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AMRO
ASEAN +3 MACROECONOMIC RESEARCH OFFICE

ASEAN+3 REGIONAL ECONOMIC OUTLOOK 2021

Global Value Chains in the Post-Pandemic "New Normal"

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Foreword

It is said that, "God works in mysterious ways." Never has this saying been more apt than in the past year. The year 2020 had started on an optimistic note with the signing of the Phase One trade deal between the United States and China, the two economic superpowers, but the optimism was soon dashed by the COVID-19 pandemic, which first broke out in Wuhan, China, and soon spread like wildfire across the globe, devastating economies along the way.

The ASEAN+3 region was not spared the devastation, although the losses and damages vary from economy to economy, with most suffering their worst economic contraction in decades. China, the first country to be hit by the pandemic, took decisive and forceful measures to contain the virus, initially locking down Hubei province and imposing strict mobility measures in the first wave of the outbreak. While the suffering was immense and the economic cost huge, with growth plunging 7 percent in the first quarter, the measures worked and the economy rebounded very strongly, with growth back to pre-pandemic rates by year-end. Strict social distancing measures were also taken by all the economies in the region and for a while, these efforts were similarly effective in containing the virus, with zero or very low caseloads in most, a sharp contrast to the situation in Europe and the United States, where the infection rates reached epic levels and the hospitals were overwhelmed.

However, the relief from the success in containing the virus was short-lived for most economies in the region, as the virus proved to be more cunning and tenacious than expected. No sooner were the containment measures eased than the virus came roaring back, spreading even more rapidly than before and forcing the authorities to retighten the containment measures. In all, there have been up to four major waves of infection in the region, each worse than the one before, with several economies still struggling to contain the latest wave.

Needless to say, regional governments took swift and decisive measures to save lives and support their economies during the lockdowns. The economic stimulus packages were unprecedented in size and scope, comprising massive income support and liquidity injections to ensure that households, businesses and banks would be able to survive the collapse in incomes during the lockdowns. Fortunately, the regional economies had strengthened their macroeconomic fundamentals and built up significant policy buffers during the past two decades and thus were relatively well positioned when the pandemic hit. As a result, they were able to afford the large stimulus packages, although the size of the packages varies from economy to economy depending on the size of the shocks and their available policy space.

As in the previous year, 2021, is starting on an optimistic and hopeful note, buoyed by the development of several vaccines, which have proven to be effective against the virus. The challenge in the coming year is to roll out the vaccines as quickly and efficiently as possible so that the bulk of the world's population can be vaccinated. Only then will countries be able to achieve herd immunity and containment measures be fully removed without fear of further waves of infection. Here in the ASEAN+3 region, most governments have purchased vaccines for their populations and are ready to roll them out. However, the challenge lies in ensuring that sufficient quantities of the vaccines are secured and the vaccines are distributed and administered smoothly and efficiently to the populations.

Another major challenge facing authorities in the region is exiting smoothly from the large stimulus policies without triggering a cliff effect. They need to recalibrate the measures and phase out the stimuli in such a way that their economies continue to recover and gain momentum, and transit smoothly to the post-pandemic "new normal."

If there is one bright spot from the physical lockdowns, it is the speed with which individuals and businesses have leveraged digital technology to continue with their lives and livelihoods. The pandemic has accelerated the shift to the digital economy and policymakers must make the necessary changes to policies and invest in supporting infrastructure to facilitate the continuing transformation of their economies. The challenge for many emerging economies will be to mobilize the funding to build the necessary infrastructure, given that their policy space has shrunk as a result of the stimulus packages.

As in previous editions of the AREO, the thematic chapter in this edition continues the discussion on the structural challenges facing the region. The pandemic, by causing massive supply disruptions around the world, has reignited the debate over the future of globalization and global value chains (GVCs), with some arguing for onshoring or reshoring of the supply chains to enhance their resilience. At the same time, contrary to our expectations at the beginning of last year, the tensions between the United States and China have heightened and expanded from trade to technology, raising concerns that global technology may become bifurcated, with adverse ramifications for the global economy. This thematic chapter therefore conducts an in-depth review of the factors that are likely to affect the reconfiguration of GVCs and the bifurcation of technology, and assess their implications for the region.

The past year has been trying for most countries. Within the span of a few months, the COVID-19 virus had spread across the world, respecting no national boundaries, and brought hardship, pain, and suffering to many. In so doing, the pandemic has reminded us of our common destiny, that we live in one interconnected world, wherein no one country is safe until all countries are safe. The pandemic is therefore a wakeup call for us to pull together to face our common challenges and respect nature if we are to survive on this small planet.

Hoe Ee Khor
Chief Economist

Acknowledgments

This report provides AMRO staff's assessment of both the conjunctural and structural issues facing the ASEAN+3 region. It covers the short-term risks, vulnerabilities, and challenges facing member economies, as well as the policy options taken by or that are available to their authorities. It also presents staff's study on longer-term issues that are pertinent to sustained economic growth in the region. The report has been approved for publication by the Executive Committee of the ASEAN+3 members.

The analysis in this report was coordinated by the Regional and Financial Surveillance teams led by Li Lian Ong; it also draws on the surveillance work of the AMRO country teams. The report was reviewed and cleared by Chief Economist Hoe Ee Khor. It has also benefited from the guidance of AMRO Director Toshinori Doi and other members of the Senior Management team, Wenxing Pan and Yoon Kyung Kim.

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Finally, the views expressed in this report are those of AMRO staff and do not, in any way, implicate ASEAN+3 members.

Abbreviations

2G	second-generation wireless technology
3D	three-dimensional
3G	third-generation wireless technology
3GPP	3rd Generation Partnership Project
4G	fourth-generation wireless technology
4IR	fourth industrial revolution
5G	fifth-generation wireless technology
ACC	American Chamber of Commerce
AEs	advanced economies
AFC	Asian financial crisis
AI	artificial intelligence
API	applied program interfaces
ASEAN	Association of Southeast Asian Nations
ASEAN+2	ASEAN+3 excluding Mainland China
ASEAN+3	ASEAN plus China (including Hong Kong), Japan, and Korea
ASEAN-4	Indonesia, Malaysia, the Philippines, and Thailand
ASEAN-5	Indonesia, Malaysia, the Philippines, Thailand, and Singapore
ASEAN-6	ASEAN-5 plus Vietnam
AU	Australia
AV	autonomous vehicles
BCBS	Basel Committee on Banking Supervision
BCLMV	Brunei Darussalam, Cambodia, Lao PDR, Myanmar, and Vietnam
BI	Bank Indonesia
BIS	Bank for International Settlements
BN	Brunei Darussalam*
BNM	Bank Negara Malaysia
BOK	Bank of Korea
BOT	Bank of Thailand
BR	Brazil
BSP	Bangko Sentral ng Pilipinas
Capex	capital expenditure
CA	Canada
CAR	capital adequacy ratio
CBM	Central Bank of Myanmar
CDC	Centers for Disease Control and Prevention
CDMA	Code Division Multiple Access
CLMV	Cambodia, Lao PDR, Myanmar, and Vietnam
CLV	Cambodia, Lao PDR, and Vietnam
CMT	cut, make, and trim
CN	China
CNY	Chinese renminbi
COVID-19	2019 coronavirus disease
D-SIB	domestic systemically important bank
DE	Germany
DVA	domestic value-added
EDA	electronic design automation
EIA	Energy International Agency
EMDEs	emerging market and developing economies
EMEs	emerging market economies
EMs	emerging markets
EU	European Union
EV	electric vehicles
FDI	foreign direct investment
Fintech, fintech	financial technology
FR	France
FVA	foreign value-added
FTA(s)	free trade agreement(s)
FY	fiscal year

* For brevity, "Brunei Darussalam" is referred to as "Brunei" in the text.

GDP	gross domestic product
GFC	global financial crisis
GFCF	gross fixed capital formation
GRiM	Global Risk Map
G-SIB	global systemically important bank
GVCs	global value chains
HAPS	high-altitude platform systems
HIBOR	Hong Kong Interbank Offered Rate
HK	Hong Kong, China*
IC	integrated circuit
ICC	International Chamber of Commerce
ICT	information and communications technology
ID	Indonesia
IDR	Indonesian rupiah
IEA	International Energy Agency
IIP	international investment position
ILO	International Labour Organization
IN	India
IMF	International Monetary Fund
IoT	Internet of Things
IPR	intellectual property rights
ISCO	International Classification of Occupations
ISO	International Standards Organization
IT	information technology
ITU	International Telecommunication Union
JP	Japan
KH	Cambodia
KR	Korea
LA, Lao PDR	Lao People's Democratic Republic
LAN	local area network
LTE	long-evolution
M2M	machine-to-machine
mb/d	million barrels a day
MFA	Multifibre Agreement
MFI	microfinance institution
MM	Myanmar
MMK	Myanmar kyat
MNE(s)	multinational enterprise(s)
MSEs	micro and small enterprises
MSMEs	micro, small, and medium enterprises
MY	Malaysia
NBC	National Bank of Cambodia
NEMs	non-equity modes of investments
NODX	non-oil domestic exports
NPL	nonperforming loan
ODM	original design manufacturer
OPEC	Organization of the Petroleum Exporting Countries
OPEC+	Group of 24 oil-producing nations, made up of the 14 OPEC members and 10 other non-OPEC oil-producing members
P2P	people-to-people
PBC	People's Bank of China
PD	probability of default
PH	the Philippines
Plus-3	China (including Hong Kong), Japan, Korea
PMI	Purchasing Managers' Index
R&D	research and development
RCEP	Regional Comprehensive Economic Partnership
ROW	rest of the world
RVC(s)	regional value chain(s)
RU	Russia
S&P	Standard and Poor's
SBV	State Bank of Vietnam

* For brevity, "Hong Kong, China" is referred to as "Hong Kong" in the text.

SCF	supply chain finance
SEPs	standard essential patents
SG	Singapore
SIA	Semiconductor Industry Association
SMEs	small and medium-sized enterprises
SMIC	Semiconductor Manufacturing International Corporation
SOE	state-owned enterprise
SPS	sanitary and phytosanitary
TBT	technical barriers to trade
tech	technology
TD-SCDMA	time division-synchronous code division multiple access
TH	Thailand
TSMC	Taiwan Semiconductor Manufacturing Company
TW	Taiwan Province of China
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
USD	US dollar
VIX	volatility index
VN	Vietnam
WAPI	Wireless Local Area Network Authentication and Privacy Infrastructure
WCDMA	Wideband Code Division Multiple Access
WFH	work from home
WLAN	wireless local area networks
WSTS	World Semiconductor Trade Statistics
WTO	World Trade Organization
yoy	year-over-year
YTD	year-to-date

Chapter 1.

Macroeconomic Prospects and Challenges

Highlights

- ASEAN+3 economies demonstrated their resilience to the health and economic impact of the COVID-19 pandemic, with a V-shaped rebound in the latter part of 2020. AMRO staff's baseline forecast is for the regional economy to expand by 6.7 percent in 2021, following a slight contraction in 2020. The risks to a sustained recovery are now focused largely on those arising from the longer-lasting consequences of the pandemic—the inevitable "scarring" of segments of the economy, and their ultimate implications on financial stability and sovereign debt. Meanwhile, the future of US–China trade relations continues to simmer in the background.

- The pandemic has been defined by its uneven impact on industries and businesses, with attendant implications for the workforce and individual economies in general. Public health measures disrupted, in particular, close contact services and severely limited consumption. Even with the pickup in economic activity, some output losses are expected to persist. Unsurprisingly, investor sentiment was dampened by the uncertain outlook, but promising signs of improvement are emerging. With the electronics sector expected to continue its recovery, following the downturn in 2019, capital expenditure is likely to follow. Meanwhile, investment diversion from China to ASEAN represents an upside risk factor for the latter, post-pandemic.

- Rapid digitalization as a result of the pandemic has fundamentally transformed economies by permanently changing the way companies do business, individuals work, and consumers consume. Some segments of the economy will rebound quickly with the turnaround in manufacturing, from innovation in technology, or benefit from pent-up savings and robust domestic demand, while others will remain under pressure and must adapt, move on, or reinvent themselves to survive. Employment prospects will also depend on the recovery of the services sector, which accounts for a large share of all jobs, including in the more vulnerable informal and smaller business segments.

- Trade in the highly export-oriented ASEAN+3 region was adversely affected by the pandemic, just as it had started to recover from the US–China trade conflict, and the outlook is expected to remain complicated. While export contraction troughed in mid-2020, improvements have been uneven across the region and sectors—some have benefitted from pandemic-driven demand, while the more traditional export sectors and goods have continued to lag. Trade in services, a cushion to goods trade in 2019, has been devastated as the pandemic has shut down the travel and tourism industry and other close contact services, and the deployment of vaccines will play a key role in their revival.

- The financial sector has undergone an interesting bifurcation. Markets have posted positive returns—indeed, equity markets have soared— as unprecedented policy stimuli and, more recently, the development of highly efficacious vaccines, have motivated a sharp rally in asset prices. In contrast, concerns are rising as to what corporate and household—and hence bank—balance sheets could reveal about economic scarring when the stimulus policy measures are eventually removed. AMRO staff's top-down stress tests of individual bank balance sheets in ASEAN+3 economies suggest that the majority of banks are well-buffered against large shocks to asset quality.

- Policymaking in the year ahead should be aimed at repairing the damage from the pandemic and allowing them to properly recover to minimize scarring, while safeguarding against new crises. Pandemic policy responses have been unprecedented by any measure, in the form of monetary easing, liquidity injections, massive fiscal stimuli, and regulatory forbearance, to offset the liquidity squeeze and income losses. Consequently, policy space has narrowed, albeit still comfortable for some. Policymakers are, appropriately, thinking about the eventual transition from the myriad of crisis response policies but the decision as to when and how to exit smoothly without triggering any cliff effect to growth and financial stability is a challenging one, and should be effected in a holistic, coordinated manner. Realistically, rebuilding policy space will be feasible only in the medium-term.

"Wear a mask."

Anthony Fauci
Director, US National Institute of Allergy and Infectious Diseases
CNN interview, May 21, 202

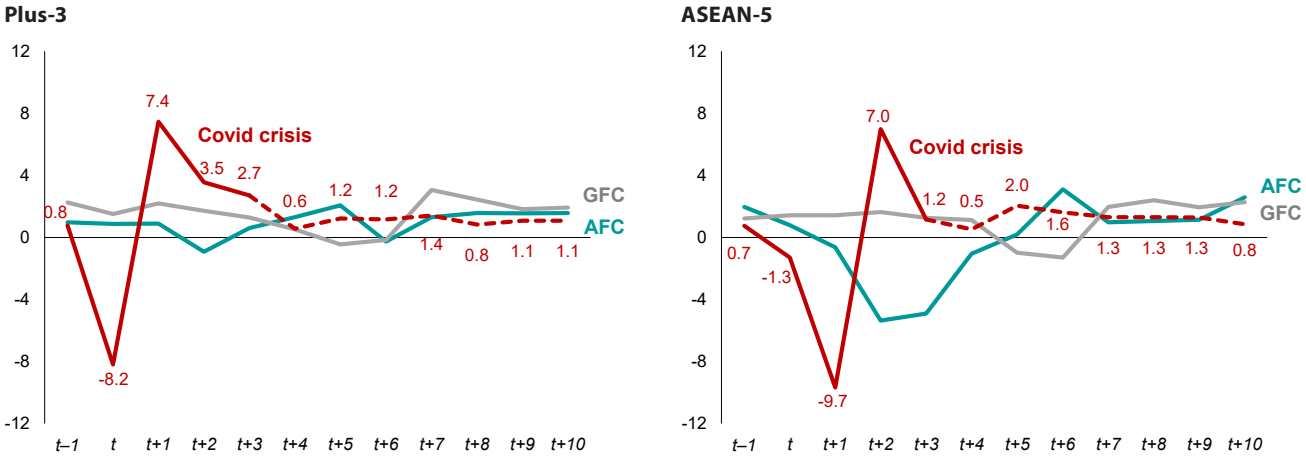
I. The Shape of Things to Come?

No one should underestimate the ability of ASEAN+3 economies to recover from the multifaceted economic crisis caused by the COVID-19 pandemic in 2020. The once-in-a-century event that was the COVID-19 pandemic turned the year into a torrid roller-coaster ride, starting with spread of the deadly COVID-19 virus across the region, and then to the rest of the world, and ending with the rollout of highly efficacious vaccines. In the intervening period, physical lockdowns and business shutdowns devastated entire economies in the first and second quarters of the year, in a crisis characterized by many as being far worse than all previous regional economic and financial crises, and matched or surpassed only by the Great Depression in terms of the depth of the collapse in economic activity and the increase in unemployment (Iacurci 2020, Wheelock 2020). However, in a show of resilience, regional economies rebounded strongly in the second quarter (China) and the third quarter of 2020 (rest of the region), heralding a much quicker and stronger-than-expected V-shaped turnaround in growth, compared to previous crises (Figure 1.1).

At the same time, the risks to recovery cannot be overlooked. AMRO's Global Risk Map (GRiM) has changed markedly from a year ago, yet remains the same. The COVID-19 pandemic was naturally at the core of the 2020 GRiM (AMRO 2020a, 2020b), with the manifestation of key risks surpassing AMRO staff's expectations at the time. Going forward, potential fallout from the "scarring" of the economy and the financial sector, caused by the COVID-19 crisis (hereafter "Covid crisis"), underpins the key risks to the regional outlook (Figure 1.2). The US–China trade and technology tensions, which have been temporarily overshadowed by the pandemic, represent other important risks. This conflict, which is expected to remain heightened under the new US Administration, has major implications for regional trade developments over both the short and medium term (Section II).

The world is still struggling to contain the pandemic, although the successful development of vaccines for the COVID-19 virus has given governments hope, by enabling mass vaccinations. Many, including major advanced economies (AEs), are experiencing subsequent "waves" of infections (Box 1.1), even as new variants of the virus emerged in late-2020 that appear to be more infectious (CDC 2020). Meanwhile, the speed of vaccine deployment has been below

Figure 1.1. Selected ASEAN+3: GDP Growth Profiles during Major Crises
(Percent quarter-over-quarter, seasonally adjusted)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: AFC = Asian financial crisis; GFC = global financial crisis; Plus-3 = China (including Hong Kong), Japan, and Korea. The first quarter of each crisis (t) comprises Q3 1997 (AFC); Q3 2007 (GFC); Q1 2020 (Covid crisis).

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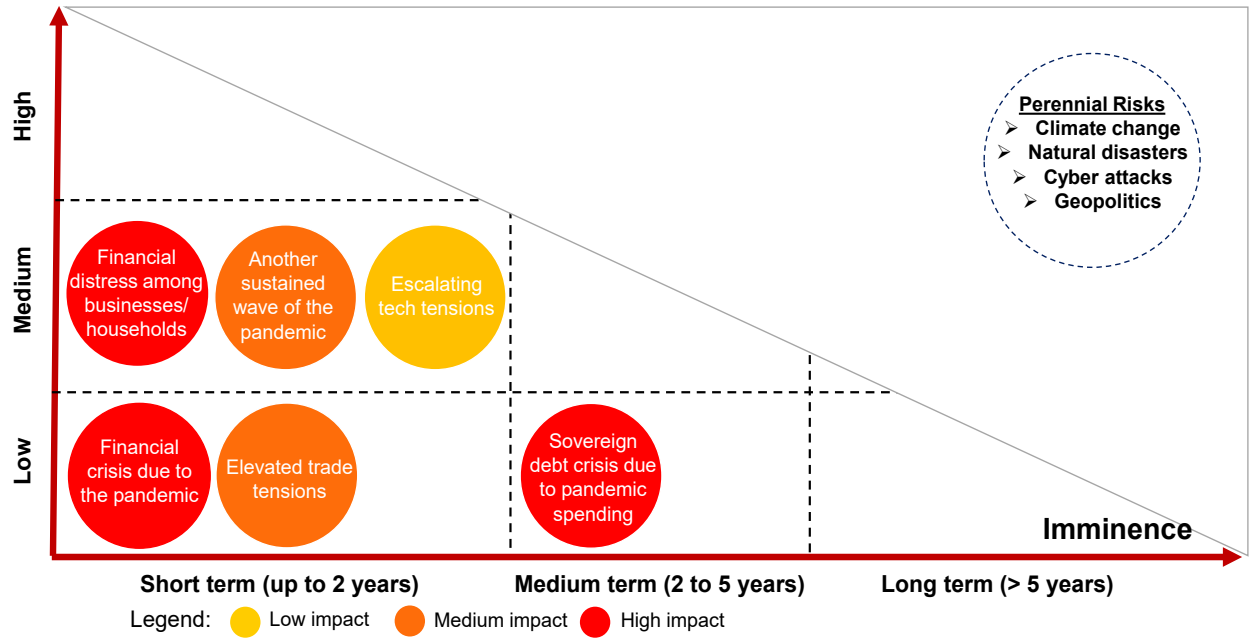
expectations, reflecting mainly logistical and manpower problems; the availability of vaccines in terms of timing, cost, and supply is also an issue for many AEs, and emerging market and developing economies (EMDEs). Encouragingly, lessons learned about the virus, treatments, and containment measures have resulted in more targeted approaches being adopted (Figure 1.3), with a smaller impact on economic activity from the new waves of infections, compared to the early days of the pandemic.

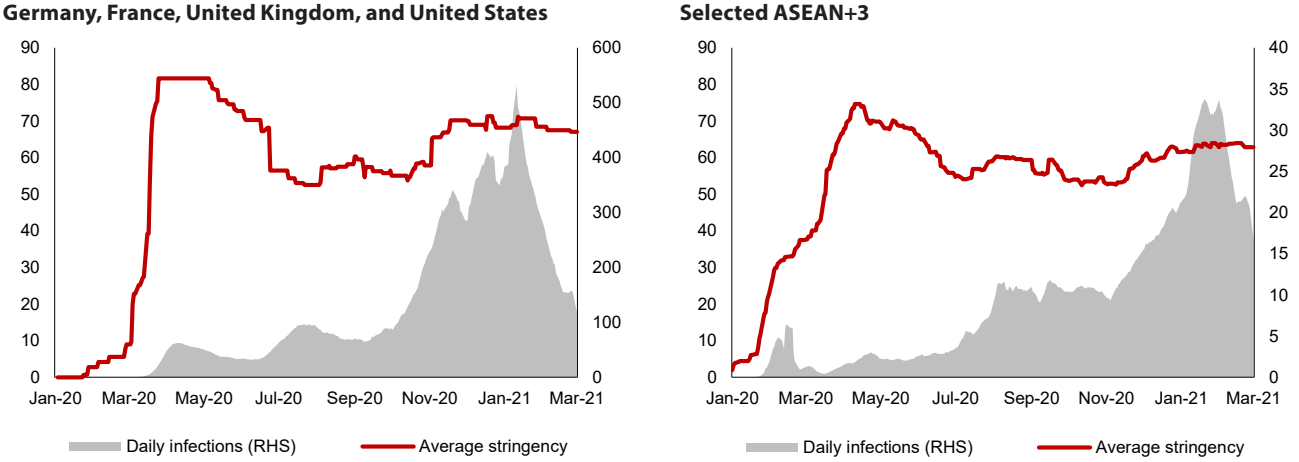
Rising financial distress among businesses and households could potentially lead to a financial crisis. Already, many businesses throughout the region have been permanently shuttered by the pandemic and jobs lost. If recovery is delayed, the destruction in corporate earnings amid tighter credit conditions, as banks become more reluctant to lend, could see even more businesses go into bankruptcy in the face of depressed demand and growing concerns about a protracted global recession. The resulting fallout in the form of mass unemployment would, in turn, affect the ability of individuals to service their personal loans. While AMRO staff assess the likelihood of a major financial crisis to be a tail risk at this juncture, its realization would depend on the extent of the damage wrought on the balance sheets of households and businesses—and, consequently, banks' asset quality and their ability to access funding (Section III)—especially when current regulatory forbearance measures are eventually removed.

Figure 1.2. Global Risk Map, February 2021



Source: AMRO staff estimates.

Figure 1.3. Selected Advanced Economies and ASEAN+3: Average Stringency Index and Daily COVID-19 Infections
(Index; thousands of cases, 7-day moving average)



Sources: Oxford COVID-19 Government Response Tracker; Johns Hopkins University, both via Haver Analytics; and AMRO staff calculations.
Note: The Stringency Index is a composite measure based on nine indicators recording the strictness of 'lockdown style' policies, including school and workplace closures, group sizes, and travel bans. A higher score indicates stricter measures. If policies vary at the subnational level, the index is shown as the response level of the strictest subregion. Selected ASEAN+3 includes China, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. Average stringency denotes the simple average of the stringency indices of these economies.

Beyond the immediate, mostly pandemic-related risks, are the perennial threats. Climate change and natural disasters can have huge economic impact and long-lasting, multigenerational consequences. Several ASEAN+3 economies face very high disaster risks, indeed, among the highest in the world (Day and others 2019). More frequent and severe natural disasters demonstrate the need for adapting and improving preparedness, which could entail huge financial and fiscal costs for governments (AMRO 2018, 2020a). Ever-more sophisticated cyberattacks—as evidenced by the recent large-scale hacking of US government agencies—can disrupt government and business operations and cause enormous security risks and reputational damage. Cybersecurity threats have become even more elevated with many organizations increasingly shifting to remote work arrangements, with potentially weaker cybersecurity systems, in the wake of the pandemic. Lastly, geopolitical risks, beyond the US–China trade and tech tensions, will continue to generate uncertainties, as evidenced by the post-election impasse in the United States, prolonged Brexit negotiations, or tensions in the South China Sea.

Unsurprisingly, the vast majority of ASEAN+3 economies are in the early phase of their respective business cycles. Growth rebounded in the third quarter of 2020, in seasonally-adjusted quarter-over-quarter terms, aided by comprehensive stimulus packages to offset the severe impact of lockdowns through most of the first half of 2020 and the subsequent return of economic activity (Table 1.1), but there is significant slack in labor markets. Brunei and Vietnam remain in mid-cycle from a year ago, thanks to their successful pandemic management; the former has benefited from a large foreign direct investment (FDI) project, while the latter continues to be supported by the rebound in domestic demand and its resilient export sector. Meanwhile, China's early and strong recovery from its lockdown has moved the economy into the mid-cycle phase. Myanmar's economy has been in a downturn since the third quarter of FY2019/20, and activity has remained sluggish amid a protracted virus outbreak; the declaration of a one-year state of emergency by the military in early February 2021 has caused further uncertainty to the economic outlook.

Regional economies are largely concentrated in the slowing phase of the credit cycle, as banks became highly risk averse as a result of the pandemic. Regulatory forbearance and government actions to underwrite credit risk encouraged banks to roll over existing loans and to support small and medium enterprises (SMEs), but demand from businesses and households have been curtailed by the severe impact of the pandemic on their balance sheets, notwithstanding low interest rates. Singapore and Lao PDR remain in the contractionary part of the cycle, similar to a year ago; in contrast, credit in Indonesia and Malaysia is recovering, supported by targeted measures to assist SMEs and stimulate demand, as well as the easing of monetary conditions and macroprudential policies. The Plus-3 economies are in the expansionary phase, with Japan benefiting from massive credit support from both government-affiliated and private financial institutions, while Korea is seeing rising demand for credit among pandemic-hit firms amid easing monetary conditions.

Property assets in the majority of economies have been resilient against the pandemic shock and are moderately valued, consistent with where they were a year ago. More generally, policy support in the form of interest rate cuts for borrowers and regulatory forbearance for banks have forestalled a massive sell-off in the real estate market. The notable changes are China, where high valuations have moderated over the past year, and Korea, where valuations have actually risen from moderate to high, on the back of surging residential property prices despite the pandemic and tightening of macroprudential policy measures. Looking ahead, property prices are likely to remain supported in most economies, underpinned by the search for yield amid a low interest rate environment.

The region's growth is projected to rebound strongly in 2021 and moderate in 2022. AMRO staff's baseline forecast is that regional growth will rise to 6.7 percent, following an estimated contraction of 0.2 percent in 2020, during which only China, Brunei, Lao PDR, Myanmar, and Vietnam posted positive growth (Table 1.2). Growth in 2021 is forecast to range from –2.6 percent in Myanmar to 8.7 percent in China; on a regional basis, aggregate Plus-3 growth is estimated to rise to 7.2 percent, while the ASEAN subregion is anticipated to expand by 4.9 percent. In 2022, ASEAN+3 growth is projected at 4.9 percent.

Outside of the low base effect, the turnaround in manufacturing and exports, alongside supportive economic policies, are expected to drive expansion. The eventual widespread distribution of vaccines will further normalize economic activity and improve labor market conditions. The gradual return of travel and tourism will benefit most economies, especially Cambodia, Japan, Singapore, and Thailand. Brunei's growth in 2021 will largely be insulated from external developments, with a massive FDI project scheduled to commence construction soon, while the Lao PDR economy should benefit from increased electricity generation, better weather conditions and ongoing construction of large-scale infrastructure projects.

However, pandemic- and trade-related risks to growth continue to cast a shadow over staff's baseline forecasts. Analyses of upside and adverse GRiM scenarios suggest that risks to AMRO's baseline growth are tilted to the downside in 2021 and balanced in 2022 (Box 1.2), ranging from 4.1–7.7 percent and 3.5–6.2 percent, respectively. Meanwhile, output gaps in the region are likely to be negative for some time to come, and indeed, the Covid

crisis is expected to shift output trajectories permanently lower for many ASEAN+3 economies, even though growth rates are expected to return to potential over the medium term (Box 1.3).

Even though permanent "scarring" is inevitable in some sectors, policymaking in 2021 should ensure that the economic wounds inflicted by the COVID-19 pandemic in 2020 are allowed to properly scab over and heal, while safeguarding against new crises. Although most regional economies started from a position of strength in their fiscal and external balances, with surpluses or relatively small deficits, the large stimulus packages have stretched the financing and debt servicing capacity of some, with public debt ratios rising sharply (Section IV). In the medium term, unfettered and prolonged fiscal support can elevate fiscal and financial vulnerabilities, the latter potentially manifesting in a sell-off of a country's sovereign debt, with attendant capital outflows. The challenge for policymakers going forward will be to walk the fine line between ensuring continuing support for economic recovery, while strategizing to transition and exit from extraordinary measures in a timely and safe manner and, eventually, to rebuild policy space.

Table 1.1. ASEAN+3: Business, Credit, and Property Valuation Cycles

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

Source: AMRO staff estimates.

Table 1.2. ASEAN+3: AMRO Staff Growth Estimates and Projections, 2020–22
(Percent)

Member	2019	AREO 2020		AREO 2021		
		2020 p/	2021 p/	2020 e/	2021 p/	2022 p/
ASEAN+3	**4.6**	**4.2**	**5.0**	**–0.2**	**6.7**	**4.9**
Plus-3	**4.6**	**4.2**	**5.0**	**0.7**	**7.2**	**4.7**
China	6.0	5.3	6.1	2.3	8.7	5.5
Hong Kong	–1.2	0.5	1.8	–6.1	4.8	6.5
Japan	0.3	0.1	0.6	–4.8	2.7	1.8
Korea	2.0	2.0	2.6	–1.0	3.2	3.0
ASEAN	**4.7**	**4.4**	**5.0**	**–3.4**	**4.9**	**5.7**
Brunei	3.9	3.5	2.9	0.9	3.1	4.0
Cambodia	7.1	6.2	6.9	–3.0	4.7	6.1
Indonesia	5.0	4.9	5.2	–2.1	4.9	5.3
Lao PDR	5.5	6.1	6.5	0.5	4.6	4.8
Malaysia	4.3	4.0	4.6	–5.6	5.6	6.2
Myanmar	6.8	6.0	6.9	3.2	–2.6	4.5
Philippines	6.0	6.2	6.6	–9.5	6.9	7.8
Singapore	0.7	0.8	2.6	–5.4	6.0	4.7
Thailand	2.4	1.5	3.2	–6.1	2.3	4.8
Vietnam	7.0	6.6	6.8	2.9	7.0	6.8

Sources: National authorities via CEIC and Haver Analytics; and AMRO staff projections.
Note: e/ refers to AMRO staff estimates and p/ refers to AMRO staff projections. Myanmar's growth numbers are based on its fiscal year, from October 1 to September 30. AREO 2020 = *ASEAN+3 Regional Economic Outlook 2020*.

Box 1.1:

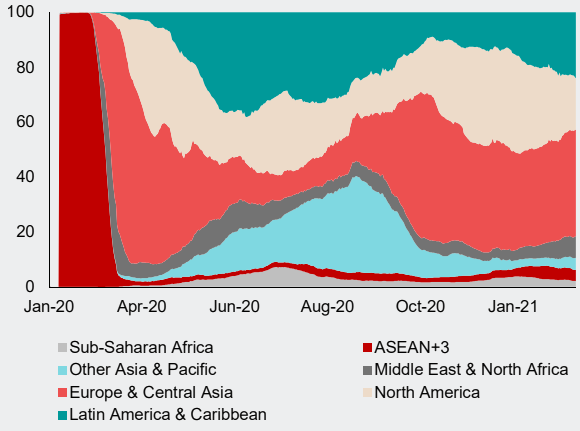
The COVID-19 Pandemic One Year Later

A year after the World Health Organization declared the COVID-19 outbreak a pandemic on March 11, 2020, the virus continues to spread rapidly across the world. More than 100 million cases have been confirmed worldwide, including more than 2.5 million confirmed deaths. The pandemic has impacted almost every corner of the globe, with waves of outbreaks moving from one region to the next and back, and new variants sprouting recently (Figure 1.1.1). Daily new cases across the world increased from their April 2020 peak of about 90,000 average cases to more than 750,000 average cases in December, and numbers remain elevated (Figure 1.1.2). Although some of the increases can be traced to better testing regimes, many economies have been experiencing severe new waves of infections.

The pandemic has lasted longer and with greater intensity than expected early on, with new waves recurring. Strict social distancing measures have been largely successful in containing the highly transmissible virus, but occasional flareups have occurred even in the most guarded places. In many parts of the world, initial optimism about short-lived restrictions had to be revisited and restrictions eventually lengthened or re-imposed. With strong resurgences and new, more infectious mutations of the virus, it has become clear that until vaccines are readily available and widely taken up, continuing vigilance will be critical. While several vaccines have been developed, tested, and approved, and vaccination programs have begun across the world (Figure 1.1.3) with varying degrees of progress (Figure 1.1.4), achieving herd immunity is expected to take some time.

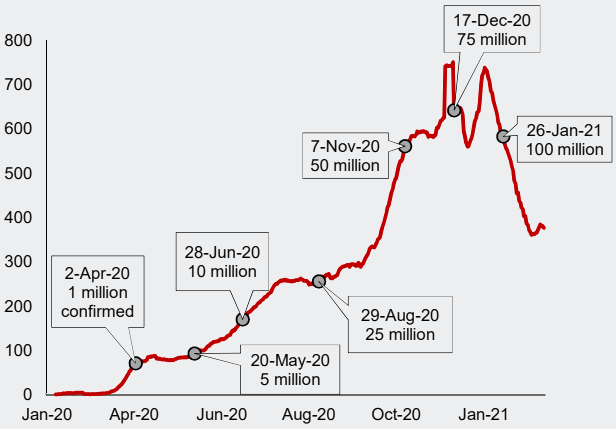
Although the ASEAN+3 region was infected first, the overall caseload has been significantly lower than in other parts of the world as a result of relatively successful containment measures. Several regional economies took decisive measures early on and have so far been shielded from major outbreaks, namely, Brunei, Cambodia, Lao PDR, and Vietnam (Figure 1.1.5). That said, the region has not been spared, and several economies have experienced more than one wave already. Other economies went for months without any significant outbreak before infections eventually erupted—cases in Myanmar did not pick up until the end of August 2020; and after a smaller wave in March, Thailand recorded its largest surge only since December 2020; while Malaysia has been battling a second wave since September 2020. Simultaneous outbreaks across several economies in the region have been observed at different points in time throughout 2020 (Figure 1.1.6), and cases have continued to rise, particularly so toward the end of 2020 (Oeking 2021).

Figure 1.1.1. World: Daily New Cases by Region
(Percentage share of total cases, 7-day average)



Sources: Johns Hopkins University via Haver Analytics; and AMRO staff calculations.

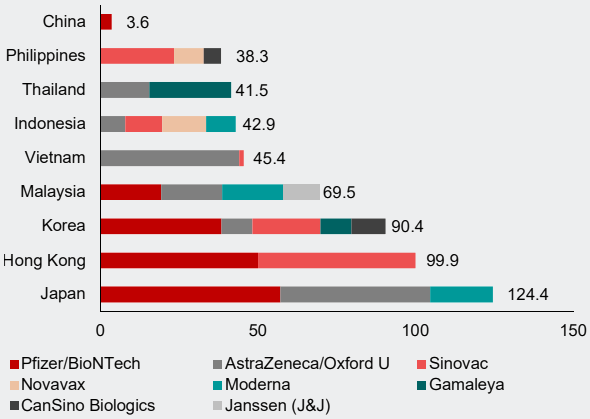
Figure 1.1.2. World: Daily New Cases
(Thousands of persons, 7-day average)



Sources: Johns Hopkins University via Haver Analytics; and AMRO staff calculations.

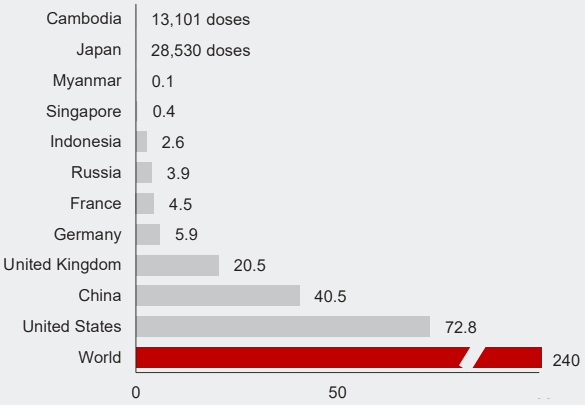
The experience of the past year has shown that stringent containment measures early on and adhering to the learning curve have proven to be effective. Domestically, lockdowns, gradual reopening thereafter, and continuing vigilance through masking up, maintaining physical distancing, avoiding crowds and superspreader events, extensive testing and contact tracing have been instrumental in controlling the spread of the virus, while border closures, testing, and quarantine rules for travelers have helped to isolate imported cases. On a positive note, the impact on mortality might have been more contained as the pandemic has progressed, notwithstanding the sharp rise in recent caseloads in some countries, given the buildup in knowledge about treatments, therapeutic drugs, and better-prepared healthcare systems. Similarly, physical restrictions have become more strategic and targeted, lessening the economic fallout from subsequent waves of infections.

Figure 1.1.3. ASEAN+3: Confirmed Vaccine Contracts
(Percent of population covered)



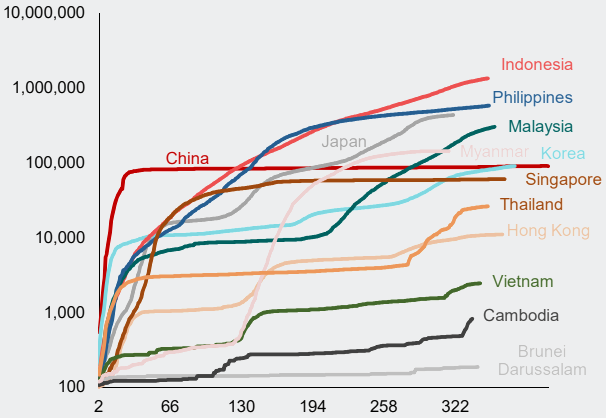
Sources: Duke Global Health Innovation Center, Launch and Scale Speedometer; Haver Analytics; and AMRO staff calculations.
Note: Latest available data as of February 15, 2021. The contracts comprise deals that have been signed, finalized, and publicly announced; the data exclude deals under negotiation as well as confirmed deals with unknown amounts, and procurement under COVAX. China data exclude purchases of own vaccine candidates for domestic use as purchase deals have not been publicly announced.

Figure 1.1.4. World: Vaccine Doses Administered by Country
(Millions of doses)



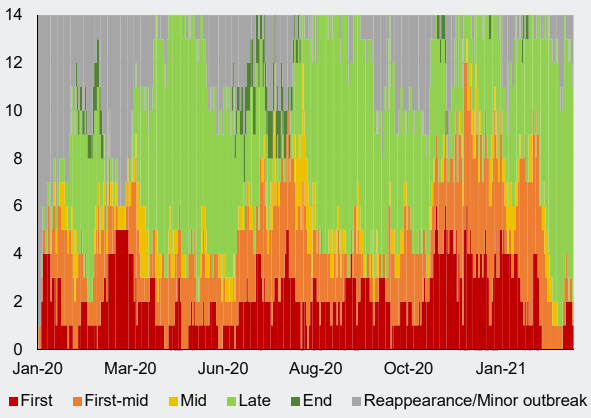
Source: Our World in Data via Haver Analytics.

Figure 1.1.5. ASEAN+3: Confirmed Cases
(Days after 100th confirmed case; cases in log scale)



Sources: Johns Hopkins University via Haver Analytics; and AMRO staff calculations.

Figure 1.1.6. ASEAN+3: Stages of the Covid Cycle and Waves of Infection
(Number of economies; 3-day moving average)



Sources: Johns Hopkins University via Haver Analytics; and AMRO staff calculations.
Note: Based on Hinojales, Oeking, and Ong (2020); see Oeking (2021) for more details.

The author of this box is Anne Oeking.

Box 1.2:

A Wary Recovery

Baseline projections by AMRO staff are that economic growth in the region will rebound in 2021 and sustained into 2022. The pace and strength of this recovery is, however, far from certain. While 2021 began with optimism surrounding the successful development, approval, and deployment of COVID-19 vaccines, the world has also been confronted by mutating and rapidly spreading new strains of the virus. On the domestic front, the eventual removal of unprecedented fiscal, monetary and financial stimulus measures is expected to pose additional headwinds to growth. The region's recovery will be highly contingent on the pace of vaccination programs, strength of external demand, and extent of economic scarring induced by the pandemic. Given the highly uncertain operating environment, AMRO staff have simulated both upside and downside scenarios, to assess the potential impact of the risk factors presented in the Global Risk Map for AMRO's baseline projections for 2021 and 2022 (Figure 1.2.1). [1/ 2/]

Economic reopening enabled by herd immunity (Table 1.2.1). Output losses from the pandemic are likely to be permanent across the ASEAN+3, although growth should eventually surpass pre-pandemic rates and return to potential. But the full return to broad-based economic activity will only be possible once the pandemic has been fully contained, likely when herd immunity has been achieved. Under all scenarios, it is assumed that full removal of travel restrictions and social distancing requirements will be undertaken only upon the achievement of herd immunity in individual economies, that is, when vaccination of a substantial part of the population has been achieved (WHO 2020). The pace of vaccination programs will, therefore, be a pivotal factor in the recovery of domestic demand and tourism.

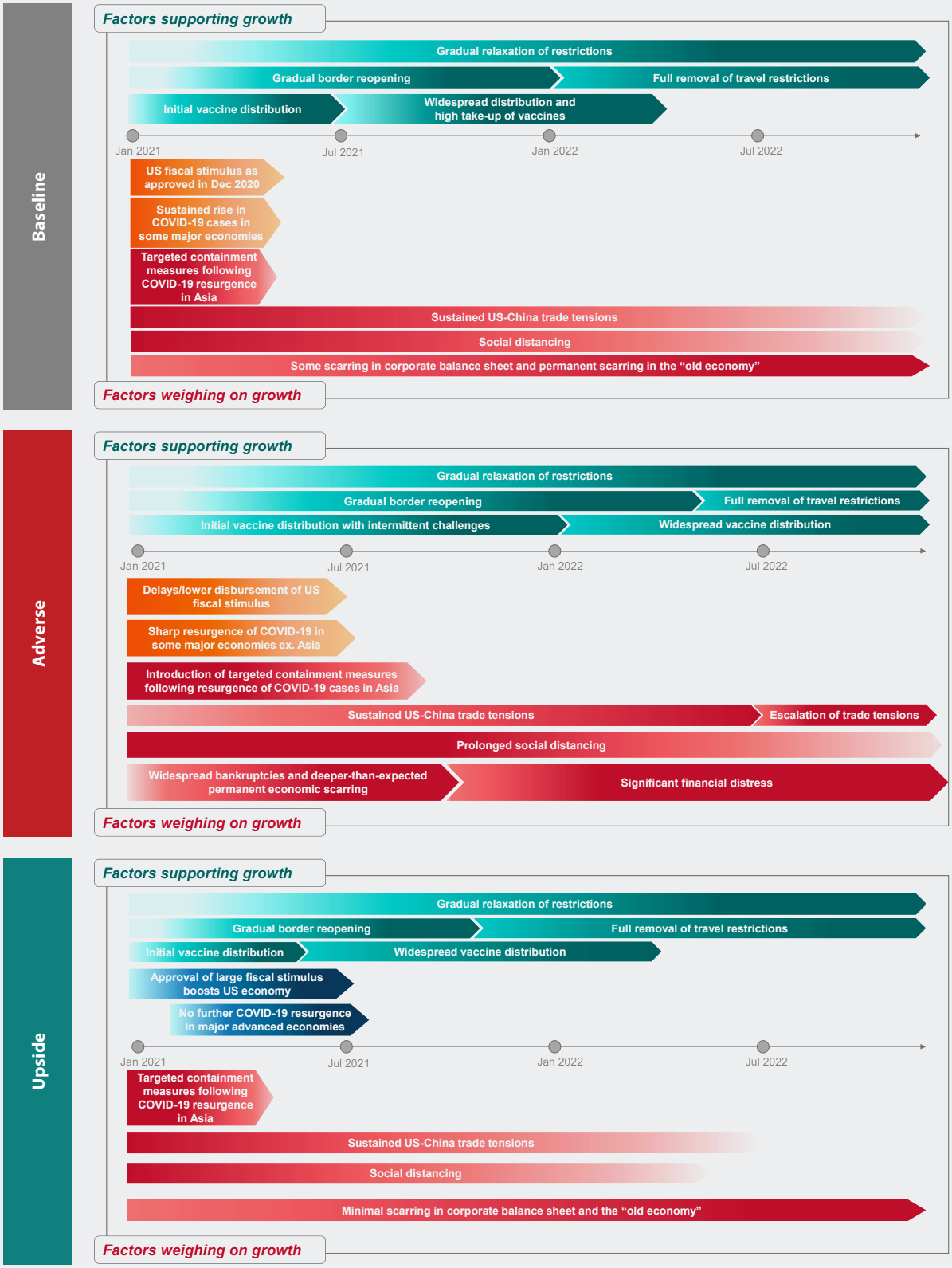
Recovery in external demand and global trade (Table 1.2.2). Global trade has been improving since its trough in Q2 2020, following the first global wave of the pandemic in early 2020. However, the fluidity of developments in the United States—the ASEAN+3 region's largest trading partner, accounting for about 15 percent of gross exports—represents a significant source of uncertainty for the region. The latest, and any forthcoming additional, US fiscal stimuli under the Biden Administration, and the extent to which they lift the US economy and its trading partners, will affect demand for regional exports. At the same time, any change to the state of existing US–China trade and tech tensions under the new administration is also expected to affect exports in the short term.

Balance sheet weakness and economic scarring (Table 1.2.3). The steep and protracted decline in income in 2020 has significantly weakened some corporate and household balance sheets in certain sectors. In particular, the travel industry and close contact services have been most adversely affected. With travel restrictions and other domestic containment measures in place, these sectors are facing increasing financial pressure, with possible liquidity and solvency issues, especially once policy support is removed. Labor market weaknesses, amid structural shifts in the economy, would further exacerbate these scarring effects, all with potential adverse implications for financial stability.

1/ Simulations are run using the Oxford Economics' Global Economic Model (GEM), which covers 80 economies in detail and six regional blocks, including emerging market economies (EMEs) 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/ Similar to the conduct of stress tests, scenario analysis estimates exposure to specific events, but not the probability of the event occurring. A comprehensive risk assessment combines scenario analysis with other quantitative and qualitative tools (Čihák and others 2019).

Figure 1.2.1. ASEAN+3: Summary of Key Assumptions for Growth Scenarios



Source: AMRO staff estimates

Table 1.2.1. ASEAN+3: Assumptions on Vaccinations

Scenarios	Assumptions
Baseline	• Vaccination programs go according to plan. • Major global and regional economies successfully vaccinate substantial proportion of their population by mid-2021. • Major global and regional economies fully reopen by end-2021.
Approach	• Vaccination programs are delayed due to logistical challenges, supply constraints and other unforeseen complications, including lower-than-expected efficacy against COVID-19 or new variants of the coronavirus. • Continued resurgences of COVID-19 outbreaks in 2021 prompt more rounds of (partial) lockdowns. • Inoculation of targeted populations is only achieved in early 2022. • Economies are only able to fully reopen by mid-2022.
Upside	• Vaccination programs receive high public take-up, and are rolled out smoothly and quickly. • Targeted populations are fully inoculated before the end of the second quarter of 2021. • Major global and regional economies fully reopen by the fourth quarter of 2021.

Source: AMRO staff estimates.
Note: Vaccination strategies and capabilities vary widely across ASEAN+3 economies, particularly in terms of access to vaccines and population size and spread. As such, the implementation of vaccination programs is not explicitly modelled but rather, assumed solely to approximate the timing of more extensive economic reopening, including the removal of travel restrictions and social distancing requirements.

Table 1.2.2. ASEAN+3: Assumptions on US Fiscal Policy and Trade Tensions

Scenarios	Assumptions
Baseline	• US fiscal stimulus amounting to USD 908 billion, approved by Congress on December 21, 2020, is just a "downpayment," with additional stimuli to come under a Biden administration that has secured control in both the House of Representatives and the Senate. • The US–China trade and tech tension status quo is maintained, with no escalation.
Approach	• Lower and delayed amounts of US fiscal assistance are disbursed due to administrative challenges. • Trade and tech tensions escalate, and the United States increases tariffs on Chinese goods by 10 percent toward end-2021, as posturing for US mid-term elections in 2022 begins. In response, China raises tariffs on US goods by the same percentage.
Upside	• Additional US fiscal stimulus amounting to multiples of the December 2020 package. • No further escalation in trade and tech tensions, with some signaling on future reduction in tariffs.

Source: AMRO staff estimates.

Table 1.2.3. ASEAN+3: Assumptions on Household and Corporate Balance Sheets

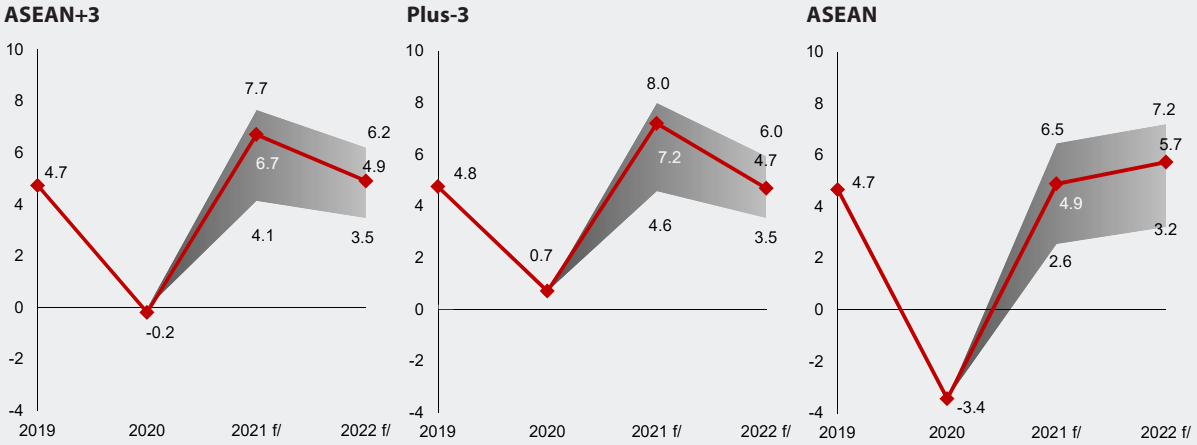
Scenarios	Assumptions
Baseline	• Weak corporate balance sheets, particularly in sectors most affected by the pandemic. The impact is contained, with minor spillovers into other sectors of the economy.
Approach	• Corporate balance sheets are significantly weakened by the pandemic, leading to widespread corporate defaults. • Households face lower income, further straining their own balance sheets. • Significant financial distress by end-2021, with weakness in the financial sector and subdued investor and consumer sentiments weighing further on the economy.
Upside	• Scarring in corporate balance sheets is limited and manageable.

Source: AMRO staff estimates.

Overall, risks to baseline growth are tilted to the downside in 2021, and finely balanced in 2022. Under the baseline, the ASEAN+3 region is expected to expand by 6.7 percent in 2021 and 4.9 percent in 2022. In the event of the materialization of all risks under the adverse scenario, regional growth could be as weak as 4.1 percent in 2021 and 3.5 percent in 2022. Conversely, growth could be lifted to 7.7 and 6.2 percent in 2021 and 2022, respectively, under the upside scenario (Figure 1.2.2). The potential for higher growth is projected to be mainly driven by stronger-than-expected travel and tourism, and other service activities across the region. Growth in ASEAN economies will also benefit from stronger-than-expected country-specific factors, such as new investment policies that would gain greater traction with an earlier containment of the pandemic and subsequent economic reopening.

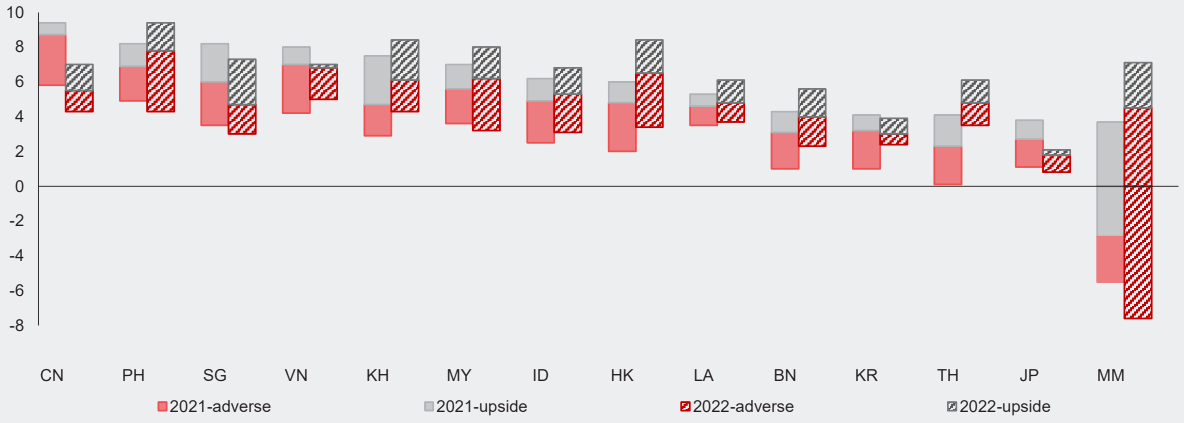
Given the diverse economic structures and levels of development across the ASEAN+3 region, the impact under the various scenarios are expected to affect each economy differently. The upside and downside growth estimates for each economy are therefore, among other things, reflective of factors such as their degree of economic openness, success in containing the pandemic, financial sector development, and structural policies. The wide band of uncertainty surrounding the baseline forecasts underscores the many lingering and evolving risks in the near-term operating environment (Figure 1.2.3).[3/] The projections are estimates for the impact of selected key risks, which are likely to affect growth prospects in the next two years (Figure 1.2.4). However, the risk factors are by no means exhaustive. Growth performance for each economy remains subject to the materialization of other unidentified or idiosyncratic upside and downside risks, as well as respective policy measures.

Figure 1.2.2. ASEAN+3: GDP Growth Forecasts under AMRO Staff Scenarios
(Percent year-over-year)



Sources: National authorities via Haver Analytics; and AMRO staff estimates.
Note: f/ denotes forecast.

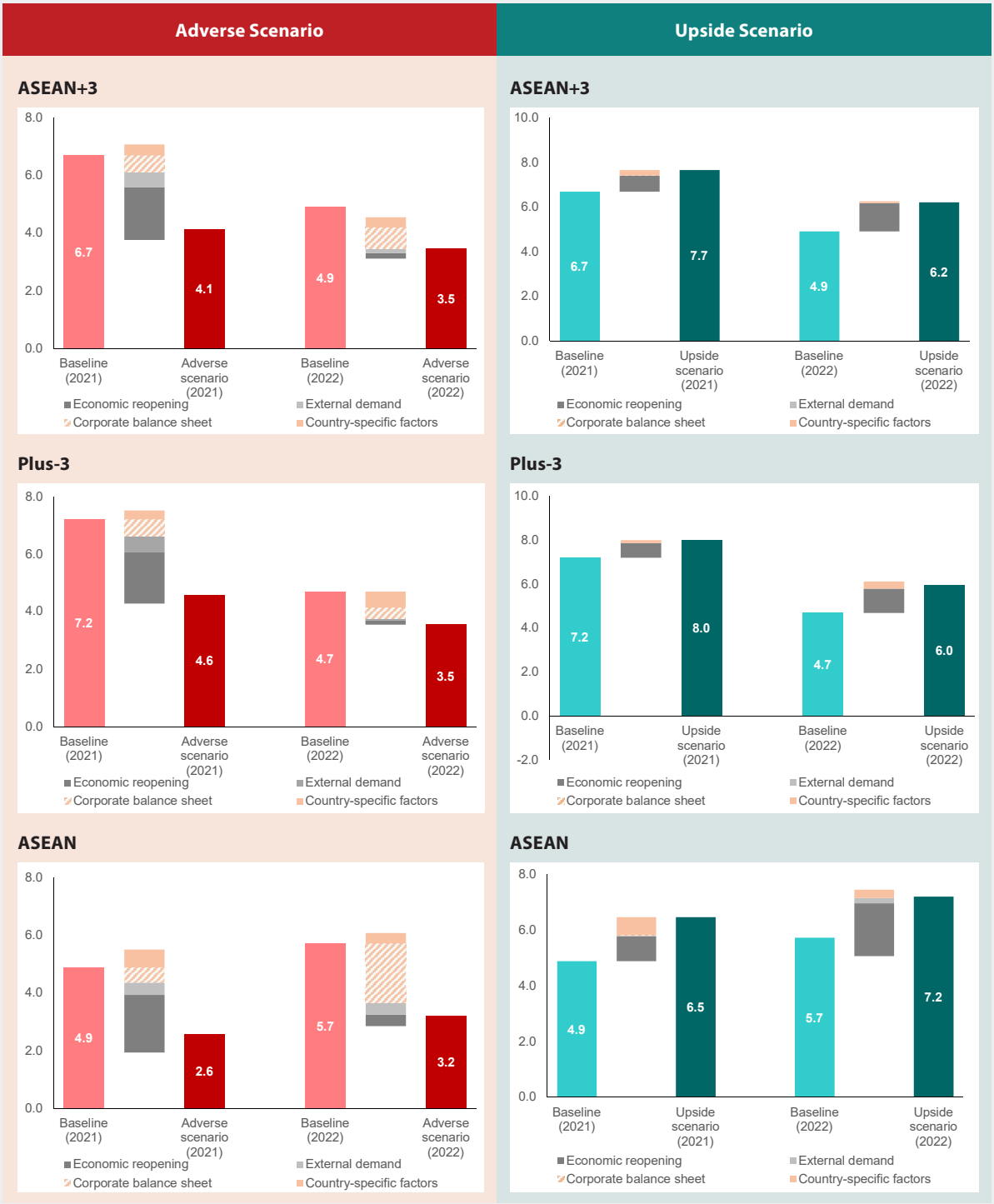
Figure 1.2.3. ASEAN+3: Projected GDP Growth Ranges, 2021 and 2022
(Percent year-over-year)



Sources: Oxford Economics; and AMRO staff estimates.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

3/ The growth ranges should not be construed as AMRO's official forecasts. Each economy's near-term outlook and policy responses are discussed in greater detail in the Annex.

Figure 1.2.4. ASEAN+3: Contributions to GDP Growth by Key Risk Factors under AMRO Staff Scenarios
(Percent year-over-year; percentage point contribution)



Sources: Oxford Economics; and AMRO staff estimates.
Note: The model-generated impact of the selected key risk factors is augmented with judgment by AMRO staff to incorporate country-specific factors into the growth range of each economy. As such, the sum of the factors may not add up to the differences between the baseline and scenario projections because of offsetting risk factors.
Plus 3 = China (including Hong Kong), Japan, Korea.

The author of this box is Catharine Tjing Yiing Kho.

Box 1.3:

Economic Loss in the Wake of the Pandemic

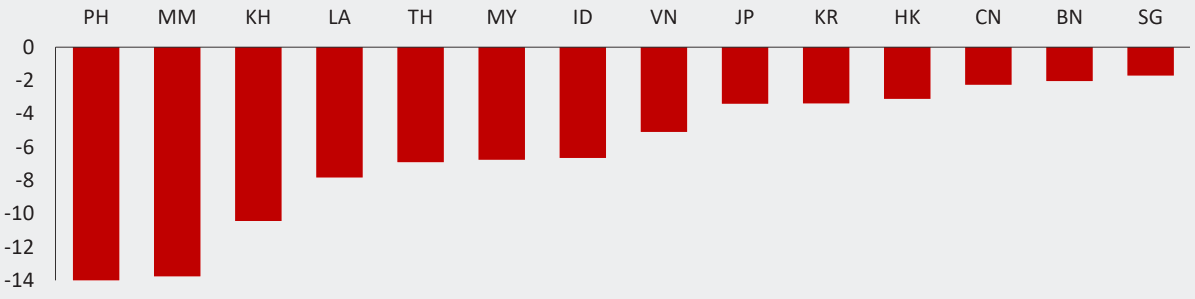
The majority of ASEAN+3 economies are expected to surpass their pre-pandemic growth rates over the next two years, as they recover from one of the most severe and complex shocks in decades. But the loss from COVID-19 lockdowns and social distancing measures will linger across the region. Swift and progressive policy responses have been aiding the recovery, but output is forecast to remain lower than corresponding levels had they grown at the same rate as before the pandemic. Output gaps are estimated to range from 2 percent for Brunei, China, and Singapore, to as large as 10–14 percent for Cambodia, Myanmar and the Philippines (Figure 1.3.1). Cambodia and the Philippines rely more heavily on travel and tourism, which are likely to remain constrained by the pandemic, while Myanmar faces dimmer prospects with the declaration of the state of emergency. Across all regional economies, output gaps are forecast to remain negative through 2022 (Figure 1.3.2).

Past economic and financial crises have been shown to result in persistent output losses. Empirical evidence suggests that postcrises economic recoveries only lead to a reversion to long-term growth rates, which have been insufficient to offset output losses during crises and return to precrisis trend output (Cerra and Saxena 2008). Indeed, in most cases, crises shift output trajectories permanently lower. The Asian financial crisis (AFC) knocked the ASEAN-5 and Plus-3 economies away from their then GDP trajectories, and the global financial crisis (GFC) a decade later widened that gap (Ong and Choo 2020). The only exception is the Philippines, which was able to revert to its pre-AFC trend output 14 years after the shock, having been less affected by the GFC and with domestic demand picking up significantly in subsequent years.

The COVID-19 health and economic crisis, although different in nature from past crises, is expected to likewise lead to a long-term shift in the output paths of many ASEAN+3 economies. The pandemic has highlighted the vulnerabilities of global supply chains, notably, the supply of essential products, and has exposed the pitfalls of weak governance and public health infrastructures, while it has also accelerated digitalization. At the same time, the severe and unprecedented disruptions to economic activity and trade are forcing a rethink of the present growth model with its emphasis on efficiency and cost minimization, to one that places greater emphasis on resilience and sustainability.

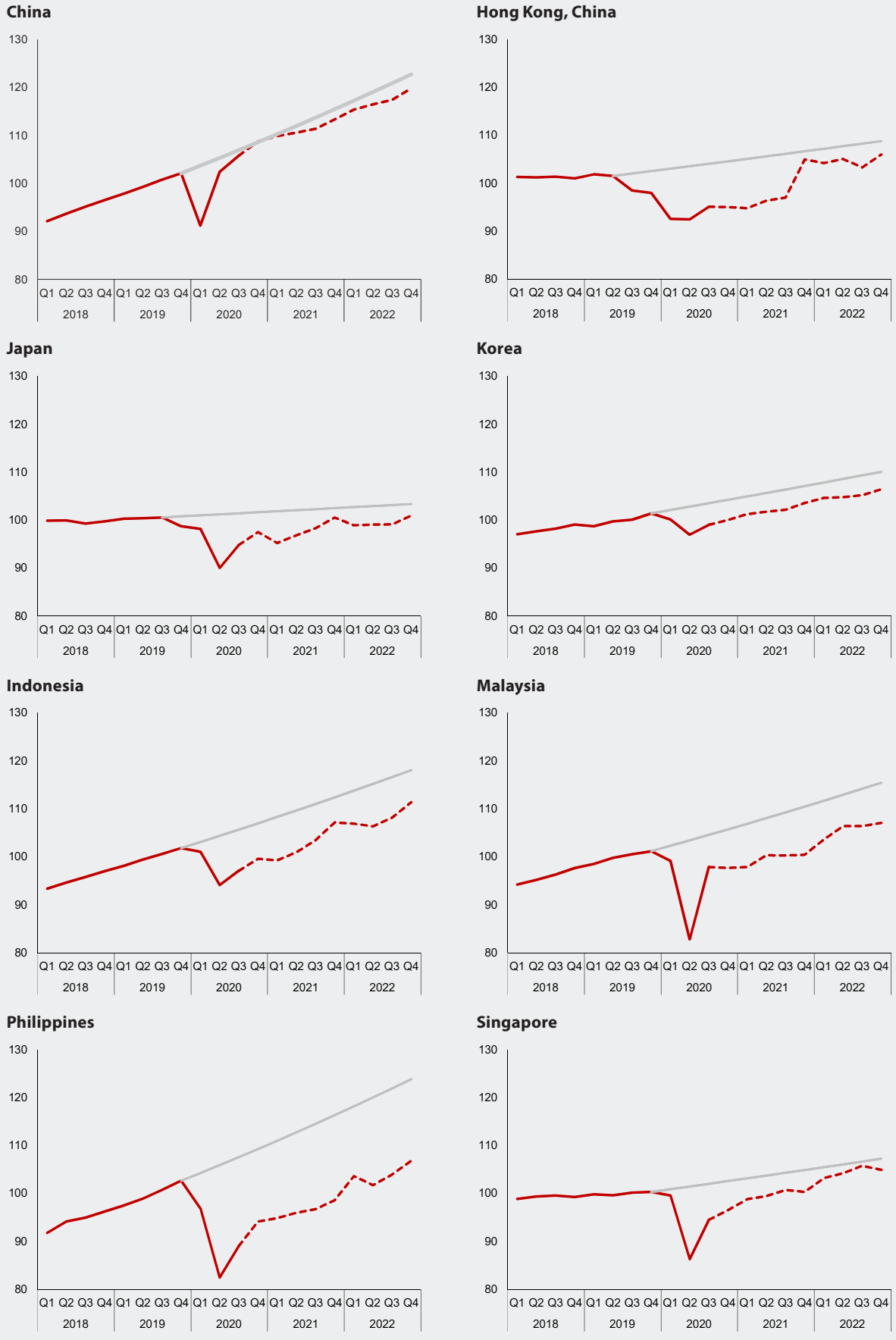
Against this backdrop, economies that are well-positioned in the current wave of digitalization, or are able to adapt quickly owing to earlier investments in technology, and that pursue governance reforms to improve public service delivery, may be able to emerge stronger from the pandemic crisis. At the same time, economies' ability to seize emerging opportunities and adjust to a new normal will form an essential part of the recovery (see Chapter 2). To this end, ASEAN+3 economies have been stepping up efforts to further facilitate digitalization, diversify export markets and import sources, enhance inclusivity, support the transition to a green economy, and attract foreign investments by improving the business environment, to name a few.

