2.0 percent. The ASEAN region as a whole is anticipated to soften further in 2020, with significant downward revisions to the growth estimates for some economies.

AMRO projects that economic activity in the region will be supported by a strong rebound in manufacturing and trade activity in H2 2020, following a sharp slowdown in the first half of the year. Korea's recovery is anticipated to be led by improvements in domestic activity and a turnaround in the global semiconductor cycle; the ASEAN-5 economies and Vietnam should similarly benefit. Additionally, growth in the Philippines is expected to pick up to 6.2 percent as the government ramps up fiscal spending following budget delays in 2019, while Lao PDR should rebound from lower growth in 2019 as a result of flash floods and drought.

Figure 1.3. ASEAN+3: Business, Financial, and Property Valuation Cycles

		Business Cycle					
		Early	Mid	Late	Downturn		
Financial Cycle	Recovery		Indonesia			Low	Property Valuation Cycle
		Philippines	Brunei Myanmar			Moderate	
					China	High	
	Expansionary					Low	
					Japan	Moderate	
						High	
			Cambodia			-	
	Slowing					Low	
		Malaysia	Vietnam		Korea Singapore Thailand	Moderate	
					Hong Kong	High	
Contractionary					-		
	Lao PDR				-		

Source: AMRO staff estimates.

Note: In Korea's case, the analysis on property valuations focuses on Seoul and its surrounding areas, which has recorded high year-over-year growth in prices.

Table 1.1. ASEAN+3: AMRO Growth Estimates and Projections, 2019–21
(Percent)

Member	2018	January 2020		April 2020		
		2019 e/	2020 p/	2019 e/	2020 p/	2021 p/
ASEAN+3	5.2	4.9	4.9	4.8	4.2	5.0
Plus-3	5.2	4.9	4.9	4.9	4.2	5.0
China	6.6	6.1	6.1	6.1	5.3	6.1
Japan	0.3	1.1	0.5	0.7	0.1	0.6
Korea	2.7	1.9	2.4	2.0	2.0	2.6
ASEAN	5.2	4.7	4.9	4.6	4.4	5.0
ASEAN-5	4.9	4.4	4.6	4.2	4.1	4.8
ASEAN-5 & BN	4.9	4.4	4.6	4.2	4.1	4.8
ASEAN-4 & VN	5.2	4.9	5.0	4.8	4.5	5.1
CLMV	7.0	6.9	6.9	6.9	6.4	6.8
HK & SG	3.1	-0.2	1.2	-0.2	0.2	2.2

Sources: National authorities; and AMRO staff projections.

Note: e/ refers to AMRO staff estimates, and p/ refers to AMRO staff projections. Plus-3 = China (including Hong Kong), Japan, and Korea. ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; ASEAN-4 = Indonesia, Malaysia, the Philippines, and Thailand; CLMV = Cambodia, Lao PDR, Myanmar, and Vietnam; BN = Brunei; HK = Hong Kong; SG = Singapore; VN = Vietnam.

Addendum to The ASEAN+3 Regional Economic Outlook (AREO) 2020

Table. AMRO's Revised Growth Projections for the ASEAN+3 Economies

Economy	2018	2019 e/	AREO 2020 ⁴		April 2020	
			2020 p/	2021 p/	2020 p/	2021 p/
ASEAN+3	5.2	4.8	4.2	5.0	2.0	5.5
Plus-3	5.2	4.9	4.2	5.0	2.2	5.6
China	6.6	6.1	5.3	6.1	3.5	6.5
Hong Kong, China	2.9	-1.2	-0.5	1.8	-4.0	3.0
Japan	0.3	0.7	0.1	0.6	-1.8	2.5
Korea	2.7	2.0	2.0	2.6	-1.4	3.2
ASEAN	5.2	4.6	4.4	5.0	1.1	5.2
Brunei Darussalam	0.1	3.9	3.5	2.9	3.0	2.9
Cambodia	7.5	7.1	6.2	6.9	2.7	6.8
Indonesia	5.2	5.0	4.9	5.2	2.3	5.3
Lao PDR	6.3	6.0	6.1	6.5	3.8	6.2
Malaysia	4.7	4.3	4.0	4.6	0.1	4.6
Myanmar	6.8	6.8	6.0	6.9	4.5	6.9
The Philippines	6.2	5.9	6.2	6.6	4.5	6.7
Singapore	3.4	0.7	0.8	2.6	-1.0	2.0
Thailand	4.1	2.4	1.5	3.2	-6.0	4.0
Vietnam	7.1	7.0	6.6	6.8	4.5	7.0

Note: e/ refers to AMRO staff estimates, and p/ refers to AMRO staff projections. Plus-3 = China (including Hong Kong), Japan, and Korea.

⁴ The country forecasts in *AREO 2020* were prepared based on information available as of March 16, 2020 when much of members' macroeconomic data for February were still not available and the impact of the COVID-19 epidemic was largely unknown. Since then, the spread and severity of the global pandemic have become clearer and more data and information have become available, including policy measures announced by the member authorities, allowing a deeper analysis of the impact on the economies. The COVID-19 pandemic has significantly increased the uncertainty and downside risks around the global and regional outlook. AMRO staff will continue to update their analyses and projections, taking into account new data releases and policy responses.

Box 1.1:**Impact of the COVID-19 Pandemic on the ASEAN+3 Economies**

The recent outbreak of a novel coronavirus, COVID-19, in Wuhan, China, and its subsequent spread outside the country has heightened the risk to both China's growth and those of the region and the rest of the world. The eventual economic impact of the disease will depend on its duration, virulence, and contagiousness. In China, the pandemic is putting great pressure on the health system, and resulting in lost wages and lower productivity from sick days and work stoppages. The fear of infection and attempts to curtail contagion has led to disruptions in transportation, the manufacturing supply chain, provision of services, and closure of schools and businesses. Reportedly, the spread of the disease has largely been brought under control in China. However, the authorities are now confronted with the challenge of balancing containment against the need to resume production and other economic activity.

The severe acute respiratory syndrome (SARS) outbreak could provide a benchmark for estimating the potential impact of COVID-19. SARS was first reported in Q4 2002, with most cases registered in Q1 and Q2 2003—and like the COVID-19, occurred over the busy Lunar New Year travel period. The latter has become more widespread than SARS, which infected about 8,000 people, mainly in China and Hong Kong. However, while there was less SARS contagion elsewhere in the region and globally, the COVID-19 has become a global pandemic. That said, SARS was more deadly, with an average fatality rate of nearly 10 percent compared to 3.4 percent so far for the COVID-19, according to World Health Organization estimates. AMRO assumes a similar duration for the main episode of infections for both diseases, of about 4 months. Similar to SARS, the pandemic's impact on China is projected to be short-lived but significant. A sharp slowdown in growth is anticipated for Q1 2020, in both the manufacturing and services sectors, as the restrictions on population movements and holiday extensions have been disruptive for both production and demand.

AMRO projects that the COVID-19 outbreak could reduce China's 2020 GDP by 0.8 percentage point,

which would be significantly larger than during the SARS pandemic. It is estimated that a –0.3 percentage point reduction in growth would be attributable to the manufacturing sector and a –0.5 percentage point reduction to the services sector. In the manufacturing sector, the global supply chain centered in the affected regions is expected to experience significant disruption. However, companies are likely to find ways to make up for most (if not all) of the lost production subsequently, to meet demand, given that the manufacturing sector is relatively less constrained by production capacity. Hence, the manufacturing sector is likely to rebound strongly (Figure 1.1.1). In the service sector, firms would have limited capacity to make up for the lost business days. Demand for several types of services, such as tourism, is unlikely to rebound quickly, and the provision of services cannot be increased significantly in a short period. Hence, its recovery to pre-pandemic levels would be more gradual. In addition to the impact on growth, the pandemic could affect employment, prices, and financial stability in China.

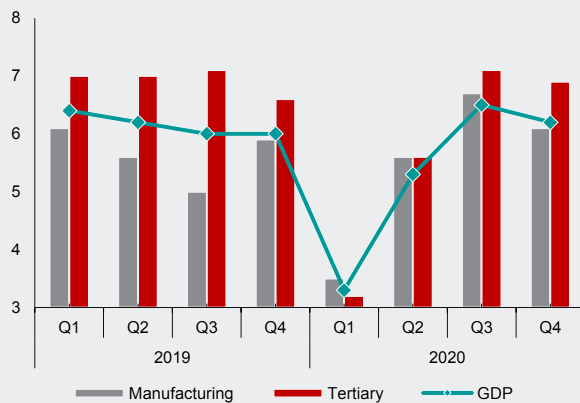
The virus outbreak in the ASEAN+3 region's largest economy and the world's second largest has resulted in significant spillovers to the region and the rest of the world. For the region as a whole, the effects are being felt because of increased regional integration and connectivity. The main spillover channels are through a sharp drop in travel and tourism; a decline in China's imports through the supply chain as manufacturing production is disrupted and domestic demand is affected; and the spread of the disease to regional economies. In addition, the pervading uncertainty and fear have demolished business and consumer confidence, and increased risk aversion in financial and commodities markets to unprecedented levels. Should the Chinese economy slow down much more significantly than anticipated during 2020, the effects on regional economies could be very severe.

Several regional economies have seen a rising number of cases and have implemented strong measures to contain the spread, with adverse impact on their economic activity. In addition,

those with large tourism sectors and a high share of Chinese visitors are being particularly hard hit by the pandemic. During the SARS outbreak in 2003, tourism dropped sharply. The number of visitors from China to Japan, Korea, Malaysia, the Philippines, Singapore, and Indonesia plunged—by between 50–90 percent year-over-year—in the months of May and June 2003, but rebounded in 2004 (Figure 1.1.2). The effects are undoubtedly significantly worse this time, given that the number of Chinese visitors to the region has increased manifold since then—from less than 20 percent of all visitors in 2002 to more than 40 percent in

2018—and given that the corresponding importance of tourism’s contribution to regional economies’ GDP has increased. Among the ASEAN+3 economies, Cambodia and Thailand are expected to be most affected, Vietnam and Hong Kong to a lesser extent (although the latter has already suffered from a sizable reduction in visitor arrivals owing to the ongoing social unrest). Additional negative effects are already being observed, with a near-standstill in tourists and business travellers from other regions, as infections spread quickly within the ASEAN+3 region and throughout the world, and countries place restrictions on foreign visitors and returning residents.

Figure 1.1.1. China: AMRO’s Quarterly Growth Projections
(Percent)



Sources: Wind Economic Database; and AMRO staff calculations.

Figure 1.1.2. Selected ASEAN+3 Economies: Visitor Growth during SARS
(Percent year-over-year; number of visitors)



Sources: Haver Analytics; national authorities; and AMRO staff calculations.
Note: Refers to visitor numbers in Japan, Korea, Malaysia, the Philippines, Singapore, and Indonesia. SARS = severe acute respiratory syndrome.

Box 1.2:

The Demand–Supply Dynamics of Oil Prices

Oil prices are a key driver of financial markets in the ASEAN+3 region. Although they have settled at a structurally lower range since 2015 (average Brent price of USD 58 per barrel since 2015 compared to USD 110 per barrel between 2011–14), any sustained volatility and upward trend in prices could affect regional economies through channels such as their balance of payments, inflation, and fiscal balance. Not surprisingly, the rise in geopolitical risks from the US–Iran standoff at the turn of the year caused a (temporary) ripple of alarm through the region. However, all indicators suggest that the demand–supply dynamics are tilted in favor of the latter:

- The supply of oil is expected to rise in 2020. By way of background:
 - At its December 2019 meeting, Organization of the Petroleum Exporting Countries (OPEC) members decided to further reduce its production by 0.37mb/d (million barrels per day) and beyond this metric, Saudi Arabia agreed to a further reduction of 0.4mb/d in supply. However, the failure of OPEC+ discussions in March 2020 means that the production cuts are off the table, which could lead to a rise in supply by 2.1mb/d.¹

Figure 1.2.1. Oil Production: Compliance with OPEC Cuts, December 2019
(Millions of barrels per day)

Country	Dec 2019	Agreed cuts*	Cuts implemented
Saudi Arabia	9.7	-0.32	-0.95
Iraq	4.6	-0.14	-0.06
UAE	3.1	-0.10	-0.10
Kuwait	2.7	-0.09	-0.10
Iran	2.1		
Nigeria	1.7	-0.06	-0.17
Angola	1.4	-0.05	-0.12
Libya	1.1		
Algeria	1.0	-0.03	-0.04
Others	2.1	-0.04	0.06
Total	29.4	-0.81	-1.48

Sources: International Energy Agency; and AMRO staff calculations.
Note: Agreed cuts by OPEC members against the baseline supply in October 2018, except for Kuwait (September 2018). mb/d = million barrels per day; OPEC = Organization of the Petroleum Exporting Countries; UAE = United Arab Emirates.

- Estimates by the International Energy Agency (IEA) and OPEC suggest that non-OPEC supply will increase by 1.8–2.0mb/d, compared to 1.9mb/d in 2019. Though the incremental supply from the United States has declined as a result of falling rig counts, it remains the biggest contributor to incremental non-OPEC supply (Figure 1.2.2). The IEA also expects a sizable increase in supply from Brazil, Canada, and Norway in 2020.

With all these factors taken together, supply could potentially rise by 4mb/d, consistent with the trend over the past few years when OPEC cuts have been offset (sometimes more so) by non-OPEC supply (Figure 1.2.3), which should keep downward pressure on oil prices. Indeed, the recent fall in oil prices will reduce the incentive for many oil producers to maintain the level of production but given the disagreements within OPEC+ and the subsequent announcements of increasing production by Saudi Arabia and Russia will keep the risks of a supply glut alive.

- Subdued demand should also play a role in dampening oil prices going forward. Prior to the COVID-19 outbreak, estimates by OPEC (2020a) and IEA (2020a) had projected global demand to

Figure 1.2.2. Oil Production: Projections for Non-OPEC Countries, as of January 2020
(Millions of barrels per day)

Country	2020	Change vs. 2019	Percentage of non-OPEC supply
US	18.3	1.11	27.3
Russia	11.5	-0.06	17.2
Canada	5.7	0.14	8.5
China	3.9	-0.01	5.8
Brazil	3.2	0.31	4.8
Norway	2.1	0.39	3.2
Mexico	2.0	0.05	3.0
Qatar	2.0	0.01	2.9
UK	1.2	0.08	1.8
Oman	1.0	0.00	1.5
Others	16.2	0.11	24.2
Total	67.0	2.13	

Sources: International Energy Agency; and AMRO staff calculations.
Note: mb/d = million barrels per day; OPEC = Organization of the Petroleum Exporting Countries; UK = United Kingdom; US = United States.

¹ OPEC+ is the alliance of crude oil producers, between the 11 OPEC members led by Saudi Arabia and the 10 non-OPEC members led by Russia.

rise by approximately 1.2mb/d in 2020 (Figure 1.2.4), as compared to about 1mb/d in 2019, which is still lower than the forecast increase in supply. However, the demand forecasts were subsequently updated to factor in the impact of the COVID-19 epidemic (Figure 1.2.5), and the revised estimates that demand would fall, by up to 0.1mb/d in 2020 (OPEC 2020b, IEA 2020b), have significantly tilted risks to the downside. The IEA lowered its Q1 2020 oil demand estimate by 1.8mb/d for China and 2.5mb/d globally (IEA, 2020b) to reflect the estimated impact of the epidemic on oil demand.

Figure 1.2.3. Oil Supply: Annual Changes
(Millions of barrels per day)

Region/ Country	2015	2016	2017	2018	2019
World	0.83	1.02	0.25	3.47	0.00
US	-0.68	-0.28	1.19	2.19	0.81
Russia	0.17	0.33	-0.26	0.58	-0.30
Saudi Arabia	0.75	0.23	-0.53	0.70	-0.82
OPEC (ex Saudi Arabia)	1.89	-0.04	-0.23	-0.53	-2.18
Others	-1.30	0.77	0.08	0.53	2.49

Sources: International Energy Agency; and AMRO staff calculations.
Note: mb/d = million barrels per day; OPEC = Organization of the Petroleum Exporting Countries; US = United States.

Figure 1.2.4. Oil Demand: Projections by Country, as of January 2020
(Millions of barrels per day)

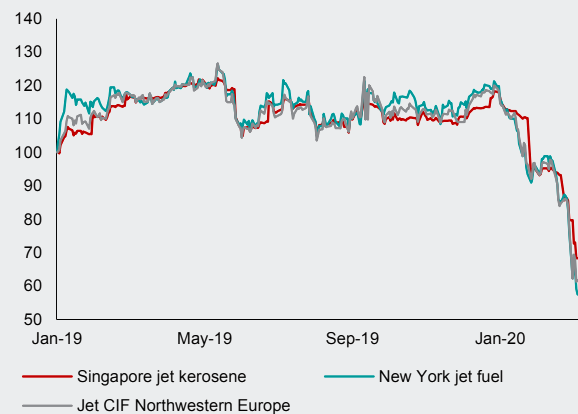
Country	2020	Change (vs. 2019)	Percentage of world demand
US	20.68	0.17	20.38
China	14.05	0.44	13.85
EU-5	8.15	-0.01	8.03
India	5.19	0.17	5.12
Japan	3.65	-0.04	3.60
Russia	3.64	0.04	3.59
Brazil	3.13	0.03	3.09
Saudi Arabia	3.12	-0.05	3.08
Korea	2.62	0.03	2.58
Canada	2.51	0.00	2.47
Iran	1.91	-0.04	1.88
Mexico	1.92	0.01	1.89
Rest of world	30.88	0.44	30.44
Total	101.45	1.19	

Sources: International Energy Agency; and AMRO staff calculations.
Note: The forecasts do not incorporate the impact of the COVID-19 pandemic on oil demand. Mb/d = million barrels per day; US = United States. EU-5 countries are Germany, France, Italy, Spain, and the United Kingdom.

The forward market was pricing lower oil prices in 2020 until the elevation of risks surrounding the coronavirus pandemic. The backwardation in oil markets (as of January 17, 2020) meant that the market was expecting a lower price in the forward space as compared to the spot (Figure 1.2.6), suggesting a tilt toward excess supply. The rally in oil prices in Q4 2019 was largely driven by positive developments surrounding the US-China trade negotiations—the New York Federal Reserve (hereafter “NY Fed”) estimates that about 67 percent of the oil price rally in Q4 2019 was attributable to demand side factors (Figure 1.2.7).²

Supply factors came into play in December 2019 when OPEC agreed on cuts, and geopolitical tensions related to the US-Iran standoff emerged at the end of the month. The subsequent easing in geopolitical tensions and rising oil inventories led to weaker prices in early January 2020, while the COVID-19 epidemic pushed them down further as markets recalibrated their expectations of potential demand. As of March 16, 2020, the forward market is pricing in a small rise in oil prices but the expected average over the next 12 months of USD 37 per barrel would be much lower than the USD 61 per barrel seen before mid-January. The NY Fed model confirms that the recent fall in oil prices is indeed a demand shock.

Figure 1.2.5. Price of Jet Fuel
(January 1, 2019 = 100)



Sources: Intercontinental Exchange (ICE); and AMRO staff calculations.

Market positioning shows that speculative players had reduced their long positions significantly by end-February, from their 2020 high toward the end of January, following the correction in oil prices. As it was, oil prices were markedly lower as of end-January 2020 compared to their May 2019 peak despite the

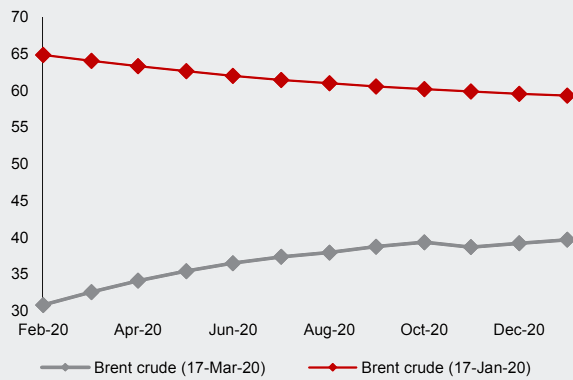
² See https://www.newyorkfed.org/research/policy/oil_price_dynamics_report.

higher long positions (Figure 1.2.8). The drop in prices after news of the COVID-19 epidemic broke was followed by the unwinding of long positions, which confirmed the weaker sentiment toward oil prices.

The overall trajectory points to oil prices moving lower in 2020 from 2019. The average forward implied price for Brent crude in 2020 is about USD 37 per barrel, as of March 17, 2020. Any upside risk would arise either from improved demand or the manifestation of supply risks, such as a significant and sustained escalation in tensions in the Middle East. The supply outlook suggests that spare production capacity—with both OPEC and non-OPEC members—would likely dampen any material move higher. The recent failure by OPEC+ to agree on production cuts and,

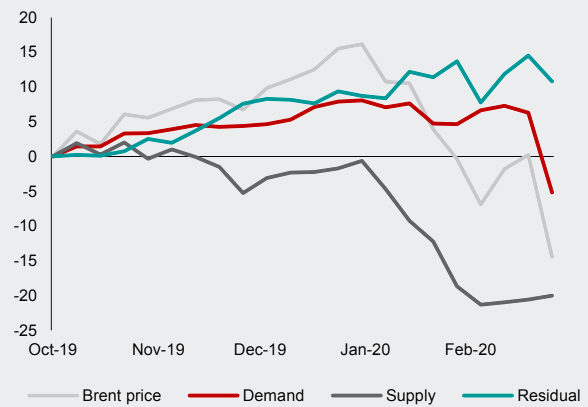
indeed, their readiness to increase production will put a ceiling on prices. Concurrently, demand-side risks such as a sharp slowdown in global growth on the back of the COVID-19 pandemic represent a sizable downside for oil prices. Moreover, the impact of any geopolitical event on oil prices should be temporary. An examination of oil price action after recent US-Iran incidents shows that each rise was short-lived—the markets remained generally calm during these events, as reflected in the lack of any sustained rise in option implied volatility (Figure 1.2.9). Hence, the prevailing environment should ensure continuing softness in oil prices and help mitigate the impact of the pandemic on the external sector of the net oil importing ASEAN+3 countries (Figure 1.2.10).

Figure 1.2.6. Oil Prices: Forward Pricing
(US dollars per barrel)



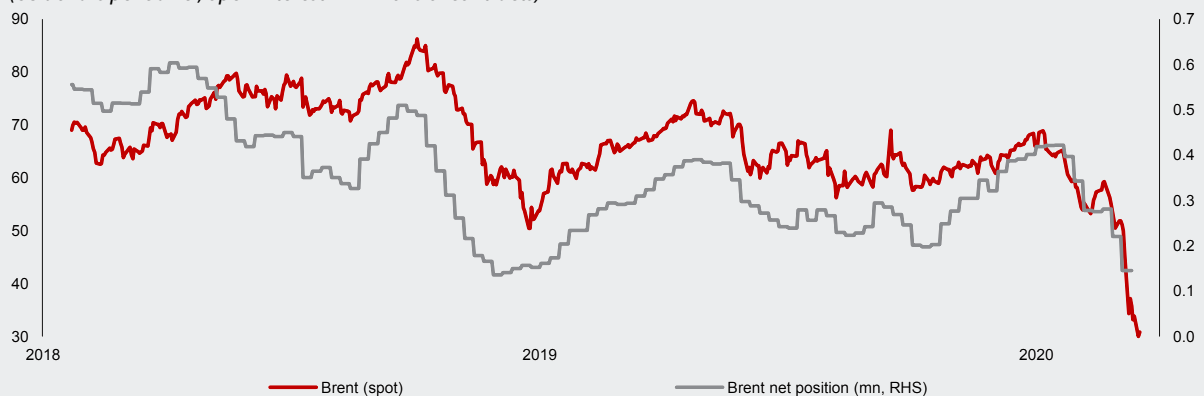
Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.

Figure 1.2.7. Oil Prices: Estimates of Demand-Supply Impact
(Log changes)



Sources: NY Fed; and AMRO staff calculations.

Figure 1.2.8. Oil Markets: Positioning and Spot Prices, as of March 17, 2020
(US dollars per barrel; open interest in millions of contracts)



Sources: Commodity Futures Trading Commission; Haver Analytics; and AMRO staff calculations.

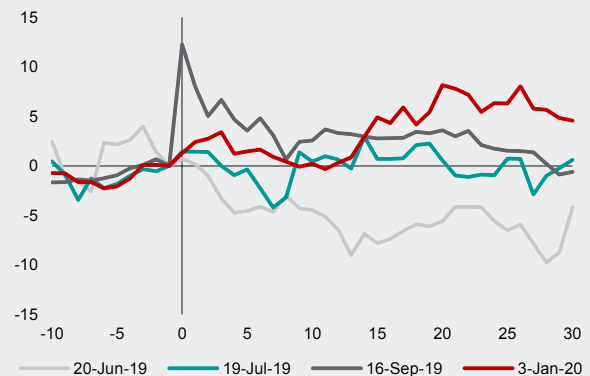
Figure 1.2.9. Brent Crude: Impact of Middle East Tensions Relative to Day of Event (Percent)

Spot Prices



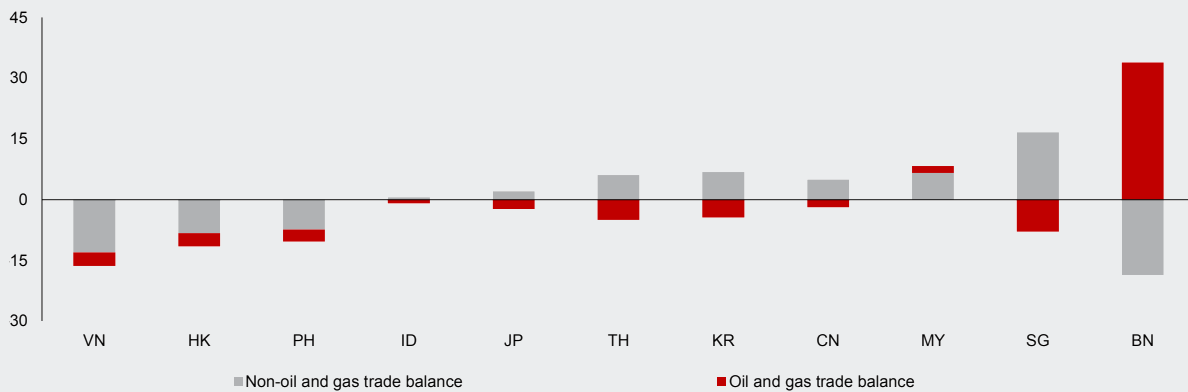
Sources: Haver Analytics; and AMRO staff calculations.
 Note: $t = 0$ is the day of the event and Brent crude prices are indexed to the end of day levels at $t = -1$. The geopolitical events considered are (1) the US drone strike on Baghdad (January 3, 2020); (2) the attack on Saudi oil facilities (Saturday, September 14, 2019; market reaction on Monday, September 16, 2019); (3) the seizure of British-flagged tanker by Iran (July 19, 2019); and (4) the shooting down of a US drone (June 20, 2019). Iran retaliated on January 8, 2020, but the spike in oil prices lasted less than a day because of the quick de-escalation in the situation by Iran and the United States. $t =$ number of days from event day.

Implied Volatility of 3-Month Options



Sources: Bloomberg Finance L.P.; and AMRO staff calculations.
 Note: $t = 0$ is the day of the event and the 3-month Brent crude option implied volatility is indexed to the end of day levels at $t = -1$. The geopolitical events considered are (1) the US drone strike on Baghdad (January 3, 2020); (2) the attack on Saudi oil facilities (Saturday, September 14, 2019; market reaction on Monday, September 16, 2019); (3) the seizure of British-flagged tanker by Iran (July 19, 2019); and (4) the shooting down of a US drone (June 20, 2019). Iran retaliated on January 8, 2020, but the spike in oil prices lasted less than a day because of the quick de-escalation in the situation by Iran and the United States. $t =$ number of days from event day.

Figure 1.2.10. ASEAN+3: Non-oil, and Oil and Gas Trade Balances (Percent of GDP)



Sources: IHS Markit Global Trade Atlas; International Monetary Fund; and AMRO staff calculations.
 Note: Data cover January to December 2019; oil and gas trade balance refers to exports minus imports of products under HS product codes 2709 to 2711. BN = Brunei; CN = People's Republic of China; HK = Hong Kong; JP = Japan; ID = Indonesia; KR = Korea; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

Box 1.3:

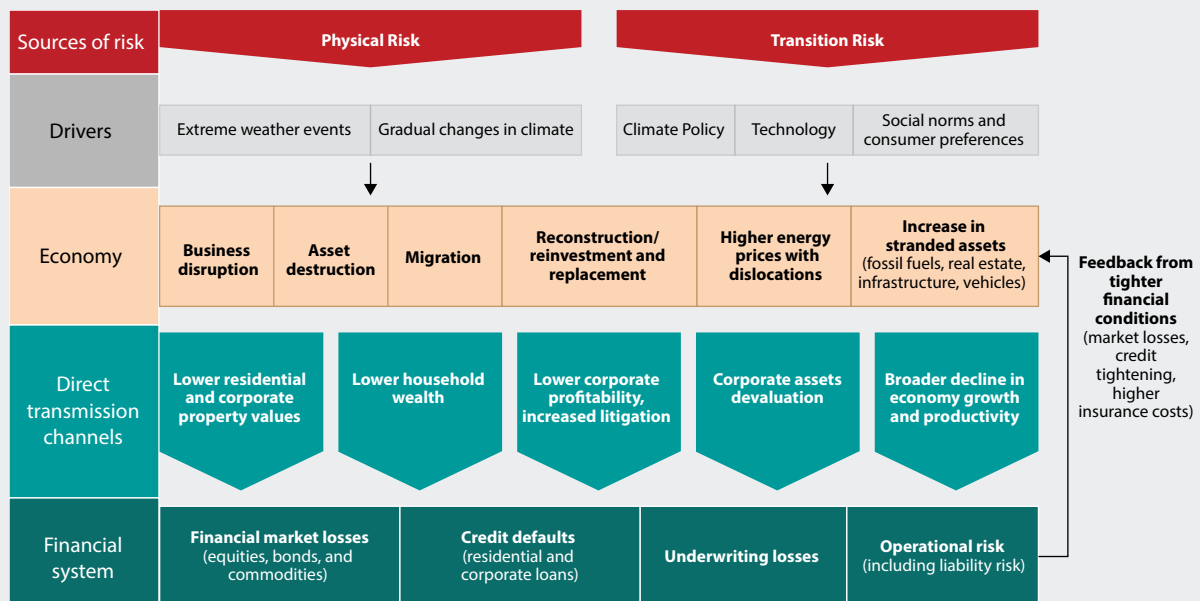
Climate Change Poses a Growing Risk to Regional Financial Stability

The growth outlook for the ASEAN+3 region will increasingly depend on how the region manages the rising threat of climate change. Warming global temperatures have coincided with increased frequency of destructive typhoons and erratic weather patterns in the region, disrupting agricultural production, as well as other key industries. The Thailand floods in 2011, followed by Typhoon Haiyan in the Philippines and Vietnam in 2013, triggered a rethink of how to make regional supply chains more “climate-change” proof. A country’s external position could also be weakened in the aftermath of a disaster, especially if rebuilding efforts trigger a sudden spike in imports, which then puts downward pressure on its currency. AMRO (2018a) had previously assessed the impact of natural disasters and climate change on the economic activity and fiscal positions of several ASEAN+3 countries.

However, while the impact of climate change on the real sector may be obvious, its effect on financial stability is less so. How well prepared the region’s financial sectors, notably, its banks and insurance companies, are against climate change risks could be an important determinant of its financial stability and consequently, growth trajectory. The growing research on natural hazard risks generally identifies two channels through which disruptive events could affect a country’s economic and financial stability: the manifestation of physical and transition risks (Figure 1.3.1).¹

Physical risks appear to be more apparent and relevant for the majority in the ASEAN+3 region, while transition risks are a more pressing concern for the advanced economies. AMRO (2018a) discusses the significant economic impact and fiscal drain of post-disaster recovery and

Figure 1.3.1. Climate Risks: Potential Channels of Impact on Financial Stability



Sources: International Monetary Fund; Network for Greening the Financial System; and AMRO staff.

¹ FSB (2015) defines physical risks “as direct physical influences on economic value chains,” for example, apparent physical impact, such as water stress and increased building cooling; reduced harvests; damaged roads, buildings, and infrastructure; or cancelled flights or changes in land use. Transition risks, on the other hand, refer to those that arise as a result of the push to transition to a low-carbon economy, consequently leading to, for example, a revaluation of investments, or higher transaction costs in order to minimize regulatory and legal risks.

reconstruction. Gradual changes in climate—such as those resulting in ocean acidification and loss of biodiversity—could disrupt livelihoods, with lasting consequences for future generations. However, the physical risks to the financial sector are equally significant, through first- and second-order effects, with the potential for greater losses via multiplier effects. To illustrate, extreme weather events can directly affect the solvency of insurers. They would have to pay out significant damages to clients, which would indirectly result in financial markets losses to bond and stock values as they sell down their assets to meet their obligations. Concurrently, uninsured losses or unpaid insurance losses would impact the balance sheets of those affected, through unexpected depreciation in value, higher default risk of loans (which would affect the asset quality of creditor banks), and, in extreme cases, downgrades to their creditworthiness. Indeed, climate change could potentially stifle the growth of the insurance sector within the ASEAN+3 region and, consequently, the sector's ability to provide protection to the region's people and assets. Within this region, only Japan is relatively well-insured (Figure 1.3.2), notwithstanding the increasing losses to the region from disasters over the past 30 years (Figure 1.3.3).

The credit risks posed by climate change to the balance sheets of systemic financial institutions are also very real. A 2019 analysis of corporate disclosures by 45 financial institutions—some of the world's largest—suggests that the potential negative impact of climate change on their financial position is approaching USD 700 billion (Carbon Disclosure Project, 2019). The survey suggests that most of these losses arise from credit risks, with an estimated USD 468 billion worth of potential losses attributable to clients being exposed to physical risks. This situation is particularly true for most ASEAN countries, which are largely uninsured against the physical consequences of climate change. On the other hand, the survey shows that the estimated impact of climate change on financial institutions' direct operations is much smaller relatively (USD 225 billion), and even more so for the impact on their supply chains (USD 0.3 billion). The voluntary nature of corporate disclosures on the consequences of climate change to their operations also suggests that these losses are likely significantly underestimated.

ASEAN+3 financial sectors should also prepare against transition risks, as regional economies continue to

move up the development ladder. For instance, the Financial Stability Board's Task Force on Climate-Related Financial Disclosures, which calls for voluntary financial risk disclosures for use by companies to inform their stakeholders, notes that addressing the impact of climate change "may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements" (FSB, 2015). In the case of ASEAN+3 banks, transition risks could also include future rebalancing of their lending operations away from environmentally unfriendly projects toward clean and green investments (Figure 1.3.4). For example, ASEAN+3 financial institutions, as a group, represent the largest funding pool of coal projects globally, dwarfing those of the United States and Europe combined.

Increasing stakeholder activism and the rally against rising carbon emissions have resulted in greater scrutiny of the business activities of some of the larger, more visible ASEAN+3 financial institutions, but transitions need to be carefully managed. Since last year, some Japanese financial institutions have enforced higher environmental standards on financing coal projects. For example, one of Japan's major banks has stopped financing new coal-fired power plant projects. This year, China's largest state-owned investment holding company dropped thermal power plant projects, while Singapore's largest banks have announced their exit from the coal funding space by 2021. While encouraging, any disorderly and uncoordinated pullback from existing projects could put billions of US dollars of assets across the region at risk of being stranded—yet again highlighting the financial stability risks from climate change.

Any significant financial instability could also affect the fiscal purse. As previous experience from financial crises has shown, the fiscal costs—comprising direct outlays linked to government intervention policies in the financial system and a broader measure defined by the increase in public debt—would not be immaterial. The empirical evidence suggests that, since the early 1980s, financial crises among the ASEAN+3 countries incurred direct fiscal costs averaging 20 percent GDP or the equivalent of 31 percent of financial sector assets, while increasing public debt by an average of 19 percent of GDP (Laeven and Valencia, 2018).

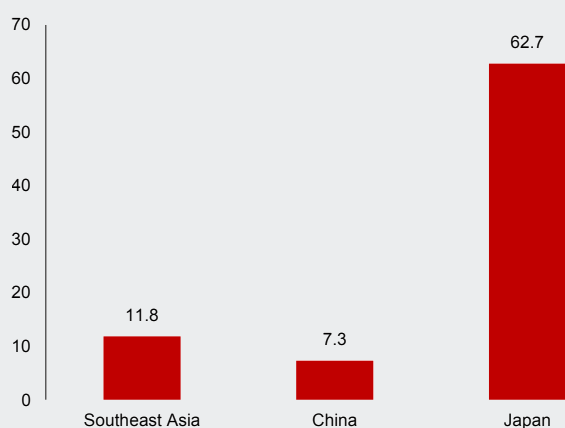
The increasing evidence of climate change means that ASEAN+3 financial sectors will have to deal with physical and transition risks in the decades

to come. Domestically, mandatory disclosure of carbon footprints among firms would enable a more appropriate pricing of project risks and reallocation of capital toward more sustainable activities and investments. There is also significant room for financial market players, alongside regulators, to develop appropriate frameworks for estimating potential financial losses in extreme disaster scenarios, thus enabling the implementation of appropriate

strategies by those players when such events occur (SPG, 2016). The cross-border nature of climate risks means that a standard framework may be possible—and even be beneficial—at the regional level. A similar approach to regional coordination would also benefit the ASEAN+3 economies in managing transition risks, especially as the region becomes more closely linked as a result of increased intra-regional investments.

Figure 1.3.2. Asia: Insured Natural Hazard Losses, 1986–2018

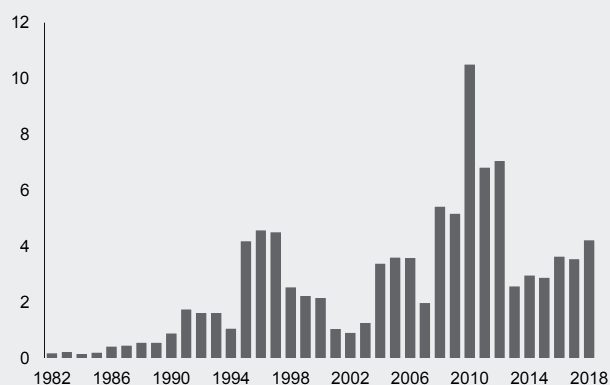
(Percent of total losses)



Sources: Munich Re; and NatCatSERVICE.

Figure 1.3.3. Asia: Total Natural Hazard Losses

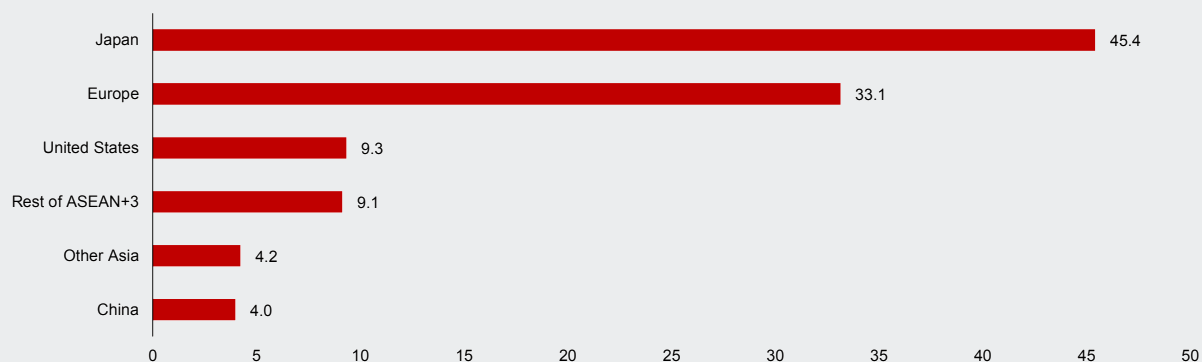
(Billions of US dollars, 3-year moving average)



Sources: Munich Re; and NatCatSERVICE.

Figure 1.3.4. Asia and Selected Advanced Economies: Top Leaders to Coal Projects Globally, 2017–Q3 2019

(Billions of US dollars)



Source: Urgewald, Global Coal Exit List.

II. Diversions from Trade Tensions

Trade developments, the main focus in 2019, will again be important for growth in 2020. Regional exports had undoubtedly been hurt since mid-2018 by the repeated escalation in the US-China trade conflict after the United States imposed tariffs on four tranches of Chinese goods, totaling USD 362 billion (Figure 1.4):

- The US Administration implemented tariffs of 25 percent on USD 50 billion worth of China's exports in July and August 2018. In retaliation, China imposed 25 percent in tariffs on an equivalent amount of imports from the United States.
- This action was followed by the imposition of 10 percent tariffs by the United States on USD 200 billion worth of Chinese imports, in September 2018; China then slapped 5–10 percent tariffs on USD 60 billion of US imports. In May–June 2019, the United States raised the tariff rates on those tranches to 25 percent, and China by another 5–25 percent.
- Finally, the United States put tariffs of 15 percent on USD 112 billion of imports from China, and China retaliated with 5–10 percent tariffs on USD 35 billion of imports from the United States, effective September 1, 2019.
- Following the Phase One trade agreement, signed on January 15, 2020: (1) both sides halved their respective tariff rates on the September 2019 tranches, in February

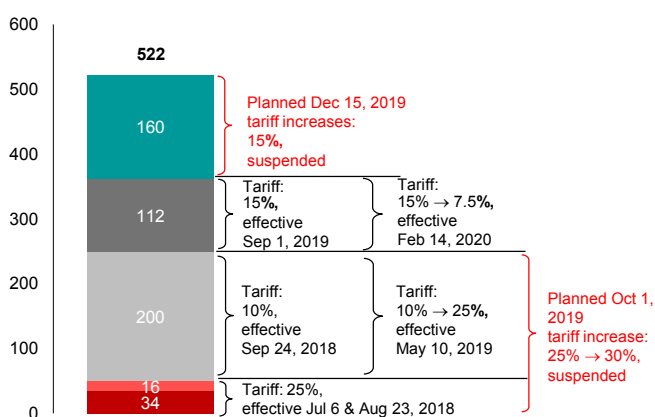
2020; and (2) tariffs on both the October and December 2019 tranches were also suspended.

The value of goods exports from the region continued to fall throughout 2019. However, the corresponding volumes generally held up, pointing to the lowering of export prices (Figure 1.5). On an individual economy basis, goods exports also declined during the year, compared to 2018, with the exception of Cambodia, Lao PDR, Vietnam, and the Philippines (Figure 1.6). In H1 2020, exports are expected to be significantly affected by the COVID-19 pandemic, which has disrupted production in China and spilled over to exports around the region through the supply chain network.

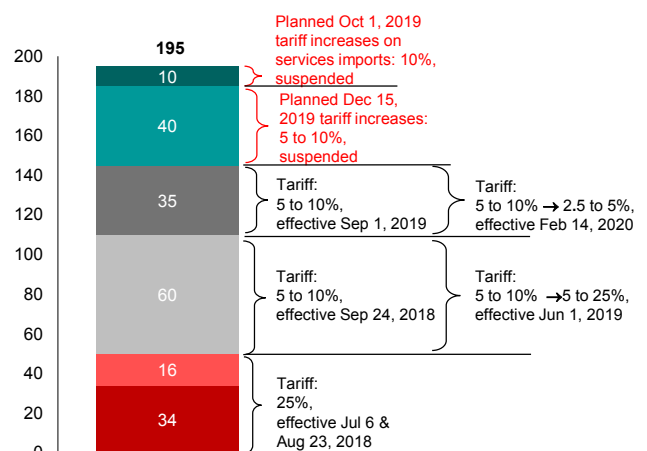
In 2019, total exports were supported in part by external demand for services—chief among them, the tourism industry—which remained positive, albeit sharply slower than in 2018. In this regard, the region's tourism exports represented a bright spot in 2019, driven mostly by intra-regional visitor arrivals, especially from China and ASEAN (Figure 1.7). Overall, tourism's contribution to GDP has increased in nearly all countries in the region since 2000. The World Travel and Tourism Council estimates that the direct benefits of tourism to the ASEAN+3 region are highest for Cambodia and Thailand, contributing more than 10 percent to GDP (Figure 1.8). The total gains are much higher—more than 30 percent for Cambodia and more than 20 percent for Thailand and the Philippines.

Figure 1.4. United States and China: Trade Tariffs and Corresponding Tranches
(Billions of US dollars)

US Tariffs on Chinese Imports

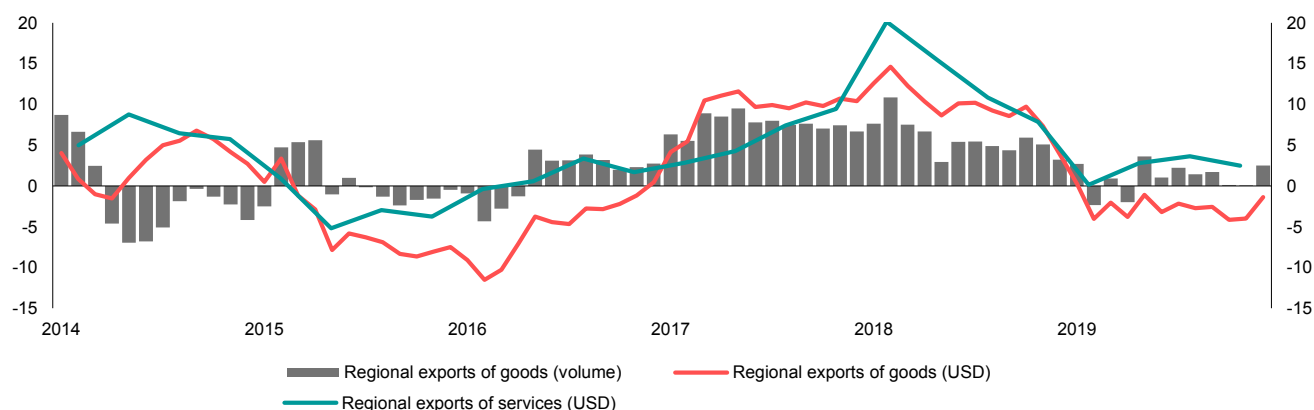


China Tariffs on US Imports



Sources: China Ministry of Commerce; Office of the United States Trade Representative; and AMRO staff compilation.

Figure 1.5. ASEAN+3: Goods and Services Exports
(Percent year-over-year, 3-month moving average)



Sources: National authorities; and AMRO staff calculations.

Figure 1.6. ASEAN+3: Total Goods Exports by Economy
(Percent year-over-year)

Economy	2018												2019												2020	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
PLUS-3	13.9	22.8	1.7	8.9	12.2	7.6	9.4	9.1	6.5	14.3	2.5	-4.2	3.3	-14.6	4.3	-3.2	-2.3	-4.6	0.0	-3.9	-4.5	-4.7	-3.5	3.8		
China	10.6	43.5	-3.0	11.9	11.9	10.7	11.6	9.5	13.9	14.3	3.9	-4.6	9.3	-20.7	14.0	-2.7	1.1	-1.5	3.4	-1.0	-3.2	-0.8	-1.3	7.9		
Hong Kong	17.2	0.9	7.0	7.1	15.0	2.7	9.4	12.7	4.2	14.1	-1.1	-5.8	-0.7	-7.2	-1.3	-2.6	-2.4	-8.8	-5.3	-6.2	-7.3	-9.2	-1.4	3.5	-22.1	
Japan	16.3	6.5	8.7	10.2	10.6	7.6	4.7	5.4	-2.5	8.4	-0.4	-3.2	-6.8	-3.4	-6.9	-5.8	-8.0	-4.9	1.4	-4.1	-1.2	-5.4	-4.1	-3.7	-2.8	
Korea	22.3	3.1	5.5	-2.0	12.8	-0.4	6.1	8.7	-8.1	22.5	3.6	-1.7	-6.2	-11.3	-8.4	-2.1	-9.8	-13.8	-11.1	-14.0	-11.9	-15.0	-14.5	-5.3	-6.3	4.5
ASEAN	22.1	9.4	10.7	14.1	12.4	10.7	13.7	10.5	5.4	12.7	2.6	-1.9	-0.5	-2.6	-3.5	-1.4	-2.2	-3.6	0.9	-3.8	-2.4	-3.4				
Brunei	16.6	7.1	28.2	12.8	3.4	29.1	42.5	41.3	0.0	44.9	-3.9	7.5	23.8	5.4	13.3	20.3	-2.8	-10.0	-20.1	-11.0	-4.5	-9.5	45.8	71.2		
Cambodia	15.3	6.7	15.4	10.1	23.1	10.0	13.3	35.4	33.8	-4.2	34.8	-2.2	15.9	11.3	13.1	17.6	20.0	4.3	22.5	17.5	-14.7	33.1	16.8			
Indonesia	8.8	12.0	5.4	9.2	13.0	11.0	19.6	4.5	2.6	4.3	-3.1	-3.9	-4.4	-11.2	-9.0	-9.5	-8.5	-8.9	-5.1	-10.0	-5.7	-6.1	-6.1	1.1	-3.7	
Lao PDR	72.8	29.4	17.0	22.1	1.9	26.0	17.5	-2.0	24.3	23.2	29.1	-4.5	-1.5	-8.7	-12.0	3.5	27.1	3.9	17.0	22.1	12.7	7.2	-1.5			
Malaysia	33.5	11.3	16.4	29.2	14.1	15.8	16.3	4.6	8.9	20.7	2.1	3.5	-1.5	-9.4	-5.2	-4.9	-3.5	-7.2	-0.1	-3.0	-7.7	-7.4	-4.8	3.2	-0.6	
Myanmar	22.4	50.7	19.5	23.0	24.0	20.8	28.6	65.5	-7.6	25.3	2.7	-3.7	27.8	-12.9	19.8	38.6	9.0	-9.9	-6.5	-11.6	-13.1	29.9				
Philippines	1.1	1.3	0.4	-1.9	1.7	3.7	2.3	4.0	1.1	6.7	1.0	-12.2	-6.7	-0.1	-1.8	1.0	1.0	3.3	3.5	0.8	-1.2	0.3	-0.4	21.6	9.7	
Singapore	18.0	6.0	5.8	16.9	14.6	10.8	14.0	12.8	9.6	16.4	4.6	-4.2	-1.7	-0.2	-5.8	-3.7	-5.8	-10.3	-5.9	-11.5	-5.7	-8.8	-5.1	4.7	-5.0	
Thailand	19.5	11.2	8.5	11.7	9.9	6.0	5.0	7.0	-4.2	8.2	-2.6	-1.4	-5.7	5.7	-7.2	-3.0	-4.0	1.3	7.3	-4.8	-1.7	-3.3	-6.5	-2.1	-0.5	
Vietnam	40.6	9.0	23.0	5.3	11.6	11.6	16.9	18.3	9.3	10.8	8.7	0.3	9.4	-3.3	7.0	10.3	9.4	7.4	11.1	10.4	10.7	7.6	4.7	14.0	-17.4	450.0

Sources: National authorities; and AMRO staff calculations.

Note: Data are based on exports in US dollars. The colors represent the distance the growth in total merchandise exports is away from mid-point. The deeper the red color of the data, the more negative the data are; the greener, the more positive.

Figure 1.7. ASEAN+3: Visitor Arrivals by Region, 2019
(Year-to-date percentage change, 2019 and 2018)

Economy	Hong Kong	Indonesia	Japan	Korea	Malaysia	Philippines	Singapore	Thailand	Vietnam
Total visitor arrivals	-14.2	2.9	2.8	14.6	3.7	15.6	3.3	4.2	16.2
of which contribution by region (percentage points)									
ASEAN	-0.6	5.3	1.4	0.6	1.8	0.0	0.6	1.1	1.9
China, incl Hong Kong	-11.2	-0.7	4.0	8.1	0.7	6.5	1.2	1.3	5.4
Japan	-0.3	-0.1		2.2	0.1	0.7	0.3	0.4	0.8
Korea	-0.6	0.2	-5.3		0.2	5.3	0.1	0.2	5.2
Other Asia	-0.1	-4.4	0.7	2.1	0.8	6.6	0.0	1.7	0.0
Europe	-0.4	0.5	0.9	0.7	0.1	0.9	0.4	-0.1	0.5
Americas	-0.4	0.5	0.8	0.7	0.1	0.7	0.5	0.1	0.4
Oceania	-0.1	0.3	0.3	0.1	0.1	0.0	0.3	-0.1	0.0
Others	-0.3	1.3	0.1	0.1	-0.1	-5.1	0.0	-0.4	2.0

Sources: Haver Analytics; and AMRO staff calculations.

Note: For some destination countries, visitor aggregates by region capture only those from main source countries. For example, the Americas' visitors to Vietnam include US and Canada only. ASEAN = Association of Southeast Asian Nations; Oceania = Australasia, Melanesia, Micronesia, and Polynesia.

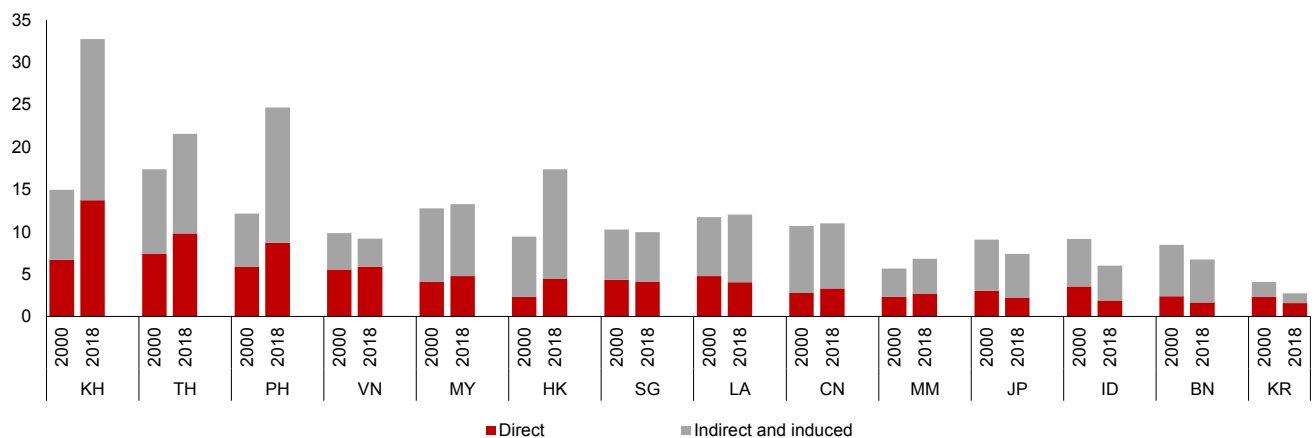
For the ASEAN+3 region as a whole, the sharp decline in China's goods exports to the United States last year was cushioned by several mitigating factors. They include:

- *Trade exclusions.* The portion of China's non-tariffed goods exports to the United States grew by an average 25.3 percent month-over-month between January and December 2019.⁵ These exclusions, albeit a small share of the total tariffed package, provided some relief. For example, the headline value of the batch of products in Tranche 1 had fallen by only 12.1 percent in December 2019, compared to a decline of 80.1 percent year-over-year for the corresponding tariffed products (Figure 1.9). The cumulative value of exclusions was more pronounced for the earlier Tranche 1 (9 out of 15 batches of exclusions were granted) compared to the latter two tranches; the base effects for the former suggest that this boost should become less pronounced over time.
- *Trade diversion.* Trade diversion also helped to sustain the region's exports, along with the resulting FDI diversion. In particular, the "ASEAN+2" economies

(ASEAN+3 excluding Mainland China) appear to have benefited most from the diversion of US imports from China to other countries. While total regional exports remained generally weak, data on the increase in individual countries' shares of total US imports between June 2018 and December 2019 suggest that most of the decline in the import of goods by the United States from China were offset by the former's imports from the ASEAN+2 countries (Box 1.4). These US imports from the rest of the region amounted to USD 58.6 billion, equivalent to more than half of the export value lost by China (Figure 1.10). The remaining portion of diverted trade went to the rest of the world.

Thus, the ASEAN+2 countries were able to increase their exports to the United States, despite sluggish headline trade volumes. Consequently, US demand for ASEAN+2 exports remained positive, in contrast to its demand from China, other regional peers, and the rest of the world (Figure 1.11). Indeed, the United States was the only positive contributor to ASEAN+2 export growth in 2019—its contributions actually increased following the tariff hikes in 2018 and 2019.

Figure 1.8. ASEAN+3: Travel and Tourism Contributions to GDP, 2000 and 2018
(Percent)



Sources: World Travel and Tourism Council; World Bank; and AMRO staff calculations.

Note: "Direct" includes only direct transactions by tourists for tourism services and products such as accommodation, recreation, transportation, and other related sectors; "indirect" measures the supply chain impact (relating to outside goods/services such as marketing, cleaning, maintenance, energy provision); "induced" measures the impact of money spent in the local economy by employees working in jobs supported by tourism both directly and indirectly. Total contribution includes the direct impact as well as indirect and induced impact. BN = Brunei; CN = People's Republic of China; HK = Hong Kong; JP = Japan; ID = Indonesia; KR = Korea; KH = Cambodia; LA = Lao People's Democratic Republic; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

That said, the gains from trade diversion were not equally distributed within the group. A subregional breakdown shows that Korea and Vietnam benefited the most (Figure 1.12). The subregional variation could be explained, in part, by the composition of US imports on a sectoral basis, which is largely focused on metals, textiles, and primary commodities (Figure 1.12).

Within the region, the trade in intermediate goods points to intra-regional supply chain re-routing. Intermediate goods currently account for about 60 percent of ASEAN+2 overall trade, followed by capital goods (18 percent), then by consumption (13 percent). Consequently, changes in the level of ASEAN+2 exports are typically driven by the trend in intermediate goods exports, in particular, to China. Not

⁵ The US Trade Representative (USTR) put in place an exclusion process that allows US-based companies to apply for tariff exemptions. The USTR has reportedly accepted an average 22.5 percent of all applications. Tariff exclusions since December 2018 amount to about 6.0 percent of the total value of goods that have been hit with tariffs up to September 2019. Of the 15 exclusion batches granted, nine involve the first tranche, while the second and third tranches were granted three exclusion batches each. In total, exclusions granted to Tranche 1 now comprise 24.1 percent of its original value of USD 34 billion; exclusions for Tranche 2 are estimated to be equivalent to about 11.9 percent of its original value of USD 16 billion; while exclusions for Tranche 3 are equivalent to 5.9 percent of its original value.

surprisingly, their intermediate goods exports to China have collapsed since July 2018 (Figure 1.13). However, the fall in ASEAN+2 intra-regional exports has been less pronounced, suggesting that some production activities may have been rerouted. Indeed, the data show that China's loss in terms of export share of intermediate goods to the United States was absorbed elsewhere in the region (Figure 1.14 and Box 1.4).

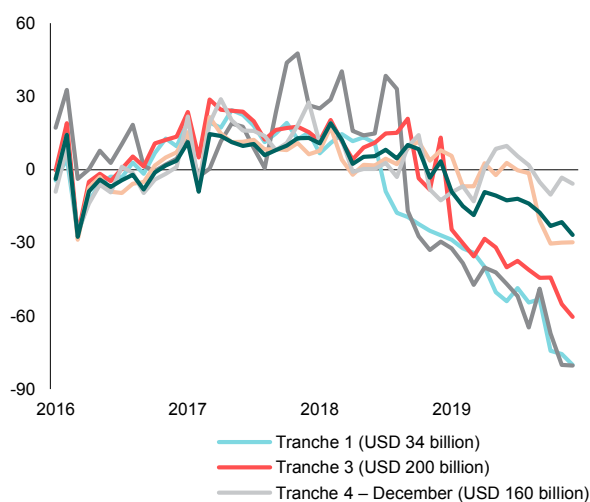
The redistribution of trade and investment across the region that resulted from the trade tensions could have lasting ramifications well beyond the life of the conflict. The evidence is supported by the data on FDI diversion, notably through co-locations. Anecdotal evidence suggests that co-locations by foreign multinationals operating in the region, to other destinations within the region with already-established firm presence, may be attributable to either: (1) the attractiveness of cost savings from economies of scale and a desire to move closer to suppliers and markets; or (2) the ongoing trade

tensions. There are two strategies that these multinationals may employ to reconfigure supply chain operations around the frictions caused by the trade conflict and circumvent US tariffs: (1) deliver goods produced in China to purchasers at locations outside the United States; and (2) move some parts of the production from China to other economies within Asia.

The impact of Chinese tariffs on US goods has also been evident in sourcing practices. According to a survey of US firms based in China, the tariffs have resulted in higher manufacturing costs for those that have been sourcing components from the United States (Amcham, 2019). The consequent higher sales prices charged by those firms have resulted in lower demand for their products. The result is that US firms are increasingly sourcing from within China and avoiding importation from the United States, in order to insulate themselves from the tariffs.

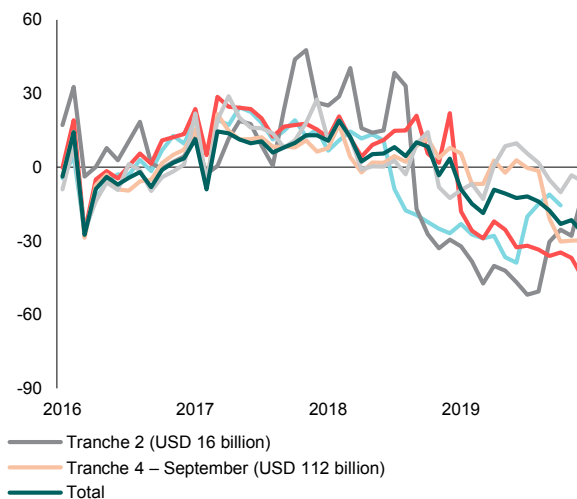
Figure 1.9. China: Goods Exports to the United States by Tariff Tranche
(Percent year-over-year)

Tariffed Goods Only



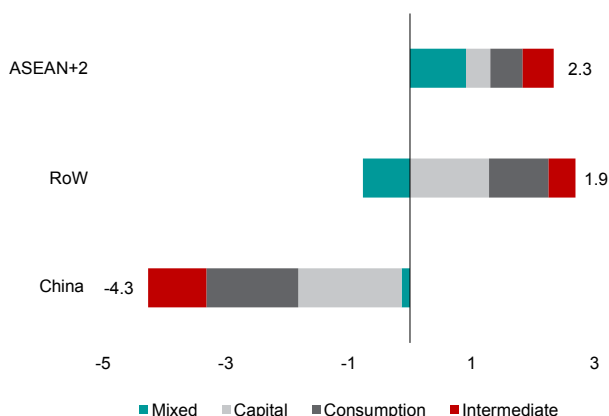
Sources: United States International Trade Commission Dataweb; and AMRO staff calculations.

Combination of Tariffed and Non-Tariffed Goods



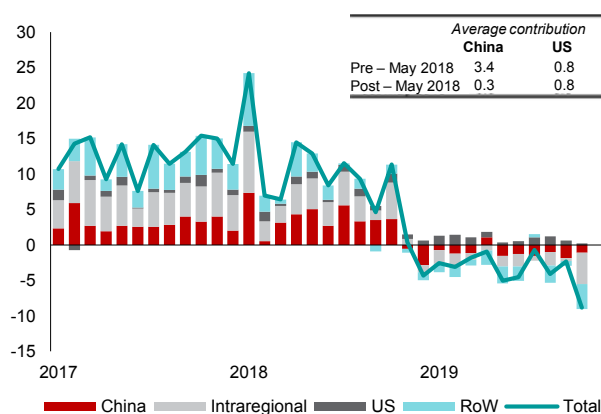
Sources: United States International Trade Commission Dataweb; and AMRO staff calculations.

Figure 1.10. United States: Change in Share of Imports by Source and Tariffed Product Category
(Percentage points)



Sources: United States International Trade Commission Dataweb; and AMRO staff estimates.
Note: The data cover the June 2018 to December 2019 period.
RoW = rest of the world. Shares are calculated by summing the percentage point changes across the product categories.

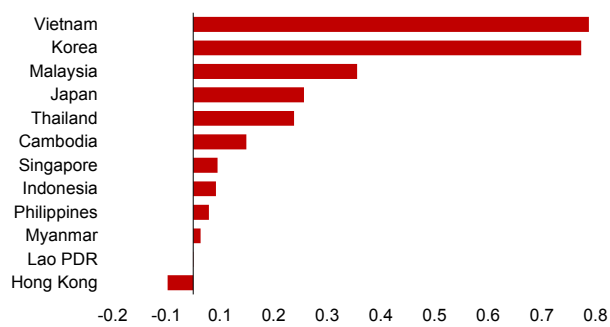
Figure 1.11. ASEAN+2: Contributors to Export Growth
(Percentage points)



Sources: IHS Markit Global Trade Atlas; and AMRO staff estimates.
Note: RoW = rest of the world.

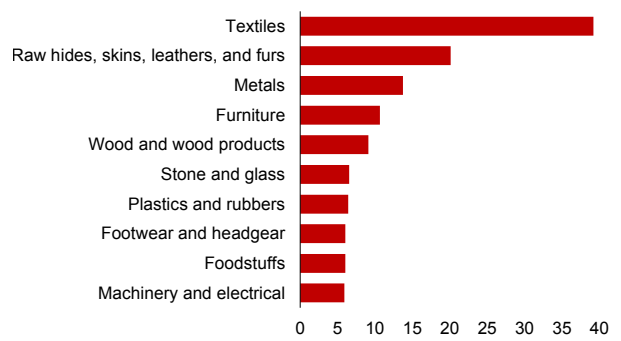
Figure 1.12. United States: Change in Share of Imports
(Percentage points)

By Source



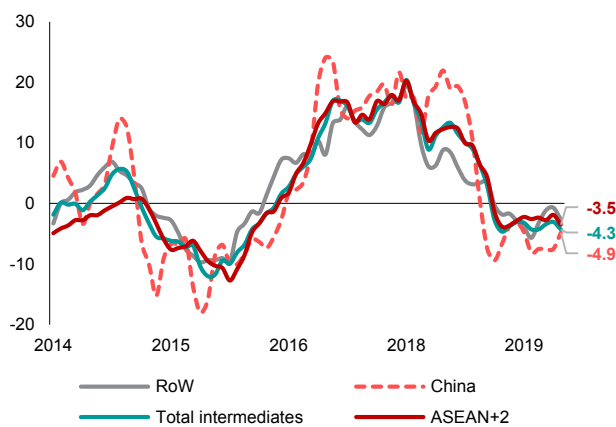
Sources: United States International Trade Commission Dataweb; and AMRO staff estimates.
Note: The data cover the June 2018 to December 2019 period. Brunei is not included as estimates are too small to be visible in the chart.

By Sector



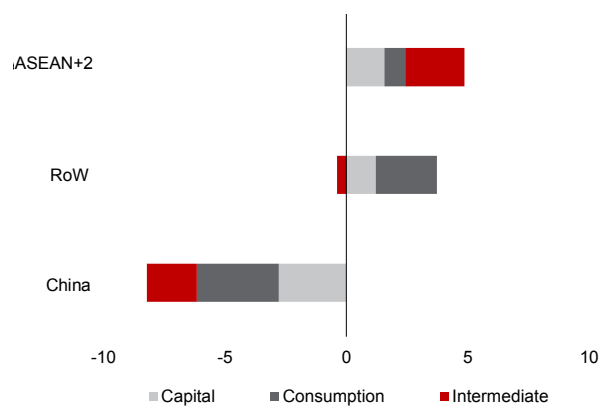
Sources: United States International Trade Commission Dataweb; and AMRO staff estimates.
Note: The data cover the June 2018 to December 2019 period.