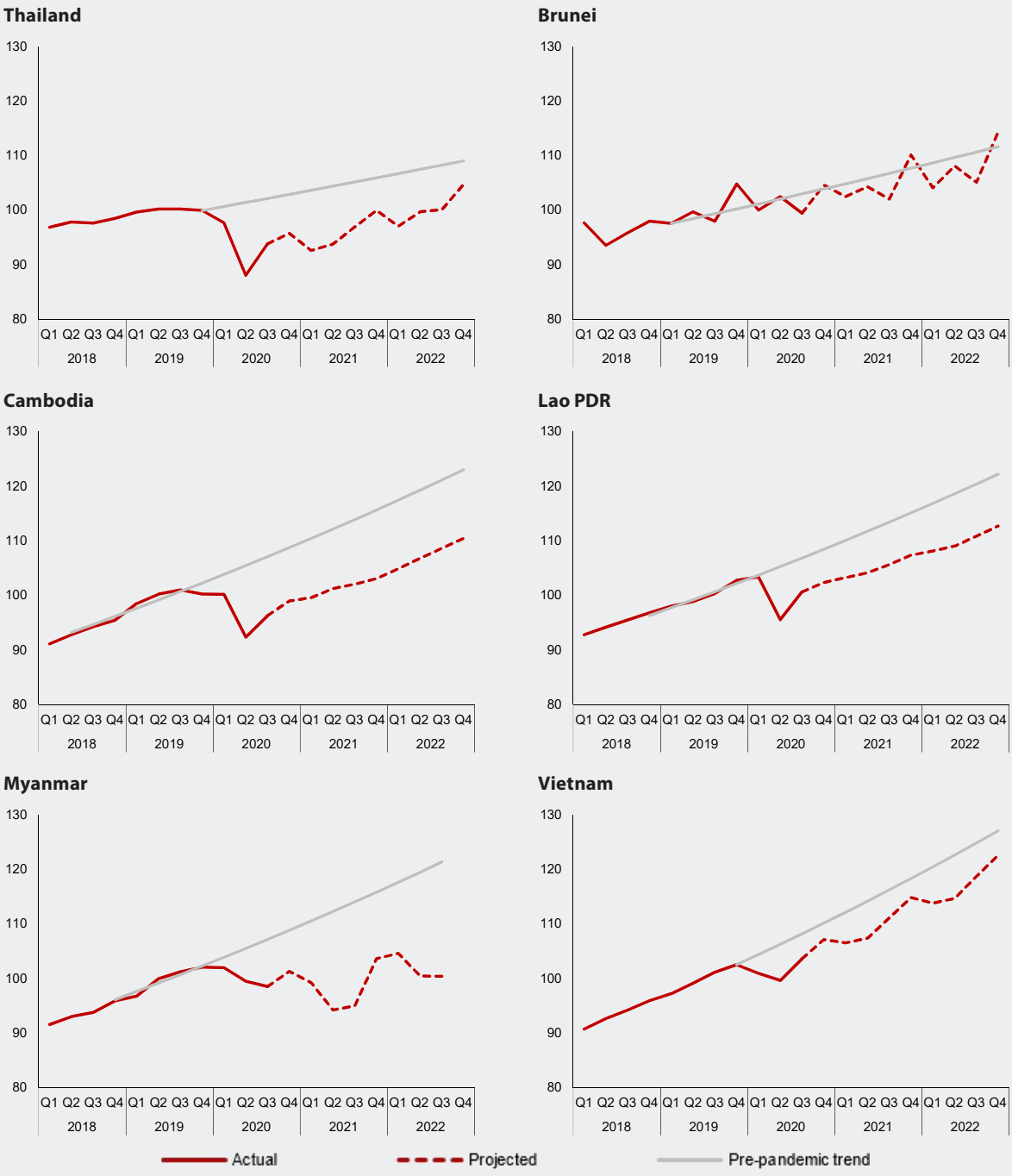
Figure 1.3.1. ASEAN+3: Projected Deviations of Real GDP Levels from Trend by 2022
(Percent)



Sources: National authorities via Haver Analytics; and AMRO staff estimates.
Note: Estimates are based on exhibits in Figure 1.3.2. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.3.2. ASEAN+3: Actual and Projected Real GDP Levels against Pre-Pandemic Trends
(Index, 2019=100)





Sources: National authorities via Haver Analytics; and AMRO staff calculations and estimates.
Note: The pre-pandemic trend is based on average 2017–19 GDP growth rates after taking the logarithmic transformation of real GDP. The 2021–22 growth path for each economy is based on AMRO's quarterly projections.

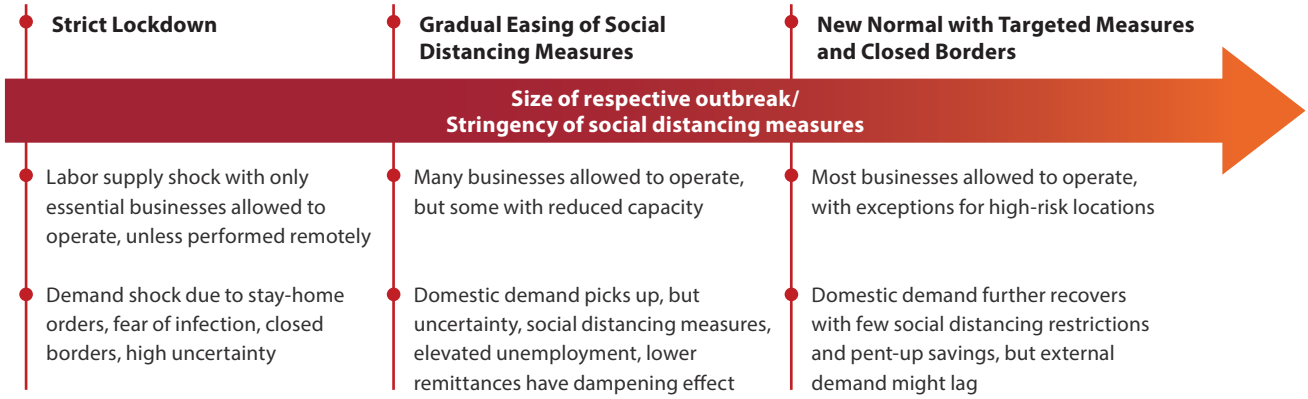
The author of this box is Diana del Rosario, with contributions from AMRO desk economists.

II. Uneven Impact, Uncertain Recovery

The COVID-19 pandemic disrupted the global economy throughout 2020, and has had a more far-reaching and lasting impact than many had expected during the initial stages. Economic performance in ASEAN+3 member economies during the pandemic has been determined by several factors. First and foremost, the size of the infection outbreaks and how governments have addressed them have been crucial in affecting the supply and demand of goods and services across regional economies (Figure 1.4). Relatedly, business and consumer confidence has been influenced by perceived risks of further infection waves.

The growth drivers for each economy have been key. Reliance on domestic versus external demand, via exposure to and reliance on international trade, tourism and remittances, has implied different impacts and recovery speeds. The composition and relative importance of economic sectors also play a central role. Some sectors have benefited from pandemic-induced demand or have been able to switch to digital operations, while those that require travel or face-to-face interaction—and account for a large share of employment in many regional economies—have been devastated. Finally, policy stimuli targeted at supporting businesses and consumers have been critical in keeping economies afloat.

Figure 1.4. Schematic: Stringency of Social Distancing Measures



Source: AMRO staff estimates.

A Gradual Rebound in the Real Economy

Domestic demand and production across the region were severely hit when authorities first rolled out containment measures to keep infections under control. The early outbreak and lockdowns in China caused total retail sales to plunge in the first quarter of 2020, and the rest of the region followed suit as most economies suffered their worst deterioration in the second quarter of 2020, at the height of the first global wave of the pandemic (Figure 1.5). The economic downturn was observed earlier in Hong Kong as a result of the global economic slowdown, escalating US–China trade tensions, as well as domestic social incidents. While retail sales have been improving since their troughs, they have yet to return to pre-pandemic levels, in line with consumer confidence (Figure 1.6).

In contrast, the online sales component has thrived as movement restrictions saw many consumers purchase their goods and services online. For example, the overall online traffic of major e-commerce platforms in Singapore saw a 23 percent increase in the first six months in 2020, while the percentage of Japanese households ordering goods and services over the internet was 8.7 percent higher in November 2020 compared to a year earlier. Besides essential goods, more time spent at home has led to increased purchases of furniture, electronics, and entertainment via the internet, which were also reflected in trade patterns. But, despite the sharp increase and favourable growth prospects in e-commerce, the share of sales has remained dwarfed by retail sales from physical stores (Figure 1.7).

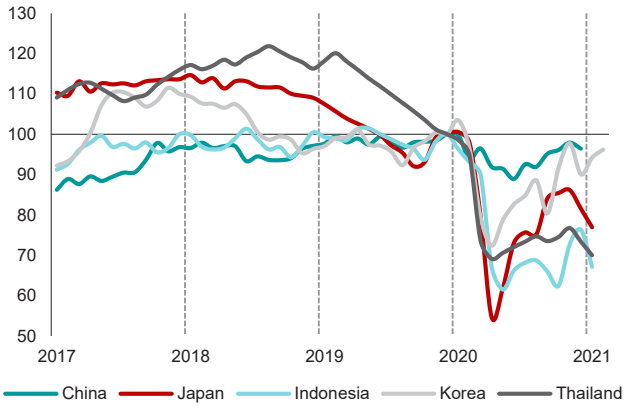
The overall slowdown in private consumption and investment has indeed been the main driver of falling expenditure across most regional economies. Economies such as Hong Kong, Japan, Malaysia, the Philippines, Thailand, and Singapore have been particularly hard hit (Figure 1.8). Its weakness has become less pronounced in the latter part of 2020 as economic activity resumed (Figure 1.9). Sluggish demand has been affected by not only income losses and low confidence (Box 1.4), but also the unique circumstances of the pandemic which have strongly impacted the ability to consume. Indeed, consumption fell while savings increased in several regional economies. In Japan, the household savings rate rose sharply in the second quarter of 2020, even as disposable household income increased on the back of government fiscal support, and has not yet returned to pre-pandemic levels (Figure 1.10).

Figure 1.5. Selected ASEAN+3: Retail Sales
(Percent year-over-year; 3-month moving average)

Economy	2017 Jan – Dec	2018 Jan – Dec	2019 Jan – Dec	2020 Jan – Dec	2021 Jan – Feb	Latest change from previous year
China						3.2
Hong Kong						–9.0
Indonesia						–16.6
Japan						–0.7
Korea						–0.5
Malaysia						–1.9
Philippines						–11.5
Singapore						–4.6
Thailand						–3.8
Vietnam						6.1

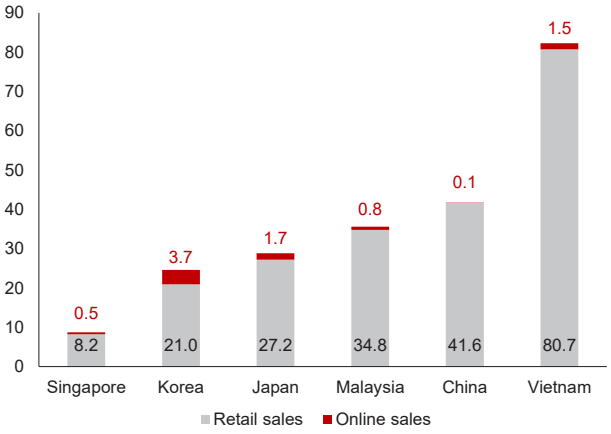
Sources: National authorities, via Haver Analytics; and AMRO staff calculations.
Note: The data are calculated based on local currency values. Quarterly data for Malaysia are linearly interpolated.

Figure 1.6. Selected ASEAN+3: Consumer Confidence
(Index, December 2019 = 100)



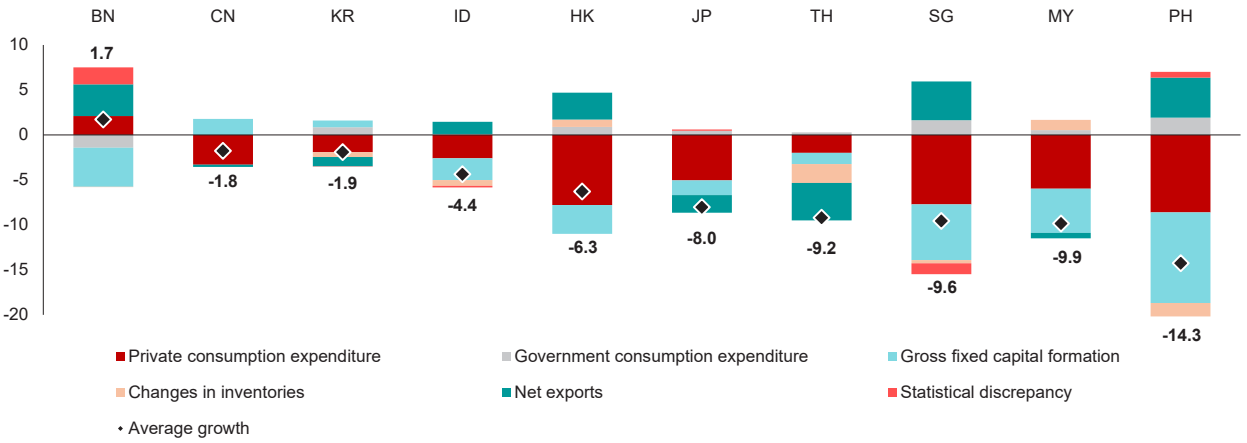
Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Figure 1.7. Selected ASEAN+3: Retail and Online Sales, 2019
(Percent of GDP)



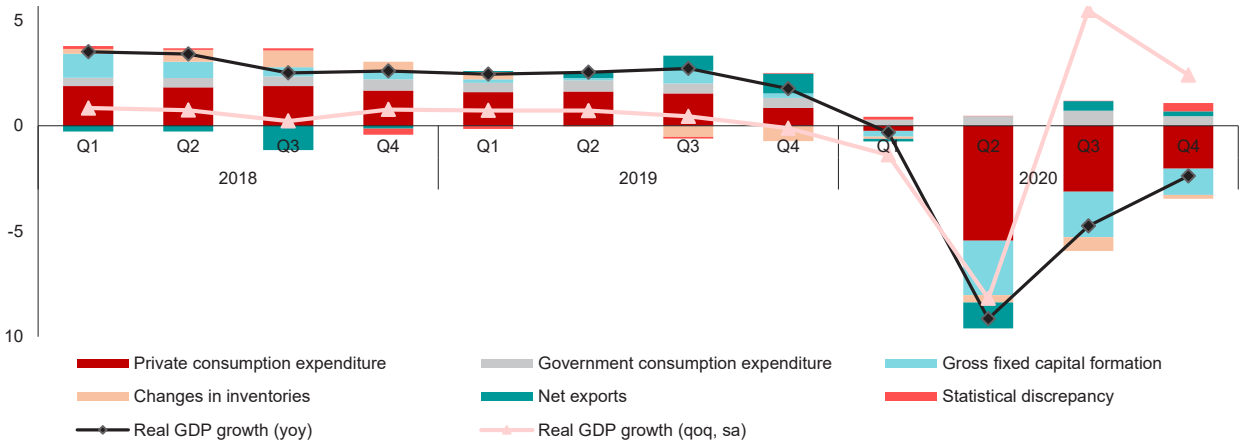
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Retail sales here exclude online sales.

Figure 1.8. Selected ASEAN+3: Real GDP Growth by Expenditure, Q2 –Q3 2020 Average
(Percentage points, year-over-year)



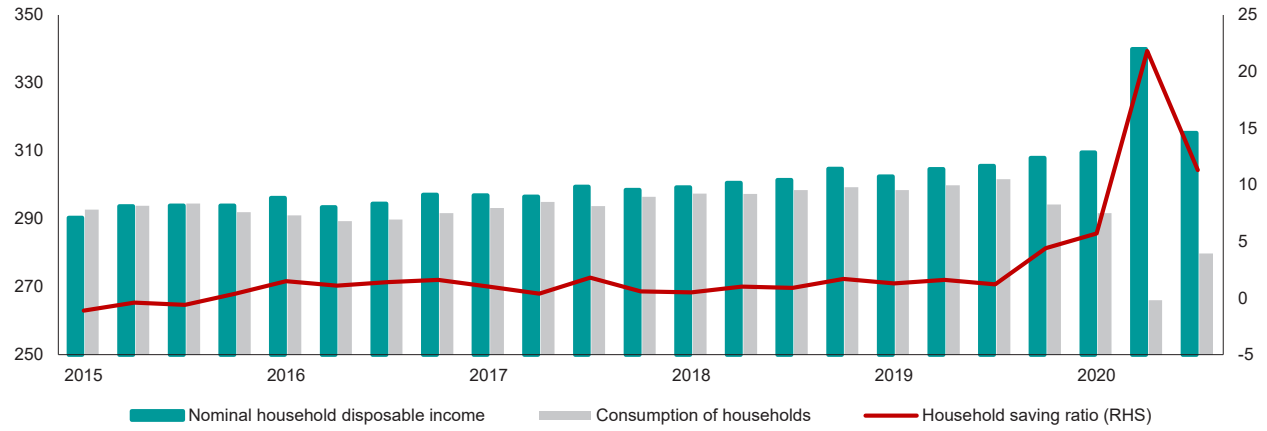
Sources: National authorities via Haver Analytics; Wind; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; and TH = Thailand. The data refer to Q1 and Q2 for China. Private consumption for China here refers to both private and government consumption, given that there is no breakdown released by National Bureau of Statistics of China.

Figure 1.9. Selected ASEAN+3: Aggregate Real GDP Growth by Expenditure
(Percentage points, year-over-year; quarter-over-quarter, seasonally adjusted)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Includes Brunei, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore and Thailand; data are unavailable for Cambodia, China, Lao PDR, Myanmar and Vietnam. Q4 2020 data exclude Brunei.

Figure 1.10. Japan: Household Income, Consumption, and Savings Ratio
(Trillions of Japanese yen; percent of household disposable income)

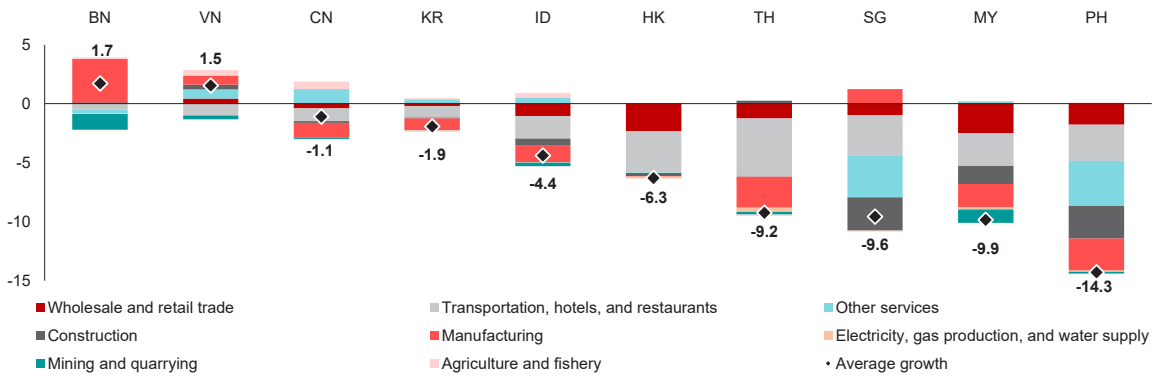


Source: Cabinet Office of Japan via Haver Analytics.

The economic fallout from restrictions on movement and social distancing is clearly reflected in individual industries. The services industry faced deeper recessionary pressures compared to other sectors, including in the wholesale and retail trade sector, which declined for all economies except Brunei and Vietnam, both of which had taken measures to quickly bring the virus outbreak under control (Figure 1.11). Digitizable services, agriculture, and construction have generally been less affected although Malaysia, the Philippines, and Singapore encountered a plunge in construction activity due to the quarantine of migrant workers to curb infection. Natural disasters, such as droughts and floods in Cambodia and Lao PDR, and typhoons in the Philippines, also impacted the agricultural sector, as well as electricity production in Lao PDR. All industries were severely impacted in the second and third quarter of 2020 (Figure 1.12).

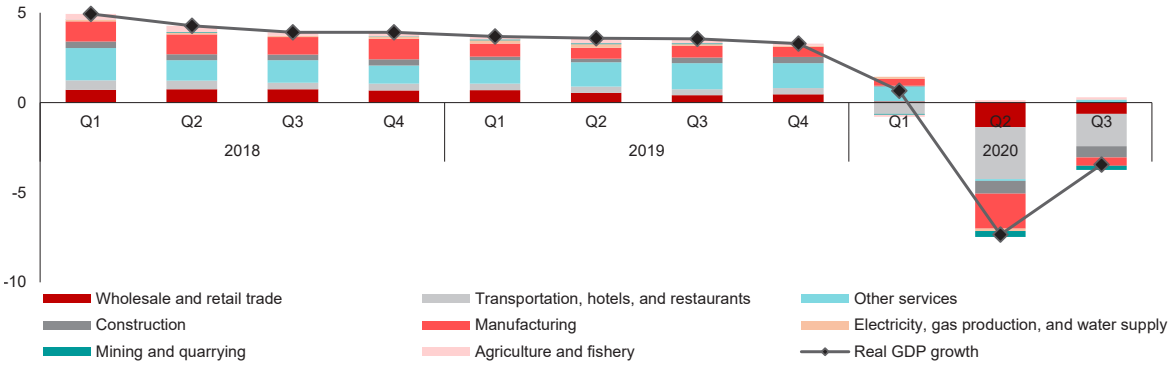
Manufacturing activity was disrupted by both labor supply and demand shocks, although the former was mostly resolved following the first round of strict lockdowns. Supply chain disruptions and weakened domestic and external demand affected most manufacturing subsectors, as well as oil and gas. However, regional manufacturing activity has started to rebound more strongly compared to close contact services (Figure 1.12). Correspondingly, the Purchasing Managers' Index (PMI) suggests that manufacturing activity bottomed out in China in February 2020, in the rest of the region between March and May (Figure 1.13). All of these factors have impacted capital expenditure (Figure 1.8), with the ASEAN subregion particularly hard hit, registering its deepest fall in the second quarter of 2020 since the GFC (Figure 1.14). Domestic investment in China decreased by 1.5 percent year-over-year in the first quarter of 2020, but has subsequently rebounded.

Figure 1.11. Selected ASEAN+3: Real GDP Growth by Industry, Q2–Q3 2020 Average
(Percentage points, year-over-year)



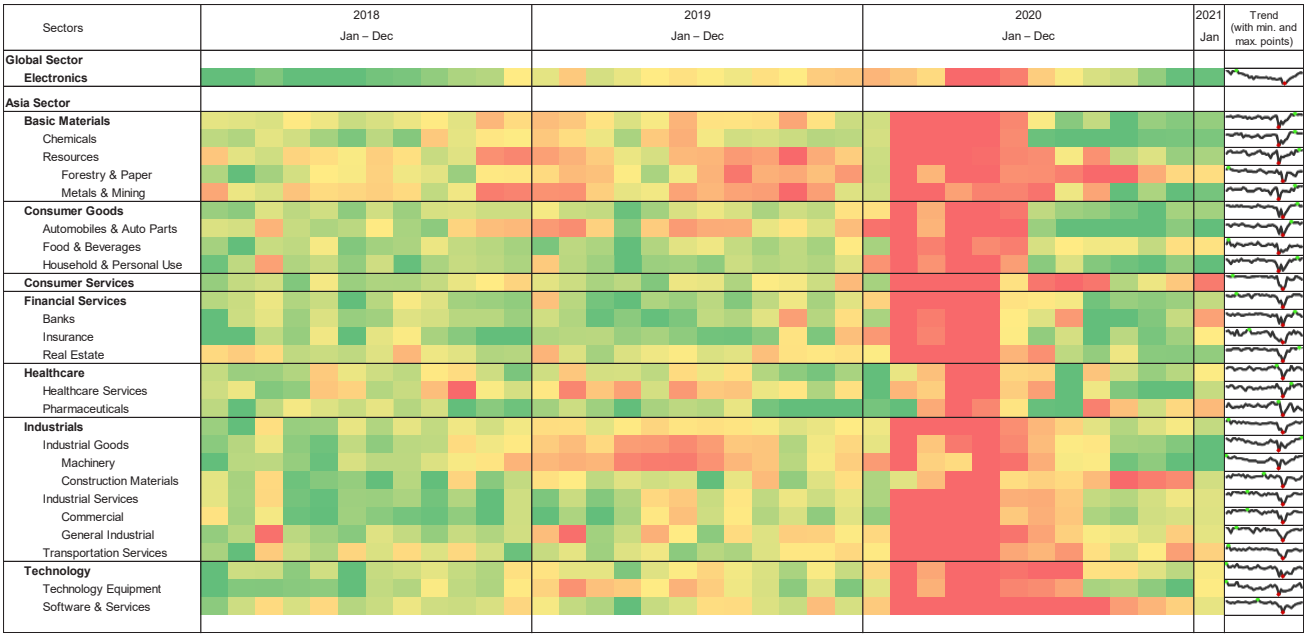
Sources: National authorities via Haver Analytics; Wind; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam. The data refer to Q1 and Q2 nominal GDP for China.

Figure 1.12. Selected ASEAN+3: Aggregate Real GDP Growth by Industry
(Percentage points, year-over-year)



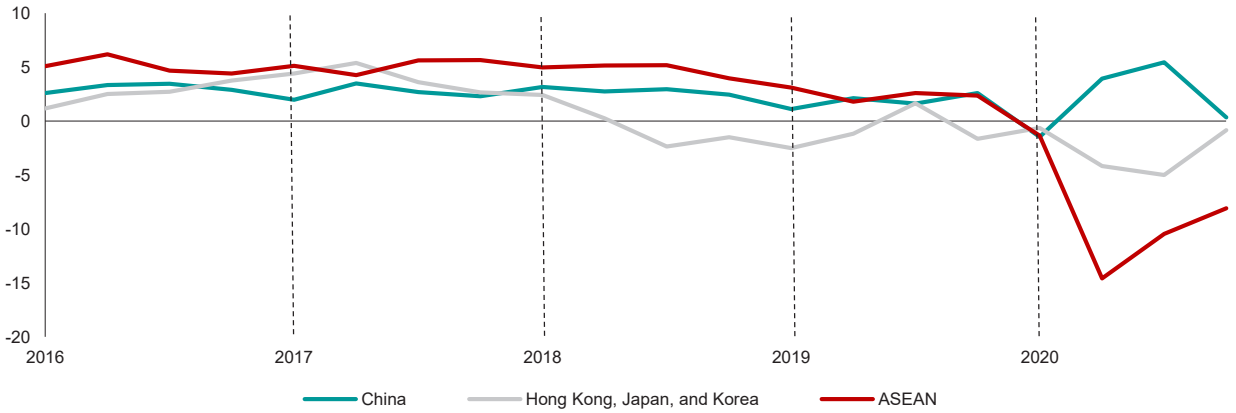
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Selected ASEAN+3 include Brunei, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore and Thailand; data are unavailable for China, Cambodia, Lao PDR, Myanmar and Vietnam.

Figure 1.13. Selected World and Asia: Sectoral Purchasing Managers' Index



Sources: IHS Markit; and Haver Analytics.
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. A PMI reading above 50 denotes an increase in activity over previous month, and a reading below 50 denotes otherwise. IHS Markit Asia Sector PMI data are derived from surveys of over 6,700 companies operating in 13 economies, including China; Hong Kong; Indonesia; India; Japan; Korea; Malaysia, Myanmar; the Philippines; Singapore; Taiwan Province of China; Thailand; and Vietnam.

Figure 1.14. Selected ASEAN+3: Real Gross Fixed Capital Formation
(Percent year-over-year)



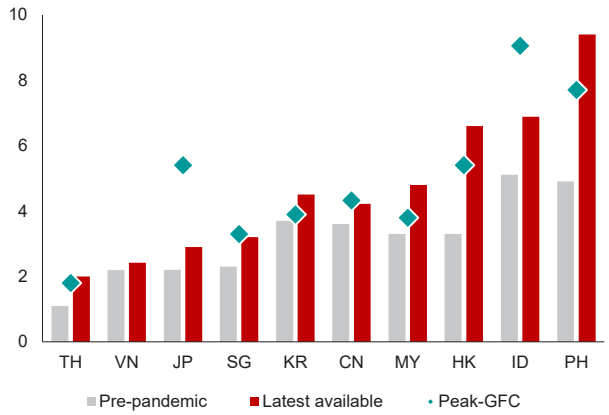
Source: National authorities via Haver Analytics; and AMRO staff calculations.
Note: ASEAN excludes Cambodia, Lao PDR, Myanmar and Vietnam

Weakened Labor Markets

Unemployment rates in many economies across the region have spiked, albeit to different degrees. The sharp reduction in economic activity has caused many businesses to close down, furlough, or shed their workers. Meanwhile, the large number of self-employed in the informal sector has been stranded without business and income. In several economies—notably, Hong Kong, Korea, Malaysia, the Philippines and, more generally, Thailand—unemployment rates rose more sharply during the pandemic than during the GFC (Figure 1.15). More worrying is that in addition to high unemployment, labor force participation rates across the region also fell and employment rates dropped (Figure 1.16; Box 1.4). While labor market conditions have continued to worsen over the course of 2020 in Hong Kong, conditions in the Philippines and Malaysia have improved somewhat from the second quarter of 2020, and by end-2020 in Singapore, in line with the easing in social distancing measures.

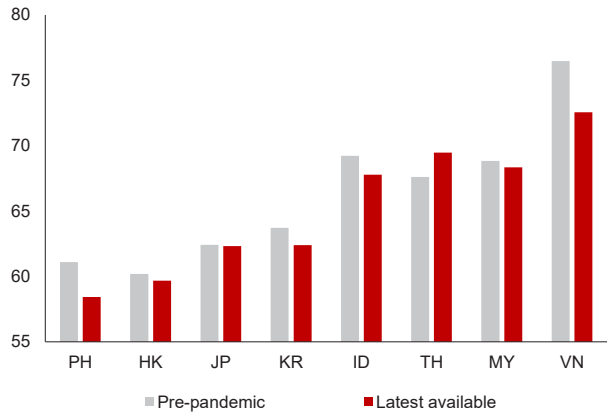
The employment impact has been fairly uneven across economies, sectors, and parts of the population. Employment in services has dropped sharply, reflecting the strong impact of the pandemic on face-to-face interactions. In contrast, the impact on sectors such as healthcare or digitizable services has been negligible or even positive. Younger workers have been most heavily affected, and informal labor—which plays a significant role in most ASEAN economies, including Cambodia, Indonesia, Lao PDR, Myanmar, and the Philippines—has also been more affected, especially as a large share of informal employment relates to services. Consequently, labor markets where a bigger share of employment is in manufacturing, have fared better than those more dependent on services.

Figure 1.15. Selected ASEAN+3: Unemployment Rates
(Percent of labor force, seasonally-adjusted)



Source: National authorities via Haver Analytics.
Notes: Pre-pandemic refers to Q4 2019 except for Indonesia (Q1 2020). Latest available data refer to Q4 2020 , except for Indonesia (Q3 2020). Peak-GFC at different times between Q3 2007 and Q3 2009. Peak-GFC data for Vietnam is not available. Labor market data for the Philippines and Singapore are based on the first and last month of each quarter, respectively. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

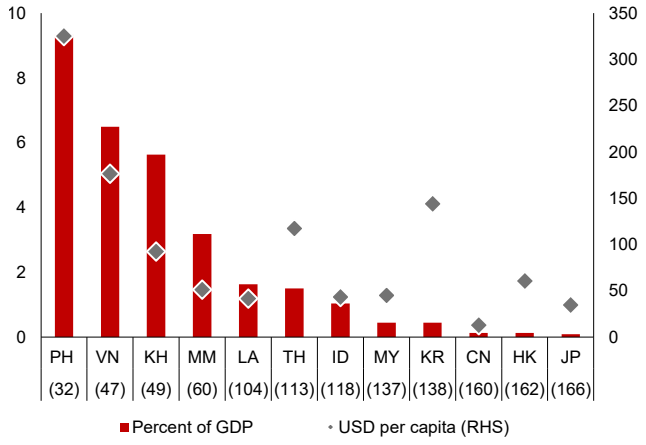
Figure 1.16. Selected ASEAN+3: Labor Force Participation Rates
(Percent of working-age population, seasonally-adjusted)



Source: National authorities via Haver Analytics.
Notes: Pre-pandemic refers to 2019 Q4 except for Indonesia (Q1 2020). Latest available data refer to Q4 2020 except for Indonesia (Q3 2020) and Vietnam (Q2 2020). Labor market data for the Philippines are based on the first month of each quarter. HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; TH = Thailand; and VN = Vietnam.

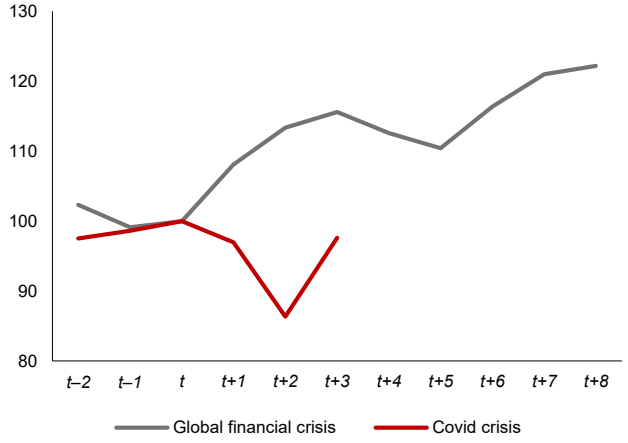
Remittances have been adversely affected by the COVID-19 pandemic. Migrant workers play a particularly important economic role for several ASEAN economies, especially Cambodia, the Philippines, and Vietnam (Figure 1.17), and remittances have proven to be a very stable form of income, including during past crises (Choo and Oeking 2020). This situation is true for both cross-border migrant workers and cross-border remittances, as well as domestic migrant workers—oftentimes from rural to urban areas—and domestic remittances. But the nature of the current crisis has been exceptional and has impacted virtually every country in the world simultaneously. Migrant workers have been infected by the virus and hit by layoffs and forced repatriations, as well as confronted by fewer deployment opportunities, in part because of limited cross-border movement. Consequently, less money has been sent home in many economies (Figure 1.18).

Figure 1.17. ASEAN+3: Remittance Receipts, 2019
(Percent of GDP; US dollar per capita)



Sources: United Nations; World Bank; and AMRO staff calculations.
Note: Numbers in parentheses refer to 2019 global rankings for respective economies in terms of percent of remittances to GDP. Remittance data for Brunei Darussalam and Singapore are not available. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; TH = Thailand; and VN = Vietnam.

Figure 1.18. Selected ASEAN: Aggregate Remittance Inflows
(Quarterly, Index, t = 100)



Sources: International Monetary Fund; and AMRO staff calculations.
Note: Selected ASEAN includes Indonesia, the Philippines and Thailand. The first quarter of each crisis (t) comprises Q3 2007 (GFC) and Q1 2020 (Covid crisis).

Encouragingly, remittances have started to gradually recover in some economies after the initial drop. The turnaround—especially for the Philippines—has been in line with the global economic rebound and increased demand for certain professions, notably, nurses and other essential workers. However, remittances are likely to remain below pre-pandemic levels, as labor markets around the world will take time to recover and closed borders continue to deter migration, likely until vaccines are widely deployed. The strength of recovery in important migrant-host economies will be crucial to migrant workers' job prospects, deployment or re-migration, and thus speed of recovery in remittances. At the same time, the global economic landscape has changed and the scarring experienced by many economies may be permanent. Consequently, re-migration may not be fully possible for some occupations, as transformed economies will likely require different skillsets, and lost deployment opportunities will not be immediately offset.

The economic fallout from the pandemic will have lasting effects with permanent scars, and a full recovery is unlikely as long as the virus has not been fully stamped out. Even with a pickup in economic growth, some output losses are expected to persist (Box 1.3). In addition, rapid digitalization has fundamentally transformed economies by permanently changing the way many companies do business and individuals work, as well as consumer behavior, and accelerating the transition to new types of jobs. Several forces will be important for the recovery in the real economy:

- Business closures and fewer entry of new firms, especially in more traditional sectors, or nonviable firms being kept alive by government support, could result in lower productivity and a continued lack of investment. A corporate sector with impaired balance sheets and more leverage will take time to recover, with possibly continued sluggish spending in some areas and slow labor market recovery.

- At the same time, startups—particularly in the digital economy—could benefit from pandemic-induced demand, supported by low interest rates and availability of funding from investors and the government. In Singapore, for example, formation of new business entities—notably in sectors transformed by social distancing measures such as retail trade, wholesale trade, and food and beverage services—rebounded strongly following a sharp drop during the lockdown period (Figure 1.19). If innovative new firms were able to grow and thrive amid the economic transformation, they could eventually boost employment, and lift efficiency and productivity.

- The recovery of the heavily affected services industry is highly dependent on bringing the spread of the COVID-19 virus under control and achieving herd immunity. The sector contributes a large share of jobs across many regional economies, including in the more vulnerable segments of informal and micro, small, and medium enterprise (MSME) employment. Many small businesses have closed, and given the delayed resumption of many services and the accompanying rebound in employment, the massive loss in jobs will take time to be absorbed, and economic inequality is likely to widen as a result.

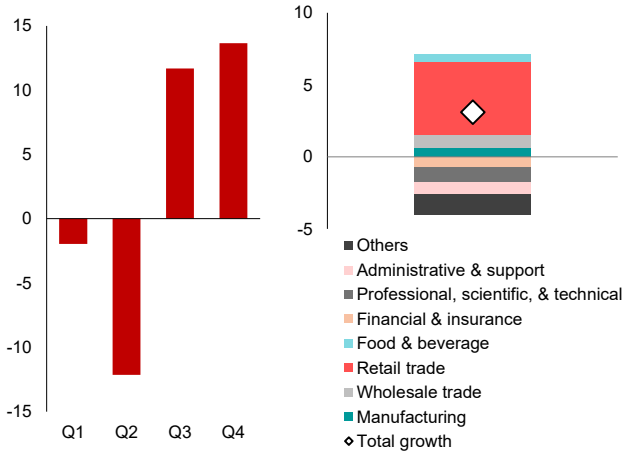
- Further, some jobs and related skillsets, such as in retail and tourism, have been displaced or permanently transformed by the accelerated move to more digitalization of the workplace and businesses (see Chapter 2). The size of this shift depends on the ability to train and upskill workers, the adaptability of the business community to changes, and access to capital for innovative businesses.

- Large segments of populations were not impacted by income losses, but rather by the disruption to their consumption, especially of travel and hospitality services. Pent-up demand from this segment could rebound sharply as soon as domestic virus outbreaks are under control and restrictions are lifted, and especially once herd immunity is achieved in the population. With closed borders, some outbound consumption might even shift to the domestic market, for example in the form of domestic tourism.

- Consumer behavior has seen a fundamental shift as the pandemic removed some inertia and forced quicker adoption of online services. These services, which include e-commerce, online media, food delivery, remote learning and working, digital financial services, and telemedicine (Google, Temasek, and Bain & Company 2020), have enormous growth potential. Survey results suggest that 94 percent of new digital consumers in the ASEAN-6 economies would continue to use at least one online service going forward (Figure 1.20) (Google, Temasek and Bain & Company, 2020). Translating this transformation into broad-based economic benefit—via new business formation, human capital improvements, employment growth, and a strong rebound in services—will be one of the major challenges facing policymakers post-pandemic.

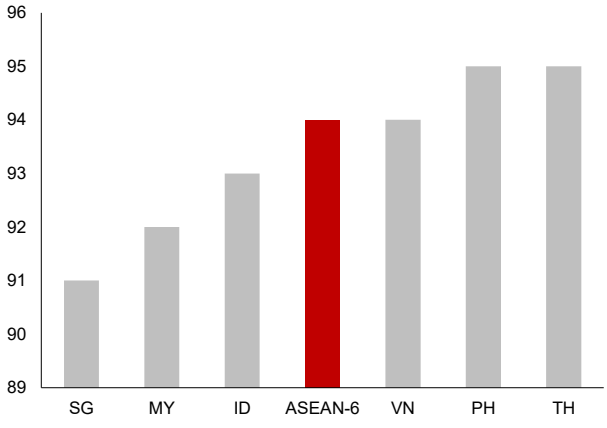
The divergent impact of the Covid crisis across the ASEAN+3 region and within its economies is likely to continue. Some segments will rebound quickly with the turnaround in manufacturing, innovation in digitalization, as well as pent-up savings, and robust domestic demand; while others will remain under pressure and must adapt, move on, or reinvent themselves to survive. Whether businesses in hard-hit sectors will remain viable as the economy recovers; or if employment will bounce back with lifted restrictions, and transformed economies are able to train and upskill workers; or whether scars have already become permanent: these factors will determine the trajectory and shape of the new economy.

Figure 1.19. Singapore: Formation of Business Entities, 2020
(Percent year-over-year; contribution to total annual growth rate)



Sources: Accounting and Corporate Regulatory Authority; and AMRO staff calculations.
Note: Business entities include businesses (partnerships & sole proprietorships); local and foreign companies; limited liability partnerships; limited partnerships; and public accounting firms.

Figure 1.20. ASEAN-6: New Online Consumers' Willingness to Continue Using at Least One Internet Service Post-COVID-19
(Percent of total new digital consumers)



Source: Google, Temasek and Bain & Company (2020).
Note: ID = Indonesia; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

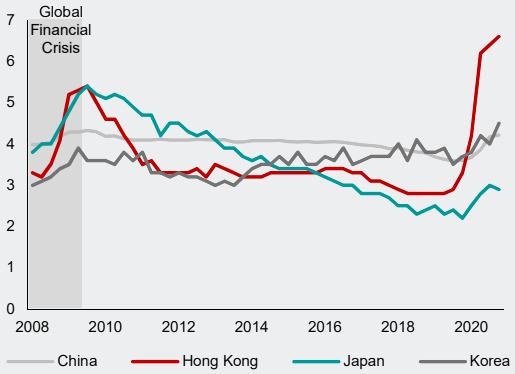
Box 1.4:

Uneven Hit to Labor Markets

The COVID-19 pandemic has adversely affected labor markets across the region. The situation has been characterized by sharp spikes in unemployment rates, falling labor force participation rates, and a drop in employment in many economies (Figures 1.4.1–1.4.2). As economic activity across the region has gradually rebounded, labor market conditions have started to improve in several regional economies from their nadir in the second quarter of 2020. It remains to be seen how many job losses will be permanent, or whether some will return once restrictions are lifted. To date, the impact has been uneven across sectors and segments of the population.

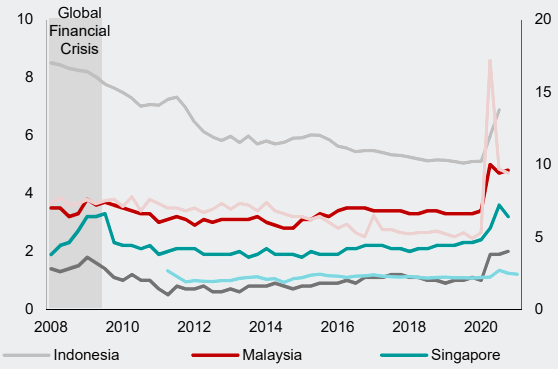
Figure 1.4.1. Selected ASEAN+3: Historical Unemployment Rates
(Percent of labor force, seasonally-adjusted)

Plus-3



Source: National authorities via Haver Analytics.

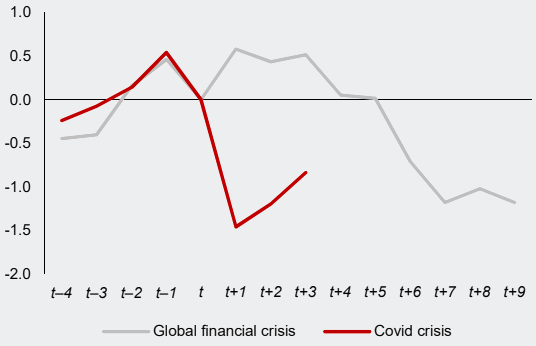
ASEAN-6



Source: National authorities via Haver Analytics.
Notes: Indonesia's data are interpolated as it only releases labor market data semiannually for every Q1 and Q3 of the year. Labor market data for the Philippines and Singapore are based on the first and last month of each quarter, respectively.

Figure 1.4.2. Selected ASEAN+3: Aggregate Employment Levels during Crises
(Index, t = 0, seasonally adjusted)

Selected Plus-3



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Notes: Selected Plus-3 refers to Hong Kong, Japan and Korea. The first quarter of each crisis (t) comprises Q3 1997 (Asian financial crisis) and Q1 2020 (Covid crisis).

Selected ASEAN

Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Notes: Selected ASEAN refers to Malaysia, the Philipiines, Singapore and Thailand. Labor market data for the Philippines and Singapore are based on the first and last month of each quarter, respectively. The first quarter of each crisis (t) comprises Q3 1997 (Asian financial crisis) and Q1 2020 (Covid crisis).

The impact has varied markedly across sectors. Most economies recorded a loss of employment in the manufacturing and construction sectors, particularly during the height of respective outbreaks. But the retrenchment was most notable in the services sector, especially in accommodation and food services and wholesale and retail trade (Table 1.4.1), as these sectors are naturally the most impacted by virus containment measures and social distancing requirements. On the flip side, the employment effect on some sectors was small or even positive, including in agriculture, digital and digitizable services such as information and communication or financial activities, as well as pandemic-driven demand in the healthcare and social work sector. Generally, labor markets in economies with a bigger share of employment in manufacturing have fared better than those in services (Figure 1.4.3).

Micro, small, and medium-sized enterprises (MSMEs) have been more heavily affected by the pandemic, as they have weaker balance sheets and are more vulnerable to liquidity shocks. A relatively large share of employment across regional economies—above 80 percent in some—takes place within MSMEs, predominantly in the services sector (Figure 1.4.4). While the financial stability impact from the weakened balance sheets of smaller enterprises might be non-systemic, their labor market implications could be substantial. In many economies, the outcome will only be fully visible once government support has ended.

The importance of MSMEs could be even greater than official data suggest, given the large presence of informal employment, often in the form of micro enterprises. Informal employment accounts for a significant share of employment across several regional economies, most notably in Cambodia, Indonesia, Lao PDR, and Myanmar, with a large share in the hard-hit services sector (Figure 1.4.5). Although minimal information is available on just how much informal employment has been affected by the pandemic, workers in the informal sector have likely been more vulnerable (ILO 2020), and labor markets in a number of ASEAN economies could thus have been more adversely affected than formal labor market data suggest.

The pandemic's effect on the labor market in different segments of the population have been similarly unequal:

- Data from Hong Kong, Japan, Korea, and Thailand indicate that the largest employment losses have occurred among younger workers, while employment of certain groups of elderly workers grew in 2020 in some economies (Figure 1.4.6). Part of the increase in elderly employment could be a structural feature of rapidly aging societies, amplified by uncertainty about the pandemic's economic impact and thus lower retirement rates, as well as a move from informal to formal employment.

- The impact on employment by gender differs across economies, with male employment being harder hit in some economies such as Hong Kong, and female employment taking a sharper hit early on in Japan and eventually in Korea—possibly because female workers tend to be hired as temporary employees, and in part attributable to increasing childcare needs at home following school closures.

Table 1.4.1. Selected ASEAN+3: Growth in Employment by Industry, Q3 2020
(Percentage point contribution to total, year-over-year)

	Hong Kong	Indonesia	Japan	Korea	Malaysia	Philippines	Singapore	Thailand
Total	**-4.4**	**0.4**	**-0.8**	**-1.3**	**-0.4**	**-2.3**	**-4.4**	**1.5**
Agriculture, forestry, and fishing		2.36	-0.43	-0.02	-0.10	2.96		0.61
Mining and quarrying	0.00	-0.07	0.00	-0.01	-0.01	0.10		0.02
Manufacturing	-0.11	-1.46	-0.64	-0.28	-0.07	-0.85	-0.73	-0.98
Utilities (incl. electricity, gas, and water related services)	0.00	-0.06	0.05	0.11	0.00	0.02		-0.05
Construction	-0.11	-0.52	0.03	0.23	-0.23	0.04	-0.91	0.53
Wholesale and retail trade	-2.61	0.46	0.03	-0.85	0.15	0.90	-0.71	1.10
Transport and storage	-0.19	-0.05	-0.03	0.09	-0.03	-0.86	-0.19	0.16
Information and communication	-0.01	0.01	0.31	-0.06	0.05	-0.32	0.06	-0.03
Accommodation and food service activities	-1.37	-0.02	-0.79	-0.92	-0.25	-1.87	-0.88	-0.18
Financial and insurance activities	0.06	-0.19	0.31	-0.08	0.01	-0.01	0.11	0.07
Real estate	0.05	-0.01	0.25	-0.30	0.00	-0.12	-0.21	0.13
Professional, tech, administrative, and support services	0.02	-0.12	-0.18	0.12	0.03	-0.68	-0.14	-0.08
Human health and social work activities	-0.17	0.02	0.30	0.55	0.00	0.14	0.14	0.19
Other services		0.04	-0.03	0.09	-0.01	-1.71	-0.93	-0.01

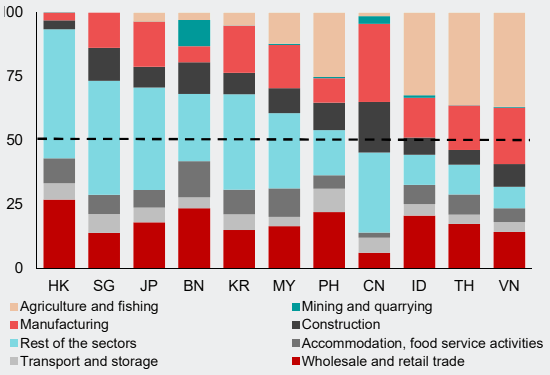
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Labor market data for the Philippines and Singapore are based on the first and last month of each quarter, respectively. Total employment excludes public administration, defense, compulsory social security and education sectors. Classification of jobs is according to the ISIC rev. 4 standard. Blank spaces mean no classification from national sources.

- In Malaysia, some of the steepest losses were observed among low-skilled employment; in contrast, high-skilled (formal) employment has been most heavily affected in the Philippines.

All in all, the pandemic has impacted certain vulnerable segments of the working population more severely than others, exacerbating inequality.

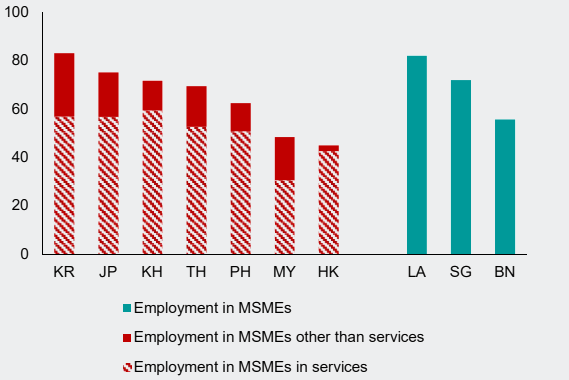
Employment loss, a fall in income, and lower wage growth have adversely affected household balance sheets, and their ability to service debt, with implications for financial stability. Similarly, these factors can pose a threat to recovery by suppressing consumer sentiment and weighing on private consumption. Prolonged labor market weakness—particularly once government support is rolled back—can risk further socioeconomic consequences, including by increasing social pressures due to worsening inequality and evoking social unrest, rising poverty, and dwindling human capital—all possibly intensifying the need for further fiscal intervention down the line.

Figure 1.4.3. Selected ASEAN+3: Share of Employment by Sector, as of Q4 2019
(Percent)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Data for China refer to 2018 and for Indonesia refers to Q1-2020. Malaysia's Professional services category includes real estate services. Labor market data for the Philippines and Singapore are based on the first and last month of each quarter, respectively. Employment for public administration, defense, compulsory social security and education sectors are omitted to ensure consistency across countries. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

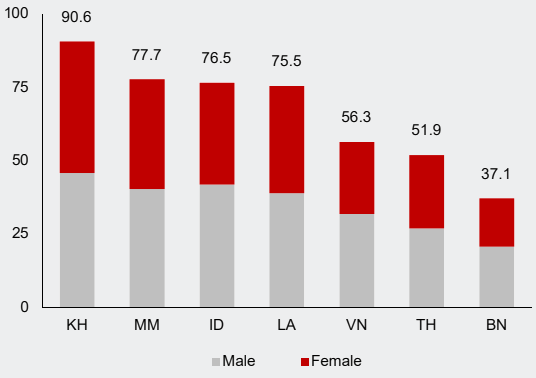
Figure 1.4.4. Selected ASEAN+3: Share of Employment by Micro, Small, and Medium Enterprises, 2019 or Latest
(Percent)



Sources: National authorities via Haver Analytics; World Bank; and AMRO staff calculations.
Note: The categorization of enterprise size is defined by the respective national authorities and the definition differs across economies. The shares for Cambodia and Japan are AMRO estimates. Employment in MSMEs for Hong Kong refers to the share in private sector employment. For Thailand, employment in services comprises services and commerce. Data refer to 2018 for Korea and Thailand; 2014 for Cambodia; and June 2020 for Hong Kong and Japan. BN = Brunei Darussalam; HK = Hong Kong; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; PH = Philippines; SG = Singapore; and TH = Thailand.

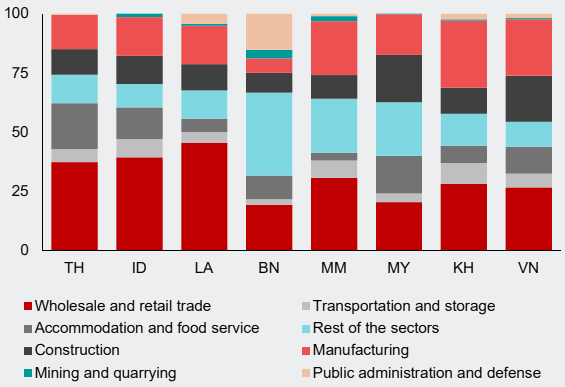
Figure 1.4.5. Selected ASEAN+3: Share of Informal Employment
(Percent share of non-agricultural employment)

By Gender



Sources: ASEANstat; and International Labour Organization.
Note: Data as of 2012 for Cambodia; 2016 for Vietnam; 2017 for Brunei, Lao PDR and Myanmar; and 2018 for Indonesia and Thailand. BN = Brunei Darussalam; ID = Indonesia; KH = Cambodia; LA = Lao PDR; MM = Myanmar; TH = Thailand; and VN = Vietnam.

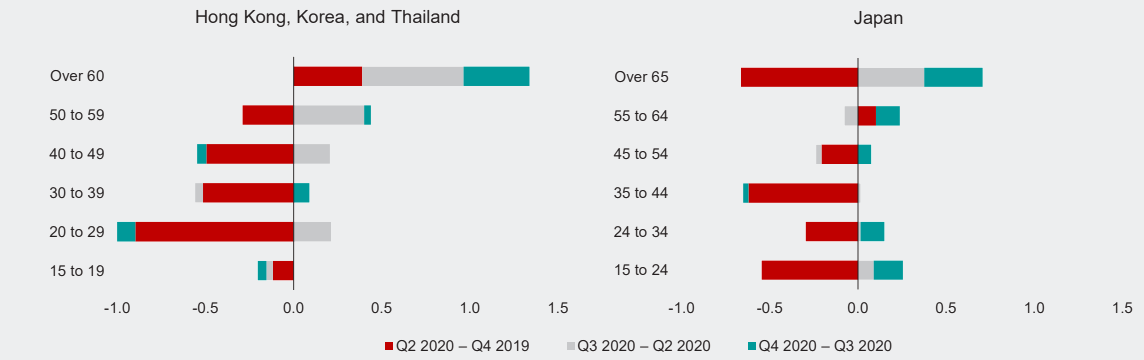
By Sector



Source: ASEANstat.
Note: Data as of 2012 for Cambodia; 2016 for Vietnam; 2017 for Brunei, Lao PDR, Malaysia and Myanmar; and 2018 for Indonesia and Thailand. In the case of Malaysia, informal employment includes only workers up to 64 years of age. BN = Brunei Darussalam; ID = Indonesia; KH = Cambodia; LA = Lao PDR; MY = Malaysia; MM = Myanmar; TH = Thailand; and VN = Vietnam.

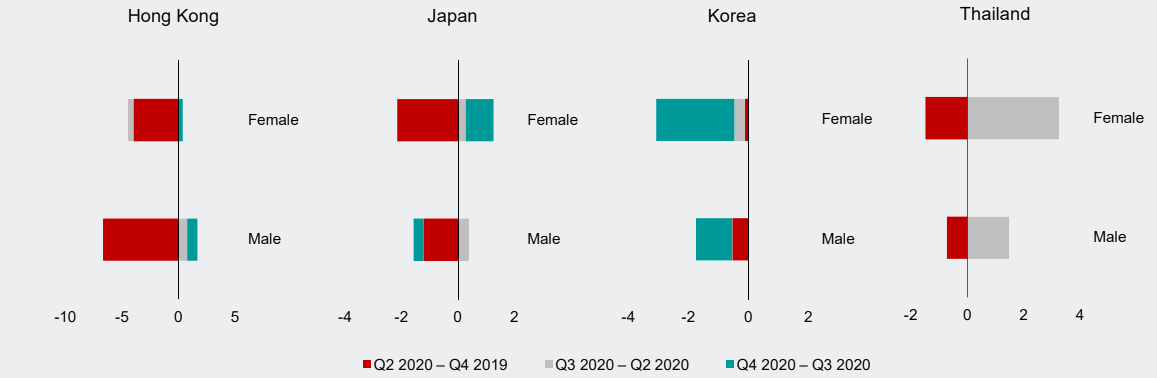
Figure 1.4.6. Selected ASEAN+3: Growth in Employment
(Percent period-over-preriod)

By Age



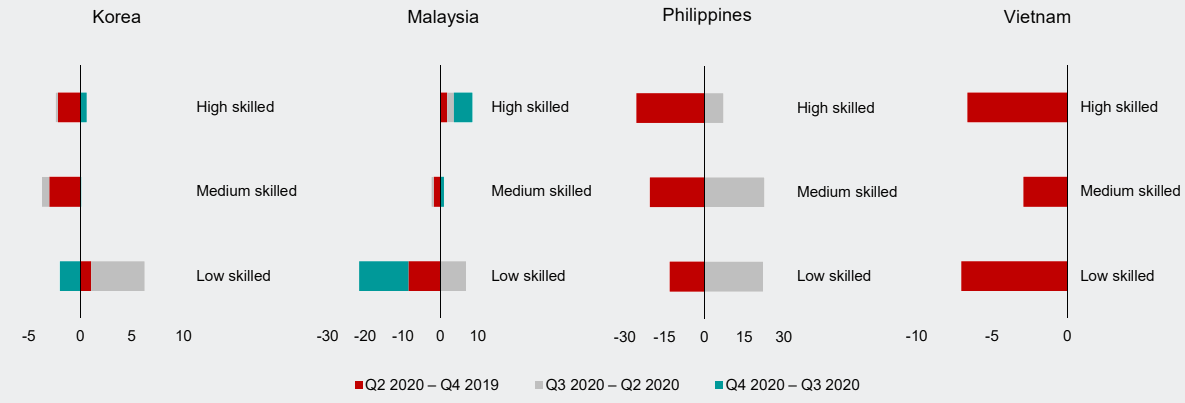
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Fourth quarter 2020 data are unavailable for Thailand. The chart on the left includes changes for Hong Kong and Korea between the third and fourth quarter of 2020.

By Gender



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Fourth quarter 2020 data are unavailable for Thailand.

By Skill Level



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Skill levels are determined by types of occupation reported under the International Classification of Occupations (ISCO)-08 classification. High-skilled occupations include managers, professionals and technicians and associate professionals. Medium skilled occupations include clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators, and assemblers. Low-skilled workers refer to elementary workers. Fourth quarter 2020 data are unavailable for the Philippines and Vietnam.

The authors of this box are Edmond Chiang Yong Choo and Anne Oeking.

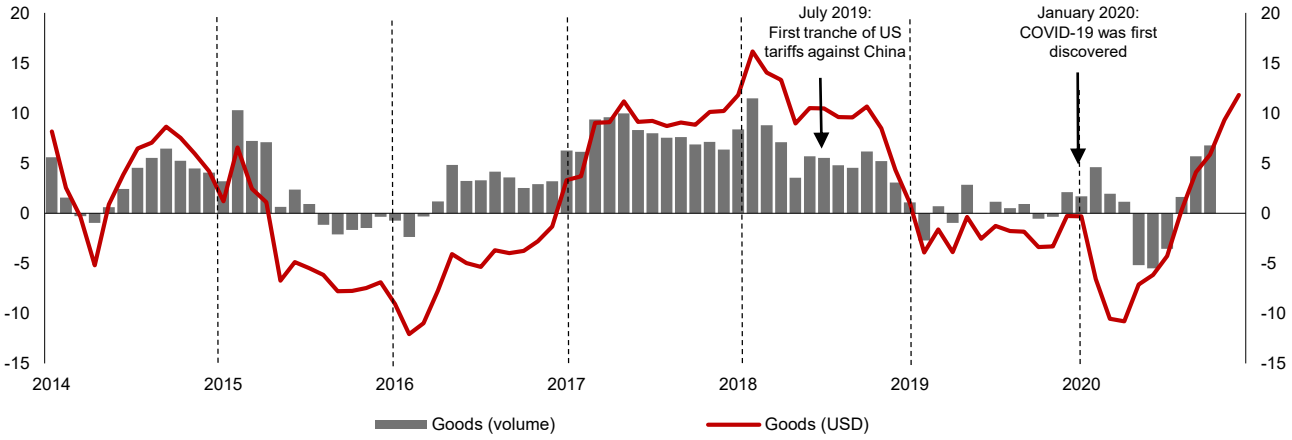
A Transformed Trade Landscape

The trade environment for the ASEAN+3 economies turned out to be even more challenging in 2020 than in 2019. The US–China trade conflict became secondary to the pandemic's much more severe impact on international trade. The fragile recovery in the region's exports that began in the last quarter of 2019—as easing tension between China and the United States buoyed market confidence—had collapsed by late January 2020. As a consequence, ASEAN+3 goods exports declined steeply in the first half of 2020, even when compared to the previous year, before starting to recover in the second half of 2020 (Figure 1.21).

The region's exports were on a roller-coaster before eventually recovering on the back of normalizing economic activity. Exports to the United States, which helped buoy the region's export growth in 2019, contracted in 2020 as the US economy fell into a recession (Figure 1.22). Conversely, exports to China held strong in the first quarter, but as the virus spread quickly through the region and to the rest of the world, demand for ASEAN+3 exports collapsed (Figure 1.23).

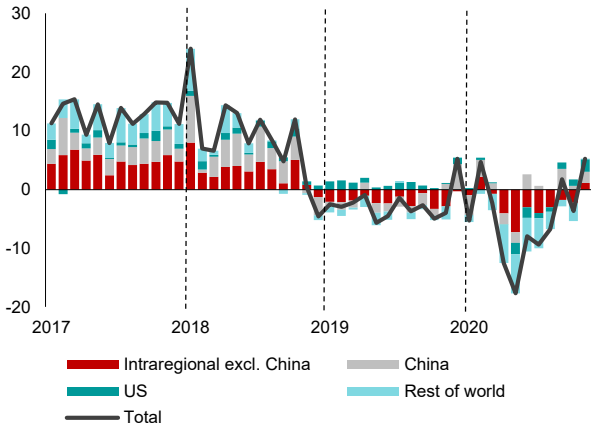
Regional export growth had recovered by the third quarter of 2020, as the pandemic came under better control and countries began to ease their containment measures. Exports from several regional economies eventually exceeded pre-COVID-19 levels, as the recovery broadened further in the fourth quarter of 2020 (Box 1.5). In some regional economies, most notably Cambodia, China, and Vietnam, the rebound was strong enough to register positive export growth for the full year (Figure 1.24). Meanwhile, gains by the ASEAN economies from the earlier observed trade diversion trends, sparked by the US–China trade tensions (AMRO, 2020a), continued in 2020, with most economies increasing their share of exports of US-tariffed goods (Figure 1.25).

Figure 1.21. ASEAN+3: Aggregate Goods Exports by Value and Volume
(Percent year-over-year, 3-month moving average)



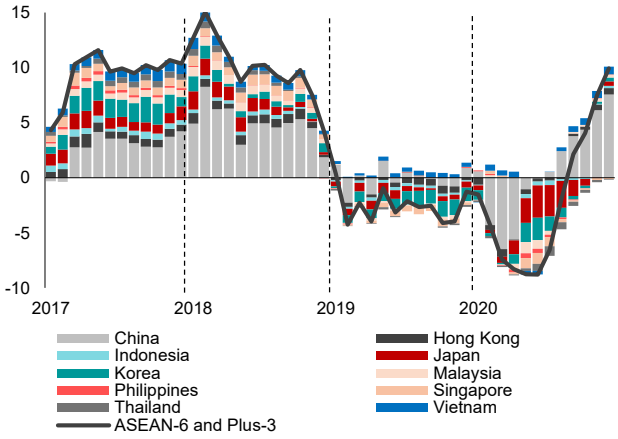
Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Figure 1.22. ASEAN+2: Contributions to Goods Export Growth by Importer
(Percentage points, year-over-year)



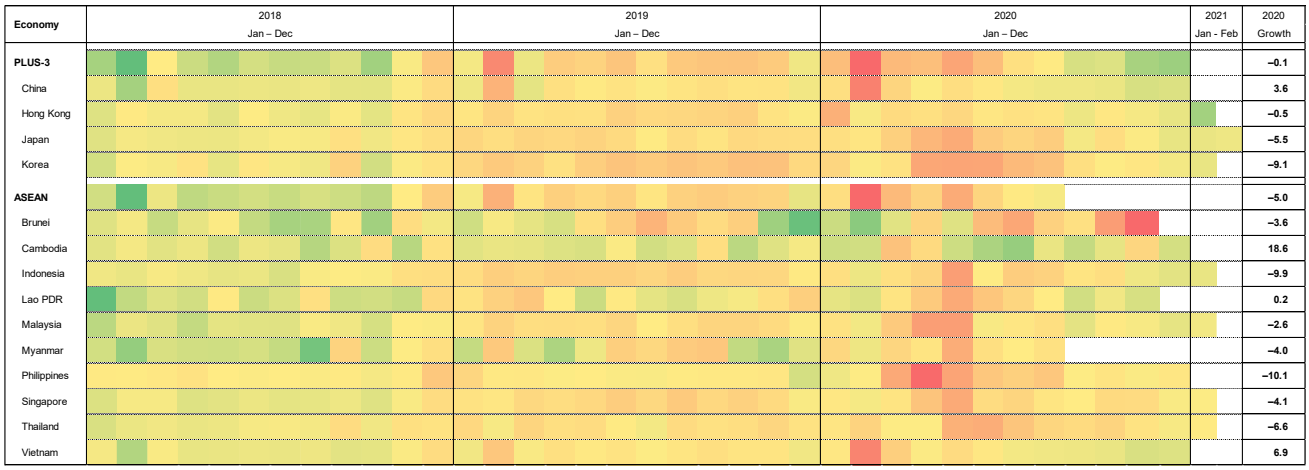
Sources: IHS Markit; and AMRO staff calculations.

Figure 1.23. Selected ASEAN+3: Contributions to Goods Export Growth by Exporter
(Percentage points, year-over-year)



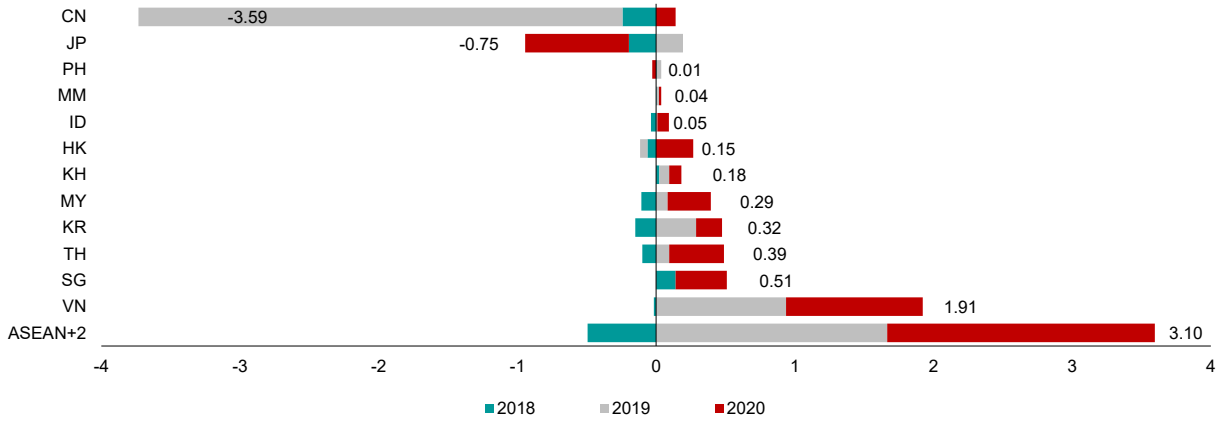
Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Figure 1.24. ASEAN+3: Goods Exports
(US dollars, percent year-over-year)



Sources: National authorities via CEIC and Haver Analytics; Ministry of Economy and Finance, Cambodia; 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 deepening intensity of the red of the data points in the figure denotes increasingly more negative data are; the greener the data points, the more positive they are.

Figure 1.25. United States: Change in Share of Imports, 2018–20
(Percentage points)



Sources: IHS Markit; and AMRO staff calculations.
Note: Brunei and Lao PDR excluded for brevity. Gains are less than 0.005 for both. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH= Thailand and VN = Vietnam. ASEAN+2 excludes China.

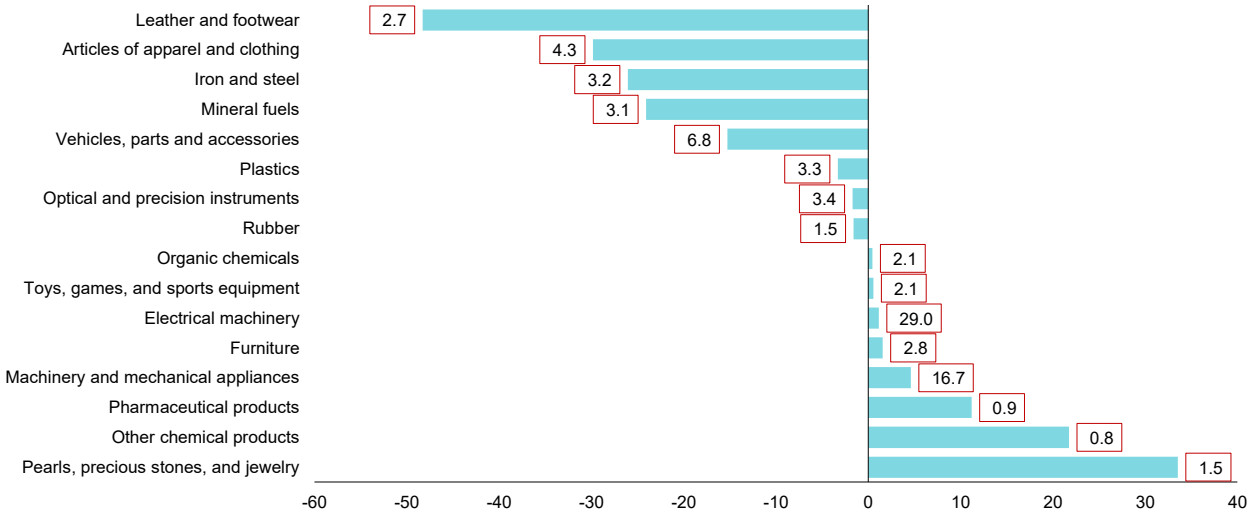
The improvement in exports, though broad-based, remains fragile and uneven across the region. Trade remains relatively more tepid for some of the ASEAN economies (Figure 1.24), while others have benefitted from pandemic-driven demand in the second half of 2020, such as Vietnam for its wood products and furniture, and China and Malaysia for medical goods and protective equipment (Box 1.6), the latter particularly for its rubber glove exports. Demand for electronics, a lifeblood of the region, has gained traction since September 2020, helping high-tech exporters such as Japan and Korea offset some of the decline in their total exports for the whole year.

More generally, some of the region's exports have held up well during the pandemic. However, because these faster-growing sectors have mainly been related to nontraditional exports, and they have thus been only minor contributors to overall regional trade activity. Demand for these products appears to be driven largely by the pandemic's impact on economic activity—such as certain textiles for surgical use and protective apparel; jewelry, especially gold, possibly as a store of value (Pande and Majuca 2020); as well as cleaning soaps and other surface-active agents.

Most ASEAN+3 traditional exports, on the other hand, declined in 2020, consistent with poor global and regional demand. They include goods such as vehicles, semiconductors, garments, mineral fuels, plastics, and iron and steel (Figure 1.26). Fortunately, electrical and electronics goods exports—constituting almost half of pre-pandemic regional exports—contracted relatively less than some other goods, thus supporting exports to some degree.

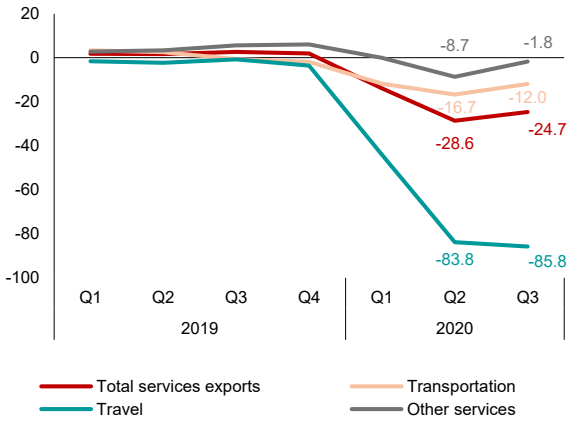
Additionally, service exports, particularly tourism—which helped support the region's external sector during the US–China trade conflict—have been severely affected by COVID-19 containment measures and weakened global demand. ASEAN+3 service exports declined sharply in the

Figure 1.26. ASEAN+3: Growth in Aggregate Major Exports by Product, January–November 2020
(Percent year-over-year)



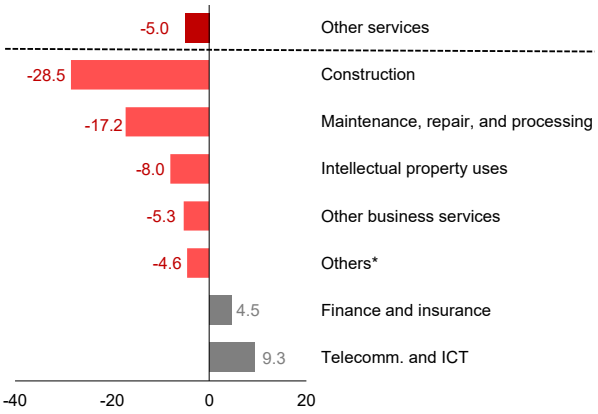
Sources: IHS Markit; and AMRO staff calculations.
Note: Figures in boxes represent the sector's share to the region's total exports in 2019.

Figure 1.27. Selected ASEAN+3: Aggregate Services Exports by Type
(Percent year-over-year)



Sources: Haver Analytics; and AMRO staff calculations.
Note: Brunei, Lao PDR, Myanmar, and Vietnam, for which quarterly data are unavailable, are excluded.

Figure 1.28. Selected ASEAN+3: Breakdown of Aggregate "Other Services" Exports, 2020 Year-to-Date
(Percent year-over-year)

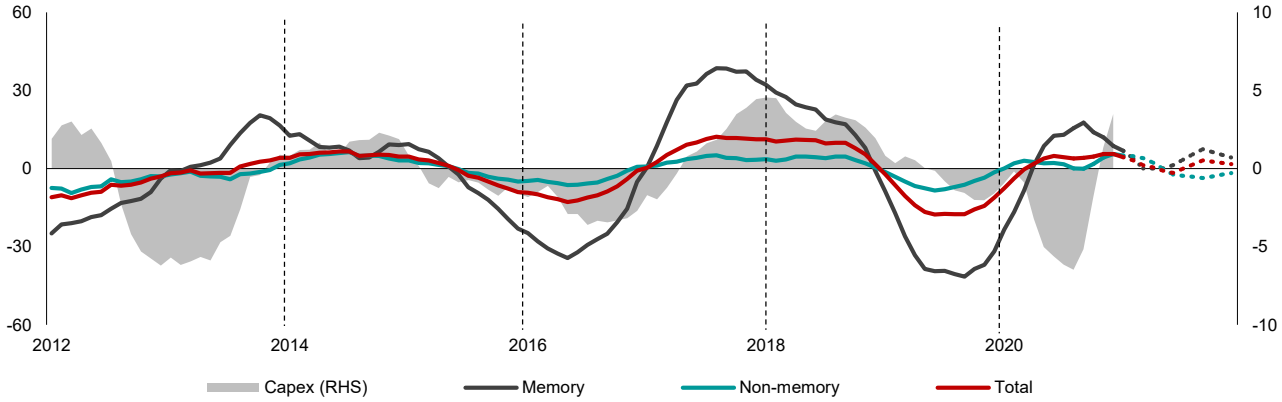


Sources: Haver Analytics; and AMRO staff calculations.
Note: "Other services" refer to service exports excluding transportation and travel services; "Others" include government services not included elsewhere, personal, recreational and cultural services. Brunei, Lao PDR, Myanmar, and Vietnam, for which quarterly data are unavailable, are excluded. ICT = Information and communication technology.

first three quarters of 2020 (Figure 1.27), as border closures led to a halt in international travel and tourism, while the collapse in international trade weighed on transportation services (Box 1.8). In contrast, business and professional services have been largely sustained (Figure 1.28), with the proliferation of digital technology adoption and remote working arrangements, following a transitional period at the onset of the pandemic.Overall, the nascent recovery in ASEAN+3 trade appears fragile. Trade in services is unlikely to fully recover until the COVID-19 virus has been contained across the globe. Meanwhile, the trajectory for goods trade remains uncertain as reflected in more timely shipping indicators (Box 1.5). Encouragingly, the worst appears to be over for the all-important electronics sector. Demand for semiconductors grew by 6.5 percent in 2020, after falling by as much as 12 percent in 2019 (Semiconductor Industry Association, 2020). AMRO's Semiconductor Cycles suggest that global demand for semiconductors actually strengthened in 2020 (Figure 1.29). Looking ahead, demand from Europe and the United States is expected to support the industry, with an expected average growth of 13 percent in 2021, followed by the Asia-Pacific region, with forecast aggregate growth of 10.8 percent.

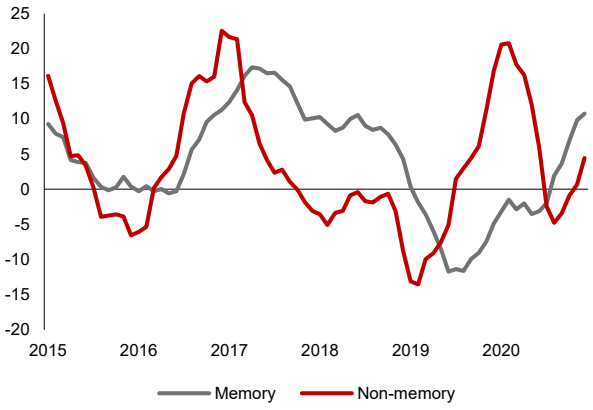
The boost to demand for technology products from the effects of the pandemic is expected to continue going forward. The overall semiconductor cycle has been largely driven by demand for products in the larger memory segment, particularly for integrated circuits, in line with the proliferation of advanced gadgets, as the pandemic changed consumer and corporate activities. Still, non-memory-based elements—such as cameras, bio-medicals, or optoelectronics, including for the internet—appear to be catching up with their memory counterparts (Figure 1.30), with relatively

Figure 1.29. Global Semiconductor and Capital Expenditure (Capex) Cycles
(Percent year-over-year, 6-month moving average)



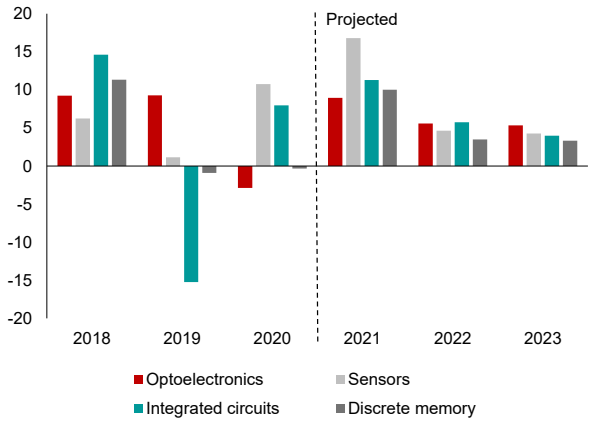
Sources: WSTS Inc.; and AMRO staff calculations.
Note: Dotted lines indicate cycle values derived from 2020–21 forecasts from WSTS, Inc.

Figure 1.30. Semiconductor: Growth in Overall Global Sales by Category
(Percent year-over-year)



Sources: WSTS Inc.; and AMRO staff calculations.

Figure 1.31. Semiconductor: Projected Growth in Global Sales by Component
(Percent year-over-year)



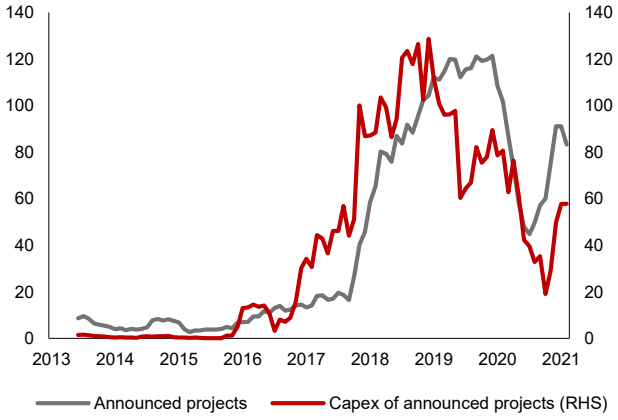
Sources: WSTS INC.; and AMRO staff calculations.
Note: Figures starting from 2021 are forecasts from WSTS, Inc..

stable demand expected over the next two years (Figure 1.31). Promisingly, market projections point to a robust turnaround in semiconductor demand (WSTS 2020). This development can already be seen in the strong appetite for semiconductors from laptop and 5G smartphone manufacturers (Fitch and Koh 2021; Nagumo 2021), and even from automakers, for automotive electronics (Riley and Ziady 2021). The surge in demand for semiconductors could provide a much-needed boost to global capex, which has been largely weak since 2018.Meanwhile, investor sentiment, although somewhat improved, remains tepid. The pandemic has exacerbated the uncertainty in the external environment initially brought about by the US–China trade tensions, as evidenced by announcements of new FDI projects in the region, which have been further reduced (Figures 1.32–1.33). Co-locations and relocations, a major driver of project announcements in 2019 as result of the trade tensions, have likewise nearly disappeared (Figure 1.34). For example, even Vietnam, one of the identified benefactors of the FDI diversion in 2019 (AMRO 2020a), saw the number of inward projects drop from nearly 170 to fewer than 40 announcements.

Although actual FDI volumes held up strongly in some countries in 2020, the number of inward intentions for future projects saw a broad-based decline across the ASEAN+3. Still, the region's project announcements have been buttressed by more projects flowing to the ASEAN subregion in 2020, which amounted to almost half of its total estimated capital expenditure (Figure 1.33). Although recent indicators remain weak, this outturn is consistent with anecdotal evidence pointing to the ASEAN subregion as a prime recipient of investments that have been diverted away from China, and that ASEAN—along with the Plus-3—will continue to be an important node in global value chain activity in the post-pandemic world (see Chapter 2). Thus, in the short-term, investment diversion, like that of trade, continues to be an upside risk factor for many of the regional economies. However, uncertainty about pandemic developments will likely drive the trade and investment environment in 2021, even as China continues to make good progress toward implementing its Phase One trade deal with the United States (Box 1.7).

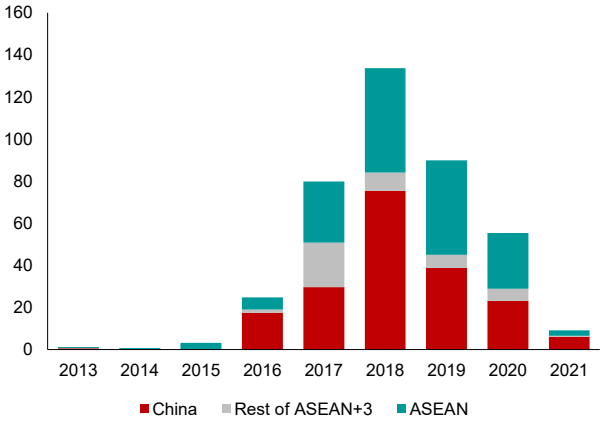
The pandemic has fundamentally changed the future of trade in goods and services. It has accelerated the

Figure 1.32. ASEAN+3: Aggregate Inward FDI Announcements
(Number of projects; Billions of US dollars)



Sources: Orbis Crossborder; and AMRO staff calculations.
Note: Inward project announcements cover four types: new projects, expansion projects, relocated projects, and co-located projects. Co-located projects refer to those that are moved to a location where the investor already has existing business.

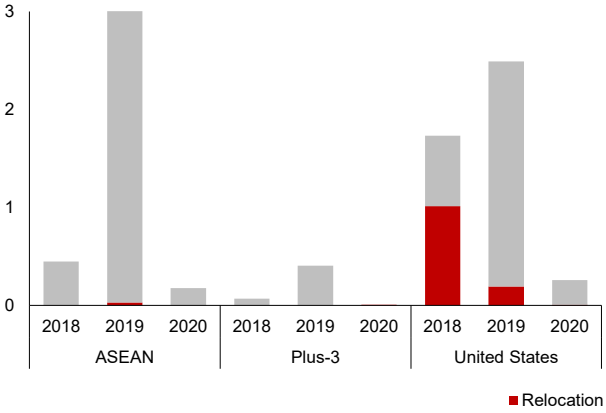
Figure 1.33. ASEAN+3: Inward FDI Announcements by Destination
(Billions of US dollars)



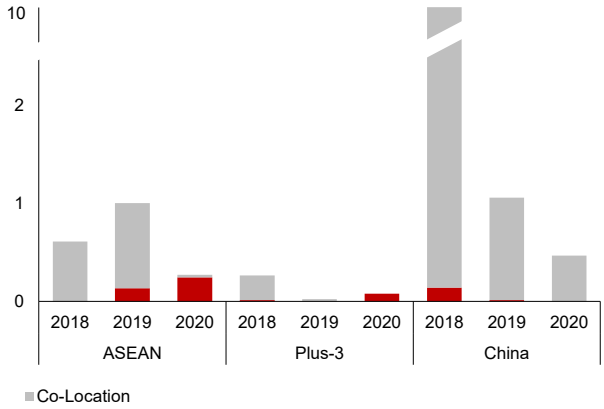
Sources: IHS Markit; and AMRO staff calculations.

Figure 1.34. ASEAN+3 and United States: FDI Co-Location and Relocation by Direction
(Billions of US dollars)

From China



From the United States



Sources: Orbis Crpssborder; and AMRO staff calculations.

digitalization of households and businesses, as well as the emergence of new and different technologies. It has also raised the possibility of reconfigured global value chains post-pandemic, as technology significantly transforms the factors that help develop the deep supply chains in the ASEAN+3 region, for both goods and services (see Chapter 2).As technology changes, so will the manner of global production and trade. Cost considerations will become less important—implying a need to strengthen other comparative advantages, such as skilled labor supply, regulations, and logistic capabilities. Despite some evidence of firm movements, such as those away from China, the ASEAN+3 region remains a highly attractive location, including for future FDI flows—supported by a fast-growing middle class and dynamic growth prospects. However, to remain significant nodes in global value chain activity, the region will need to keep up with the digital economy's requisite hard and soft infrastructure, along with coordinated regional strategies that strongly incorporate resilience against various possible shocks.

Box 1.5:

Is the Shipping "Crystal Ball" Picking Up a Trade Revival?

ASEAN+3 trade gained from shifts in demand as a consequence of the pandemic. Electrical and electronic product exports benefited from increased reliance on technology as remote work-from-home (WFH) arrangements and e-commerce became the new normal (Figure 1.5.1). WFH and changes in consumer behavior also led to greater demand for other non-information technology products, such as furniture and bicycles, with an increasing share of exports from the region (Figure 1.5.2). The health crisis likewise saw a surge in demand for medical products and personal protective equipment (PPE), such as ventilators, face masks, and rubber gloves. Increased imports of some of these goods originated mainly from the United States and Europe. More recently, some ASEAN economies received an additional boost to its commodity exports—including base metals—owing to China's investment-led economic recovery from the pandemic.

A greater proportion of ASEAN+3 exports that enjoyed relatively strong demand in 2020 was transported by air and land. In the wake of supply chain disruptions and movement restrictions, some businesses switched from ocean freight to air and land freight, where possible:

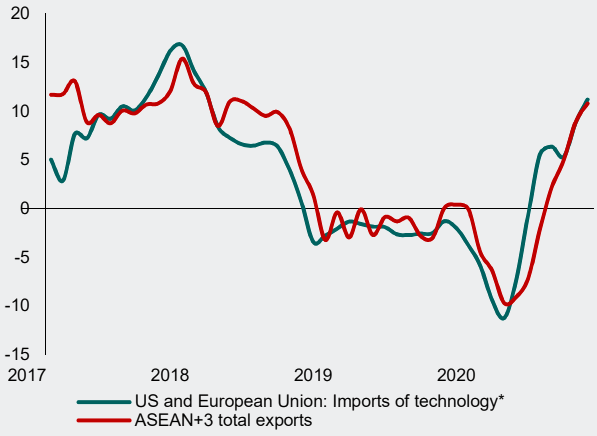
- Urgent consignments, like PPEs and other medical items, as well as goods that are crucial to just-in-time supply chains, such as electronics components, were generally transported by air. As a result, air cargo revenue grew by 31 percent in the second and third quarter of 2020, after falling by 28 percent year-over-year in the first quarter of 2020 (IATA 2020a, 2020b).

- Meanwhile, rail freight volume from Chinese cities to destinations along the Eurasia trade route accelerated when ocean freight was hit by capacity constraints from COVID-19 restrictions (King 2020). Indeed, rail freight transportation between China and Europe—which is less costly than air freight and faster than transporting by sea—became an attractive alternative (DSV Global Transport and Logistics 2020). But, as China-Europe rail services reached full capacity, overland trucking—which can be faster than trains—became more appealing (van Marle 2020).

- Hong Kong recorded a sustained expansion in land-based shipments, which were predominantly re-exports bound for China, while Korea and Malaysia saw an increase in air and land freight from the end of the second quarter of 2020 (Figure 1.5.3), leading to an increase in the export shares of land-based cargo for Hong Kong, and air and/or land transport for Korea and Malaysia.

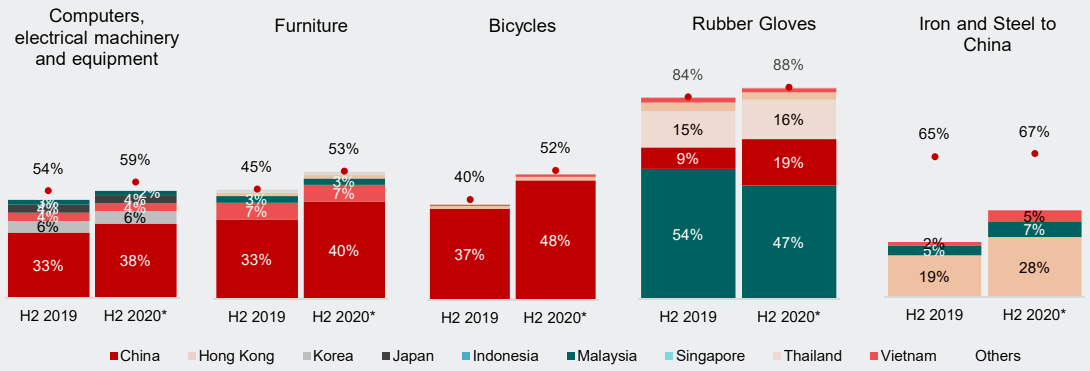
But even as air and land freight increased in importance during the pandemic, maritime transport continued to dominate global trade. Ocean freight accounts for at least 50 percent of exports among regional economies, except Hong Kong—where more than half of gross exports (including re-exports) are sent over land to mainland China—and Lao PDR, a landlocked economy where land-based trade is more dominant (Figure 1.5.4). Aside from being the least costly alternative, ships can move a broader range of goods than aircrafts, while rail transportation is not widely available throughout the region. For example, exports of furniture and bicycles are usually shipped via general cargo vessels or container ships, while base metals, such as iron and steel, are typically transported via general cargo or bulk carriers. An even greater variety of goods can be exported via container ships, mostly traversing the Transpacific route, while grains and other dry bulk commodities are carried in bulk carriers and petroleum, liquefied natural gas, and chemicals in tankers. Shipping data can thus be used to gauge signs of a broadening in trade activity.

Figure 1.5.1. Selected ASEAN+3: Exports and US+EU Technology-Related Imports
(Percent year-over-year, 3-month moving average)



Sources: National authorities via IHS Markit and Haver Analytics; and AMRO staff calculations.
Note: Imports of technology are represented by automated data processing machines (HS code: 8471) and electrical machinery and equipment (HS code: 85) for the ASEAN-6 and Plus-3.

Figure 1.5.2. Selected ASEAN+3: Global Market Share for Specific Goods
(Percent of total exports of the specified good)



Source: National authorities via IHS Markit.
Note: The proportions of iron and steel exports to China are relative to total exports of iron and steel to China. "Others" refer to other ASEAN+3 economies where data are available from IHS Markit. Hong Kong, Singapore, and Malaysia data are for domestic exports.
* Refers to data until November 2020 for Malaysia, the Philippines, and Vietnam.

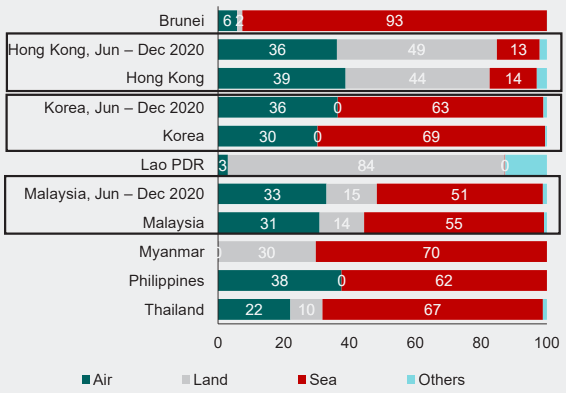
Figure 1.5.3. Selected ASEAN+3: Merchandise Export Values by Mode of Transport
(US dollar, percent year-over-year; 3-month moving average)

Sources: National authorities via Haver Analytics and IHS Markit; and AMRO staff calculations.
Note: Trade by land has been excluded for Korea, given that the long-term trend is very erratic.

Shipping-based indicators of ASEAN+3 trade point to continuing disruption by the pandemic, notwithstanding the turnaround in exports which troughed in the first half of 2020.[1/] Shipping capacity has come under pressure as reduced workforces, port congestions, and vessel route diversions (during the earlier part of the pandemic) coincided with rising demand in the West when restrictions following the first wave of COVID-19 infections were eased. That pickup in demand was met by only a few ASEAN+3 economies, led by China, as others continued to deal with elevated COVID-19 infection rates. In turn, the mix of tight shipping capacity and uneven trade flows has given rise to a shortage of shipping containers in some parts of Asia, especially in China (Ren 2020). It has prompted container vessels elsewhere to leave port without being fully loaded and head to hubs where demand is high (Mongelluzzo 2020). Such trends in ship movements are captured in the significant outperformance of outbound ship traffic (ship count) relative to cargo volume (cargo tonnage)—or the sharp drop in cargo volume per ship—in the second half of 2020 for Indonesia, the Philippines, Singapore, Thailand, and to a certain extent, Japan. The shipping imbalance has, in fact, led to a spike in ocean freight rates—for example, rates for containers leaving Shanghai have risen threefold since the end of 2019 (Figure 1.5.5).

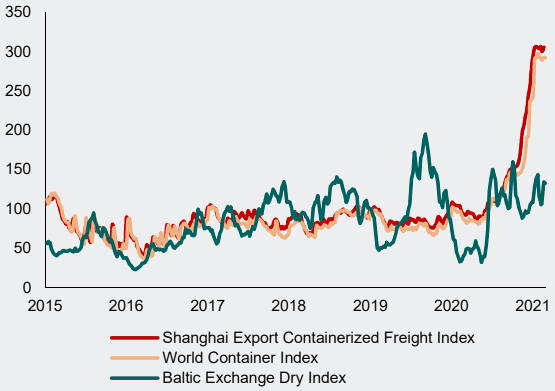
Shipping activity in the region points to overall weakness in global demand and regional supply, the latter likely affected by logistical and supply chain constraints. The shipping indicators for outbound cargo volumes for most regional economies show a loss in momentum heading toward the end of 2020 through early 2021, after the earlier turnaround (Figure 1.5.6). Vietnam's outbound cargo is the exception, with seaborne trade posting a strong rebound in early 2021. The general decline in shipping momentum is also corroborated in seaborne import volumes, which suggest a slowing trend across many economies, despite indications of a more recent pickup in Myanmar and Vietnam (Figure 1.5.7). Overall, the shipping indicators point to a fragile recovery in global demand and supply, hinting that the recent revival in exports—led by air and land freight—may have limited steam. Hence, any sustained recovery in ASEAN+3 trade would likely be contingent on an easing in logistical constraints and improvements in global demand.

Figure 1.5.4. Selected ASEAN+3: Share of Merchandise Exports by Mode of Transport, 2019
(Percent of total value)



Sources: National authorities (for Hong Kong and Malaysia data) via Haver Analytics and IHS Markit (Korea); UN Comtrade; and AMRO staff calculations.
Notes: Only ASEAN+3 economies with available data are reported. The bulk of "Others" for Hong Kong refers to rivers; and pipelines and cables for Lao PDR.

Figure 1.5.5. World: Ocean Freight Rates
(Percent, February 25, 2019 = 100)



Source: Bloomberg Finance L.P.

1/ See del Rosario and Quách (2020) for the detailed discussion and methodology behind the shipping indicators.

Figure 1.5.6. Selected ASEAN+3: Gross Merchandise Exports against Outbound Ship Count and Cargo Tonnage Shipping Indicators
(Index, 2019 monthly average = 100)

Sources: MarineTraffic; national authorities via Haver Analytics; and AMRO staff estimates.
Note: Vietnam's ship count includes only containerships. Vietnam's ship count and cargo tonnage use a two-month leading prediction of the metrics. Ship count and cargo tonnage indicators are based on information up to February 28, 2021.

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(Index, 2019 monthly average = 100)

Sources: MarineTraffic; national authorities via Haver Analytics; and AMRO staff estimates.
Note: Vietnam's ship count includes only containerships. Vietnam's ship count and cargo tonnage use a two-month leading prediction of the metrics. Ship count and cargo tonnage indicators are based on information up to February 28, 2021.

The authors of this box are Diana del Rosario and Toàn Long Quách.

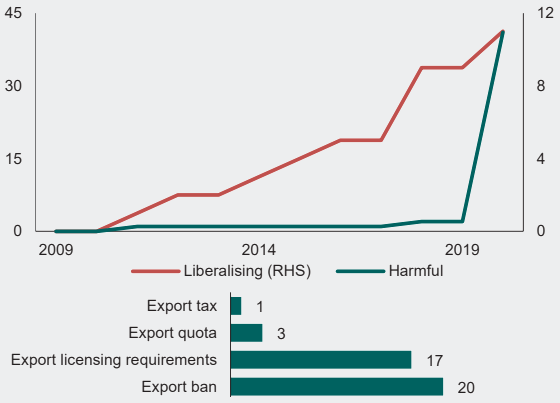
Box 1.6:

Trade in Medical Goods during a Pandemic

The COVID-19 pandemic brought the trade in medical goods and protective equipment to the forefront of trade policy in 2020. The sudden demand for these critical products, which quickly outstripped domestic supply, gave rise to protectionism around these strategic goods.[1/] To ensure availability for their domestic population, many economies in the world restricted their trade, mainly through the use of export bans and licensing requirements (Figure 1.6.1). While these goods constitute only a very small portion of total ASEAN+3 exports—less than 1 percent—some economies in the region have nonetheless benefited from the strong global demand for them.

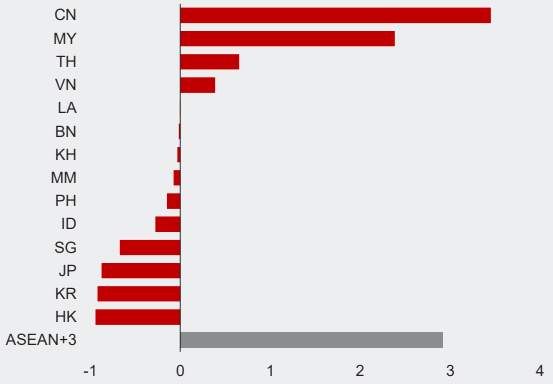
The ASEAN+3 region as a whole was a net exporter of protective and medical equipment (PPEs) in 2020. They were largely driven by China and Malaysia, which more than offset the net imports by other regional economies (Figure 1.6.2). The success of China's containment measures in controlling the spread of the virus early on, and its ability to quickly scale up production meant that it was able to manufacture sufficient equipment for domestic needs and for export. Similarly, in Malaysia, the production of rubber gloves was ramped up to meet increased global demand. Overall, the region's exports of PPEs picked up in the second quarter of 2020, after slowing down in late 2019 (Figure 1.6.3).

Figure 1.6.1. Global Export Restrictions: New Interventions in the Medical and Surgical Sector
(Cumulative since 2009)



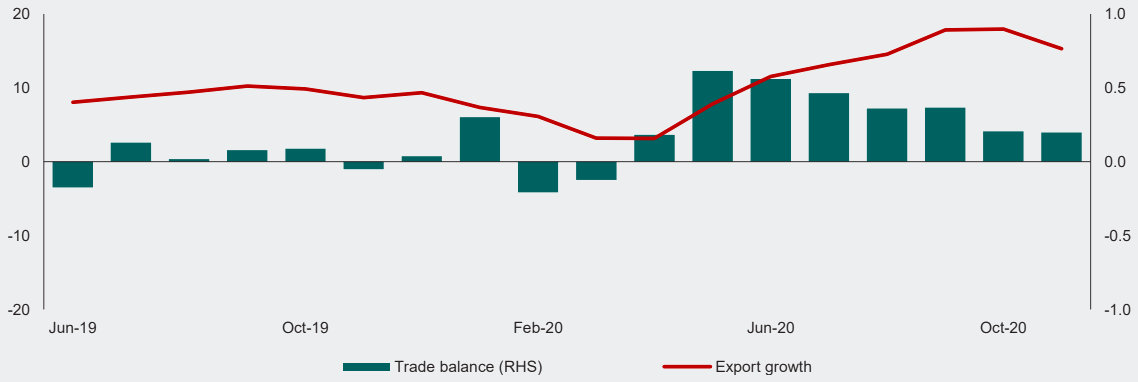
Sources: Global Trade Alert; and AMRO staff calculations.

Figure 1.6.2. ASEAN+3: Trade Balance of Protective and Medical Equipment, 2020 Year-to-Date
(Billions of US dollars)



Sources: IHS Markit; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.6.3. ASEAN+3: Trade in Protective and Medical Equipment
(Percent year-over-year; billions of US dollars)



Sources: IHS Markit; and AMRO staff calculations.

The author of this box is Marthe Hinojales.

1/ The goods refer to a group of 51 six-digit HS codes, including 300590, 300670, 401511 (surgical and medical gloves); 841920 (sterilizers); 900490 (protective spectacles); 940220 (furniture and bedding) and 940290 (medical and surgical furniture), among others.

Box 1.7:

Taking Stock of the US–China Phase One Deal

The signing of the Phase One deal between the United States and China on January 15, 2020 marked the easing of trade tensions between the two economies that began in 2018. As part of the deal, China agreed to increase its purchases from the United States by at least USD 200 billion over two years to 2021, covering manufactured goods, energy, agriculture, and services (Table 1.7.1). The United States, on the other hand, halved its tariffs on USD 120 billion worth of goods from China and cancelled a planned round of tariffs on an additional USD 180 billion of Chinese goods.

Both sides held a review of the progress on implementing the agreement on August 25, 2020, and appeared optimistic, despite the COVID-19 pandemic. The pandemic had also affected the US tariff exclusion process for particular Chinese-made products—beginning March 2020, the United States had excluded medical goods imports such as ventilators, oxygen masks, gloves, and some personal protective equipment from additional tariffs.[1/] A statement from the Ministry of Commerce of China indicating that "the two sides agreed to create conditions and atmosphere to push forward" the implementation of the deal,[2/] underscored how COVID-19 had made the timeline for implementing the agreement more challenging.

A stocktake of China's commitments under Phase One supports the positive outcome of the review. While China's imports as of June 2020 suggested a shortfall of more than 75 percent, it had been trimmed to less than 40 percent by December (Table 1.7.2). The sluggish progress in the early part of 2020 is consistent with the adverse impact of the pandemic on China's growth in the first half of 2020, as well as the continued rise in infections in the United States. As economic activity in China has continued to normalize since June, imports from the United States have also gained traction—China imported nearly 49 percent more in the second half of 2020 than in the first half. This surge helped to reduce its earlier projected shortfall for 2020, especially in energy and manufactured goods.

Table 1.7.1. US–China Phase One Deal: Targeted Product Categories

Manufactured Goods	Agriculture	Energy	Services
• Industrial machinery • Electrical equipment and machinery • Pharmaceutical products • Aircraft • Vehicles • Optical and medical instruments • Iron and steel • Other manufactured goods	• Oilseeds • Meat • Cereals • Cotton • Other agricultural commodities • Seafood	• Liquefied natural gas • Crude oil • Refined products • Coal	• Charges for use of intellectual property • Business travel and tourism • Financial services and insurance • Other services • Cloud and related services

Source: US Trade Representative Office.
Note: "Other manufactured goods" include solar-grade polysilicon and other organic and inorganic chemicals, hardwood lumber, integrated circuits (manufactured in the United States), and chemical products; "aircraft" refer to both orders and deliveries. "Other agricultural commodities" includes all products, including alfalfa, citrus, dairy, dietary supplemented, distilled spirits, dried distiller grains, essential oils, ethanol, fruits and vegetables, ginseng, pet food, processed foods, tree nuts, and wine. "Seafood" includes lobster. "Coal" includes metallurgical coal. "Services" represent the cross-border supply of services, with the exception of financial, insurance, and cloud services, which include both cross-border supply and supply through commercial presence.

1/ This exclusion for medical goods is notable, as the US Trade Representative Office (USTR) has a very high rejection rate for exclusion requests. As of July 2020, about 84 percent of all exclusion requests filed until January 2020 had been denied by the USTR.

2/ Ministry of Commerce, China (2020).

Table 1.7.2. China: Stocktake of Progress under the Phase One Deal, as of December 2020

	2020 Target (2017 Baseline + Additional Imports)	Actual US Imports, 2020				Non-US Imports	
		December		June		December	
	Billions of US dollars	Billions of US dollars	Percent to target	Billions of US dollars	Percent to target	Billions of US dollars	Percent of US imports to non-US imports
Manufactured Goods	110.5	66.7	60.3	30.3	27.4	927.1	7.2
Agriculture	36.5	23.5	64.5	8.7	23.8	146.4	16.1
Energy	25.5	9.8	38.4	1.3	5.0	218.3	4.5
Total (Non-Services)	172.5	100.0	58.0	40.2	23.3	1,291.8	7.7

Sources: IHS Markit; and AMRO staff calculations.

The author of this box is Marthe Hinojales.

Box 1.8:

Travel and Transportation when Borders are Closed

Although largely dwarfed by goods exports, service exports are becoming increasingly more important for several of the ASEAN+3 economies. They are particularly significant for the two international financial centers in the region, Singapore and Hong Kong, followed by Cambodia and Thailand, where tourism was a mainstay pre-COVID-19 pandemic (Figure 1.8.1). For the entire region, the travel, transportation, and other business services segments dominate, albeit to different degrees across economies (Figure 1.8.2). For example, while travel services account for 80 percent of total service exports in Cambodia and Lao PDR, other business services make up almost half of service exports in the Philippines. The pandemic dealt a severe blow to many service exports, especially in tourism and hospitality, as a result of border closures and the collapse in air travel.

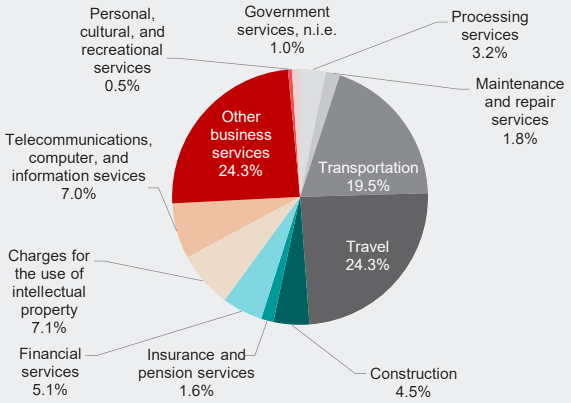
Travel receipts have been most affected among the various sectors. Tourist arrivals started to fall in February 2020 and had come to an abrupt halt by March/April with the closure of borders to protect populations against the spread of the virus (Figure 1.8.3). Travel receipts declined by more than 50 percent across the region in the first three quarters of 2020, which significantly impacted regional economies, where the direct and indirect impact of domestic and international travel and tourism ranged from less than 5 percent of GDP in Korea and Myanmar to more than 25 percent in Cambodia and the Philippines in 2019 (Figure 1.8.4), and contributed significantly to employment (Choo and others 2020).

Although borders have been cautiously reopened for selected groups of travelers—mostly for returning citizens and business travelers—they have remained largely closed to leisure and social visits. The recovery in cross-border travel and tourism remains highly uncertain in the near term, as the pre-condition for border reopening will be the successful containment of COVID-19 both domestically and abroad. The tenacious and constantly evolving nature of the pandemic has, however, necessitated a constant review of border policies, including quarantine requirements, testing, contact tracing, and soon, vaccinations. Economies with high reliance on foreign tourism have thus been hit hard, and a full rebound is unlikely until the pandemic is well under control around the world through mass vaccinations.

Figure 1.8.1. ASEAN+3: Composition of Exports, 2015–19 Average
(Percent of GDP)

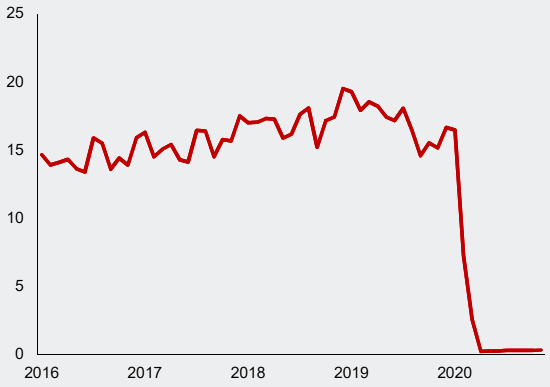
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.8.2. ASEAN+3: Share of Aggregate Services Exports by Industry, 2015–19
(Percent)



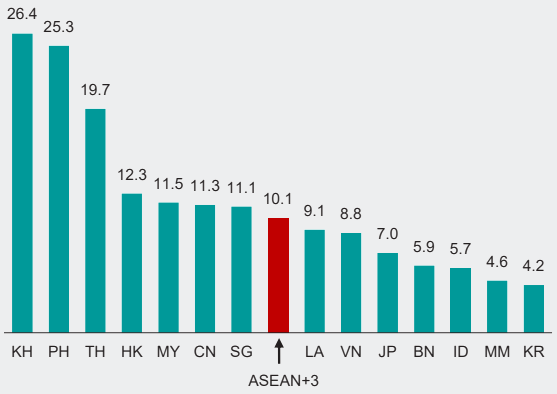
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Vietnam is not included in the total as it does not report a sectoral breakdown of its services trade. n.i.e. = not included elsewhere.

Figure 1.8.3. Selected ASEAN+3: Aggregate Tourist Arrivals
(Millions of persons)



Sources: Haver Analytics; and AMRO staff calculations.
Note: Data include Cambodia, Hong Kong, Indonesia, Japan, Korea, Singapore, Thailand and Vietnam.

Figure 1.8.4. ASEAN+3: Total Contribution of Travel and Tourism to GDP, 2019
(Percentage share of GDP)



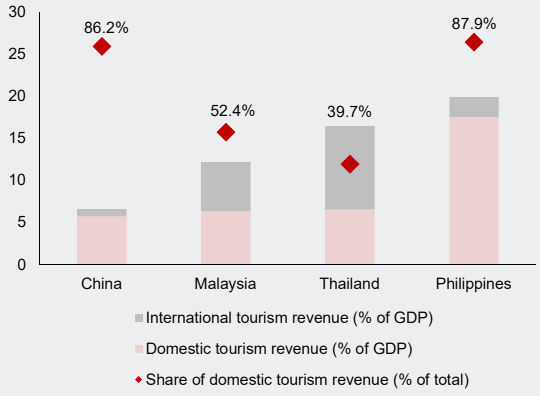
Sources: World Travel and Tourism Council; and AMRO staff calculations.
Note: Shares for ASEAN+3 refer to the median. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

As domestic restrictions have gradually been lifted in economies with relatively contained COVID-19 cases, domestic tourism has been able to resume. In 2018, domestic tourists accounted for more than 80 percent of all visitors in Vietnam, more than 90 percent in the Philippines and Japan, and more than 95 percent in Korea and China (Choo and others 2020). In several economies, revenue from domestic tourism has thus accounted for the larger share of the industry (Figure 1.8.5). While domestic tourism does not generate foreign exchange earnings and domestic tourists might pursue different experiences than international visitors, it has the potential to support the hard-hit sector in economies where the epidemic situation is well under control. For instance, even with closed borders, the resumption of domestic travel in China saw the number of weekly scheduled flights returning to its pre-pandemic levels by October 2020 (Figure 1.8.6). For small economies such as Singapore, the number of flights remained about 85 percent lower than a year earlier even with the resumption of domestic tourism, illustrating the pressure the aviation sector continues to face.

Overall, the net travel balance for most ASEAN+3 economies moderated during 2020 as the decline in tourism receipts far outstripped the lower travel expenditure abroad by residents. Several economies in the region— Brunei, China, Korea, Lao PDR, the Philippines, and Singapore—were net importers of travel services pre-pandemic, that is, their residents spent more money traveling abroad than foreign visitors spent domestically (Figure 1.8.7). With limited cross-border movements, a resumption of domestic tourism would benefit the tourism sector in these places to varying degrees. Of course, these are aggregate effects—some segments of the travel industry would likely benefit more than others. That said, any flare-up in infection rates would likely drag down overall travel spending. Net travel exporters, on the other hand—most notably Cambodia, Japan, and Thailand, as well as Malaysia and Myanmar to lesser degrees—are likely the ones suffering the most from the collapse in international travel.

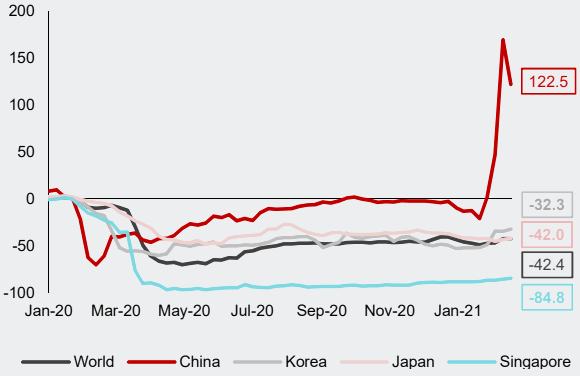
Amid weak global demand and limited cross-border movement, a full recovery in services trade, especially travel and transportation, seems unlikely. Policymakers in the ASEAN+3 region have sought to boost domestic tourism in an effort to mitigate the loss of revenue from international tourists. They have introduced various measures including travel subsidies, tax reliefs and promotional campaigns as incentive. The need to comply with social distancing measures and border closures while supporting income and employment within the sector have also prompted the creation of innovative service offerings. These include repurposing airports for luxury camping, rebranding tourist attractions to appeal to locals, and repricing hotel rooms and amenities to provide alternative venues for those who are working remotely, and entice locals to take vacations in hotels. The transportation sector has also suffered. The loss in revenue from passenger transport and the fall in freight transport due to weaker global demand for goods have led to a sharp decline in receipts for transportation services, although all economies in the region—with the exception of Hong Kong—are net transportation services importers (Figure 1.8.8).

Figure 1.8.5. Selected ASEAN+3: Domestic versus International Tourism Revenue
(Percent of GDP; percent of total)



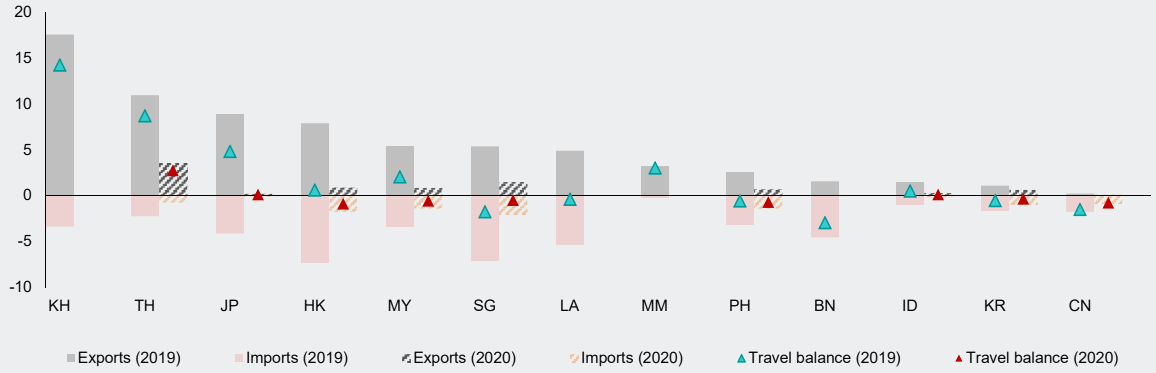
Sources: National authorities via CEIC and Haver Analytics; and AMRO staff calculations.
Note: Data for mainland China are as of 2019; Malaysia, the Philippines and Thailand are as of 2018.

Figure 1.8.6. World and Selected ASEAN+3: Flight Departures
(Percent year-over-year)



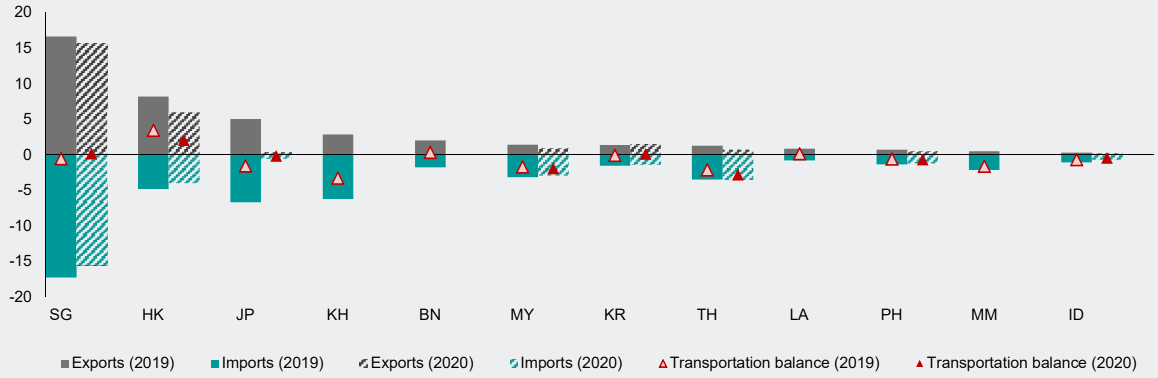
Source: Official Aviation Guide.
Note: Data are in weekly frequency.

Figure 1.8.7. ASEAN+3: Export and Import of Travel Services
(Percent of GDP)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Data are unavailable for Vietnam and quarterly data for Brunei, Cambodia, Lao PDR and Myanmar. Data for Hong Kong, Philippines and Thailand cover the first to third quarter of 2020. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; and TH = Thailand.

Figure 1.8.8. ASEAN+3: Export and Import of Transportation Services
(Percent of GDP)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Data for Vietnam and quarterly data for Brunei, Cambodia, Lao PDR, and Myanmar are unavailable. Data for Hong Kong, the Philippines and Thailand cover the first to third quarter of 2020. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; and TH = Thailand.

The authors of this box are Catharine Tjing Yiing Kho and Anne Oeking.

III. A Dichotomy in the Financial Sector?

The progress of the pandemic has led to divergent perceptions of the financial sector. Both AE and regional emerging market (EM) equities have soared, following the huge drawdown in March–April 2020—and their volatility have returned to almost pre-pandemic levels—ostensibly because investors feel optimistic about the outlook for corporate profitability, amid extraordinary policy support and positive vaccine developments (Figures 1.35–1.36).

Concurrently, total returns on EM sovereign and credit bonds have been positive in 2020, with regional EMs faring well relative to their peers in terms of the market's relative risk assessments (Figures 1.37–1.38). In contrast, concerns have risen about what corporate and household—and hence bank—balance sheets could reveal about economic scarring when policy support is eventually removed.

A Quick Turnaround in Markets

Global financial markets have come a long way since the panic-driven crash in March 2020, when the COVID-19 outbreak was officially declared a global pandemic. Since then, unprecedented policy responses in the form of monetary easing, liquidity injections, massive fiscal stimuli, and regulatory forbearance, to offset the liquidity squeeze and income losses from the necessary physical containment measures, have helped turn around asset prices. The success in slowing the spread of the virus in some parts of the world, the gradual easing of restrictions and reopening of economies, and, more recently, success in the development of efficacious vaccines have been positive for markets. The outcome of the US Presidential election also appeared to buoy investor sentiment.

Accommodative monetary policies, especially in AEs, have played a major role in supporting markets in 2020, beyond their initial backstopping objective. With economic recovery still fragile and nascent, ultra-easy monetary policies in the AEs are expected to remain in place for a prolonged period, which will boost markets (Figure 1.39). The success in vaccine development has been a further boon for markets, boosting equity prices, especially in sectors that have been underperforming since the pandemic broke out.

The outcome of the US elections further improved the backdrop for risk assets. The exit of the Trump administration has raised hopes of improvements in US–China relations and consequently, for global trade. In addition to the White House, the swing in the balance of power in Congress toward the Democrats, who now control both the House of Representatives and the Senate, has increased optimism for larger fiscal stimulus packages and more rational, credible policymaking. Concerns that a Democratic government would result in stronger regulatory oversight of banks and nonfinancial firms are less likely to manifest in the near term as the incoming Biden administration focuses instead on dealing with the pandemic and healing the economy.

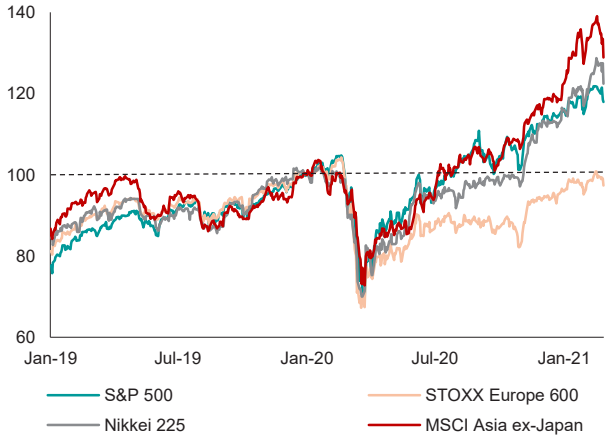
While supported by the recovery in AE markets, regional financial markets have been affected by idiosyncratic factors, reflecting the diversity of their economies. Financial stress has declined significantly since the peak in March 2020 (Figure 1.40). Generally, macro-financial policy responses, and the pickup in economic activity following the easing in containment measures, drove the turnaround in markets. The timing, size, and type of support resulted in various degrees of success in controlling the pandemic, and the macro backdrop underpinned market performance (Table 1.3):

- A clear divergence emerged between Plus-3 and ASEAN equity markets, as the recovery in the former was much quicker. The turnaround was also uneven at the sectoral level (Box 1.9). Looking ahead, a more positive global backdrop provides opportunity for regional laggards to catch up.

- US dollar movements dominated regional currency markets, but country-specific factors also played a part. Appreciation pressure on the Korean won, Philippine peso, and Thai baht (which had started toward the end of 2019) reflected strengthening current account balances (Figure 1.41), while the Chinese renminbi benefited from the country's rapid resumption of economic activity once infections were controlled. US dollar weakness will likely be the dominant theme in FX markets—the Biden Administration is not expected to undertake any verbal intervention—while any perceived reduction in trade and tech tensions will further support regional currencies; appreciation pressures may ease as current account surpluses start to narrow (Table 1.4).

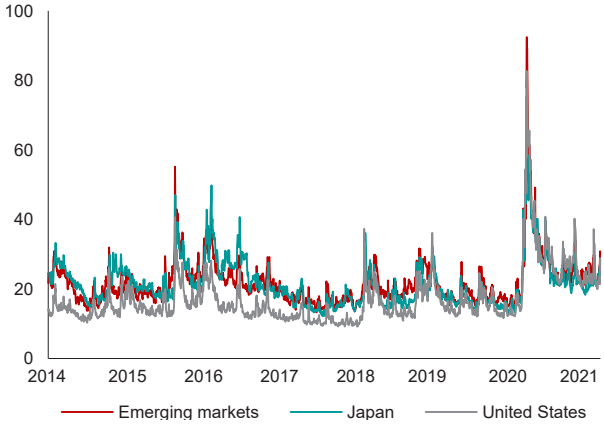
- Bond markets have been largely supported by monetary policy easing and massive liquidity injections, both global and domestic. As markets stabilized, the gradual improvement in risk sentiment saw a return of flows to the region. However, the recent spike in US long-term rates, combined with market expectations of continuing large fiscal deficits, have led to a recent steepening in yield curves in some emerging economies, which will likely continue through 2021.

Figure 1.35. Selected Advanced Economies and Asia: Equity Market Indices
(Index, January 1, 2020 = 100)



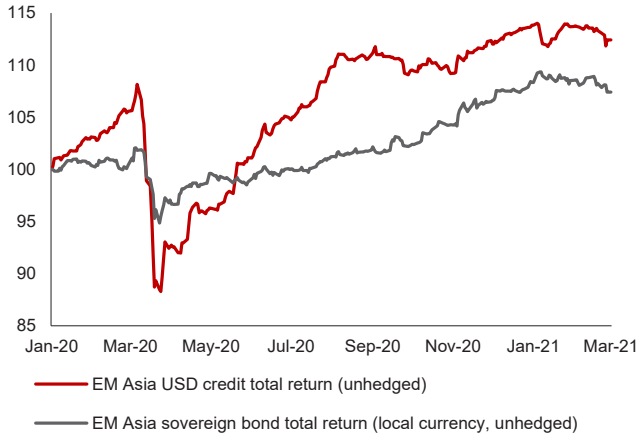
Sources: Bloomberg Finance L.P.; Haver Analytics; and AMRO staff calculations.

Figure 1.36. Selected Advanced and Emerging Markets: Equity Volatility Indices
(Percent)



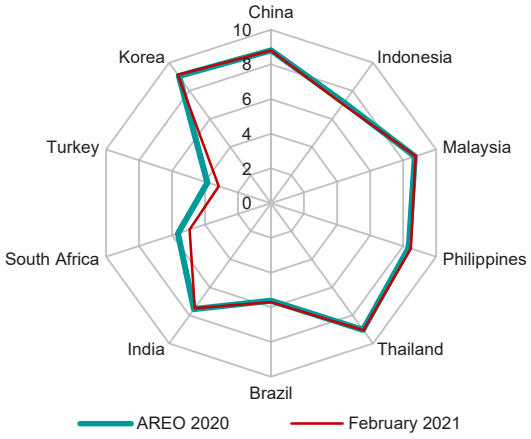
Source: Haver Analytics.

Figure 1.37. Asia: Total Returns on Sovereign and Corporate Bonds
(Index, December 31, 2019 = 100)



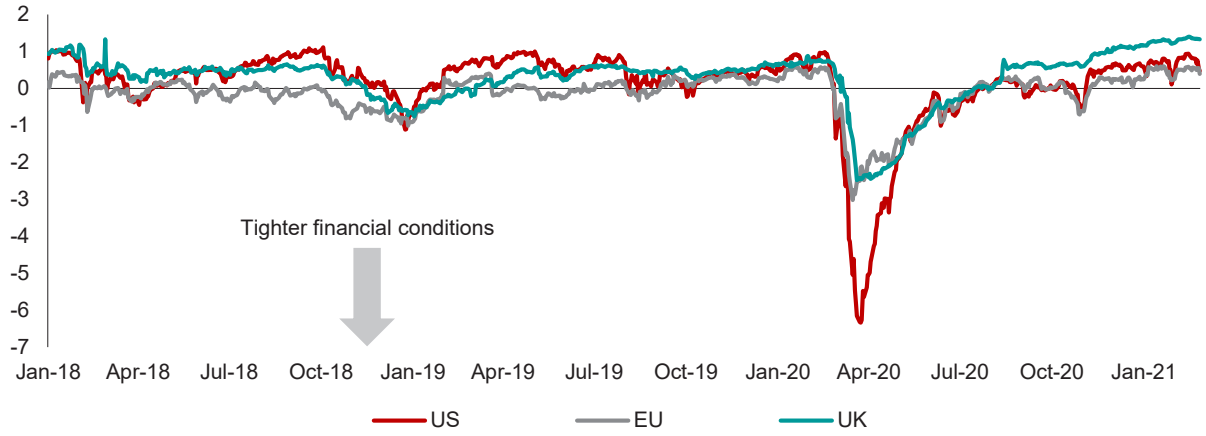
Source: Bloomberg Finance L.P.

Figure 1.38. Selected Emerging Market Economies and Korea: Sovereign Access to Capital Markets
(Rank)



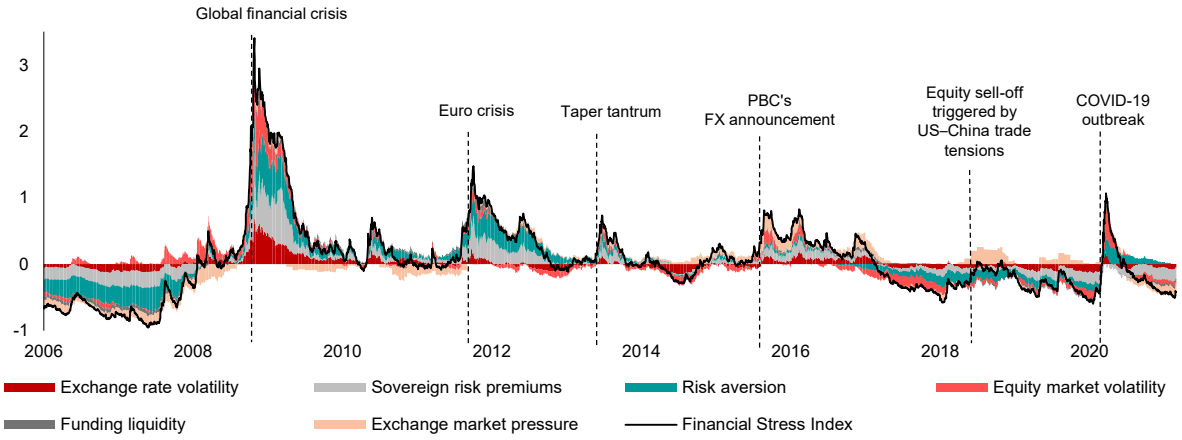
Sources: Haver Analytics; and AMRO staff estimates via ARTEMIS.

Figure 1.39. EU, United Kingdom, and United States: Financial Conditions Index



Source: Bloomberg Finance L.P.
Note: EU = European Union; UK = United Kingdom; and US = United States.

Figure 1.40. Selected ASEAN+3: Financial Stress Index



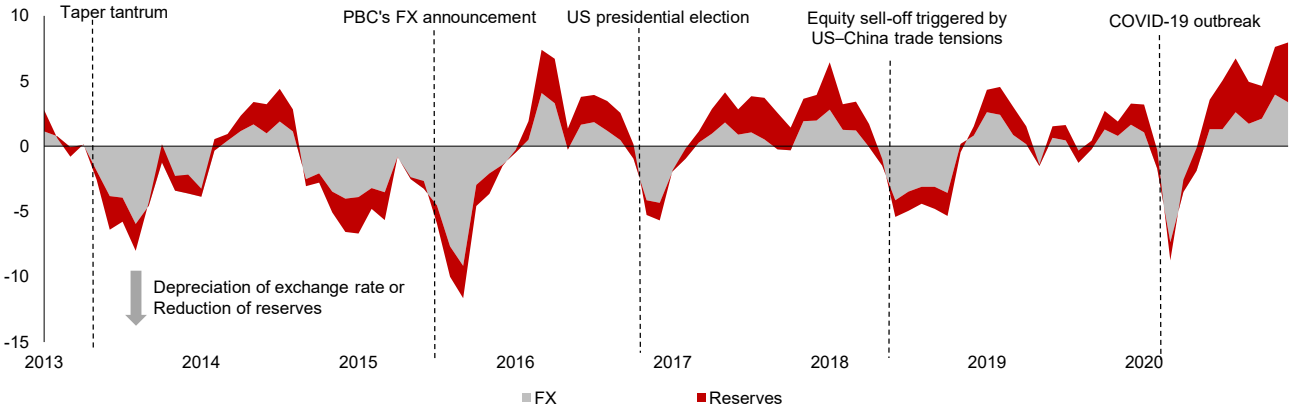
Sources: Bloomberg Finance L.P.; national authorities via Haver Analytics; and AMRO staff estimates.
Note: The Financial Stress Index (FSI) is estimated from the methodology proposed in Poonpatpibul and others (2018). PBC = People's Bank of China.

Table 1.3. ASEAN+3 and Selected Advanced Economies: Performance of Equity, Exchange Rate, and Government Bond Markets, as of February 28, 2021

Economy	Benchmark equity index (log returns)					Currency (against USD, log returns)					10-year yield (basis points)					10-year vs 5-year yield spread (basis points)				
	Level	2021 (YTD)	2020	2019	2018	Level	2021 (YTD)	2020	2019	2018	Level	2021 (YTD)	2020	2019	2018	Level	2021 (YTD)	2020	2019	2018
US	3,829	1.9%	15.1%	25.4%	-6.4%	96.8	0.2%	-7.5%	0.3%	4.1%	1.52	60.7	-100.4	-76.7	27.9	70.0	14.8	32.6	5.3	-2.6
EU	3,685	3.7%	-5.3%	22.1%	-15.6%	1.223	-0.4%	9.1%	-2.0%	-4.5%	-0.23	3.7	-38.4	-42.7	-18.5	31.3	1.4.4	-11.9	-26.6	-7.5
UK	6,652	2.9%	-15.5%	11.4%	-13.8%	1.417	3.5%	3.7%	3.3%	-5.8%	0.82	62.6	-62.5	-45.8	8.6	70.1	33.5	8.0	-24.5	-23.0
CN	3,585	3.2%	13.0%	20.1%	-28.2%	6.449	1.4%	6.2%	-1.2%	-5.5%	3.28	13.8	0.1	-16.4	-57.9	22.0	2.0	-6.3	-1.5	23.6
HK	30,074	9.9%	-3.5%	9.7%	-14.6%	7.754	0.0%	0.4%	0.6%	-0.2%	1.30	60.0	-102.0	-37.0	19.0	65.0	26.0	36.0	-8.0	-7.0
JP	30,168	9.5%	14.9%	18.7%	-12.9%	106.1	-2.9%	5.2%	1.4%	2.2%	0.15	13.2	3.2	-1.4	-4.5	20.3	7.3	2.3	-3.8	-0.4
KR	3,100	7.6%	26.8%	7.4%	-19.0%	1,109	-2.0%	6.0%	-3.5%	-4.4%	1.89	17.1	5.0	-28.4	-51.1	51.1	12.4	18.5	-13.8	-5.6
ID	6,290	5.1%	-5.2%	1.7%	-2.6%	14,083	-0.2%	-1.3%	3.7%	-5.9%	6.56	67.3	-117.7	-96.2	70.6	90.5	22.5	5.3	-50.9	-23.7
MY	1,582	-2.8%	2.4%	6.2%	-6.1%	4.041	-0.5%	1.8%	1.0%	-2.0%	3.01	36.1	-65.0	-77.4	16.5	75.0	20.2	40.4	-17.0	-6.0
PH	6,756	-6.5%	-9.0%	4.6%	-13.7%	48.6	-1.2%	5.3%	3.7%	-5.2%	3.55	58.2	-137.5	-266.8	208.5	70.9	26.0	23.0	16.7	-48.6
SG	2,974	4.5%	-12.5%	4.9%	-10.3%	1.317	0.3%	1.8%	1.2%	-2.0%	1.29	44.7	-89.8	-29.9	3.6	62.5	24.2	19.9	4.7	-19.3
TH	1,497	3.2%	-8.6%	1.0%	-11.5%	30.1	-0.6%	-0.6%	8.4%	0.6%	1.79	46.8	-15.7	-100.5	15.9	77.1	3.4	50.5	-11.3	-13.0
KH	640	-1.3%	-16.2%	46.0%	33.4%	4,078	-1.2%	0.9%	-1.0%	0.2%										
LA	587	-2.0%	-19.6%	-3.9%	-17.7%	9,349	-0.6%	-4.5%	-3.9%	-2.9%										
MM	1,867	2.5%	15.6%	18.3%	22.4%	1,422	-6.9%	10.6%	3.8%	-11.9%										
VN	1,165	5.4%	13.9%	7.4%	-9.8%	23,022	0.3%	0.3%	0.2%	-2.2%	2.338	24.1	-83.7	-170.9	-7.9	123.6	-8.4	-7.1	82.1	-27.4

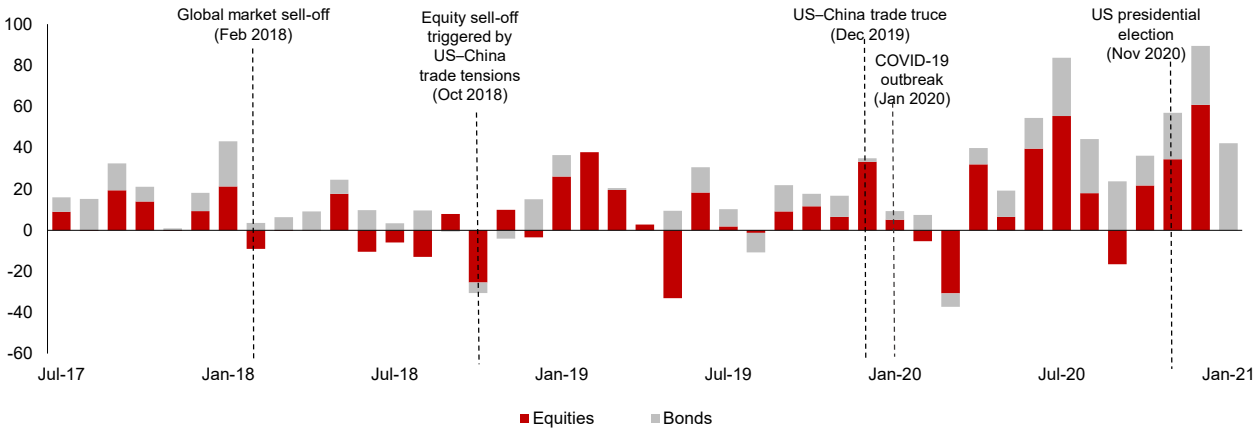
Sources: Haver Analytics; and AMRO staff calculations.
Note: YTD = year-to-date. CN = China; EU = euro area; HK = Hong Kong; JP = Japan; ID = Indonesia; KR = Korea; KH = Cambodia; LA = Lao People's Democratic Republic; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam;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

Figure 1.41. ASEAN-4 and Korea: Exchange Market Pressure Index



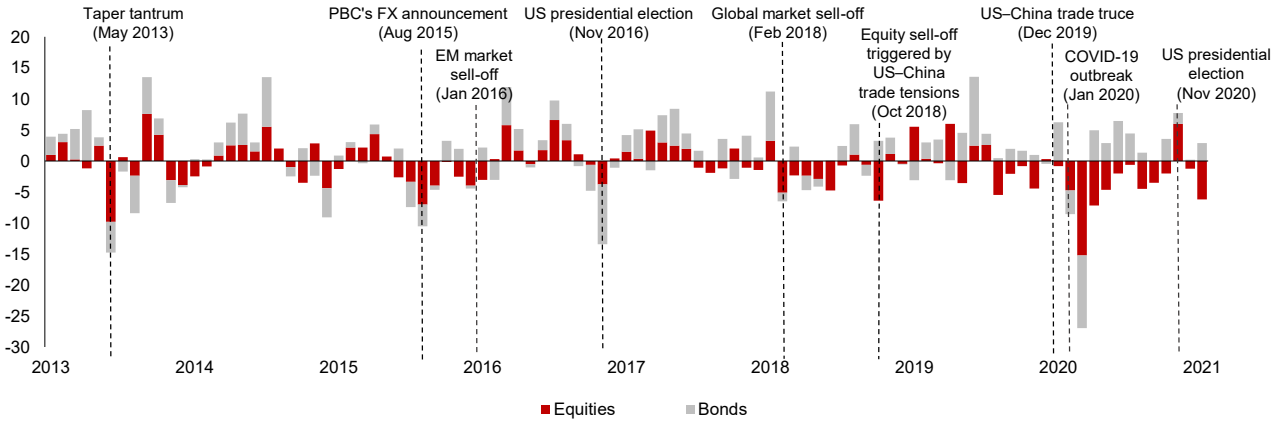
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: The Exchange Market Pressure Index is the sum of percentage changes of both currency and foreign reserves of a particular month over the preceding six months. ASEAN-4 refers to Indonesia, Malaysia, the Philippines,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

Figure 1.42. China: Net Foreign Portfolio Investment in Equity Securities and Change in Foreign Holdings of Bonds
(Billions of US dollars)



Sources: Bloomberg Finance L.P.; Haver Analytics; and AMRO staff estimates.