Figure 1.13. ASEAN+2: Exports of Intermediate Goods
(Percent year-over-year, 3-month moving average)



Sources: IHS Markit Global Trade Atlas; and AMRO staff estimates.
Note: RoW = rest of the world.

Figure 1.14. United States: Change in Share of Electric Machinery Imports by Category
(Percentage points)



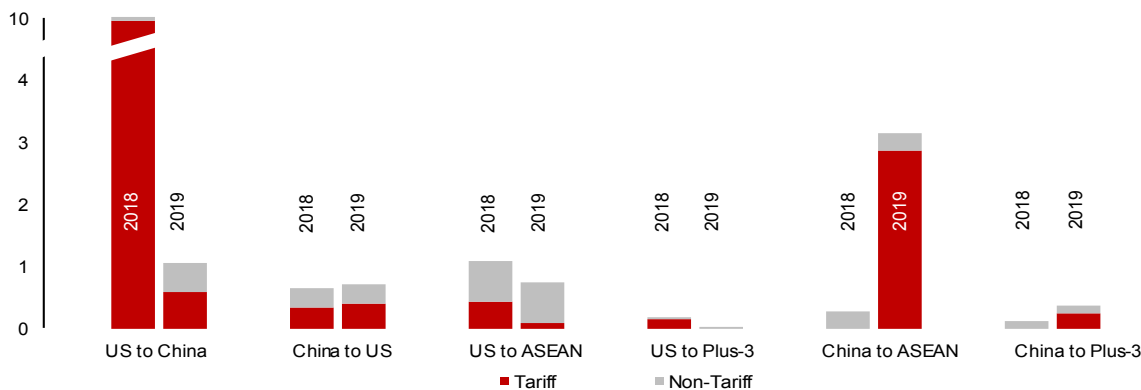
Sources: United States International Trade Commission Dataweb; and AMRO staff estimates.
Note: The data cover the June 2018 to December 2019 period. RoW = rest of the world. Shares are calculated by summing the percentage point changes across the product categories.

The ASEAN region has been the top destination for “diverted” FDI. According to AmCham (2019), 40 percent of the respondent firms located in China planned to relocate their manufacturing facilities from China to ASEAN and Mexico. The data show that announced and approved FDI co-locations from China to ASEAN spiked in 2019, while co-locations from the United States to China were very high in 2018 (Figure 1.15). Malaysia appears to be the main beneficiary of co-locations from China to ASEAN, attracting an estimated USD 2.5 billion in 2019, followed by Vietnam (USD 390 million) and Thailand (USD 216 million). Wood, furniture, and paper manufacturing represented the lion’s share of planned co-locations from China to ASEAN

(67 percent), followed by industrial, electric, and electronic machinery (11 percent) and metals and metal products (7 percent) (Figure 1.16).

Following a torrid year, the progress in trade negotiations between China and the United States should provide some support for the region’s exports going forward. Alongside the ongoing tariff exclusion process, and other possible reductions, the Phase One trade agreement bodes well not only for China’s exports, but also for the rest of the region, both in terms of the supply chain and business sentiment. But, as noted in Section I, actual implementation of this agreement remains to be seen.

Figure 1.15. United States and ASEAN+3: FDI Co-locations by Direction
(Approved and announced, billions of US dollars)



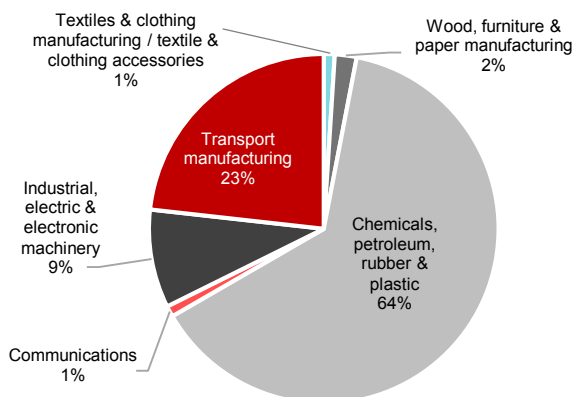
Sources: Orbis Crossborder Investment; and AMRO staff calculations.

Note: China investing in itself (China to Plus-3) occurs when a foreign investor invests jointly in a project with a Chinese counterpart, so half the amount is apportioned to China such that it has a contribution to the co-location project; however, it is classified in the Orbis database as a cross-border transaction. ASEAN = Association of Southeast Asian Nations; FDI = foreign direct investment; Plus-3 = China (including Hong Kong), Japan, and Korea; US = United States.

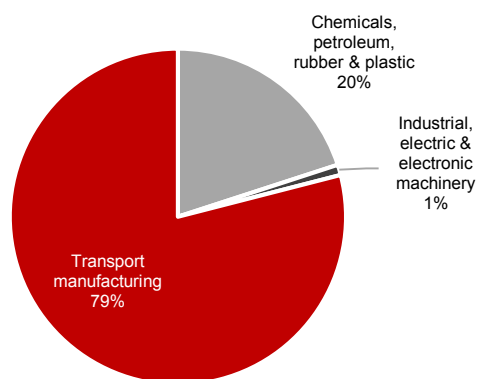
Figure 1.16. United States, China, and ASEAN: FDI Co-locations by Tariffed Sectors
(Approved and announced)

2018

China to ASEAN

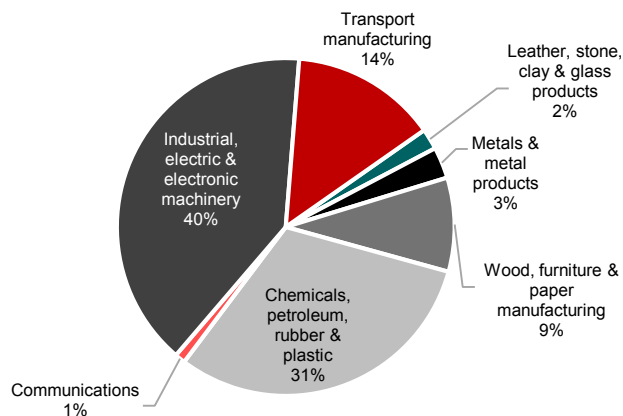


United States to China

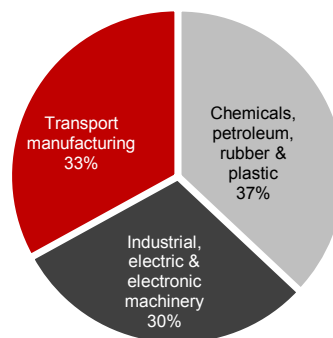


2019

China to ASEAN



United States to China



Sources: Orbis Crossborder Investment; and AMRO staff calculations.

Note: Orbis-defined sectors are matched against sectors in the United States International Trade Commission DataWeb affected by the Tranches 1 to 4 tariffs, and approximate the size of FDI diversion that could be associated with the trade tensions. ASEAN = Association of Southeast Asian Nations; FDI = foreign direct investment.

Box 1.4:**Resilience of the ASEAN+2 to the US–China Trade Tensions**

The US-China trade conflict has highlighted the capacity of the ASEAN+2 (that is, ASEAN+3 excluding Mainland China) as an alternative source market for US imports. US consumers had traditionally sourced about three-quarters of the products that were subjected to higher tariffs from the rest of the world and China, while the ASEAN+2 contributed to the remaining demand.¹ In 2017, the rest of the world accounted for almost 60 percent of US imports of the tariffed products, while China and ASEAN+2 provided about 18 percent each. The ASEAN+2's share of US imports of the tariffed goods had largely been stable leading up to the first tariff hike against China, after which it trended upwards (Figure 1.4.1).

China's subsequent loss of US market share has been a gain for the rest of the region, which absorbed part of the demand. China's share of US imports suffered a large decline in 2019, relative to the ASEAN+2 and its own historical trends (Figure 1.4.2). While the ASEAN+2 share of US imports remains relatively small in comparison to China and the rest of the world, it has risen faster than the other two since the trade conflict began. The increase is largely attributable to exports from the BCLMV (Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam) group of economies (Figure 1.4.3). The fact that a large portion of the tariffed

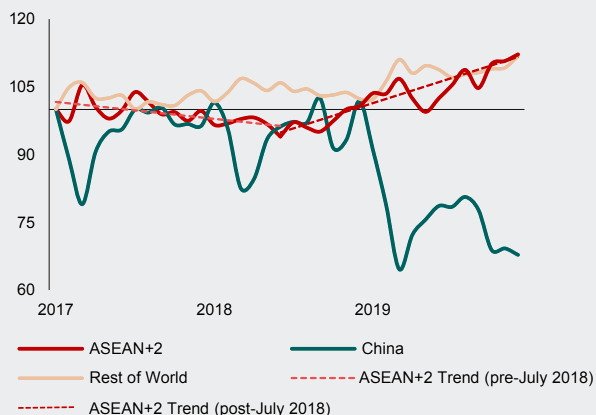
goods comprises intermediate goods may have been a positive contributing factor, with emerging production hubs, such as Cambodia and Vietnam, able to take advantage of their substitutability as a source market.

The ASEAN+2, in aggregate, recorded positive export growth to the United States in 2019, suggesting that regional economies continued to be resilient to the trade headwinds. Total imports by the United States from this group increased by 4.2 percent year-over-year, on average, between January and December 2019. In fact, US imports of the tariffed goods from the ASEAN+2 continued to tread in positive territory, even though its total imports fell (Figure 1.4.4). Given that the recently signed Phase One trade agreement does not yet fully eliminate the tariffs against China's goods, ASEAN+2 economies are likely to continue reaping some of the benefits of trade diversion, particularly those with high export similarities to China's products. There is an opportunity for these economies to take advantage of their current price attractiveness vis-à-vis Chinese products and maintaining it by improving aspects of their external competitiveness, such as enhancing the ease of doing business, reducing non-tariff barriers, and embracing innovation.

¹ Refers to the products covered under the first four tranches (e.g.1-4A), with a total value of USD 362 billion.

Figure 1.4.1. United States: Change in Import Shares by Source

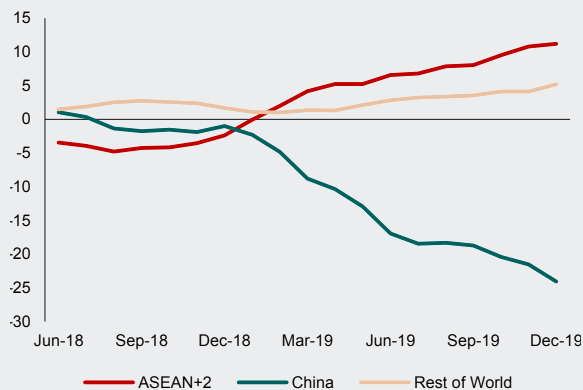
(Index, January 2017 = 100)



Sources: United States International Trade Commission Dataweb; AMRO staff calculations.
 Note: Data are only for Tranches 1–4A. ASEAN+2 = ASEAN+3 excluding China.

Figure 1.4.2. United States: Growth in Import Shares by Source

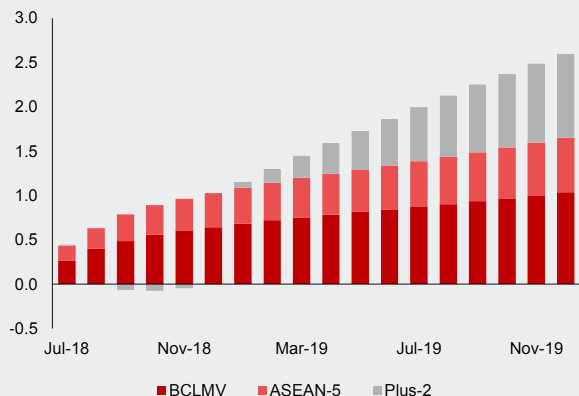
(Percent year-over-year, 6-month moving average)



Sources: United States International Trade Commission Dataweb; AMRO staff calculations.
 Note: Data are only for Tranches 1–4A. Shares are calculated by summing the percentage point changes across the product categories. ASEAN+2 = ASEAN+3 excluding China.

Figure 1.4.3. United States: Change in Import Shares by Regional Grouping

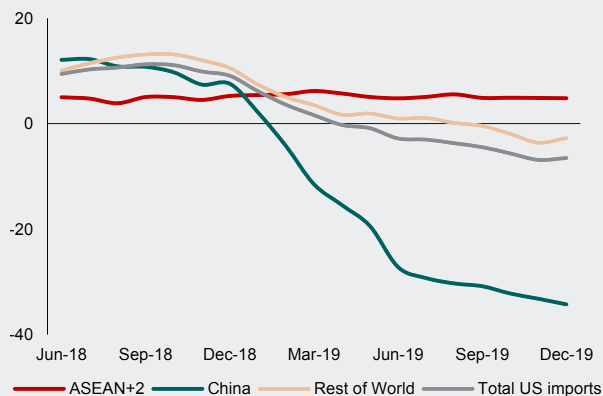
(Index, January 2017 = 100)



Sources: United States International Trade Commission Dataweb; AMRO staff calculations.
 Note: Data are only for Tranches 1–4A. BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; ASEAN-5 = Indonesia, Malaysia, the Philippines, Thailand, and Singapore; Plus-2 = Hong Kong, Japan and Korea.

Figure 1.4.4. United States: Growth in Imports of Tariffed Goods by Source

(Percent year-over-year, 6-month moving average)



Sources: United States International Trade Commission Dataweb; AMRO staff calculations.
 Note: Data are only for Tranches 1–4A.

III. Fear in Financial Markets?

The spread of COVID-19 has upended global financial markets and more than reversed the gains from the easing in the US-China trade tensions in late 2019. Major equity markets have all been severely impacted by the pandemic, and have continued to plummet despite the extraordinary easing measures taken by their central banks (Figure 1.17), in conjunction with announcements of fiscal support. The ASEAN-5 equity markets have followed suit and have already lost significantly more than last year's returns, up to March 16, 2020. China has given back almost all of the 22 percent rise in 2019, but policy support from the authorities has helped to contain the fall from 2019 year-end levels. Similarly, Hong Kong has lost all of last year's 9 percent gain and is down nearly 17 percent year-to-date.

The ASEAN+3 currencies have also weakened. In particular, the Thai baht has depreciated by almost 8 percent, while the Indonesian rupiah, Korean won, Singapore dollar, and Malaysian ringgit have all depreciated by more than 5 percent. Concurrently, investors have sought refuge in long-term government bonds, with 10-year yields compressing in the majority of markets.

Capital flows in the ASEAN+3 region have been quite volatile over the past year. Equity market investors worried

about the impact of continuing US-China trade tensions on growth and corporate profitability; at the same time, announcements by several major global equity and bond investment index providers of their intentions to include or increase the weight of China's onshore stocks and bonds raised concerns about the implications of a massive reallocation of investment funds across the region. However, easier global financial conditions and the very low interest rate environment provided support for continued inflows into fixed income markets in 2019, although they have since seen some reversals following the COVID-19 outbreak (Figure 1.18).

Overall market risk within the ASEAN+3 region was lower in 2019 compared to the previous year, but has jumped up in recent weeks. Last year, financial stress had largely manifested in the form of pressure on exchange rates (Figure 1.19), predominantly the Chinese renminbi and Korean won, while exchange rate developments among the ASEAN-4 were characterized by some currency appreciation and accumulation of reserves (Figure 1.20). The current stress stemming from the COVID-19 pandemic has pushed AMRO's Financial Stress Index above the long-run average, as a result of increased exchange rate volatility, sovereign risk premia, and risk aversion across the region.

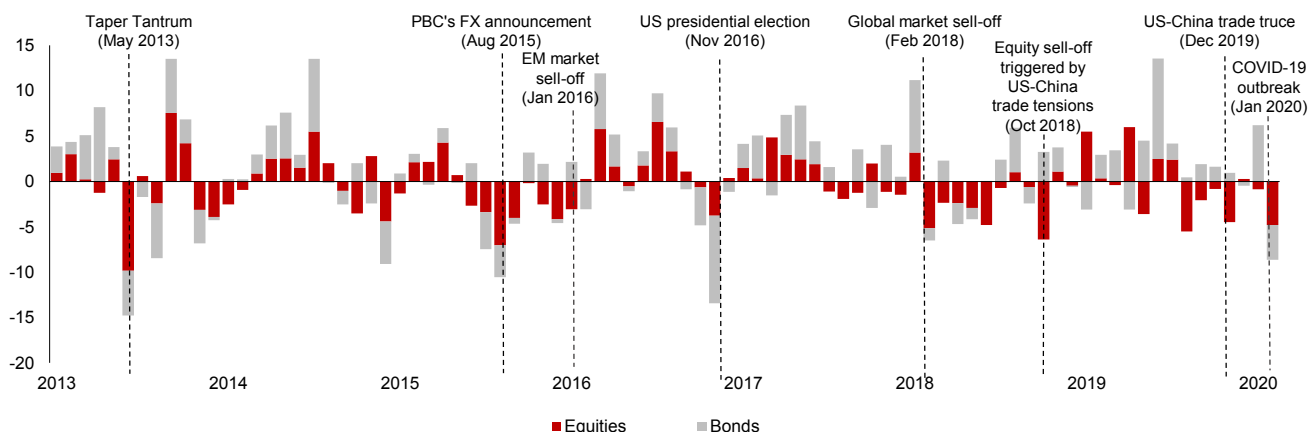
Figure 1.17. ASEAN+3 and Selected Advanced Economies: Performance of Equity, Exchange Rate, and Government Bond Markets, as of March 17, 2020

Economy	Benchmark equity index					Currency (against USD)					10-year yield (basis points)				
	Level	2020 (Ytd)	2019	2018	2017	Level	2020 (Ytd)	2019	2018	2017	Level	2020 (Ytd)	2019	2018	2017
US	2,386	-26.1%	28.9%	6.2%	19.4%	97.6	1.5%	0.3%	4.2%	9.7%	0.72	-119.9	-76.7	27.9	-3.9
EU	2,450	-34.6%	24.8%	-4.3%	6.5%	1,117	-0.5%	-2.0%	-4.3%	13.6%	-0.46	-27.6	-42.7	-18.5	21.9
UK	5,151	-31.7%	12.1%	-2.5%	7.6%	1,230	-6.7%	3.4%	-5.8%	9.7%	0.43	-38.5	-45.8	8.7	-4.7
CN	2,789	-8.6%	22.3%	-4.6%	6.6%	7,009	-0.7%	-1.2%	-5.7%	5.3%	2.69	-45.0	-16.4	-57.9	84.9
HK	23,064	-18.2%	9.1%	-3.6%	36.0%	7,769	0.2%	0.6%	-0.2%	-0.8%	0.91	-85.6	-24.3	17.3	-14.0
JP	17,002	-28.1%	18.2%	-2.1%	19.1%	105.9	2.4%	1.4%	2.2%	3.7%	0.02	2.8	-1.4	-4.5	0.2
KR	1,715	-22.0%	7.7%	-7.3%	21.8%	1,229	-6.4%	-3.6%	-4.5%	11.3%	1.52	-15.4	-28.4	-51.1	37.5
ID	4,691	-25.5%	1.7%	2.5%	20.0%	14,933	-7.7%	3.6%	-6.1%	-0.7%	7.40	33.4	-96.2	170.6	-165.4
MY	1,281	-19.4%	-6.0%	5.9%	9.4%	4,309	-5.3%	1.0%	-2.9%	9.6%	3.12	-17.7	-77.4	16.5	-31.2
PH	5,335	-31.7%	4.7%	-2.8%	25.1%	51.5	-1.7%	3.7%	-5.3%	-0.4%	4.33	-1.6	-266.8	208.5	29.0
SG	2,496	-22.6%	5.0%	9.8%	18.1%	1,422	-5.7%	1.2%	-2.9%	7.5%	1.36	-37.8	-29.9	3.6	-47.0
TH	1,046	-33.8%	1.0%	-0.8%	13.7%	32.1	-8.0%	8.1%	0.6%	9.0%	1.15	-32.9	-100.5	15.9	-32.5
KH	629	-17.5%	58.4%	39.6%	-3.3%	4,123	-1.4%	-1.0%	0.2%	0.0%					
LA	644	-11.6%	113.0%	6.2%	-1.6%	8,903	-0.2%	-4.0%	-3.9%	1.3%					
VN	748	-22.2%	7.7%	9.3%	48.0%	23,228	-0.2%	0.2%	-2.2%	0.3%	2,453	-96.4	-170.9	-7.9	-117.1

Sources: Haver Analytics; and AMRO staff calculations.

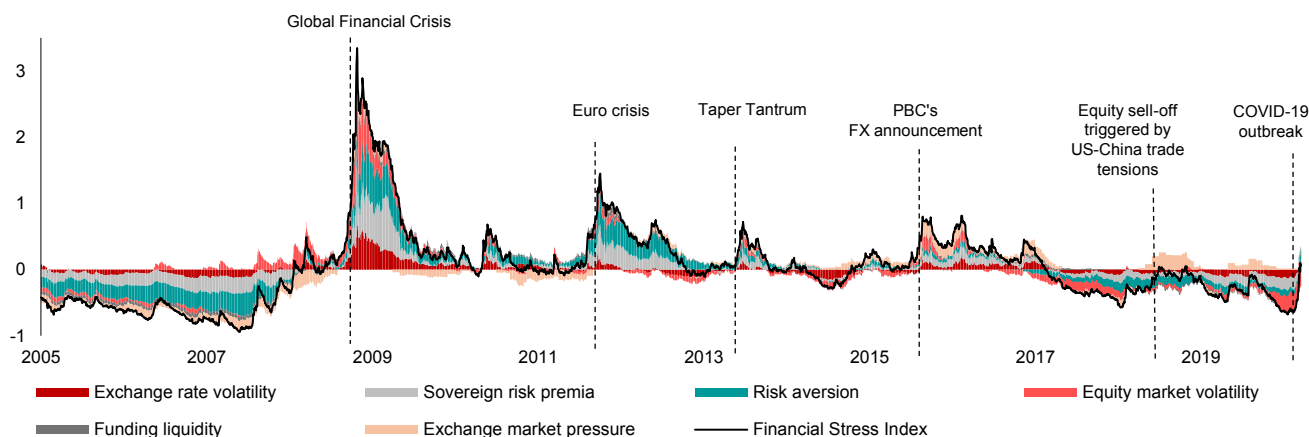
Note: CN = People's Republic of China; EU = euro area; HK = Hong Kong; JP = Japan; ID = Indonesia; KR = Korea; KH = Cambodia; LA = Lao People's Democratic Republic; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam; UK = United Kingdom; US = United States; Ytd = year-to-date.

Figure 1.18. ASEAN-4, Korea and Vietnam: Net Foreign Portfolio Investment Flows
(Billions of US dollars)



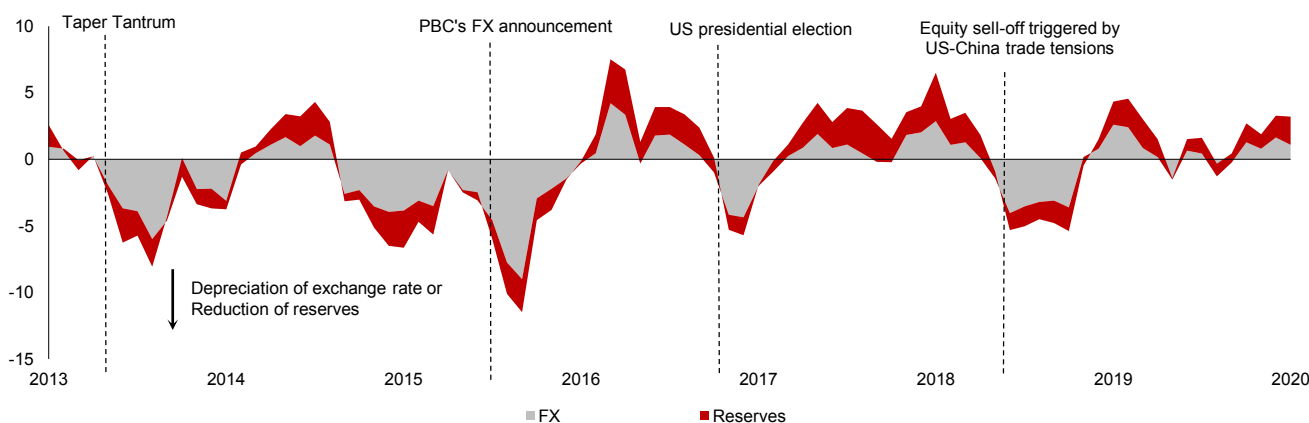
Sources: National authorities; and AMRO staff calculations.
Note: ASEAN-4 = Indonesia, Malaysia, the Philippines, and Thailand; EM = emerging market; FX = exchange rate; PBC = People's Bank of China; US = United States.

Figure 1.19. ASEAN+3: Financial Stress Index



Sources: Bloomberg Finance L.P.; national authorities; and AMRO staff estimates.
Note: The Financial Stress Index (FSI) is estimated from the methodology proposed in Poonpatpibul and others (2018). EM = emerging market; FX = exchange rate; PBC = People's Bank of China.

Figure 1.20. ASEAN-4 and Korea: Exchange Market Pressure Index



Sources: National authorities; and AMRO staff calculations.
Note: The Exchange Market Pressure Index is the sum of percentage changes of both currency and foreign reserves of a particular month over the preceding six months. ASEAN-4 refers to Indonesia, Malaysia, the Philippines, and Thailand. EM = emerging market; FX = exchange rate; PBC = People's Bank of China.

Several key themes have been at play in financial markets. In early 2019, both the FOMC and the ECB turned dovish, followed by rate cuts; trade tensions continued throughout most of 2019, with some respite toward the end of the year and in January 2020; and at the turn of the New Year, geopolitical tensions erupted in the Middle East, and the COVID-19 outbreak in Wuhan, China, was announced. The outcome was that:

- *Equity markets were supported by improvements to the trade situation and easier financial conditions toward the latter part of 2019.* Prices in China, Korea, and Japan rebounded from the very weak finish in 2018 (Figure 1.21). Equity markets that are closely linked to China (e.g., Korea) outperformed the other Asian EMs, such as Malaysia, which ended the year lower. However, markets have since fallen sharply as the pandemic sowed panic globally.
- *Despite the strong rebound in nominal terms, regional equity markets have generally not performed well since mid-2018.* After adjusting for risk (that is, adjusted for own volatility and long-term government bond yields), returns have predominantly been negative, as represented by their respective Sharpe ratios through most of 2019 (Figure 1.22). Daily equity returns improved to about zero or slightly positive only toward the latter part of 2019, but have since returned to negative territory and are falling rapidly.
- *Regional currencies strengthened in 2019.* The Chinese renminbi remained under some pressure, albeit much less than the previous year, while the Korean won was buffeted in part by increased trade tensions with Japan. Thailand—aided by sustained strong current account surpluses—was the best performer, and “high yielders” (e.g., Indonesia and the Philippines) were helped by the strong rally in bond markets. More generally, the Chinese renminbi has become more influential vis-à-vis the performance of regional currencies (Figure 1.23), underpinned by strengthening trade ties. In particular, the Korean won, Indonesian rupiah, and Philippine peso have shown greater correlation with the renminbi over time.
- *Regional bond markets saw a decline in yields across the board, in line with global interest rates.* They were further buoyed by the easing monetary policy stance of several regional central banks, and benefited from investors’ search for yield.

In March 2020, US dollar funding stress led to a broad sell-off across asset classes. Equities, exchange rates, and bonds in EM Asia were adversely affected, and even gold and the Japanese yen depreciated. The US Fed subsequently announced a bond buyback program on March 15 to alleviate the liquidity shock. In this environment, tools available to regional central banks

include their foreign exchange reserves, bilateral and multilateral swap arrangements, reducing required reserve and liquidity coverage ratios on foreign currency deposits, and encouraging the repatriation of funds from overseas. Indeed, some of these measures have already been announced by some regional authorities, but further action may be warranted if US dollar liquidity remains under sustained pressure.

Meanwhile, announcements of weighting adjustments by major global investment index providers initially caused some apprehension over their implications for EMs. From February 2019, the MSCI, FTSE Russell, S&P Dow Jones, and Bloomberg Barclays Indices indicated their intention to increase the weighting of China’s onshore stocks and bonds in their respective benchmark indices over the course of 2019–20. These developments have made China’s risk assets inescapably more important to global investors. Meanwhile, MSCI also increased Thailand’s shares in its indices by qualifying several categories of Thailand’s non-voting depository receipts.

However, AMRO’s analysis suggests that the overall impact of the re-weightings *per se* on markets may be close to neutral. The phasing in of index changes over many months should allow investors to gradually reallocate, which should facilitate the smoothing of market prices. Moreover, the continuing increase in new assets under management across constituent markets should help offset any volatility in capital flows across borders from those reallocations (Box 1.5).

Once the flight to safety stage passes, the region’s EM bonds are expected to attract investors again. With AE interest rates at very low (or even negative) levels and falling (Figures 1.24 and 1.25), investors are likely to continue searching for returns among higher-yielding EMs. The rate cuts by the US Fed appear to have fully met market expectations, and while no further easing is expected in the foreseeable future, neither is a reversal (Box 1.6). Given their relatively solid fundamentals, ASEAN EMs (and Korea) should remain beneficiaries from the market’s ability to discern quality (Figure 1.26), although bond yields—as a spread against US as well as domestic policy rates—had been on a compressing trend until very recently (Figure 1.27). Meanwhile, the protracted low interest rate environment in countries such as Japan, while supportive of growth, carries important financial stability implications, through the narrowing of interest margins and potential weakening in the balance sheets of financial institutions (Box 1.7).

The increased risks in the global environment have introduced significantly greater volatility in markets. Uncertainties surrounding global economic activity and policymaking reached a historic high in 2019 (Figure 1.28), and are likely to rise further in 2020. The lack of clarity and tensions surrounding the trade

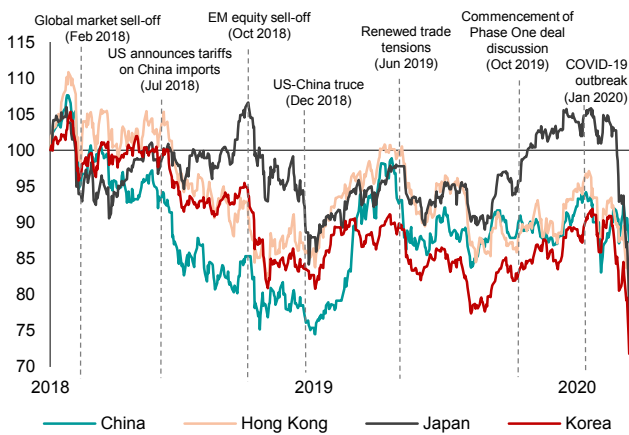
negotiations between China and the United States, buffeted by acrimonious Brexit negotiations among UK political parties and with the EU—became key drivers of confidence, spilling over into financial markets. While the US-China Phase One trade agreement and the finality of Brexit are positive in this regard, uncertainty has spiked significantly with the COVID-19 pandemic, and raised risk aversion to GFC levels (Figure 1.29). Consequently, the private sector will likely hold back spending and investment this year, and further weaken overall economic activity.

AMRO has developed a global vector autoregression model to estimate the impact of greater unpredictability

in the outlook on asset prices and capital flows. The results estimate a 0.3–1.6 percent decline in equity prices 0–1 month after a one standard error shock in uncertainty (Box 1.8). In the event of heightened global economic uncertainty, the Japanese yen appreciates and most other currencies weaken against the US dollar. It likewise triggers a flattening in yield curves, on expectations of more accommodative monetary policy (given that the shock would likely dampen economic growth) as well as some rebalancing toward less-risky assets. Foreign investors also tend to shift away from EM assets, which could lead to an immediate outflow of nonresident capital from Asian equity and debt markets.

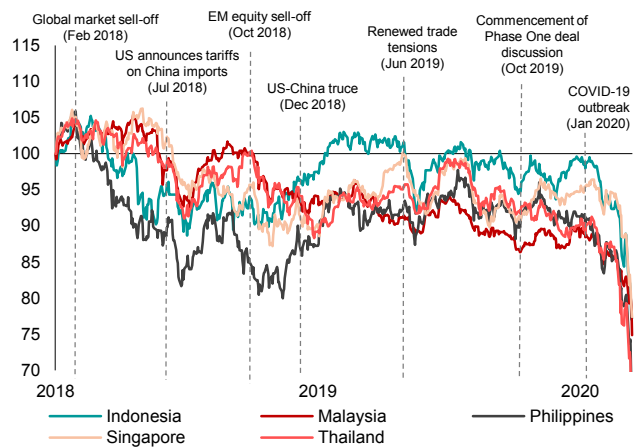
Figure 1.21. ASEAN+3: Equity Markets
(Index, January 1, 2018 = 100)

China, Japan, and Korea



Sources: Haver Analytics; and AMRO staff calculations.

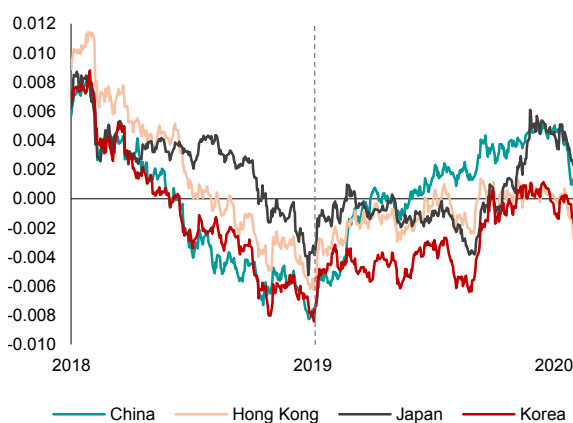
ASEAN-5



Sources: Haver Analytics; and AMRO staff calculations.