Figure 1.43. ASEAN-4, Korea, and Vietnam: Net Aggregate Foreign Portfolio Investment Flows
(Billions of US dollars)



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

Pressure on capital outflows largely eased after the first quarter of 2020. While inflows into regional debt markets resumed as early as May 2020, equity markets (excluding China) had to wait until November before foreign investors returned (Figures 1.42–1.43). The resumption of inflows into China's capital markets is attributable to its successful containment of the virus, followed by the quick recovery in economic activity, as well as the economy's increased weightings in benchmark investment indices. For the other regional EM economies, equity flows were mostly negative, while debt flows were mostly into Korean government bonds, regarded as a "safe haven" play in the region. The case for sustained inflows into regional markets going forward is strong in a low volatility environment with attractive local asset valuations, and strong growth prospects (Figures 1.44–1.46).

Separately, the recovery in oil prices has gathered momentum since November 2020. The upward trajectory was fueled by positive vaccine news, the outcome of the US Presidential elections, agreement by OPEC+ to slow the planned increase in crude oil production and more recently, reflation expectations. These factors will provide support for oil prices but further upside will likely face both demand and supply headwinds although another massive slump is unlikely (Box 1.10).

The pandemic remains a key risk for markets, although the widening deployment of vaccines will see a gradual moderation of that risk over time. If the United States and major European countries are able to muddle through the deadly wave of infections through the first quarter of 2021, market sentiment is likely to strengthen. However, confidence is likely to be tempered by developments on the fiscal front. Fiscal stimulus was instrumental in supporting households and businesses during the lockdowns and through their gradual easing. And fiscal support will continue to be needed for some time to come, to ensure a soft landing for many economies and sustain market confidence. For instance, the political impasse in providing fiscal relief in both the United States and EU had an adverse effect on markets in the late third quarter and the fourth quarter of 2020. However, some governments in the region may have to balance the continuation of fiscal support to ensure a soft landing for their economies and risk the buildup of excessive debt, against withdrawing

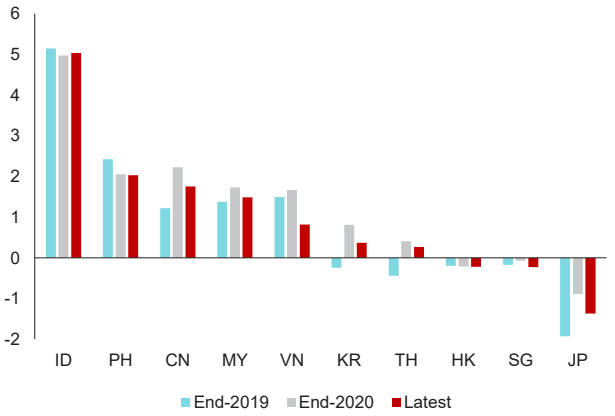
that support too soon before the recovery has gained sufficient traction, leading to potential cliff effects and a relapse in the recovery, either of which could spook financial markets.

Table 1.4. Selected ASEAN+3: Current Account Balance Projections, 2021
(Percent of GDP)

		Current Account		
Economy	Trend	2019	2020	2021
China		**1.0**	2.1	1.5
Indonesia		**-2.7**	**-0.5**	-1.9
Japan		**3.7**	**3.3**	3.7
Korea		**3.6**	4.5	3.8
Malaysia		**3.4**	**4.4**	3.1
Philippines		**-0.9**	3.4	0.9
Singapore		**14.3**	**17.6**	19.3
Thailand		**7.0**	3.3	1.3
Vietnam		**4.8**	4.5	4.5

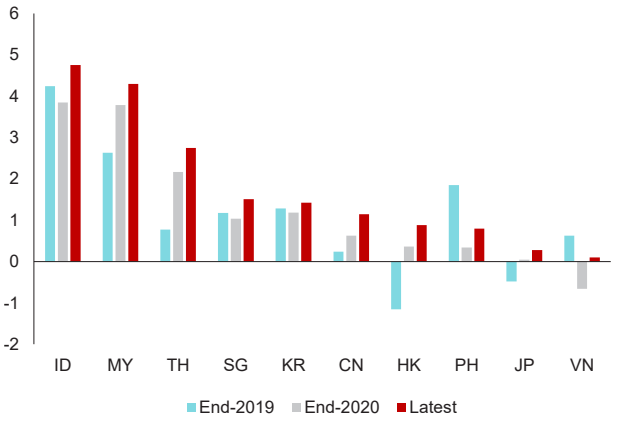
Sources: National authorities via Haver Analytics; and AMRO staff estimates and projections.
Note: Figures in bold refer to actuals while the rest are AMRO's estimates and projections.

Figure 1.44. Selected ASEAN+3: Bond Yield Spreads over US Treasury Yields
(Percent spread between 10-year sovereign yield and 10-year US Treasury yield)



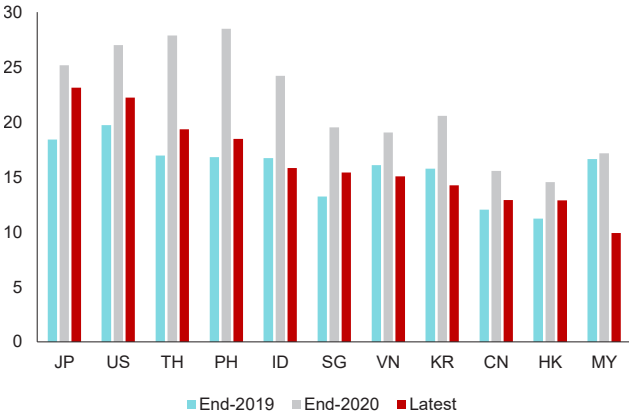
Sources: Haver Analytics; and AMRO staff calculations
Note: Higher spreads over US yields indicate attractive valuations. The current spreads of most regional bonds are either higher or similar to those seen before the pandemic. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.45. Selected ASEAN+3: Real Interest Rates
(Percent spread of 10-year sovereign yield over 12-month average inflation)



Sources: Haver Analytics; and AMRO staff calculations.
Note: Higher real yields indicate attractive valuations. The current real yields of most regional bonds are either higher or similar to those seen before the pandemic. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.46. Selected ASEAN+3: Equity Valuations of Benchmark Indices
(12-month forward price-to-earnings ratio, percent)



Sources: Bloomberg Finance L.P.; and AMRO staff calculations.
Note: Lower price-to-earnings ratios indicate better valuations. Most of the regional equity indices have more attractive valuations than that of US S&P500. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; US = United States; and VN = Vietnam.

Box 1.9:

Asymmetrical Equity Price Recovery across Economic Sectors

The pandemic-driven sell-off in regional equity markets and the subsequent recovery was uneven across economies. In particular, significant divergences are observed among sectors (Table 1.9.1) and at different periods of time (Table 1.9.2). A closer examination reveals the following factors as key reasons for the differences:

- ***Success of pandemic lockdowns.*** China was not only the first country to impose a lockdown but also the first to successfully contain the spread of the virus. Consequently, China's equity markets experienced a more moderate decline during the first wave of the pandemic (January–March 2020) and a quicker recovery, compared to others. During other subsequent infection outbreaks, only partial lockdowns were imposed, and hence the economy was barely affected, and the restrictions had little effect on regional equities.

- ***Key economic drivers.*** Country-specific key economic drivers contributed partly to the divergence observed within equity markets. Equity markets of goods-export-driven economies, such as China, Korea, and Vietnam, recovered more rapidly, notably during the period (April–June 2020) of partial easing of lockdowns and extraordinary global monetary and fiscal easing. On the other hand, the equities of tourism and services-driven economies, such as Cambodia, the Philippines, Singapore, and Thailand were hurt by travel bans.

- ***Sectoral diversification.*** The clear winners during the pandemic were healthcare and information technology (IT), while energy and financial services were the worst hit major sectors. A significant rise in demand for healthcare goods and services underpinned the strength in China's and Malaysia's equity markets, while demand for IT services due to the strong pickup in working remotely buoyed the technology-heavy China and Korea benchmark indices. In contrast, the Thai benchmark index, which is more heavily weighted toward energy and financial services, and the Hong Kong and Singapore benchmark indices, where financials and properties are important constituents, were adversely impacted. Energy sector stocks in the region were affected by the sharp decline in oil prices and the poor demand outlook. The low interest rate environment as well as the potential rise in NPLs due to the pandemic weighed on equities in the financial services sector.

- ***Other factors.*** Idiosyncratic factors also played a role in the performance of some markets, notably, political tensions (Myanmar, Thailand), fortuitous presence of specialized firms that benefited from the pandemic (for example, glove manufacturers in Malaysia).

Within each index, divergences in sectoral performance may narrow going forward, as vaccines become increasingly more available and containment measures are further eased. That said, the case for convergence among regional equity markets is weaker, given that economies are likely to follow different recovery paths.

Table 1.9.1. ASEAN+3: Equity Performance by Sector and Country, January 1, 2020–February 26, 2021
(Percent, natural log)

Sector (MSCI sub-indices)	CN	HK	JP	KR	ID	MY	PH	SG	TH	VN
Communication services	47.1	-2.5	35.5	64.2	-12.3	-6.6	15.8	-38.4	-21.7	51.8
Consumer discretionary	43.4	0.7	12.4	34.2	-22.8	-20.8	-18.8	-17.8	-18.0	22.8
Consumer staples	42.3	-11.7	-4.2	6.9	-21.4	-8.3	-17.9	24.8	-12.8	10.7
Energy	-26.4		-16.6	28.5	-6.3	-9.4			-12.4	10.4
Financial services	-3.4	25.0	-5.4	-13.3	-3.7	-3.1	-26.7	0.1	-14.9	38.0
Health care	51.7		8.3	38.7	-9.7	52.5			-22.9	15.5
Industrials	15.1	3.6	9.3	1.0		-21.4	-11.6	-26.6	-21.3	22.9
Information technology	50.6	-0.2	20.4	42.3				17.0	103.0	42.2
Materials	37.2		13.9	56.5	-9.7	26.4			0.1	111.4
Real estate	-16.4	-5.4	-11.6				-16.9	-16.5	-18.1	19.0
Utilities	5.4	-17.0	-15.1	-19.9	-41.0	-22.2	-23.1		-10.9	-1.0
MSCI country index	**29.8**	**8.6**	**9.9**	**33.4**	**-10.0**	**-5.2**	**-15.6**	**-9.7**	**-12.7**	**19.5**

Sources: Bloomberg Finance L.P.; and AMRO staff calculations.
Note: The sectoral (log) returns are calculated as the changes to the sectoral sub-indices published by MSCI for each equity market except Vietnam, for which a change in the market capitalization of equities belonging to a particular sector based on MSCI classifications is used. The equity index used is the MSCI country index. The outlined cells represent the two sectors within each benchmark index that had the highest market capitalization as of December 31, 2020. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Table 1.9.2. ASEAN+3: Equity Market Returns during Different Phases of the Pandemic
(Percent, natural log)

	The Collapse	Stimulus-Driven Recovery	Stagnation	Vaccine-Driven Rally	Change since January 01, 2020
Start date	31-Dec-19	23-Mar-20	9-Jun-20	30-Oct-20	31-Dec-19
End date	23-Mar-20	9-Jun-20	30-Oct-20	26-Feb-21	26-Feb-21
China	-20.4	20.4	18.2	11.5	29.8
Hong Kong	-30.0	20.0	-3.2	21.8	8.6
Japan	-28.6	23.6	-3.1	18.0	9.9
Korea	-36.2	35.9	2.9	30.7	33.4
Indonesia	-52.9	27.9	-0.1	15.1	-10.0
Malaysia	-24.3	22.8	-7.6	3.8	-5.2
Philippines	-50.1	32.9	-4.5	6.1	-15.6
Singapore	-38.4	23.5	-15.2	20.4	-9.7
Thailand	-43.6	30.9	-23.3	23.2	-12.7
Cambodia	-21.8	17.6	-11.4	-1.9	-17.4
Lao PDR	-17.9	-8.0	2.3	1.1	-22.4
Myanmar	-0.4	-2.0	-1.4	-4.0	-7.8
Vietnam	-36.6	30.0	2.9	23.3	19.5

Sources: Bloomberg Finance L.P.; and AMRO staff calculations.
Note: The equity indices used are the benchmark MSCI equity indices for respective countries. Broadly, there have been four phases in equity markets since the beginning of 2020, namely: (1) Collapse—the phase in which markets crashed during the early weeks of the pandemic (December 31, 2019 to March 23, 2020); (2) Stimulus driven recovery—the recovery phase, which was engineered by extraordinary monetary and fiscal stimuli around the world as lockdowns remained in place (March 23, 2020 to June 9, 2020); (3) Stagnation—the phase when economies gradually came out of their lockdowns but the outlook was clouded by new waves infection, and generally fewer stimulus measures (June 9, 2020 to October 30, 2020); (4) Vaccine-driven rally—the phase when positive news around vaccine development drove market recovery, fueled by the Biden victory in the US Presidential election (October 30, 2020 to latest). The greener the heatmap, the stronger the performance; the redder the heatmap, the weaker the performance.

The author of this box is Prashant Pande.

Box 1.10:

Oil Prices Supported by the OPEC+

The pandemic had a devastating effect on oil prices but since then have recovered to pre-pandemic levels. The impact from the severe contraction in demand, excess supply, and shortage of storage space, led to a historic collapse in oil prices in April 2020 (Pande 2020a) (Figure 1.10.1), which was only partially reversed when containment measures were gradually eased and deep production cuts were agreed by the Organization of the Petroleum Exporting Countries and 10 other oil-producing nations (OPEC+) (Pande, 2020b). In December, with prices on the rise from vaccine optimism, OPEC+ members agreed to increase production by another 0.5 million barrels per day (mb/d), following the initially agreed rise of 1.9 mb/d. More recently, oil prices driven by reflation expectations moved to levels seen before the pandemic-induced weakness. Going forward, oil prices will likely face resistance from the following factors:

- Demand recovery has proved elusive as highlighted by the successive downgrades in forecasts, both by the Energy International Agency (EIA) and OPEC (Figure 1.10.2).

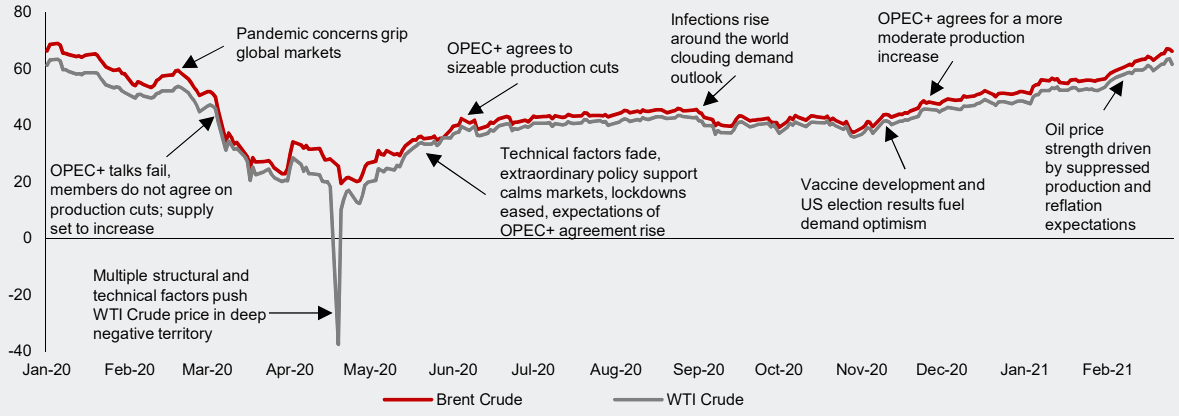
- The inventory built up (excess supply as compared to demand) in 2020 has been significant and, based on forecasts by the EIA and OPEC, may take another year to run down.

- Any rise in oil prices also incentivizes producers to increase supply. Anecdotally, Russia and Kazakhstan pressed for an increase in production during the OPEC+ meeting in January 2021. Although Saudi Arabia announced a unilateral production cut to more than offset the proposed increase in production, its ability to support prices alone could be limited if other producers also push for increases.

- The potential permanent economic scarring as a result of the pandemic has dented the long-term expectations for oil prices. Even though spot prices have recovered to pre-pandemic levels, the very long end of the Brent Crude forward prices is still much lower than that seen before the pandemic struck (Figure 1.10.3).

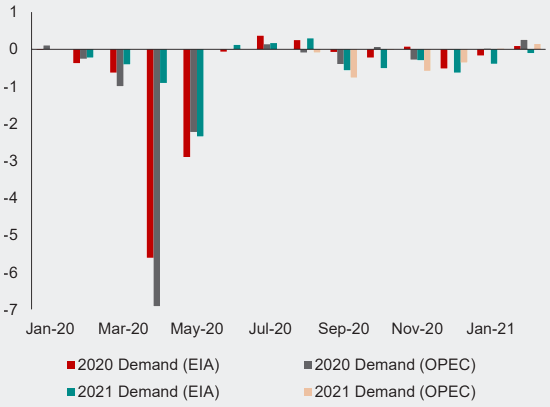
That said, another collapse in oil prices is unlikely. Compared to April 2020, governments have become much more reluctant to impose large-scale lockdowns because of their huge economic impact, which should forestall another demand shock. Meanwhile, OPEC+ has also demonstrated much better coordination in controlling oil production to support prices. Overall, the backdrop of low and stable oil prices is likely to persist in the coming months, which will benefit regional oil importers and remove one of the key sources of volatility for financial markets.

Figure 1.10.1 Crude Oil Prices and Key Events
(US dollars a barrel)



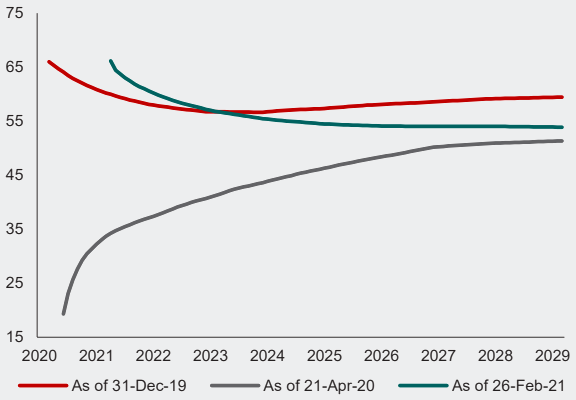
Sources: Bloomberg Finance L.P.; and AMRO staff estimates.

Figure 1.10.2: Oil Prices: EIA and OPEC Demand Forecasts for 2020 and 2021
(Million barrels a day)



Sources: US Energy Information Administration; OPEC; and AMRO staff calculations.

Figure 1.10.3: Oil Prices: Long-Term Forward Pricing of Brent Crude
(US dollars a barrel)



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

The author of this box is Prashant Pande.

Debt at Risk

The COVID-19 pandemic has caused widespread financial difficulties for businesses and households, and pressured bank balance sheets. During national lockdowns, firms were shuttered and employees were furloughed or retrenched. With falling or no income, many firms and households were at risk of being unable to fulfil their loan payments and other debt obligations. Governments provided cash transfers and other forms of financial support, while central banks eased monetary policy and pumped liquidity into the system to mitigate the income shortfall. Regulators have afforded regulatory forbearance to banks to facilitate the rolling over and restructuring of loans. The aim is to help support the economy; avoid mass defaults; and mitigate the shock to banks' asset quality, which may have otherwise forced widespread bank recapitalization at a time when market prices have collapsed. In the coming months, the strategies that individual authorities adopt vis-à-vis monetary and financial sector policies will be crucial for financial stability in the region. Support measures during 2020 have largely obscured the actual financial viability of firms and households. The landscape will become clearer when those measures are allowed to lapse or gradually removed, and the extent of any "scarring" is revealed.

Large losses by banks as a result of the pandemic could cause a domino effect through an increasingly interconnected international financial system. Systemic risks manifest when spillovers occur as a result of interlinkages through borrowing-lending relationships, capital market transactions, common ownership structures and market sentiment. Second-round effects in the form of contagion caused by investor herd behavior could then push other financial institutions into distress. Within the ASEAN+3 region, financial deepening and integration have intensified over the past two decades (Figure 1.47), raising the risks of systemic crises.

Stress tests by AMRO staff of a financial fallout from the ripple effects triggered by the pandemic suggest that most ASEAN+3 economies would be relatively resilient. Unsurprisingly, total losses as a percentage of GDP would be largest for the two international financial centers, Hong Kong and Singapore (Box 1.11). However, a shock to regional EM banking systems of the size of the AFC, would result in total losses ranging from 1.2–7.9 percent of GDP. In the extreme, widespread institutional failures similar to that of Lehman Brothers during the GFC could see losses amounting up to almost 100 percent of GDP.

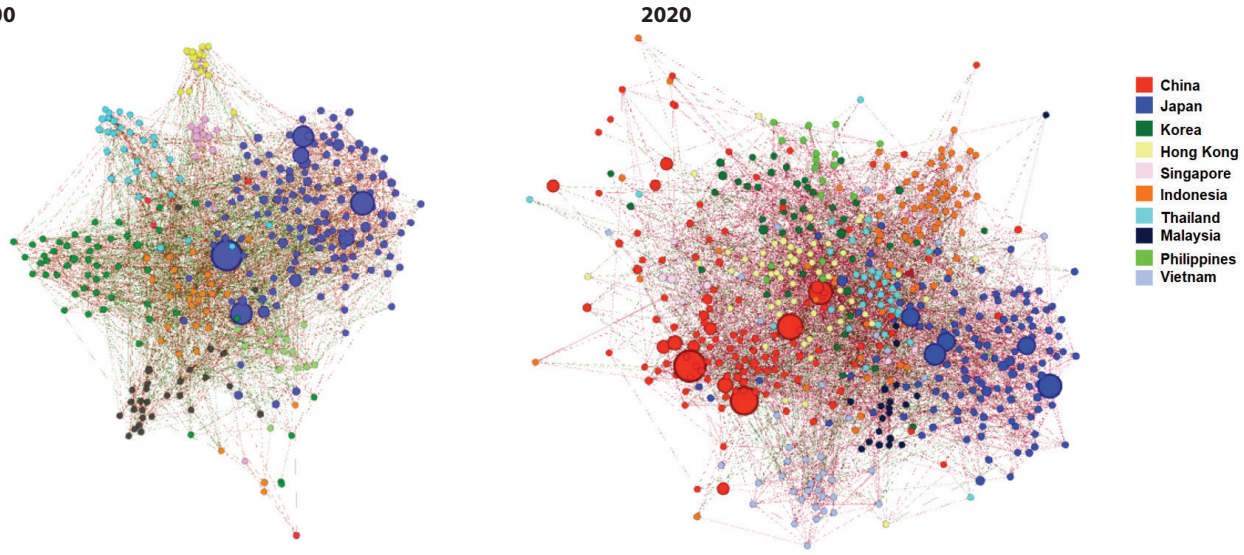
But, how vulnerable would regional financial systems be to an AFC-sized shock? Improved corporate governance and macroprudential oversight has strengthened debt service capacity (Figure 1.48), amid rising private sector debt (Figure 1.49). Separately, many regional economies have increased bank capitalization since the AFC, both in terms of higher quality and total capital (Figure 1.50). Consequently, top-down stress tests of individual bank balance sheets in ASEAN+3 economies suggest that the majority of banking systems are generally well-buffered against large shocks (Box 1.12):

- Among the Plus-3 economies, aggregate debt service ratios (defined as interest payments plus debt amortizations to income) have been rising for China, Hong Kong, and Korea, toward or beyond AFC levels. However, bank solvency stress tests suggest that average nonperforming (NPL) ratios in most of these well-capitalized banking systems would have to reach about, or even significantly exceed, those recorded during the AFC, before regulatory capital adequacy ratio (CAR) hurdles are breached. China's, Japan's, and Hong Kong's system NPL ratios would have to rise by an aggregate 11, 10, and 18 percentage points, respectively, for capitalization to fall to the corresponding regulatory minima.

- The aggregate debt service ratios of the private sector in some major ASEAN countries are well below AFC levels, following the sharp deleveraging in the wake of that crisis. Concurrently, ASEAN banking systems have significantly strengthened their buffers, with overall CARs ranging from 15 percent for the Philippines to between 20–24 percent for Brunei, Cambodia and Indonesia, almost all of which comprise high quality, Tier 1 capital. Solvency stress tests of bank credit suggest that NPL ratios of sample banks would have to rise by an aggregate 5.4 percentage points for Vietnam to 28 percentage points for Indonesia, to run capital down to regulatory minimum levels.

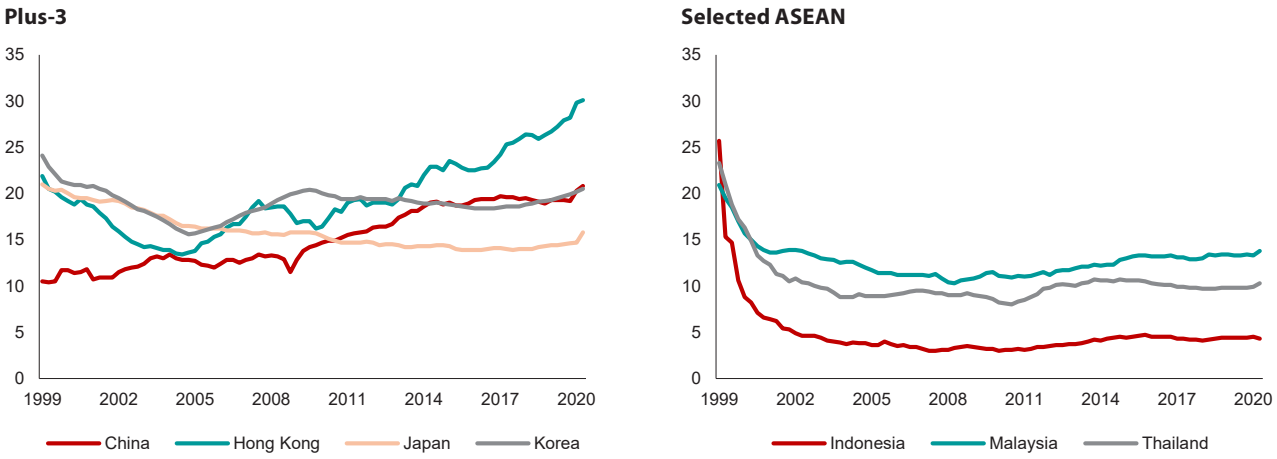
- The wide, asymmetric distribution of breakeven NPL ratios—the ratio at which a bank's CAR is at the regulatory minimum—in each ASEAN+3 economy suggests that the soundness of banks varies significantly (Figure 1.51). For example, the breakeven NPL ratios for the majority of big and medium banks in Indonesia are in the top 50th percentile while those of the small banks are more clustered in the bottom half, with a handful of positive outliers. The bulk of small Chinese and Japanese banks' breakeven NPL ratios are clustered between the 25th and 75th percentile, while those of big Korean, Malaysian, Thai, and Vietnamese banks are at the 50th percentile or below.

Figure 1.47. Selected ASEAN+3: Regional Financial Deepening and Integration



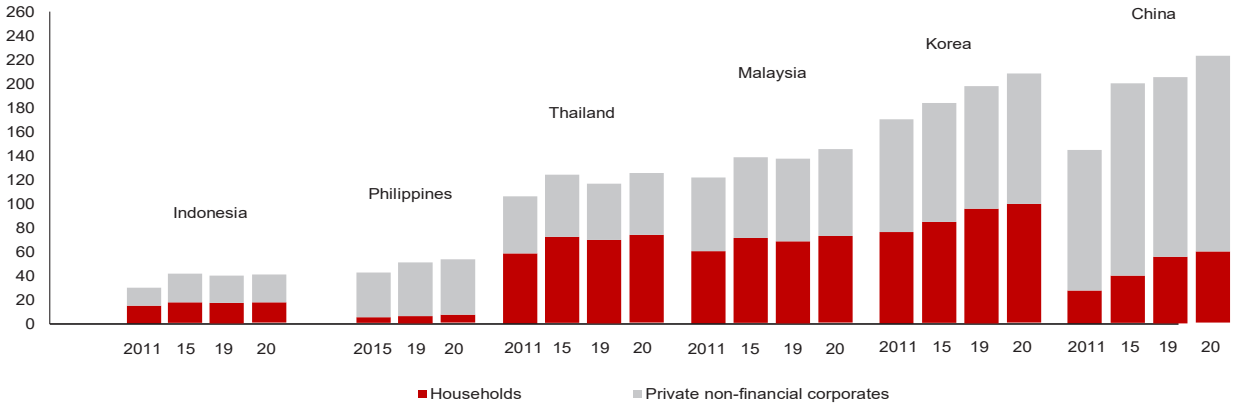
Sources: Credit Research Initiative of the National University of Singapore; and AMRO staff calculations.
Note: Each node represents a listed financial institution (FI) in the ASEAN+3 region. The size of the node represents the magnitude of the FI's liabilities. The color of the node denotes its economy of domicile. Two nodes are connected with an edge if there is a non-zero correlation between the default risks of the two institutions. The thickness of the edge represents the strength of the default correlation.

Figure 1.48. Selected ASEAN+3: Private Sector Debt Service Ratios
(Percent)



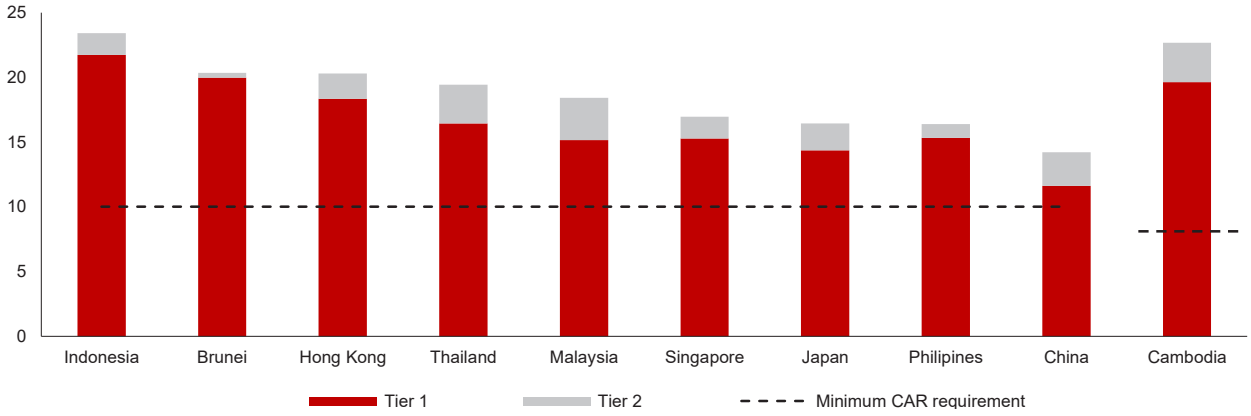
Sources: Bank for International Settlements via Haver Analytics; and AMRO staff calculations
Note: The debt service ratio is defined as the ratio of interest payments and amortizations to income.

Figure 1.49. Selected ASEAN+3: Household and Nonfinancial Corporate Debt
(Percent of GDP)



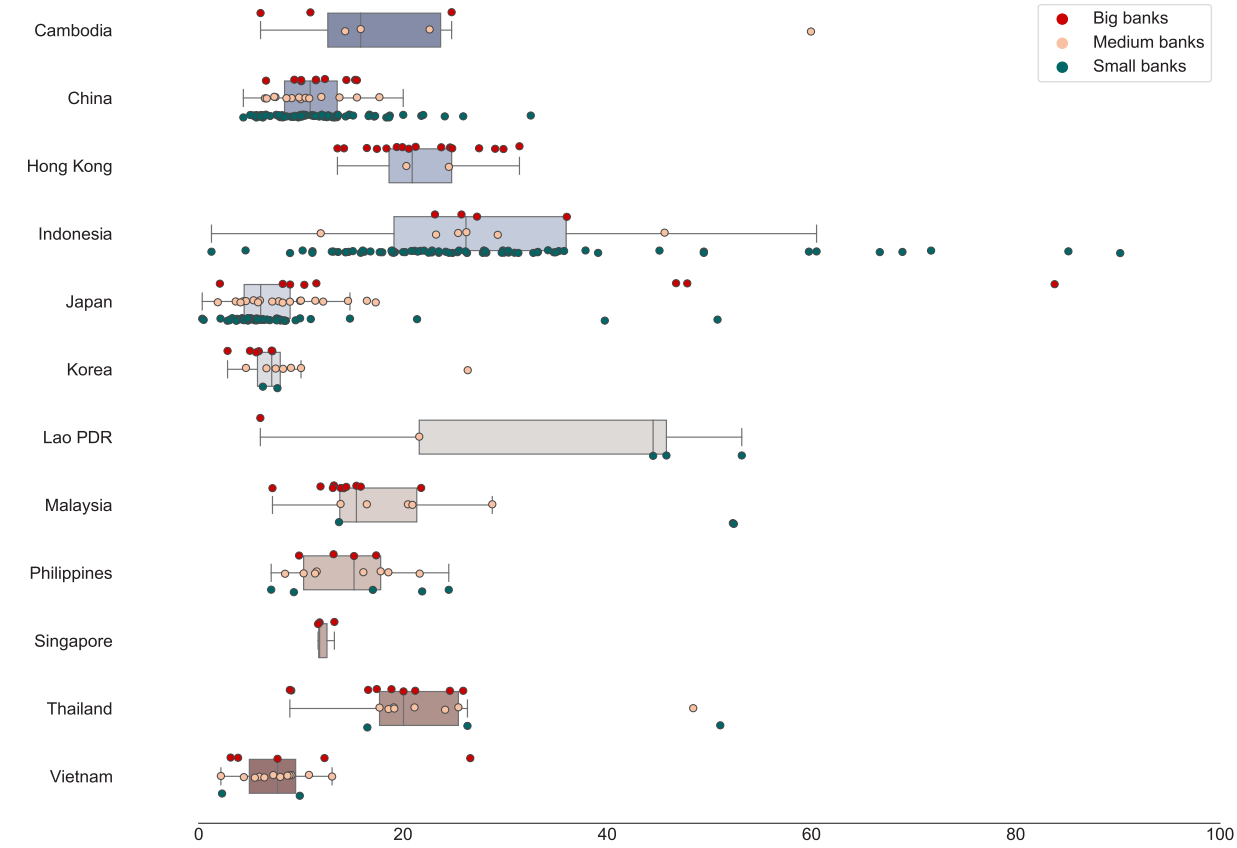
Sources: Bank for International Settlements and national authorities, both via Haver Analytics; and AMRO staff calculations.
Note: 2020 data refer to Q2 2020.

Figure 1.50. Selected ASEAN+3: Bank Capitalization Ratios
(Percent of risk-weighted assets, 2020 latest)



Sources: International Monetary Fund via Haver Analytics; and AMRO staff calculations.

Figure 1.51. ASEAN+3: Distribution of Breakeven Nonperforming Loan Ratios
(Percent)



Sources: BankFocus; and AMRO staff estimates.
Note: The boxplot (also known as box and whisker plot) shows the distribution of numerical data and skewness through a five-number summary: the minimum score, first (lower) quartile, median, third (upper) quartile, and maximum score. The interquartile (IQR) range is the difference between the first quartile and third quartile, and shows how the data are spread about the median. The IQR is multiplied by 1.5 and added to the first and third quartiles, to estimate the minimum and maximum scores, beyond which a number may be considered an outlier. Each dot along the boxplot in the figure represents one bank in the sample. The colors of dots represent bank size. Big banks comprise those whose total assets are equal to or greater than 5 percent of GDP; medium banks comprise those whose total assets are in between 1–5 percent of GDP; small banks comprise those whose total assets are equal to or lower than 1 percent of GDP. Bank holding companies are used where available; separate stress tests of their sub-banks (where data are also available but not included in the above to avoid double counting) indicate that their breakeven NPLs typically fall within the outlier range for each banking system. Capital adequacy is defined as 10.5 percent for Basel III banks (6.5 percent for Japanese banks that do not have an overseas business base), and 8 percent for Basel II banks.

Box 1.11:

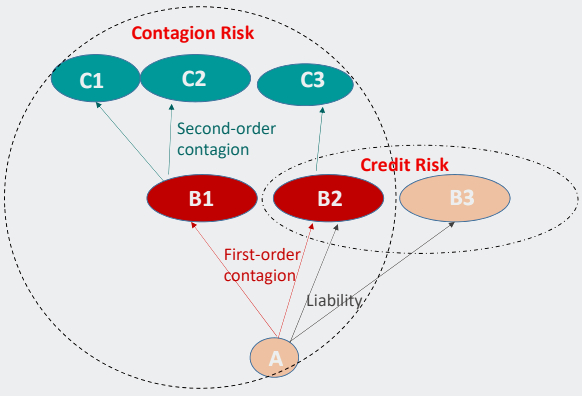
Covid, Credit, and Contagion Risks to ASEAN+3 Financial Systems

The experience from previous crises show that the resulting fiscal costs could be substantial. 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 pandemic has already imposed an onerous fiscal burden on governments in the region, with more spending likely to be required. Some may not have the fiscal space to bear the fallout from any systemic financial crisis, which may include bailing out banks and providing additional support to economic activity affected by the adverse impact on financial intermediation.

For the financial system, the costs would be not only the expected (direct) losses of individual creditor banks, but also the "collateral damage" through contagion. The incremental probability of default (PD) for an individual bank (node A in Figure 1.11.1) captures the credit shock. The expected credit losses are estimated based on the liabilities that the bank owes to its direct creditors (nodes B2 and B3) and an assumed loss given default. The pairwise default correlations, using PDs of 2,000 financial institutions, are estimated to capture the propagation of shocks through an interconnected financial system (nodes B1, B2, and the C nodes) and the losses to those creditors.

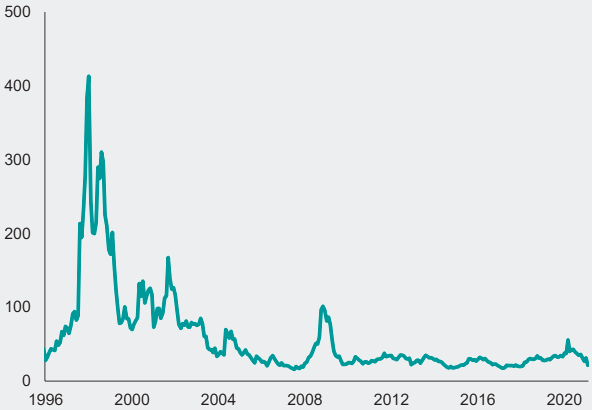
Banks in the Asia-Pacific region have been resilient thus far. The PDs of the region's EM banks only rose by only about 20 basis points at the height of the market turmoil in March/April 2020 (Figure 1.11.2), which was far lower than those recorded during the Asian and global financial crises. Abundant liquidity support and debt moratoria have kept borrowers afloat, while regulatory forbearance has allowed banks to postpone recognizing NPLs and realizing losses. However, the concern is that the Covid crisis could turn into a fully-fledged financial crisis in a downside risk scenario, if the distribution of vaccines is delayed, the pandemic continues to intensify, economic recovery falters, and policy space continues to shrink.

Figure 1.11.1. Affected Parties of Bank A's Credit and Contagion Risks



Source: Sun (2020).

Figure 1.11.2. Asia Pacific: One-Year Probability of Default of Emerging Market Banking Sector
(Basis points)



Source: Credit Research Initiative of the National University of Singapore.

Stress tests are conducted on the most recent financial data of global systemically important banks (G-SIBs) and domestic systemically important banks (D-SIBs) in the region.[1/] The shocks applied resemble those of the past two crises, to gauge the economic costs in such adverse scenarios. The first scenario assumes an AFC-sized credit shock (that is, a 400-basis point increase in PDs) on the selected banks; the second assumes a Lehman-type bank failure (that is, a 9,000 basis point increase in PDs):

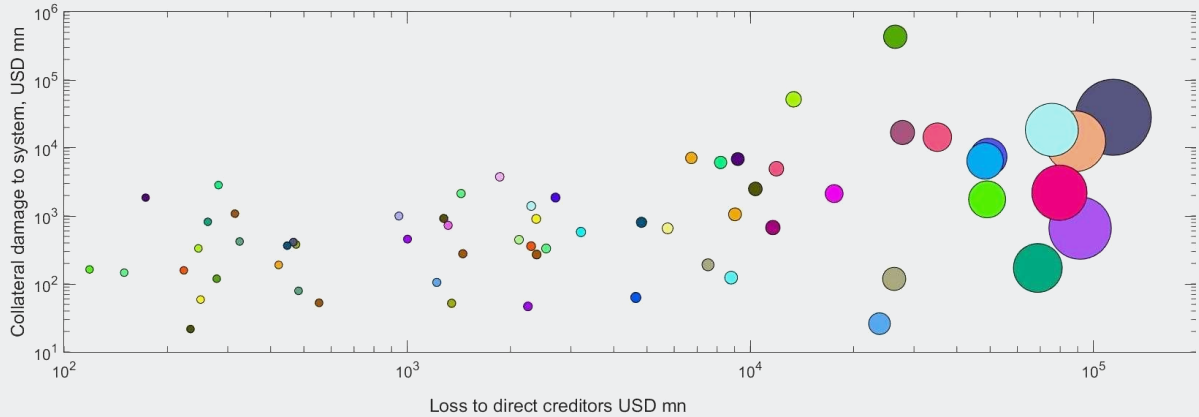
- In general, larger banks tend to have bigger impact on the financial system in both direct loss to creditors and collateral damage. However, some smaller lenders could also pose significant collateral damage through contagion comparable to that caused by the bigger players. Hence, these banks are not only too big to fail in their national contexts, but also may be too interconnected to fail in the regional context. In the event that these banks' provisions and capital are insufficient to absorb any resulting losses, and they are unable to raise the requisite capital from the market, government bailouts may be necessary, which would impact the fiscal purse already under pressure from mitigating the economic shocks from the pandemic

- If an AFC-sized shock hits every ASEAN+3 G-SIB and D-SIB in a banking system, the total expected losses would be very significant in GDP terms. The direct losses to creditors of the G-SIBs and D-SIBs tend to be greater than the collateral damage, given their large liabilities (Figure 1.11.3). However, the collateral damage from institutions in Singapore and the Philippines would be larger. The overall impact would be largest for the two financial centers, Hong Kong and Singapore (Table 1.11.1).

- When the stress tests are repeated with the extreme tail risk scenario of a Lehman-sized shock—that is, an almost certain likelihood of failure—incremental expected credit losses would be massive. The amounts could exceed USD 10 trillion, plus another USD 1 trillion from the contagion fallout for the largest institutions (Figure 1.11.4). A large proportion of the contagion/collateral losses caused by major ASEAN banks would be borne by their domestic counterparts because of close interlinkages; separately, G-SIBs and D-SIBs in China would have the largest impact on the Plus-3 financial systems (Table 1.11.2), while the underlying data suggest that their most significant interactions would be with Japanese banks. Accordingly, any collective default would make the total losses even more sizable.

Hence, banking supervisors need to look beyond the individual balance sheets of financial institutions. They should pay close attention to the externalities from the materialization of contagion risks. Moreover, among the many financial systems that are affected by the contagion risks, the domestic financial system is likely to suffer the most. Crucially, this analysis only covers up to second-order contagion, so any estimated collateral damage amount would be larger.

Figure 1.11.3. ASEAN+3: Incremental Direct Losses to Creditors and "Collateral Damage" Caused by G-SIBs and D-SIBs from a 400 Basis Point Increase in Probabilities of Default
(Millions of US dollars)



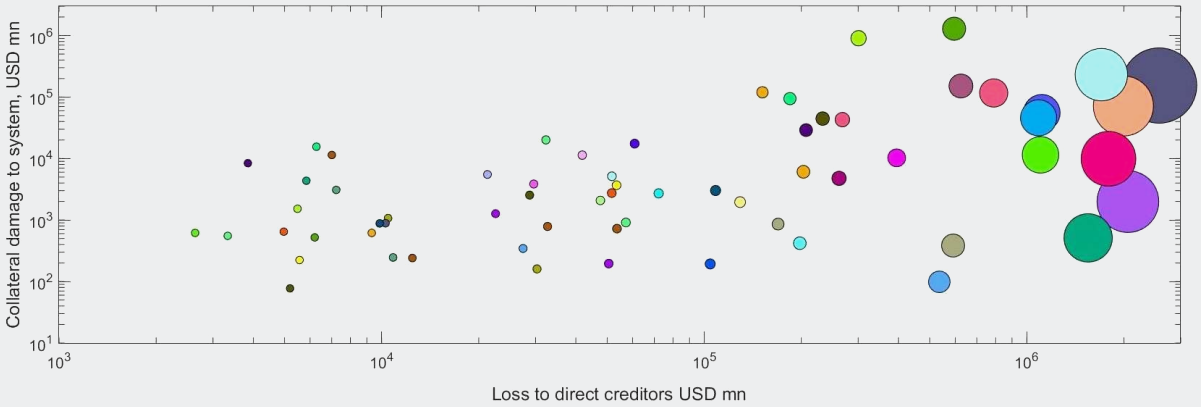
Sources: Credit Research Initiative of the National University of Singapore; and AMRO staff estimates.
Note: 10^1=10, 10^2=100, 10^3=1,000, 10^4=10,000, and 10^5=100,000. Each node represents a G-SIB/D-SIB in the region. The size of the node reflects the relative size of the bank's liabilities. Node colors are randomly assigned. Data are as of January 2021.

Table 1.11.1. ASEAN+3: Incremental Direct Losses to Creditors and "Collateral Damage" Caused by the G-SIBs/D-SIBs of a Particular Economy from a Collective 400 Basis Point Increase in Probabilities of Default
(Millions of US dollars)

Loss Component	Financial System									
	China	Japan	Korea	Hong Kong	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Collateral damage due to contagion from source entities										
(1) To own financial system	91,462	124,928	5,314	2,992	1,005	797	7,644	78,900	3,551	1,111
(2) To Plus-3 financial system (excluding own)	16,330	1,047	265	388	1,019	112	2,706	17	1,741	235
(3) To ASEAN financial system (excluding own)	364	68	27	5	8	8	37	1	132	38
(4) To rest of world financial system	9,168	148	108	119	883	305	294	18	1,124	1,473
Expected credit loss from source entities to direct creditors (5)	513,254	201,288	39,869	102,546	9,776	10,224	5,366	25,275	11,789	4,878
Total loss to domestic GDP in 2020: ((1)+(2)+(3)+(4)+(5))/GDP	4	7	3	30	1	3	4	31	4	3
Number of G-SIBs and D-SIBs	9	6	4	5	14	3	9	3	5	5

Sources: Credit Research Initiative of the National University of Singapore; and AMRO staff estimates. Data are as of January 2021.

Figure 1.11.4. ASEAN+3: Incremental Direct Losses to Creditors and "Collateral Damage" Caused by G-SIBs and D-SIBs from a 9,000 Basis Point Increase in Probabilities of Default
(Millions of US dollars)



Sources: Credit Research Initiative of the National University of Singapore; and AMRO staff estimates.
Note: 10^1=10, 10^2=100, 10^3=1,000, 10^4=10,000, 10^5=100,000, and 10^6=1,000,000. Each node represents a G-SIB/D-SIB in the region. The size of the node reflects the relative size of the bank's liabilities. Node colors are randomly assigned. Data are as of January 2021.

Table 1.11.2. ASEAN+3: Incremental Direct Loss to Creditors and "Collateral Damage" Caused by the G-SIBs/D-SIBs of a Particular Economy from a Collective 9,000 Basis Point Increase in Probabilities of Default
(Millions of US dollars)

Loss Component	Financial System									
	China	Japan	Korea	Hong Kong	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Collateral damage due to contagion from source entities										
(1) To own financial system	1,265,153	1,448,124	50,147	37,859	8,891	5,781	93,643	649,935	82,515	15,190
(2) To Plus-3 financial system (excluding own)	104,729	7,363	961	1,264	4,247	330	11,432	50	4,751	683
(3) To ASEAN financial system (excluding own)	5,366	442	309	16	29	28	101	3	413	120
(4) To rest of world financial system	64,831	986	579	403	4,334	1,390	850	52	3,468	8,784
Expected credit loss from source entities to direct creditors (5)	11,548,218	4,528,981	897,041	2,307,293	219,966	230,038	120,728	568,690	265,249	109,752
Total loss to domestic GDP in 2020: ((1)+(2)+(3)+(4)+(5))/GDP	88	119	59	672	22	71	63	358	71	50
Number of G-SIBs and D-SIBs	9	6	4	5	14	3	9	3	5	5

Sources: Credit Research Initiative of the National University of Singapore; and AMRO staff estimates. Data are as of January 2021.

The author of this box is Wei Sun, based on Sun (2020).

1/ The G-SIBs are those identified by the Financial Stability Board (FSB 2020). The D-SIB list in this analysis, which may differ from the official ones, is constructed based on public disclosure, media reports, and AMRO staff estimations. Where D-SIBs are not public information, the domestic banks are ranked by asset size as a rough-and-ready proxy, although other key characteristics, such as interconnectedness, complexity, cross-jurisdiction activity, and substitutability, also define systemic importance (IMF/BIS/FSB 2009; Basel Committee on Banking Supervision 2018).

Box 1.12:

Well-Buffered ASEAN+3 Banking Systems

Going into the COVID-19 pandemic, ASEAN+3 banking systems were well capitalized—the outcome of many years of effort to strengthen the financial system in the wake of the Asian financial crisis (AFC)—but may have been jeopardized by the pandemic. The aggregate capital adequacy ratios (CARs) of the region's banking systems that have adopted Basel III standards were well above the minimum total capital plus capital conservation buffer, of 10.5 percent in the period before the pandemic. (Figure 1.12.1), while those that have not yet transitioned were at or above the Basel II minimum of 8 percent (BCBS 2004, 2011, 2018). Additionally, system-wide nonperforming loan (NPL) ratios were relatively low, pre-pandemic, at about 3 percent or lower (Figure 1.12.2). The pandemic poses a risk to bank solvency, following the sharp rise in credit risks and corresponding deterioration in asset quality, which may be camouflaged by regulatory forbearance and official credit support measures.

The size of credit shocks that would require recapitalization in ASEAN+3 banking systems can be estimated to determine the pandemic's potential threat to financial stability in the region. The region's recovery profile to date suggests that the impact of the Covid crisis would likely be somewhere between that of the global financial crisis (GFC) and AFC (Ong and Choo 2020): The recovery in growth from the AFC was deep and U-shaped in many economies—where significant recapitalization of some banking systems was necessary—while the majority experienced shallow, V-shaped recoveries during the GFC, and are also expected to post, albeit deeper, V-shaped recoveries during this crisis. Correspondingly, bank NPL ratios arising from the pandemic could reasonably be expected to rise to somewhere between the relatively low levels recorded during the GFC and the very high ones incurred by some economies during the AFC, once the pandemic is contained and the dust settles.

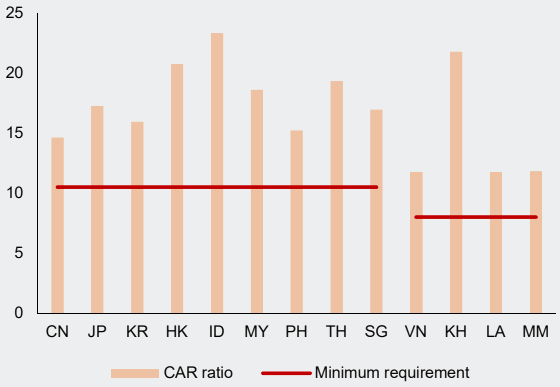
Reverse solvency stress tests are undertaken for a sample of ASEAN+3 banks. The stress test, which is an adapted version of Čihák (2007), is applied to individual banks in each financial system for which data are available (Table 1.12.1). In the exercise, individual bank NPLs are shocked—increases in NPLs require banks to make additional provisions, which reduces capital as well as risk weighted assets (from write-offs), thus reducing banks' CARs—until their CARs fall to the relevant regulatory minima, to derive the "breakeven" NPL ratios. All else being equal, the results may be interpreted as follows:

- ***The bigger the shock to NPL required to reduce existing CAR to the regulatory minima, the healthier the current buffer.*** The buffer comprises both capital and provisions against problem and NPLs. If the latter are sufficiently provisioned for, then any deterioration would require additional provisions that would reduce profits or eat into existing capital. The stress test results suggest that NPL ratios would have to rise by an average of at least 10 percentage points or more among banks in the majority of ASEAN+3 economies, to reduce capitalization to the regulatory minima (Tables 1.12.2); in the case of Indonesia, the aggregate NPL ratio would have to increase by about 28 percentage points. In several banking systems (for example Indonesia, Lao PDR, Malaysia, Thailand) the small banks appear to have even stronger buffers than the bigger, more systemic ones, in aggregate.

- ***The higher the breakeven NPL ratio relative to AFC peak, the lower the likelihood of a systemic banking crisis.*** The average NPL ratios reached during the AFC were quite unprecedented, ranging between 20–50 percent in several economies. Given the quicker recovery trajectory from this Covid-19 crisis, the likelihood of such a recurrence is low. Hence, the average breakeven NPL ratios for the majority of banking systems are at, about, or greater than, those registered during the AFC, which suggest that a widespread banking crisis remains a tail risk for now, absent further large, unexpected shocks.

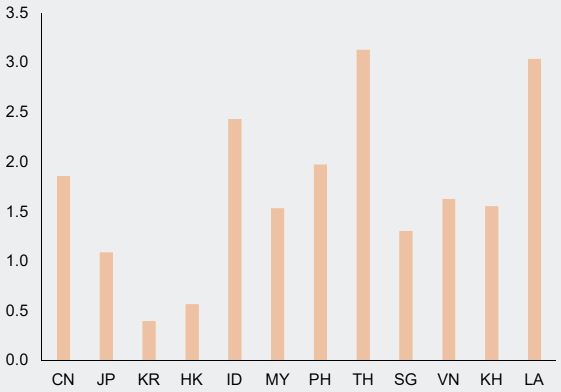
Figure 1.12.1. ASEAN+3: Banking System Soundness Indicators, as of End-2019
(Percent)

Capital Adequacy Ratios



Sources: Bank of Korea, BCBS, and International Monetary Fund, all via Haver Analytics.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Nonperforming Loan Ratios



Sources: International Monetary Fund and Korea Federation of Banks, both via Haver Analytics.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Table 1.12.1. ASEAN+3: Bank Sample for Reverse Solvency Stress Test

Member	Number of Sample Banks				Bank Assets (Percentage of banking system assets)				Bank Assets (Percentage of GDP)			
	All Banks	Big Banks	Medium Banks	Small Banks	All Banks	Big Banks	Medium Banks	Small Banks	All Banks	Big Banks	Medium Banks	Small Banks
Cambodia	7	3	4	n.a.	30	24	9	n.a.	56	45	16	n.a.
China	106	10	14	82	68	51	9	7	199	149	27	22
Hong Kong	18	16	2	n.a.	79	78	1	n.a.	673	667	5	n.a.
Indonesia	93	4	8	81	96	51	17	29	54	28	9	16
Japan	77	8	19	50	76	61	10	5	272	217	37	17
Korea	15	6	7	2	51	44	6	0	140	122	17	1
Lao PDR	5	1	1	3	36	32	2	3	32	28	1	2
Malaysia	19	10	5	4	100	90	8	1	198	179	17	2
Philippines	17	4	8	5	75	47	26	2	74	46	26	2
Singapore	3	3	n.a.	n.a.	46	46	n.a.	n.a.	291	291	n.a.	n.a.
Thailand	21	10	8	3	84	68	16	1	158	127	29	2
Vietnam	19	5	11	3	36	22	13	1	75	46	27	2

Sources: Asian Development Bank; BankFocus; national authorities via Haver Analytics; and AMRO staff calculations.
Note: "All banks" comprise those available in BankFocus; "big banks" comprise those whose total assets are equal to or greater than 5 percent of GDP; "medium banks" comprise those whose total assets are in between 1–5 percent of GDP; "small banks" comprise those whose total assets are equal to or lower than 1 percent of GDP.

Table 1.12.2. ASEAN+3: Breakeven Nonperforming Loan Ratios
(Percent)

Member	Pre-Pandemic NPL Ratio				Change in NPL Ratio to Reach CAR Minima				Breakeven NPL Ratio from Reverse Stress Test				Crisis Peak NPL Ratio	
	All Banks	Big Banks	Medium Banks	Small Banks	All Banks	Big Banks	Medium Banks	Small Banks	All Banks	Big Banks	Medium Banks	Small Banks	AFC	GFC
Cambodia	1.0	1.1	0.7	n.a.	18.5	16.4	26.4	n.a.	19.5	17.5	27.1	n.a.	16.2	4.8
China	1.5	1.5	1.5	1.9	11.0	11.7	8.0	9.1	12.5	13.1	9.5	11.1	29.8	1.0
Hong Kong	0.5	0.5	0.4	n.a.	18.2	18.2	22.6	n.a.	18.8	18.7	23.0	n.a.	7.3	1.6
Indonesia	2.8	1.9	2.8	4.5	28.1	25.9	38.8	24.6	30.9	27.8	41.6	29.1	48.6	2.5
Japan	1.1	0.8	1.4	2.3	10.4	12.7	6.4	4.2	11.5	13.6	7.8	6.5	6.6	2.9
Korea	0.7	0.6	0.7	0.6	5.5	5.0	8.9	6.0	6.1	5.6	9.7	6.6	8.3	0.6
Lao PDR	3.2	2.9	2.9	7.0	6.6	3.1	18.7	39.4	9.9	6.0	21.6	46.3	n.a.	n.a.
Malaysia	1.5	1.4	1.8	1.2	13.3	12.5	18.5	39.1	14.8	13.9	20.3	40.3	18.6	3.6
Philippines	1.9	1.7	2.3	3.1	11.6	11.6	11.6	12.5	13.5	13.2	13.9	15.6	14.6	3.5
Singapore	1.5	1.5	n.a.	n.a.	10.7	10.7	n.a.	n.a.	12.2	12.2	n.a.	n.a.	5.9	2.0
Thailand	3.8	4.0	2.4	2.9	15.9	15.1	21.5	24.1	19.7	19.0	23.9	27.0	42.9	5.2
Vietnam	1.5	1.5	1.6	1.8	5.4	5.3	5.5	5.6	6.9	6.8	7.0	7.4	n.a.	1.9

Sources: BankFocus; and AMRO staff estimates.
Note: Data are from individual banks' financial statements for 2019. "All banks" comprise those available in BankFocus; "big banks" comprise those whose total assets are equal to or greater than 5 percent of GDP; "medium banks" comprise those whose total assets are in between 1–5 percent of GDP; "small banks" comprise those whose total assets are equal to or lower than 1 percent of GDP. Where banks do not report classified loans, their NPL ratios are used to calculate their NPL levels. Minimum capital adequacy is defined as 10.5 percent for banking systems that have adopted Basel III (ASEAN-5, China, Hong Kong, Korea, and Japan, with 6.5 percent for Japanese banks that do not have an overseas business base), and 8 percent for those that have adopted or are transitioning to Basel II (Cambodia, Lao PDR, and Vietnam). Given the unavailability of NPL ratios for Singapore during the AFC, the highest ratio in the immediate post-AFC period (second quarter of 2004) is used as proxy, capturing, in part, the lagging nature of this indicator. In some economies, the odd small or medium-sized bank has reported CAR that appears to be below the regulatory minima; this very small number of banks are excluded from AMRO staff's estimations of aggregate breakeven NPL ratios.

The author of this box is Trung Thanh Vu, with contributions from Laura Grace Gabriella and Min Wei.

IV. Pandemic Policies and Prescriptions

Macro-financial policymaking took center stage in 2020 for all economies in the region, and will continue to do so for the foreseeable future. Caught by surprise at how quickly and widely the COVID-19 virus spread throughout the region and the rest of the world, regional policymakers were forced to walk the fine line between protecting lives and supporting the economy, while ensuring that they had sufficient policy space to do so, to maintain market confidence. Although the region has been relatively successful in containing the spread of infections and supporting the economies, the struggle against the virus has been relentless as the easing of the containment measures has often been followed by renewed outbreaks. The development of efficacious vaccines at by late-2020 therefore represents a light at the end of the tunnel, but has also introduced new complications—policymakers must now strategize on how to exit smoothly from the plethora of pandemic policies that have been enacted, without triggering a relapse in the economic recovery or systemic financial distress.

Policy Space

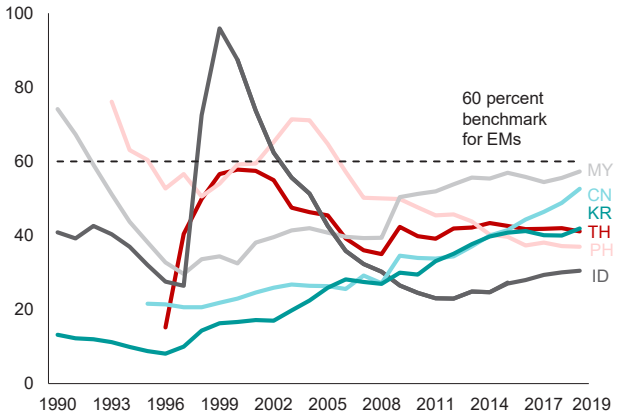
The ASEAN+3 economies went into the COVID-19 pandemic with the advantage of having built up significant policy cushions and financial reserves, benefiting from judicious policymaking over many years. Thanks to the adoption of prudent macroeconomic policies and reforms to regulatory and governance frameworks since the AFC, most authorities had policy space to support their respective economies. Many of the region's banking systems had also built strong capital and liquidity buffers—the result of lessons learned from the AFC and GFC, respectively—putting them in a strong position to absorb the impact to their loan books and volatility in funding markets.

Strengthened fiscal management in the wake of the AFC and continued fiscal prudence had helped preserve and enhance fiscal space. Consequently, government debt was at low to moderate levels (Figure 1.52), and the primary balance was in surplus or modest deficit (Figure 1.53). A comprehensive assessment of policy space suggests that, when the pandemic struck, several AEs and EMEs in the ASEAN+3 region had ample fiscal room to support households and businesses, while the rest—with the exception of Japan—had moderate fiscal headroom (Poonpatpibul and others 2020). Excluding Lao PDR, the other BCLMV (Brunei, Cambodia, Lao PDR, Myanmar, Vietnam) economies had moderate or ample fiscal policy space (Table 1.5).

Separately, monetary policy in the region had been normalized, in line with the economic recovery post-GFC, but was accommodative leading into the pandemic. The stance at the time reflected weakening economic activity as a result of the US–China trade conflict. Substantial FX reserve buffers had also been built up in most EMs to defend against volatile capital flows (Figures 1.54–1.55), while the macroprudential toolkit was developed and deployed to mitigate against risks of financial distress from rising household and corporate debt. Consequently, most AEs and EMEs in the region, except those with fixed exchange rate regimes, had moderate policy space to work with (Poonpatpibul and others 2020), while the BCLMV countries had either moderate or limited monetary policy space (Table 1.5).

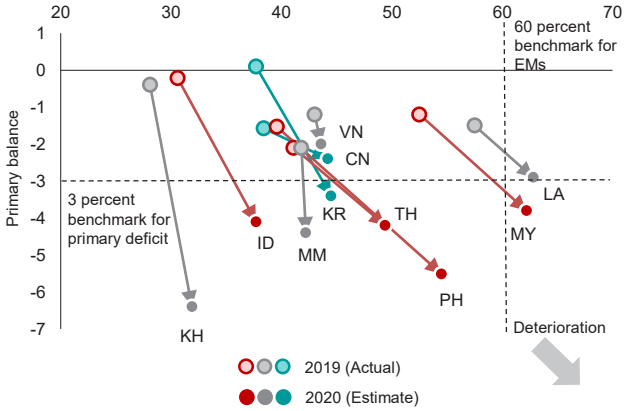
The size and scale of macro-financial policies that were deployed in 2020 to combat the pandemic have been extraordinary by any measure. ASEAN+3 economies swiftly injected substantial stimuli to save lives, and protect livelihoods and businesses, when the COVID-19 pandemic struck (Table 1.6). On the fiscal front, governments have rolled out a wide range of relief measures for households, including cash transfers, debt relief, and tax deferrals (Figure 1.56). Meanwhile, job retention programs, provision of low-cost loans, as well as moratoria on debt repayments have been implemented, to support the corporate sector. Central banks eased monetary policy and recalibrated macroprudential policies to absorb adverse shocks to financial and credit markets and support economic activity, while financial regulators afforded forbearance for banks to allow them time to address the shock to the balance sheets of their customers.

Figure 1.52. Selected ASEAN+3: General Government Debt
(Percent of GDP)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Data up to 2019. CN = China; ID = Indonesia; KR = Korea; MY = Malaysia; PH = the Philippines; and TH = Thailand.

Figure 1.53. Selected ASEAN+3: Public Debt and Primary Balance
(Percent of GDP)



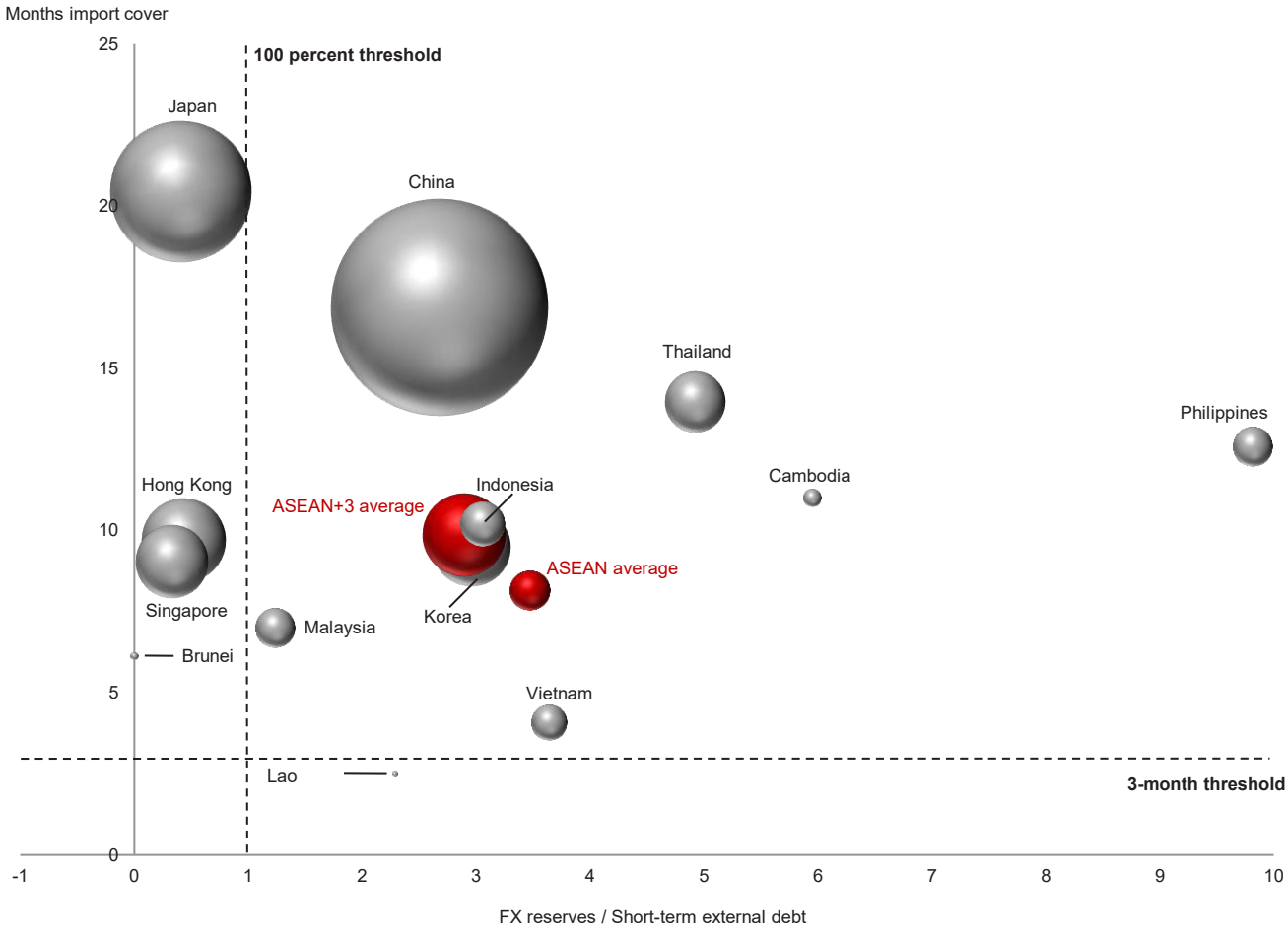
Sources: National authorities via Haver Analytics; and AMRO staff estimates.
Note: CN = China; ID = Indonesia; KH = Cambodia; KR = Korea; LA = Lao People's Democratic Republic; MM = Myanmar; MY = Malaysia; TH = Thailand; and VN = Vietnam.

Table 1.5. ASEAN+3: Assessment of Policy Space
(Pre- and post-COVID-19, end-2019 versus end-2020)

Policy space		Fiscal		
		Ample	Moderate	Limited
Monetary	Ample		Philippines Vietnam	
	Moderate	Korea Singapore Thailand	China Indonesia Malaysia Myanmar Philippines Thailand Vietnam	
	Limited	Brunei Darussalam Cambodia Hong Kong	Brunei Darussalam	Japan Lao PDR

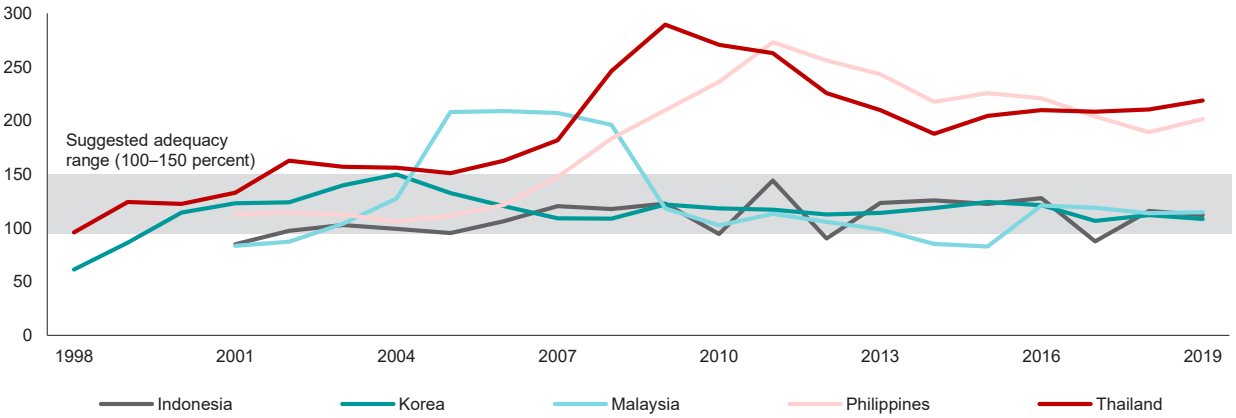
Source: AMRO staff estimates, based on Poonpatpibul and others (2020).
Note: The economies in red font represent their policy space positions during the pre-COVID period, which are assessed to have shifted to their respective new positions in black font. Poonpatpibul and others (2020) assess fiscal policy space using three pillars: (1) debt sustainability indicators; (2) risks to financing capacity and debt profile; and (3) country-specific factors, relying on AMRO country desk economist judgement, all conditional on available information; the magnitude of fiscal space is defined operationally in three levels: Fiscal space is (1) "ample" when fiscal sustainability and financing capacity suggest no significant short-term constraint in undertaking discretionary fiscal policy measures to mitigate short-term economic downturns; (2) "moderate" when there are some concerns about fiscal sustainability and financing capacity, but meaningful short-term discretionary fiscal policy measures are possible within certain limits to mitigate short-term economic downturns; and (3) "limited" when there is no further (or at most only marginal) room to undertake discretionary fiscal policy measures to mitigate short-term economic downturns. Poonpatpibul and others (2020) also propose that an economy's monetary policy space can be assessed using four pillars: (1) the degree of monetary policy autonomy; (2) distance of the prevailing monetary policy rate from the zero lower bound and the deviation of inflation from the benchmark; (3) external vulnerability; and (4) financial imbalance and the ability to address them by using macro-prudential tools. The magnitude of monetary space is defined operationally in three levels: Monetary space is (1) "ample" when the extent to which monetary policy can be eased is large, and the ability to undertake monetary policy easing in the short and medium term is unlikely to be constrained by the institutional monetary policy and exchange rate setup, and external and financial stability considerations; (2) "moderate" when there is certain room for further monetary policy easing in the short and medium term but the ability to do so in the future could be constrained by either external or financial stability considerations; and (3) "limited" when there is very little or no policy space to ease policy, either because of: (1) adverse implications of monetary easing on external and financial stability considerations; (2) close to zero or even lower policy rate; or (3) the inherent institutional setup and exchange rate stability, which do not allow for any monetary policy space. This framework does not necessarily take into account the ability and capacity of monetary authorities to undertake unconventional monetary policy.

Figure 1.54. ASEAN+3: Reserve Coverage



Sources: International Monetary Fund and national authorities, both via Haver Analytics; 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. Total short-term debt data for Myanmar are not available hence excluded from the figure. FX = foreign exchange; Lao PDR = Lao People's Democratic Republic.

Figure 1.55. ASEAN-4 and Korea: Reserve Adequacy
(Percent)



Sources: International Monetary Fund and national authorities, both via Haver Analytics.
Note: The IMF Assessing Reserve Adequacy EM 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 percentile of observed capital outflows from EMs during exchange market pressure periods.

Table 1.6. ASEAN+3: Overview of Key Pandemic Policies, February 1, 2020–February 28, 2021

Assessment as of February 28, 2021		Plus-3				ASEAN									
Fiscal Measures		CN	HK	JP	KR	BN	ID	KH	LA	MM	MY	PH	SG	TH	VN
Economy-wide	Extension of announced stimulus packages, and other special fiscal measures			●			●	●			●	●	●	●	
Individuals/ Households	Direct cash transfers		●	●	●		●	●		●	●	●	●	●	●
	Suspension of rental fees, loan, and interest payments	●	●	●	●	●	●		●	●	●	●	●	●	●
	Debt restructuring						●		●		●			●	●
	Government subsidies/ guarantees on minimum wages and extra allowances for employees		●	●	●	●	●	●	●		●	●	●		●
	Tax deferrals, waivers, and rebates on selected purchases	●		●	●	●	●		●	●	●	●	●	●	
	Waived fees for digital services (e.g., for banking needs, selected telecommunication charges)			●	●	●					●	●		●	●
	Cash subsidies for vulnerable groups			●			●	●			●			●	
	Price freeze on basic necessities								●		●	●		●	
	Subsidized salaries for new graduates joining the workforce		●											●	
	Fee cuts or payment deferrals for services (e.g., transportation; utilities)	●	●	●		●	●		●		●	●		●	●
Businesses	Income tax reductions for key sectors/ Delays in taxation and compulsory payments	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Waived utility fees			●			●			●	●				
	Moratoria on debt payments	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Lifting of import restrictions on local enterprises	●	●			●	●		●	●		●			
	Government guarantees on debt/ loans	●	●	●	●		●	●			●	●			
	Reduction or deferral of customs payments for some importers	●				●	●		●	●				●	
	Higher tax benefits for listed companies											●		●	
	Subsidies for maintaining operations and/or employment		●	●	●			●			●		●	●	
	Waived transaction fees for selected securities											●			●
Monetary Measures															
Economy-wide	Extension of announced monetary measures, including but not limited to those listed below			●			●	●			●		●	●	
Businesses	Credit subsidies and credit extension to SMEs	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Temporary financing lines to manage cash flow	●	●	●	●	●	●			●	●	●	●	●	●
	Provision of low-cost loans and soft loans		●	●	●		●	●	●	●	●		●	●	●
	Allowing more corporate bond issuances to support cash flow, including supply chain financing	●			●								●		
	Purchases of bonds issued by hard-hit companies			●	●									●	
Financial Institutions	Intervention to ease liquidity and expand banks' lending capacity, including aggressive lowering of reserve requirement ratios	●			●		●	●	●	●	●	●		●	
	Introduction of special deposit facilities for lenders that undergo mergers or business integration														
	Temporary measures to provide USD and local currency liquidity		●	●	●		●						●		
	Full access to low-cost funding for microfinancial institutions									●					
Asset Markets	Central bank's direct purchase of government bonds in the primary market						●				●				
	Active purchases of government bonds and papers to stabilize asset markets			●	●		●					●		●	
	Suspension of short-selling in the stock exchange				●		●				●			●	
Regulatory Forbearance															
Economy-wide	Extension of announced monetary measures, including but not limited to those listed below						●	●					●		
Capital Adequacy/ Liquidity	Lower required capital or countercyclical capital buffers		●				●	●			●		●		
	Lower select liquidity coverage ratios (e.g., foreign exchange) and loan-deposit ratios being imposed		●		●		●					●			
	Lower collateral ratios for select settlement activities/ expanding eligibla collateral			●	●					●					
	Higher range of securities eligible for open market operation transactions			●	●		●								
	Relaxed penalties imposed on institutions with reserve deficiencies											●			
Lending and Borrowing	Flexible treatment of nonperforming loans, thus allowing no additional provisioning on bank balance sheets		●	●			●	●	●		●	●	●	●	●
	Extension of timeline for banks to restructure loans						●	●		●				●	
	Removal of loan downpayment requirements for selected bank acquisitions														
	Eased loan restructuring and/or Know-Your-Customer rules						●		●	●		●		●	●
	Permission to draw down on capital and liquidity buffers to support lending activities		●	●			●				●	●	●		
Other Activities	Delayed new, tighter rules on asset management activities	●													
	Allowing banks to offload bad loans to asset management companies														
	Deferral of new accounting rules for property companies														
	Relaxed rules on buyback of shares						●								
	Higher trading limits and on FX forward positions				●									●	
	More flexible timelines for bank's reporting and other administrative requirements			●	●						●	●			

Sources: National authorities; and AMRO staff estimates, based on AMRO (2021).

The large fiscal stimulus measures have generally reduced the policy buffers against any future sustained waves of the pandemic or any other high-impact risks. Several economies saw a big jump in fiscal deficits in 2019, with more deficit spending expected in 2021, leading to a significant increase in government debt and possibly an increase in risks to fiscal sustainability (Figures 1.57–1.58). Although fiscal space for most economies is assessed to remain broadly within their pre-pandemic proximate ranges, a pronounced reduction has resulted for some economies (Table 1.5):

- Fiscal policy space has shifted from ample to moderate for Brunei, whose widened fiscal deficit is mainly attributable to low oil prices, and for Thailand, where public debt is quickly rising toward its self-imposed ceiling at 60 percent of GDP.

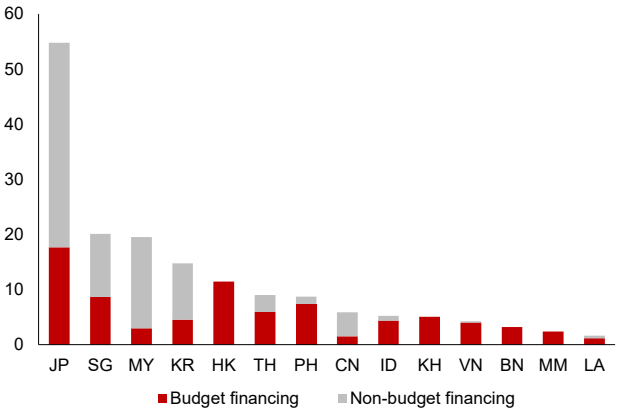
- While still moderate, Indonesia's fiscal policy space has narrowed in the wake of its sizable fiscal packages for 2020–21. The government has temporarily suspended the 3 percent of GDP budget deficit cap for 2020–22 to provide greater flexibility in its pandemic response. However, fiscal policy space may be constrained by the country's relatively narrow domestic investor base, and although foreign investors have returned as risk aversion receded, the flows from the latter tend to be more volatile.

On a positive note, private savings in the region have increased sharply, reflecting the collapse in domestic demand and amid heightened uncertainty in the outlook. As a result, the fiscal deficits have been financed largely from domestic savings rather than capital inflows. This unexpected development could help ease concerns about current account balances while creating some additional room for fiscal authorities (Figure 1.59).

Monetary policy space across the region has also narrowed following the raft of easing measures that were introduced to support the economy and financial systems. Some central banks have cut interest rates significantly since the start of the pandemic (Figure 1.60), resulting in reduced monetary policy space. That said, the monetary space in most of the other regional economies remains moderate (Table 1.5), within their proximate pre-COVID 19 range, while the cumulative rate cuts by the Philippines and Vietnam between December 2019 and 2020, of 200 and 150 basis points, respectively, have reduced their monetary policy space from ample previously, to moderate.

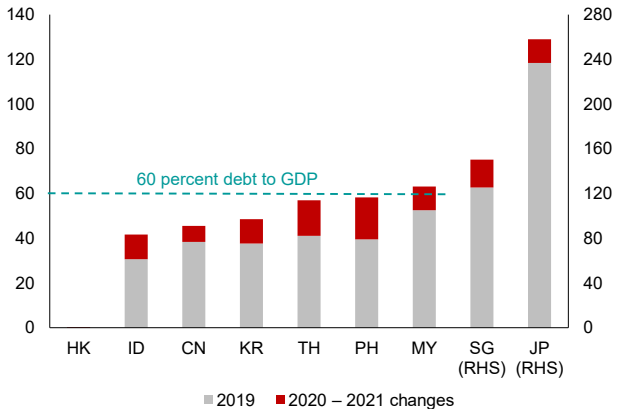
Central banks also provided support in several other ways. The adoption of unorthodox policies across the region helped inject liquidity into the financial system, preserve some monetary policy space, and protect financial stability (Box 1.13). Those measures comprised: (1) unconventional monetary policy measures such as central bank purchase of government bonds held by banks and nonbank financial institutions, which have averted a liquidity crunch in asset markets; and the introduction of special loans programs, notably to support SMEs; (2) regulatory forbearance and the targeted easing of macroprudential measures, which provided liquidity to the banking system and temporarily eased the pressure on bank balance sheets from rising credit risks; (3) efforts to secure US dollar liquidity via bilateral and multilateral swap lines or borrowings from international financial institutions, to try to offset the squeeze arising from disruptions to earnings from trade, and risk aversion toward risk assets (Pande and del Rosario 2020).

Figure 1.56. ASEAN+3: Economic Stimuli, February 1, 2020–February 28, 2021
(Percent of GDP)



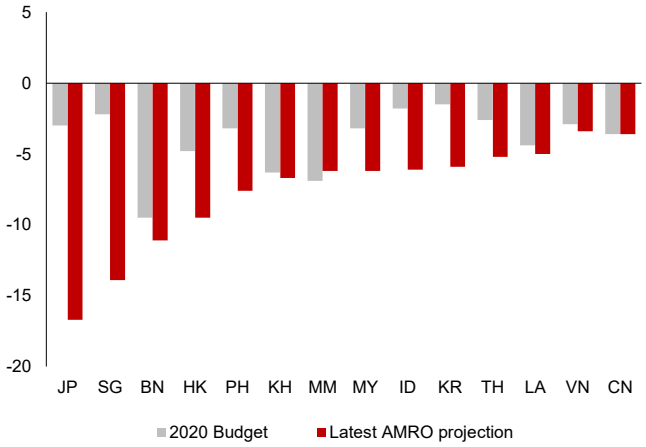
Sources: National authorities via Haver Analytics; and AMRO staff estimates.
Note: Based on governments' announced stimulus packages across regional economies. The non-budget financing component corresponds to the fraction of government's announced economic relief/stimulus packages financed by non-budget resources, for example, funding from public funds, public financial institutions or entities, or fiscal reserves. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.57. Selected ASEAN+3: Government Debt Projections, 2020–21
(Percent of GDP)



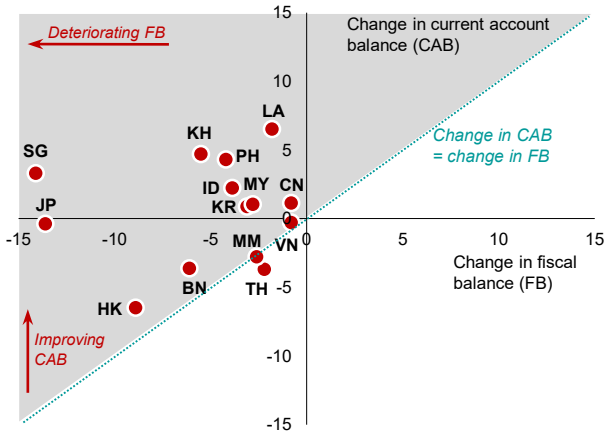
Sources: National authorities via Haver Analytics; and AMRO staff projections.
Note: The 2020–21 projections are based on the information available up to February 28, 2021. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; Economic Stimuli, and TH = Thailand.

Figure 1.58. ASEAN+3: Budgeted versus Estimated Fiscal Balance, 2020
(Percent of GDP)



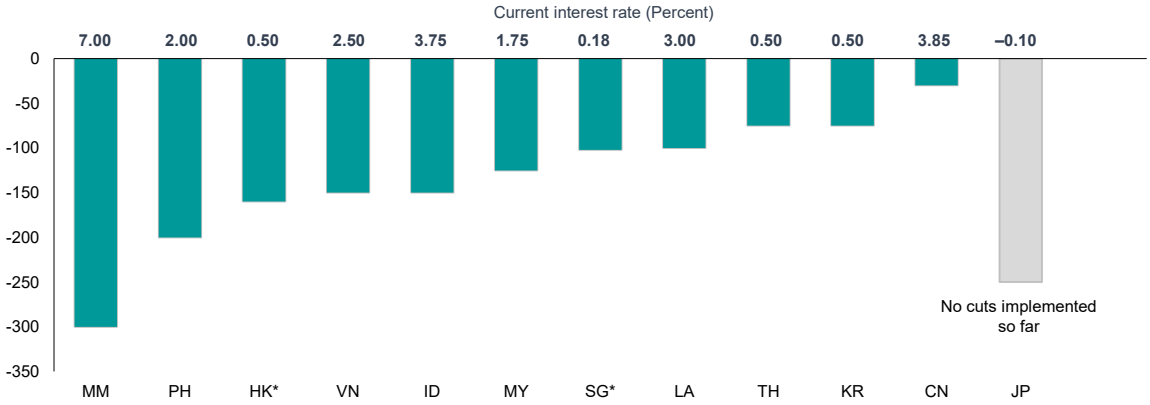
Sources: National authorities via Haver Analytics; and AMRO staff projections.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.59. ASEAN+3: Changes in Estimated Fiscal and Current Account Balances, 2020
(Percent of GDP, relative to 2019)



Sources: International Monetary Fund via Haver Analytics; and AMRO staff projections and calculations.
Note: Fiscal balances are based on general government net lending/borrowing. The shaded area depicts economies where changes in current account balances have been supported by higher private sector savings. The fiscal balances of all economies, except China, have deteriorated, while the current account balances have improved, with the exception of Brunei, Hong Kong, and Thailand. For Brunei, Hong Kong, and Thailand, fiscal balances have weakened at a faster pace than current account balances. BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Figure 1.60. ASEAN+3: Cuts in Key Interest Rates, January 1, 2020–February 28, 2021
(Basis point change)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Those with an asterisk uses the monthly average of market-based rates, instead of end-of-period rates. The definition of key interest rate varies across economies, and could mean the policy rate, the refinancing rate, the discount rate, the overnight repo rate, among others. Brunei and Cambodia are excluded from the sample given the current design of their respective monetary policies. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Policy Positions

Authorities in the region should err on the side of being accommodative in the coming year, where policy space allows. Given the downside risks to the outlook and the uncertainties surrounding the pandemic—including new virus strains, the efficacy and availability of vaccines, and the logistical challenges of the vaccination process—the default stance among policymakers should be to remain as accommodative as possible in the longer rather than shorter term (Figure 1.61). As it stands, the collapse in economic activity in the second quarter of 2020 has resulted in a large output gap for all regional economies and, despite the strong projected rebound in growth in 2021, the output gap is unlikely to be closed in the medium term (see Box 1.3).

Fiscal policy has been indispensable in supporting the pandemic-battered economies in the region in 2020. Going forward, fiscal policy stance among regional economies and AMRO staff's corresponding recommendations may be characterized as follows:

- ***Expansionary and could be more so.*** Fiscal spending in the Philippines to fight the pandemic and support the economy has been relatively modest, at 23.5 percent of GDP in 2020, compared with some regional peers, whose expenditure reached as high as 53.9 percent of GDP. Stronger fiscal support should be used to shore up the economy if the recovery were to falter or weaken.

- *Expansionary and should be maintained.* Cambodia rolled out a broad fiscal stimulus package in 2020. Continuing fiscal support is warranted in 2021 to bolster economic recovery and protect the vulnerable. A gradual shift away from short-term support measures toward investment in human and physical capital will help strengthen the medium-term resilience of the economy. Similarly, Myanmar's expansionary fiscal stance in FY2020/21 is aimed at increasing both capital expenditure and social spending, for which the authorities could tap more low-cost external funding. Thailand's substantial fiscal stimulus should be front-loaded toward the sectors most affected by the pandemic, notably, tourism, SMEs, and the informal sectors, while at the same time, facilitating structural reforms and increasing the pace of infrastructure investment.

- ***Expansionary but should be less so.*** Brunei's fiscal policy stance has been expansionary, driven by efforts to deal with the pandemic and to offset decline in oil and gas revenues; policy should be less expansionary going forward with the improvement in oil prices. China's fiscal policy impulse for 2020 amounted to about 5 percent of GDP and spending, while expansionary in 2021, should become less so, given the expected strong rebound in growth. Both Japan's stance and policy bias are expansionary, to deal with the challenges posed by the pandemic, but given its limited fiscal space, renewed efforts should be made to reduce the size of the deficit as the pandemic recedes, while pursuing expenditure reforms in the medium to long term.

- ***Moving to neutral in 2021.*** Indonesia's expansionary fiscal stance is expected to be neutral in 2021, which should be maintained. The authorities are aptly focusing on continued healthcare spending and social assistance, and more targeted support toward a sustainable recovery. Similarly, Korea's fiscal impulse will flatten in 2021, with the government maintaining fiscal expenditure at 28.4 percent of GDP to sustain economic momentum and revitalize the economy, which is appropriate in the short term. The size of fiscal deficit is expected to be at 5.8 percent in 2021, roughly the same as the 2020 level. Malaysia promptly and prudently deployed expansionary fiscal measures as the health and economic crises rapidly unfolded, and should maintain supportive measures in 2021 to sustain the recovery. However, the rising debt burden underscores the importance of putting its tax revenue plan into action to restore fiscal buffers, as the statutory (domestic) debt limit reverts to the pre-pandemic level by 2023. In Vietnam, the authorities adopted an expansionary stance in 2020, with some stimuli injected to support households and businesses. As the stance is projected to become neutral in 2021, additional fiscal support would be beneficial in strengthening the resilience of the economic recovery, given sufficient fiscal space.

- ***Moving to contractionary in 2021.*** Singapore has significantly scaled down broad-based fiscal support in light of its improving growth prospects. It has appropriately adopted a targeted approach, notably toward the hard-hit sectors, and is continuing to focus on boosting job creation, as well as preparing businesses and households for the post-pandemic new normal. Similarly, Hong Kong's policy support in 2020, amounting to about 11 percent of GDP, was expansionary and broad in coverage. For 2021, the Hong Kong authorities are focusing on stabilizing the economy through targeted countercyclical measures, and concurrently taking steps to boost the economy's longer-term competitiveness and resilience. There remains substantial scope to increase policy support measures if necessary. Lao PDR's expansionary stance is projected to become contractionary in 2021, and while appropriate given the country's limited policy space, mounting public debt and external debt service, more achievable goals should be calibrated to support economic recovery. Revenue improvement measures should focus on broadening the tax base, modernizing tax collection, and reforming tax expenditure, while spending should prioritize the programs and projects that drive growth, create jobs, and strengthen healthcare and social safety nets. External debt service should be the top priority in 2021 to manage liquidity and solvency risks.

Monetary policy actions by regional central banks have been instrumental in preventing a credit crunch and providing liquidity support at various points of 2020. In addition to more conventional interest rate cuts across the board, with the exception of Japan (Figure 1.61), monetary authorities also enacted a myriad of measures to backstop the real economy and financial system (Table 1.6). The key tools employed include: cuts to reserve requirements (Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines); injections of liquidity into markets through repo operations (China, Indonesia, Korea, Malaysia, the Philippines) and purchase of commercial paper and/or bonds in the primary or secondary market (Indonesia, Japan, Korea, Malaysia, the Philippines, Thailand); and the establishment of special lending programs for corporates, MSMEs (China, Indonesia, Japan, Korea, Malaysia, the Philippines Singapore, Thailand). With sufficient policy space and inflation posing little concern (Figure 1.62), monetary policy should remain accommodative for the foreseeable future, to support recovery in the growth momentum.

Prudential policies have been implemented to ensure that there is sufficient liquidity in the financial system to support continued lending to the economy while

Figure 1.61. ASEAN+3: AMRO Staff Assessment of Current Policy Stance and Recommendations

Source: AMRO staff estimates.
Note: "*" denotes fiscal year of April 1 to March 31. For Brunei, Cambodia, and Hong Kong, current monetary stance refers to the state of monetary conditions; "Credit Policy" refers to policies relating to credit extended to the real and property sectors, as well as to regulatory forbearance for banks.

guarding against any asset bubbles. The various measures introduced during the Covid crisis may be separated into two categories—conventional macroprudential policies and regulatory forbearance, which are typically used sparingly and are temporary in nature:

- Over the course of 2020, Cambodia, Indonesia, Lao PDR, and the Philippines moved to a more accommodative macroprudential stance, by cutting reserve requirements, adjusting countercyclical capital buffers, and/or liquidity coverage and collateral ratios, while Thailand relaxed rules on credit card and personal loan repayments; separately, Malaysia, Myanmar, and Vietnam moved from a tighter to a more neutral policy stance. In contrast, China, Hong Kong, Korea, and Singapore maintained their tight policies to dampen upward pressure on property prices.

- Authorities also afforded regulatory forbearance to banks to provide them with some flexibility to manage credit risks arising from the impairment of business and household balance sheets, and to encourage them to continue extending credit to the real economy. Key measures include postponing the implementation of new capitalization rules (Cambodia, China); adjusting capital requirements (Indonesia, the Philippines, Singapore); relaxing rules on liquidity (Indonesia, Korea, Malaysia, Myanmar, the Philippines, Singapore); and easing loan classification criteria (China, Indonesia, Lao PDR, Thailand).

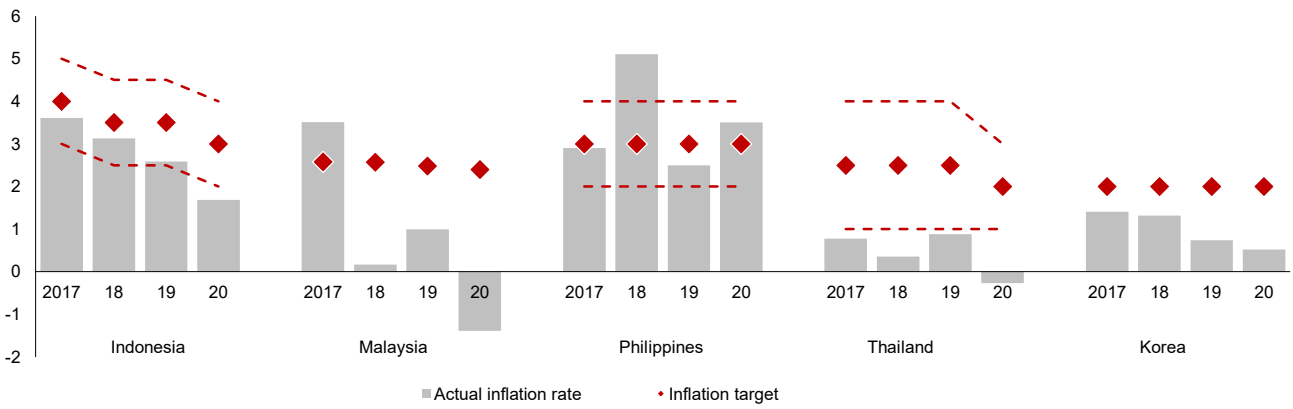
Policy Transition and Exit

Policymakers are, appropriately, thinking about the eventual transition from the multitude of crisis response policies that have been implemented to support their respective economies. The decision as to when and how to exit smoothly from stimulus policies without triggering any cliff effect is a challenging one, which will require policymakers to follow some broad guiding principles (Box 1.14). Safeguarding public health remains the top priority amid risks of another COVID-19 outbreak. Although the speedy development of efficacious vaccines is encouraging, many economies will remain highly susceptible to another wave of infections—requiring renewed containment measures in some cases—until the bulk of the population has been vaccinated. However, extensive and indefinite policy stimuli to support economic recovery is not sustainable either, given the narrowing policy space and rising debt burden (Table 1.5 and Figure 1.57). The "Catch 22" for policymakers is that any premature withdrawal of existing stimulus measures could gravely threaten the nascent economic recovery that began in the third quarter of 2020.

Broadly, well-managed exits from the raft of existing stimulus policies will be critical in avoiding any sudden shock to growth and financial stability. During the nascent recovery stage, the risk of withdrawing support from the economy too early is greater than providing stimuli for a bit longer than perhaps necessary. Hence, exit plans need to be implemented gradually and cautiously:

- Any withdrawal of financial support to households and businesses must be considered against the risks of household and business bankruptcies and high unemployment; exits from regulatory forbearance must be designed to avoid moral hazard, while avoiding any sudden shock to banks' balance sheets; and the unwinding of liquidity injections into the financial system must be balanced against any excessive tightening in credit conditions. Against these considerations, governments also need to eschew artificially supporting firms that are not economically viable, although it would be challenging not to do so in a highly uncertain climate.

Figure 1.62. ASEAN-4 and Korea: Actual Inflation versus Inflation Target
(Percent year-over-year, end-of-period)



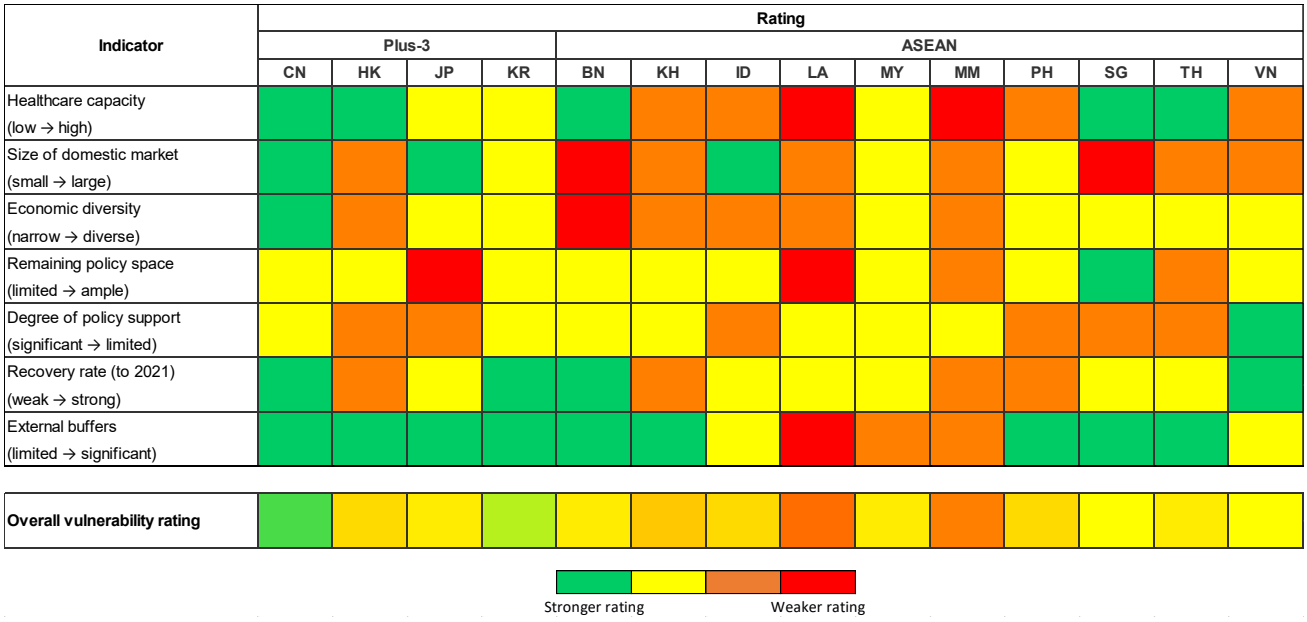
Sources: National authorities; and AMRO staff estimates.
Note: Malaysia is not officially an inflation-targeting economy; the long-term average is used in this instance. Dots represent mid-points of pre-defined inflation target bands, while dotted lines represent the upper and lower bounds of the bands. Korea does not have an inflation target band.

- It is crucial to engineer a "soft-landing" for the financial sector as the pandemic recedes. Regulatory forbearance is a powerful tool for "buying time" during a crisis, but such benevolent measures must be temporary to minimize moral hazard and protect the soundness of, and maintain confidence in, the financial system. For the relevant ASEAN+3 banking systems, exit policies and official guidance are required in two areas: (1) when and how banks should terminate their loan moratoria program, recognizing that some banks may need recapitalization; and (2) how authorities should phase out regulatory forbearance while allowing banks time to repair their balance sheets and normalize lending to the economy, post-pandemic.

Additionally, the timing and strategy of exit from stimulus policies should realistically vary across the region and depend largely on economy-specific factors. Some economies will be more vulnerable to exit because of their overall circumstances, such as: (1) the capacity of the healthcare system to cope with any mass recurrence of infections; (2) the capacity of the domestic market to support growth; (3) the diversity of the economy in providing growth opportunities; (4) the availability of policy space to support smooth transition; and (4) the degree of policy support that must be unwound vis-à-vis the strength of economic recovery. Based on this framework, AMRO staff's assessment is that the majority of economies in the ASEAN+3 region should remain cautious in exiting from their stimulus policies (Figure 1.63).

Last but not least, transitions and exits should be effected in a holistic, coordinated manner. They should involve the government, central bank, and financial regulators. These agencies should then engage with financial institutions and businesses to evaluate the effectiveness of policy support to date, identify and target support at particular sectors, and determine what type and how much more may be needed in those sectors. Rebuilding the post-pandemic economy should emphasize the structural aspects, namely, structural reforms, and building the necessary hard and soft infrastructure to facilitate the transition to the new digital economy (AMRO 2020a). Those that are not viable should be phased out, and workers reskilled from sunset industries to emerging ones. During this period, social safety nets should be strengthened to support the transition.

Figure 1.63. ASEAN+3: Vulnerability to Pandemic Policy Exit Risks, as of February 2021
(Rating)



Source: AMRO staff estimates.
Note: Ratings are assigned as follows: (1) red – weaker; (2) orange – less weak; (3) yellow – less strong; (4) green - stronger. The overall vulnerability rating is a simple average of the individual ratings. Indicators are defined as follows:
"Healthcare capacity" refers to the availability of hospital beds and the quality of healthcare, the latter of which draws on AMRO staff judgment;
"Economic diversity" refers to the relative size of key economic sectors (for example, agriculture, manufacturing, services), overlaid by AMRO staff judgment about the diversity of industries within each sector.
"Size of domestic market" refers to the economy's import-adjusted GDP.
"Remaining policy space" is based on the methodology presented in Poonpatpibul and others (2020) and shown in Table 1.5.
"Degree of policy support" is based on the extent of actual policy support provided since the start of the pandemic assessed by AMRO staff.
"Recovery rate" is proxied by AMRO staff's projections of the output gap as of end-2021.
"Reserve coverage" is based on the ERPD Matrix Scorecard percentile.
BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; and VN = Vietnam.

Box 1.13:

Central Banks Lend a Helping Hand

Economies around the world have been faced with the challenge of funding the extraordinary fiscal support needed for the pandemic. Although most ASEAN+3 economies have built up significant fiscal space by pursuing relatively conservative fiscal policies and rules, the large pandemic relief packages still made the financing of the deficits challenging for some. Following the initial shock to the markets in March 2020, global liquidity conditions eased and provided relief to regional bond markets, but the unprecedented size of the fiscal stimuli and consequent widening of fiscal deficits posed challenges for bond auctions. However, close coordination between monetary and fiscal authorities ensured sufficient funding to support the economy.

Central banks enacted several policy measures, which helped to ease the pressure on bond markets. These measures included:

- ***Policy rate cuts.*** Anticipation of further rate cuts made bond valuations attractive for investors.

- ***Liquidity easing.*** Liquidity from reductions in reserve requirements, liquidity operations, and asset purchases in secondary markets, found their way to government bonds, amid a low credit-growth environment.

- ***Direct financing to the government.*** Bank Indonesia (BI) and Bangko Sentral ng Pilipinas (BSP) provided temporary, direct financing to the government (through primary market purchases/ private placements of government debt, residual buyer in the primary market, and short-term repurchase agreements/short term loans respectively), helping to regulate the supply of bonds to the market.[1/]

On the demand side, an examination of the key buyers of government debt in 2020 reveals the important roles played by banks and central banks (Table 1.13.1):

- In line with the burden sharing agreement between BI and the Indonesian government, a large portion of the latter's net issuance is held by the former. BI's government bond holdings increased as a result of direct placements (IDR 397.6 trillion), as well as from purchases in the primary (IDR 75.9 trillion) and secondary (IDR 128.3 trillion) markets. The banking system also absorbed a sizeable amount of issuances, about a fifth of which was made possible by the liquidity freed up by cuts in reserve requirements.

- Similarly, banks were the largest buyers of Malaysian government debt (51 percent of net supply of government debt in 2020), indirectly attributable to the adjustments to reserve requirements. Bank Negara Malaysia (BNM) also increased its holdings of government bonds to ensure sufficient liquidity for continuous financial intermediation, address market dislocation, and manage excessive volatility during the heightened stress period. The remaining statutory reserves are limited but BNM still has ample space through other tools, such as reverse repos and outright purchases of government bonds, to ensure sufficient liquidity in the market.

- There also appears to be a significant increase in central bank claims on the central government in the Philippines.

- Liquidity support through reduced reserve requirements was not needed in the current account surplus economies, Korea and Thailand. Indeed, the liquidity parked with these central banks rose in 2020. While the Bank of Korea and Bank of Thailand also increased their holdings of government debt, they did so to a much lesser extent than other regional peers.

1/ BI has purchased government bonds through market-based mechanisms, in accordance with the joint decree with the Ministry of Finance of Indonesia dated April 16, 2020, with the effective date extended until December 31, 2021. Under the one-off burden sharing agreement July 7, 2020, BI also financed the "public goods" package via private placements and absorbed the entire interest cost, and shared part of the interest costs of the micro, small, and medium enterprise and corporate packages.

Looking ahead, there is no obvious challenge to bond issuances in 2021, but authorities should be wary of risks that could potentially affect demand. In a low volatility, easy (global and domestic) liquidity environment, bond auctions should largely sail through. However, some of the following factors could adversely affect market appetite for bonds, notably: (1) a strong pick up in credit growth, as compared to deposit growth, which can limit the capacity of banks to absorb increased supply of bonds; (2) faster normalization of monetary policy in advanced economies, which can make emerging market bonds less attractive and cause a rise in the yields of domestic bonds; (3) turbulence in financial markets, which could lead to outflows from domestic bond markets; or (4) the likelihood that a large part of conventional monetary and liquidity support has already been implemented, which may limit the ability of some central banks to further cut rates or reserve requirements.

Countries that have implemented unconventional policies in 2020—under extraordinary circumstances—do not intend to use them as a long-term policy tools, and hence they did not negatively impact markets. BI has indicated that the government's direct placements of bonds with it was a one-off arrangement, while the BSP maintains that it will provide temporary, direct financing to the government only through short-term facilities. If necessary, central banks in the region could consider greater use of unconventional policies, given that inflation rates are low and well-anchored, and their external positions are relatively strong. In such circumstances, the communication and forward guidance around these measures should be transparent and effective to ensure that markets do not overreact. Sometimes, the assurance of a backstop itself may be sufficient to ensure market stability.

Table 1.13.1: ASEAN-4 and Korea: Absorption of Net Domestic Issuance of Government Debt, 2020
(Percent unless stated otherwise)

	Net Issuance (Trillions of LCY, 2020)	Net Issuance Absorbed By (Percent of net issuance, 2020)				Reserves Released (As percent of 2020 net supply)	Fiscal Deficit (Budgeted, Trillions of LCY, 2021)	Reserves Remaining (As percent of budgeted 2021 net supply)
		Banks (Domestic)	Central Bank	Non-Banks (Domestic)	Foreign Investors			
Indonesia	1118.0	34	54	20	-8	6	1006.4	25
Korea*	123.4	18	6	57	19	-8	113.2	65
Malaysia	0.089	51	16	8	25	47	0.085	3
Philippines**	1.567	23	74	n.a.	n.a.	13	1.750	79
Thailand***	0.908	43	14	47	-3	-65	0.792	553

Sources: National authorities; and AMRO staff calculations.
Note: Data for Indonesia, Malaysia, the Philippines, and Thailand are as of December 31, 2020 and Korea as of November 30, 2020, The data include IDR-denominated tradable government debt for Indonesia, treasury bonds for Korea, government bonds and bills for Malaysia, gross domestic central government debt for the Philippines and government bonds and bills for Thailand.
Reserves referred in the table are the bank deposits with central bank as part of regulatory reserve requirements. Reserves released is the reduction in these deposits (negative number implies a rise in deposits) which contributes to the liquidity conditions in the banking system LCY = local currency unit.
* The fiscal deficit (budgeted, 2021) for Korea indicates only the net bond issuance planned for 2021.
** The bond outstanding and holdings data for Philippine government bonds are not available. Net issuance for Philippines is calculated from the change in government's domestic debt. The net issuance absorbed by banks and the central bank are calculated from the change in claims on government. Central bank claims on government are adjusted to exclude the short-term loan of PH540.
*** The data for Thailand are in accordance with the fiscal year. Net issuance (2020) lists the net issuance from October 2019 to September 2020; Fiscal deficit (budgeted, 2021) is based on the Public Debt Management Office's projections of gross bond and bill issuance net of redemptions between October 2020 to September 2021.

The author of this box is Prashant Pande.

1/ BI has purchased government bonds through market-based mechanisms, in accordance with the joint decree with the Ministry of Finance of Indonesia dated April 16, 2020, with the effective date extended until December 31, 2021. Under the one-off burden sharing agreement July 7, 2020, BI also financed the "public goods" package via private placements and absorbed the entire interest cost, and shared part of the interest costs of the micro, small, and medium enterprise and corporate packages.

Box 1.14:

Post-Pandemic Policy Considerations

While continuing to provide the necessary pandemic policy support, the key objectives of each government need to shift gradually from crisis survival to strategic initiatives for robust recovery and sustainable growth. Given that resources are not unlimited, policy support should pivot from a "whatever it takes" to a "what can serve best" approach, taking into careful account the effectiveness and priorities of policy alternatives (Table 1.14.1). Policy tools should be carefully designed to incentivize the private sector to retake the lead in driving the economy to ensure self-sustainable economic recovery. In addition, various policy initiatives to address evolving priorities over time horizon need to be comprehensively assessed to avoid conflict and maximize complementarity (Figure 1.14.1). In the meantime, risk management, including COVID-19 prevention and control, should remain the top priority throughout.

Policy transition in the short-term should focus on economic recovery and gradually align with the medium- to long-term structural reform priorities, including building a more resilient economy. Managing policy space is important but rebuilding policy space will be feasible only in the medium term, as the need for policy support will continue until the economy adequately regains its growth momentum.

For a sustainable recovery, a cautious and targeted restarting of the economy is necessary after careful assessment of both health risks and economic impact. Containment measures should be relaxed in phases based on analyses of implied health risks, including the stages of virus transmission and the capacity of the public health system (Figure 1.14.2). Also, reopening all businesses at once in all regions is not desirable. Authorities should prioritize the groups of sectors and regions for reopening by taking into account virus transmission risks and the economic importance of each sector (Figure 1.14.3). In addition, policy support should be recalibrated to become more targeted. Broad financial assistance and tax incentives should be refocused to incentivize job creation and resource reallocation, supporting self-sustainable economic recovery.

The COVID-19 pandemic demonstrated the importance of resilient economic systems, which should be one of the ultimate goals of structural reforms in a post-pandemic world. Four aspects are particularly crucial (Figure 1.14.4):

- Traditional cost-efficient business practices have proven to be highly vulnerable to shocks, and supply chains need to be reconfigured to ensure more durable and effective business operations.

- The adoption of technology is essential in maintaining the provision of critical services in both the public and private sectors. The pandemic forced a shift from physical to contactless interactions through digital technology; the government could facilitate the continuing transition by providing appropriate incentives and requisite infrastructure.

- The pandemic also underscored the importance of developing strong healthcare capacity and enhancing the social security system to preserve life and livelihood.

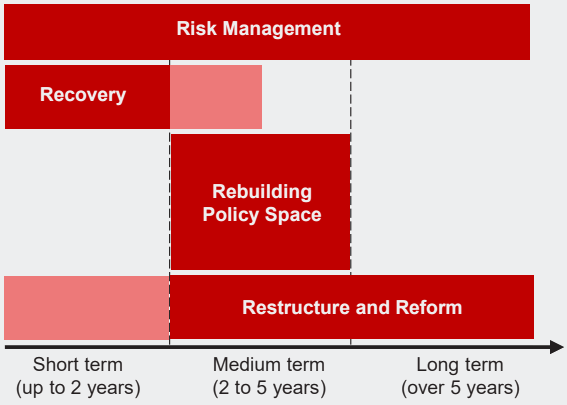
- Lastly, rebuilding policy space over the medium term is also critical in strengthening policy buffers and enhancing economic resilience. Going forward, a credible medium-term plan to replenish fiscal buffers and a clearly communicated schedule to unwind extraordinary monetary measures will be necessary to regain market confidence in the region's outlook.

Table 1.14.1. Pandemic Policies: Transition

	Pandemic Response	Post-Pandemic
Policy Objectives	• Survival	• Robust recovery • Sustainable growth
Approach	• Whatever it takes • Passive responses • Universal support	• What can serve best • Proactive strategies • Targeted support
Growth Drivers	• Led by stimulus packages	• Led by private sector with policy support
Time Horizon	• Short term	• Short, medium, and long term

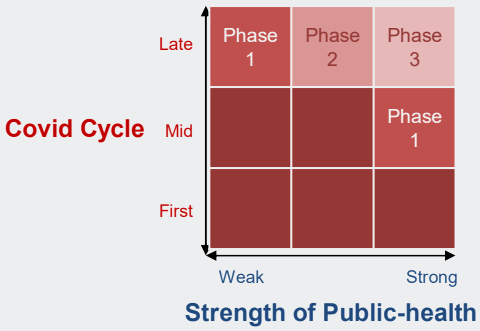
Source: AMRO staff illustration.

Figure 1.14.1. Pandemic Policies: Priorities over Time



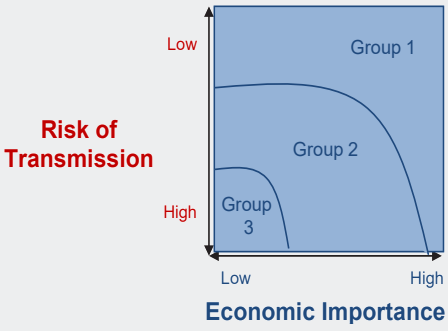
Source: AMRO staff illustration.

Figure 1.14.2. Pandemic Policies: Phased Approach



Source: AMRO staff illustration.

Figure 1.14.3. Pandemic Policies: Prioritized Reopening



Sources: McKinsey and Company; and AMRO staff illustration.

Figure 1.14.4. The Post-Pandemic Economic System: A "New Normal"

Source: Ekapirak and others (2020).

The authors of this box are Luke Seung Hyun Hong and Byunghoon Nam, based on Ekapirak and others (2020).

Appendix 1.1: Selected Key Macroeconomic and Financial Indicators

Appendix Table 1.1.1. ASEAN+3: Selected Key Macroeconomic and Financial Indicators

	2019	2020 e/	2021 p/	2022 p/
Brunei Darussalam				
Real GDP growth (percent year-over-year)	3.9	0.9	3.1	4.0
Headline inflation (period average, percent year-over-year)	–0.4	1.7	1.2	1.0
Current account balance (percent of GDP)	6.6	3.0	5.1	5.5
General government fiscal balance (percent of GDP)	–5.0	–11.1	–5.4	–3.0
Cambodia				
Real GDP growth (percent year-over-year)	7.1	–3.0	4.7	6.1
Headline inflation (period average, percent year-over-year)	1.9	2.9	3.5	2.4
Current account balance (percent of GDP)	–15.0	–10.3	–17.5	16.1
General government fiscal balance (percent of GDP)	–1.2	–6.7	–8.0	–4.7
China				
Real GDP growth (percent year-over-year)	6.0	2.3	8.7	5.5
Headline inflation (period average, percent year-over-year)	2.9	2.5	1.5	2.0
Current account balance (percent of GDP)	1.0	2.1	1.5	1.0
General government fiscal balance (percent of GDP)	–2.8	–3.6	–3.0	–3.0
Hong Kong, China				
Real GDP growth (percent year-over-year)	–1.2	–6.1	4.8	6.5
Headline inflation (period average, percent year-over-year)	2.9	0.3	2.0	2.0
Current account balance (percent of GDP)	6.0	–0.5	1.0	3.2
General government fiscal balance (percent of GDP)	–0.6	–9.5	–3.7	–3.5
Indonesia				
Real GDP growth (percent year-over-year)	5.0	–2.1	4.9	5.3
Headline inflation (period average, percent year-over-year)	3.0	2.0	2.5	3.0
Current account balance (percent of GDP)	–2.7	–0.5	–1.9	–2.0
General government fiscal balance (percent of GDP)	–2.2	–6.1	–5.5	–3.4
Japan				
Real GDP growth (percent year-over-year)	0.3	-4.8	2.7	1.8
Headline inflation (period average, percent year-over-year)	0.5	0.0	–0.1	0.3
Current account balance (percent of GDP)	3.7	3.3	3.7	3.6
General government fiscal balance (percent of GDP)	–3.1	–16.7	–3.5	–3.2
Korea				
Real GDP growth (percent year-over-year)	2.0	–1.0	3.2	3.0
Headline inflation (period average, percent year-over-year)	0.4	0.5	1.0	1.3
Current account balance (percent of GDP)	3.6	4.5	3.8	3.3
General government fiscal balance (percent of GDP) [1]	–2.8	–5.9	–5.7	–5.7

	2019	2020 e/	2021 p/	2022 p/
Lao PDR				
Real GDP growth (percent year-over-year)	5.5	0.5	4.6	4.8
Headline inflation (period average, percent year-over-year)	3.3	5.1	3.5	4.0
Current account balance (percent of GDP)	–5.0	1.5	–4.0	–4.3
General government fiscal balance (percent of GDP)	–3.2	–5.0	–3.2	–3.3
Malaysia				
Real GDP growth (percent year-over-year)	4.3	–5.6	5.6	6.2
Headline inflation (period average, percent year-over-year)	0.7	–1.2	2.0	2.2
Current account balance (percent of GDP)	3.4	4.4	3.1	2.8
General government fiscal balance (percent of GDP)	–3.4	–6.2	–5.4	–4.5
Myanmar[2]				
Real GDP growth (percent year-over-year)	6.8	3.2	–2.6	4.5
Headline inflation (period average, percent year-over-year)	8.6	5.8	5.0	5.5
Current account balance (percent of GDP)	0.0	–2.8	–3.0	–3.4
General government fiscal balance (percent of GDP)	–3.6	–6.2	–7.4	–4.6
The Philippines				
Real GDP growth (percent year-over-year)	6.0	–9.5	6.9	7.8
Headline inflation (period average, percent year-over-year)	2.5	2.6	3.8	3.3
Current account balance (percent of GDP)	–0.9	3.4	0.9	–1.2
General government fiscal balance (percent of GDP)	–3.4	–7.6	-9.1	-7.6
Singapore				
Real GDP growth (percent year-over-year)	1.3	–5.4	6.0	4.7
Headline inflation (period average, percent year-over-year)	0.6	–0.2	0.5	0.7
Current account balance (percent of GDP)	14.3	17.6	19.3	19.8
General government fiscal balance (percent of GDP)	0.2	–13.9	–2.2	–0.5
Thailand				
Real GDP growth (percent year-over-year)	2.4	–6.1	2.3	4.8
Headline inflation (period average, percent year-over-year)	0.7	–0.8	0.8	0.9
Current account balance (percent of GDP)	7.0	3.3	1.3	1.7
General government fiscal balance (percent of GDP)	–3.0	–5.2	–5.7	–3.5
Vietnam				
Real GDP growth (percent year-over-year)	7.0	2.9	7.0	6.8
Headline inflation (period average, percent year-over-year)	2.8	3.2	3.2	3.2
Current account balance (percent of GDP)	4.8	4.5	4.5	4.5
General government fiscal balance (percent of GDP)	–2.6	–3.4	–3.2	–2.4

Sources: National authorities via CEIC and Haver Analytics; and AMRO staff estimates.

Note: e/ refers to AMRO staff estimates, p/ refers to AMRO staff projections. Numbers in red denote AMRO staff estimates and projections. Data refer to calendar year, except for general government fiscal balances and Myanmar. Data for 2020 refer to AMRO staff estimates, for those that are not yet available.

[1] Korea's fiscal balances exclude social security fund.

[2] FY2018/19 onward are based on a new fiscal year starting from October, after half-year interim FY2018 during April and September 2018. The real growth rate in FY2018/19 is estimated on a new base year FY2015/16, compared to the previous year, which was based on FY2010/11 prices. The FY2018/19 balance of payments figures are estimated based on the three-quarters of available data.

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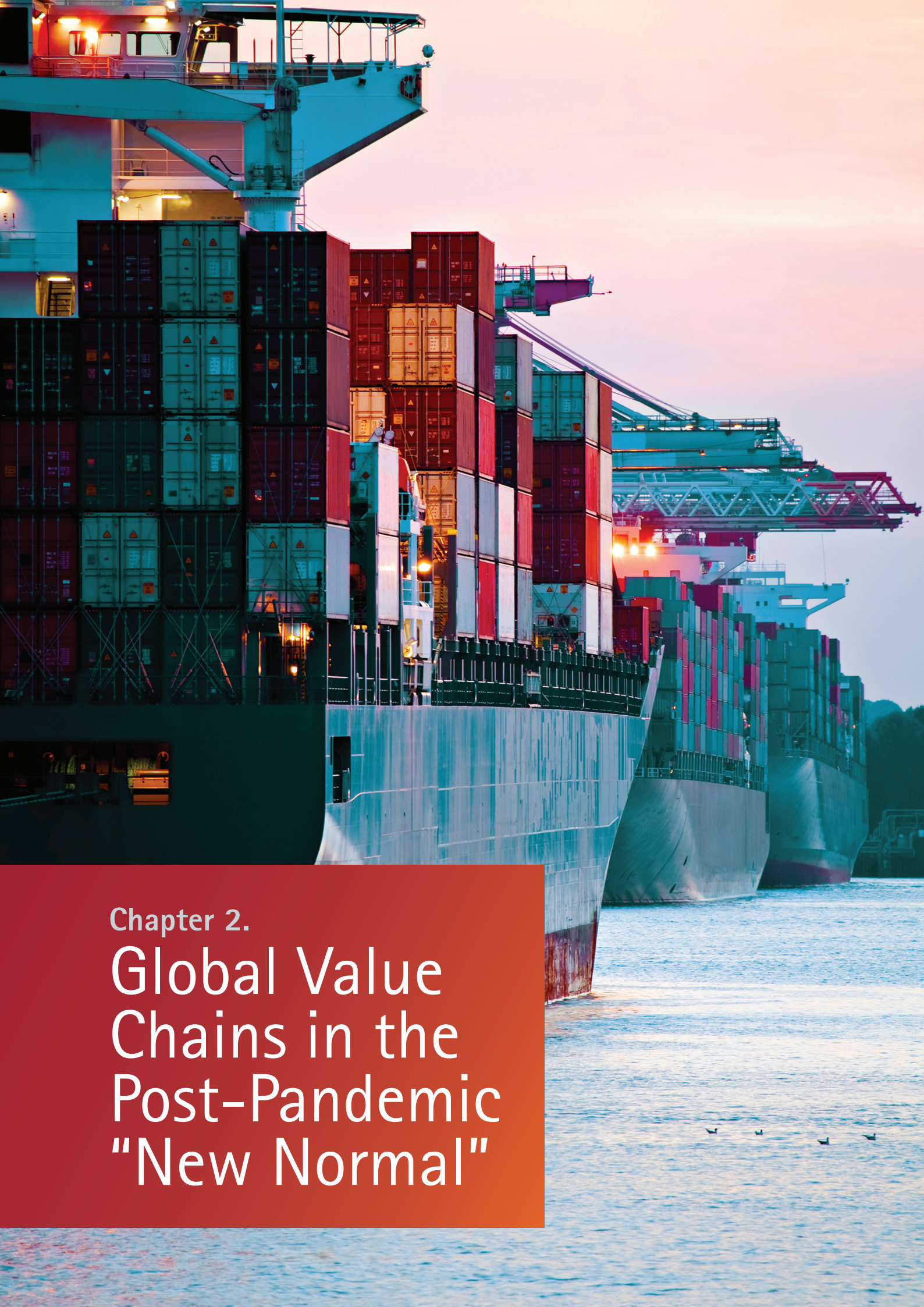

Chapter 2.

Global Value Chains in the Post-Pandemic "New Normal"

Highlights

- Natural disasters, trade tensions, and the COVID-19 pandemic have spurred greater emphasis on supply chain resilience. This trend has raised concerns that globalization is in retreat and global value chains (GVCs) would be reconfigured. Although some cross-border relocation movements have been observed globally, no evidence has as yet emerged of wholesale GVC restructuring or transfer away from China and from the ASEAN+3 region.

- Multinational enterprises (MNEs) are critical to a potential GVC reconfiguration, especially their decisions as to (re)organizing their network of suppliers. MNEs' relationships with their suppliers, the costs of switching location and partners, as well as other economic factors—including labor costs, soft and hard infrastructures, domestic market growth, and government incentives—influence their decision to locate in specific regions: to stay, or transfer to other locations.

- The ASEAN+3 region remains a highly attractive location for MNEs, given its rapidly growing middle-class consumers and dynamic growth prospects. Attractive labor costs aside, the region also fares relatively well in terms of infrastructure quality, skilled labor availability, and technological absorption, when compared to alternative locations such as in Africa, Latin America, or Eastern Europe.

- GVC reconfiguration, if it emerges, is likely to occur in particular stages of the global supply chain. In particular, stages that are labor-intensive or cost-sensitive and do not require highly technical skills, such as assembly operations, are more likely to be moved. Factories that have neither large exit costs nor require tacit knowledge exchange are also strong candidates for relocation if downside risks escalate.

- The pandemic accelerated the "flight to digital" for businesses and consumers, and this behavior is unlikely to be reversed in the future. The outlook for digital consumption thus remains highly positive, including in the ASEAN+3 region. But full deployment of new technologies will require the region to develop and install the necessary hard and soft infrastructures, especially for information and communication technology (ICT).

- Technology bifurcation could result from the ongoing tech competition between China and the United States, although history also shows that such bifurcation is likely to be resolved by interface technology over time. Advances in technology—and its adoption—can also be stymied by other challenging hurdles, such as data regulations and transfer restrictions, security issues, and geopolitics.

- The quality of institutions, human capital, and infrastructure will continue to remain relevant for the ASEAN+3 to attract future GVC investments. Nonetheless, in the post-pandemic world, the region should focus on (1) building infrastructures geared toward the Fourth Industrial Revolution (4IR); (2) developing stronger crisis management within their policy response frameworks; and (3) securing sustainable funding, considering the region's weaker fiscal positions now compared to its pre-pandemic conditions.

I. Global Value Chains in the Post-COVID-19 Environment: A New Trade Paradigm

COVID-19 has spurred a wave of globalization obituaries. Some have argued that post-pandemic, life, instead of returning to the old normal, will herald a global economic and trade reset. In particular, global value chains (GVCs), which have become the backbone of world trade, may be on course for a major reconfiguration. While some changes in trade patterns are afoot, the magnitude of the shift is still uncertain. How much of GVCs will be reconfigured? What will be the impact on current GVCs, especially in the ASEAN+3 region, from the greater emphasis on supply chain resilience rather than cost and efficiency?

US–China tensions have compounded the impact of the pandemic on the global economy. Although economic competition is healthy, manufacturing nationalism, spawned by the tensions between the United States and China, has lent further support to the argument for a major reconfiguration of GVCs. Indeed, there is concern that the US–China technology rivalry could lead to a technology bifurcation with far worse ramifications than the tariff escalation. Technology is an important enabler of global supply chains; it is also deeply embedded in many goods and services. Thanks to technology, the world has shrunk as distances have collapsed with the ease of transportation, travel, and telecommunications, and myriad devices are able to interconnect and communicate with each other almost anywhere. Globalization of standards and open architecture are some of the factors that have helped achieve this outcome. But more recently, concerns have emerged that the trends of globalization and integration have reversed and technology fragmentation, or "splinternet," is supplanting the Internet. How concerned should we be about the trend toward technology bifurcation and what will be its impact, particularly for the ASEAN+3 region?

This chapter deals with the twin issues of GVC reconfiguration and technology bifurcation. In a way, it is a continuation of the thematic chapters of past editions of the AREO, which have dealt with structural challenges facing the region: the "manufacturing for export" growth strategy (AMRO 2018), leveraging digital technology for growth (AMRO 2019), and major global trends affecting globalization and the rise of the "new economy" in Asia (AMRO 2020). This year's thematic chapter continues the discussion with the above questions on globalization and technology.

This chapter is organized as follows. Section II examines the factors that drove the development of the GVCs in the ASEAN+3 region, along with the forces that are reshaping its configuration in the period ahead. It highlights the role that multinational enterprises (MNEs) and lead firms play in forming the nodes of the global supply chains and the factors underlying their alternative GVC strategies. In particular, it discusses the factors that determine MNEs' decisions to organize their network of suppliers in particular ways, which can provide an indication of the ease or difficulty in reconfiguring GVCs. The section closes with what economies in the region can do to take advantage of this potential reconfiguration of the GVCs.

Section III follows with a discussion on the new digital technologies that will transform the production process and reshape global supply chains, beginning with how the pandemic has accelerated digital transformation across businesses, before diving into a discussion of the US–China technology tensions. While the section discusses how techno-nationalism can result in the development of a dual universe of US-led or China-led technologies, it also recalls what had transpired when similar technology bifurcation and standards had occurred in the past. It argues that, ultimately, as in the past, technology itself would solve the problem of bifurcation, as interface technology and other innovations would render switching costs between technologies irrelevant and immaterial in business decisions. However, it could also be that, at least in the short term, one of the two types of technology might eventually emerge as dominant and reap the benefits from network and monopoly effects. The final section summarizes the chapter and provides some policy considerations for ASEAN+3 economies.

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II. Will Global Value Chains be Reconfigured?

GVCs have played a critical role in driving Asia's industrialization and economic development since the 1960–70s when developing countries in the region opened up their economies to attract foreign direct investments (FDIs), pursuing a "manufacturing for exports" strategy of development. The regional supply chain was given a boost in the 1980–90s when Japanese MNEs decided to move the labor-intensive parts of their manufacturing production to lower-cost ASEAN economies to mitigate the loss of competitiveness resulting from the sharp yen appreciation in the wake of the Plaza Accord. This trend was further boosted in the 2000s with the accession of China into the World Trade Organization (WTO), which led global MNEs to restructure their supply chains by shifting production to China to take advantage of its cheap and abundant labor.

The development of the regional production network, as noted in our earlier thematic studies, led to the industrialization of the regional economies as wave after wave of developing economies entered the production network and moved up the value chain. This process of industrialization of the region is vividly captured by the flying geese theory of development propounded by Ozawa (2005). Each group or wave of economies pursued slightly different strategies to develop, but all leveraged their growth on export-oriented strategies. Japan, followed by Korea and Taiwan Province of China, grew by promoting and supporting domestic manufacturing enterprises, which built vertically integrated domestic supply chains that eventually became global. Hong Kong and Singapore, followed by the other ASEAN economies and China, industrialized by attracting FDIs and specializing in some stages of production or tasks, progressively upgrading their participation in the global supply chains, until they achieved higher levels of development and income. Hong Kong and Singapore also diversified into finance and business services and have become major financial and business hubs in the region.[1/] China has industrialized and moved up the GVCs so rapidly that it is now a global manufacturing powerhouse and at the cutting edge of technology in many industries.

The fragmentation of the vertically integrated production process into global supply chains was premised on the virtues of globalization such as comparative advantage, allocative efficiency, and cost minimization, and was enabled by technological advances that led to a sharp drop in cost of transportation and telecommunication. Indeed, the efficiency of the global supply chains led to lower prices of consumer goods and services that benefited households in every country, especially the United States and Europe. However, the relocation of production also led to job losses in the manufacturing sector in advanced economies and widening income disparity, which have led to anti-globalization sentiments and the rise of populist movements. In particular, voices calling on governments in advanced economies to bring back jobs that have been offshored and protect the domestic market from foreign competition are getting louder. The question therefore is whether globalization has run its course and how GVCs will be affected going forward. How will GVCs be reconfigured? What will be the role of the ASEAN+3 region in changed or reconfigured GVCs, if this occurs?

This section begins with a discussion on the importance of GVCs for the ASEAN+3 region, before delving into the role of MNEs and FDI in the growth and expansion of GVCs. Next, it discusses the different GVC governance structures, with MNEs usually at the helm as lead firms; this is necessary as the governance arrangements provide hints on the ease or difficulties of reconfiguring GVCs. The third subsection describes a range of factors that affect the location choices of MNEs, which will significantly impact the likelihood of a global reconfiguration. Some emerging evidence is then presented on planned investments into the region. The section concludes with the challenges facing developing ASEAN+3 economies as preferred investment locations.

1/ AMRO (2020) has an in-depth discussion of China's "leapfrog within" the flying geese formation. In particular, China's progression from low-cost manufacturing to skills- and technology-intensive industries have challenged the traditional "linear" evolution of comparative advantage. Thus, while China continues to retain comparative advantage in traditional manufacturing, it has also achieved a rank close to leadership in some high-tech industries. For example, some provinces and cities such as Shenzhen and Hangzhou, have moved up value chains to the production frontier of certain industries while other provinces, especially the inland ones, follow behind as in the flying geese formation.