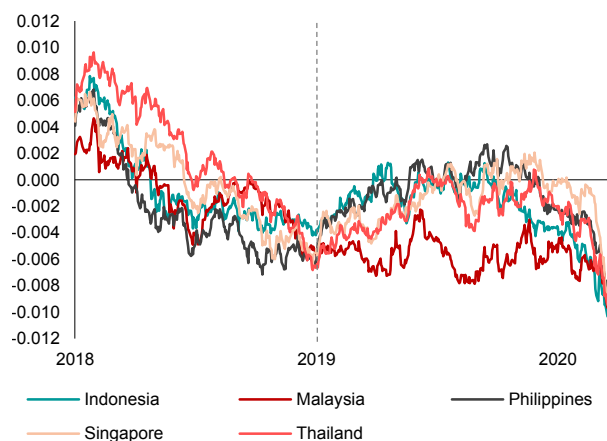
Figure 1.22. ASEAN+3: Sharpe Ratios

China, Japan, and Korea



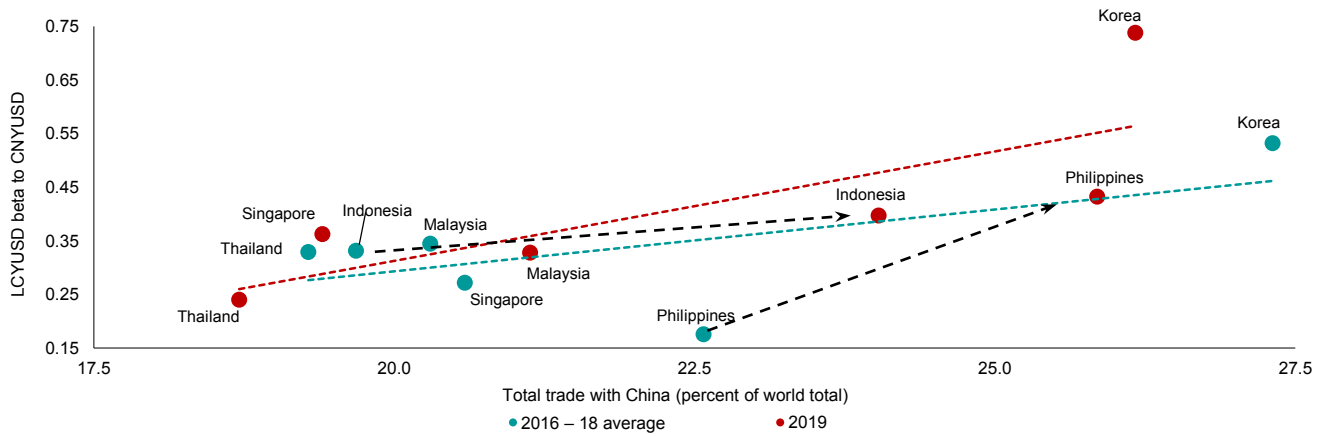
Sources: Haver Analytics; and AMRO staff calculations.
Note: Standard deviations are calculated from 240-day rolling returns.

ASEAN-5



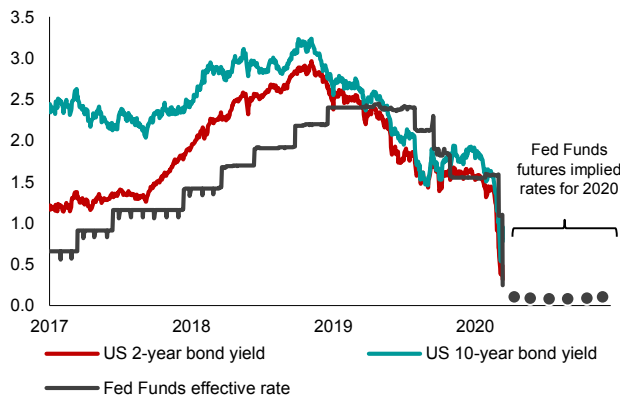
Sources: Haver Analytics; and AMRO staff calculations.
Note: Standard deviations are calculated from 240-day rolling returns.

Figure 1.23. ASEAN-5 and Korea: Sensitivity of Local Currency to CNY/USD versus Trade with China



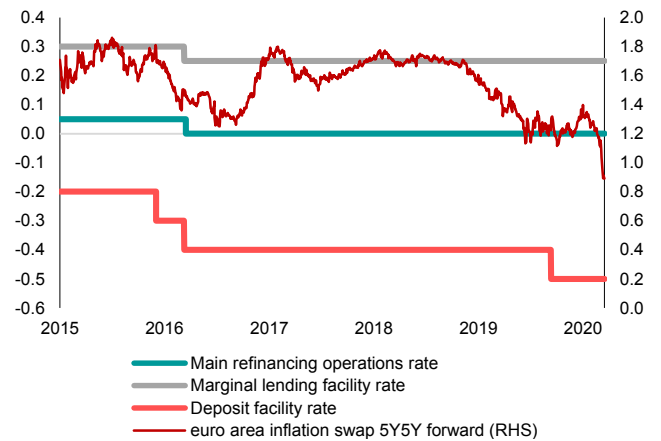
Sources: Haver Analytics; and AMRO staff estimates.
 Note: The red line represents the regression line for the countries in 2019; the green line represents the regression line for the countries' 2016–18 average. Total trade refers to the sum of merchandise exports and imports. Only liquid ASEAN+3 (excluding Japan) currencies that are either in a managed or freely floating arrangement are included. USD = US dollar; CNY = Chinese renminbi; LCY = local currency.

Figure 1.24. United States: Fed Funds and Fed Funds Futures Rates, and Government Bond Yields (Percent)



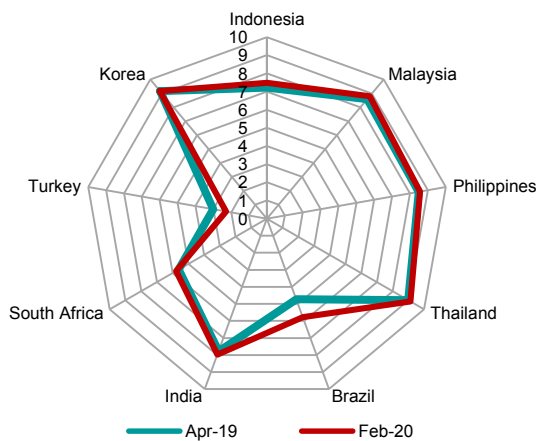
Source: Haver Analytics.
 Note: Data for Fed fund futures implied rates as of March 17, 2020.

Figure 1.25. Euro area: 5Y5Y Inflation Swap and ECB Policy Rates (Percent)



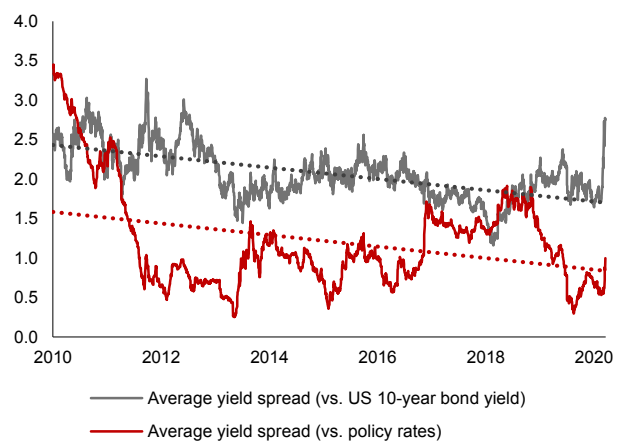
Source: Haver Analytics.
 Note: 5Y5Y, or 5-year 5-year, refers to the expected inflation rate over the five-year period that begins five years from quotation. Data are as of March 17, 2020. ECB = European Central Bank.

Figure 1.26. Selected Emerging Markets and Korea: Sovereign Access to Capital Markets (Rank)

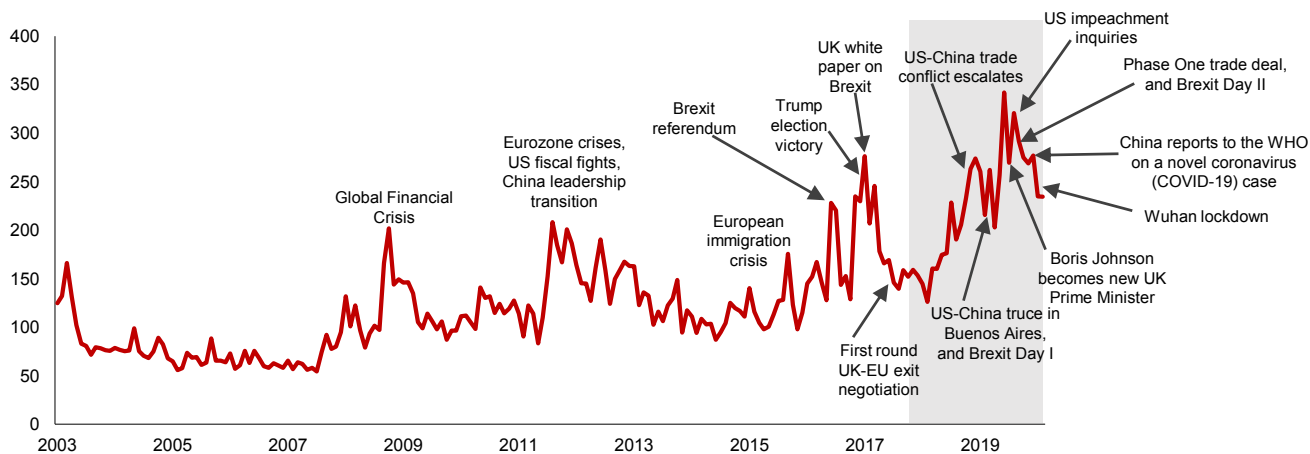


Sources: Haver Analytics; and AMRO staff estimates via ARTEMIS.
 Note: The further away from zero, the relatively cheaper the market access relative to the emerging markets universe.

Figure 1.27. ASEAN-4 and Korea: Average Yield Spreads (Percent)

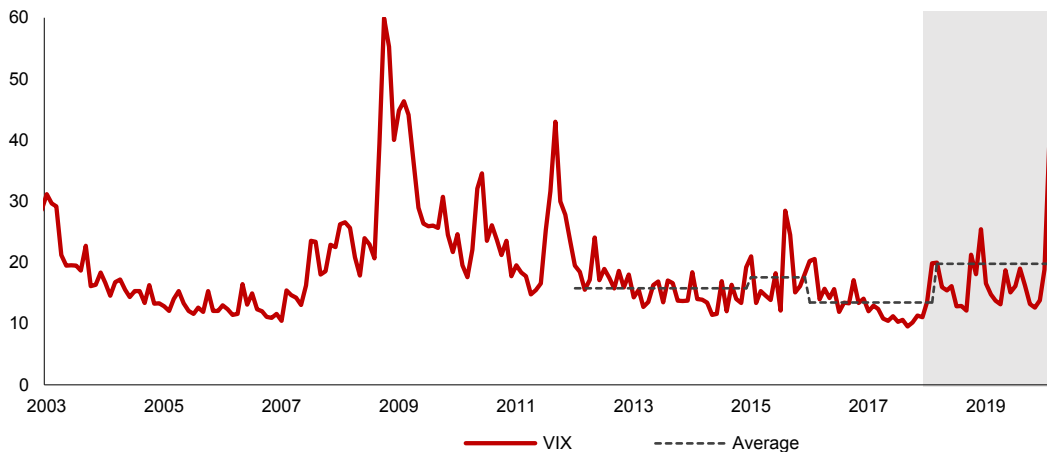


Sources: Haver Analytics; and AMRO staff calculations.
 Note: Calculations are based on yields and policy rates of Indonesia, Korea, Malaysia, the Philippines, and Thailand.

Figure 1.28. Global Economic Policy Uncertainty Index, as of February 2020

Sources: Economic Policy Uncertainty (www.policyuncertainty.com); and AMRO staff compilations.

Note: The Global Economic Policy Uncertainty Index is a publicly available dataset constructed from the GDP-weighted average of national indices that reflect the relative frequency of own-country newspaper articles discussing "economic policy uncertainty." EU = European Union; PM = prime minister; UK = United Kingdom; US = United States.

Figure 1.29. The CBOE Volatility Index (VIX), as of March 2020

Sources: Haver Analytics; and AMRO staff calculations.

Note: CBOE = Chicago Board Options Exchange; VIX = CBOE Volatility Index.

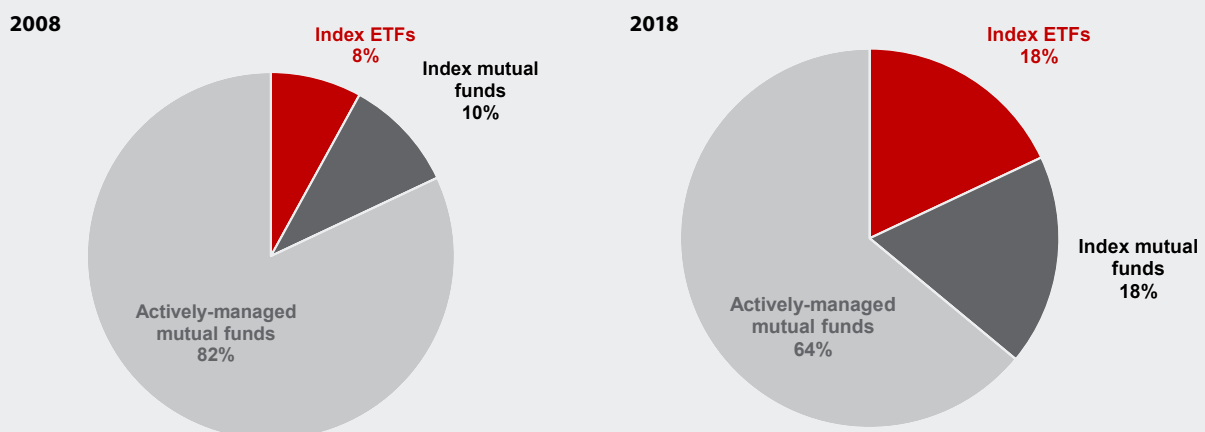
Box 1.5:**Reweighting of Global Investment Indices and Their Implications for Regional Capital Flows**

In 2019, major equity and bond index providers announced their intention to increase the weighting of China's securities in their respective benchmark indices over the course of 2019–20. The reweightings carry important implications for cross-border capital flows. Global indices, such as the MSCI Emerging Markets Index (MSCI-EM), the FTSE Emerging Markets Index (FTSE-EM) and the Bloomberg Barclays Global Aggregate Index (BBGA) cover a sizable share of investible markets in the world. For example, the MSCI-EM is tracked by an estimated USD 1.9 trillion worth of passive funds, while the BBGA is the benchmark for some USD 2.5 trillion in assets under management (AUM). When the weighting of a particular market increases (decreases), global fund managers tend to raise (reduce) their allocations to that market, while pulling out (injecting) funds from (into) others, assuming no change in their AUM. Although the extent varies across investment strategies, such asset reallocations could induce capital movements across markets, affect asset prices, and exert pressure on currencies.

Fund managers apply active or passive strategies, or a hybrid of both. A passive fund manager aims to deliver the total returns of a particular index.

He/she typically holds portfolios that mirror or closely track the constituents of the respective benchmark indices and rebalances almost mechanically when the composition or weights of those indices change. In contrast, an active fund manager does not necessarily track benchmark indices closely but rather, aims to use his/her skills or untapped information (for example, "big data") to search for excess returns ("alpha"). The literature suggests that a one percentage point increase in a market's weighting in a benchmark stock (bond) index is associated with an average 0.9 (0.6) percentage point increase in a passive fund's allocation and 0.6 (0.4) in an active fund's allocation to that market, after other country, industry and fund characteristics are accounted for (Williams, Raddatz, and Schmukler, 2017).¹ Hence, the "benchmark effect" could be significant, especially given that passive fund management has been gaining traction in recent years (Figure 1.5.1).

Back-of-the-envelope calculations suggest that China could see sizable inflows into both its onshore stock and bond markets over time, as a result of the index re-weightings, while Korea and major ASEAN EMs would lose out (Table 1.5.1):²

Figure 1.5.1. United States: Composition of Mutual Fund Market

Sources: Investment Company Institute; and AMRO staff calculations.
Note: ETF = exchange-traded fund.

¹ Passive funds, in this context, include both explicit and closet indexing funds. They closely, but may not completely, track an index. Hence, the benchmark effect is about 0.9 (0.6) for stocks (bonds), on average, rather than 1.

² See Sun (2019) for a more detailed breakdown estimated allocations.

- *Ceteris paribus*, the rebalancing of the MSCI-EM weights could result in a reallocation of an estimated USD 85 billion into China's A shares, or 1.3 percent of its market capitalization. Reweighting of the global bond indices are likely to be significant for China's domestic bond market as well, with projected capital inflows of nearly USD 71 billion. Indeed, with index rebalancing still underway, overseas investors had already increased their holdings in Chinese domestic equities and bonds by CNY 950.1 billion (USD 135.9 billion) and CNY 477.6 billion (USD 68.3 billion), respectively, between end-2018 and end-2019 (Figure 1.5.2).
- Total capital outflows from Malaysia, Indonesia, the Philippines, and Korea that are attributable to the re-weighting effect of the MSCI-EM and FTSE-EM could amount to an estimated USD 22 billion, about the same size as their equity portfolio outflows in 2018, when the region was hit by sell-offs in emerging market risk assets (Figure 1.5.3). Thailand, the only ASEAN market that received a major weighting boost from MSCI-EM, saw strong equity portfolio inflows after the announcement, but has subsequently readjusted to other news.
- Redemptions of local currency debt securities from the rest of the region (including Korea, Singapore,

and other ASEAN markets) would amount to an estimated total of USD 2.5 billion, given their small aggregate weights in the BBGA. Such magnitude could be considered modest compared to the volatility in the actual bond market flows over the past year and a half (Figure 1.5.3).

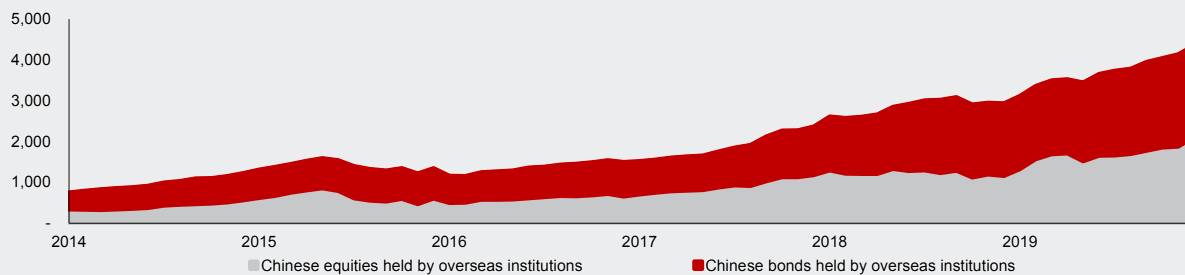
While some regional markets may experience capital outflows, mitigating factors could potentially offset any significant impact. The phased-in implementation of the adjustments should help to smooth capital flows, while the continuing inflow of new AUM across constituent markets—assuming that global investment funds grow at the average annual compound growth rate of the past decade—should result in a largely neutral outcome for most of the ASEAN+3 members. Aside from the index re-weightings, macro-financial factors and risk sentiment also play crucial roles in the determination of capital flows. Throughout 2019, trade tensions and concerns over a global economic slowdown saw a deterioration in risk sentiment. Consequently, Indonesia, Malaysia, Korea, and Thailand bond markets collectively recorded net inflows of USD 22 billion in 2019, despite estimates pointing to minimal capital movement as a result of index rebalancing, highlighting the importance of investor preference for safer assets in the region and their search for yield among EMs.

Table 1.5.1. Global Markets: Net Flows from Reallocations and New Assets under Management
(Billions of US dollars unless indicated otherwise)

Constituent	Capital flows from reallocation			Total capital flows from reallocation		Capital flows from new AUM			Total capital flows	
	MSCI EM	FTSE Russell EM	Bloomberg Barclays GA	Amount	Percent of FX reserves	MSCI EM	FTSE Russell EM	Bloomberg Barclays GA	Amount	Percent of FX reserves
United States	0.0	0.0	-32.0	-32.0	-7.1	0.0	0.0	18.6	-13.3	-2.9
Euro area	0.0	0.0	-17.4	-17.4	-2.1	0.0	0.0	10.1	-7.2	-0.9
Japan	0.0	0.0	-11.9	-11.9	-0.9	0.0	0.0	6.9	-5.0	-0.4
Singapore	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.1	-0.1	0.0
Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China, Offshore	-32.3	-6.7	0.0	-38.9	-1.2	37.1	4.2	0.0	2.3	0.1
China, Onshore	85.0	19.3	70.9	175.3	5.5	4.2	0.7	2.7	182.8	5.7
Korea	-14.9	0.0	-0.9	-15.8	-3.9	17.1	0.0	0.5	1.9	0.5
Taiwan, China	-11.6	-2.4	0.0	-14.0	-2.9	13.3	1.5	0.0	0.8	0.2
India	-9.0	-2.3	0.0	-11.3	-2.7	10.4	1.4	0.0	0.5	0.1
Brazil	-8.4	-1.7	0.0	-10.1	-2.6	9.6	1.1	0.0	0.6	0.2
Thailand	17.8	-0.7	-0.2	16.9	8.0	3.8	0.4	0.1	21.2	10.0
Malaysia	-2.5	-0.6	-0.2	-3.3	-3.2	2.8	0.4	0.1	0.1	0.1
Indonesia	-2.4	-0.5	-0.2	-3.0	-2.4	2.7	0.3	0.1	0.1	0.1
Philippines	-1.2	-0.3	0.0	-1.5	-1.2	1.4	0.2	0.0	0.1	0.1
South Africa	-6.0	-1.4	0.0	-7.4	-14.9	7.1	0.9	0.0	0.5	1.0
Others	-14.7	-2.9	-8.0	-25.5	-	16.8	1.8	4.7	-2.3	-

Sources: Bloomberg Finance, L.P.; Bloomberg Barclays Indices; FTSE Russell; Invesco; Investment Company Institute; and AMRO staff estimates.
Note: AUM = assets under management; EM = emerging market; FX = foreign exchange; GA = global aggregate; MSCI-EM = MSCI Emerging Market Index.

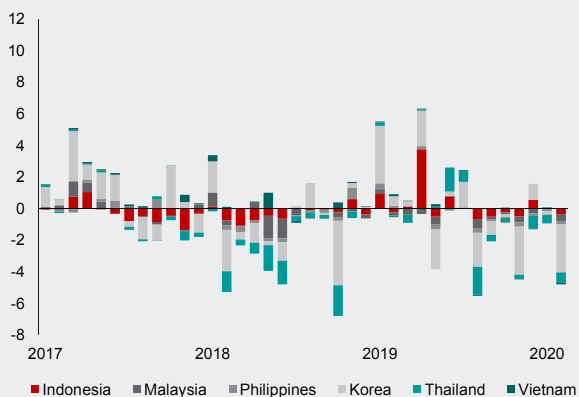
Figure 1.5.2. China: Foreign Holdings of Domestic Assets
(Trillions of Chinese renminbi)



Source: People's Bank of China.

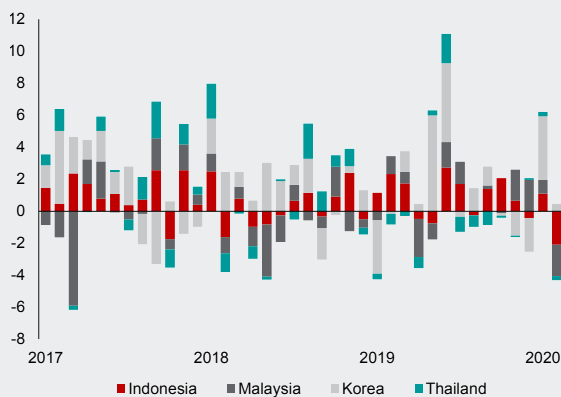
Figure 1.5.3. ASEAN-4, Korea, and Vietnam: Net Foreign Portfolio Investment Flows
(Billions of US dollars)

Equities



Sources: National authorities; and AMRO staff calculations.
Note: ASEAN-4 refers to Indonesia, Malaysia, the Philippines, and Thailand.

Bonds



Sources: National authorities; and AMRO staff calculations.
Note: ASEAN-4 refers to Indonesia, Malaysia, the Philippines, and Thailand.

Box 1.6:

What Will Drive US Treasury Yields?

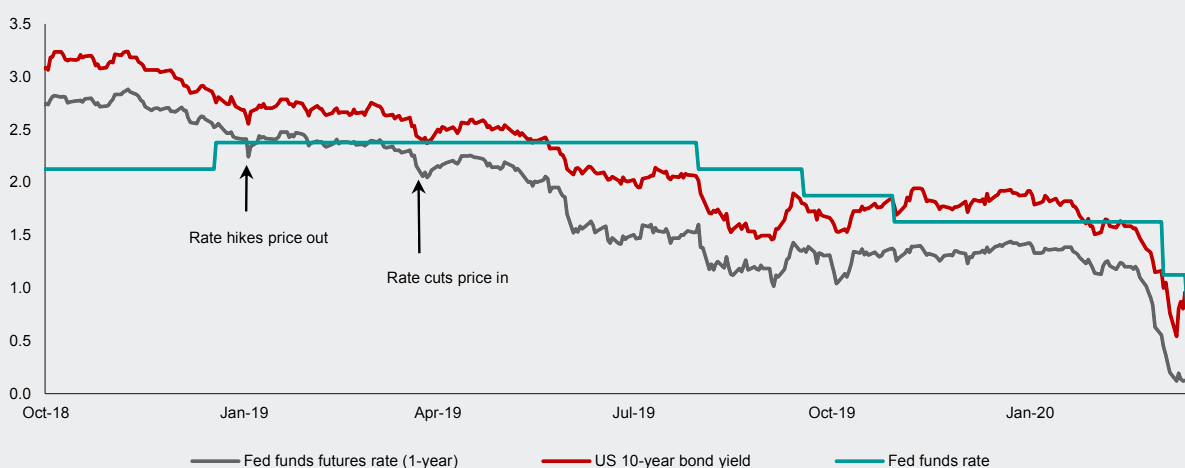
The fall in US Treasury yields since Q4 2018 has been driven to a large extent by market expectations related to the US Federal Reserve's (US Fed's) policy stance. The pricing out of US Fed hikes, followed by the pricing in of cuts in the forward space were accompanied by similar drops in US Treasury 10-year yields (Figure 1.6.1). Since October 1, 2018, the 12-month forward rate expectations have explained almost 50 percent of the daily volatility in US Treasury 10-year yields, with a beta of 0.90 (Figure 1.6.2). The US Fed did indeed deliver three 25 basis point cuts in H2 2019, citing global developments and low inflation while remaining comfortable on domestic labor market and economic activity and another cumulative 150 basis points of emergency cuts in March 2020, in response to concerns over the economic impact of the COVID-19 pandemic.

The period between the October 30, 2019 Federal Open Market Committee meeting (FOMC), when the US Fed cut for the third time, and end-December 2019 provides an interesting case study of market behavior. During this time, US Treasury yields rose from 1.69 percent to 1.92 percent (23 basis points) and the corresponding change in US Fed rate expectations (in 1 year's time) rose by 17 basis points. The higher beta of US 10-year yields indicates that its sensitivity rises when markets expect the US Fed to take a less dovish stance in the future. In other words, if the

situation is ripe for rates to rise, then the move in 10-year yields would be much sharper than if vice-versa. A couple of key developments at the time had diminished market expectations of further easing:

- *US-China Phase One trade agreement.* Trade tensions between the United States and China had cast a shadow over the global economic outlook since mid-2018, and an important concern for the FOMC members in terms of its impact on business investment, exports, and manufacturing production. Concerns began to ease on growing expectations of a Phase One trade deal, which was eventually announced on December 12, 2019, and signed on January 15, 2020.
- *Inflation.* The US Fed typically considers (1) 12-month average personal consumption expenditures (PCE) and core PCE as an inflation gauge; (2) market-based measures of inflation compensation, that is, breakeven yields; and (3) survey-based measures of longer-term inflation expectations. While PCE and core PCE fell in 2019 and remain well below the US Fed's 2 percent target (Figure 1.6.3), breakeven yields have drifted higher since October 2019 (Figure 1.6.4). Separately, survey-based measures of inflation have remained above 2 percent, despite having declined in 2019.

Figure 1.6.1. United States: Treasury 10-Year Yields and Fed Funds Rates (Percent)



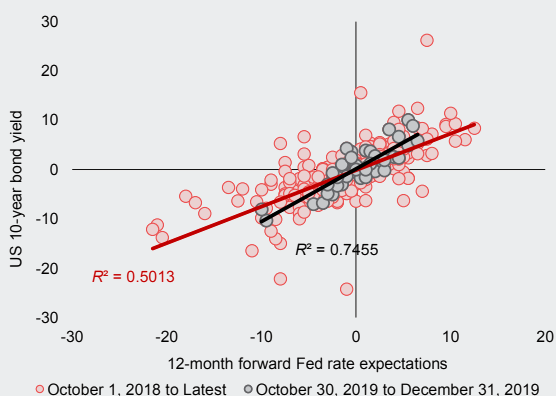
Sources: Haver Analytics; and AMRO staff calculations.

The global spread of the coronavirus, COVID-19, since end-2019 dragged down US Treasury yields and priced in increased expectations of US Fed easing. On March 3, 2020, the US Fed delivered a surprise inter-FOMC 50 basis point interest rate cut and followed up with a 100 basis point cut on March 15, 2020. The magnitude of these cuts appear to have fully met market expectations, and no further easing is expected, nor any reversals in the foreseeable future. But, is there a scenario

where US Treasury yields may rise toward the end of the year once the pandemic situation stabilizes? Indeed, the rise in yields could be rapid if any expectation of US Fed tightening appears on the horizon and markets start pricing in the unwinding of the rate cuts delivered in 2019 and Q1 2020. In the event that positive sentiment and improving global growth prospects become the main drivers of higher yields, ASEAN+3 emerging markets could also benefit from capital inflows.

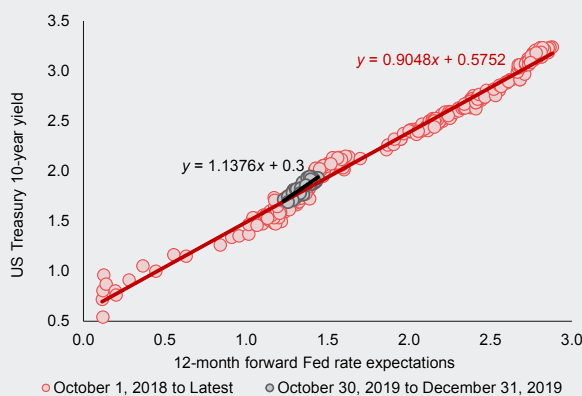
Figure 1.6.2. United States: Treasury 10-Year Yields and Fed Funds Futures Rates (12-month forward)

Daily change, basis points



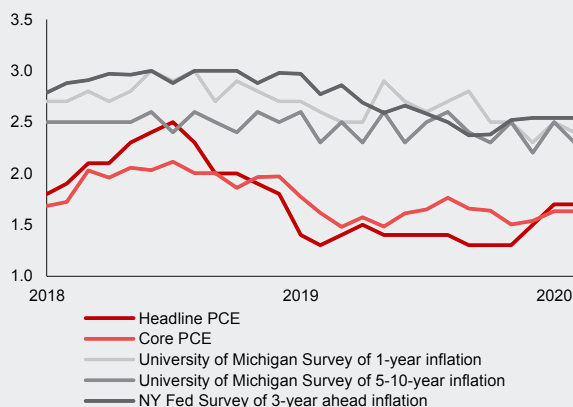
Sources: Haver Analytics; and AMRO staff estimates.

Percent



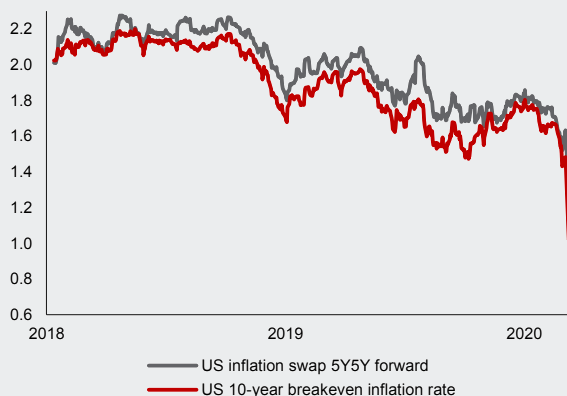
Sources: Haver Analytics; and AMRO staff estimates.

Figure 1.6.3. United States: Personal Consumption Expenditures and Survey-Based Inflation Measures (Percent)



Source: Haver Analytics.
Note: NY Fed = Federal Reserve Bank of New York; PCE = personal consumption expenditures.

Figure 1.6.4. United States: Market-Based Inflation Compensation (Percent)



Source: Bloomberg Finance, L.P.
Note: The 5-year, 5-year (5Y5Y) forward inflation expectation rate is a measure of expected inflation (on average) over the 5-year period that begins five years from the day of quotation. The 10-year breakeven inflation rate reflects the market's expectation of inflation in the next 10 years, on average.