Global Value Chains in ASEAN+3

GVCs are an integral part of ASEAN+3 economies, comprising about half of their regional and global trade (Figure 2.1). A huge proportion of international trade of regional economies are from GVCs, which explains their high participation rates. In 2019, GVC participation rates in the ASEAN+3 range from about 30 percent of total exports for China to at least 60 percent for Singapore.[2/] China's relatively low GVC participation rate is in line with other continental size economies with large domestic markets, such as the United States and India.[3/]

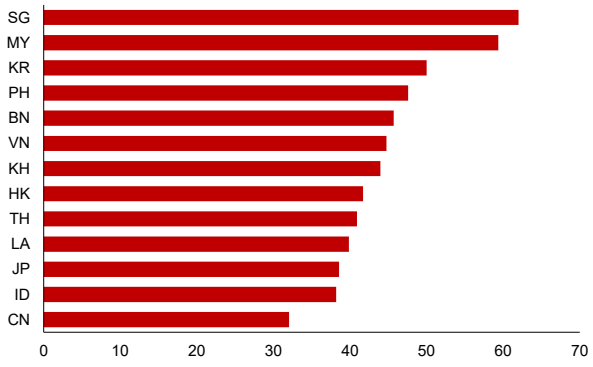
Close to a quarter of global GVC activities come from ASEAN+3 (Figure 2.2), while nearly half are accounted for by Europe.[4/] China, despite its low GVC participation rate, accounts for a larger share of global GVC activities than any other economy in the ASEAN+3. In 2019, China accounted for nearly 7 percent of global GVC activities during the year, close to one-third of the ASEAN+3's global GVC share, up from its 2.9 percent share in 2000 (Figure 2.2). This trend shows how China has become more deeply embedded in manufacturing GVCs over time.

Following the 2008–09 global financial crisis (GFC), which marked the beginning of the decline in GVCs' share of global trade, the region's GVC participation rates likewise dropped (Figure 2.3). From a high of 42.8 percent before the GFC, the ASEAN+3 participation rate decreased to about 40 percent in 2019. This is attributable mostly to the decline in China's participation rate, followed by a slight decrease for ASEAN. The participation rates of Japan and Korea (Plus-2 economies), on the other hand, increased slightly during the period.

A significant weakening in backward GVC participation since 2007, which was not offset by the relatively small increase in forward participation, accounts for the overall decline in the ASEAN+3 participation rate (Figure 2.4). In particular, China's backward participation rate decreased significantly by nearly 10 percentage points between 2007 and 2019, even though it recorded the largest increase in forward participation. This suggests that China needed fewer intermediate components imports and instead exported more of them. In contrast, the Plus-2 economies' forward participation rate fell, while their backward participation increased—likely a result of their offshoring strategies. Imports of intermediate goods produced by Plus-2 MNEs' subsidiaries in lower-cost economies such as China or the ASEAN could account for the increase in the Plus-2 economies' backward participation rates.

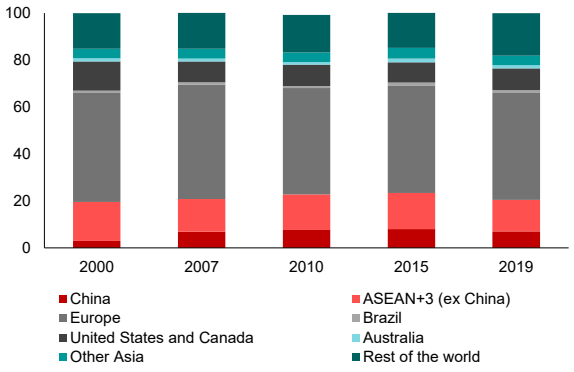
Is the ASEAN+3's value chain trade global in scope, or is it more regional?[5/] The low regional value chain (RVC) participation rates for both ASEAN and ASEAN+3 suggest that value chain trade in the region is more

Figure 2.1. ASEAN+3: GVC Participation Rates, 2019
(Percent share of total exports)



Sources: Asian Development Bank; and AMRO staff calculations.

Figure 2.2. ASEAN+3 and World Regions: Share in Global GVC Activity
(Percent share of world GVCs)



Sources: Asian Development Bank; and AMRO staff calculations.

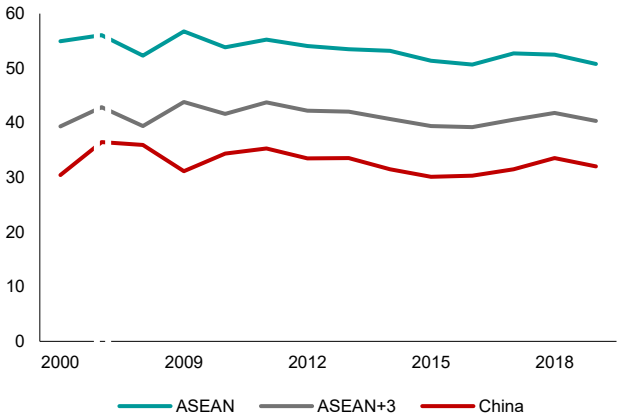
2/ GVC participation is the sum of the foreign value-added of imported foreign inputs used in the production of exports of goods and services (backward participation), and the value-added of domestically produced inputs exported to partners in charge of downstream production stages (forward participation), or the domestic value-added that goes to third economies for their exports (WTO 2020). The data in this section, including boxes, use the Asian Development Bank Multiregional Input-Output Tables downloaded in December 2020.

3/ Large economies such as the United States or China have a huge value of exports, not all of which are GVC-related. Since GVC participation is a ratio over exports, it partly explains why GVC participation rates of China or the United States are low.

4/ This is computed as the sum of each individual economy's export DVA_INTrex (domestic value-added exports used by the importer economy to produce exports for a third economy) and FVA (foreign value-added), divided by all economies' DVA_INTrex and FVA, as indicated in the Asian Development Bank's Multiregional Input-Output Tables. In the case of Europe, individual economies' shares were first calculated, then added together, which explains the large share of Europe as a whole in global GVC activities. In other words, all the intermediate goods trade among EU member countries are captured in the GVC activity calculations for Europe in Figure 2.2.

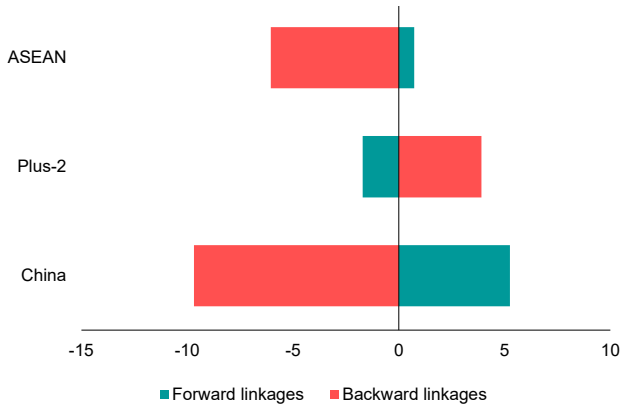
5/ Regional value chain trade involves only regional production partners (both as source of components and as export destination of components for further export processing). GVC trade, on the other hand, involves extra-regional partner economies.

Figure 2.3. ASEAN+3: Aggregate GVC Participation Rates
(Percent share of total exports)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: White lines represent a break in the data, from 2001 to 2006.

Figure 2.4. ASEAN+3: Change in GVC Linkages, 2007 versus 2019
(Percentage point change in share of total exports)



Sources: Asian Development Bank; and AMRO staff calculations.

global than regional (Figure 2.5). In particular, the low RVC participation ratio for the ASEAN economies of about 7 percent suggests that regionalization of manufacturing supply chains among only ASEAN member economies is not strong. Most of ASEAN's imported components used in production supply chains (captured in foreign value-added, or FVA) come from outside ASEAN and more of its domestic value-added exports for further processing (or DVA_INTrex) are used outside the region (Appendix Figure 2.1.1. for a detailed illustration). For the ASEAN+3, on the other hand, a relatively larger share of imported components come from within the region, and a larger share of DVA_INTrex are likewise used within the region (Figure 2.5). This reflects the stronger linkage between the ASEAN and the Plus-3 economies: (1) the importation by the Plus-3 economies, especially Japan and Korea, of manufacturing components that have been outsourced to the ASEAN economies and China; and (2) the importation by ASEAN economies of intermediate components from the Plus-3 economies for processing before being exported. This is in contrast to the relatively weaker linkage among ASEAN members alone.

ASEAN+3's low RVC participation rate of 12–13 percent compared with its GVC participation rate of 40–50 percent shows the strong external orientation of the regional supply chains. While the ASEAN+3 RVC participation rate is higher than ASEAN's, it merely reflects the fact that bigger size of the regional grouping will naturally lead to more trade of intermediate goods within the group. In particular, MNEs in the Plus-3 economies are able to leverage on the lower cost in ASEAN economies for outsourcing of their supply chains, while ASEAN exports benefit from the intermediate goods demand from the Plus-3 economies (Figure 2.5). The entire region as a whole, however, imports a large share of intermediate goods and services from extra-regional partners (for example, auto design by Ford in the United States, sent to its manufacturing plant in Thailand); as well as exports to them (for example, Ford auto parts from Thailand exported to its assembly plant in Mexico). Simply put, the ASEAN and ASEAN+3 region are more tightly embedded in global than in regional trade.

ASEAN+3's manufacturing industries, more than services, are the most connected to global and regional value chains, but certain industries have stronger regional links than others. In particular, compared to other industries, the manufacturing of electrical and optical equipment, basic and fabricated metals, chemical products, as well as for coke and refined petroleum, have stronger value chain contributions from regional economies (Figures 2.6–2.7).

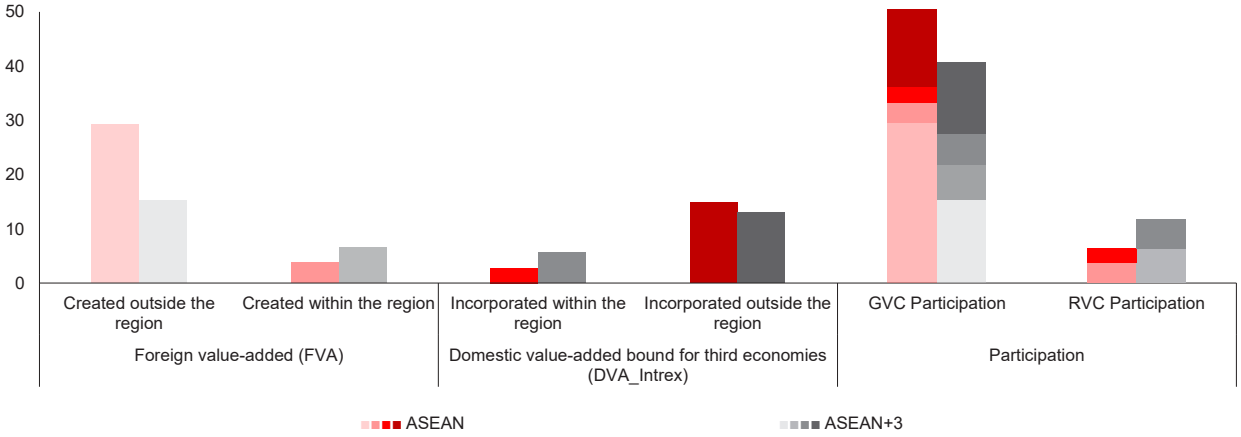
Particularly in the manufacture of electrical and optical equipment sector—where the region has progressively upgraded its GVC participation by doing the higher value-added stages like design and fabrication—the strong RVC contribution is not surprising. In other manufacturing industries like transport equipment and textiles, ASEAN+3 economies have a strong GVC presence, but a relatively smaller RVC contribution, because of the larger size of the transport and garment industries and markets in the United States and Europe (Figure 2.7). The auto industry, in particular, operates supply chains more on a global than regional scale, where a majority of parts and components, as well as high-value services like design or research and development (R&D), are outsourced and imported from abroad, including the ASEAN+3 region.[6/]

The bulk of the value-added in ASEAN+3 economies' exports are contributed by the domestic economy (Figure 2.8). For ASEAN economies, the domestic value-added (DVA) share has risen from 60 percent in 2000 to about 65 percent in 2019, with another 9 percent from other ASEAN economies. Between 2000 and 2019, China's

[6/] Electrical/ optical and transport sectors are among the GVCs that are considered to have long supply chains (Miroudot and Nordström 2020) because the parts and components travel long distances and cross borders multiple times before they reach the final product.

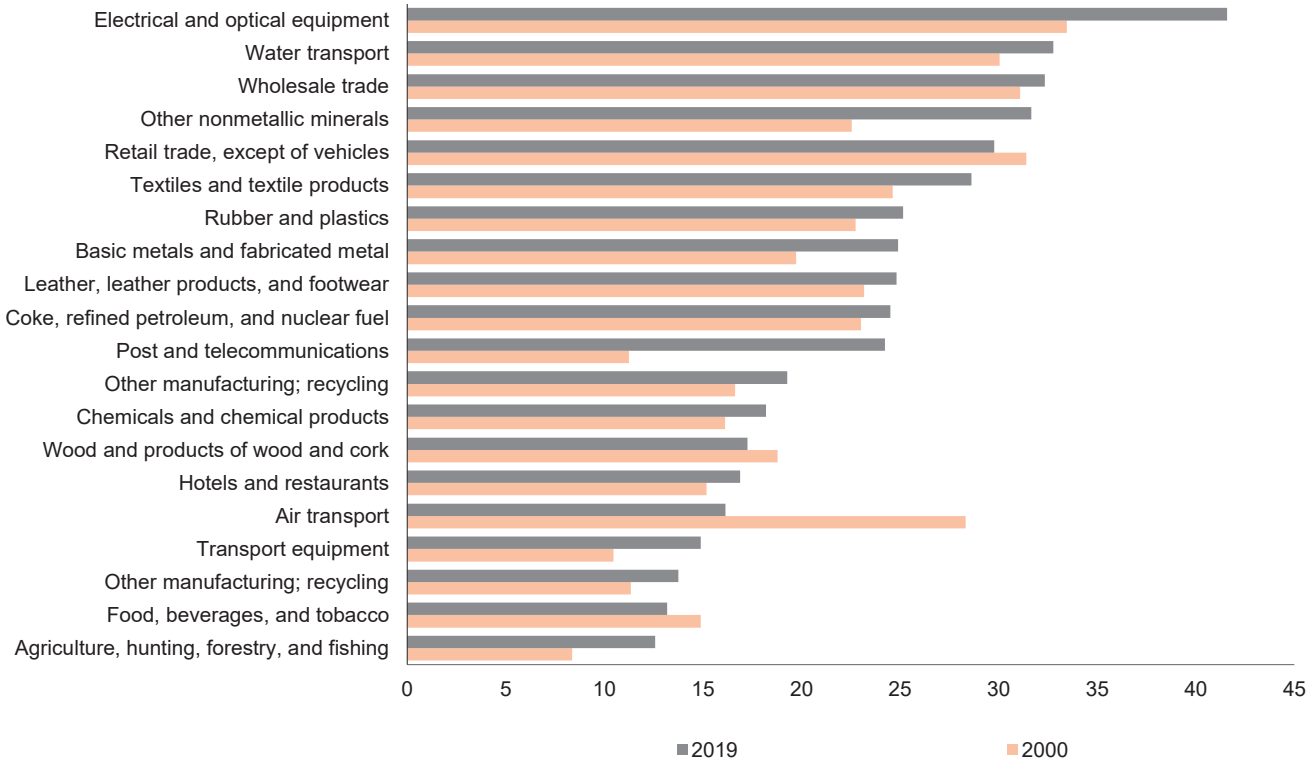
DVA in exports increased by about 5 percentage points to nearly 90 percent while the foreign value-added share has decreased (Figure 2.8). This shows that, despite the huge and necessary import components in GVC activities, most of the exported value-added still come from the domestic economy. Undoubtedly, as the next section discusses, established subsidiaries and affiliates of MNEs in the local economy contribute to the large exports of DVA.

Figure 2.5. ASEAN+3: Global and Regional Value Chain Participation, 2019
(Percent of total exports)



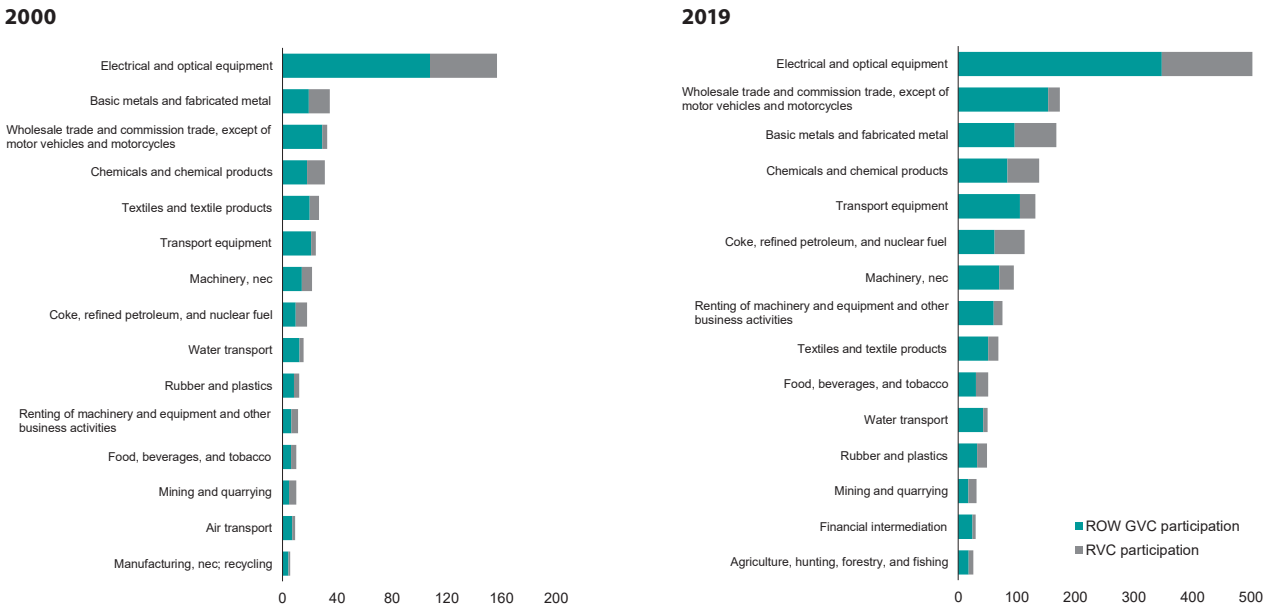
Sources: Asian Development Bank; and AMRO staff calculations.
Note: The methodology used is based on Organisation for Economic Co-operation and Development (2019). DVA_INTrex = Domestic Value Added (DVA) in intermediate exports used by direct importers to produce intermediate or final exports for a third economy's final consumption or use for its own exports. DVA_INTrex incorporated within the region means the DVA from an economy belonging to a region, either ASEAN or ASEAN+3, say from Thailand, is being used by another economy in the same region, say to Malaysia (in the case of ASEAN) or Japan (for ASEAN+3) to export to a third economy. Incorporated outside the region means that the DVA from an economy in a region, for example, ASEAN+3, is being used by extra-regional economy, say Mexico, to produce its exports to another destination. The same concept holds for FVA or foreign value-added. FVA created within the region reflects the intra-ASEAN imports (or intra-ASEAN+3 imports); while FVA created outside the region is from extra-regional GVC trade partners, for example, the European Union or United States. GVC Participation is the sum of FVA and DVA_INTrex (both within and outside the region); while RVC is the sum of FVA and DVA_INTrex within the region. See Appendix Figure 2.1.1. for a schematic illustration.

Figure 2.6. ASEAN+3: Top 20 Sectors with the Highest Share to GVCs, 2000 and 2019
(Percent of world GVC activity of sector)



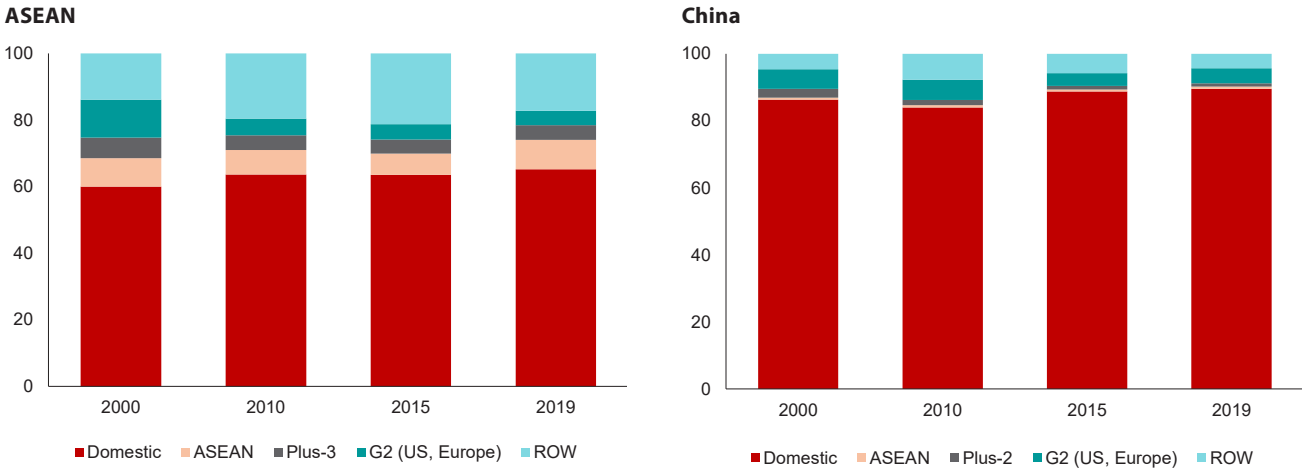
Sources: Asian Development Bank; and AMRO staff calculations.

Figure 2.7. ASEAN+3: Top 15 Sectors with the Highest GVC Participation, 2000 and 2019
(Billions of US dollars)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: nec = not elsewhere classified; ROW = rest of the economies included for that year in the Asian Development Bank Multiregional Input-Output tables; RVC = regional value chain. The low sector share of regional VC to global GVC of sectors such as Transport Equipment, despite the fact that some high-value added components are already sourced within the region, for example, Japan and Korea, reflects the fact that other regions too, like the European Union, undertake large GVC activities in the sector. These low shares are consistent with GVC shares in Figure 2.2.

Figure 2.8. ASEAN and China: Sources of Value-Added in Exports
(Percent of total value-added exports)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: ROW = rest of the world.

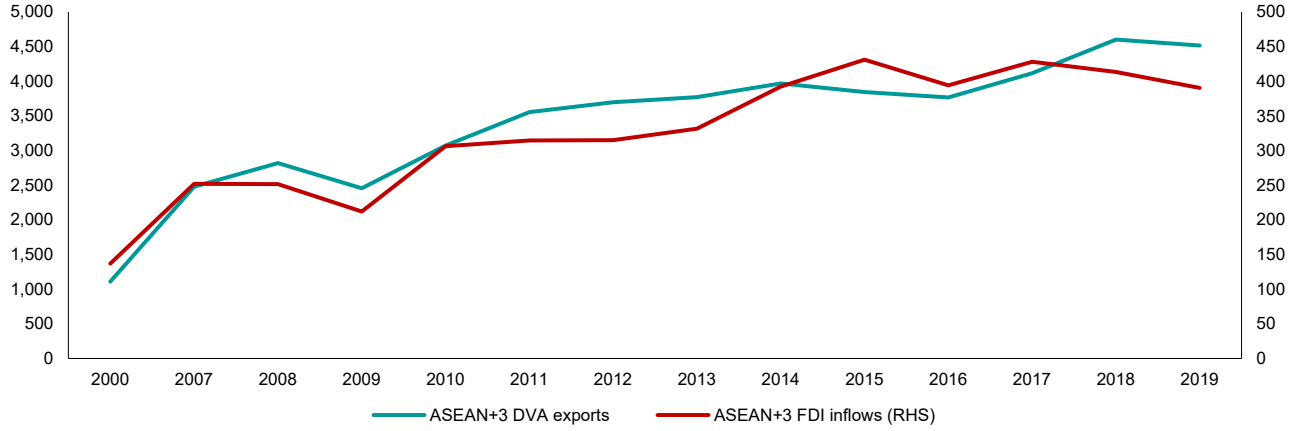
Global Value Chains and the Role of Foreign Investment

FDI has been key to the growth of DVA in ASEAN+3 exports (Figure 2.9) because the activities of the subsidiaries and affiliates of MNEs are part of the domestic economy and thus counted in DVA. Even if MNEs do not have direct investments in the economy, their contractual relationships with local suppliers would likewise stimulate domestic economic activities. Hence, while the correlation between aggregate FDI inflows and DVA exports is positive, a similar correlation can likewise be observed in specific sector investments; for example, DVA exports of automobiles or garments have shown increases over time as a result of GVC-related investments (Boxes 2.1 and 2.2).

Additional evidence of the important role of FDI and foreign affiliates in domestic GVC activities (and thus growth in DVA) can be observed from comparing the growth of affiliates' sales in the domestic economy with direct exports. For example, the direct exports of the United States and Japan to China and ASEAN pale in comparison to the domestic sales of their subsidiaries and affiliates (Figure 2.10). This is particularly true for China where affiliates' sales are classified as local procurement, thus contributing to China's DVA exports (Figure 2.8), while in ASEAN, some of the sales of US and Japanese affiliates may be part of intra-ASEAN exports. Foreign

subsidiaries may be exporting to their parent firms or affiliate companies as part of the GVC activity of the lead firm, supplying other MNEs abroad or in the host economy, or catering to the domestic market. In any case, sales of US foreign affiliates in China and in ASEAN have been on an upward trend since 1998, increasing seven– or eightfold respectively from 1998 to 2014–18, in contrast to the much slower growth of US exports. Likewise, the sales of Japanese affiliates, which grew fivefold, mirrored a similar trend (Figure 2.10).

Figure 2.9. ASEAN+3: Domestic Value-Added Exports and FDI Inflows
(Billions of US dollars)



Sources: Asian Development Bank; United Nations Conference on Trade and Development; and AMRO staff calculations.
Note: DVA = domestic value-added; FDI = foreign direct investment.

Figure 2.10. Japan and United States: Exports to versus Sales of MNE Affiliates to ASEAN and China, 1998–2018
(Millions of US dollars)

Sources: Japan's Ministry of International Trade and Industry; US Bureau of Economic Analysis; World Bank's World Integrated Trade Solution; and AMRO staff calculations.
Note: MNE = multinational enterprises; US = United States.

Box 2.1:

Growth in Domestic Value-Added in GVCs: Automotive Industry and Machinery, Electrical, and Optical Equipment

The embedding of foreign affiliates' activities into the domestic value chain ecosystems in the ASEAN+3 region helps increase domestic activities and the region's value-added exports. This is especially true at the aggregate export level and in the exports of specific sectors like the automotive industry, as well as the machinery, electrical and optical equipment industries.

In the auto industry, while Japan has maintained its hub position, China has upgraded and increased its role in the sector's supply chain. The domestic value-added (DVA) content from Japan, Germany, and the United States were already among the biggest in the network in 2000, but China's DVA global share has evolved from a tiny node in 2000 to a conspicuously bigger one in 2019 (Figure 2.1.1), outperforming Korea, France, and the United Kingdom. In value terms, China's DVA in its auto exports increased from USD 4.5 billion in 2000 to nearly USD 105 billion in 2019. The DVA shares of the Big Three—the United States, Germany, Japan—remain large because high-value activities like design or research and development, and more recently, software and IT components of cars, are mostly carried out in the home economies of the MNEs.

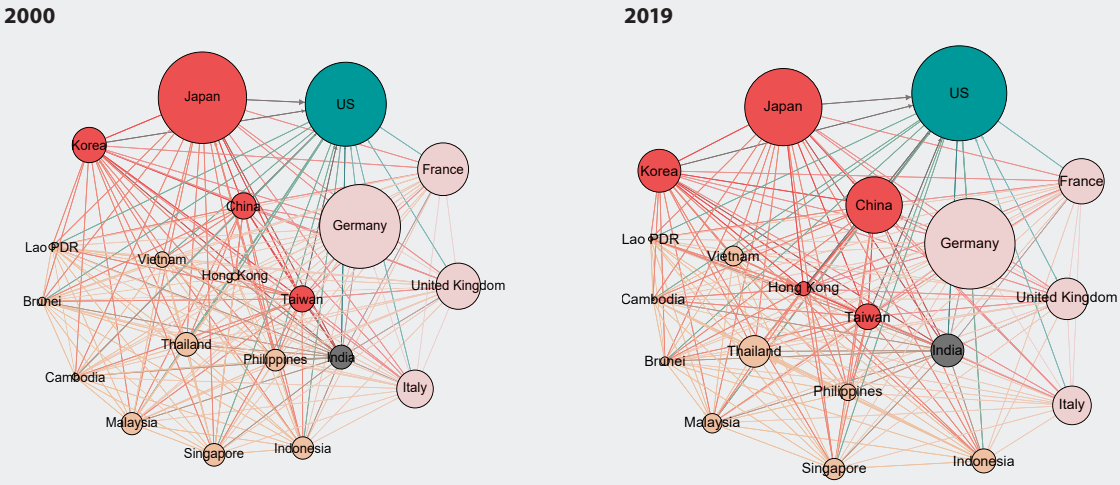
A similar story can be observed for exports of the machinery, electrical, and optical equipment sectors, where the increase in China's DVA share is even more impressive—from 5 percent of the global share in 2000 to 30 percent in 2019 (Figure 2.1.2). As evidence of its move up the value chain, China has become the industry's biggest hub in 2019, in contrast to 2000 when these hubs were Japan and the United States. Japan has switched from being a net exporter to, into being a net importer from, China. Korea remains the biggest high-tech supplier to China. On the other hand, the ASEAN-6 economies have become a significant net importer of these high-tech goods from China.

In the auto industry, Japan and Korea's DVA shares have declined while their FVA shares have increased, reflecting higher imports of components and parts from either their suppliers in the region or offshore affiliates of their MNEs (Figure 2.1.3). In ASEAN, Indonesia and Thailand are the major beneficiaries of the offshoring activities of Japan's and Korea's automobile industries. They increased their DVA shares in automotive exports over the last two decades, coinciding with the offshoring activities of auto MNEs. Vietnam is also participating more in the automotive GVCs as evidenced by its high share of PDC (pure double counted terms) and FVA, which indicates that there is multiple back and forth trade in automotive parts between Vietnam and other economies.[1/] If Vietnam continues to upgrade its participation in GVCs, its DVA share will likely increase, similar to what has happened with China's DVA exports of machinery, electrical, and optical goods.

ASEAN members take up different positions in the automotive value chains. For example, Indonesia and Thailand have similar shares of DVA in their automotive gross exports, but the two countries participate in the production chain in different ways (Figures 2.1.3–2.1.4). For Thailand, DVA embodied in its final exports (DVA_FIN) has remained stable at nearly 70 percent between 2000 and 2019, while DVA embodied in its intermediate exports (DVA_INT) and DVA sent to third countries (DVA_INTrex) have been about 30 percent. Thailand's DVA structure suggests that Thailand's position is more toward the downstream part of the value chain: by producing and exporting fully or close-to-fully assembled cars. On the other hand, for Indonesia, the DVA_INT and DVA_INTrex contribute more than 50 percent of its automotive exports, suggesting that Indonesia is concentrating more on the upstream segment, for example, on intermediate parts and components, of the value chain.

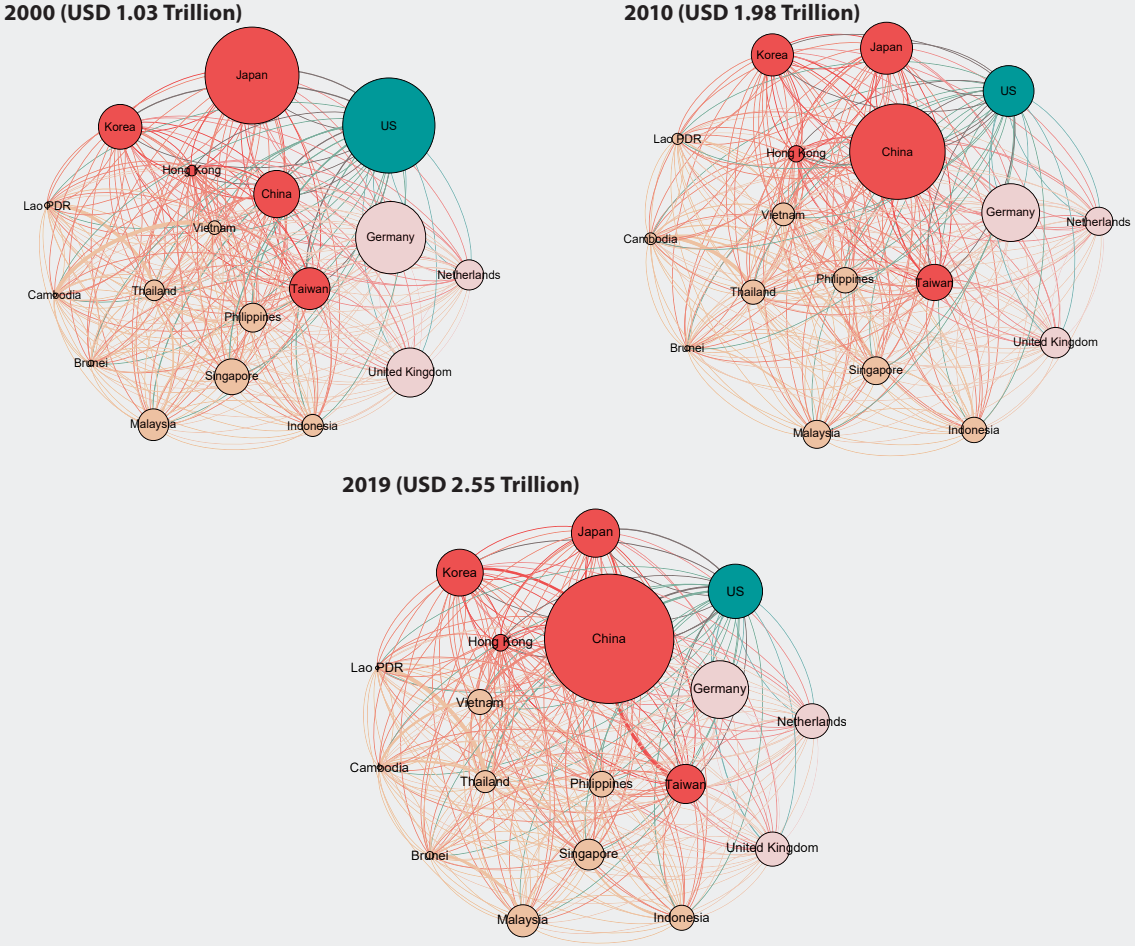
1/ Pure double-counted (PDC) terms in an economy's exports occur when there is back-and-forth trade of intermediate products. An increasing share of PDCs could indicate the deepening of cross-country production sharing, for example, intermediate goods have to cross national borders multiple times before they are used in final goods production. The methodology of Wang, Wei, and Zhu (2018) provides a way to separate the domestic and foreign value-added terms from the purely double-counted values (Appendix Figure 2.1.1).

Figure 2.1.1. Global Value Networks of Automotive Production



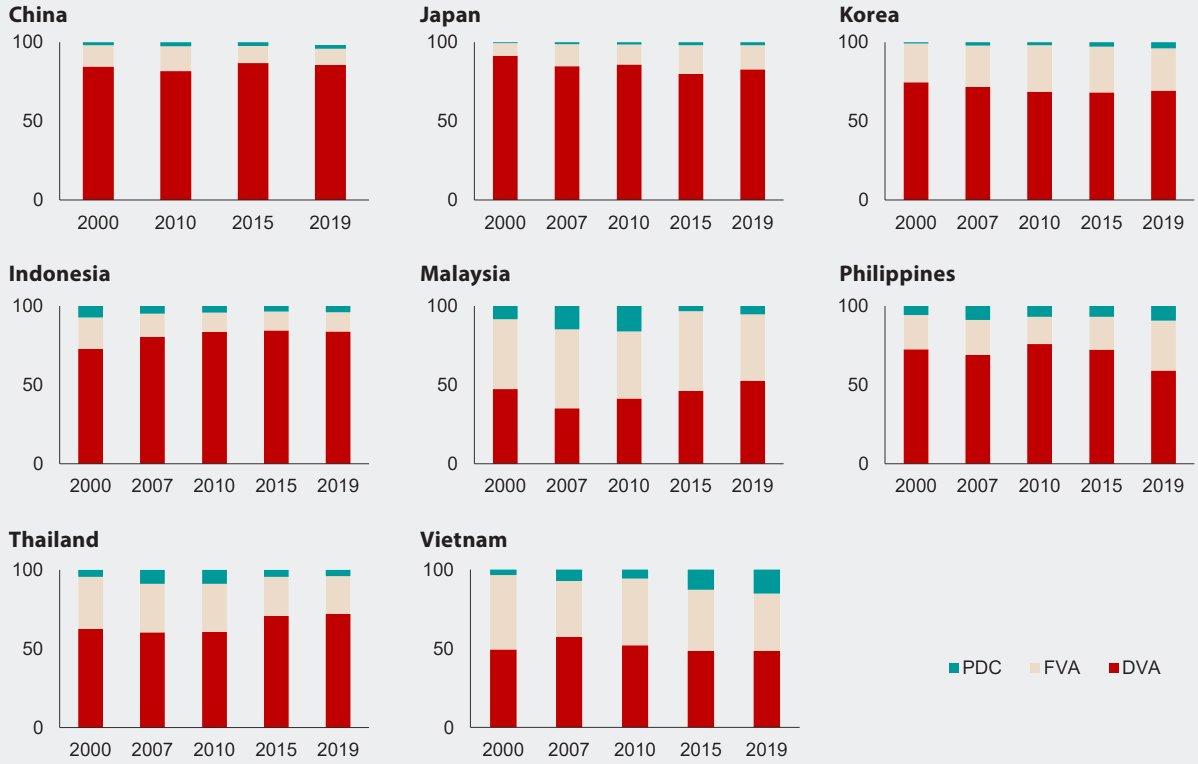
Sources: Asian Development Bank; and AMRO staff calculations.
Note: Underlying data are domestic value-added (DVA) embedded in an economy's gross exports, based on the methodology of Wang, Wei, and Zhu (2018).The size of each node represents the share of an economy's DVA exports to total global DVA exports in the auto industry. The thickness of the edge linking economy *i* to its corresponding trading partner represents the percentage share of value-added exports from economy *i* to its corresponding trading partner with regard to economy *i*'s total value-added exports. The color of the nodes represents the region that economies belong to. Automotive Production refers to Sector 15 (Transport Equipment) in the Asian Development Bank Multiregional Input-Output Tables' Sector Aggregation.

Figure 2.1.2. Global Value Networks of Machinery, Electrical, and Optical Equipment Sector



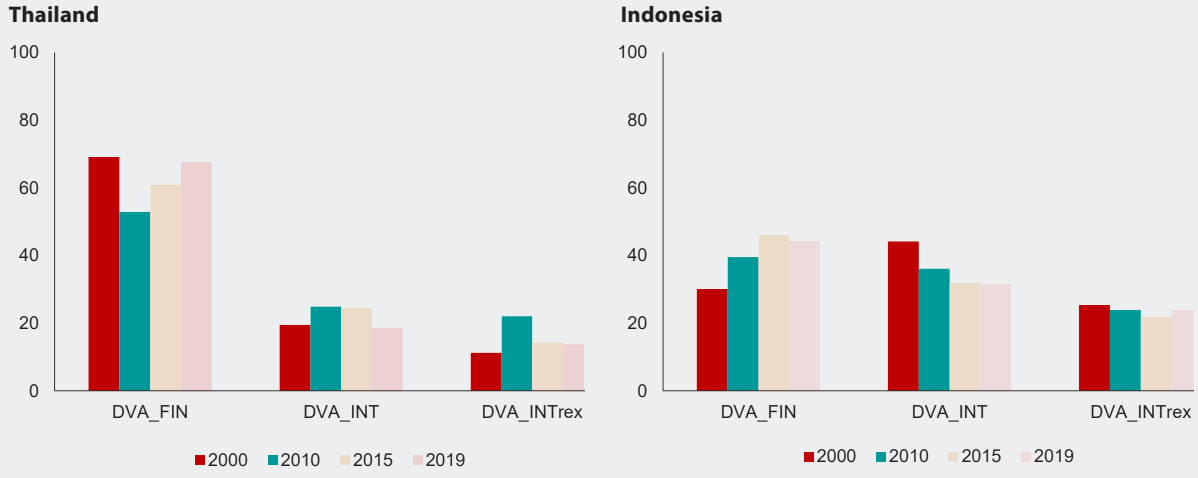
Sources: Asian Development Bank; and AMRO staff calculations.
Note: Underlying data are domestic value-added (DVA) embedded in an economy's gross exports which are ultimately absorbed abroad, based on the methodology of Wang, Wei, and Zhu (2018). The size of each node represents the share of an economy's DVA exports to total global DVA exports in machinery and electrical and optical equipment. The thickness of the edge linking economy *i* to its corresponding trading partner represents the percentage share of value-added exports from economy *i* to its corresponding trading partner with regard to economy *i*'s total value-added exports. The color of the nodes represents the region to which the economies belong. Machinery, electrical and optical equipment Industry refers to Sectors 13–14 in the Asian Development Bank Multiregional Input-Output Tables' Sector Aggregation.

Figure 2.1.3. ASEAN+3: Value-Added Components in Automotive Gross Exports
(Percent of gross exports)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: DVA = domestic value-added; FVA = foreign value-added; PDC = pure double-counted terms. Automotive Production refers to Sector 15 (Transport Equipment) in the Asian Development Bank Multiregional Input-Output Tables' Sector Aggregation.

Figure 2.1.4. Indonesia and Thailand: Structure of Domestic Value-Added in Gross Exports of Automotive Industry, 2000, 2010, 2015, and 2019
(Percent of gross exports)



Sources: Asian Development Bank; and AMRO staff calculation.
Note: DVA_FIN = DVA exports in final goods exports; DVA_INT = DVA in intermediate exports to direct importers and is absorbed there;
DVA_INTrex = DVA in intermediate exports used by importing economy to produce exports bound to a third economy. Automotive Production refers to Sector 15 (Transport Equipment) in the ADB Multiregional Input-Output Tables' Sector Aggregation.

The author of this box is Trung Thanh Vu.

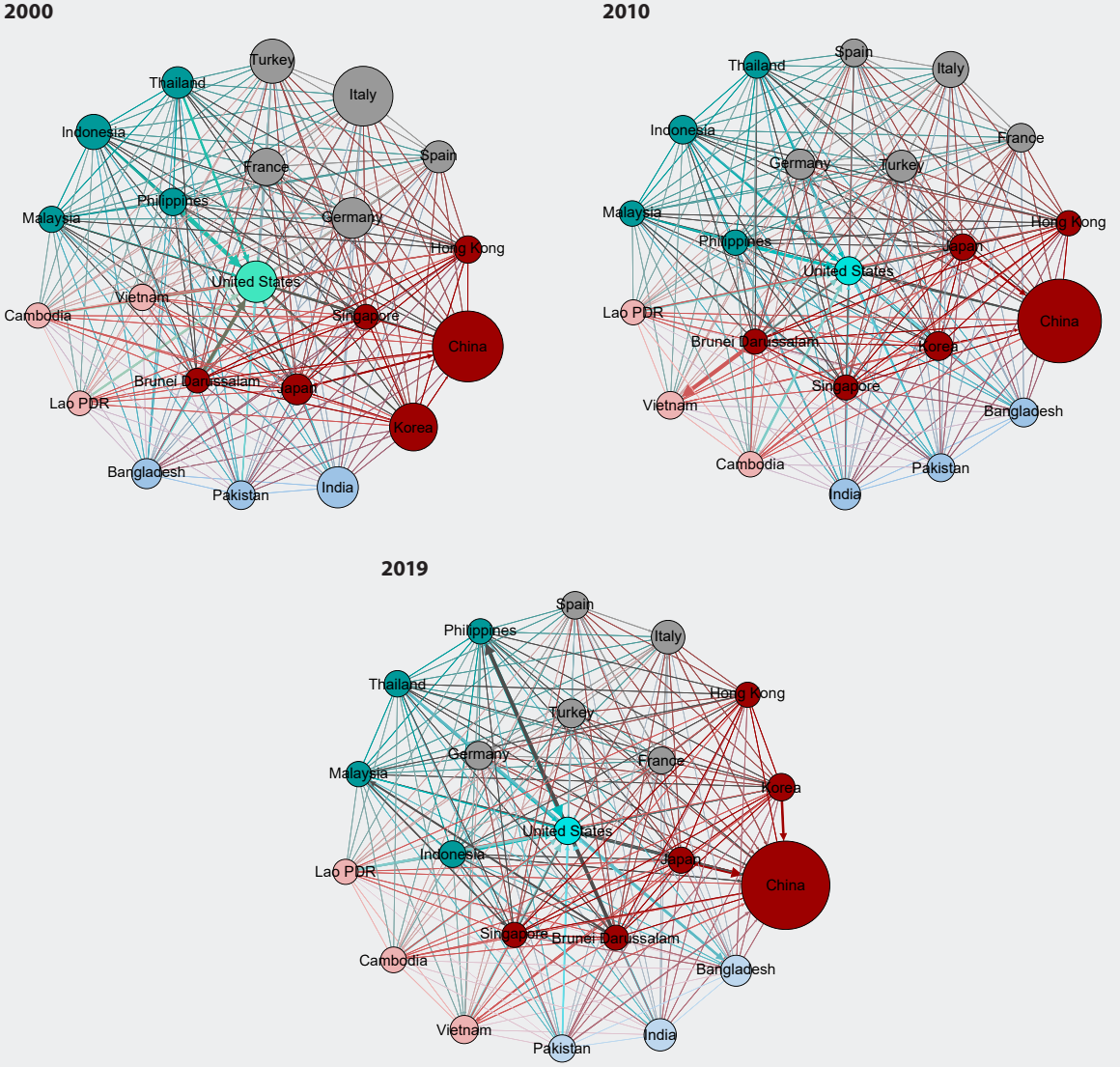
Box 2.2:

Growth in Domestic Value-Added in GVCs: Garment Products

While the Plus-3 economies appear to participate more in the automotive and high-tech goods GVCs, some ASEAN economies have increased their roles in the global supply chains for garment products. China continues to lead the sector's GVCs; however, the CLMV (Cambodia, Lao PDR, Myanmar, and Vietnam) economies have increased their roles in the value chain, even as the rest of the ASEAN (ASEAN-4) economies have decreased their roles in the network. Other nodes, such as Italy, Turkey, and the United States, have also seen diminishing shares of their domestic value-added (DVA) from 2000 to 2019 (Figure 2.2.1). China's DVA exports of garments increased sevenfold from USD 42.7 billion (14.4 percent of the world's DVA exports of garments) in 2000 to USD 284.4 billion (40.1 percent) in 2019.

The participation in garment GVCs varies among ASEAN+3 economies. Not only is China the largest supplier of garment materials in the world, it is also a

Figure 2.2.1. Global Value Networks of Garment Production



Sources: Asian Development Bank; and AMRO staff calculations.
Note: Underlying data are domestic value-added (DVA) embedded in an economy's gross exports which are ultimately absorbed abroad based on the methodology of Wang, Wei, and Zhu (2018). The size of each node represents the share of an economy's DVA exports to total global DVA exports in garment. The thickness of the edge linking economy *i* to its corresponding trading partner represents the percentage share of value-added exports from economy *i* to its corresponding trading partner with regard to economy *i*'s total value-added exports. The color of the nodes represents the region to which the economies belong (CLMV in rose, ASEAN+3 high income in red, ASEAN-4 in dark teal, the United States in teal, the European Union in grey, and others in light blue). Garment sector refers to the combination of sectors 4 (Textiles and textile products) and 5 (Leather, leather products, and footwear) in the Asian Development Bank Multiregional Input-Output Tables' Sector Aggregation.

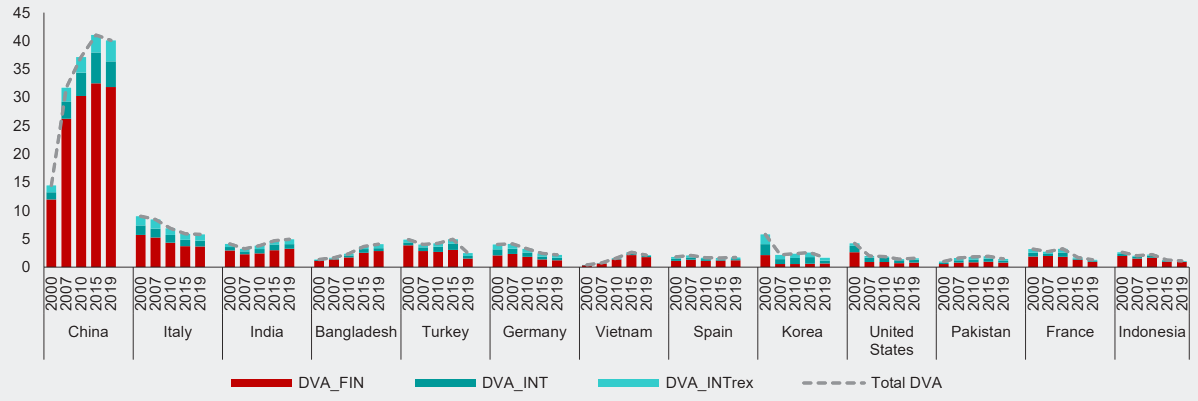
top final product exporter (Figure 2.2.2). Its key role in garment intermediates trade explains why the COVID-19 pandemic disruptions in China caused widespread stoppage in the garment global supply chains, affecting major garment exporters like Bangladesh, Cambodia, and Vietnam. In Cambodia and Vietnam, for example, garment manufacturers were forced to temporarily shut down due to the shortage of garment materials from China, leading to a delay in their production (Onishi 2020). Cambodia, in particular, imports about 60 percent of total garment materials from China.

Albeit remaining large, the share of China's DVA garment exports to the world has seen a slight decrease over the past 5 years, partly reflecting a relocation of its garment production to other countries. In 2015, China's share of world's DVA in garment exports accounted for roughly 41 percent, while in 2019, the share declined slightly to 40 percent (Figure 2.2.2). At the same time, other major garment producers such as Bangladesh and India—economies with abundance of labor and relatively low labor costs—have seen a rise in their share of DVA in garment exports. Other economies receiving preferential trade treatments like Cambodia and Vietnam have also benefited from the relocation of production. China has been putting more effort into moving up its manufacturing value chain to produce more sophisticated goods, which is well aligned with its economic strategy of "Made in China 2025."

In the CLMV economies, Vietnam has become less dependent on garment manufacturing and gradually moved up the value chain to higher value-added industries—such as electrical and optical equipment, as well as transport equipment—over the past two decades, whereas Cambodia continues to largely depend on garment exports, making up 87.4 percent of its total DVA manufacturing exports and 91 percent of its total FVA manufacturing exports (Figures 2.2.3–2.2.4). Cambodia's lack of skilled labor, unfavorable business environment, weak infrastructure and logistics, among others, have hindered the country's capacity to move up the value chain and increase its participation in the higher value-added segments of the GVC.

Years before the pandemic erupted, garment manufacturers had begun moving from China to other lower labor-cost locations such as the CLMV economies, Bangladesh, and India. Notwithstanding the increase in investments, much of the contribution of the CLMV economies in GVCs are still at the processing stage of production—cut, make, and trim (CMT) (Figure 2.2.5). In Vietnam, for instance, the garment exports based on CMT account for 65 percent of its total garment exports, while 35 percent come from the more advanced stages, for example, original design manufacturing (ODM) (Nguyen 2020). Likewise, Cambodia's garment exports industry is based on the CMT model, where the inputs, for example, raw materials, machinery, and the design of garments, come from outside Cambodia, while product assembly is conducted in the economy (Nguyen 2020). In addition to their status as low-cost locations, CLMV economies enjoy preferential trade treatment from the European Union, such as the "Everything But Arms" trade policy,[1/] and the United States under the Generalized System of Preferences (GSP), which could partly explain the relocation decisions of some garment manufacturing companies in their favor.

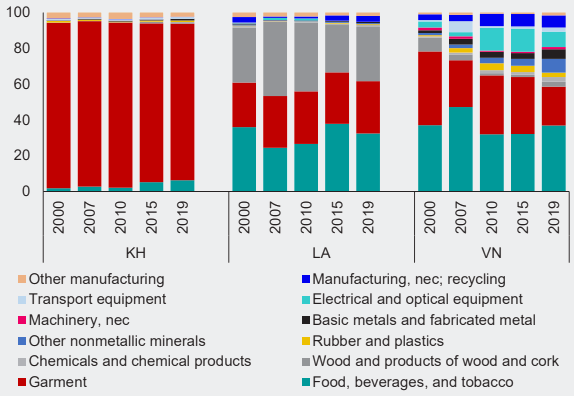
Figure 2.2.2. Top Garment Exporters: Garment DVA Exports by Component
(Percent of world's total DVA garment exports)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: DVA = domestic value-added; DVA_FIN = DVA exports in final goods exports; DVA_INT = DVA in intermediate exports to direct importers and is absorbed there; DVA_INTrex = DVA in intermediate exports used by importing economy to produce exports bound to a third economy. Total DVA refers to the sum of all three components.

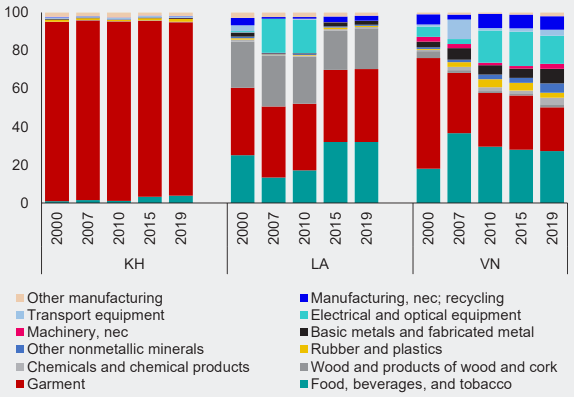
[1/] Cambodia lost duty-free access to 20 percent of its goods exports to the European Union because of human rights issues in August 2020.

Figure 2.2.3. CLV: Manufacturing DVA Exports
(Percent of each country's total DVA manufacturing exports)



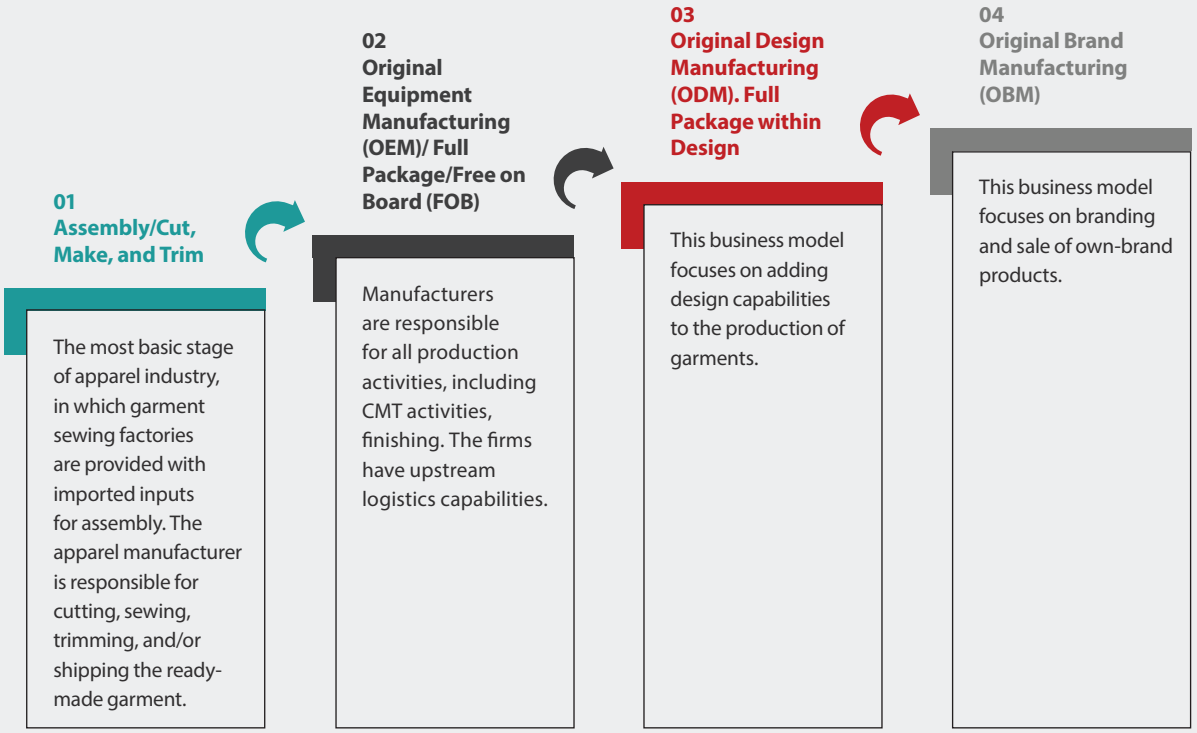
Sources: Asian Development Bank; and AMRO staff calculations.
Note: DVA = domestic value-added; FVA = foreign value-added; KH = Cambodia; LA = Lao PDR; nec = not elsewhere classified; VN = Vietnam.

Figure 2.2.4. CLV: Manufacturing FVA Exports
(Percent of each country's total FVA manufacturing exports)



Sources: Asian Development Bank; and AMRO staff calculations.
Note: DVA = domestic value-added; FVA = foreign value-added; KH = Cambodia; LA = Lao PDR; nec = not elsewhere classified; VN = Vietnam.

Figure 2.2.5. Garment Sector's Value Chain



Source: Fernandez-Stark, Frederick, and Gereffi (2011).
Note: CMT = cut, make, and trim.

The author of this box is Vanne Khut.

Non-Equity Investments, Value Chain Upgrading, and Growth in Domestic Value-Added

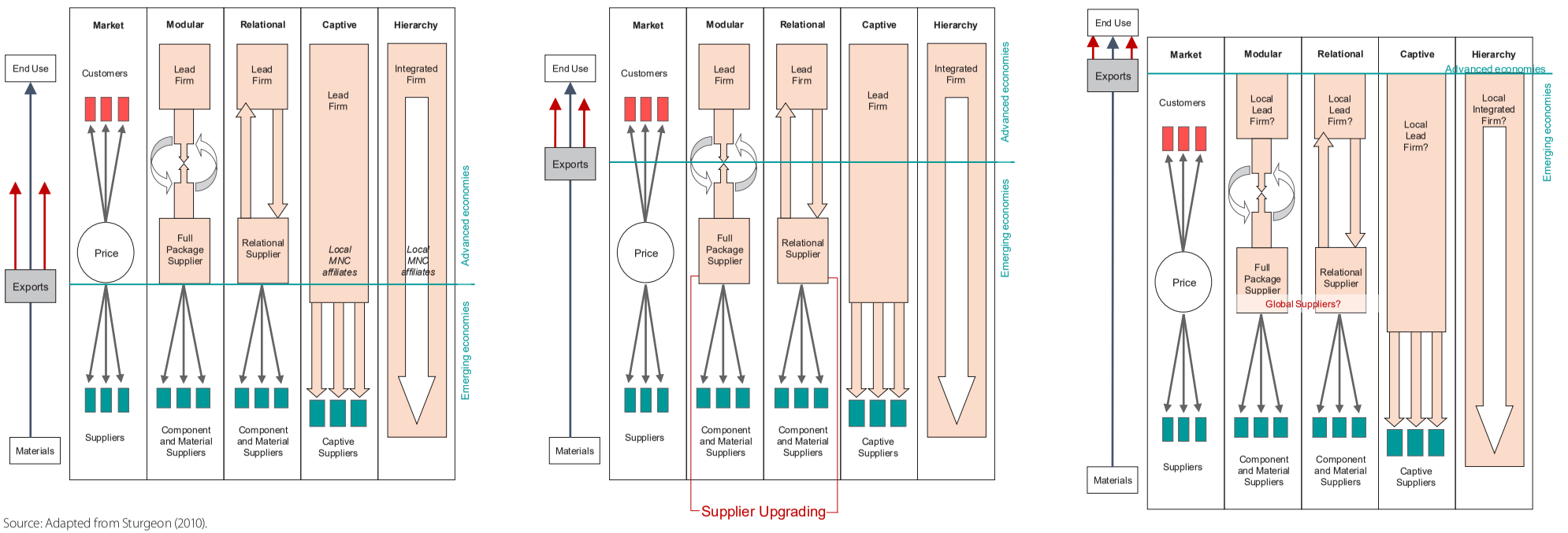
In addition to direct investments via establishment of foreign affiliates or subsidiaries, GVC activities take place through other forms of non-equity modes of investments (NEMs) such as contracting, leasing, franchising, or licensing, all of which entail a different set of governance challenges (Box 2.3). In fact, many GVC activities take place between unrelated companies rather than within an integrated intra-firm production supply chain. Unrelated firms' GVC trade transactions entail risks such as intellectual property leakage or lack of control over quality and timeliness of delivery, among others. NEMs require tight but "incomplete contracts"[7/] between suppliers and lead firms, often for highly customized products (Box 2.3). Despite these risks, NEM contracts somehow get to be enforced and observed because GVC transactions take place in the context of "repeated games" (Antras 2020), that is, transactions take place multiple times and last for as long as the relationship of trust continues.

Different industries usually use different NEM arrangements. Inter-firm contract manufacturing is common in technology and capital-intensive industries such as automotive components, electronics, and pharmaceuticals, as well as in labor-intensive industries like garments, footwear, or toys. Over time, large intermediaries arose that coordinate both upstream suppliers and large downstream buyers, especially in labor-intensive industries where many suppliers are small and medium-sized enterprises (SMEs). On the other hand, franchising arrangements are more typical in service industries like retail, food services, or in hotels and accommodation. Management contracts are used for hotels, where well-established hotel chains take over the management of the hotel infrastructure and facilities. Licensing, as part of the GVC relationship, tends to happen across industries (UNCTAD 2011).

Even in NEMs, the host economy's DVA can increase over time as local suppliers expand, upgrade, and capture more value in GVCs (Box 2.3). Indeed, a significant part of the growth in DVA in exports of ASEAN+3 economies have come from these NEM arrangements. For example, a possible evolution of value chains is where initially, exports take place only at the level of unorganized small components and parts suppliers, before upgrading takes place (Figure 2.11). As firms expand their production capacity, a few domestic firms become bigger as full package suppliers and relational suppliers with specific competencies that are desired by the lead firm. Foxconn is an example of a company that has become a global supplier, with multiple customers that are lead firms, such as Apple, Huawei, Xiaomi, or Samsung. With upgrading, the DVA of exports tends to increase, because the economy is able to capture more value in the GVCs. Lastly, some domestic firms grow to become lead firms themselves—examples of these are the new MNEs that have emerged in China such as Huawei, or Haier.

[7/] Incomplete contracts in economics occur because all possible contingencies are hard to anticipate and write into a contract. Certain states of nature (like quality of a good) or actions cannot be verified by third parties after they arise and thus cannot be written into an enforceable contract (Aghion and Holden 2011).

Figure 2.11. Upgrading Strategy and Increase in Domestic Value



Source: Adapted from Sturgeon (2010).

Box 2.3:

GVC Organization, Governance, and Switching Costs

Although some GVC trade takes the form of intra-company transactions, for example, among affiliates or with parent companies, an increasing proportion takes place with unrelated firms (Lakatos and Ohnsorge 2017). The GVC relationships between suppliers and leaders are organized through non-equity modes, instead of (foreign) direct investments.

GVCs are usually organized by a lead firm that assumes the fixed costs of setting up the network of suppliers. Usually, these are firms that have established brands and market power, for example, Walmart, Apple, or Toyota. Still, other GVCs are more decentralized or supplier-centric, with individual producers setting up links both upstream and downstream from them. An example is Hong Kong's Li and Fung trading company, which links up with famous fashion design companies (upstream) and clothing department stores (downstream) and organizes a coterie of upstream suppliers—some their own, others independent producers or SMEs—in various parts of Asia to whom they farm out customized product orders.

Depending on various factors, lead firms adopt different GVC governance mechanisms. Factors that affect GVC governance are (1) the complexity of information and knowledge (either with respect to the product or process) that need to be shared with suppliers, (2) whether the information or knowledge can be codified and thus transmitted efficiently, and (3) whether the suppliers have the capacity to deliver according to the lead firm's specifications. Based on the combination of these different factors, Gereffi, Humphrey, and Sturgeon (2005) have identified five different governance arrangements: market, modular, relational, captive, and hierarchical (Table 2.3.1). Each entails a different degree of control by the lead firm.

The hierarchical governance is essentially an intra-firm arrangement with the MNE lead firm doing business with its own subsidiaries or affiliates. This arrangement suits transactions where some sensitive proprietary information, like critical intellectual property, needs to be exchanged but have very high risk of leakage, and/or quality management cannot be entrusted to unrelated suppliers. The captive and relational GVC governance modes, like the hierarchical arrangement, also need strong coordination by the lead firm but for different reasons. For the captive arrangement, it is because of the low capabilities and resources of the supplier firms. Examples would be in the toy or garment manufacturing industry wherein small manufacturers need the materials and (sometimes) equipment from the lead firm.

For relational GVC governance, a high-quality supplier may have complementary capabilities that the lead firm needs, but the information exchange is sensitive. An example of relational governance is perhaps between Foxconn and Apple, where highly classified information on upcoming models of mobile phones from Apple need to be transmitted for chip manufacturing by Foxconn. Despite the low codifiability[1/] of the information, the contract and trust between buyer and seller are enforced and regulated through mutual dependency, reputation, social or spatial proximity, or other ties (Gereffi, Humphrey, and Sturgeon 2005). The need for spatial proximity explains why certain processes cannot be offshored easily. The relational arrangement can also be enforced through legal mechanisms that make the cost of breaking the contract commitment extremely high (Antras 2020). In the example of Foxconn and Apple, the repeated game aspect of the business relationship ensures that each has an interest in keeping the other partner satisfied and in maintaining the trust between them.

The modular and market GVC governance modes both require little coordination from the lead firms. In the market arrangement, the transaction is relatively simple: the suppliers' capacity is high, and information is easy to codify. On the other hand, in the modular GVC arrangement, the transaction may be complex but it is similarly simple to codify, for example through established international standards. An example of modular GVC governance is in auto parts and components manufacturing.

[1/] Codifiability means that production instructions or information can be transferred to an external partner without jeopardizing company secrets or intellectual property rights.

The switching costs also differ depending on the type of governance arrangement, which is important to keep in mind in any potential GVC reconfiguration. Modular and market governance arrangements impose relatively low switching costs for changing partners. On the other hand, the relational arrangements have high switching costs because of the relationship and trust invested in the partnerships, as well as the flows of tacit knowledge that have taken place. Captive governance may also be costly to switch because of the investments made in organizing the suppliers' network and ecosystem. However, even if the garments industry is an example of a captive GVC governance, other considerations for switching, such as labor costs, also come into play.

Table 2.3.1. Types of GVC Governance

Governance type	Complexity of inter-firm transactions	Degree to which complexity can be mitigated through codification	Capabilities of suppliers to meet requirements	Degree of explicit coordination and control
Market	low	high	high	low coordination and switching cost examples: garments intermediate goods: thread, zipper, etc.
Modular	high	high	high	low coordination; low switching cost to new partners examples: components manufacturing
Relational	high	low; tacit knowledge needs to be exchanged, often by frequent face-to-face interaction	high	high explicit coordination; high switching cost; examples: electronics manufacturing
Captive	high	high	low	high level of support by large buyer or lead firm; captive suppliers frequently confined to narrow range of tasks, for example, assembly; high dependence on lead firm who provides resources and market access; switching cost may be high because of cost of organizing the network but labor cost needs to be factored in example: garments industry
Hierarchy	high	low; control intellectual property	low	high; usually between affiliate companies; intra-firm example: automotive industry

Source: Adapted from Gereffi, Humphrey, and Sturgeon (2005).

The author of this box is Gloria O. Pasadilla.

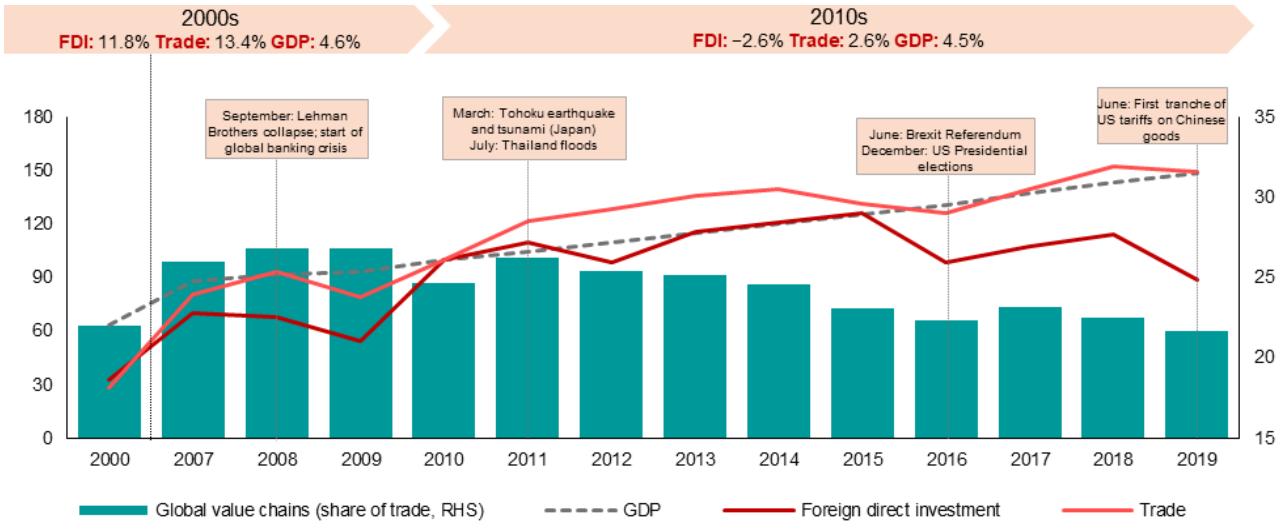
Drumbeats of Potential GVC Reconfiguration

The offshoring decisions by MNEs are known to have been made primarily out of efficiency and cost considerations, underpinned by several economic factors. These factors include (1) cheap labor and low logistics costs of moving products across borders; (2) advances in technology that act as enablers for global operations, easing the coordination costs of managing widely dispersed sources of supply; as well as (3) trade liberalization and open policies that have been, until recently, the prevailing consensus. Encouraged by the rapid growth of exporting economies in Asia, economies have sought more economic and trade integration. After the establishment of the WTO and the conclusion of the Uruguay Round in 1990s, many countries negotiated with other partner economies and signed a slew of regional and bilateral free trade agreements (FTAs) to promote exports, with favorable outcomes for FTA partners, of which is Vietnam is a good example (Box 2.4). Binding commitments, whether from multilateral or regional agreements, support the development of GVCs because they minimize tariffs and other trade transactions costs among partners and, therefore, attract more FDIs.

However, the global trading environment has changed after the GFC and the European sovereign debt crisis. Especially after 2010, the globalization trend and GVC participation declined, along with slowing global trade and FDI (UNCTAD 2020). Two reasons could explain the slowdown in FDI flows. First, non-equity modes of investments (NEMs) became increasingly the method for GVC outsourcing more than direct investments. Second, while manufacturing investments declined globally, technology MNEs increased their investments abroad. Unlike manufacturing industries, however, these new MNEs could reach the global market while being asset-light, for example, without the need to establish significant physical presence in developing economies (UNCTAD 2020) and expend huge capital abroad. Companies such as Uber or Airbnb, for example, can enter foreign markets without owning a transportation fleet or hotels, respectively. Despite the global downtrend in FDI, direct investment flows to the ASEAN+3 have remained strong (Figure 2.12) and continued to increase in the first quarter of 2020, albeit at a slower pace than in the previous decade, until the pandemic caused these to plunge in the second quarter of 2020 (Figure 2.13).

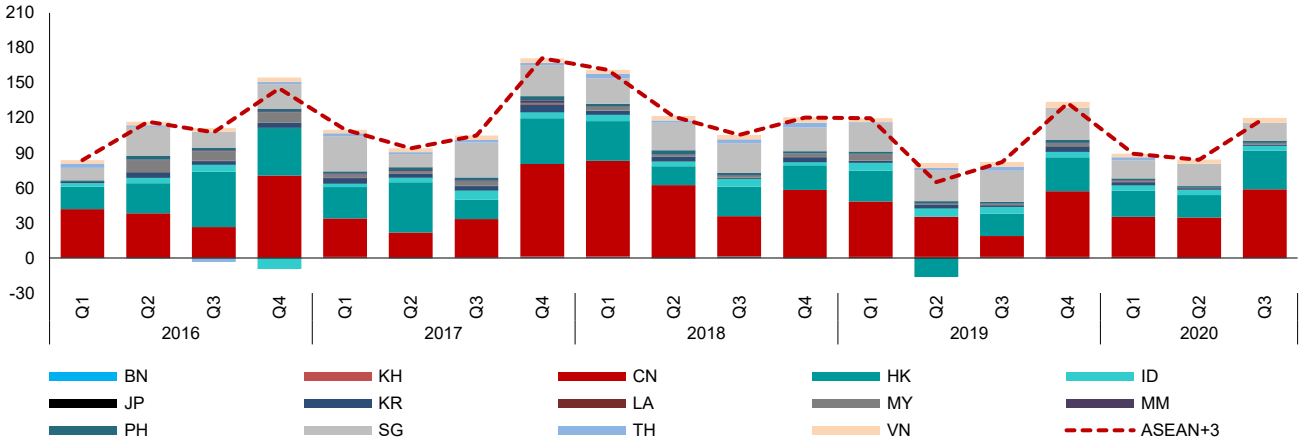
However, the factors that encouraged and propelled the growth of GVC offshoring, namely, open trade policies, low labor and logistics costs, and technology, have started to move in the opposite direction (UNCTAD 2020). In particular, anti-globalization sentiments and protectionism are on the rise, albeit under a different guise. In goods trade, this trend is evident in the rise of non-tariff trade measures such as technical barriers to trade (TBT) or sanitary and phytosanitary (SPS) measures that often seek to compensate for the diminished market protection brought about by years of tariff decline (Figures 2.14–2.16). In general, more protectionist government measures have been observed globally in recent years (Global Trade Alert 2020).

Figure 2.12. ASEAN+3: FDI, Trade, GDP, and GVC Trends, 2000–19
(2010 = 100; Percent of total exports)



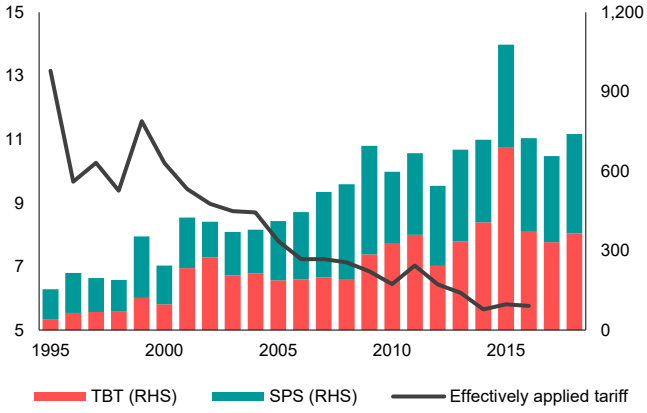
Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Trade refers to total trade of exports and services, while the GVC share of trade is proxied by the share of foreign value-added in exports, as in UNCTAD (2020).

Figure 2.13. ASEAN+3: Inward Foreign Direct Investment Flows
(Billions of US dollars)



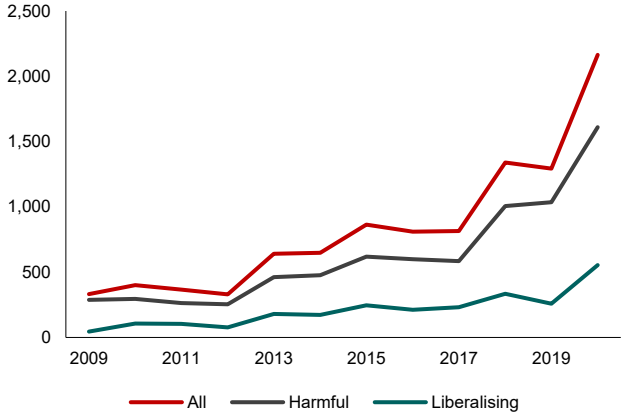
Sources: International Monetary Fund; national authorities via Haver Analytics; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Foreign direct investment inflows data refer to direct investment (liabilities) extracted from each economy's balance of payment (BPM6) sourced from the IMF, except for Malaysia whose data are from the national authority. Latest data for Brunei Darussalam are as of Q4 2019; data for Lao PDR and Myanmar are as of Q2 2020.

Figure 2.14. World Trade Organization: TBT and SPS Notifications and Effectively Applied Tariff Rates
(Percent; number of notifications)



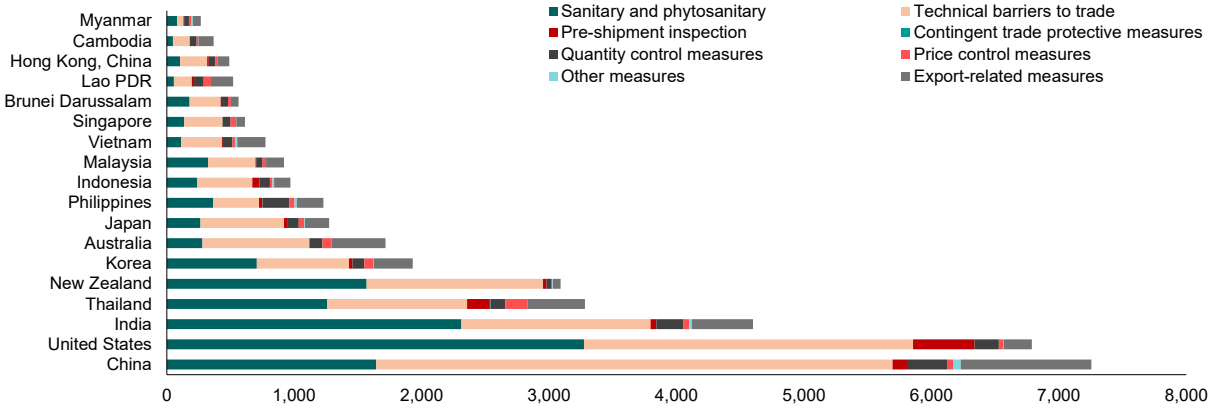
Source: United Nations Economic and Social Commission for Asia and the Pacific (2019).
Note: SPS = sanitary and phytosanitary measures; TBT = technical barriers to trade.

Figure 2.15. World: New Global Interventions
(Cumulative number)



Sources: Global Trade Alert; and AMRO staff calculations.

Figure 2.16. Selected Economies: Non-Tariff Measures
(Number of measures)



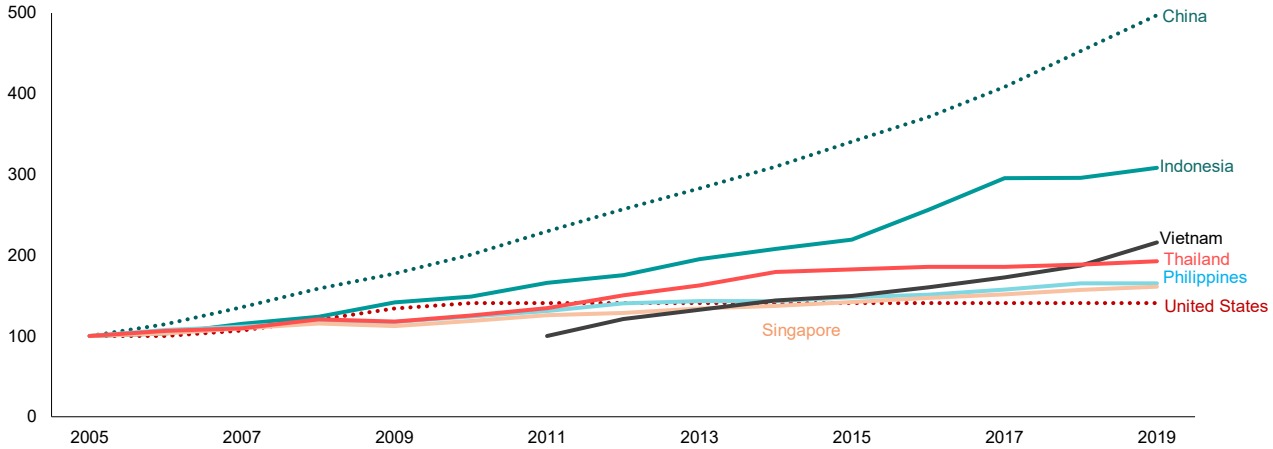
Sources: United Nations Economic and Social Commission for Asia and the Pacific (2019); and UNCTAD TRAINS database (2020).

Second, labor costs in Asia, especially in China, have also risen faster than in other economies, diminishing a major attraction for offshoring (Figure 2.17). Even technology that initially spurred firms' decisions to offshore has developed in such a way that some products can be produced more cheaply in the source countries, such as in the United States and Europe, despite the higher labor cost. Some of the advanced technologies also require skilled manpower which is in relatively greater abundance in developed economies. Outsourcing and advances in technology have also led to job losses and rising income inequality (Box 2.5), adding to the political and popular pressure to onshore jobs and bring GVCs back home. Technology is a major trade issue that affects MNEs and GVCs and it is discussed in greater detail in Section III. Most importantly, the former Trump administration had rejected the rules-based multilateral trading system as unfair, preferring to adopt a bilateral approach toward international trade. As a result, bilateral relations between the United States and China have deteriorated sharply in the last few years. For many MNEs, cost, efficiency, and profitability are no longer the only factors to consider in their outsourcing investment decisions; they must also take into account geopolitical developments. Most importantly, geopolitical considerations, specifically those between the United States and China, are expected to remain a major factor (ACC 2020) and will likely impact the GVC reconfiguration going forward.

Resilience is another important consideration by MNEs that has risen to the fore because of the massive disruptions brought about by the recent pandemic and natural disasters in the 2010s. Disruptions to global supply chains caused by natural disasters and pandemics highlighted the risks to having widely dispersed supply chains, especially of critical products such as medical supplies, which are concentrated in a few economies. While in the past, the focus was mostly on operational efficiency and costs, supply chain decisions now put a premium on risks, heretofore unpriced and ignored. When an earthquake and tsunami struck Japan and flooding occurred in Thailand in 2011, the auto and electronics global supply chains were disrupted because suppliers from Japan, many of them SMEs, could not produce the necessary parts and components. Similarly, Thailand's floods brought to the global computer industry to a standstill, as hard disk drives—90 percent of global supply comes from Thailand—could not be produced.

These various reasons—such as increasing costs in formerly low-wage economies, technology advancements that require high-skilled labor, desire to build more robust supply chains to avoid disruptions, rise in populist movements and protectionism—explain the rising interest among governments and foreign companies for reshoring and reconfiguring the existing global supply chains. Indeed, even before the pandemic, the relocation of production facilities was already occurring. For example, in 2012, General Electric reshored a portion of its appliance manufacturing in Kentucky. It had struggled with inventory and delivery issues in its China facilities that had offset its savings on labor costs. More importantly, because its high-end appliance customers are mostly based in the United States, the company found it more cost-effective to be close to its market. The COVID-19 pandemic has heightened concerns over supply disruptions and, for some MNEs, accelerated plans and decisions toward alternative GVC outsourcing strategies. For example, the pandemic has prompted Google and Microsoft to move part of their production lines of mobile phones and earphones, respectively, from China to Vietnam (Ting-Fang and Li 2020a, 2020b).

Figure 2.17. Selected ASEAN+3 and United States: Wages
(2005 = 100)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Data for China and India refer to the average nominal annual wage of all units; for Indonesia, average net wages of employees; for the Philippines, the legislated daily wage rate; for Singapore the average resident monthly earnings of industry; for Thailand, the average monthly wages per person; for the United States, the minimum hourly wage rate; and for Vietnam, the average monthly earnings.

Box 2.4:

Free Trade Agreements and GVCs: The Case of Vietnam

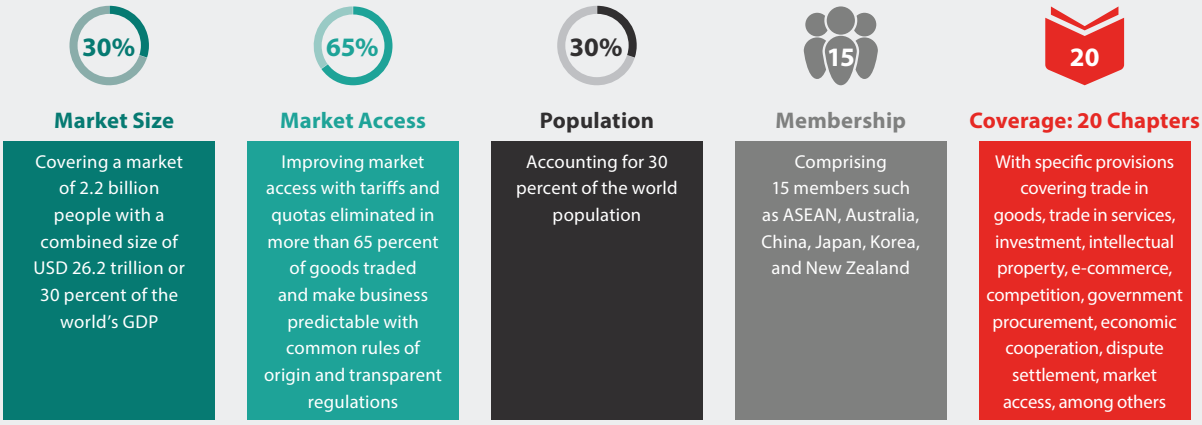
Trade agreements, especially high-quality ones with deep liberalization commitments, can be a mechanism for an economy to signal that it is "open for business." An economy's commitment to liberalize its market, open its sectors to foreign investment, and bind lower tariffs, can constrain its policy discretions but does not completely eliminate them. Yet, such commitments and bindings provide certainty to market participants and thus help enhance investor confidence. More importantly, preferential access to the markets of its partners as dictated by trade agreements is a strong impetus for foreign investors who are interested precisely in the benefits of preferential access.

Trade rules encapsulated in trade agreements impact the architecture of GVCs. For example, in the apparel industry, the now-defunct Multifibre Agreement (MFA) had spurred the growth of global production networks in apparel since the 1970s in economies with available quota. When the MFA was abolished in the 1990s and replaced by the WTO Agreement on Textiles and Clothing, apparel production became concentrated in a few low-cost production economies such as China, India, Indonesia, and Turkey (Gereffi, Humphrey, and Sturgeon 2005).

Vietnam is an ASEAN+3 economy that has benefited from GVC investments seeking to diversify sourcing from China (Choi and others 2021). It has the standard economic characteristics that are attractive to investors, such as low wages, good infrastructure, duty-free access to major markets, fiscal and investment incentives, and political stability. But very likely, its openness and ability to sign regional trade agreements as well as a number of bilateral trade deals have also contributed to its newfound success in attracting investments. For example, Baier and Bergstrand (2007) find that an FTA approximately doubles partners' bilateral trade after 10 years. Similarly, Kohl (2014) finds that trade agreements can increase trade by nearly 50 percent but the results vary significantly among different trade agreements depending on their institutional quality, agreement design, as well as their involvement in the WTO.

Vietnam, along with Malaysia and Singapore, are signatories of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).[1/] It is also part of ASEAN FTA, ASEAN+1 FTAs with Australia and New Zealand, China, India, Japan, Korea, and the newly signed Regional Comprehensive Economic Partnership (RCEP) (Figure 2.4.1). It also has bilateral trade agreements with the United States, the European Union, Korea, Japan, China, Chile, and Hong Kong (Figure 2.4.2). It is therefore no surprise that there has been a surge in FDI flows into Vietnam, leading to a four-fold increase in capitalization of foreign projects from 2010–19. These FDI flows, in turn, have sharply boosted exports, much of which come from sectors with significant FDI (Figure 2.4.3).

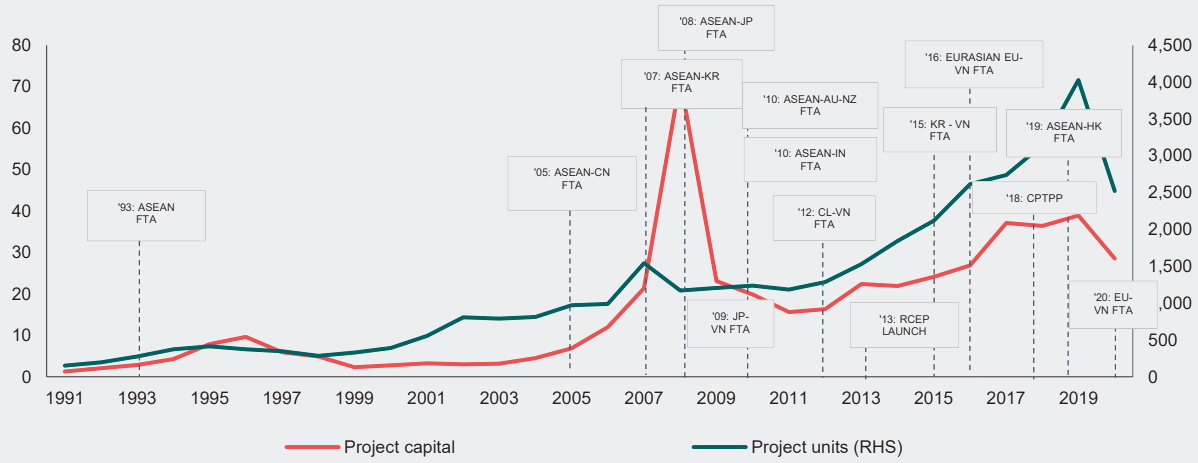
Figure 2.4.1. Regional Comprehensive Economic Partnership—An Infographic



Source: ASEAN Secretariat.

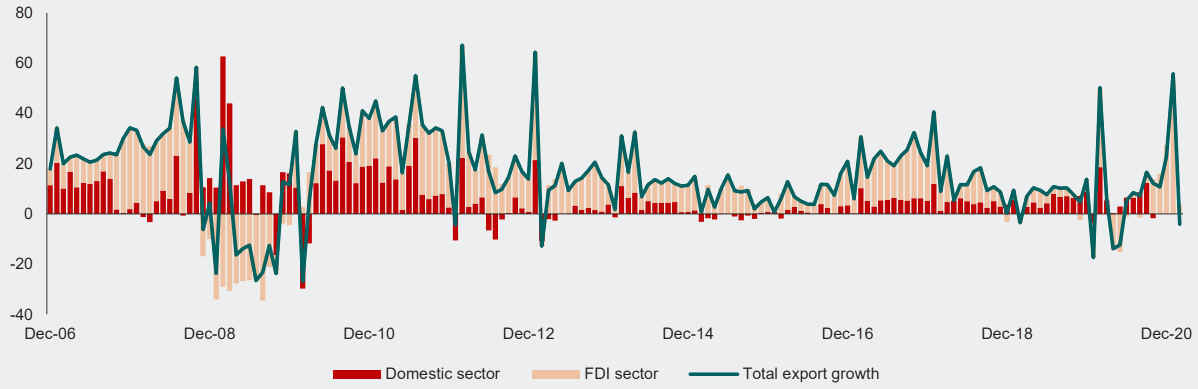
1/ The CPTPP came into force for Vietnam in January 2019. It gives it preferential market access to 11 countries in the Asia-Pacific including advanced economies such as Australia, Canada, Japan, Korea, and New Zealand.

Figure 2.4.2. Vietnam: Inward FDI Flows and Free Trade Agreements, 1991–2019
(Billions of US dollars; Number of projects)



Sources: Asian Development Bank; national authorities via Haver Analytics; and AMRO staff calculations.
Note: CN = China; CL = Chile; FTA = free trade agreement; HK = Hong Kong; IN = India; JP = Japan; KR = Korea; and VN = Vietnam.

Figure 2.4.3. Vietnam: Contributions to Export Growth by Type of Enterprise
(Billions of US dollars)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: FDI = foreign direct investment.

The authors of this box are Marthe Hinojales and Gloria O. Pasadilla.

Box 2.5:

Technology, Jobs, and Equity

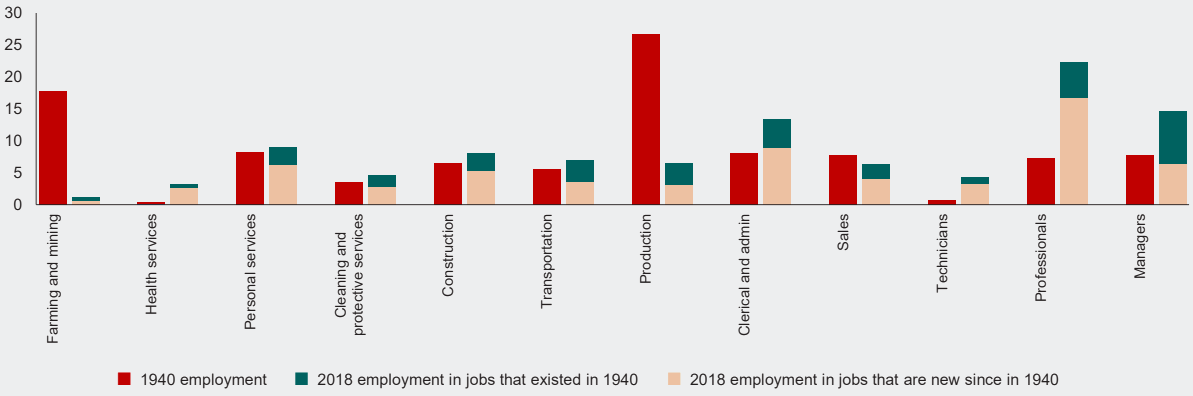
Will automation and artificial intelligence (AI) replace humans in the workplace? History tells us that technology can be a very disruptive force, eliminating traditional jobs but also creating new business models and jobs. A study by the Massachusetts Institute of Technology on the future of work shows that, historically, some types of dominant occupations such as farming and production work have almost disappeared, while other occupations like managers and other professions have expanded sharply (Autor, Mindell, and Reynolds 2020) (Figure 2.5.1). A World Economic Forum study on the future of jobs projects that 75 million jobs might be displaced by machines and algorithms but 133 million new jobs could be created (WEF 2020b). Some of these new jobs have descriptions that did not even exist until recently, such as big data analysts, AI trainers, AI translators, and AI specialists, blockchain traders, and cybersecurity specialists.

Some technologies lead to deskilling of the workforce (Tschang and Mezquita 2020), resulting in the loss of routinized, middle-skilled work. This, in turn, aggravates the polarization into low- and high-skilled jobs, and a distorted employment structure with only a small minority at the top. This structure appears to be reflected in the polarized employment growth between high- and low-paid jobs, with middle-skill level employment appearing to be hollowed out (Figure 2.5.2). The low-paid occupations are manual service jobs like personal services that demand, besides physical dexterity, "situational adaptability or context-recognition." Studies show that this ability is difficult to be replaced by machine learning AI, while it is possessed by adults with even modest levels of education (Tschang and Mezquita 2020).

Job polarization is, in turn, reflected in living standards that have enriched the few at the top without lifting up those at the bottom. Technological innovation has made some highly educated workers more productive and exceptionally well paid. Since 1973, average compensation in the United States has lagged productivity growth while median compensation has basically stagnated, leading to a widening gap between median and average compensation (Figure 2.5.3). Indeed, the median wage has stayed close to the average wage of relatively low-skilled production workers, which implies that most of the productivity gains, and hence income, for more than half a century have accrued to those at the higher end of the income scale.

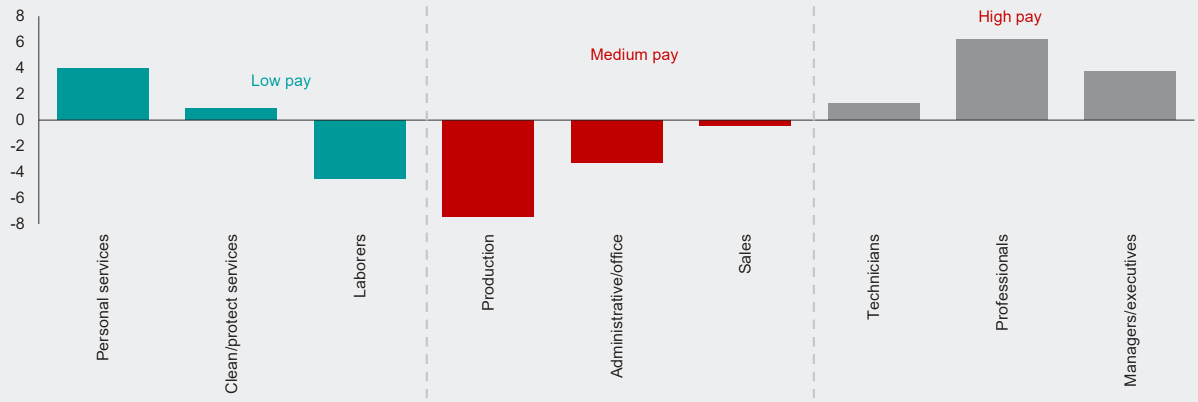
This finding of highly skewed distribution of benefits from productivity has profound implications for income distribution and equity, and is one factor fueling the rise of protectionism in the United States. This trend could stem from the offshoring of innovative technologies being perceived as having prevented wage increases in the United States (Figure 2.17).

Figure 2.5.1. Dominant Jobs, 1940s versus 2018



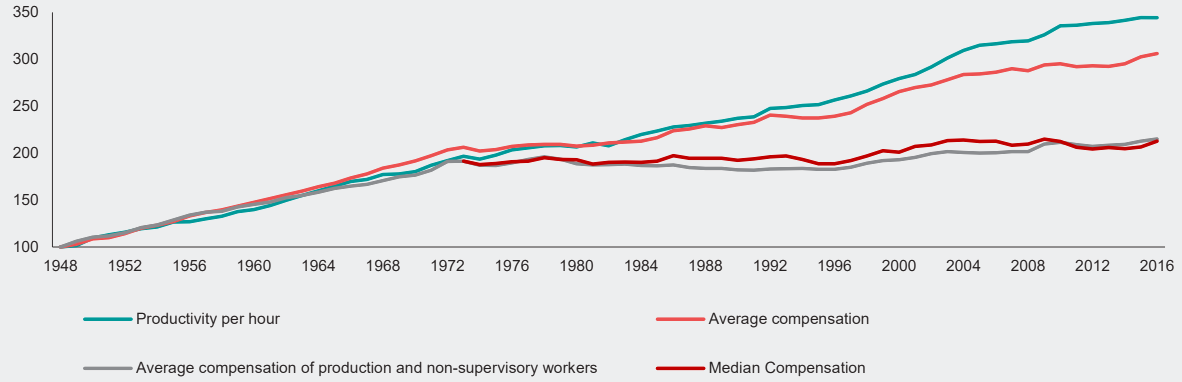
Source: Autor, Mindell, and Reynolds (2020).

Figure 2.5.2. United States: Employment by Salary Scale
(Percent, year-over-year)



Source: Autor, Mindell, and Reynolds (2020).

Figure 2.5.3. United States: Average versus Median Compensation
(1948 = 100)



Source: Autor, Mindell, and Reynolds (2020).

The author of this box is Gloria O. Pasadilla.

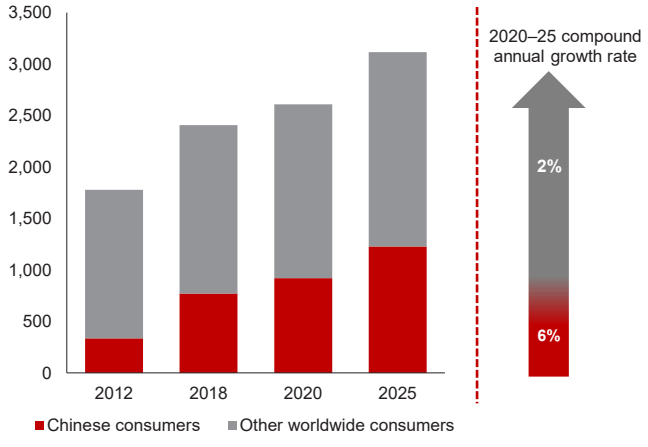
Arguments against GVC Reconfiguration

Several arguments against GVC reconfiguration, however, are for maintaining the status quo. First, Asia, led by China, is one of the fastest-growing regions in the world (AMRO 2020). It is expected that by 2030, more than 70 percent of the Chinese population could be middle-class consumers, up from only 3 percent in 2000 (CSIS 2020) and would consume approximately USD 10 trillion of goods and services (EC 2020). Southeast Asia's middle class is also projected to reach 163 million households by 2030, up from about 80 million a few years ago (McKinsey & Company 2019b). By 2030, the ASEAN+3 region could account for 42 percent of global urban consumption growth, with China doubling its consumption of luxury goods to CNY 1.23 trillion by 2025—or some 40 percent of the global luxury goods market (Figures 2.18–2.19). Because proximity to consumers is an important consideration for GVC location, it would make sense to locate supply chains closer to the fast-growing markets of China and the rest of ASEAN+3, which is why so many foreign auto makers, for example, are located in China.[8/]

Second, the deep supply chains and ecosystem in China are difficult to replace and replicate in just a few years. Over time, this might be possible, but the "stickiness" of GVC investments and relationships points to difficulties ahead for alternative GVC strategies. This stickiness among GVC participants is due to sunk investment costs, including the matching and search costs expended to find the right suppliers and buyers. Once a partnership is established, relationship-specific investments—either in the form of specialized equipment or customized products or inputs—are formed, along with the complex exchange of intellectual property, designs, technology, or even credit in some cases. These exchanges require trust that is built over time through repeated interactions among GVC participants, making up for the weak legal environment that often exists in many emerging markets. This is why firms spend considerable time and resources deciding whether transactions should occur within or across firm boundaries and in designing the organizational structure of their production networks (Antras 2020).[9/]

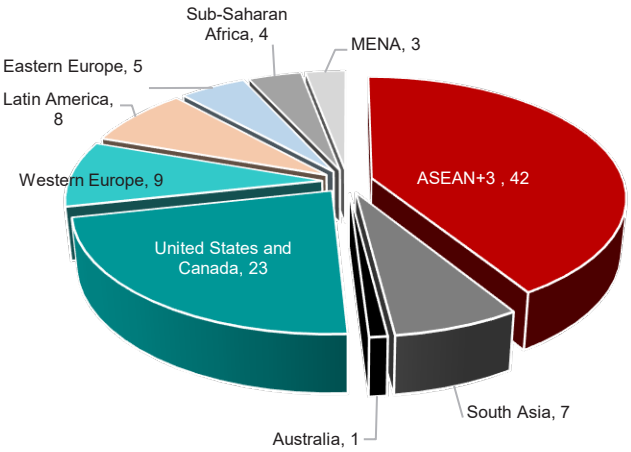
In addition, exiting China and reshoring back to the United States are efforts that have also not been easy. Winding up operations in China requires careful attention to detail. For example, the company might have outstanding long-term labor contracts that are difficult to withdraw from. There are also taxes and other fees to settle, and in some cases, permission from the government is needed, before a company can fully close down its operations in China (Coates 2020). Skilled labor availability in the reshoring destination can also be a challenge. For example, in its first year of relocation, a company that reshored to South Carolina found it challenging to get workers to operate its advanced equipment in the United States.

Figure 2.18. China and the Rest of the World: Spending on Luxury Goods
(Billions of Renminbi)



Source: McKinsey & Company (2019a).

Figure 2.19. Share of Urban Consumption Growth, 2015–30
(Percent)



Sources: McKinsey & Company (2019b); and AMRO staff calculations.

8/ In theory, GVCs can be located anywhere and still be able to sell to a large domestic market. In practice, however, an important consideration for MNEs in locating subsidiaries or affiliates, especially if they are chasing demand, is a large and growing domestic market (see, for example, Cohen and others (2018)). Likewise, in an industry that caters to fast-changing consumer preferences, for example, the fashion or luxury car industry, having a presence in the market allows MNEs to make quicker adjustments. Finally, rules and regulations in the destination market, such as local content requirements or rules of origin become, additionally, a pull for GVCs to locate in a large domestic market, along, of course, with other considerations like labor cost, technology, and logistics, among others.

9/ According to US customs data, close to 50 percent of US imports involve related-party transactions. Globally, intra-firm trade is about one-third of total world trade flows (Antras 2020). This shows high degree of vertical integration and the importance of direct investments despite the existence of alternative "arm's-length" GVC relationships such as contracting or licensing.

To summarize, while compelling arguments exist both for the reconfiguration and the maintenance of the current GVC structure, it is likely that the experience of supply chain disruptions of critical products during the COVID-19 pandemic, the heightened protectionist environment, and changed geopolitics, could prompt more MNEs to reconfigure their existing China-centered supply chains. In much the same way that more Japanese multinationals regionalized their production chain in the aftermath of the 2011 Great East Japan Earthquake, more MNEs operating in GVCs that are highly dependent on China, will seek to diversify suppliers to build resilience. Still, to leave China or Asia altogether is not an option because growth in the coming decades will come mostly from the ASEAN+3 region (AMRO 2020). Therefore, a China+1 strategy appears to be the preferred strategy among various alternatives to build greater resilience and achieve diversification.[10/] Additionally, to maintain a major presence in Asia, the plus-one location needs to be based in Asia. In a China+1 strategy, ASEAN economies stand to gain in attracting many of the GVC-related investments. Indeed, many ASEAN economies are positioning themselves to attract such investments.

Emerging Evidence of GVC Reconfiguration

Is any reconfiguration strategy already evident in the data, especially in planned foreign investments? Evidence from planned investments data, so far, appears ambiguous. On one hand, project announcements from foreign investors to the ASEAN+3 region, both in terms of number of projects and project values, fell in 2019 and 2020, but global investments did as well (Figures 2.20–2.21). In other words, the drop in planned investments may have been because of the global recession and uncertainties over the global economic outlook arising from the COVID-19 pandemic rather than any reconfiguration trend. On the other hand, the sharp rise in FDI projects into ASEAN economies starting in 2018 points to a possible China+1 GVC reconfiguration strategy in the wake of the US–China trade tensions.[11/] These could continue and even accelerate in the post-pandemic period, with ASEAN economies being the prime recipient of diverted investments from China.

Reflecting the trade tensions and the improving investment climate in member economies, more relocation investments are expected to move to ASEAN. Recent data from Orbis Crossborder show that 14 out of 33 relocation projects went to ASEAN, while China received 9, Hong Kong 2, and Japan and Korea 8 in 2020 (Table 2.1). Of these projects, 11 of them were in manufacturing, accounting for USD 10.5 billion, of which 7 are going to Indonesia. The remainder of the projects are distributed across a range of services activities, including establishment of regional headquarters, business services, data centers, and logistics and distribution activities (Table 2.1). The United States accounted for the highest number of relocation projects in 2020, followed by Japan, Korea, and Switzerland. In terms of value, US relocation projects stood at USD 318 million, slightly behind similar projects from Japan. These went to Japan, Korea, and Singapore (sales offices), Japan and Malaysia (regional headquarters), Indonesia and Malaysia (manufacturing plants) and the Philippines (customer contact center). None went to China. The relocation projects to China in 2020 were from European countries and catered to the domestic market.

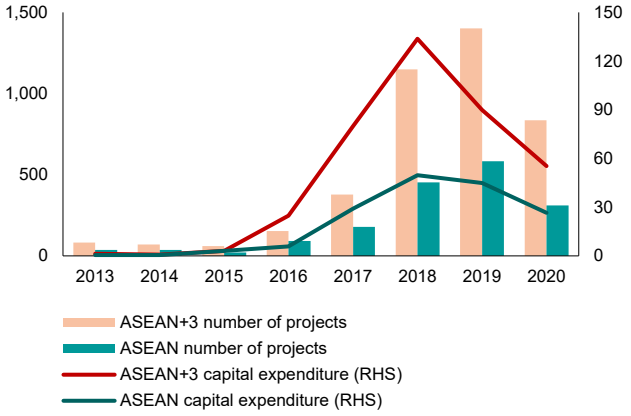
Some investments that have moved from China to other economies in the ASEAN+3 region include Tier 1 suppliers of big multinational firms. For example, Hyundai Mobis, a supplier of auto parts for Hyundai Motor and Kia, Samsung Electronics, and LG Electronics moved back to Korea, partly to escape from the tariff war. GoerTek, a major supplier of Apple's wireless earphones, moved parts of its assembly to Vietnam, following a similar announcement from Apple, also to dodge fallouts from the US–China tariff escalation.

Interestingly, from 2017 until 2020 when COVID-19 hit, regional economies had become a top source of FDIs in the ASEAN+3 (Figure 2.22). In 2018 and 2019, ASEAN+3 economies' intra-regional investments reached 32 percent of total announced investment projects, but dropped to about 26 percent in 2020. China, in particular, had been catching up with Japan especially in 2018 and 2019. A deeper look into the investor companies in China, however, shows that in the last three years, about half of the project announcements that originated from China to ASEAN were made by foreign enterprises that were based in China (Figure 2.23), rather than by Chinese enterprises. Moreover, most of the foreign China-based investing enterprises were also Asian-owned, led by Hong Kong, followed by Vietnam, Thailand, Malaysia, and Singapore. These new projects were mostly geared toward their home economies. For example, China-based Vietnam investment announcements were bound for Vietnam, and the same for Thailand, Hong Kong, and Malaysia. Although a large part of China-based Singapore investments was destined for Malaysia, the bulk of it was still invested in Singapore. It is possible that these "round-tripping" investments were trying to take advantage of foreign investment incentives in their home markets.

[10/] China+1 strategy is a GVC strategy that seeks parallel supplier networks to lessen over-dependence on China.

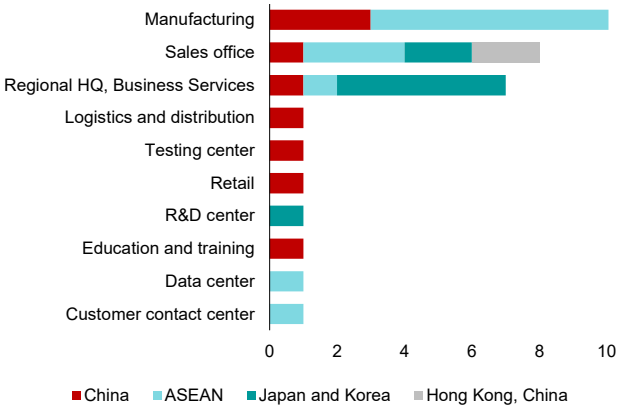
[11/] In 2020, ASEAN penciled in 37.2 percent of the region's total inward announcement and 48 percent of the estimated capital expenditure (roughly valued at USD 26.5 billion).

Figure 2.20. ASEAN+3: Annual Inward Project Announcements
(Number of projects; billions of US dollars)



Sources: Orbis Crossborder; and AMRO staff calculations.

Figure 2.21. ASEAN+3: Inward Relocation Announcements by Sector, 2020
(Number of projects)



Sources: Orbis Crossborder; and AMRO staff calculations.
Note: HQ = headquarters; R&D = research and development. Logistics and distribution include transportation.

Table 2.1. ASEAN+3: Inward Relocation Announcements, 2020

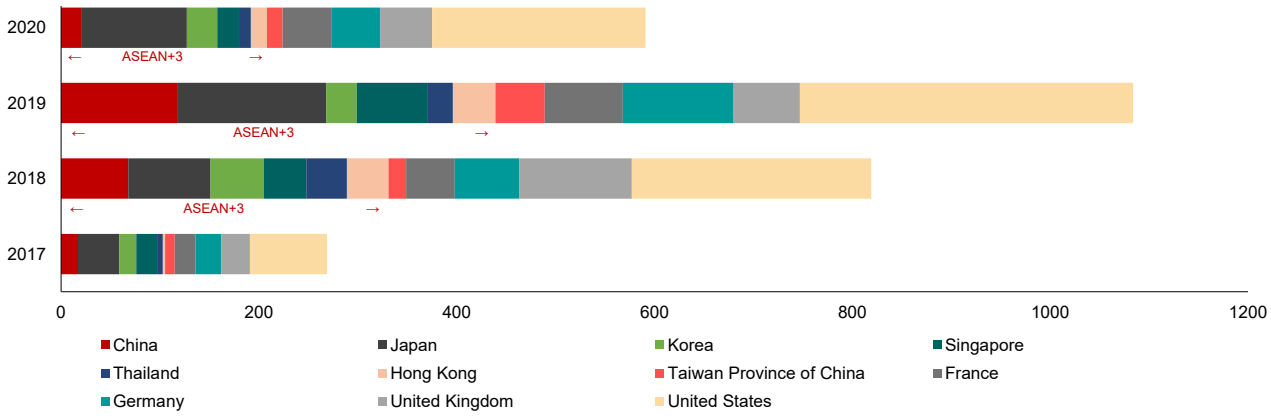
Project sector	Project headline
Customer Contact Centre	Uber Technologies to relocate its customer contact center to Manila, Philippines
Data Centre	Naver to relocate its data center to Singapore
Education & Training	Interroll Holding AG to relocate its training center in Suzhou, China
Logistics and Distribution	DHL Express to relocate distribution center in Sakai, Japan
Manufacturing	CDS to relocate its lighting product manufacturing plant from Xiamen, China, to Java, Indonesia
	Denso to relocate its electronic component manufacturing plant in Batang, Indonesia
	Hempel A/S to relocate its protective coatings factory in Zhangjiagang, China
	Hempel to relocate its protective coatings manufacturing plant in Yantai, China
	Interroll Holding AG to relocate its conveyor roller manufacturing plant in Suzhou, China
	LG Chem to relocate its lithium battery manufacturing plant in Batang, Indonesia
	LG Chem relocate its nickel smelter in Batang, Indonesia
	Meiloon to relocate audio and visual products factory to Subang Jaya, Indonesia
	Panasonic to relocate its electronic component manufacturing plant in Batang, Indonesia
	Sejin Fashion to relocate footwear manufacturing plant in Pati, Indonesia
	Tremco to relocate adhesive and sealants manufacturing plant in Serendah, Malaysia
R&D Centre	Hempel A/S to relocate its research and development centre in Zhangjiagang, China
Regional Headquarters Business Services	Asiamet to relocate its regional headquarters to Jakarta, Indonesia
	Dassault Systems to relocate its regional headquarters in Shanghai, China
	Deriv Services to relocate regional headquarters in Cyberjaya, Malaysia
	Greenpro Capital to relocate regional headquarters to Kuala Lumpur, Malaysia
	JAE to relocate its regional headquarters in Hong Kong
	U-Freight to relocate its regional headquarters in Incheon, Korea
	Yext Japan to relocate its sales office in Tokyo, Japan
	Kennedys Law to relocate its legal office in Hong Kong
Retail	Interroll Holding AG to relocate its showroom in Suzhou, China
Sales Office	Amazon.com to relocate its sales office in Singapore
	ClassNK to relocate its sales office in Busan, South Korea
	JAE to relocate sales office in Seoul, South Korea
	New York Times Company to relocate its sales office to Seoul, South Korea
	Nord Lock to relocate sales office in Shanghai, China
	ON24 Inc to relocate its sales office in Japan
	Xiaomi to relocate sales office in Japan
Testing Centre	Interroll Holding AG to relocate its testing center in Suzhou, China

Source: Orbis Crossborder.

Business surveys, like planned investment announcements, also point to ambiguous future directions for the reconfiguration of GVCs. Certainly, no evidence has emerged of any large-scale withdrawal from China. In fact, many companies appear to remain bullish about China, although tempered by ongoing US–China tensions. In a July 2020 survey of 346 American companies in China, 79 percent reported no change in investment allocations in 2020, suggesting plans for neither relocation nor reshoring. However, the percentage of companies that plan to increase investment in China decreased from 47.2 percent in 2019 to 29 percent in 2020, likely due to the heightened US–China tensions, which a third of the respondents expected to continue for the long term (ACC 2020). In another ACC survey after the November 2020 US election, companies were asked about their de-risking plan under the Biden administration. More than half of the 124 surveyed MNEs expect no change in investment plans, 13.7 percent expect an increase, while only 5.6 percent will "commence, continue or consider a China de-risking strategy" (Bloomberg 2020).

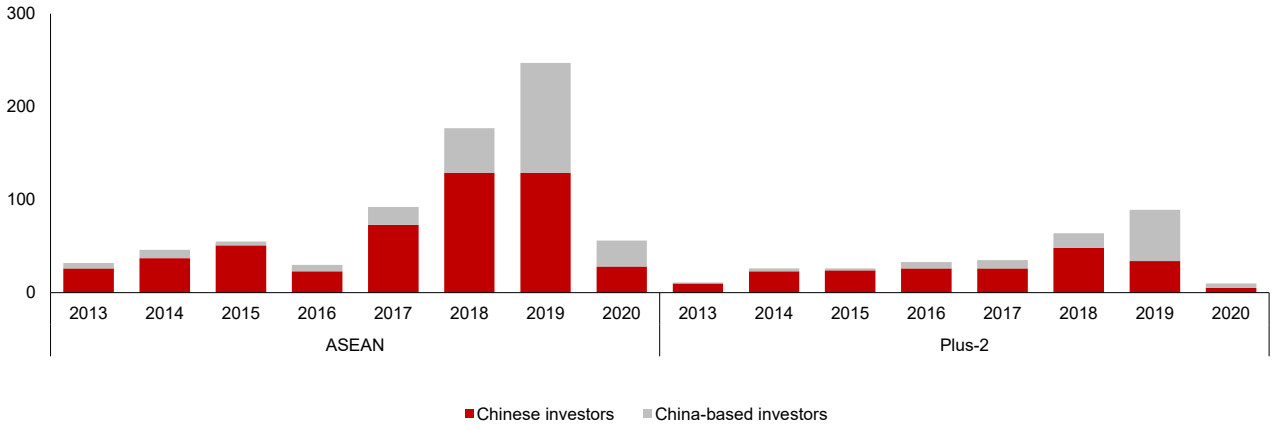
The de-risking strategy of companies can mean many things, but most likely includes building resilience in their supply chains. Multinational surveys in the aftermath of the pandemic show that companies are keen to employ multiple resilience strategies, instead of merely moving geographically (McKinsey & Company 2020a). An August 2020 McKinsey & Company survey suggests dual sourcing, increasing inventory of critical products, nearshoring, and regionalizing the supply chains as among the top options (Figure 2.24). Of these, dual sourcing, regionalizing supply chains, and backup production sites appear to support a China+1 GVC strategy, which would be favorable to ASEAN, while reshoring or nearshoring would benefit other regions like Latin America and Mexico (with respect to US MNEs) and Eastern Europe (with respect to European MNEs).

Figure 2.22. ASEAN+3: Top Sources of Inward Project Announcements
(Number of projects)



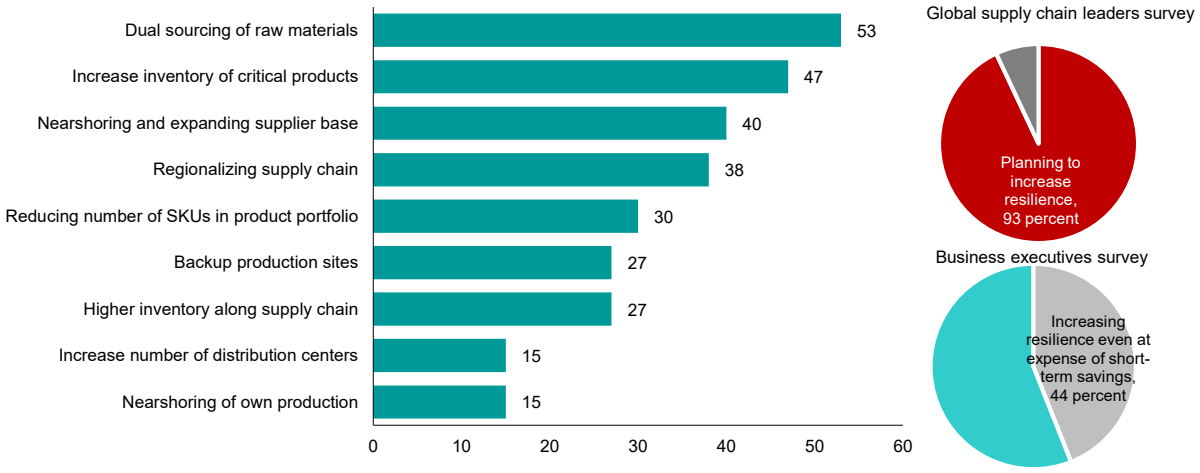
Sources: Orbis Crossborder; and AMRO staff calculations.

Figure 2.23. China: Investment Announcements to ASEAN+3 by Ownership
(Number of projects)



Sources: Orbis Crossborder; and AMRO staff calculations.

Figure 2.24. Corporate Survey: Planned Actions to Build Resilience
(Percent of total respondents)



Source: McKinsey & Company (2020a).
Note: SKUs = stock-keeping units. Global supply chain leaders and business executives' surveys as of May 2020.

Which GVC Sectors can be Easily Reconfigured?

If reconfiguration takes place, rather than the entire production supply chain, what will likely be relocated are some stages of the supply chains that exhibit certain characteristics. In particular, GVC nodes that are labor-intensive and do not require high skill levels, such as assembly operations—even in capital-intensive industries like automobile or machinery and electronics—are more likely to move because they are sensitive to labor costs. They are also easier to relocate because less tacit knowledge is needed in the assembly phase.[12/]

In general, based on an analysis of GVC governance (Box 2.3), the stages that involve no large fixed costs both when setting up or closing down, require neither high-skilled workforce nor tacit knowledge, and those that entail simple routine work processes, are strong candidates for relocation from China when trade costs or geopolitics come into play. However, GVC nodes that have high sunk costs (like hierarchy or relational GVCs) will be difficult to uproot, and if ever, will take a longer period of time. Likewise, GVCs of companies that cater to the domestic China market are unlikely to move out.

For GVCs that move out, among the key considerations for location would still be economic factors such as labor costs, as well as infrastructure quality, ICT development, skilled labor availability, and market size.[13/] Based on these factors, ASEAN+3 economies compare well with those in other regions. The "Transferability" index, a simple average of the z-scores of nine chosen indicators is relatively high for most ASEAN+3 economies, compared to those in Latin America, Africa, or emerging Europe (Figure 2.25). Eastern Europe's infrastructure, labor quality, and ICT development provide the region with a significant advantage as possible locations for GVCs, but its labor costs are relatively high. Within the ASEAN+3, Malaysia and China score the highest, but Malaysia's labor costs are relatively high, in the same league as Thailand, and to a lesser extent, Brunei Darussalam. Indonesia's advantage is its large market size but it lags in other indicators. Similarly, the Philippines' advantage is its low labor costs, but it could gain higher scores if it accelerates its program for infrastructure development, including ICT.[14/]

Despite rising labor costs and bilateral tensions with the United States, China remains a strong contender for GVC location because of its huge domestic market and highly developed ecosystem for manufacturing, which make decoupling from China difficult. The case of the apparel and garment industry is an example of the challenge of ignoring China in the supply chain. Labor-intensive, this sector has already started to move its supplier base to low labor-cost locations such as Bangladesh or the CLMV economies. Yet China, even with its higher labor costs, remains the biggest global player for garments. This outcome is attributable to the fact that China has upgraded itself in the garment GVC over time and captured the more capital-intensive parts of the value chain, such as fabrics and components manufacturing. It has an extensive supply network for yarns, dyes, fasteners, zippers, trimmings, and the like. Some Chinese firms have

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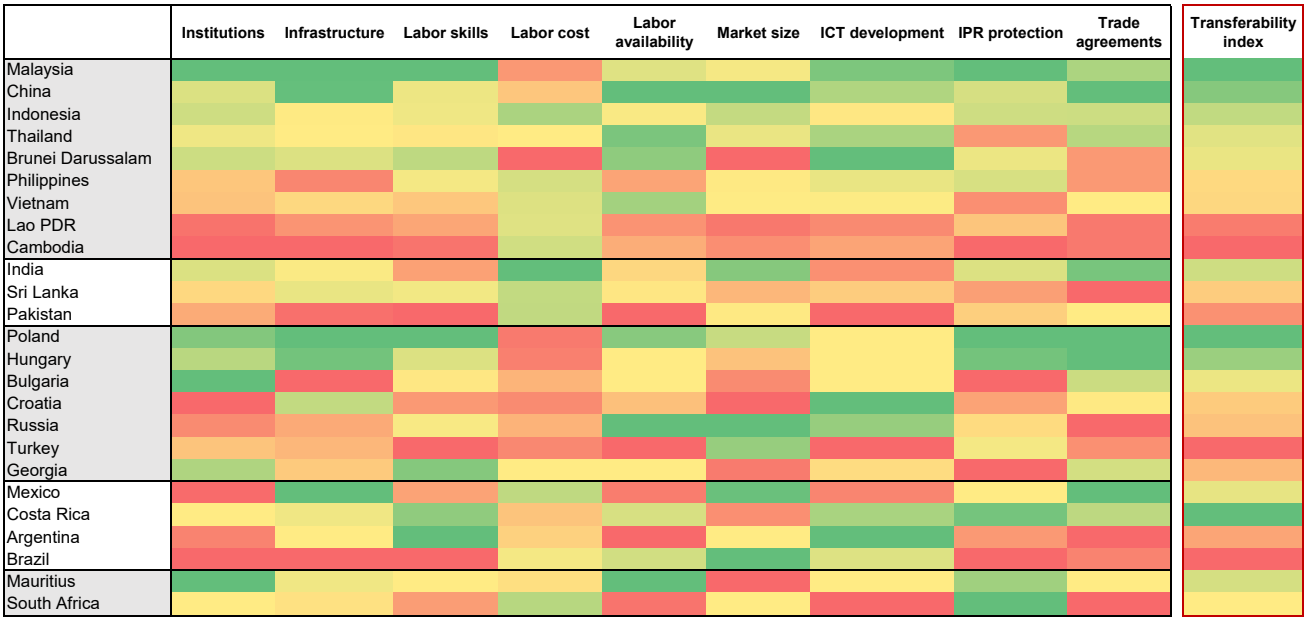
12/ The "modular" type of GVC governance is an example of where less tacit knowledge is exchanged.

13/ Other factors such as geopolitics may well be important going forward, but are hard to capture in available indicators.

14/ Indeed, the current Philippine administration has been pushing strongly toward infrastructure and ICT development. In the legislative front, the recently-passed Internet Transactions Act (House Bill No. 7805) complements the administration's initiative by passing a regulation protecting consumer and data privacy in commercial activities carried out through the internet.

Figure 2.25. Heatmap for GVC "Transferability"
(z-scores)



Sources: Asia Regional Integration Center, ADB; International Labour Organization; World Economic Forum; World Bank; World Trade Organization; United Nations International Telecommunication Union; United Nations Population Division; national authorities via Haver Analytics; and AMRO staff calculations.
Note: Underlying data are calculated z-scores for a group of 46 developing economies, with the above a selected subset. Data for institutions, infrastructure, labor skills, and IPR protection are from the World Economic Forum's scores for each particular indicator, as of 2019. Market size refers to latest data point for private consumption (as percent of GDP) from the World Bank World Development Indicators. ICT development is from the United Nations ICT Development Index, as of 2017. Labor cost refers to the mean nominal monthly earnings of all employees, at purchasing power parity in 2017 (international dollars, as of the latest year) from the International Labor Organization and national authorities, where applicable. Labor cost for India refers to the average monthly earnings for the manufacturing sector, while for Mauritius, it is the designated minimum wage. Trade agreements refer to the absolute number of agreements the economy is a signatory of. Labor availability refers to the ratio of the working-age population (ages 20– 64 years old) to the overall population as of 2020, based on the United Nations Population Division. The overall Transferability index is a simple average of the nine indicators for each economy. The greener the color, the higher its relative z-score and the greater the GVC transferability to that economy or location; the redder, the lower the attractiveness for GVC relocation.

upgraded well enough and have even automated, using industrial robots ("sewbots") to overcome the constraints of higher wages and an aging Chinese workforce. These firms can afford to move even to high-wage locations like the United States because proximity to consumers is a key factor supplanting wage considerations in the fashion industry.

What the ASEAN+3 Region Can Do

The potential for GVC reconfiguration presents an opportunity for ASEAN+3 economies to enhance and upgrade their participation in GVCs, and not shy away from closer integration with one another and the rest of the world. Developing economies in the ASEAN region, for example, stand to gain from a China+1 GVC strategy of foreign MNEs who want to remain in Asia for the long term. Some, like the CLMV economies, can still leverage on their relatively low labor costs to attract GVC investments. However, this approach alone will not be sufficient in the long term, not only because there are other low-cost locations such as South Asia and Africa, but also because technology is making labor costs a less important factor. Countries need to improve other equally important factors to make themselves more attractive to foreign investments. Time and again, the experiences of economies that succeeded in hosting GVCs highlight the importance of having a predictable and efficient business environment, relatively skilled labor, and efficient infrastructure.

Strong GVC participation is linked to several factors for competitiveness, but especially to good hard and soft infrastructures. Thanks to technological advances, distance is no longer a major obstacle to trade, but logistics costs and connectivity are. The challenge for some ASEAN economies going forward is how to fund the building of hard infrastructure, especially as their fiscal space has narrowed considerably because of the massive fiscal stimulus spending during the pandemic (Box 2.6).

The middle-income ASEAN economies may have the edge in attracting the more knowledge-intensive industries because these depend on specialized and reliable suppliers and higher-skilled labor. However, these countries, too, need to invest in continuous skills upgrading, especially as more industries shift to 4IR products and technologies (AMRO 2020). Economies that are already plugged into GVCs should invest more in R&D and process upgrading to capture more value in the supply chain and, at the same, increase the productive capacity of the economy—just as China has done over the years. Additional soft infrastructure improvement will also help, such as Indonesia's recent enactment of the Omnibus Law to liberalize the labor market, open more sectors to foreign investment, and remove red tape that shackle the economy (Box 2.7).

Many ASEAN economies will want to acquire technology through GVC investments, but such technology transfers are not a matter of course. Lead MNEs usually have control over the technical and technological transfers to subcontracted suppliers. Firms in ASEAN need to develop stronger relationships with GVC lead firms and also greater trust to enhance the likelihood of more knowledge and technology transfers. Good intellectual property protection laws in ASEAN economies will help foster this confidence, along with more proactive approaches to sustainability, built into their environmental and social policies, and governance frameworks.

Finally, governments play an important role in attracting investments through investment promotion policies and incentive programs, committing domestic policies to binding international agreements, and a cohesive GVC strategy that synergizes with its existing trade, investment, and other macroeconomic policies. Foreign investors want policy predictability and certainty, and high-quality FTAs help provide them with that assurance. Governments can facilitate GVC operations by reducing tariffs and non-tariff barriers for imported production inputs, and above all, ensuring efficiency and predictability in the business environment. Services that have increasingly played a greater role in manufacturing export competitiveness, such as transport and logistics, warehousing, and other business services, will need to be boosted for greater efficiency, which may include opening up more service sectors to foreign investment.

Box 2.6:

Infrastructure and Funding Challenges for the ASEAN+3 Economies

An adequate and reliable physical infrastructure plays a vital role in promoting an economy's GVC participation and attracting FDI. Data suggest that economies with good infrastructure, reflected for instance in high infrastructure quality scores, tend to have higher GVC participation rates (Figure 2.6.1). Singapore and Hong Kong, for instance, have high GVC participation rates relative to other economies in the region, and they also rank high in infrastructure quality. High levels of FDI inflows also tend to be observed in economies in the region whose infrastructure are more developed. An IMF study on the determinants of bilateral GVC participation using a time-invariant model has similar findings, suggesting that a 1 percent increase in infrastructure quality of the importer leads to an increase in its GVC participation by 0.412 percent (IMF 2019).

While hard infrastructure is indispensable, soft infrastructure also plays a crucial role in increasing a country's participation in GVCs. Data suggest that economies in the region with more skilled workforce and better institutional quality tend to have higher levels of productivity and GVC participation (Figures 2.6.2–2.6.3). A skilled and disciplined workforce, along with continuous skills upgrading, enables an economy to attract better quality FDI that also allow greater participation in value chains.

Similarly, institutional quality has also been cited as having significantly positive impact on FDI inflows. Developing economies in the region still need to put more effort into enhancing their soft infrastructure and developing stronger institutions to enhance their GVC participation (Figure 2.6.4).

A debt sustainability indicator developed by Poonpatpibul and others (2020) suggests that while most ASEAN+3 economies retain significant room for expansionary fiscal policies, there is considerable unevenness across the region (Figures 2.6.5–2.6.6). Furthermore, even members that have stronger fiscal positions have expended large amounts of fiscal resources to support their economies during the pandemic. The region as a whole is therefore tackling the post-pandemic challenges from a significantly weakened fiscal position, compared to the pre-pandemic period. In a way, this issue goes back to the perennial funding gap challenge—discussed at some length in AMRO (2019).

Figure 2.6.1. ASEAN+3: GVC Participation versus Infrastructure Development

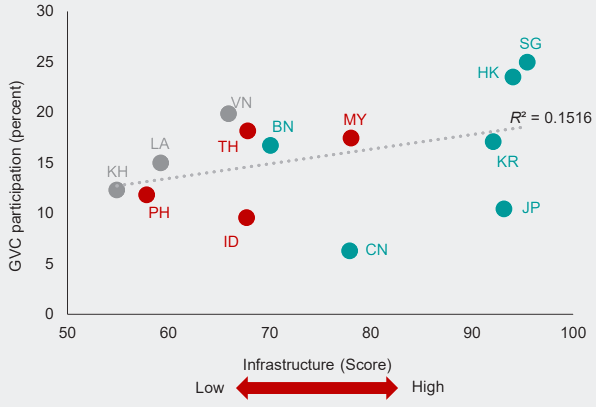
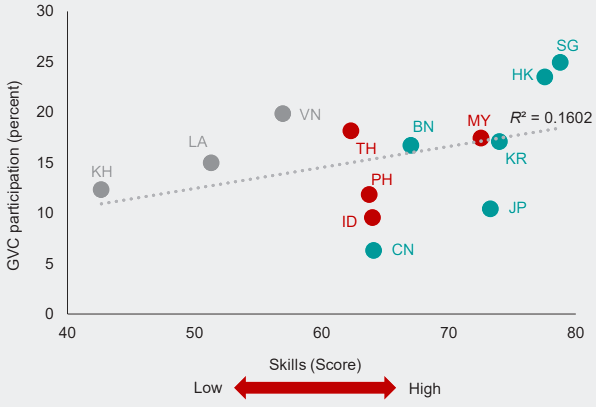
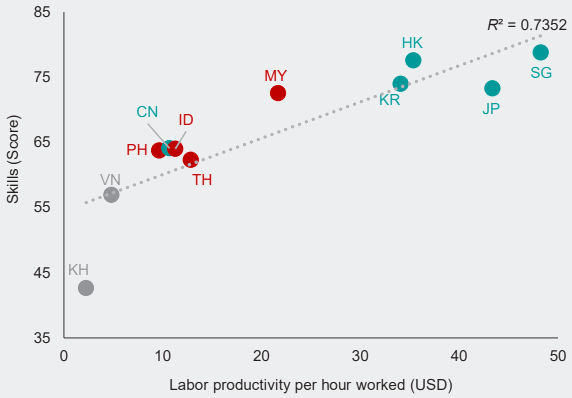


Figure 2.6.2. ASEAN+3: GVC Participation versus Skills



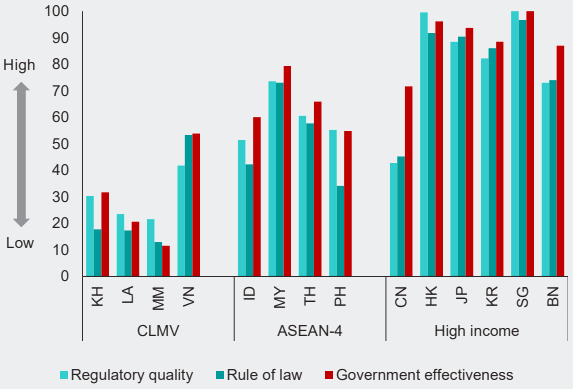
Sources: Asian Development Bank; World Economic Forum; and AMRO staff calculations.
Note: BN = Brunei Darussalam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data for Myanmar are not available. The latest data point for GVC participation and score of infrastructure and skills is 2017 and 2019, respectively. Skills refer to the Pillar 6 of the World Economic Forum (WEF) Global Competitiveness Index, which covers skills of the current workforce (skills of graduates, quality of vocational training, digital skills, etc.), as well as skills of the future workforce (critical thinking in teaching and pupil-to-teacher ratio in primary education). Infrastructure is the Pillar 2 of the WEF Global Competitiveness Index, which focuses on hard infrastructure, including transport and utility infrastructure. Colors denote the selected groupings for these two figures: gray for the CLMV economies, red for the ASEAN-4, and teal for the high-income economies.

Figure 2.6.3. ASEAN+3: Productivity per Hour Worked versus Skills, 2019
(US dollars; Score)



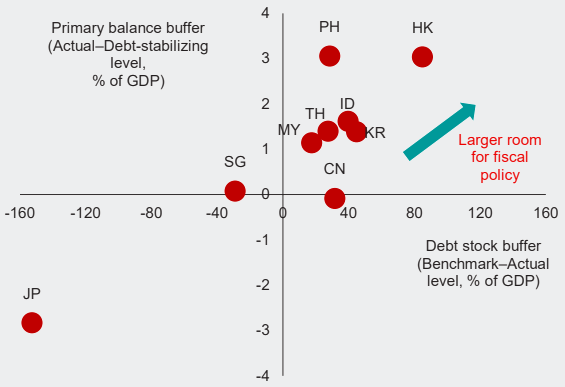
Sources: University of Groningen; Our World in Data; and World Economic Forum.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Labor productivity per hour is measured as GDP per hour of work. GDP is adjusted for price differences between economies (PPP adjustment) and for price changes over time (inflation). Labor productivity per hour data are available up to 2017, and not available for Brunei Darussalam, Lao PDR, and Myanmar.

Figure 2.6.4. ASEAN+3: Selected Governance Indicators, 2019
(Percentile rank)



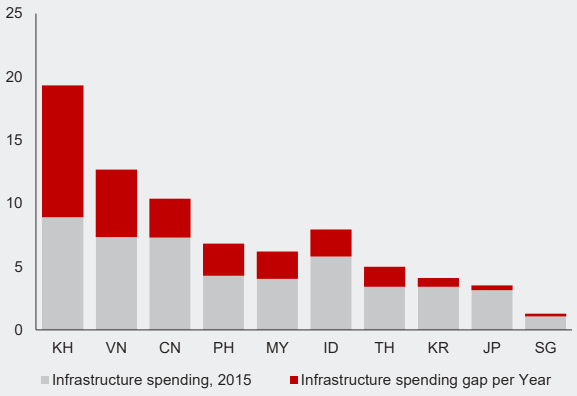
Source: World Bank.
Note: BN = Brunei Darussalam; CLMV = Cambodia, Lao PDR, Myanmar, and Vietnam; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Percentile rank indicates the economy's rank among all economies covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank.