Box 1.7:**Risks and Challenges to Regional Financial Stability amid Very Low Interest Rates**

The interest rate environment has changed dramatically over the past decade. Global central banks lowered their policy interest rates significantly and/or expanded their asset purchase programs after the global financial crisis (GFC) to bail out banks and facilitate economic recovery. Population aging, the ostensible decline in productivity, and income inequality have also been blamed for stagnant investment and consumption demand (Summers, 2013), pushing interest rates even lower. Market interest rates have been falling across advanced economies (AEs), into negative territory in the euro area and Japan (Figure 1.7.1), with the latter contributing some 43 percent of the USD 14 trillion in negative yielding bonds globally, as of October 2019 (Figure 1.7.2). The emerging market (EM) economies in the ASEAN+3 region are no exception—their key interest rates have continued to decline over time (Figure 1.7.3). Low interest rates carry important financial stability implications. To the extent that they are driven largely by global factors, domestic policies alone are unlikely to be effective.

Bank profitability is affected by interest rates, posing an important concern for financial stability in the ASEAN+3 region, given their dominance as a source of financing. The existing empirical evidence suggests that net interest income typically increases (decreases) with interest rate rises (declines) (Alessandri and Nelson, 2015; Borio, Gambacorta, and Hofman, 2015; Bikker and Vervliet, 2017). In an environment of persistently low interest rates (and a flattening yield curve), the ability of banks to generate profits from their traditional lending and funding businesses is reduced with the compression of their net interest margins (NIM), given that they tend to borrow short term and lend long term. While low interest rates may spur the demand for credit, they also make deposits less attractive, hence intensifying competition for the latter. Lower interest margins may also force banks take on more risky loans or increase non-interest income, through fee-based services and increased trading activity (CGFS, 2018). Even in the absence of greater risk-taking, a future snapback in interest rates could be challenging for financial institutions.

Figure 1.7.1. Advanced Economies: Negative Interest Rate Bonds
(Trillions of US dollars; percent)

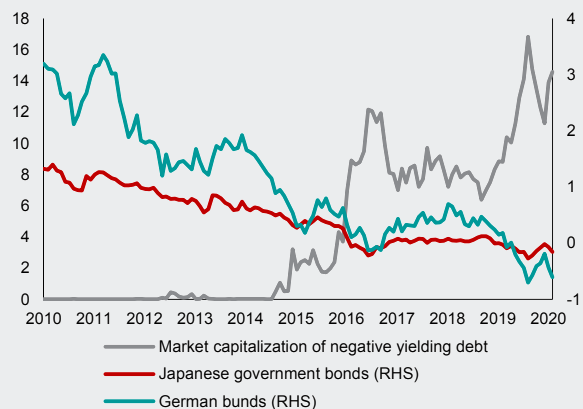
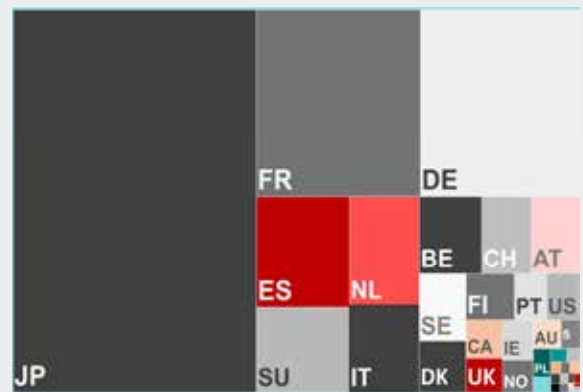


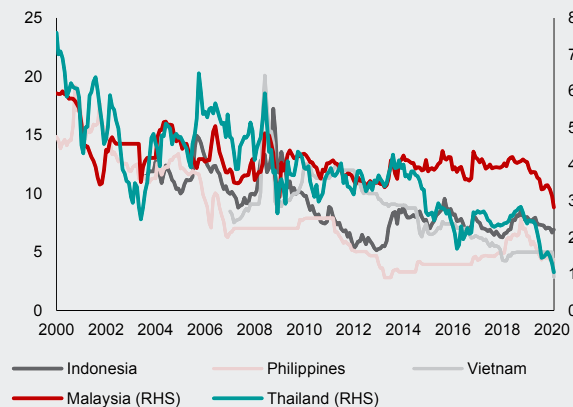
Figure 1.7.2. Advanced Economies: Share of Negative Interest Rate Bonds, as of October 2019
(Percent)



Source: Bloomberg Finance, L.P.
Note: The area of country color block represents the percentage of total negative yield bonds issued by entities in the economy. AT = Austria; AU = Australia; BE = Belgium; CA = Canada; CH = Switzerland; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; IE = Ireland; IT = Italy; JP = Japan; NL = Netherlands; NO = Norway; PL = Poland; PT = Portugal; SE = Sweden; SK = Slovakia; SU = Supranational; UK = United Kingdom; US = United States

Insurance companies, currently less systemic than banks but a growing segment of the ASEAN+3 financial system, may be more exposed to the “lower for longer” environment. In contrast to banks, insurers’ liabilities tend to be of longer duration than their assets, resulting in negative duration gaps, which make them more vulnerable to falling interest rates (CGFS, 2018). Low discount rates boost the value of insurers’ liabilities by more than the value of their assets, thus weakening solvency. The existence of surrender options

Figure 1.7.3. ASEAN-4 and Vietnam: 10-Year Government Bond Yields (Percent)



Source: Haver Analytics, as of February 2020.

in some life insurance contracts—which could become attractive if there is a sharp rebound in interest rates—could drain insurers’ liquidity; while payouts associated with guaranteed life products may not fall as much as interest rates when the latter falls below guaranteed minimum levels.

Even a major economy such as Japan appears to be hostage to global interest rate trends. The autoregressive distributed lag (ARDL) model, following Poghosyan (2012) and Akram and Das (2017), is used to study the long- (x) and short-run (z) determinants of 10-year Japanese government bond (JGB) yields (y), such that:

$$(1) \quad \Delta y_t = \alpha + \varnothing(y_{t-1} - \beta_0 - \beta_1 x_{t-1}) + \gamma \Delta z_t + \epsilon_t$$

where,

x represents potential economic growth, net debt-to-GDP ratio, inflation, the US Treasury bill rate and the JPY/USD forward point, which structurally explain the market interest rate according to the Neoclassical growth model and interest rate parity theory; z includes the average growth rate of bank loans and debt security issues, denominated in US dollars, euro and Japanese yen; yield-to-worst of the Bloomberg Barclays Global Aggregate Index (BBGA); 3-month Japanese yen (JPY) London Interbank Offered Rate (LIBOR); the Bank of Japan’s (BOJ’s) asset holding as a ratio of GDP; and the Global Economic Policy Uncertainty Index (Baker, Bloom, and Davis, 2015), capturing the short-term factors inspired by Keynesian theory (Keynes, 1936).

β and γ measure the extent to which the long- and short-term variables influence the movements of the JGB yield; and

\varnothing on the error correction term will be negative, if the JGB yield returns to long-term trend after deviating temporarily.

Global financial conditions are found to significantly affect the 10-year JGB yields. The estimation results indicate that JGB yields move in tandem with US interest rates (Table 1.7.1). Meanwhile, its short-term dynamics are predominantly related to the global liquidity of major funding currencies and that of the BBGA, which consists of investment-grade fixed-rate bonds from 24 markets and is thus reflective of global interest rates and risk sentiment, highlighting the important influence of global factors. Japan’s monetary policy, as represented by the 3-month JPY LIBOR rate and the BOJ’s asset holdings to GDP, have also contributed to the movements in JGB yields, although some of the “news” have presumably been captured in the global variables. Economic policy uncertainty does not appear to provide significantly more information in explaining JGB yields.

The protracted period of low interest rates has had significant impact on the profitability of Japanese banks and could increase the solvency and exchange rate risks of life insurers. Given that banks typically have shorter-term liabilities and longer-term assets, this duration mismatch improves their net asset valuations as interest rates fall. Japanese banks have been selling down their investment securities over time, mostly noticeably their JGB holdings, to realize capital gains to compensate for the declining interest income and consequently, increasing their

Table 1.7.1. Autoregressive Distributed Lag Model: Long- and Short-Term Determinants of 10-Year Japanese Government Bond Yields

Factor	Coefficient	P-value
Long-term		
Constant	3.39	0.00
Debt-to-GDP	-0.02	0.00
Potential growth rate	-0.50	0.00
Inflation	0.06	0.15
3-month US Treasury bill rate	0.48	0.00
JPYUSD 3-Month forward points	1.57	0.00
Adjusted R-squared: 0.78		
Short-term		
Error correction term	-0.08	0.05
Yield of Bloomberg Barclays Global Aggregate Index	0.36	0.00
Global liquidity	-0.06	0.01
Economic policy uncertainty	0.00	0.18
3-month JPY LIBOR rate	0.26	0.06
BOJ asset holdings to GDP	-0.01	0.06
Adjusted R-squared: 0.58		

Sources: Haver Analytics; policyuncertainty.com; and AMRO staff estimates. Note: BOJ = Bank of Japan. JPY = Japanese Yen; LIBOR = London Inter-bank Offered rate.

cash holdings (Figure 1.7.4). However, they will face tremendous pressure in seeking new sources of profit once their domestic security holdings are depleted. Meanwhile, Japanese life insurers are confronted with rising solvency concerns, as the duration mismatch between shorter-term assets and longer-term liabilities would weaken their net asset valuations if interest rates fall. They are also faced with greater exchange rate risks as they have resorted to increasing their holdings of higher-yielding foreign securities, from an average 19 to 25 percent over the past 5 years (Figure 1.7.5).

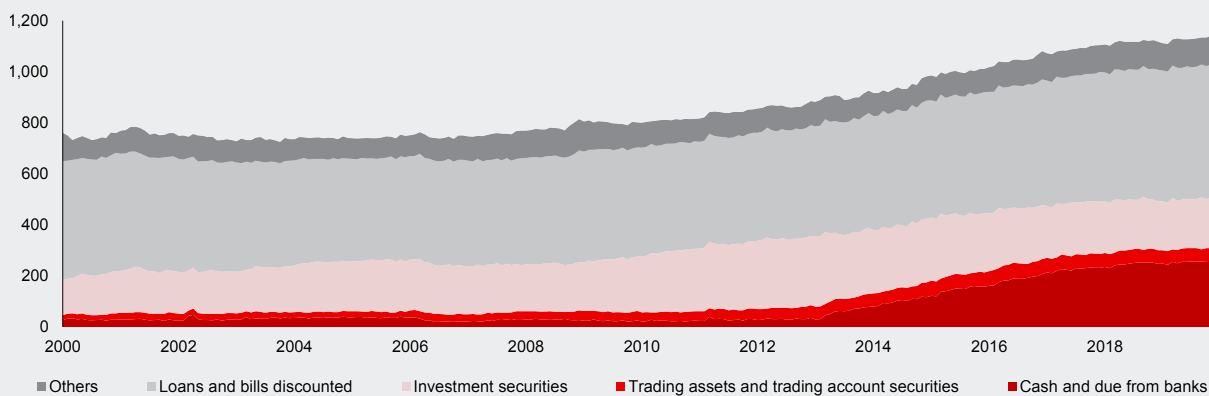
Japanese financial institutions remain sound as they venture abroad but they are dealing with a different mix of risks and challenges as they rebalance their portfolios. Some life insurers have reportedly increased their appetite for less liquid assets, such as infrastructure, real estate, and EM assets, including those from the Asian region, and are reducing the currency hedging ratios of their foreign investments (Figure 1.7.6). Japanese banks hold approximately 15 percent of global collateralized loan obligations, and despite investing in mostly high-credit quality tranches, may still face valuation risks if conditions in those markets were to abruptly change (Figure 1.7.7). Hence, credit, liquidity, and exchange rate risks are becoming increasingly intertwined within the portfolios of Japanese financial institutions.

Policy easing by the G3 central banks has also led to more accommodative monetary policy in EM Asia, with attendant implications for their banking sectors.

Since the US Federal Reserve embarked on its monetary policy easing phase at the onset of the GFC in 2008, policy rates in the region have moved correspondingly lower. The liquidity injected by AE central banks through balance sheet expansions has also contributed to pushing interest rates lower in regional EMs, with some collateral impact on their financial institutions. In EM Asia, credit growth has been higher than deposit growth since the start of the era of easy G3 monetary policy (Figure 1.7.8), while NIM slowed initially before rising to much higher levels (Figure 1.7.9). In conjunction with the weakening return on assets, other sources of income for the region's banks have generally not increased and banks remain reliant on interest income.

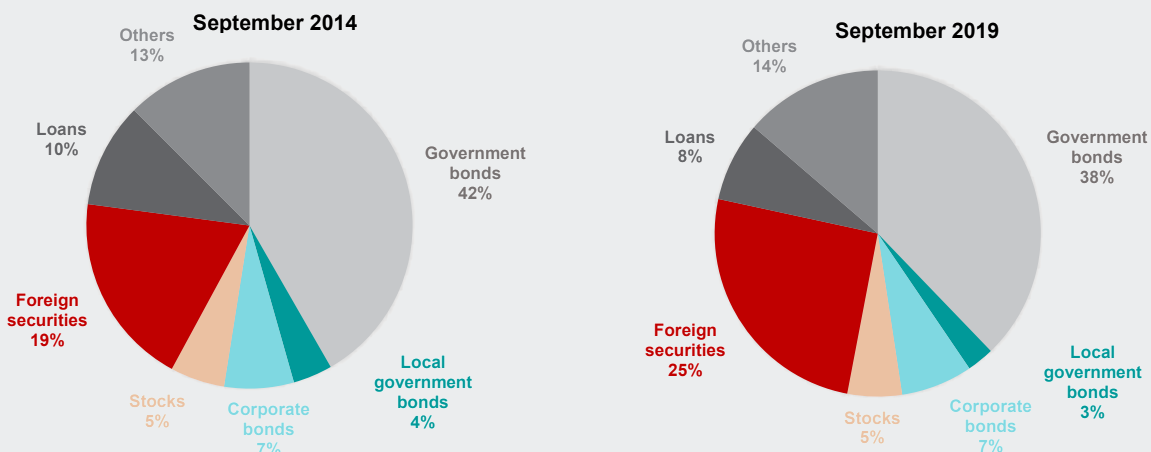
Lower interest rates may also induce a false sense of security about banks' credit risks. They may motivate banks to reduce their provisioning likely because banks expect lower loan losses as probabilities of default on outstanding loans decline (Borio, Gambacorta, and Hofmann, 2015; Bikker and Vervliet, 2017). Within the ASEAN+3 region, the aggregate non-performing loans (NPLs) net of provisions ratio fell following the decline in interest rates, but have been trending slightly upwards over the past six years as yields started firming up (Figure 1.7.10). The drop in the ratio has also corresponded with loan growth exceeding the growth in nominal GDP, suggesting a "denominator effect" (Figure 1.7.11). Given that NPLs tend to lag the issuance of loans, any snapback in interest rates or economic downturn could result in a rapid rise of the former, potentially threatening the solvency of banks, especially if provisions are insufficient.

Figure 1.7.4. Japan: Asset Allocation of Domestically Licensed Banks, Domestic Branches
(Trillions of Japanese yen)



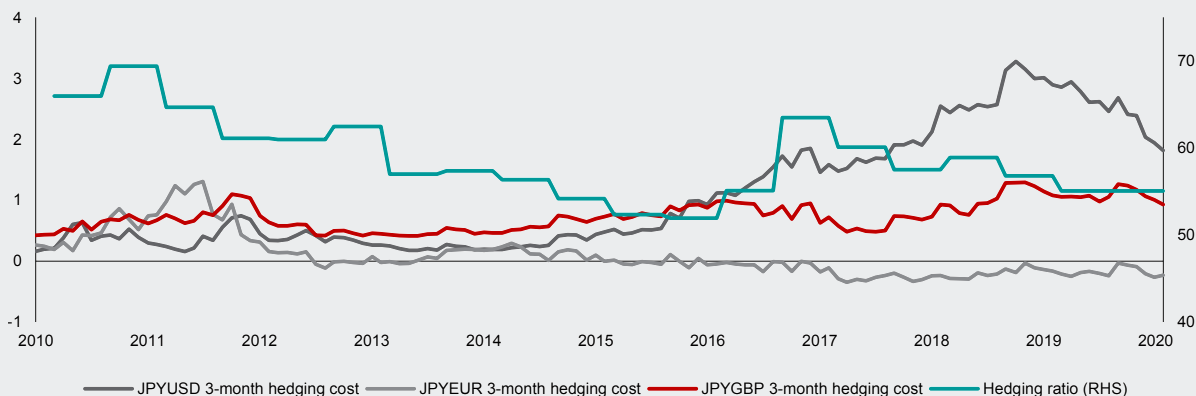
Source: Bank of Japan.

Figure 1.7.5. Japan: Asset Allocation of Life Insurers



Source: The Life Insurance Association of Japan.

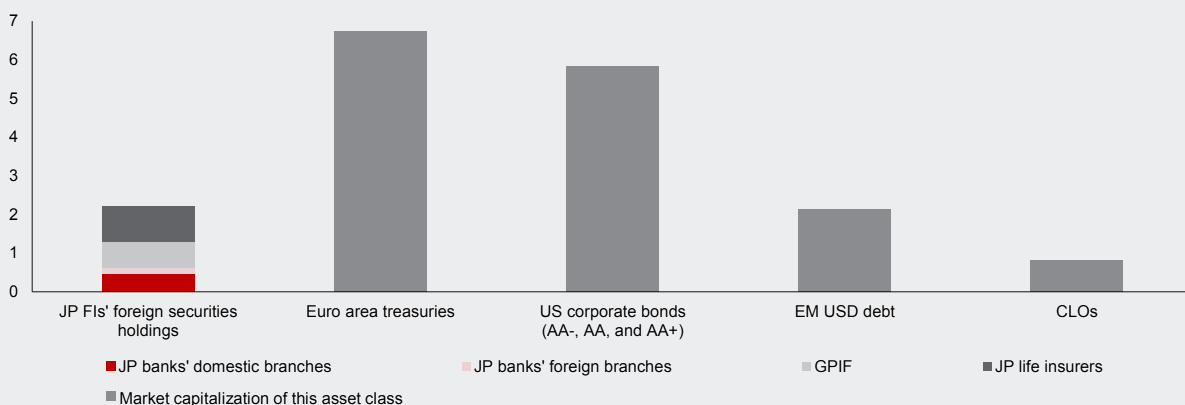
Figure 1.7.6. Japan: Hedging Costs and Ratios of Life Insurers
(Trillions of US dollars)



Source: Bloomberg Finance L.P.

Note: The hedging cost is the annualized 3-month forward points as a percent of the principal amount for Japanese yen-based investors. The hedging ratio is for nine Japanese life insurers.

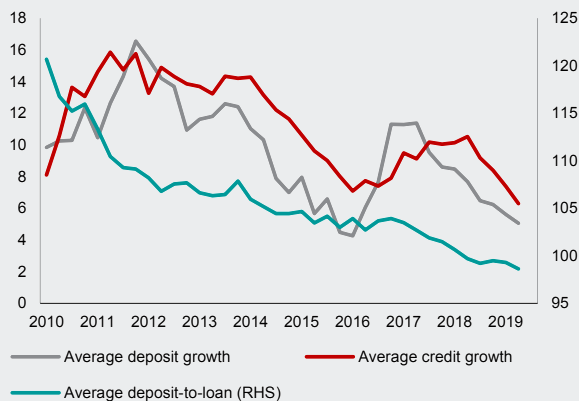
Figure 1.7.7. Japan: Foreign Securities Holdings of Banks, Life Insurers, and the GPIF Relative to Market Capitalization of Various Global Asset Classes
(Trillions of US dollars)



Sources: Bank of Japan; Bloomberg Finance L.P.; The Life Insurance Association of Japan; J.P.Morgan; Scope Ratings; and AMRO staff calculations.

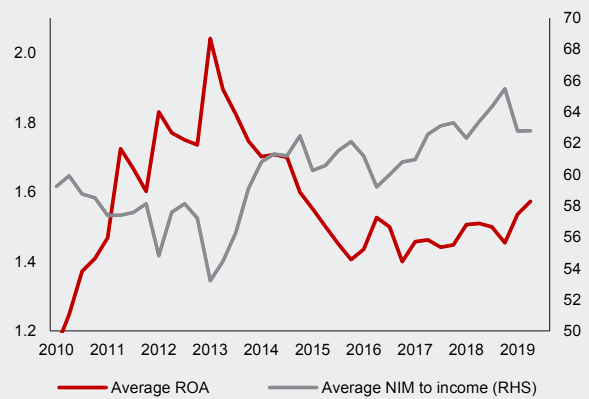
Note: Data are as of September 2019; GPIF data are as of June 2019; the market capitalization of CLOs are estimates. Calculations assume that the investment securities of JP banks' foreign branches are foreign currency denominated. CLO = collateralized debt obligations; EM = emerging market; FI = financial institution; GPIF = Government Pension Investment Fund; JP = Japan; US = United States.

Figure 1.7.8. Selected ASEAN+3 Economies: Credit, Deposit, and Deposit-to-Loan Ratio
(Percent year-over-year; percent)



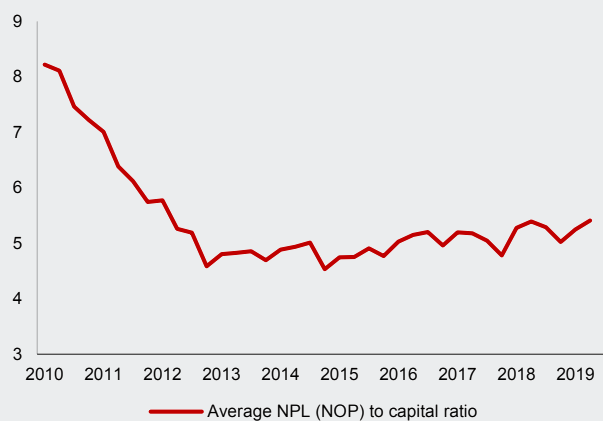
Sources: Haver Analytics; and AMRO staff calculations.
Note: Constituents comprise China, Hong Kong, Indonesia, Malaysia, Singapore, the Philippines, and Thailand.

Figure 1.7.9. Selected ASEAN+3 Economies: Banking Sector Net Interest Margin and Return on Assets
(Percent)



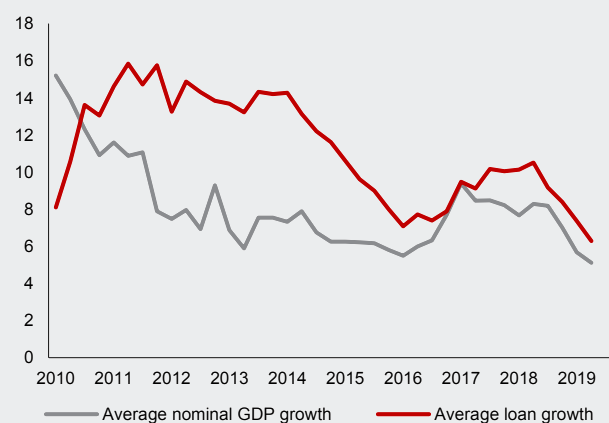
Sources: Haver Analytics; and AMRO staff calculations.
Note: Constituents comprise China, Hong Kong, Indonesia, the Philippines, Singapore, and Thailand. NIM = net interest margin; ROA = return on assets.

Figure 1.7.10. Selected ASEAN+3 Economies: Non-Performing Loans Net of Provisions to Capital Ratio
(Percent)



Sources: Haver Analytics; and AMRO staff calculations.
Note: The NPL ratio is averaged for China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore and Thailand. NOP = net of provisions; NPL = non-performing loan.

Figure 1.7.11. Selected ASEAN+3 Economies: Nominal GDP and Loan Growth
(Percent)



Sources: Haver Analytics; and AMRO staff calculations.
Note: Nominal GDP and loan growth are averaged for China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

Box 1.8:**The Specter of Economic Policy Uncertainty over Regional Asset Prices**

The transmission of economic policy uncertainty to asset prices is quantified using a global vector autoregression (GVAR) model. An important feature of the GVAR approach is that it is able to estimate the direct and feedback effects of a shock across a large set of countries, taking into account real and financial sector linkages.

A GVAR model consists of linked country augmented VAR (VARX*) models estimated in two stages:

- The first step is to estimate a VARX* (p_i, q_i) model for country for $i = 1, \dots, N$:

$$x_{i,t} = a_{i,0} + a_{i,1}t + \sum_{j=1}^{p_i} \alpha_{i,j} x_{i,t-j} + \sum_{j=0}^{q_i} \beta_{i,j} x_{i,t-j}^* + \sum_{j=1}^{l_i} \gamma_{i,j} d_{i,t-j} + u_{i,t}$$

where the $k_i \times 1$ vector of endogenous variables, $x_{i,t}$, is conditioned on its lagged values of order p_i , contemporaneous and lagged values of order q_i of the set of foreign variables $x_{i,t}^*$ and global variables d_i ; a constant, $a_{i,0}$; linear trend, t ; and idiosyncratic errors, $u_{i,t}$, that are assumed to be $u_{i,t} \sim iid(0, \Sigma_{i,t})$. The foreign variables are calculated as weighted averages of other countries' endogenous variables, using either bilateral trade or financial weights. Both foreign and domestic variables are assumed to be I(1) weakly exogenous with respect to the parameters of the VARX* model.

The second step is to solve the GVAR model as a global system by stacking the country-specific endogenous variables into a vector of $K = \sum_{i=0}^N k_i$ variables via a link matrix that contains weights capturing bilateral exposures between countries in the model.¹ (See Pesaran, Schuermann, and Weiner (2004) and Déés and others (2007) for the model's theoretical framework).

The vector of domestic variables consists of several key macro-financial variables. They comprise: (1) the natural logarithm of real GDP; (2) inflation; (3) the natural logarithm of bilateral exchange rates (2010 = 100); (4) the natural logarithm of equity

price index (2010 = 100); (5) short-term (3-month interbank) interest rates; (6) long-term interest rates (10-year sovereign bond yield); and (7) nonresident portfolio investment flows (12-month sum) as a share of GDP. The “uncertainty” variable enters the GVAR model in the form of a global variable, and is proxied by the Global Economic Policy Uncertainty (GEPU) Index. The sample comprises monthly data from July 2003 to June 2019. For consistency in frequencies, the quarterly real GDP series is interpolated exponentially.² The model covers 13 economies: China, euro area, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, the United Kingdom, and the United States.

A mix of trade and financial weights are used to derive the weighted average of the foreign variables. Trade weights, calculated as the 2015–18 average of a country's bilateral trade exposures (exports and imports data published in the IMF's Direction of Trade Statistics) to another country in the model, are used for real GDP, inflation, and exchange rates. The rest of the variables—equity prices, short- and long-term interest rates, and capital flows—are aggregated using financial weights, calculated from the bilateral portfolio investment asset data (2017–18 average) from the IMF's Coordinated Portfolio Investment Survey.

The GVAR model results point to an immediate downward impact on financial markets from a spike in “uncertainty.” Specifically, a one standard error shock to the GEPU translates to an 18 percent increase in uncertainty in the first month ($t = 0$), which then recedes over 18 months. Generalized impulse response functions are generated for each variable in the model to illustrate the systemwide impact of the uncertainty shock, and these are summarized as follows (Figure 1.8.1):

- The transmission to equity markets is immediate and could be statistically significant. Stock prices decline by 0.3–1.6 percent at the instance

¹ See Pesaran, Schuermann, and Weiner (2004), and Déés and others (2007) for a discussion on the model's theoretical framework.

² Estimated in EViews.

of the shock, and the response then eases off in succeeding months. The immediate impact is generally greater (and transmission quicker) for the advanced economies and the more developed financial markets in the region, such as Hong Kong, Korea, and Singapore. The response is also statistically significant at the 10 percent level for most equity markets, persisting for 2–4 months and even over a span of 8–9 months in the case of the euro area and Japan.

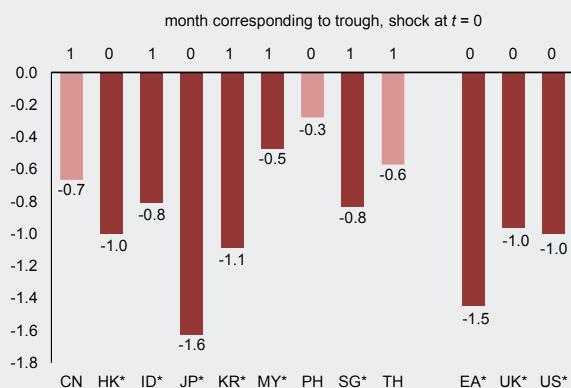
- Likewise, exchange rates react quickly following increased uncertainty. The yen appreciates by about 0.2 percent at the instance of the shock. The Hong Kong dollar, which is linked to the US dollar, also appreciates, although its peak response typically occurs 2 months after the shock. The rest of the currencies in the model depreciate within a range of 0.1–0.5 percent against the US dollar at the trough, 1 to 2 months after the shock. Developed markets like the euro area and the United Kingdom, as well as the more open markets, Korea and Singapore, record relatively sharper and statistically significant depreciations. Although Indonesia's economy is not as externally-oriented, the Indonesian rupiah also weakens by as much as the Singapore dollar, likely a reflection of its vulnerability to capital flow reversals, given the substantial foreign presence in the local currency bond market.
- The impact on long-term interest rates is more pronounced and quicker than on short-term rates.

The increase in uncertainty is mostly associated with a 1–4 basis-point decline in the 10-year bond yields, with statistically significant peak effects occurring within 0–2 months from the onset of the shock. Hong Kong appears to be more affected, with an 8.5 basis-point decline at the peak, 2 months after the shock. Indonesia exhibits a persistent 3 basis-point increase in yields for 7 months, although the response is not statistically significant, similar to China, the Philippines, and Thailand. The response of short-term rates is relatively muted, except for Hong Kong and the Philippines, which exhibit more pronounced responses at the peak, and it is delayed for many countries relative to long-term yields. There are also fewer countries whose short-term rates exhibit statistically significant responses. The results are reflective of short-term interest rates being more a function of monetary policy settings than long-term rates, which tend to respond faster to market sentiment.

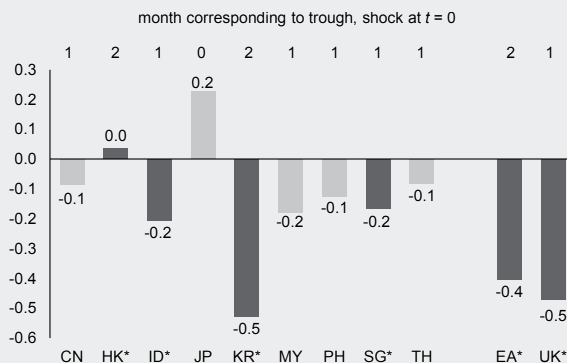
- Increased global policy uncertainty triggers an immediate outflow of nonresident capital from Asia. The outflows persist for 1 month from Indonesia and up to 8 months from the Philippines, while Korea, Malaysia, and Thailand record modest inflows soon after a shock. Japan experiences mild outflows initially, but thereafter records significantly large inflows; Hong Kong reacts similarly, although its responses are not statistically significant.

Figure 1.8.1. GVAR: Market Responses to an Increase in Economic Policy Uncertainty

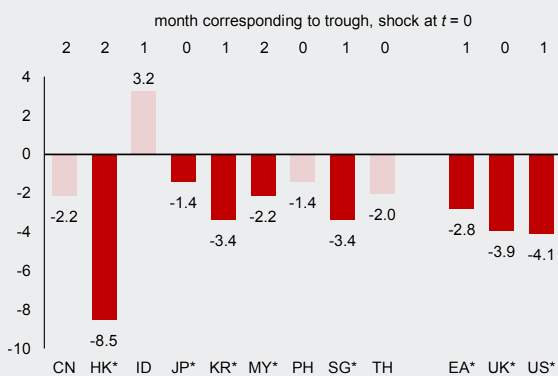
Real Equity Prices: Peak Response
(Percent change from baseline)



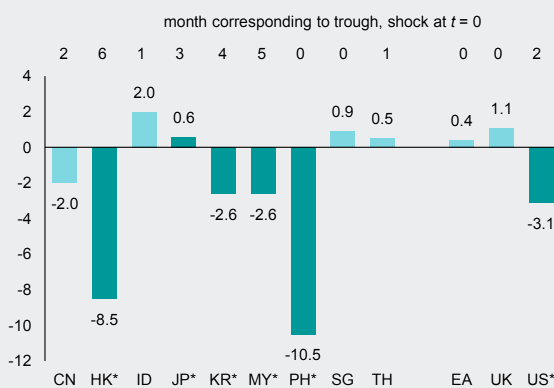
Exchange Rate: Peak Response
(Percent change from baseline)



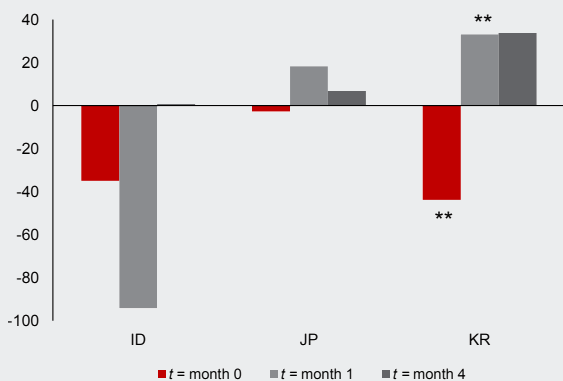
Long-Term Interest Rates: Peak Response
(Basis points from baseline)



Short-Term Interest Rates: Peak Response
(Basis points from baseline)



Non-resident Portfolio Investment Flows: Response
(Percentage points from baseline)



Sources: Haver Analytics; policyuncertainty.com; Refinitiv; and AMRO staff estimates. Note: Darker-colored bars, *, and ** refer to responses that are statistically significant at the 10 percent level. GVAR = Global Vector Autoregressive; EA = euro area; UK = United Kingdom; US = United States.

IV. Growth Drivers and Detractors

Before the COVID-19 pandemic disrupted economic activity in the ASEAN+3 countries, there were indications that the region's manufacturing sector may be turning the corner. Specifically, the weakening trend in 2019 appeared to be bottoming out for the majority of ASEAN+3 economies, following 12 months or more of weakening, as reflected in the Purchasing Managers' Index (PMI) for manufacturing (Figure 1.30). During this period, the PMI for Myanmar, the Philippines, and Vietnam remained above 50, that is, monthly manufacturing activity had consistently strengthened, with Vietnam, in particular, benefiting in part from trade diversion as a result of the US-China trade tensions. However the negative impact of the coronavirus

epidemic on manufacturing activity worldwide manifested in February 2020.

Electronic products (and their export) constitute a major component of the regional manufacturing base and hence production trends in the industry are bellwether indicators for overall industrial production. The ASEAN+3 region has also become a major source of demand for technology products, with the rising purchasing power of its middle class. Consequently, the weak manufacturing activity seen in 2019 was, in part, attributable to the slump in demand for technology exports from the region's key markets.

Figure 1.30. ASEAN+3 and Selected Advanced Economies: Purchasing Managers' Index for Manufacturing

Economy	2017 Jan to Dec			2018 Jan to Dec			2019 Jan to Dec			2020 Jan Feb		Change from Prev Month
Global												↓ -3.2
Developed Markets												↓ -0.3
United States												↓ -1.2
United Kingdom												↑ 1.7
Eurozone												↑ 1.3
Emerging Markets												↓ -6.4
PLUS-3												↓ -6.7
China												↓ -10.8
Hong Kong												↓ -13.7
Japan												↓ -1.0
Korea												↓ -1.1
ASEAN												↑ 0.3
Indonesia												↑ 2.5
Malaysia												↓ -0.3
Philippines												↑ 0.2
Singapore												↓ -4.4
Thailand												↓ -0.4
Myanmar												↓ -2.9
Vietnam												↓ -1.6

Source: IHS Markit.

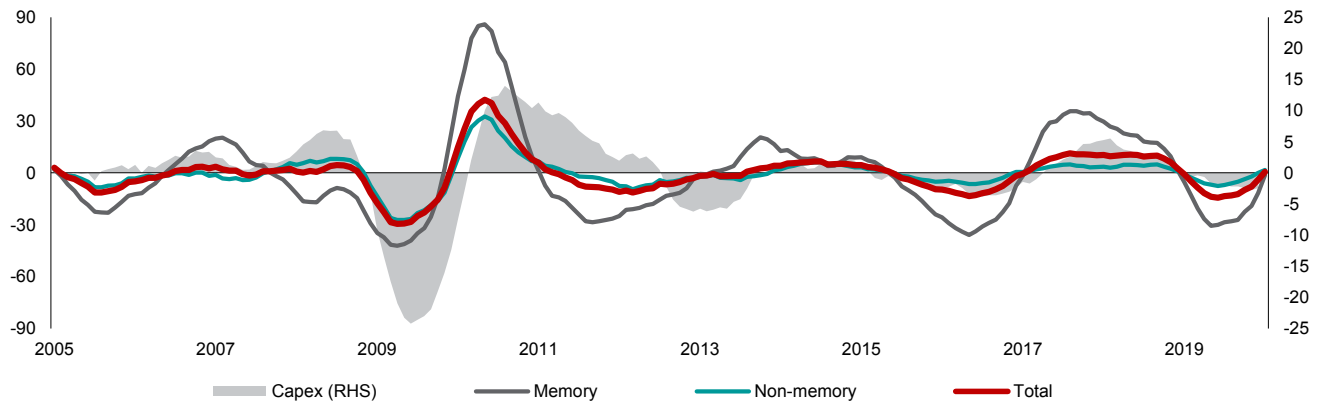
Note: The Purchasing Managers' Index (PMI) readings are coded by colors: The deeper the red, the further below (< 45) from the diffusion level of 50; greener denotes the further above (> 55) from 50. Hong Kong and Singapore PMIs represent whole economy PMIs. A PMI reading above 50 denotes an increase in manufacturing activity over previous month, and a reading below 50 denotes otherwise.

The initial recovering outlook for manufacturing is reflected in the global semiconductor cycles. They last peaked in August 2017 for memory semiconductors, and in September 2018 for the non-memory segment (Figure 1.31). AMRO's analysis suggests that both cycles have troughed and are turning around, particularly that of memory semiconductors (Box 1.9). This development would have augured well for manufacturing activity in the region, notably in Korea, home to some of the world's largest semiconductor companies, and Malaysia and Singapore, where some of the world's biggest chip makers have set up their regional operations. However,

the coronavirus pandemic is likely to put a halt to, or at least delay, the turnaround in the sector.

The empirical evidence suggests that the global capital expenditure (capex) cycle tends to trail the semiconductor cycles. This trend bodes well for the outlook for corporate investment and herald positive spillovers for the economy at large, in the near to medium term. Once the pandemic subsides, any recovery in semiconductor sales would likely be the "first wave" of demand boosting regional growth, followed by the "second wave" capex, which should provide a further bump to growth.

Figure 1.31. Global Semiconductor and Capex Cycles
(Percent year-over-year, 6-month moving average)



Sources: Haver Analytics; WSTS Inc.; and AMRO staff estimates.
Note: All cycles are estimated by applying the Hodrick-Prescott filter (Hodrick and Prescott, 1997) separately, with a smoothing factor lambda of 14,400. Semiconductor data represent global sales; capex data are for the euro area, Japan, and the United States.

Domestic demand is anticipated to continue to anchor growth in the region. Despite a tumultuous 2019, retail sales in the region had held up favorably across several countries, notably China, Malaysia, and Vietnam (Figure 1.32). Indeed, China—one of the main drivers of regional growth—has been rebalancing toward domestic demand, with contributions to growth from exports having declined since the GFC, reflecting the general slowdown in global trade. Other economies recorded a weakening in retail sales—often for idiosyncratic reasons such as the ongoing social unrest in Hong Kong; the consumption tax hike in Japan; the economic slowdown due to the US-China trade tensions in a highly open economy such as Singapore; and an economic slowdown and high household indebtedness in Thailand. This

weakness is expected to continue, at least in H1 2020, as the COVID-19 pandemic takes its toll on consumer confidence. More generally, however, with consumption from the expanding middle class set to continue rising, and significant opportunities for investment waiting to be tapped, domestic demand is expected to play an increasingly important role in sustaining regional growth going forward.

However, in the shorter term, the spread of the COVID-19 suggests that the trajectory and composition of growth in the region could change significantly in 2020. AMRO’s assumption that the main pandemic episode will run for about 4 months means that the largest impact on economic activity in the region is expected to fall in H1

Figure 1.32. Selected ASEAN+3 Economies: Retail Sales
(Percent year-over-year, 3-month moving average)

Economy	2017 Jan to Dec	2018 Jan to Dec	2019 Jan to Dec	2020 Jan	Latest yoy change from previous year
China	Green	Yellow	Yellow	Green	9.3
Hong Kong	Orange	Green	Orange	Red	-21.4
Indonesia	Green	Yellow	Yellow	Yellow	0.2
Japan	Orange	Orange	Orange	Orange	-1.7
Korea	Yellow	Yellow	Yellow	Yellow	3.9
Malaysia	Green	Green	Green	Green	6.9
Philippines	Green	Orange	Orange	Orange	-2.6
Singapore	Orange	Orange	Orange	Orange	-4.3
Thailand	Yellow	Green	Yellow	Orange	-3.8
Vietnam	Green	Green	Green	Green	11.6

Sources: CEIC Data; Haver Analytics; and AMRO staff estimates.
Note: Linear interpolation of the quarterly data for Malaysia. yoy = year-over-year.

2020, through several key channels. They include:

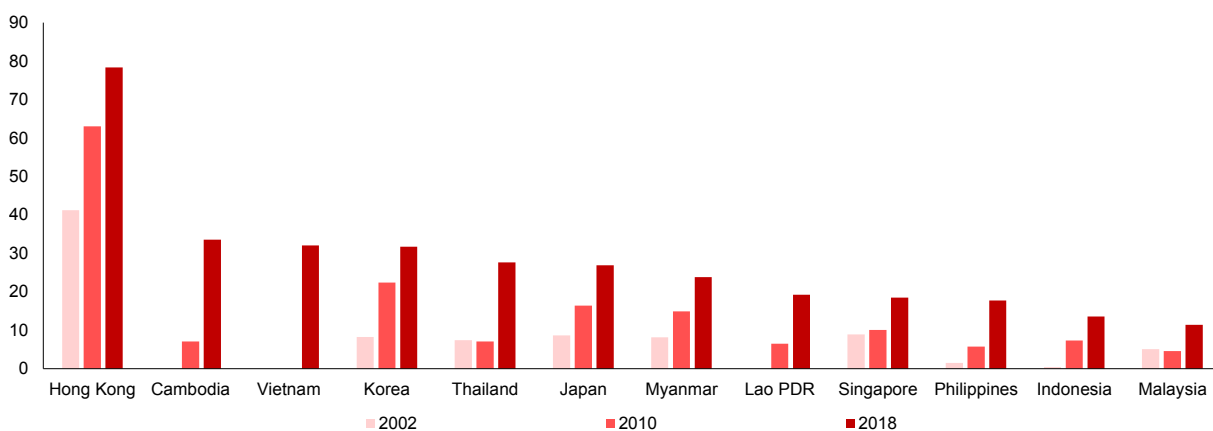
- *A huge knock to the services sector.* In particular, tourism and its ancillary industries are expected to be significantly affected until the pandemic is brought under control. Most economies in the region have benefited from the rapid growth in tourist arrivals from China, which made up almost 80 percent of visitors in Hong Kong in 2018, and more than 30 percent in Cambodia, Korea, and Vietnam, and only slightly lower in Thailand and Japan (Figure 1.33). Chinese tourism, which has been a titan for the region's services export, has become its Achilles heel, as the COVID-19 lockdown in China has halted tourist outflows, while tourists from elsewhere in the region and the rest of the world have also largely stopped all travel activity. In other words, regional economies with large tourism sectors, and especially those with a high share of Chinese visitors, are being particularly hard hit. Indeed, the drop in Chinese travel and tourism is already being felt across the region.
- *Disruptions to intra-regional and global trade in goods.* Many regional economies are open and well-integrated into regional and global supply chains, of which China is an important node (Figure 1.34). Goods trade between China and the ASEAN region has increased substantially over the last two decades (Figure 1.35), while the share of goods exports to China has risen for most regional economies—to more than a quarter of GDP for Vietnam, and more than 10 percent for Malaysia, Korea, and Lao PDR (Figure 1.36). This pipeline has been interrupted by the impact on demand and production in China. In addition, any decline in US demand as a result of the pandemic would be a big blow for the region, as the United States is a key destination for the region's exports (see Figure 1.11).

- *Disruptions to domestic production and demand.* With the COVID-19 pandemic, regional economies will be affected both directly through infections, as well as indirectly from the implementation of measures to contain the virus. Similar to China, economic activity will be significantly hurt as a result of disruptions to own domestic production and consumption. Quarantines are impacting the retail and hospitality sectors, while private investment is likely to be influenced by the corresponding deterioration in business confidence.

Consistent with assumptions of an intense but relatively short-lived pandemic, AMRO expects disruptions to be transitory. Following a sharp slowdown in growth in Q1 2020, manufacturing and trade are expected to rebound quickly, in line with China's (and the region's) demand for intermediate and final goods, as production ramps up (Figure 1.37). However, the recovery in the services sector could be more gradual, given that supply tends to be more constrained by labor, and demand by consumers' availability.

Meanwhile, the uncertainty of the trade relationship between China and United States will continue to cast a shadow over the growth outlook. This relationship has gone through significant angst since 2018, and has been the bellwether for business confidence and trade activity globally, and more so regionally. Analyses of AMRO's up- and downside scenarios around its baseline growth projections suggest that it could asymmetrically add up to 0.5 percentage point to aggregate ASEAN+3 growth in 2021 if the progress made to date were to continue, but subtract up to 0.6 percentage point if tensions were to reignite (Box 1.10).

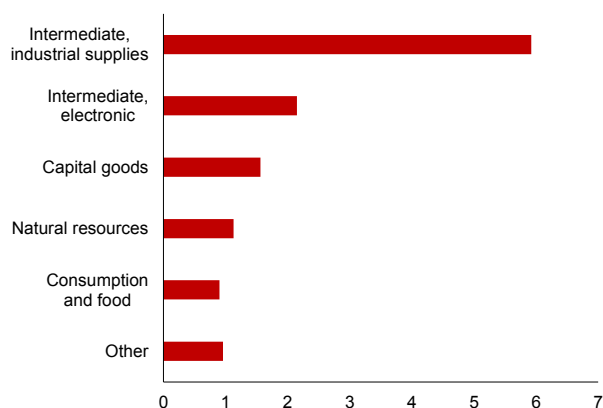
Figure 1.33. ASEAN+3 excluding China: Share of Visitors from China
(Percent of total)



Sources: Haver Analytics; national authorities; and AMRO staff calculations.
Note: Lao PDR = Lao People's Democratic Republic.

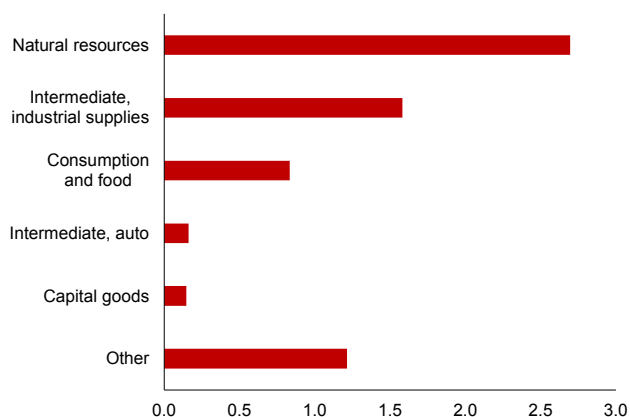
Figure 1.34. Goods Exports to China and Hong Kong, 2018
(Percent of GDP)

ASEAN-5 and Vietnam



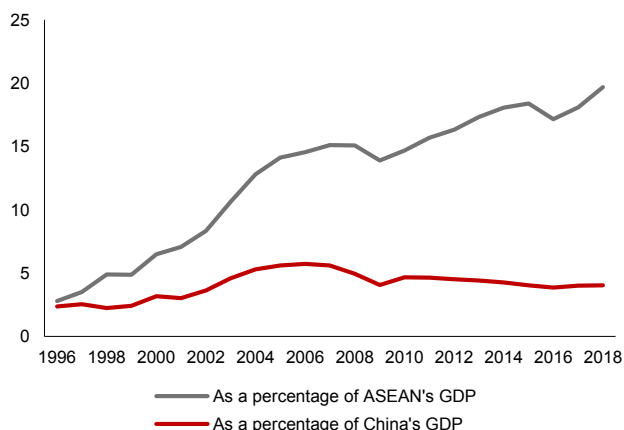
Sources: CEIC Data; United Nations International Trade Statistics Database; and AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

BCLM



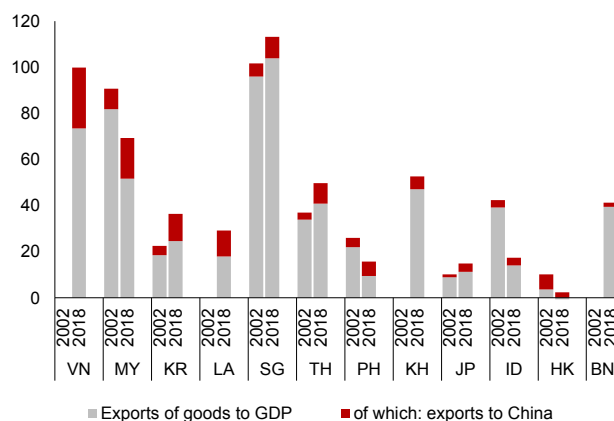
Sources: CEIC Data; United Nations International Trade Statistics Database; and AMRO staff calculations.
Note: BCLM = Brunei, Cambodia, Lao PDR, Myanmar.

Figure 1.35. China and ASEAN: Bilateral Goods Trade
(Percent of GDP)



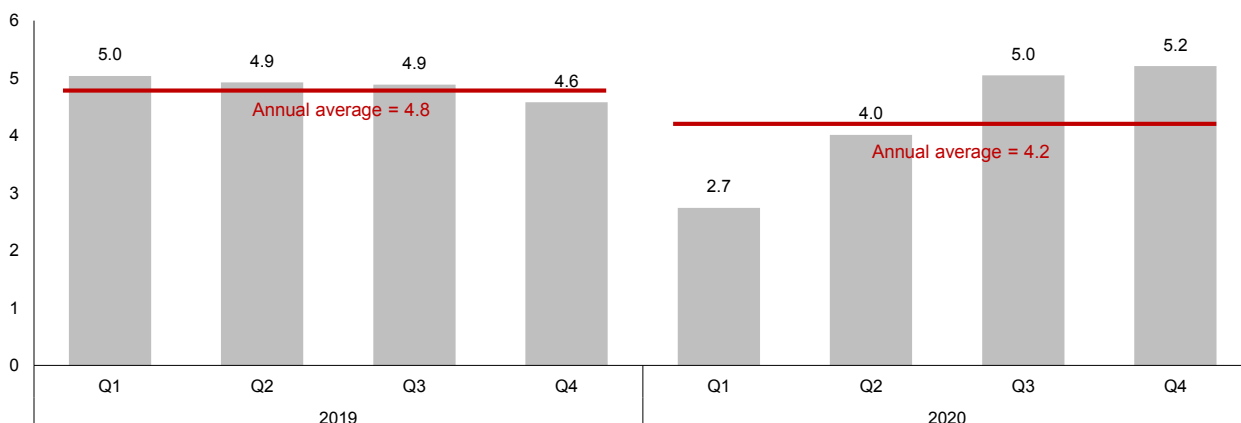
Sources: CEIC Data; and AMRO staff calculations.

Figure 1.36. ASEAN+3: Goods Exports by Economy, 2002 and 2018
(Percent of GDP)



Sources: Haver Analytics; and AMRO staff calculations.
Note: BN = Brunei; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam

Figure 1.37. ASEAN+3: Projected Quarterly Growth Profile for 2020
(Percent, annualized)



Sources: Haver Analytics; and AMRO staff estimates.

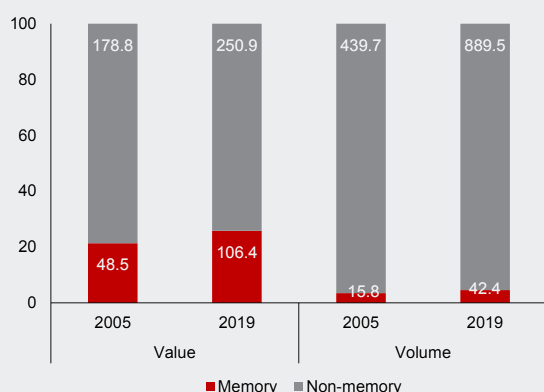
Box 1.9:

Are Global Semiconductor and Capex Cycles on the Upturn?

Chips, or semiconductors, are an integral component in electronic devices, and thus the cornerstone of modern technology. The Asia-Pacific region is the largest producer, reflecting shifting production patterns of electronic equipment away from traditional markets, such as the United States, toward this region (Semiconductor Industry Association, 2019). As the single largest producer, China accounted for half of the region's semiconductor sales as of the end of 2018. Other countries in the region, such as Singapore and Japan, are also key production bases for US semiconductor manufacturers.

Semiconductors are generally categorized into two broad groups. They comprise memory chips (such as computer RAMs and flash drives) and others (such as micro-components, analog devices, and optoelectronics), which are grouped together and categorized as non-memory chips (Figure 1.9.1). The memory chip segment has returned to positive growth, in year-over-year terms, during 2019 (Figure 1.9.2). Meanwhile, the sale of non-memory semiconductor chips—which had previously been buoyed by strong global demand for analog and microprocessing unit devices in 2018—fell in 2019 but the decline appears to have slowed.

Figure 1.9.1. Global Semiconductor Industry: Share of Memory and Non-memory Sub-sectors (Percent)

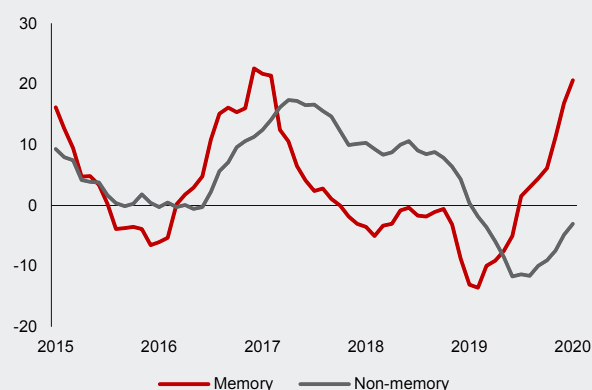


Sources: WSTS Inc.; and AMRO staff calculations.
Note: Figures in boxes are actual US dollar values and volumes for each category.

The demand for semiconductors is typically highly cyclical. Given its importance to the ASEAN+3 economies, cyclical analysis of global semiconductor sales provide an indication of potential demand for the region's exports and, consequently, its growth outlook. The separate memory and non-memory semiconductor cycles tend to move broadly in tandem, although the former has a longer cycle duration (41 months on average) compared to the latter (33 months on average), and has been more volatile (with a standard deviation of 25 percent compared to 9 percent) (Table 1.9.1). These cycles have lengthened in recent years—prior to 2005, the cycle duration for the memory segment was approximately 25 months, or 16 months shorter, while the cycle for the non-memory segment was approximately 26 months, or 7 months shorter.

The empirical evidence suggests that recovery in the demand for technology has historically led to new capital expenditure (capex) and vice-versa. Since 2005, the capex cycle has, on average, lagged the memory semiconductor cycle by 3 months and the non-memory semiconductor cycle by 2 months, on average. The correlation between the semiconductor cycle and the capex

Figure 1.9.2. Global Demand for Memory and Non-memory Semiconductor Products (Percent year-over-year)



Sources: WSTS Inc.; and AMRO staff calculations.

cycle is about 0.66, higher for non-memory (0.76) than memory products (0.45);¹ the capex cycle has generally been less volatile (with a cyclical standard deviation of 6.6), peaking last in February 2018. These findings support the notion that the ASEAN+3 region could look forward to an eventual recovery in investment as well, post-COVID-19 pandemic, to provide an additional boost to growth.

Our analysis is supported by additional evidence. First, inventories for three of the largest memory semiconductor producers have been building up strongly over the last two years, suggesting

a slowdown in sales and echoing the cyclical downturn.² However, more recent data point to some inventory drawdown, accompanied by gradual increases in price.³ Second, industry forecasts also presage a gradual recovery in 2020 (albeit likely with a delay now), with an even stronger positive trend in 2021. Finally, technological progress should provide growth opportunities, particularly in relation to the adoption of 5G technology, which is expected to increase the demand for electronic devices. This particular development could be positive for memory semiconductors, as the memory content in electronic devices is expected to increase with these new technological advances (AMRO, 2020b).

Table 1.9.1. Semiconductors and Capex: Cycle Duration and Standard Deviation
(Months)

Sector	Duration				Standard deviation
	Expansion	Contraction	Full cycle	Lag time of capex cycle	Sample period
Overall semiconductor	17.0	16.2	33.2	1.4	11.4
Memory chips	17.5	23.5	41.0	3.1	24.9
Non-memory chips	16.8	16.6	33.4	2.2	8.7
Capex	16.4	17.3	33.7	-	6.6

Sources: WSTS Inc.; and AMRO staff calculations.

Note: The length of cycles is calculated using data from January 2005 to January 2020 applying the methodology described in Harding and Pagan (2002).

This box was prepared by Marthe Hinojales, Anne Oeking, and Trung Thanh Vu.

¹ Correlations calculated for January 2005 to January 2020. The correlation between semiconductors and electronic exports is 0.91.

² Samsung, Micron, and SK Hynix account for nearly 60 percent of global NAND flash products and about 95 percent of global DRAM products (see AMRO, 2020).

³ Data are as of September/October 2019.

Box 1.10:**US–China Trade Scenarios and Their Impact on Regional Growth**

The Phase One trade agreement between the United States and China, signed on January 15, 2020, has lowered tensions considerably, although the complex trade dynamics between the world's two largest economies remain a key risk to the global economy. Upside and downside scenarios around the US-China trade relationship are simulated to estimate their potential impact on AMRO's baseline projections for 2020 and 2021 (Table 1.10.1), which already incorporate the COVID-19 impact:^{1, 2}

- The upside scenario has both countries expediting trade negotiations, including on rolling back earlier tariffs, prompting an increase in business and consumer confidence amid greater clarity on the global economic outlook.
- The downside scenario contemplates a re-escalation in US-China trade tensions, with the United States

imposing tariffs on the December 2019 tranche and provoking retaliation from China. The tariff increases disrupt financial markets and global trade, while dampening domestic demand via a decline in business and consumer confidence.

The two risk scenarios would affect aggregate ASEAN+3 and ASEAN growth almost symmetrically. Under the downside risk scenario, aggregate ASEAN+3 growth in 2020 would be lower than ASEAN's mainly because it starts from a much lower baseline (Figure 1.10.1), with a slightly larger impact of 0.1 percentage point (Figure 1.10.2). The upside scenario impact would be roughly similar for both the ASEAN+3 and ASEAN economies:

- Hence, ASEAN+3 growth could fall within the 4.1–4.3 percent range in 2020, and 4.4–5.5 percent in 2021, depending on which scenario plays out. In other words, realization of the upside scenario

Table 1.10.1. AMRO's US-China Trade Scenarios and Underlying Assumptions

Scenario	Assumptions
Baseline	<ul style="list-style-type: none"> • Tariff tranches from 2018 up to September 2019 remain in effect, with limited tariff exclusions. • Tariff hikes for the December 2019 tranche are suspended. • Phase One trade deal is in effect (from February 14, 2020, as announced). • Ongoing COVID-19 pandemic severely dampens regional growth via a decline in goods and services trade.
Upside risk	<ul style="list-style-type: none"> • Phase Two negotiations commence and include the potential rollback of earlier tariffs. • Although there is no explicit guidance on possible rollbacks, business confidence over the progress in the US-China trade negotiations rises. A modest +1.0 percentage point shock to world confidence is assumed to reflect cautious optimism.
Downside risk	<ul style="list-style-type: none"> • Trade tensions re-escalate for various reasons, for example, difficulties with the implementation aspects of the Phase One agreement; impasse over aspects of a Phase Two deal after negotiations commence. • The United States imposes tariffs on the December 2019 tranche (15 percent on USD 160 billion of Chinese exports to the United States) and China retaliates. • Global confidence declines amid heightened global uncertainty (which is modeled through a 1 percentage point decline in "confidence" in 2020, in line with a 4 percent decline in US and China equity prices as recorded in recent trade escalation episodes, <i>the impact of which will be felt more in 2021</i>).

Source: AMRO staff estimates.

Note: We assume no domestic policy responses over the simulation horizon to estimate the full impact from the two scenarios.

¹ Simulations are run using the Oxford Economics' Global Economic Model (GEM), which covers 80 economies in detail and six regional blocks (including emerging markets and Asia-Pacific) interlinked through trade, prices, exchange rates, and interest rates. Essentially an error-correction model, the GEM estimates how quickly a dependent variable returns to its equilibrium state after a shock to its independent variables. Hence the model approximates both the short- and long-term effects of variables. In the short term, the model exhibits 'Keynesian' features: sticky factor prices and aggregate demand-determined output. In the long term, prices adjust fully and the equilibrium is determined by supply factors such as productivity, labor and capital; rising growth, by boosting demand, will lead to higher prices. For this exercise, only the short-term estimates are produced and discussed. The extended model covers all ASEAN+3 economies; the underlying dataset is updated every month.

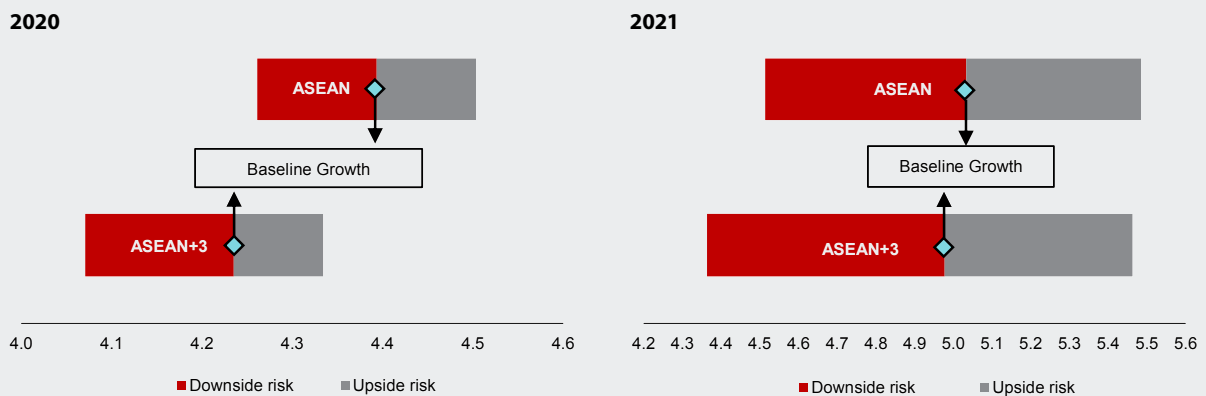
² A weakness of the model is that it does not capture trade and investment diversion trends that have been observed in some Asian economies as the US-China trade tensions escalated.

could add 0.1 percentage point to AMRO’s baseline regional growth projections for 2020, and 0.5 percentage point for 2021. On the other hand, realization of the downside scenario could reduce AMRO’s ASEAN+3 baseline growth by 0.2 and 0.6 percentage point in 2020 and 2021, respectively.

- Separately, ASEAN’s growth would range between 4.3–4.5 percent in 2020, and 4.5–5.5 in 2021. The upside could translate to 0.1 and 0.5 percentage point increases in AMRO’s baseline projections for 2020 and 2021, respectively; while the downside could mean 0.1 and 0.5 percentage point reductions for the same periods, respectively.

The results suggest that the outlook for risks to AMRO’s baseline is slightly tilted to the downside, while the wide dispersion around the 2021 outlook point to greater uncertainty ahead. Export-oriented economies such as Singapore, Korea, and Hong Kong would be most exposed either way. Economies that are more domestic demand-driven like the Philippines, or that are less integrated in global supply chains, such as Lao PDR and Myanmar, would be less susceptible. Separately, Cambodia and Vietnam, which have been benefiting from trade diversion, would likely gain US market share to offset the slowdown in trade within the region.

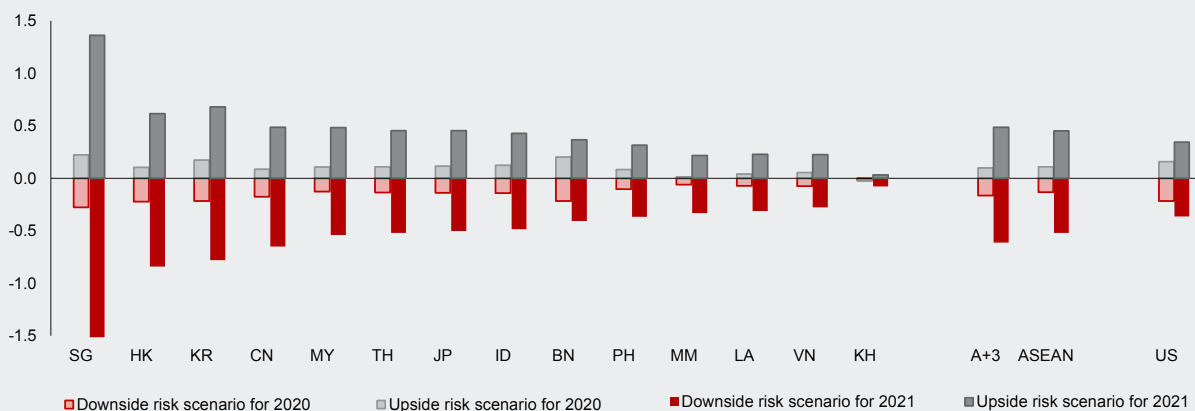
Figure 1.10.1. AMRO’s US-China Trade Scenarios: Impact on GDP Growth by Region
(Percent year-over-year)



Sources: Oxford Global Economic Model; and AMRO staff estimates.
Note: ASEAN = Association of Southeast Asian Nations; ASEAN+3 = ASEAN; China (including Hong Kong); Japan; and Korea.

Sources: Oxford Global Economic Model; and AMRO staff estimates.
Note: ASEAN = Association of Southeast Asian Nations; ASEAN+3 = ASEAN; China (including Hong Kong); Japan; and Korea.

Figure 1.10.2. AMRO’s US-China Trade Scenarios: Impact on GDP Growth by Economy
(Percentage points from baseline)



Sources: Oxford Global Economic Model; and AMRO staff estimates.
Note: First bar for each economy refers to impact on 2020, second bar refers to 2021. A+3 = ASEAN+3; ASEAN = Association of Southeast Asian Nations; BN = Brunei; CN = People’s Republic of China; HK = Hong Kong; JP = Japan; ID = Indonesia; KH = Cambodia; KR = Korea; LA = Lao People’s Democratic Republic; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam; US = United States.

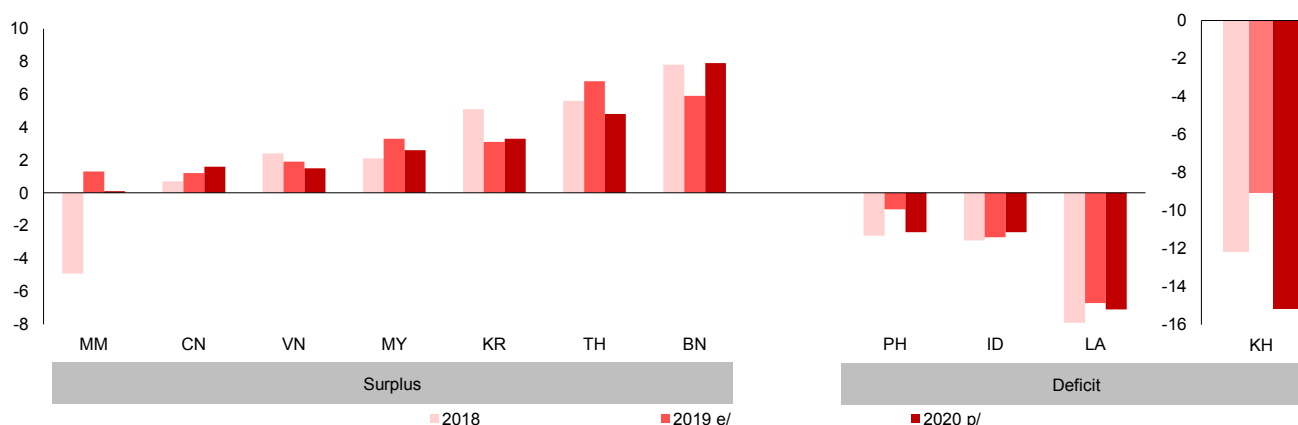
This box was prepared by Edmond Chiang Yong Choo, Diana del Rosario, and Anne Oeking.

V. Policy Positions and Prescriptions

Regional growth was relatively robust in 2019 despite having been battered by strong external headwinds from the US-China trade conflict. The resilience of the ASEAN+3 economies is attributable to their strong economic fundamentals, sound financial systems, and disciplined macroeconomic frameworks. In particular, the external positions are strong as most economies have been running current account surpluses or only small deficits (Figure 1.38). Fiscal policies are generally conservative as reflected in narrow fiscal deficits (Figure 1.39), and low to moderate government debt levels. The monetary authorities tend to be disciplined with several adhering to an inflation targeting framework; as a result, inflation in the regional economies is relatively low and inflation expectations remain well-anchored (Figure 1.40).

Skillful use of the various policy levers by regional policymakers to ensure that the policy mix is effective will be more important than ever in 2020. As demonstrated by the ASEAN-4 countries, appropriate and timely combinations of policy responses were instrumental in helping those economies weather the market turbulence in 2018 (Box 1.11). Encouragingly, the ASEAN+3 countries still have some room to adopt more accommodative monetary and fiscal policies, while at the same time, maintain tight macroprudential policies to safeguard financial stability. Importantly, the region's economies also have substantial reserves and exchange rate flexibility as buffers against the shocks that are materializing.

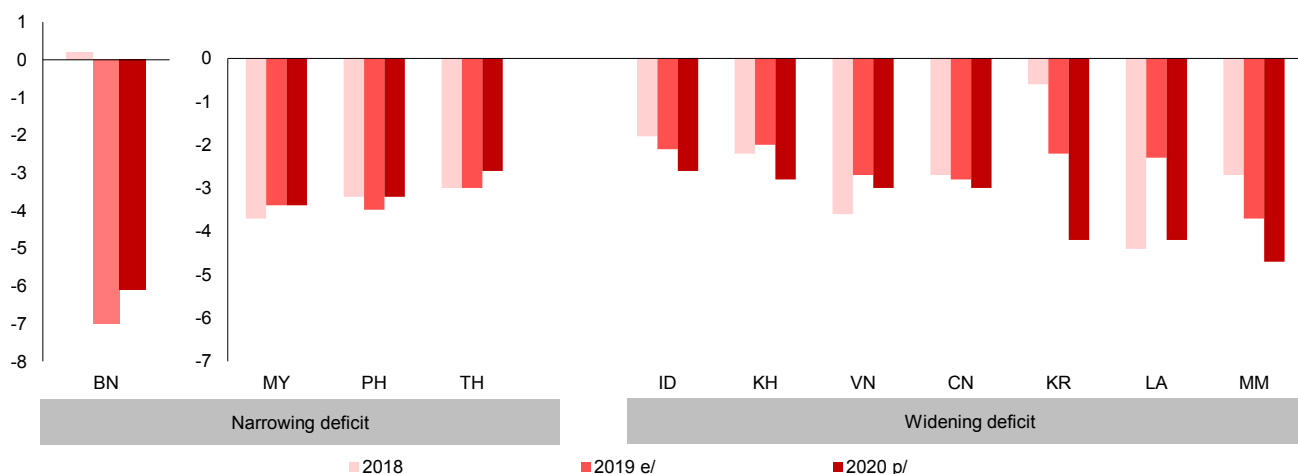
Figure 1.38. ASEAN+3: Current Account Balance
(Percent of GDP)



Sources: National authorities; and AMRO staff estimates and projections.

Note: e/ refers to AMRO staff estimates, p/ refers to AMRO staff projections; BN = Brunei; CN = People's Republic of China; ID = Indonesia; KH = Cambodia; KR = Korea; LA = Lao People's Democratic Republic; MM = Myanmar; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

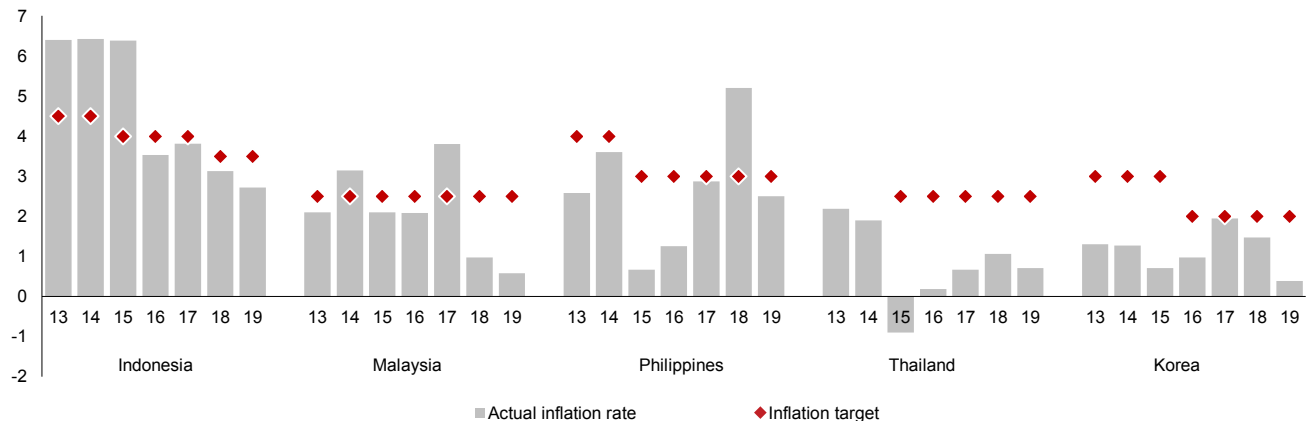
Figure 1.39. ASEAN+3: Fiscal Balance
(Percent of GDP)



Sources: National authorities; and AMRO staff estimates and projections.

Note: e/ refers to AMRO staff estimates, p/ refers to AMRO staff projections; BN = Brunei; CN = People's Republic of China; ID = Indonesia; KH = Cambodia; KR = Korea; LA = Lao People's Democratic Republic; MM = Myanmar; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

Figure 1.40. ASEAN-4 and Korea: Actual Inflation vs Inflation Target
(Percent year-over-year, annual average)



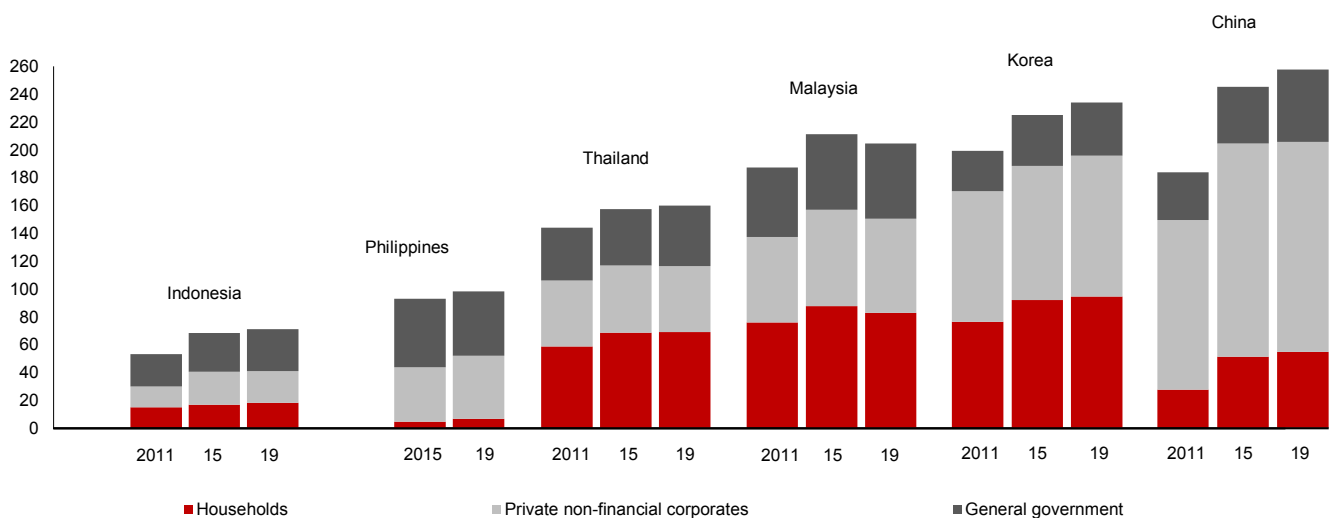
Sources: National authorities; and AMRO staff estimates.
Note: Malaysia is not officially an inflation targeting economy; the long-term average is used in this instance.

The sustainability of debt will be an important consideration in formulating fiscal, monetary and macroprudential policies. Among the region’s EMs and Korea, total debt remains high as a proportion of GDP, except for Indonesia and the Philippines, but its growth appears to have moderated (Figure 1.41). The expansion of aggregate debt levels slowed across most countries between 2015 and 2019, compared to the big jumps between 2011 and 2015. Private sector debt has dwarfed government debt in the majority of countries, split almost equally between household and non-financial corporates in Korea, Malaysia, and Thailand, and dominated by the corporate sector in China and the Philippines.

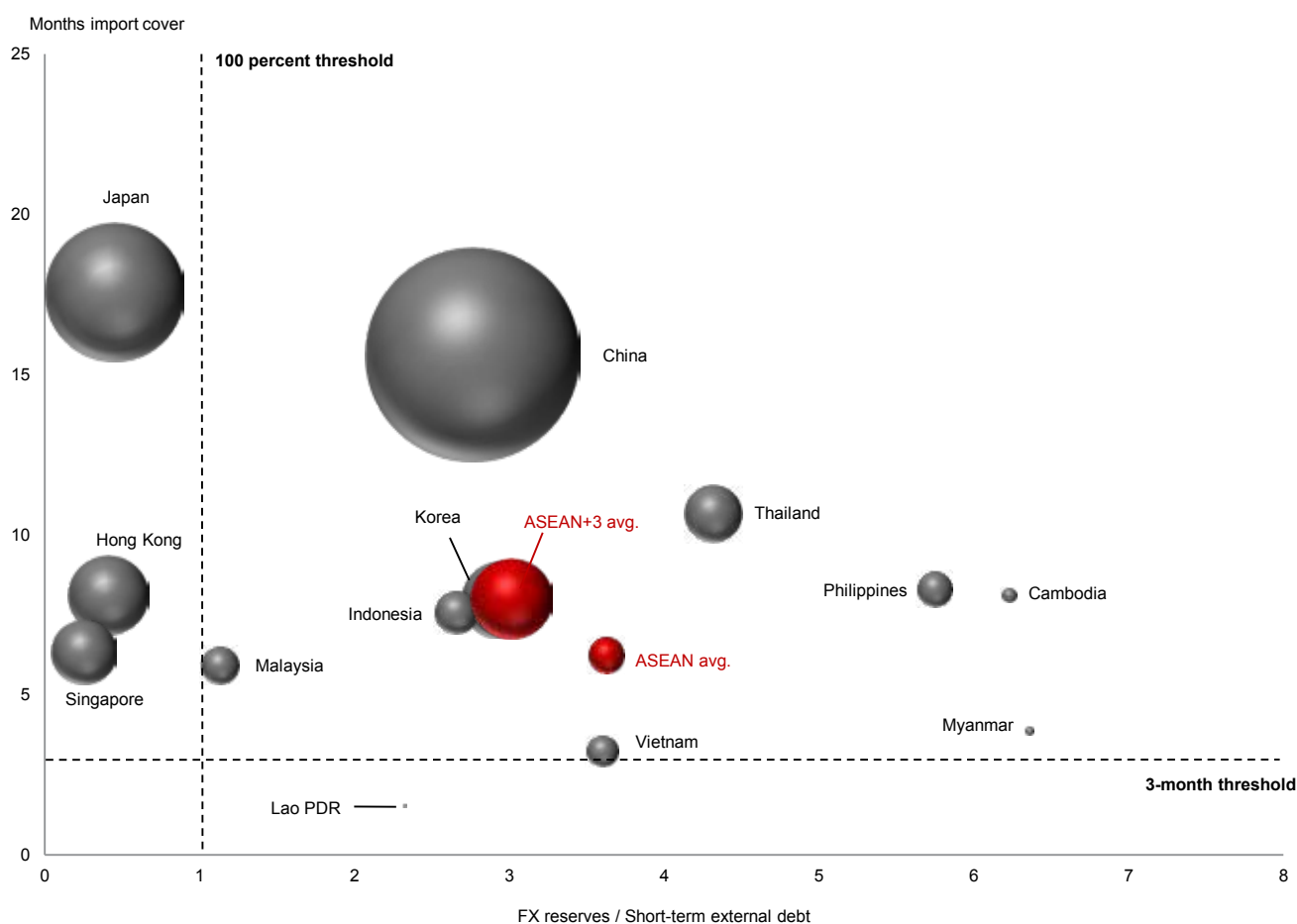
or remained stable in 2019. Notwithstanding the strong headwinds to the external sector this past year, reserve adequacy ratios in many countries still comfortably exceed the rules of thumb, in terms of imports (3 months) and short-term debt (100 percent coverage) (Figure 1.42), as well as their respective IMF Reserve Adequacy Metrics (Figure 1.43). The two largest pools of reserves in the world, China and Japan, rose further, to USD 3.2 trillion and USD 1.3 trillion, respectively. The reserves-to-short-term debt ratios of Japan, Hong Kong, and Singapore are all below 100 percent because these three economies are financial centers with global banks that have large short-term foreign liabilities on their balance sheets (which are included in the denominator as part of their short-term debt). Lao PDR is the only country with a reserve adequacy ratio below 3 months of gross imports but the ratio rises above 3 months if one were to use gross imports net of FDI imports.

The foreign exchange reserves of the ASEAN+3 region economies—which, in aggregate, account for about half of the world’s international reserves—either increased

Figure 1.41. Regional Emerging Markets and Korea: Household, Non-Financial Corporate, and Government Debt
(Percent of GDP)

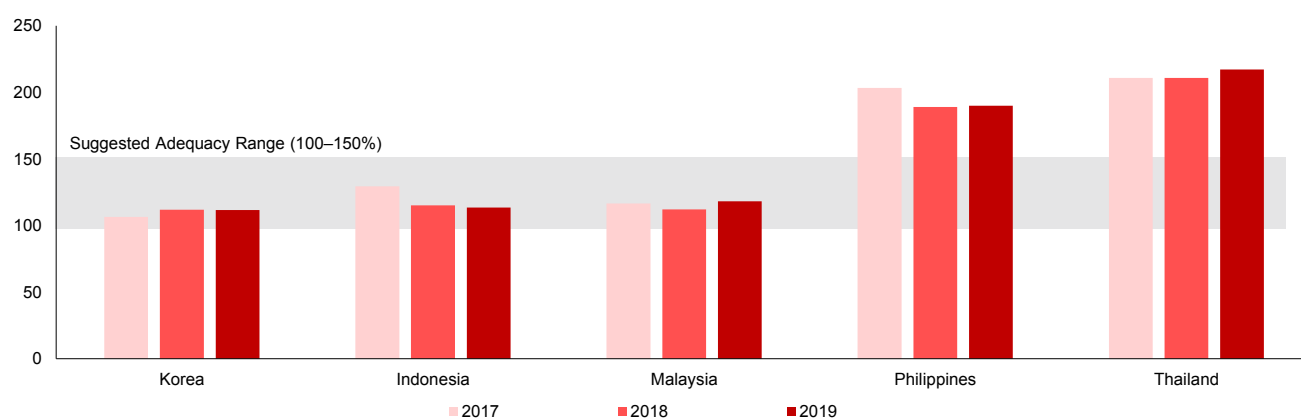


Sources: Haver Analytics; national authorities; and AMRO staff calculations.
Note: 2019 data refer to Q3 2019.

Figure 1.42. ASEAN+3: Adequacy of Foreign Exchange Reserves

Sources: International Monetary Fund; national authorities; and AMRO staff calculations.

Note: Based on latest available data. Import coverage includes imports of goods and services. Size of bubble denotes the relative amount of international reserves in US dollars. avg = average; FX = foreign exchange; Lao PDR = Lao People's Democratic Republic.

Figure 1.43. ASEAN-4 and Korea: Reserves over Reserve Adequacy Metric (Percent)

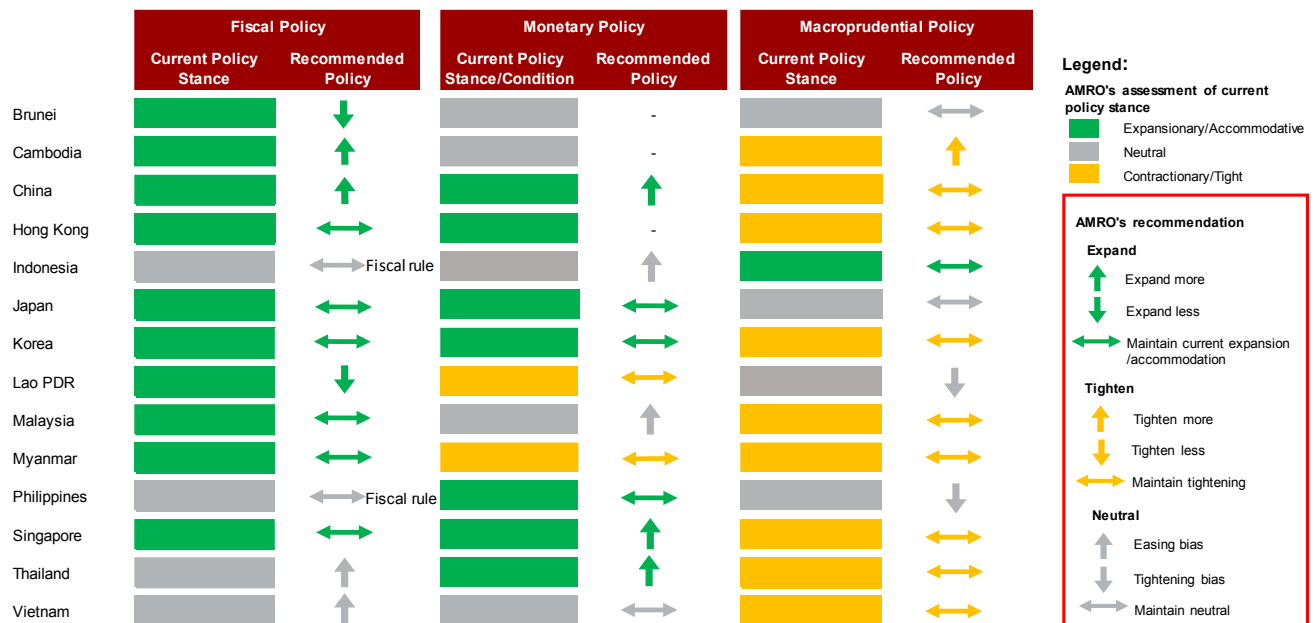
Sources: International Monetary Fund; and national authorities.

Note: The IMF ARA Emerging Market metric comprises four indicators which could be potential risks to the balance of payments: (1) export income, (2) broad money (3) short-term debt, and (4) other liabilities to reflect other portfolio investment outflows. Each component is risk-weighted based on the 10th percentile of observed capital outflows from EMs during exchange market pressure periods. ARA = assessing reserve adequacy.

The policy stance of regional economies is assessed to be largely unchanged from a year ago. Fiscal policy remains largely expansionary or neutral; monetary policy is either neutral or accommodative across most countries; and the majority have opted to maintain a tight macroprudential policy stance to safeguard financial stability amid easier

financial conditions (Figure 1.44). With a few exceptions on the macroprudential side, AMRO is generally of the view that countries should either maintain their existing stance or adopt an easing bias, particularly in light of the COVID-19 pandemic, which has significantly weakened the regional outlook.

Figure 1.44. ASEAN+3 Policy Matrix: AMRO Staff Assessment of Current Policy Stance and Recommendations



Source: AMRO staff estimates.

Fiscal Policy

Public finances in the ASEAN+3 region are generally sound, allowing some leeway for fiscal policy. The national debt-to-GDP levels are still moderate by international standards, although the general government debt-to-GDP ratios for most regional economies have risen over the past several years. In China, central government debt is low and stable by international standards, at below 20 percent of GDP, while local government debt is just above 20 percent of GDP, excluding the debt of the local government financing vehicles. Government debt levels in Indonesia, the Philippines, and Thailand are about 40 percent of GDP or lower—and in Thailand's case, the amount is well below its self-imposed threshold of 60 percent—while Indonesia's general government (and non-financial corporate, including SOE) debt has increased in recent years to finance much-needed infrastructure projects. Malaysia's government debt-to-GDP ratio is 53 percent, higher than regional peers but below the self-imposed ceiling of 55 percent, and the government has committed to reduce the level over the medium term.

Fiscal policy will play an important role this year, to help support economies that are most affected by the fallout from the spread of the COVID-19. Nearly all economies have adopted or maintained an expansionary or neutral fiscal policy stance, although some may have to do more to support growth, especially China, Hong Kong, and Thailand:

- China has been among the most proactive in pulling the fiscal policy lever in recent years. It had appropriately adopted an expansionary fiscal policy stance to support the economy through the external pressures from the US-China trade conflict. The government recently

introduced additional fiscal measures to support the domestic economy as the coronavirus epidemic had taken a heavy toll on economic activity (Table 1.2). To alleviate the difficulties faced by businesses, the government announced that it would be providing support in the form of sharing some interest payments, funding the cost of storing and distributing strategic (medical) items, as well as providing tax concessions and reducing or exempting fees. While AMRO expects the economy to rebound strongly in H2 2020, additional fiscal stimulus may still be needed.

- Although Japan's fiscal stance has been on a gradual consolidation trend, fiscal policy can play a pivotal role in the short term, in maintaining growth momentum amid the consumption tax hike and the COVID-19 pandemic. Beyond 2020, the government needs to continue its consolidation efforts to achieve its own target primary balance by fiscal year 2025. The Korean economy was severely affected by the US-China trade conflict and growth slowed sharply in 2019; economic activity has also been severely affected by the virus outbreak in Q1 2020. The government has responded by adopting an expansionary fiscal policy position to support growth and economic restructuring.
- Hong Kong has also taken an expansionary fiscal policy stance to shore up growth and the job market, following nearly a year of social unrest, and the authorities stand ready to do even more. With the spread of the coronavirus to Hong Kong, the government announced a strong package of measures to support workers and businesses, and to boost the economy. Singapore was also badly hit by spillovers from the US-China trade conflict and growth plunged to 0.7 percent in 2019. The government deployed targeted and

temporary stimulus measures in its 2020 budget to support the economy from the effects of the epidemic. Brunei's economy is just recovering from a severe downturn following the collapse in oil prices in 2016; its fiscal policy stance has been expansionary, but with an appropriate policy bias toward consolidation over time as the economy recovers.

- Indonesia and the Philippines have been less affected by the US-China trade tensions, and have both assumed a neutral fiscal policy stance. Indonesia's economy has been resilient to shocks and growth has been stable at about 5 percent. Fiscal policy is directed at supporting infrastructure investment but the budget deficit is constrained by the 3 percent ceiling under the fiscal rule. Within this constraint, fiscal packages were announced in early-2020 to provide support to sectors/industries affected by the coronavirus. Economic growth in the Philippines declined in 2019, relative to 2018, because of a prolonged delay in passing the budget and the ban on public works spending during the election. Consequently, the government has been ramping up fiscal spending to boost growth to its potential rate.
- Like many other countries in the region, Thailand's economy was badly affected by the US-China trade conflict and, like the Philippines, by a delay in passing the budget. The government enacted fiscal measures in late 2019 to support the economy, but the overall fiscal stance is neutral and could be more expansionary. The COVID-19 pandemic is having a major impact on the Thai economy because of its large tourism industry. While the authorities' fiscal stimulus plan is an appropriate step, they should adopt more expansionary fiscal policy, given the expected economic slowdown. Similarly, Malaysia's fiscal stance has turned moderately expansionary following the introduction of a stimulus package to deal with the impact of the disease. The government is trying to strike the right balance between containing the fiscal deficit and supporting the economy against increased external headwinds, and has committed to expedite the implementation of development projects.
- Unlike many of the ASEAN+3 economies, CLMV gained from trade and investment diversion as a result of the US-China trade tensions. However, they too are being negatively affected by the pandemic, and fiscal policy—where space is available—should focus on specific priorities:
 - Cambodia's fiscal policy stance is expansionary but it should prioritize resources toward supporting structural reforms, and continue efforts to improve public sector efficiency and revenue collection. Myanmar's fiscal policy is also appropriately expansionary, targeting both capital expenditure and social spending.
 - Vietnam's economy grew strongly last year, in part benefiting from diversion of China's exports. Its fiscal policy stance is neutral and in line with its medium-term consolidation efforts.
 - The economy of Lao PDR was negatively impacted by natural disasters in 2019 and growth fell to 6.0 percent. Amid a stagnant growth outlook for 2020, it has adopted an expansionary policy stance. However, the authorities need to remain committed to the fiscal consolidation plan, considering the tight fiscal space and high repayment burden.

Table 1.2. The COVID-19 Epidemic in China: Macro-financial Policies to Support the Economy, as of February 7, 2020

Sector	Policy	Implementation
The epidemic is assessed to be temporary; China's economy resilient and with room to maneuver.		
Authorities have imposed a lockdown on Wuhan, the epicenter of the disease, and quarantine in other major cities, and extended the Lunar New Year holidays by several days.		
Fiscal	The fiscal balance for 2020 has already taken into account some uncertain factors, such that the expenditure for epidemic prevention and control is guaranteed, and the impact on the fiscal budget is expected to be relatively limited.	The central government will help businesses through a package of policies, such as sharing of some interest payments, funding the cost of storing and distributing strategic (medical) items, tax concessions, and reduced or exempted fees.
		The tax authorities shall ensure strict policy implementation of these tax concessions and fees cuts.
Monetary and financial	The PBC will balance using monetary policy to support growth and keeping the leverage level stable. In the entire financial system, the proportion of NPLs, attributable to SMEs, is relatively small, and banks are expected to have sufficient resources to cope with an increase in NPLs.	The PBC injected liquidity through open market operations to ensure adequate liquidity in the banking system, and signalled the strengthening of countercyclical adjustments, and thus stabilize market expectations.
		Many small and micro enterprises have experienced temporary difficulties as a result of the epidemic, The CBIRC will work with banks to help increase financing and reduce financing costs for SMEs.
		There is the possibility of postponing the implementation of the new rules on asset management. The PBC and CBIRC are conducting technical assessments.
		The PBC has released CNY 300 billion in special central bank lending to back financial institutions in providing credit support at preferential interest rates for key businesses engaged in the production, transportation or sale of vital medical supplies and daily necessities.

Sources: People's Bank of China; and AMRO staff estimates.

Note: CBIRC = China Banking and Insurance Regulatory Commission; CNY = Chinese renminbi; NPL = non-performing loans; PBC = People's Bank of China; SME = small- and medium-sized enterprises.

Monetary Policy

Easier global financial conditions have provided welcome relief for the region. With global financial conditions easing and inflation expectations largely well-anchored, central banks have been able to maintain or ease monetary policy to support growth and cushion the effects of the COVID-19 pandemic. More specifically:

- In China, the Loan Prime Rate published by the National Interbank Funding Center, under the authorization of the People's Bank of China (PBC), decreased by 10 basis points from August 2019 to January 2020. The central bank also reduced its reserve requirement ratio (RRR) by a cumulative 100 basis points during this period. The aim was to support the financial deleveraging efforts by regulators and mitigate the effects of the US-China trade conflict on the economy by ensuring that banks have sufficient liquidity to lend to the corporates, especially the small- and medium-sized enterprises. The PBC has since taken steps to inject liquidity into the banking system via open market operations, and released CNY 300 billion in special central bank lending to back financial institutions in providing financial assistance to key businesses. It still has some monetary policy space if needed.
- In Japan, the current easy monetary policy stance should continue, to support growth and counter disinflationary pressures, and the BOJ should stand ready to ease further if necessary.
- The Bank of Korea (BOK) cut its policy rate by 50 basis points in 2019 to counter the sharp slowdown in the economy and the low inflation. In March 2020, the BOK cut the base rate by an additional 50 basis points and lowered the interest rate on the Bank Intermediated Lending Support Facility, also by 50 basis points, at its Emergency Policy Review Meeting. The aim was to reduce the volatility in Korea's financial markets and to mitigate the adverse impact of the COVID-19 pandemic on growth and inflation. It has maintained its accommodative stance and should consider easing further if growth weakens markedly and disinflation persists as a result of the pandemic. The output gap remains negative and inflation is well below target, thus providing room for further rate cuts if necessary.
- The Monetary Authority of Singapore (MAS) eased its monetary policy stance slightly in October 2019

to help cushion the economy from the impact of the US-China trade conflict. In anticipation of the likely hit from the COVID-19 outbreak, the MAS signaled to the markets that there was scope for the exchange rate to ease, which caused the exchange rate to depreciate, thereby easing monetary conditions. It should be prepared to ease further if growth slows significantly and inflation remains low.

- Among the BCLMV group, monetary conditions are either neutral or contractionary. Monetary conditions in Brunei and Cambodia are assessed to be neutral. The State Bank of Vietnam cut its policy rate by 25 basis points in September 2019, in line with easing global financial conditions, although the policy stance remains neutral. The economy is likely to be affected by the spread of the coronavirus, in part through damage to its tourism industry, and may require some support from monetary policy; for now it is particularly important for Vietnam to ensure prudence in banks' lending activity to avert any potential build-up of risks in the banking system. Myanmar has appropriately kept monetary policy relatively tight in an effort to phase out fiscal monetization, while credit growth has moderated in tandem with the enforcement of a stricter banking regulatory regime. Lao PDR moved to a contractionary stance in 2019, which was, and remains, appropriate as the exchange rate has come under pressure and inflation is tracking upward.

For some of the EMEs, the monetary policy stance is reflected to a great extent in the divergence between their current policy rates and those implied by their respective Taylor Rule estimates (Figure 1.45):

- Bank Indonesia cut its policy rate by 25 basis points in February 2020, following four rate cuts for a total of 100 basis points in 2019—against the backdrop of easier global financial conditions—in line with maintaining inflation within the target corridor and supporting the economic growth momentum. It also lowered the RRR for Conventional Commercial Banks and Islamic Banks/Islamic Business Units twice in 2019, by a total of 100 basis points, to ensure adequate liquidity in the banking system. As suggested by AMRO's estimated Taylor Rule level, there may be room for further accommodation if imminent downside risks were to intensify, as long as inflation remains under control and financial stability is maintained.

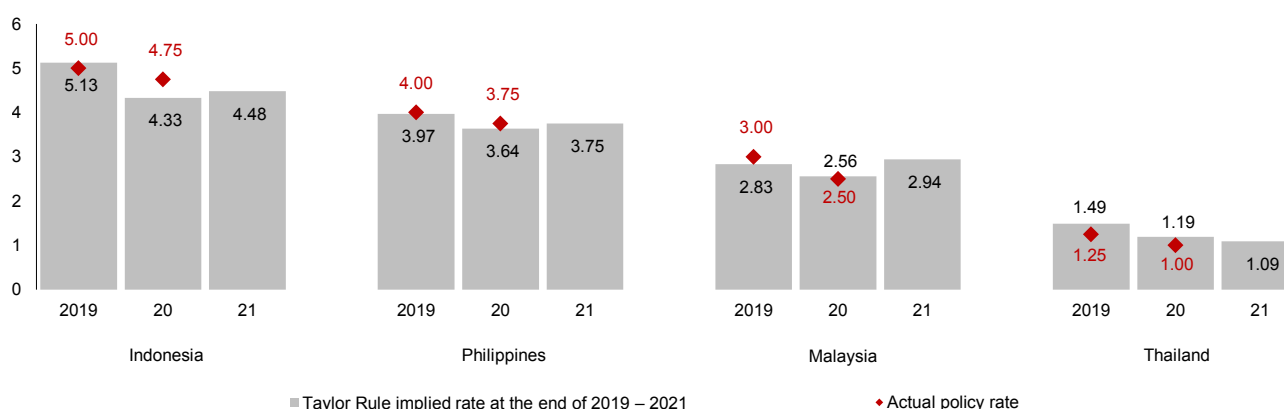
- Bank Negara Malaysia has taken pre-emptive measures to support the economy by cutting the policy rate by a total of 75 basis points between May 2019 and March 2020, and lowering the statutory RRR by 50 basis points in November 2019. While the current policy rate is fairly in line with the Taylor Rule implied rate, the central bank has space to ease policy further in the event of a sharp growth slowdown, complementing the government's fiscal policy initiatives to deal with the COVID-19 pandemic, stimulate growth, and encourage domestic investment.
- The Bangko Sentral ng Pilipinas made concerted cuts to its policy rate following the sharp decline in inflation to below the target range, and to provide support to the economy. The policy rate was reduced by a cumulative 75 basis points in 2019 and the RRR by 400 basis points to increase liquidity and reduce the funding cost of banks. More recently, the Philippine central bank cut its policy rate by another 25 basis points and shifted to an easing bias—which it should maintain—as a pre-emptive move to provide support amid the effects of the Taal volcano eruption and Typhoon Tisoy, as well as the trade and economic uncertainties in the global economy. The current policy rate is approximately neutral, and AMRO forecasts that inflation—which has slowed sharply to an annual average of 2.5 percent—will remain within the target 2–4 percent range in 2020.
- The Bank of Thailand (BOT) cut the policy rate by 25 basis points each in August and November 2019 amid low inflation and weak growth prospects. The

BOT reduced its policy rate by another 25 basis points in February 2020, to cushion the economy from the effects of the COVID-19 epidemic (especially from the expected hit to the tourism sector) and the budget delay; AMRO forecasts that inflation will come in below the new inflation target band. In view of the weakening economy, the BOT should maintain an easing bias and be ready to ease further if needed.

Markets have priced in a dovish shift in monetary policy in some of the ASEAN+3 economies. Interest rate swaps, which provide a good indication of market perceptions of the future path of interest rates, show that policy-easing expectations had increased in Korea, Malaysia, and Thailand over the past three months (Box 1.12). The swap market pricing for monetary policy action in Korea has been realized (50 basis point rate cut on March 16, 2020). Meanwhile, the market is pricing a larger than 40 basis point cut for Malaysia (in addition to the actual 50 basis point reduction in the year to date), and a 48 percent probability of another 25 basis point cut by Thailand (even after the 25 basis point cut in February). In other words, market expectations are lower than AMRO's Taylor Rule estimates for Malaysia and Thailand.

However, a prolonged period of low interest rates can result in a build-up in financial imbalances, especially in countries where the stock of private sector debt is already high. Moreover, as discussed in Section III, they also weaken the profitability of banks and result in asset-liability mismatches on the balance sheets of insurance firms. The risk of fast-rising credit could be mitigated to some extent by the judicious use of macroprudential policies.

Figure 1.45. ASEAN-4: Current Policy Rates and Taylor Rule Estimates
(Percent year-over-year)



Sources: National authorities; and AMRO staff estimates and projections.

Notes: End-2019–21 Taylor Rule implied rates are computed based on AMRO's GDP and inflation projections. The 2019 actual policy rate refers to the latest policy rate announced in 2019: Indonesia (December 19, 2019), Malaysia (November 5, 2019), the Philippines (October 16, 2019), and Thailand (November 6, 2019). The 2020 actual policy rate refers to the latest policy rate announced in early 2020: Indonesia (February 20, 2020), the Philippines (February 6, 2020), Thailand (February 5, 2020), and Malaysia (March 3, 2020).

Macroprudential Policy

In general, countries should ensure that any build-up in financial imbalances amid the current low interest rate environment is contained, while not dampening economic growth in the face of strong domestic and external pressures. Policymakers have generally maintained tight macroprudential policies across the region in the past year (see Figure 1.44). Indeed, the relatively flat growth in overall household debt relative to GDP has been attributable, in part, to the effectiveness of macroprudential measures (see Figure 1.41):

- Indonesia has adopted an accommodative macroprudential policy stance, with the rest of the economies in the region either keeping to their tight or neutral positions. With low property valuations, a financial cycle in the recovery phase, and an economy in mid-cycle, the Indonesian authorities should maintain their current policies. Korea and Thailand should continue with their tight—and Malaysia with its tightened—macroprudential policy stance, given their large household debt stocks, and especially for Korea, where house prices in specific prime areas are continuing to surge. Similarly, China has appropriately maintained its tight stance, which is being offset somewhat by lower interest rates, given that hukou reform will likely lift the property market in some key tier-2 cities and the neighboring ones. The Philippines has taken a neutral stance, and should tighten policy if needed.
- The BCLMV group should either maintain or move to a tighter stance. Brunei's macroprudential policy stance has appropriately shifted from being accommodative to neutral this past year with credit growth recovering. Lao PDR is encouraged to increase its foreign exchange reserve requirements to build a larger buffer for banks against any tightness in foreign exchange liquidity; Cambodia should tighten prudential policy, while introducing measures to help contain banks' credit risks in the real estate sector, and continue to upgrade the regulatory framework. Vietnam has made efforts to rein in credit growth to non-productive sectors and gradually reduce the asset-liability maturity mismatch on banks' balance sheets.

Box 1.11:

How the ASEAN-4 Weathered the Emerging Market Turbulence in 2018

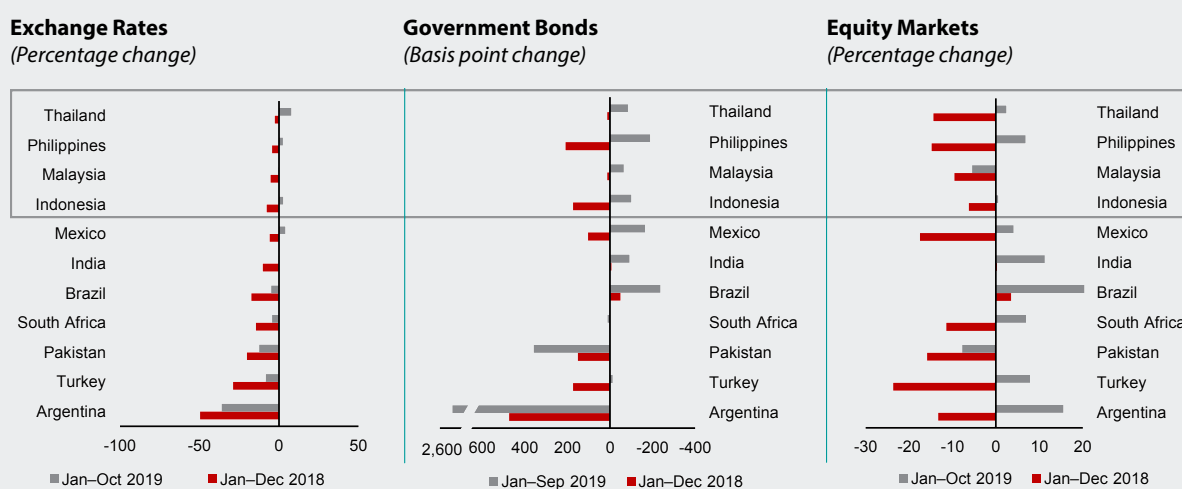
Financial markets in emerging market (EM) economies, including the ASEAN-4, experienced turbulence through much of 2018 as a result of tighter global financial conditions and rising risk aversion among global investors. In particular, the US dollar strengthened and US Treasury yields increased on aggressive US Federal Reserve (US Fed) rate hikes, while rising uncertainties over the US-China trade tensions led to heightened risk aversion among global investors. Against this backdrop, investors rebalanced their holdings in EM assets, including the ASEAN-4. As a result, EM currencies depreciated, bond yields went up, and equity market returns were compressed in 2018 (Figure 1.11.1).

Regional EMs were supported by timely policy responses, which helped them to weather the downturn in the global financial cycle and remain resilient against external shocks. In particular, the Philippines and Indonesia raised

policy rates pre-emptively and concertedly, by a total of 175 basis points each, in 2018, to address rising inflation (in the Philippines) and to stem capital outflows (in Indonesia) (Table 1.11.1). In other regional EMs, policymakers either paused interest rate cuts (in Malaysia) or implemented one rate hike (in Thailand). Regional authorities also calibrated their policy mixes by:

- lowering the reserve requirement ratio (the Philippines),¹ and relaxing macroprudential measures (Indonesia)—to mitigate the impact of rate hikes on bank liquidity;
- maintaining flexible exchange rate, while conducting intermittent interventions to smooth volatility;
- stepping up the development of a hedging market to provide investors with more options to hedge against exchange rate volatility, with the introduction

Figure 1.11.1. Selected Emerging Markets: Financial Market Developments, 2018–19



Sources: Haver Analytics; and AMRO staff calculations.

Note: Negative values for nominal exchange rate changes indicate currency depreciation. The axis for government bond yields is reversed, with yield rises on the left-hand side, to denote a decline in the value of bonds, consistent with the depreciation in exchange rates and fall in stock prices. bps = basis points.

Table 1.11.1: Selected Emerging Markets: Policy Responses in 2018

Policy Response	AG	IN	MX	ZA	TR	ID	MY	PH	TH
Number of rate hikes	5	2	4	1	2	6	0	5	1
Total size of rate hikes (bps)	4,080	50	100	25	1,600	175	0	175	25

Sources: Haver Analytics; and AMRO calculations.

Note: bps = basis points; EM = emerging market; AG = Argentina; IN = India; ID = Indonesia; MX = Mexico; MY = Malaysia; PH = the Philippines; ZA = South Africa; TH = Thailand; TR = Turkey.

¹ The Bangko Sentral ng Pilipinas also cut rates by 75 basis points in 2019, not only to mitigate the impact on liquidity from the rate hike in 2018 but also from capital outflows, and the government front-loaded issuance in early 2019.

of a domestic non-deliverable forward instrument (Indonesia).

Capital inflows largely resumed following those prompt policy actions (Figure 1.11.2) and macroeconomic stability was maintained in the region, relative to EMs elsewhere (Table 1.11.1 and Figure 1.11.2).

Notwithstanding the easing in global financial conditions in 2019, fragile investor sentiment posed an important risk to capital flows in the region, given the weaker global growth outlook and US-China trade tensions. The dovish pivot by the US Fed and other advanced-economy central banks supported the recovery in some EM currencies, stabilization in bond yields, and a rebound in equity markets (Figure 1.11.2). Regional policymakers took the opportunity to ease monetary policy in a benign inflationary environment. However, with some regional EMs increasingly reliant on portfolio investment (debt securities) flows since the global financial crisis (GFC), driven in part by increased foreign holding of local currency bonds (Figures 1.11.3 and 1.11.4),² any rise in risk aversion toward EMs could yet trigger capital flow reversals. Research shows that as the composition of global liquidity moves away from bank loans toward other sources of financing, such as equity and bonds, post-GFC, sudden shifts in investors' risk attitude could in fact propagate faster than in the past (Habib and Venditti, 2019).

Indeed, there appears to be significant correlation between heightened investor risk aversion and capital outflows from bond markets in Indonesia and Malaysia. These two represent investor bellwethers, with the largest shares of foreign investment in local currency (LCY) denominated government bonds, of about 38 percent and 24 percent of total bonds outstanding, respectively, as of end-2018 (Figure 1.11.5). Consistent with the methodology in Kim, Kim, and Choi (2013) and AMRO (2018c), a generalized methods of moments (GMM) approach incorporating push (external) and pull (domestic) factors, is used to explain the quarterly changes in non-resident holdings of LCY-denominated bonds issued by the governments of Indonesia and Malaysia (Table 1.11.2).³ Preliminary findings suggest that:

- Among the push factors, global risk aversion, as measured by the VIX, is negatively correlated with non-resident holdings in both Indonesia and Malaysia, while bond yield spreads are positively correlated.
- Among the pull factors, inflation is found to negatively correlate with non-resident bond flows for both economies. Other significant pull factors include real GDP growth for Indonesia, and the current account balance and local currency appreciation for Malaysia.

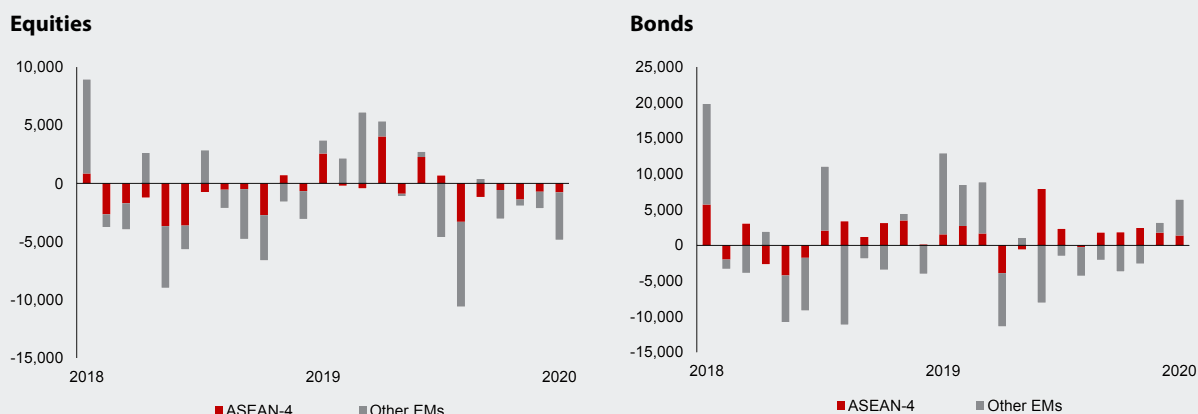
In addition to the timely and sound mix of macroeconomic policies, the resilience of regional EMs against market shocks also highlights the crucial role of structural reforms in strengthening resilience against external shocks. The implementation of broadly sound policies and reforms post-crisis to strengthen macro-financial fundamentals has been key to anchoring inflation expectations, upholding fiscal prudence, maintaining growth momentum, and safeguarding financial stability. These achievements are all the more stark when juxtaposed against developments in other EMs (Figures 1.11.6 and 1.11.7). Going forward:

- The current account deficits in Indonesia and, to a lesser extent, the Philippines, are likely to persist for the foreseeable future as a result of rising (infrastructure) investment needs to support long-term growth potential. Hence, it is important to accelerate structural reforms to improve the investment climate and attract (more stable) foreign direct investment to finance the current account deficit.
- Further financial deepening to develop domestic financial (capital) markets (as implemented by Malaysia)—particularly applicable to Indonesia and the Philippines, whose markets remain relatively shallow with a modest domestic investor base—with the presence of long-term institutional investors such as pension funds and insurance firms, could offer some protection against global shocks (Figure 1.11.8).
- Although the risk of capital flow reversals has been less acute for Malaysia and Thailand, their comfortable current account surpluses suggest low or insufficient foreign investment, and hence the desirability of increasing investment and enhancing investment efficiency.

² In Thailand's case, part of flows are motivated by safe-haven demand (with expectations of currency appreciation), rather than by funding needs.

³ For a review of the existing literature on EM capital flow drivers, see Ahmed and Zlate (2014), Bowman, Londono, and Sapriza (2015), Ahmed Hannan (2017), Avdjiev and others (2017), and Habib and Venditti (2019). The common push factors include global risk aversion, as measured by the CBOE Volatility Index (VIX); and US economic and monetary conditions relative to EMs, as reflected in the differential in growth and interest rates; and the broad dollar index (DXY), which measures the value of the US dollar against a basket of six currencies (the euro, Japanese yen, UK pound sterling, Canadian dollar, Swedish krona, and Swiss franc). Pull factors that attract capital inflows to EMs include inflation; trade openness; the exchange rate regime; capital account openness; institutional quality, as well as financial development.

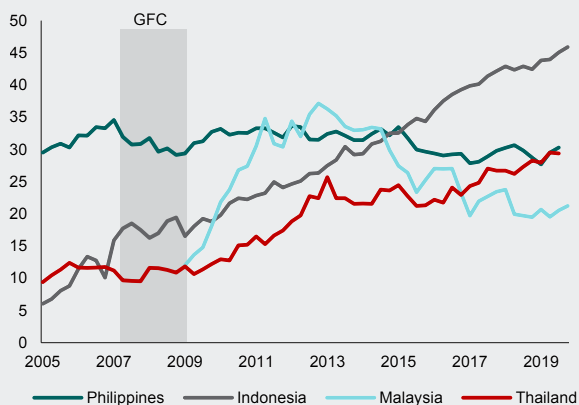
Figure 1.11.2. Emerging Markets: Net Monthly Non-Resident Portfolio Investment Flows
(Millions of US dollars)



Sources: Institute of International Finance; and AMRO staff calculations.

Note: ASEAN-4 = Indonesia, Malaysia, the Philippines, and Thailand. Other EMs comprise Brazil, India, Mexico, Pakistan, and South Africa; EM = emerging market.

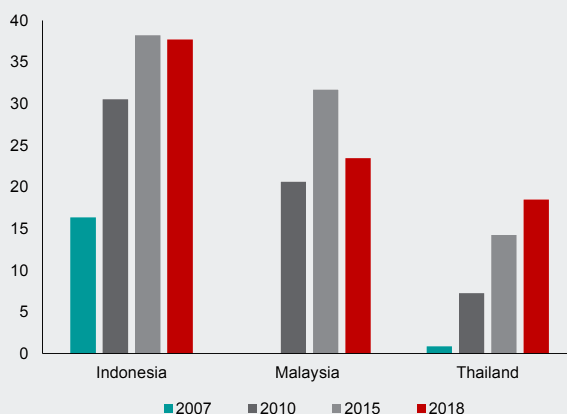
Figure 1.11.3. ASEAN-4: Debt Securities Held by Foreign Bond Investors
(Percentage of gross external debt)



Sources: National authorities; and AMRO staff calculations.

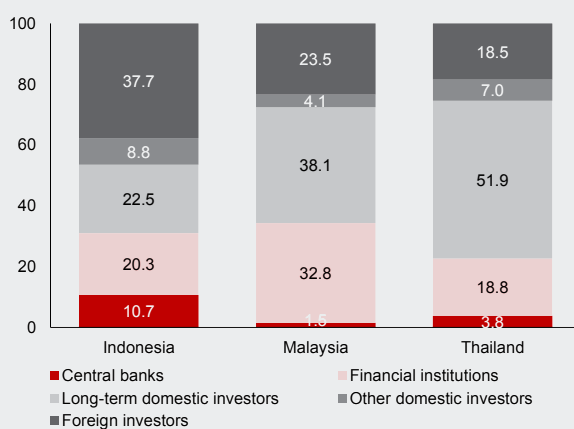
Note: GFC = global financial crisis. Debt securities are denominated in both local and foreign currencies.

Figure 1.11.4. Selected ASEAN Economies: Foreign Holding of Local Currency Government Bonds
(Percentage of total bonds outstanding)



Sources: Asian Development Bank; and AMRO staff calculations.

Figure 1.11.5. Selected ASEAN Economies: Government Bond Profile by Investors, 2018
(Percentage of total bonds outstanding)



Sources: Asian Development Bank; and national authorities.

Note: Data refer to local currency government bonds only. Long-term domestic investors include insurance firms, social security funds, and/or contractual savings funds, and mutual funds.

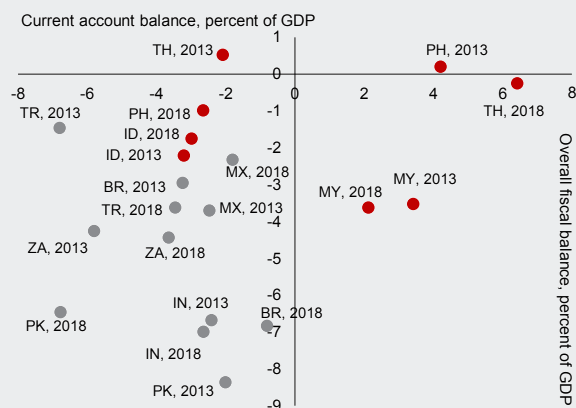
Table 1.11.2. Indonesia and Malaysia: Determinants of Non-Resident Holdings of Local Currency Government Bonds

Variable	Indonesia 2005:Q3 – 2018:Q4	Malaysia 2009:Q2 – 2018:Q4
Sample		
Constant	-0.645	0.272
Push factors		
DXY	-0.007	-0.003
Global VIX	-0.931***	-0.633*
World GDP (US)	0.025	n/a
Push/Pull factors		
Bond yield spread over UST	0.094*	0.856***
Pull factors		
Domestic GDP	0.226*	0.004
Inflation	-0.026***	-0.250**
Current account balance	0.004	0.113***
Domestic currency strength	0.015	0.303***
Domestic currency volatility	0.425	n/a
Domestic stock index	0.003	-0.080
Diagnostic check		
Durbin-Watson	1.489	1.668
J-statistic	4.406	3.950
(p-value)	0.819	0.786

Sources: CEIC Data; national authorities; and AMRO staff estimates.

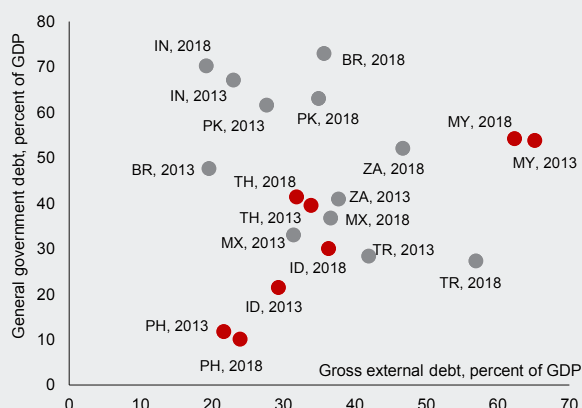
Note: DXY = US Dollar index; VIX = CBOE Volatility Index; UST = US Treasuries; *, **, and *** indicate significance at 10 percent, 5 percent, and 1 percent levels, respectively.

Figure 1.11.6. Selected Emerging Markets: Current Account and Overall Fiscal Balance, 2013 and 2018



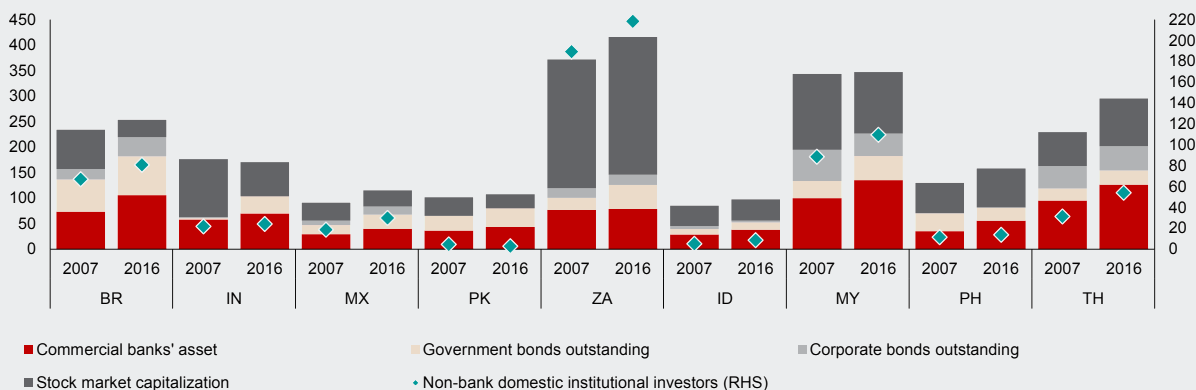
Sources: Haver Analytics; and AMRO staff calculations via ARTEMIS.
 Note: BR = Brazil; IN = India; ID = Indonesia; MX = Mexico; MY = Malaysia; PK = Pakistan; PH = the Philippines; ZA = South Africa; TH = Thailand; TR = Turkey.

Figure 1.11.7. Selected Emerging Markets: Public and External Debt, 2013 and 2018



Sources: Haver Analytics; and AMRO staff calculations via ARTEMIS.
 Note: BR = Brazil; IN = India; ID = Indonesia; MX = Mexico; MY = Malaysia; PK = Pakistan; PH = the Philippines; ZA = South Africa; TH = Thailand; TR = Turkey.

Figure 1.11.8. Selected Emerging Markets: Financial Sector Depth (Percent of GDP)



Sources: CEIC Data; national authorities; World Bank Global Financial Development Database; and AMRO staff calculations.
 Note: BR = Brazil; IN = India; ID = Indonesia; MX = Mexico; MY = Malaysia; PK = Pakistan; PH = the Philippines; ZA = South Africa; TH = Thailand.

Box 1.12:

What Swap Markets are Saying about the Policy Rates of Selected ASEAN+3 Economies

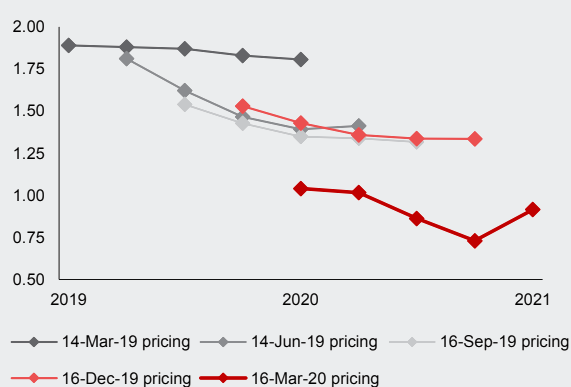
Interest rate swaps (IRS) are a key indicator of market expectations of the future path for rate changes. As instruments, an IRS enables the exchange of one stream of interest payments for another. The “price” of this instrument is the fixed leg of the IRS that is set such that the present value of all future cash flows equates that implied by the cash flows of the floating leg. By construct, the price changes in line with market expectations of the future path of the floating leg.

The term structure of the IRS curve can be used to derive the forward implied floating leg. Theoretically, the floating leg is a function of two variables: (1) the policy rate; and (2) liquidity conditions. An example of this is the 3-month London Interbank Offered Rate (LIBOR), which is the floating leg for US dollar swaps. It is dependent on not only the US Federal Reserve (hereafter “US Fed”) funds rates, but also US dollar liquidity conditions. Tight liquidity causes the LIBOR to rise even if the policy rate does not change. Assuming that liquidity conditions do not fluctuate much, the path of floating leg should closely resemble the market’s expected change in the policy rate.

This framework could be applied to derive the policy expectations of ASEAN+3 emerging markets. Specifically, IRS markets serve as good indicators of monetary policy for Malaysia, Korea, and Thailand (China and Hong Kong also have active swap markets but the policy rates and the floating leg of their IRS are not closely linked).¹ The COVID-19 pandemic had raised expectations of a dovish response by regional central banks. Indeed, while Malaysia and Thailand have already delivered cuts, expectations of further reductions remain as of March 16, 2020, while there is no expectation of any further reduction in Korean rates:

- In Korea, swap markets are pricing in a 12 basis point fall in the 3-month Certificate of Deposit (CD) rate—the floating leg for Korea’s IRS—over the next 12 months (Figures 1.12.1 and 1.12.2). The current spread between the 3-month CD rate and the policy rate (0.75 percent) of 29 basis points (1.04 – 0.75 percent) is elevated compared to basis points. Assuming that the elevated spread normalizes (that is, compresses by) 14 basis points, then the difference of -2 basis points (12 – 14 basis points) vis-à-vis the

Figure 1.12.1. Korea: 3-Month CD Rate Pricing (Percent)



Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.
Note: The 3-month CD rate is the floating leg for Korea’s interest rate swap rate. CD = certificate of deposit.

Figure 1.12.2. Korea: 3-Month CD Rate Implied Levels (Percent)

Date	3M CD Rate	Implied Level (Percent)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	1.040	1.02	0.86	0.73	0.92
16-Dec-19	1.530	1.43	1.36	1.34	1.34
16-Sep-19	1.540	1.43	1.35	1.34	1.32
14-Jun-19	1.810	1.62	1.47	1.39	1.41
14-Mar-19	1.890	1.88	1.87	1.83	1.81

Date	3M CD Rate	Change in Level (Basis points)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	1.040	-2	-18	-31	-12
16-Dec-19	1.530	-10	-17	-19	-20
16-Sep-19	1.540	-11	-19	-20	-22
14-Jun-19	1.810	-19	-34	-42	-40
14-Mar-19	1.890	-1	-2	-6	-8

Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.
Note: The average spread between the 3-month CD rate and policy rate over the last 5 years is +14 basis points vs. the current spread of +29 basis points. CD = certificate of deposit; fwd = forward; M = month.

¹ The lack of liquid swap markets in Indonesia, the Philippines, Cambodia, Lao PDR, and Vietnam precludes their analyses while the exchange rate is Singapore’s main monetary policy tool.

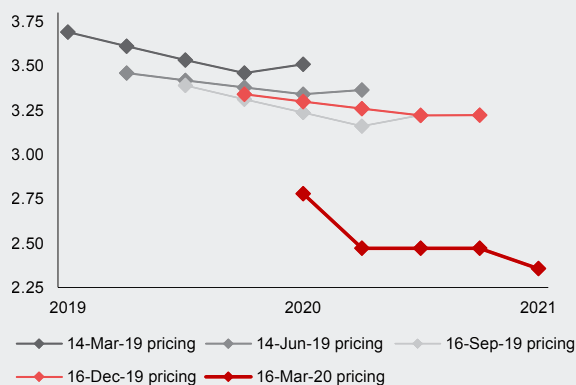
12-month forward represents market expectations of a small 8 percent probability of a 25 basis point cut. Compared to the pricing 3 months ago, the 12-month implied rate has fallen from 1.34 percent to 0.92 percent, suggesting increased expectations of monetary easing. That said, a 50 basis point rate cut has been delivered and no further action is expected of the Bank of Korea at this point, as per the swap market pricing.

- Despite two rate cuts in 2020 (one each in January and March) by the Malaysian central bank, expectations of further easing remain elevated (Figures 1.12.3 and 1.12.4). Swap markets priced in a fall in 3-month Kuala Lumpur Interbank Offered Rate (KLIBOR) from 2.78 percent to 2.36 percent in a year's time. Compared with the pricing 3 months prior, easing expectations have increased significantly as the 12-month ahead pricing fell from 3.22 percent (12 basis points of easing or 48 percent probability of a 25 basis point cut) to 2.36 percent (50 basis points

of realized cut and 42 basis points of further easing, that is, a 100 percent probability of another 25 basis point cut and a 68 percent probability of a further 25 basis point cut).

- Market expectations of further monetary policy easing in Thailand have risen despite the 25 basis point cut on February 5 (Figures 1.12.5 and 1.12.6) but the policy action is front-loaded. The IRS floating leg, represented by the 6-month forward exchange rate, shows that the implied floating leg after 1 year is 0.88 percent. It implies a 48 percent probability of a 25 basis point cut, from the current 1.00 percent level. The latest pricing is also lower than that seen three months ago, of 1.26 percent, indicating that the market's easing expectations have increased significantly. The implied floating rate after 6 months is 0.60 percent, which translates to a 100 percent probability of a 25 basis point cut and another 60 percent probability of a further 25 basis point cut.

Figure 1.12.3. Malaysia: 3-Month KLIBOR Pricing (Percent)



Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.
Note: The 3-month CD rate is the floating leg for Korea's interest rate swap rate. CD = certificate of deposit.

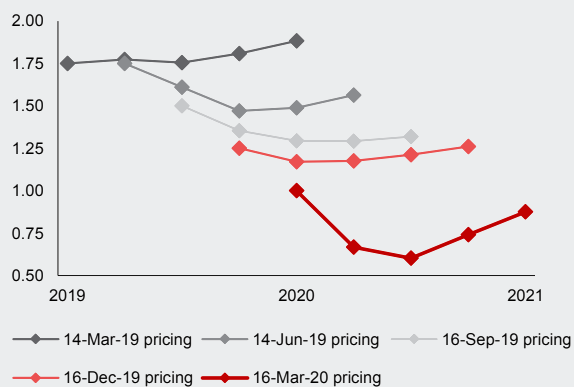
Figure 1.12.4. Malaysia: 3-Month KLIBOR Implied Levels (Percent)

Date	3M KLIBOR	Implied Level (Percent)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	2.780	2.47	2.47	2.47	2.36
16-Dec-19	3.340	3.30	3.26	3.22	3.22
16-Sep-19	3.390	3.31	3.24	3.16	3.22
14-Jun-19	3.460	3.42	3.38	3.34	3.36
14-Mar-19	3.690	3.61	3.53	3.46	3.51

Date	3M KLIBOR	Change in Level (Basis points)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	2.780	-31	-31	-31	-42
16-Dec-19	3.340	-4	-8	-12	-12
16-Sep-19	3.390	-8	-15	-23	-17
14-Jun-19	3.460	-4	-8	-12	-10
14-Mar-19	3.690	-8	-16	-23	-18

Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.

Figure 1.12.5. Thailand: 6-Month Forward Exchange Rate Pricing (Percent)



Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.

Figure 1.12.6. Thailand: Forward Exchange Rate Implied Levels (Percent)

Date	Policy Rate	Implied Level (Percent)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	1.000	0.67	0.60	0.74	0.88
16-Dec-19	1.250	1.17	1.18	1.21	1.26
16-Sep-19	1.500	1.35	1.29	1.29	1.32
14-Jun-19	1.750	1.61	1.47	1.49	1.56
14-Mar-19	1.750	1.77	1.75	1.81	1.88

Date	Policy Rate	Change in Level (Basis points)			
		3M Fwd	6M Fwd	9M Fwd	12M Fwd
16-Mar-20	1.000	-33	-40	-26	-12
16-Dec-19	1.250	-8	-7	-4	1
16-Sep-19	1.500	-15	-21	-21	-18
14-Jun-19	1.750	-14	-28	-26	-19
14-Mar-19	1.750	2	0	6	13

Sources: Bloomberg Finance, L.P.; and AMRO staff calculations.
Note: fwd = forward; M = month.