Figure 2.6.5. ASEAN+3: Debt Sustainability Indicator



Sources: International Monetary Fund; and AMRO staff estimates.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand. As of 2019; Debt stock buffer = Debt burden threshold (85 percent for advanced economies, 70 percent for emerging markets) – government debt level (at the end-2019); Primary balance buffer = Realized primary balance (2017–19 average)—estimated debt-stabilizing primary balance level.

Figure 2.6.6. ASEAN+3: Infrastructure Spending and Funding Gap, 2015
(Percent of GDP)



Sources: Oxford Economics; Global Trade Analysis Project; and AMRO staff estimates.
Note: CN = China; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Infrastructure spending gap per year over the next two decades.

The author of this box is Vanne Khut.

Box 2.7:

Will the New Omnibus Law Boost Indonesia's Participation in GVCs?

With abundant natural resources, a large domestic market, and a rapidly growing middle class, Indonesia remains highly attractive to foreign investors. Indonesia's middle class is large and growing; 52 million strong, it accounts for nearly 20 percent of the population and 43 percent of total household consumption (World Bank 2019). The economy's official population stood at 268 million in 2019 and is projected to reach 292 million in the next decade (United Nations Population Division 2019).

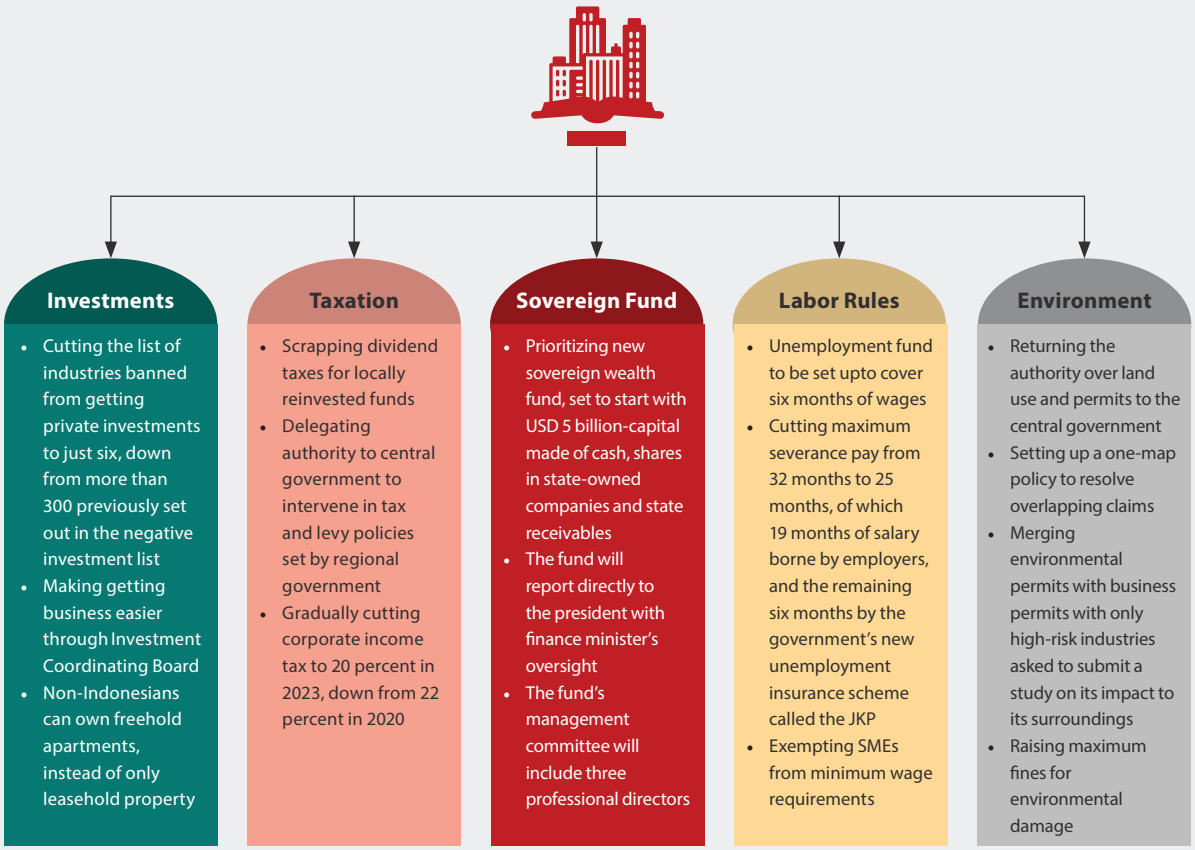
However, Indonesia, along with the Philippines, has not so far captured major GVC-related investments unlike Vietnam, Malaysia, Thailand, and Singapore. Hence, the Indonesian government has been stepping up its efforts to make the country more attractive to foreign investors. Both Indonesia and the Philippines have put together ambitious investment programs to significantly improve the quality of their physical infrastructure. In the case of the Philippines, the CREATE (Corporate Recovery and Tax Incentives for Enterprises) Law that is awaiting approval, and the EODB-ARTA (Ease of Doing Business and Anti-Red Tape Advisory) that was recently passed by the legislature, both aim to boost investment by, respectively, allowing flexibility in granting incentives to compete for high-value investments and reducing corruption and facilitating business registrations. Likewise, the Indonesian government passed the Omnibus Law on Job Creation last October 2020, aimed at boosting employment and investment.

The law seeks to eliminate red tape as well as other overlapping and contradictory regulations which have thus far undermined the economy's competitiveness (Lingga 2020). Its key provisions include: (1) reducing the number of industries in its negative list for foreign investment participation from more than 300 to only 6—a staggering policy move for Indonesia; (2) easing the application for obtaining business permits; (3) allowing non-Indonesians to own freehold apartments instead of only leasehold property; (4) scrapping dividend taxes for locally reinvested funds; and (5) setting up an unemployment fund to cover six months of wages while reducing the maximum severance pay borne by employers to 19 months of salary, down from 32 months (Figure 2.7.1). If implemented effectively, the Omnibus Law will help enhance Indonesia's investment climate, improve its ease of doing business, and attract more FDIs into its economy.

Notwithstanding some concerns on labor and environmental issues in the Omnibus Law,[1/] market reactions to the law have been generally positive (Wiranto 2020). The potential impact on investment is expected to help create jobs for nearly 3 million new entrants into the labor market and 6 million people who were laid off during the COVID-19 pandemic (Wijaya 2020).

[1/] Some shortcomings of the law in relation to labor and environment issues include abolishing sectoral minimum wage, reducing severance pay, allowing overtime to increase to a maximum of four hours in one day and 18 hours per week, reducing restrictions on outsourcing, and relaxing environmental standards (Wijaya 2020).

Figure 2.7.1. Indonesia's Omnibus Law: Key Revisions



Source: Sihombing and Aditya (2020).
Note: SMEs = small- and medium-sized enterprises. The six banned industries are using controlled drugs, engaging in gambling, catching endangered fish, harvesting corals, and manufacturing chemical weapons and industrial chemicals.

The author of this box is Vanne Khut.

III. Technology and Global Value Chains

Technology has enabled the rapid development of global supply chains and is a key driver of globalization, but it is now a key factor determining the reconfiguration of supply chains. First, advances in technology have, in some cases, eliminated or rendered irrelevant the labor cost differential between economies. Because of technology, high labor productivity can erase the low labor-cost advantage of developing and emerging economies. Second, advanced economies have a relative abundance of skilled labor needed for advanced technologies. For example, aircraft manufacturers, such as Airbus and Boeing, require specialized engineers to help build aeronautics engines; these professionals are easier to find in bigger numbers in Europe or North America. Third, technologies have become highly proprietary and require strong intellectual property rights (IPR) protection. MNEs are sometimes also statutorily barred from exporting the technology for national security reasons, which will be discussed in greater detail below. To guard against technology leakage, MNEs could decide that it is safer to use the technology at home or only in economies with reliable IPR protection. Finally, new technologies, such as 3D printing and automation, already make local production costs of certain products lower than when outsourced to other economies, especially for products that are customized to users or markets such as specialized parts or components.

Considering the importance of technology in GVCs and its development, it is important to discuss the implications of US–China technology tensions on developments in technology, existing supply chains, and trade in general—and how it may affect the ASEAN+3 region. In particular, technology demands an ample supply of skilled workers, especially IT professionals, investments in R&D, and strong IPR protection, areas in which many economies in the ASEAN+3 are still working to achieve.

This section begins with some of these emerging technologies, the adoption of which has been accelerated by the COVID-19 pandemic. It is followed by a discussion on a few technologies that are highly connected with global supply chains. Finally, it tackles the implications of the technology tensions between the United States and China, raising the specter of technology bifurcation for the world and its potential impact on the future of global trade and investments.

COVID-19: Accelerating the Shift to Digital Economy

The COVID-19 pandemic has, inadvertently, accelerated the "flight to digital," and this change in behavior is unlikely to be reversed. Many technology platforms that are being used widely during the pandemic—such as e-commerce, videoconferencing, cloud services, remote working, and others that were critical in maintaining business continuity—have been available for some time but were not widely used and diffused, especially in non-urban areas or with businesses that operate more traditionally. The pandemic has managed to put an end to any hesitation in using these technologies and accelerated its wide adoption and diffusion among households and firms.

A well-known example of technology adoption is evident in the unprecedented growth of e-commerce and other online businesses in the past year. Global digital sales of various items jumped by 71 and 55 percent year over year in the second and third quarter of 2020 (Shim 2020) (Figure 2.26). Online sales worldwide of food and beverage increased the fastest with an impressive growth of 153 percent, an upsurge never seen before. Likewise, in the ASEAN+3 region, while physical retail sales plunged during the pandemic, online sales soared (Figure 2.27).

Along with the boom in e-commerce, the growth in the number of ASEAN Internet users doubled compared to the average annual growth in users between 2015 and 2019 (Google, Temasek, and Bain & Company 2020). New users appear to be coming from smaller, non-metropolitan cities in the region's economies, and the increase in internet usage is no doubt prompted by the pandemic—as some businesses shifted to online meetings, conferences, seminars; students to virtual education; shoppers to online shopping; as well as to the increased use of digital banking and other services (Figure 2.28). Social distancing and lockdown measures that prompted patient-doctor consultations to be conducted online during the pandemic also gave a boost to telemedicine operators (Figure 2.29). Telemedicine users in the ASEAN countries have increased fourfold since the middle of 2020, reportedly attracting new investments into the sector (Google, Temasek, and Bain & Company 2020).

Substantial progress has also been made in the adoption of technology by businesses in their day-to-day operations. In particular, physical on-premise work has given way to remote working arrangements due to lockdowns and other social distancing measures. The switch to work-from-home arrangements has spurred greater demand for not only computer hardware (for example, video equipment) and home office furniture globally (see Chapter 1), but also for various mobile and remote applications and software, as

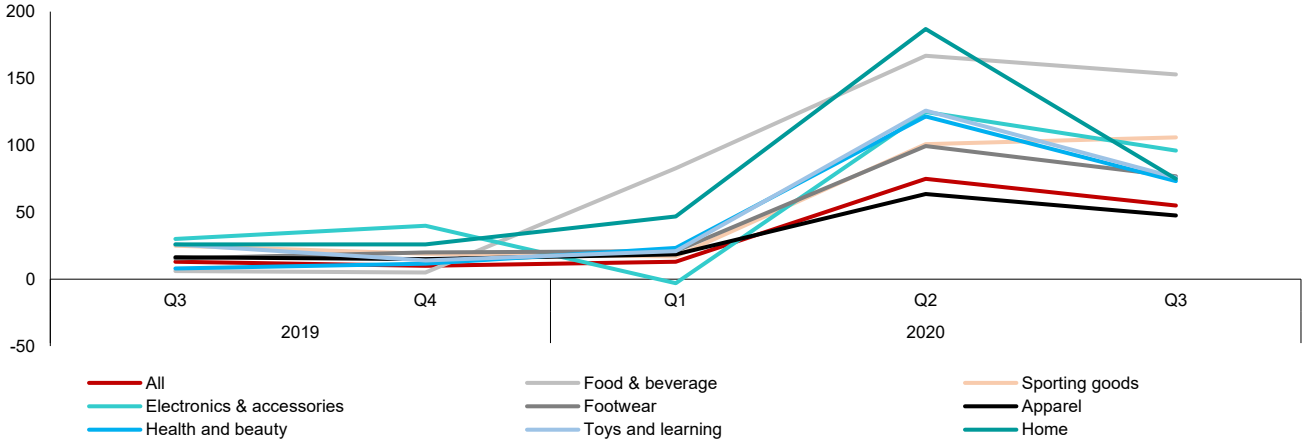
evidenced by an almost exponential increase in the number of users of video and teleconferencing services.

Consistent with the strong demand for these home- or remote-working tools, businesses that provide these goods and services have flourished, especially after governments implemented lockdown measures starting around mid-March 2020 and companies immediately put business continuity plans in place. For example, US-based telephony and online chat services provider Zoom Video Communications, disclosed earlier in April 2020 that it added 300 million daily meeting participants although for the whole of 2019, it added only 10 million users (Hughes 2020) (Figure 2.30). Similarly, its competitor Cisco Webex registered a record 590 million participants in September 2020, up from 324 million reported in March (Mukherjee and Nellis 2020). Two other major providers of the same service, Microsoft Teams and Google Meet, also reported an impressive growth in usage, with more than 115 million and 100 million participants signing into meetings on a daily basis, respectively (Hughes 2020). Forecast earnings of these companies suggest that future demand for these services will continue.

Post-pandemic, the outlook for digital service consumption is highly positive, especially as more consumers and businesses become increasingly comfortable using digital services. Inadvertently, the social distancing measures and other restrictions have not only reduced barriers to technology use, but also provided a tremendous boost to the digital industry. More importantly, the pandemic has forced a change in the mindset of businesses and consumers alike when it comes to the utility of technology. COVID-19 has also caused an exponential shift in the pace of corporate digital transformation.

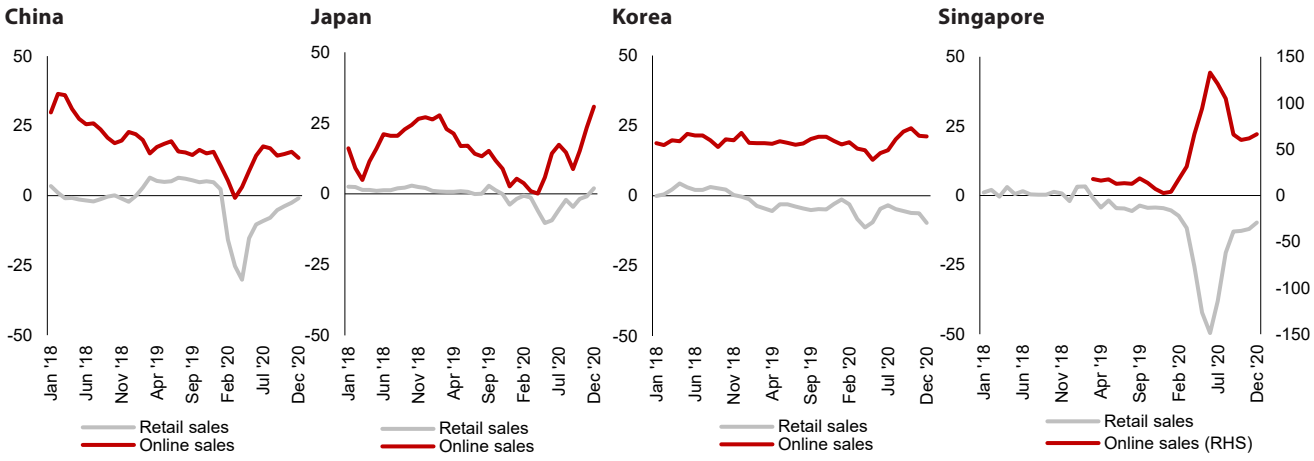
Moreover, a whole slew of new technologies is expected to become mainstream in the coming years, though more gradually, as they will require the installation of new support infrastructures, especially for the ASEAN+3 region (Box 2.8). Some of them, like self-driving autonomous cars, are already being tested and used on a controlled basis in some economies, such as China, Japan, Korea, and Singapore; while others like artificial intelligence, are being piloted or incorporated into medium- to long-term economic plans (such as in Indonesia, Singapore, and Thailand), but are still far from widespread commercial deployment. But as these technologies improve, are tested, and become widely adopted, future generations will most likely recall the COVID-19 pandemic as providing a much-needed push in the shift to greater global openness and embrace of new technologies.

Figure 2.26. Selected Sectors: Growth in Global Digital Commerce
(Percent year-over-year)



Sources: Shim (2020); and AMRO staff calculations.
Note: Health and beauty is the simple average of the growth of beauty and makeup, beauty and skincare, and health and beauty. Footwear is the simple average of the growth of active footwear and general footwear. Apparel is the simple average of the growth of apparel-active, apparel-general, and apparel-luxury.

Figure 2.27. Selected ASEAN+3: Retail and Online Sales
(Percent year-over-year, 3-month moving average)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.
Note: Retail sales exclude online sales.

Figure 2.28. ASEAN: Services Most Used by New Digital Customers, 2020
(Percent of total service consumers)

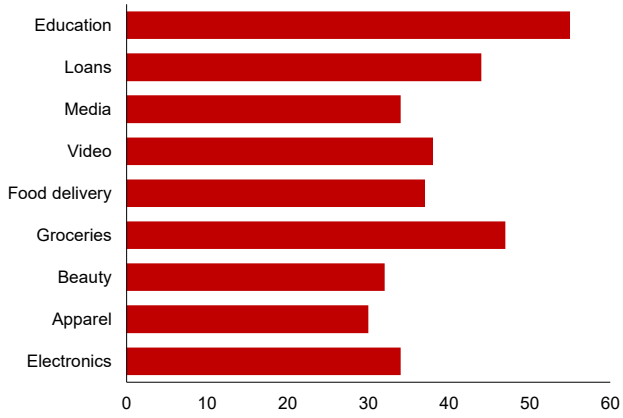
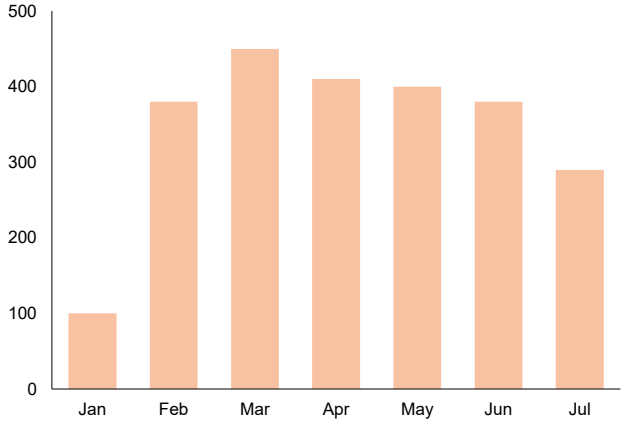
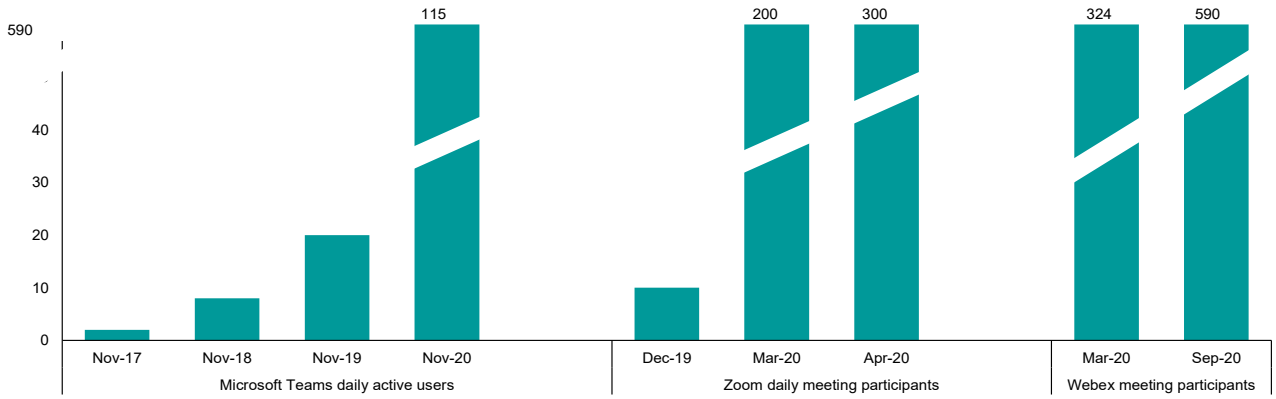


Figure 2.29. ASEAN: Number of Active Users of Telemedicine Platforms, 2020
(January 2020 = 100)



Sources: Google, Temasek, and Bain & Company (2020); and AMRO staff calculations.

Figure 2.30. Selected Online Meeting Service Providers: Microsoft Teams, Zoom, and Cisco WebEx
(Number of users)



Sources: Reuters; TechRepublic; Business of Apps; and Gadgets.
Note: Axis breaks are used to enhance the readability of the figure.

Box 2.8:

What are the New Infrastructures Required by the New Technologies?

Existing infrastructures were designed mainly for the non-digital economy. Thus, as new technologies emerge, successful deployment requires new kinds of infrastructure (Table 2.8.1). Beginning with electric vehicles (EV) and autonomous vehicles (AV) that need to be power-charged, charging stations should be more widely available both in urban areas as well as in long-drive expressways—in much the same way that petrol stations are currently available in the ICE (internal combustion engine) automobile world. Private EVs and AVs should also be chargeable at home, at work, or in specific charging depots, which would require a more reliable power source, for example, one not subject to frequent power outages and disruptions.

As the demand for electricity increases with more adoption of these EVs and AVs, there would be a need to modify the current electricity distribution networks as well as the installation of smart technologies to manage power demand (PwC 2020). For example, smart street sensors will need to be built, along with wireless transmitters on the road to facilitate communications among passing EVs and AVs. Technology-enabled aerial systems—such as drones and flying taxis—have similar infrastructure needs to EVs and AVs, with the addition of landing pads. In the ASEAN+3 region, Singapore is set to host the world's first electric-powered air taxi by the end of 2023, in partnership with German partner Volocopter GmbH (Weiss 2020).

For greater travel mobility, interfaces connecting different transportation modes—such as trains, buses, or the last mile of travel such as bike-docking stations—need to be built. This connectivity would require integration and trust in data sharing among different stakeholders—those that operate the infrastructure, IT equipment, as well as those that aggregate and analyze the data (Deloitte 2020, PwC 2020).

Most other emerging technologies, such as autonomous cars or artificial intelligence (AI), need advanced telecommunications infrastructure to support them. 5G technologies, for example, need more spectrum allocation, perhaps through re-farming some existing 2G or 3G spectrum (McKinsey & Company 2020b). To support the expected surge in data traffic from more smart devices connected to the network, more macro-cell sites are required outdoors. This can be achieved through the building of more cell towers, similar to what China is aggressively doing, or by upgrading existing 4G networks. Building more cell sites and/or base stations is particularly useful in specific areas, especially since high-frequency radio waves (used for 5G) do not travel far. In densely populated areas where it is spatially challenging to build new towers, or for indoor digital use, companies can deploy small-cell transmitters.

New investments may also be needed to improve or install more submarine cables, or to build mobile satellites and fixed broadband capacities, which would help connect base stations with core networks or increase backhaul capabilities. Technological options include more fiber optics and other wireless technologies that can link to backhaul infrastructures efficiently. If communication tower space appears to be a constraint, high-altitude platform systems (HAPS) could also be used instead to facilitate wireless connectivity. HAPS are also especially useful to have in hard to reach, isolated regions.

Other technologies, such as cloud computing and 3D printing, also require a similar set of new infrastructures. An increase in demand for cloud computing services may also require more data centers in several locations. In the case of 3D printing, this also requires the capabilities of 5G technologies and thus its infrastructure needs are similar to other digital applications. In addition, fab printing shops may need to be built in convenient locations for greater consumer accessibility.

Building these new infrastructure requirements will be a challenge especially for low-income economies in the region, because of not only weaker fiscal positions but also the need to prioritize basic infrastructure such as roads, bridges, hospitals, schools, and others in their budget allocation. Nonetheless, some of these new technologies—such as 5G, 3D printing, and cloud computing—may be more accessible for low-income economies, especially if facilitated by strong bilateral (multilateral) cooperation; for example, by the more advanced partner providing access to international expertise, financial aid for infrastructure support and usage of technology, as well as the mobilization of public-private partnerships, among others.

Table 2.8.1. New Technologies and Required Support Infrastructure

Type of New Technology	Economies with government policies or actions on specific technology	Required Infrastructures for Widespread Use or Commercial Deployment
Electric vehicles (EVs)	Plus-3: CN, HK, JP, KR ASEAN: BN, ID, LA, MM, MY, PH, SG, TH, VN	• Wide availability of charging stations (for example, at work, home, depots) • More reliable power sources and electricity distribution networks and smart technologies to manage power demand • Interfaces to connect physical infrastructures (rails and roads for example) to operational technology that generates the data (sensors and payment systems), digital infrastructures (to carry the data), and other IT equipment and software to aggregate and analyze the data • Outfitting more streetlights with sensors • 5G or WiFi transmitters • Smart meters and smart motorways
Autonomous vehicles (AVs)	Plus-3: CN, HK, JP, KR ASEAN: ID, MY, PH, SG, TH, VN	
Drones	Plus-3: CN, HK, JP, KR ASEAN: ID, LA, MM, MY, PH, SG, TH, VN	• Landing pads
Flying Air Taxis	Plus-3: CN, HK, JP, KR ASEAN: MY, SG	
5G	Plus-3: CN, HK, JP, KR ASEAN: BN, ID, KH, LA, MM, MY, PH, SG, TH, VN	• Additional cell towers and base stations • Additional spectrum allocation • Small-cell deployment in densely populated areas • Submarine cables • Mobile satellite and fixed broadband to support backhaul capabilities and increasing data demands • Connection links between base stations and core network (backhaul) relying on fiber and wireless technologies with sufficient microwave and satellite links capacities • High-altitude platform systems (HAPS)-to facilitate wireless connectivity • Data centers
Cloud Computing **Internet of Things** **Machine-to-Machine Communication** **Artificial Intelligence**	Plus-3: CN, HK, JP, KR ASEAN: BN, ID, KH, MY, PH, SG, TH, VN	
3D Printing	Plus-3: CN, HK, JP, KR ASEAN: ID, MY, PH, SG, TH	• Fab shops

Sources: McKinsey & Company (2020b); PwC (2020); and AMRO staff.

The authors of this box are Marthe Hinojales and Gloria O. Pasadilla.

Technology in Supply Chains

Some new technologies have direct applications for global supply chains and for facilitating global trade, including (1) blockchain technology, (2) artificial intelligence and big data, (3) 3D printing, and (4) financial technology for supply chain finance. These four examples and their applications are discussed in detail below.

Blockchain, Logistics, and Supply Chains

Blockchain, a decentralized digital platform that allows the creation of an immutable and accurate record of all transactions in real time, is increasingly being employed in trade logistics. A fully transparent system to all relevant parties of all transactions in real time, all network parties have an end-to-end visibility of the blockchain's (or distributed ledger's) supply chain information, from the time a product leaves a factory or warehouse up to its final delivery to the consumer.

Blockchain reduces bottlenecks and clerical errors that cost the shipping and retail industries at least USD 500 billion in losses every year (Daley 2019). Cross-border product shipment tends to be administratively cumbersome and costly, for reasons such as its over-reliance on paper transactions along with the labyrinthine procedures required, before a product leaves the port of origin until it arrives at its final destination. Even banks have been slow to change from paper transactions to digital format (Box 2.9). IBM and Maersk, for example, tracked the shipment of fresh flowers from Mombasa, Kenya to Rotterdam, Netherlands, and their study concluded that the simple refrigerated shipment passed through more than 30 different organizations/government agencies—from the source economy, to transshipment points, and to the point of final destination—and required more than 200 separate communications (Forbes 2017).

The myriad transactions and signatures that are needed, from the bills of lading to a variety of customs forms, add to the risk of losses and frauds along the way, and to the possibility of the shipment being held up in customs for a long period of time. Blockchain technology helps eliminate these and many other administrative, paper-based steps, by digitizing and automating bills of lading and other required forms (that are still largely processed manually), thereby cutting costs, and removing or minimizing trade disputes and errors.[15/] With blockchain, transactions can be put in templates and executed seamlessly between multiple parties, backed by cryptographic signatures (WEF 2020a) (Figure 2.31). Blockchain also helps customs organizations make the clearance and other customs procedures much quicker and more efficient (WEF 2020a).

Artificial Intelligence, Smart Contracts, and Big Data

The use of smart contracts in blockchain technology can minimize the number of intermediaries (for example, brokerages and other third parties) that increase transaction costs, while simultaneously securing compliance with all relevant laws. It also helps accelerate payments because the transparency afforded by the distributed ledger minimizes disputes among the parties.

This is where artificial intelligence (AI) and big data, supported by trustworthy information in the logistics ecosystem, can also play a very useful role in supply chain management. AI helps, for example, in providing efficient route information for trucks, location tracking, and vehicle-to-vehicle communications that allow for both fuel efficiency and safety. Blockchain-enabled Internet of Things (IoT) sensors and other smart devices can help monitor and control temperature and humidity during the transportation and storage of highly sensitive and perishable goods, such as some pharmaceutical products. AI thus helps minimize losses and waste, and provides secure and accurate records throughout the shipping process. Different technologies such as blockchain, AI, machine learning, as well as cloud technology have their own unique but complementary roles to play throughout the different stages of cross-border trade (Figure 2.32).

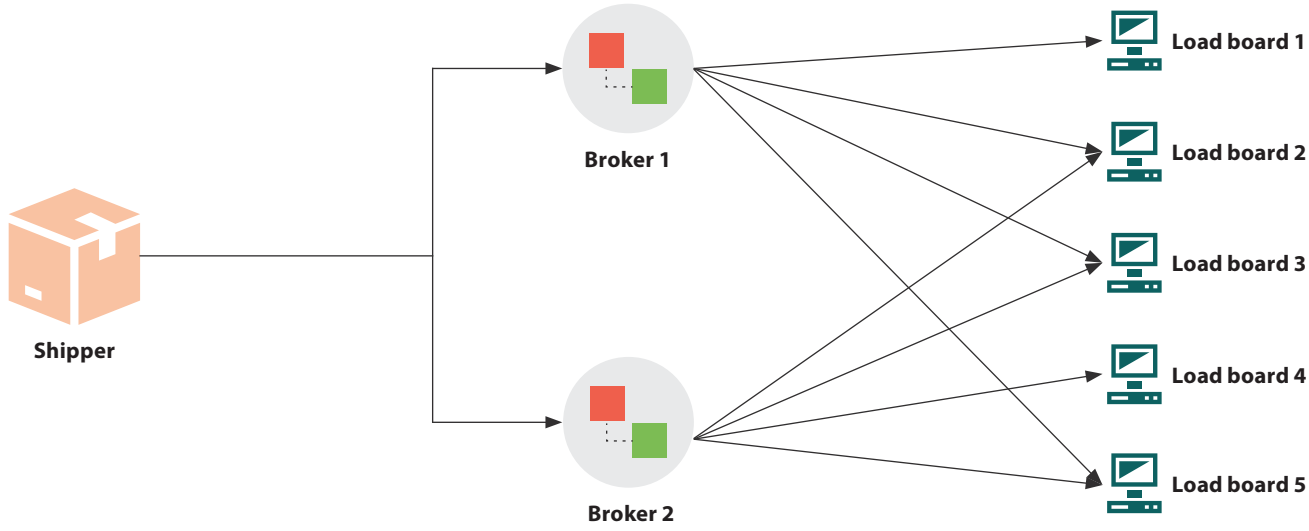
Similarly, technology also supports many services sectors' value chains, for example the tourism industry. The new tourism value chain uses technology to facilitate linkages, exchanges, and transactions among tourism-related enterprises and tourists (Zhao, Cao, and Liu 2009), while using AI to enhance the customer experience, such as digital concierges (Figure 2.33). According to a Google Travel study, 74 percent of travelers plan their trips online, whereas only 13 percent still depend on travel agencies (Singh 2019). The use of big data has facilitated the identification of products and services that tourists demand; while social networks, for example, Facebook, TripAdvisor, among others, help promote tourism activities and products throughout the world, at times inadvertently. Tourism businesses in the ASEAN+3 region, in particular, have used the ICT infrastructure extensively, relying on the large number of tech-savvy users in the region to promote tech-driven tourism products efficiently and effectively (Figure 2.34).[16/]

[15/] Delays can be caused by something as simple as signature disputes.

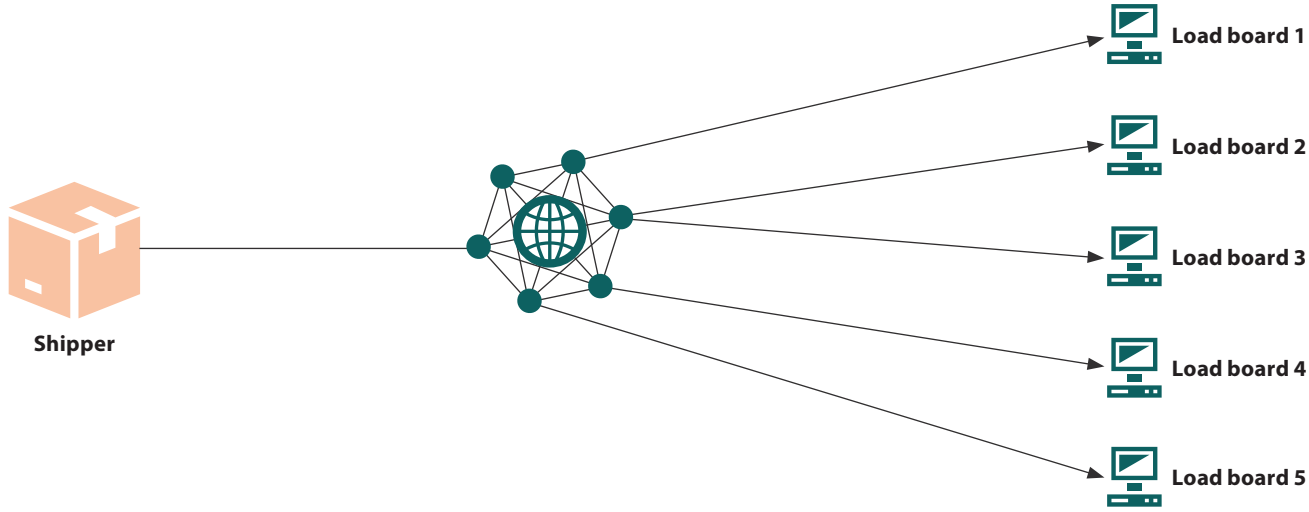
[16/] The ASEAN+3 region has 1.5 billion total number of internet users (as of May 2020) or 64.1 percent of its total population.

Figure 2.31. Trade Logistics: With and Without Blockchain Technology

Without blockchain: High likelihood of potential errors

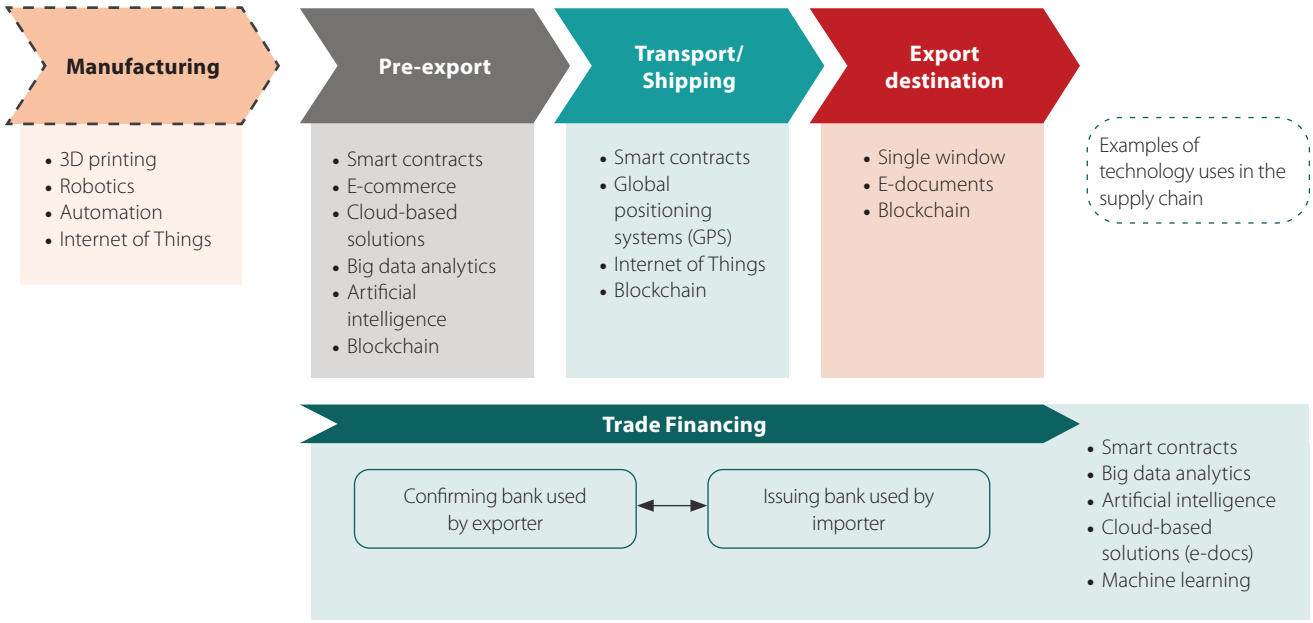


With blockchain: Stakeholders enjoy transactions transparency



Source: World Economic Forum (2020a).

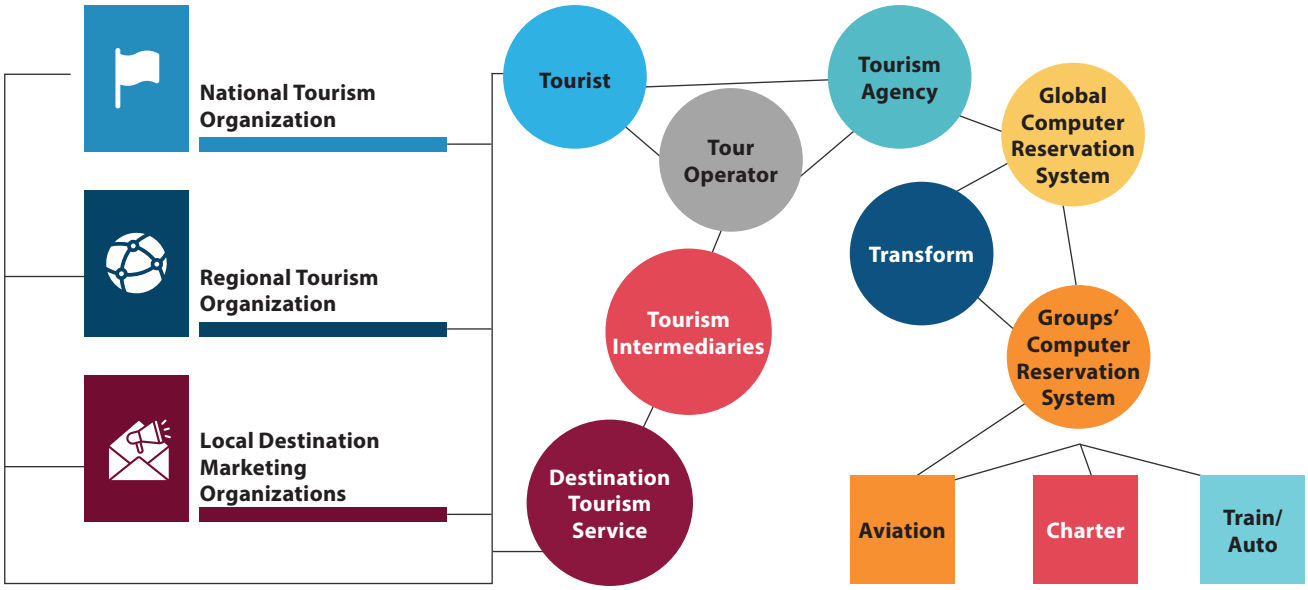
Figure 2.32. Technology in Supply Chains



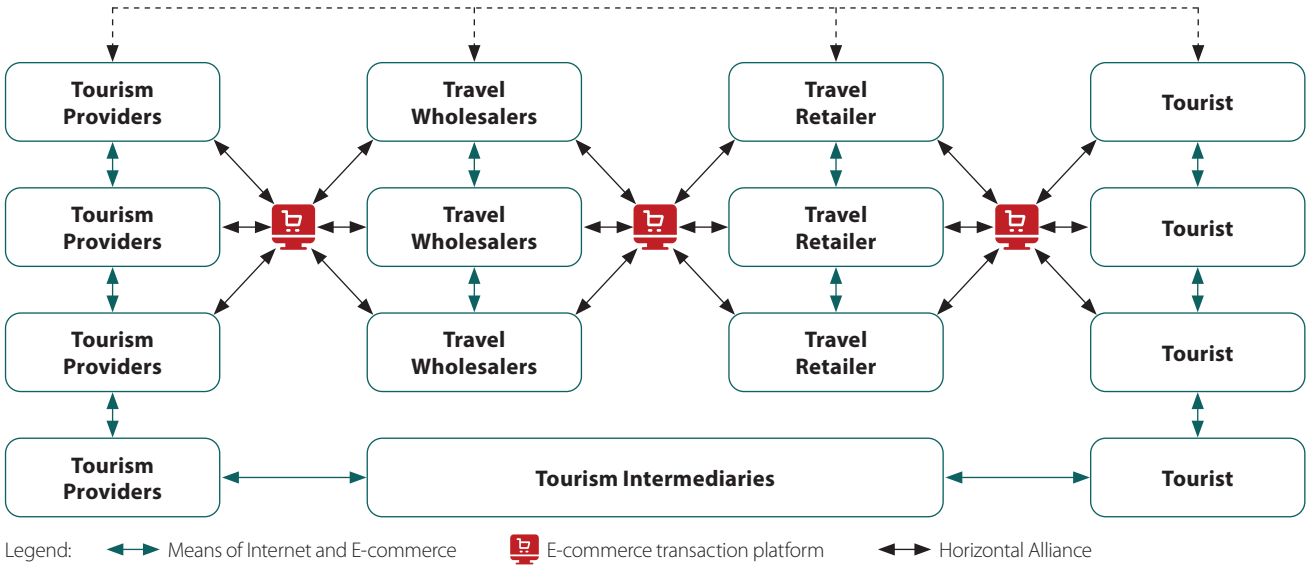
Sources: Asian Development Bank; and AMRO staff.

Figure 2.33. Tourism Value Chain

Traditional Tourism Value Chain

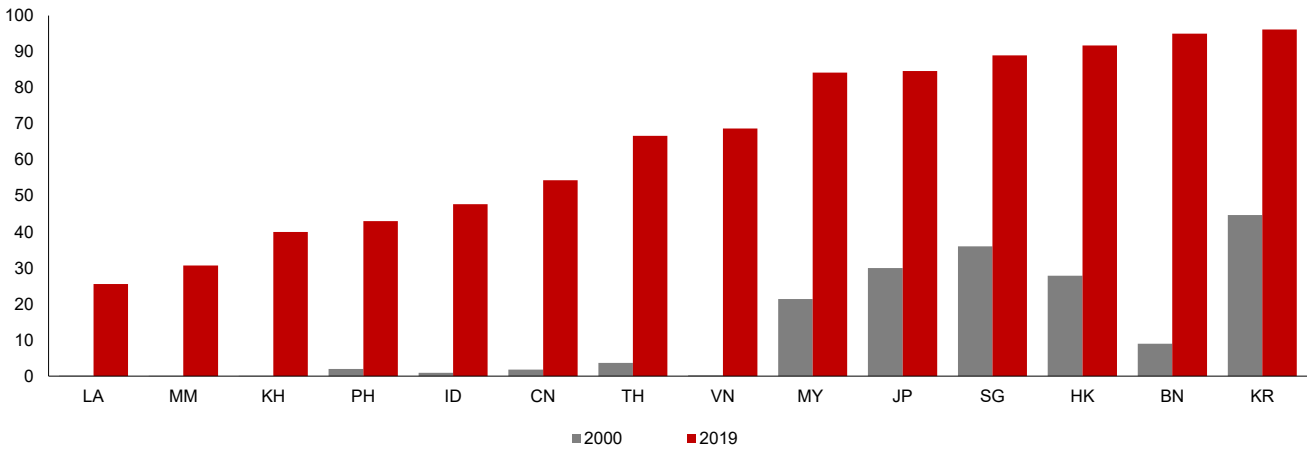


New Tourism Value Chain



Source: Zhao, Cao, and Liu (2009).

Figure 2.34. ASEAN+3: Internet Users, 2000 and 2019
(Percent of population)



Sources: International Telecommunication Union (ITU); and World Bank.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; MM = Myanmar; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

3D Printing and Supply Chains

3D printing is already being used in several manufacturing sectors in the region, ranging from food to automotive to aerospace. In the medical field, bespoke body parts, such as knee or hip implants, as well as hearing aids are a few of the products that have already been 3D-printed. New auto prototypes, which used to cost hundreds of thousands of US dollars and months of waiting, have been 3D-printed within four days and for less than 1 percent of their usual costs (McKinsey & Company 2014). 3D printing requires new materials: new resins, polymers, and powered metals designed for 3D printers—giving the chemical industry a once-in-a-generation transformation and profit opportunity. McKinsey & Company (2014) forecasts that the 3D printing market will grow to USD 550 billion by 2025. In the region, China appears to lead the adoption of 3D printing, with nearly 78 percent of surveyed companies having adopted the technology by 2019 (Steinberg and Karevska 2019).

Within ASEAN, adoption varies across economies—with Singapore at 40 percent, followed by Thailand with 25 percent, to only about 1 percent for economies such as Myanmar and Lao PDR (ThyssenKrupp 2019). Singapore, for example, is already using 3D printing to make spare parts for maintenance and engineering operation of buses and trains. For the CLMV countries, 3D printing is mostly for retail rather than commercial use.

3D printing has the potential to reconfigure supply chains in a variety of ways. Instead of relying on imports, companies can produce some components closer to the customer market. Stocking up on components would be rendered unnecessary because they can be 3D printed on an as-needed basis and delivered on demand. Clients can be involved in the design and production process and as such, products can be tailored to the client's specific requirements and preferences. 3D printing also reduces the time-to-market as it eliminates the need for international product shipping, customs clearance, or tariffs. Warehousing and logistics needs are minimized. Overall, 3D printing can reduce many of the steps associated with GVCs, from procurement or sourcing to product assembly and shipping, potentially lowering the costs of production as well as logistics costs.

Nonetheless, current 3D printing technology remains limited to customized production and is not (yet) ready for mass production. It is useful for producing highly complex and customizable products and parts. For now, however, the cost of materials, hardware, and handling of 3D-printed spare parts is still high, and the technology still cannot replace large manufacturing factories. But as these costs decrease over time, especially with improvements in materials technology and in 3D printers themselves, 3D printing might in the future become widespread.

Besides cost, other key success factors include improvements in process speed and quality of printing, the availability of warranties and liability frameworks, and the security of digital files from piracy. Piracy, in particular, is a problem that media companies faced in the past with regard to digital music and video files, and still continues as a challenge today in some places.

Financial Technology and Supply Chain Finance

Financial technology (fintech) can also change the dynamics in the trade and supply chain finance markets. Letters of credit are still the most widely used financing instrument for international trade transactions, and banks are the lynchpin for trade financing. With an increase in digitization, this dynamic is set to change, primarily because of the entrance of new fintech players who want a piece of the USD 7.3 trillion trade financing market, potentially posing a major threat to the central role of banks in trade finance (McKinsey & Company 2020c). Banks will have to continually upgrade their digital technology infrastructure, and/or work in partnership with fintechs to remain a vital player in trade financing (Box 2.9).

A large portion of global trade is financed through inter-firm trade credit. Currently, 60 percent of international transactions are financed through inter-firm trade credit, either on open account (akin to sellers providing lines of credit to buyers) or cash-in-advance (akin to buyers providing credit to sellers) (Table 2.2). The remaining portion (40 percent) have been traditionally intermediated by banks through instruments like letters of credit, documentary collections, guarantees, or supply chain finance.

Of the trade finance instruments, supply chain finance (SCF) is the smallest segment, currently with only 7 percent of the market. Nonetheless, it is expected to grow the fastest, especially with the entry of fintechs. Fintech platforms, in partnership with banks and other financial institutions, can eliminate suppliers' cash constraint without hurting the cash flow of the buyer. The increasing number of financial institutions, technology firms, and/or corporates in SCF collaboration points to increasing dynamism in this area that can change the industry landscape especially in supply chain finance (Box 2.9).[17/]

[17/] Some players in this space include: Taulia (funding from Ping An (insurance, China) and JP Morgan); Traxpay (funded by Deutsche Bank); C2FO (US-based); Tradeshift; Marco Polo; Komgo (consortium of financial institutions, Shell oil Company); TradeLens (owned by Maersk and IBM); Alibaba's partnership with Kinnek; and Amazon with Predix.

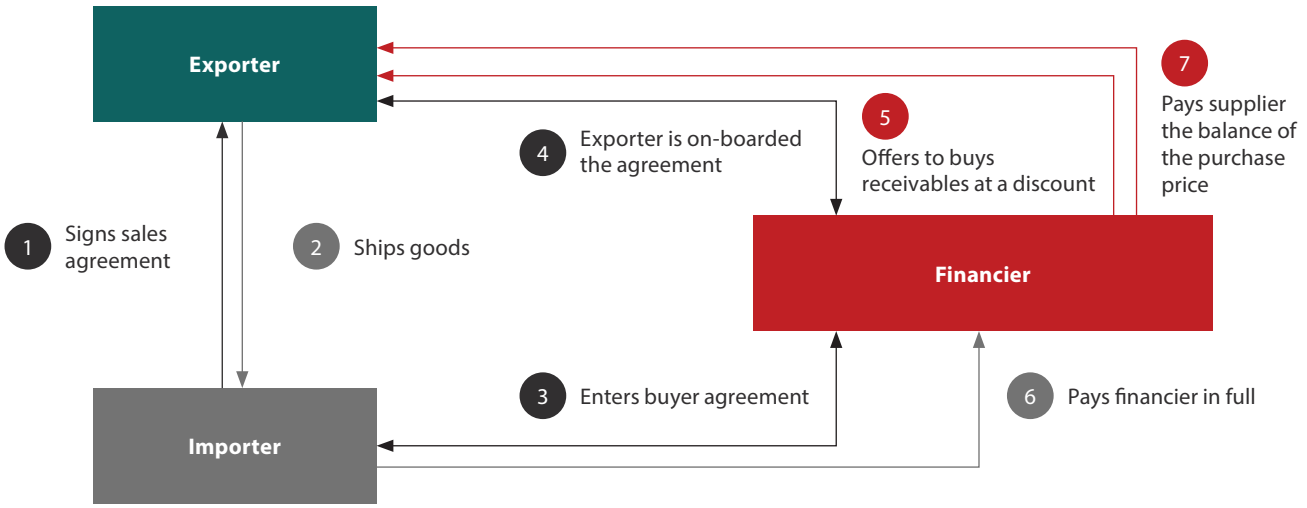
SCF works through the collaboration of financial institutions and big buyers, usually GVC lead firms, and entails less credit risk (Figure 2.35). Typically, the financial institution and the buyer-importer agree on the SCF program, through which its suppliers can opt to sell its receivables. The financial institution, meanwhile, takes care of onboarding the qualified seller-exporters and carries out the requisite Know Your Customer due diligence. As long as the buyer is of high credit standing—and usually, this is the case for lead firms of GVCs or big retailers such as Walmart—financial institutions face minimal credit risk. Through the SCF platforms, suppliers can get paid earlier, alleviating their working capital constraints while still maintaining payment extension of up to 120 days for buyers. SCF has been especially useful for lead firms to ease capital constraints faced by their small suppliers, in turn making their own supply chains more resilient.

Table 2.2. Financing Trade Transactions

Inter-Firm Trade Credit (60 percent)	Bank-Intermediated Trade Finance (40 percent)	
Open account	Letters of credit	Supply chain finance
Cash-in-advance	Documentary collections	Guarantees
Global merchandise export		

Source: McKinsey & Company (2020c).
Note: Trade financing can be divided into three main segments (McKinsey & Company 2020c): (1) Documentary business that is largely hinged on letters of credit with banks providing the funds and working with suppliers and/or buyers; (2) Seller-side finance or receivables financing wherein the sellers/suppliers obtain working capital by selling or borrowing against receivables, and banks or nonbanks (sometimes called 'factors') are the source of financing; sellers on open account terms usually resort to this type of financing to fund their working capital; and (3) Buyer-led supply chain finance wherein intermediation takes place through digital platform. Banks, fintechs, and other industry players may operate the platform that contains buyer-approved invoices. Alternatively, fintechs alone may operate the platforms, connecting buyers and sellers directly, to facilitate the dynamic discounting of the invoices.

Figure 2.35. Supply Chain Finance



Source: United Nations Economic and Social Commission for Asia and the Pacific—Asian Development Bank (2019).

Box 2.9:

Conservative Banks, Dynamic Fintechs

Financial institutions have been conservative in moving to fully digitized global trade transactions, particularly in removing the use of physical paper. An International Chamber of Commerce survey shows that banks' digitization progress had been slow up until 2018 (Figure 2.9.1) (ICC 2020). With respect to document verification for example, 45 out of 103 surveyed banks had made no progress in digitizing paper documents, while only about 50 percent had achieved some document digitization.

On the other hand, fintechs are introducing technology into many financial transactions, including supply chain finance (SCF). In fact, fintech involvement will likely change the dynamics in the supply chain finance market and take on more and more prominent roles (Figure 2.9.2). McKinsey & Company (2020c) considers four different possible evolutions in SCF:

- Model 1, an integrated system run by banks, will likely remain one of the options. Large global banks have the advantage in this end-to-end model, which facilitates transactions between buyers and sellers and offers value propositions from procurement services to data sharing on its proprietary platform, all the way to trade credit provisioning.

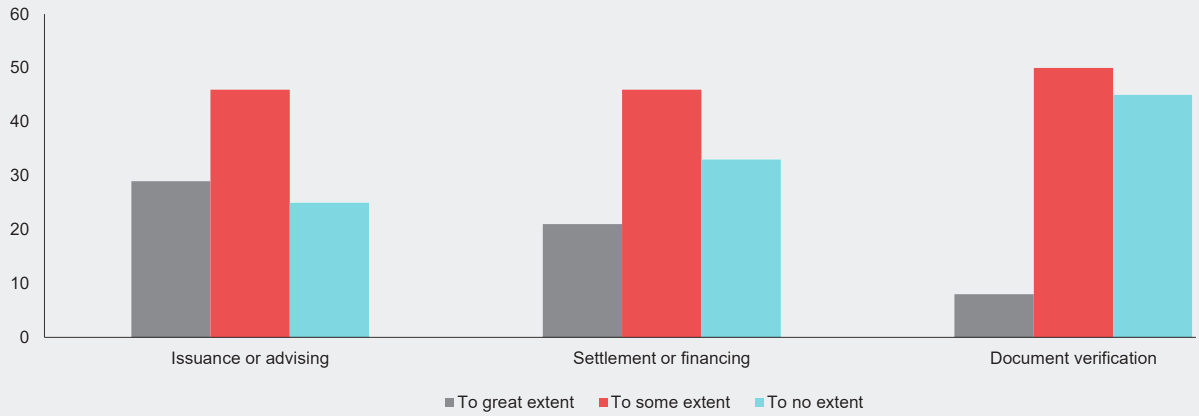
- Model 2 is a bank and platform partnership model where platforms operated by fintechs take care of SCF services like client on-boarding and data sharing. Banks handle the beginning and end-processes including financing.

- Model 3 is where fintechs take over most of the stages in SCF except financing, where both banks and nonbanks (including the fintech itself) may be involved.

- In Model 4, a broad set of service providers coexist, including niche SCF solutions for specific industries.

This diversity in SCF models shows that traditional banks' business models are increasingly being disrupted by financial technology. As more fintech players enter markets that used to be the domain of banks, the latter will either have to continually upgrade their technology offerings to consumers or embrace partnerships with technology firms.

Figure 2.9.1. Bank Survey on Removing Physical Paper for Documentary Transactions in Cross-Border Trade
(Number of respondents)



Source: ICC (2020).

Figure 2.9.2. Different Supply Chain Financing Market Models

<table>
<tr><th>Providing SCF</th><th>Model 1. End-to-End Bank Delivery</th><th>Model 2. Banks and Platform Partner for Digital-Led Delivery</th><th>Model 3. Platform-Led with Bank/Nonbank Financing</th><th>Model 4. Free-For-All Ecosystem</th></tr>
<tr><td>Enterprise resource planning (ERP)/ procurement mandate</td><td rowspan="4">Banks</td><td>Banks</td><td rowspan="2">Fintech platform</td><td rowspan="2">Fintech platform</td><td rowspan="2">Banks</td></tr>
<tr><td>Distribution and onboarding of suppliers/invoices</td><td rowspan="2">Fintech platform</td></tr>
<tr><td>Data sharing and integration</td><td rowspan="2">Banks</td><td rowspan="2">Banks</td><td rowspan="2">Nonbanks</td><td rowspan="2">Banks</td><td rowspan="2">Nonbanks</td></tr>
<tr><td>Credit decision-making</td></tr>
<tr><td>Credit provision (and risk sharing)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Actions to create transformative change</td><td>Invest in technology platforms; Increase efficiency in onboarding, credit decision-making, reduce cycle time</td><td>Better integration of bank and fintech systems and processes; Widen scope of platform to bring full set of SCF products to firms</td><td colspan="2">Increase platform investment and accelerate coverage for full value chains in key geographies; Develop second market for SCF assets to increase penetration of nonbank lending</td><td>Industrywide support for common standards and approaches (including application program interface, libraries, data sharing); Increase platform investment and accelerate coverage for full value chains in key geographies; Develop secondary market for SCF assets to increase penetration of nonbank lending</td></tr>
<tr><td>Strategic options</td><td>Big global banks have advantage</td><td>Small and regional banks benefit because they do not need to invest on a fintech platform; For customers in given verticals or selected steps in supply chain</td><td colspan="2">Small and regional banks benefit because they do not need to invest on a fintech platform; For customers in given verticals or selected steps in supply chain</td><td>Possible that large e-commerce players will coalesce in platform-based model, serving SMEs; Fintech companies and consortia could struggle in achieving scale</td></tr>
</table>

Sources: McKinsey & Company (2020c) with minor addition from the authors.

The author of this box is Gloria O. Pasadilla.

Technology Competition and Its Implications for the Global Economy and GVCs

Technology, from 5G and blockchain to IoT and AI, is what will shape the future landscape of the global economy, and hence, the fierce competition among the major tech companies and countries. Many industries, from agriculture to manufacturing to tourism and finance, will be disrupted, giving birth to new ones. The countries that are at the forefront of technology will stand to reap huge economic benefits as the United States, Japan, and some European countries have done for close to a century now. This advantage explains the ongoing battle for supremacy in technology—the race to be the first or most advanced. Nowhere is it more obvious than in the race for patents and setting of industry standards, because the country and the tech companies that set the standards will dominate the industry.

Many technological advances over the last century have come from developed economies, especially the United States, Japan, and a few European countries. The world has benefited enormously from these advances, as has the United States as the dominant economic power that developed many of these technologies and set the industry standards. But the 21st century is seeing the emergence of an economic and technological powerhouse from Asia, notably China, which has grown in its capacity to develop competing technologies that can either narrow or overtake US technological leadership, including in areas that the United States considers to have implications for national security. China's rapid technological ascent has led to the recent heightening of tensions with the United States over trade in certain advanced technology products, especially in telecommunications and semiconductors, where the latter currently has a marked advantage (Box 2.10).

This section discusses the technology tensions between the United States and China and its implications for the global economy and trade. It first recapitulates some of the technology-related measures and countermeasures that the two countries have imposed on each other. Next, the section addresses the potential effects of these technology tensions on GVCs, and in particular, on global trade that, in the past has followed a rules-based multilateral trading system, rather than unilateral or bilateral trade policies.

United States and China: Tech-Related Measures and Countermeasures

The tensions between the United States and China are perhaps most intense in the technology space. The tit-for-tat goods tariff escalation between the two economies has been a drag on global trade and growth since 2018 (see Chapter 1). In 2020, tensions heightened further with the imposition of restrictions by the United States on the purchase of telecommunication equipment from and sales of semiconductors to some of China's high-tech companies.

Technology-related measures implemented by both the United States and China range from export restrictions to outright bans, licensing, investment restrictions, and domestic regulations that have the effect of restricting or prohibiting imports or acquisitions of certain strategic technologies (Appendix Table 2.2.1). Although it is natural for countries to adopt restrictive measures to safeguard their national security, the measures taken by the United States are explicitly targeted at China's high-tech companies. In response, China has similarly placed restrictions on sales of advanced technologies to the United States. Some of China's measures pre-dated the recent technology conflict, for example its internet geo-blocking, and the "Great Firewall of China," all of which were aimed at supporting indigenous innovations, the development of domestic technology companies, minimizing dependence on foreign technology, and of course national security.

The technology tensions have inadvertent spillover effects on other economies and their exports. As China is a major high-tech exporter and importer, a decline in its production—resulting from either the technology tensions or the pandemic—can also result in a decline in the high-tech goods exports of economies such as Japan, Korea, and Malaysia (Box 2.11). Similarly, if these ASEAN+3 high-tech exporting economies reduce their intermediate exports to China, the latter's exports to major global markets would decline significantly.

Box 2.10:

Semiconductor Value Chain: China's Challenges

Despite its advance in technology, China still lags behind in foundational technologies for semiconductor production. While China has developed its capacity in advanced chip design and also in semiconductor chip manufacturing, so far they are not the most advanced chips used in frontier technologies. To bridge the gap, China has depended on the semiconductor supply chain by importing advanced chips from foreign semiconductor companies. However, in the current tech tensions with China, the United States has imposed restrictions on the sale of semiconductors and key equipment to China's tech companies. This has set back China's efforts to develop advanced technologies based on the semiconductor.

There are three major stages in the semiconductor production chain. The first stage is integrated circuit design, followed by semiconductor manufacturing or fabrication, then assembly and testing. In circuit design, China is at the frontier, leveraging its large number of skilled engineers and an equally large number of design startups (Kotasthane and Seth 2020). The hurdle, however, is that the United States has banned the sale of the software used for integrated circuit design, the Electronic Design Automation (EDA) tools, to China. Developing self-sufficiency in EDA tools would require huge investments in research and development, and an in-depth knowledge of chip fabrication, which would take a long time.

The next stage in the semiconductor supply chain—chip fabrication—is also dominated by the United States. Although China's semiconductor national champion, Semiconductor Manufacturing International Corporation (SMIC), can fabricate 14 nanometer chips, the latter is still considered a lower-generation chip compared to the five nanometer chips that are produced by TSMC.[1/] In a fast-evolving industry, by the time SMIC is able to catch up with the current generation of advanced chip technology, the frontier would have already moved to a yet more advanced one. On the other hand, chip fabrication involves the use of special manufacturing equipment, some of which are also produced by US companies. High-end chip fabrication requires machines that use lithography technology produced by ASML, an Amsterdam-based company, which is under US pressure not to sell to China (Alper, Sterling, and Nellis 2020).

The last stage, which is labor-intensive—assembly and testing—is where China is consistently making an inroad. However, the materials used for the semiconductor supply chain, including for assembly and testing—silicon wafers, photoresists, and essential packaging chemicals, among others—are controlled by Japanese companies whose high-quality production capabilities are hard to replace.

The different major players at each stage of the semiconductor value chain illustrate the complex interdependencies among economies and how they depend on one another for technology, production, and materials (Figure 2.10.1). For any economy, including China, an integrated production capacity in this sector will be a challenge to build.

Figure 2.10.1. Semiconductor Supply Chains

Source: Adapted from Kotasthane and Seth (2020).
Note: EDA = electronic design automation; IPR = intellectual property rights.

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1/ Nanometer size indicates transistor size. A smaller nanometer is more high-end and delivers higher device performance.

Box 2.11:

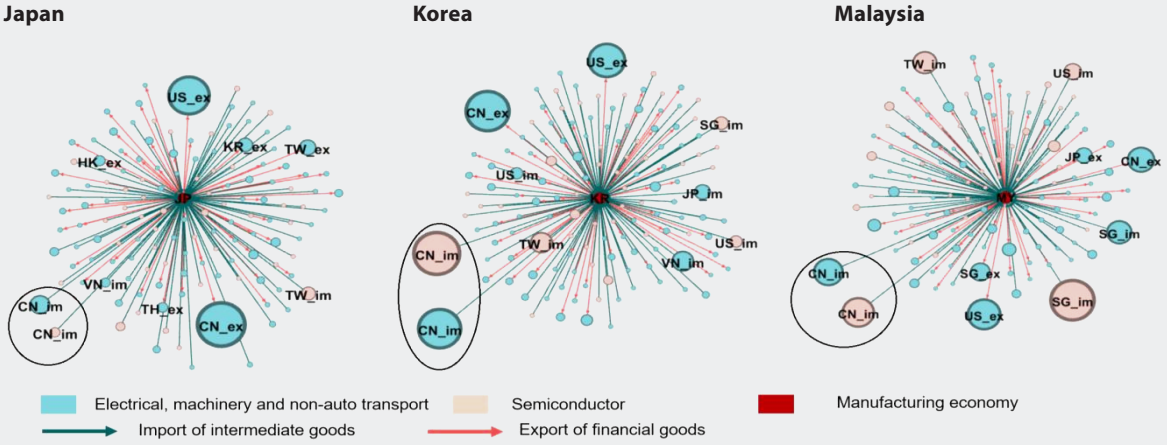
US–China Tech Tensions: Impact on ASEAN+3 Exports

China is a key supplier of intermediate goods in high-tech GVCs in the ASEAN+3 region. Using granular trade data to analyze the import-export networks for the region, a study by Sun and others (2021) reveals that China is a major supplier of semiconductors and electrical/electronic components to major high-tech ASEAN+3 exporters, including Japan, Korea, and Malaysia (Figure 2.11.1). Based on montly trade data between January 2005 and 2020, the authors estimate the elasticities of high-tech exports of Japan, Korea, and Malaysia to different destinations with respect to their imports of machinery and electrical parts from China. The elasticities then allow for the quantification of the impact of supply chain disruptions, such as COVID-19 or the tech tensions, on high-tech exports of China and other economies.

As a major GVC node, supply disruptions in China adversely affect regional economies' exports. A stress test performed in Sun and others (2021)—assuming that the growth of China's supply of machinery and electrical parts falls by 30 percentage points either due to lockdowns or the tech tensions—shows the impact on the export growth of other ASEAN+3 economies. Korean manufacturers would see their high-tech export growth to Vietnam, Indonesia, the European Union (EU), and Thailand fall by 3 to 15 percentage points (Figure 2.11.2). The decline in Japan's high-tech export growth to overseas markets would be somewhat milder but significant relative to its historical averages. Malaysia's high-tech export growth to the United States and Singapore would decline by as much as 11 and 6.5 percentage points, although those to the EU and China markets would only be marginally affected. The diverse results are not unexpected because these regional economies export distinct products to different markets, and the degree of substitutability of inputs from other economies for China's is also different across high-tech export products.

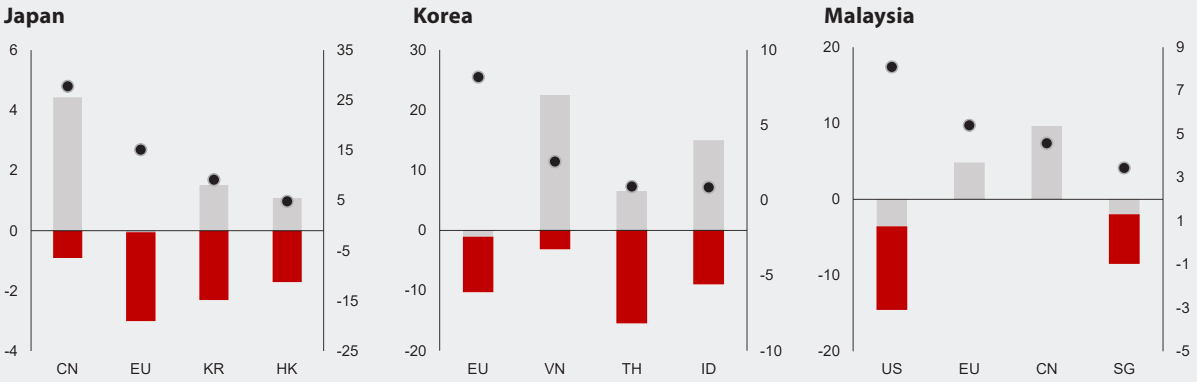
In turn, China is affected by disruptions to global supply chains emanating from other ASEAN+3 economies. In particular, the import-export network (Figure 2.11.3) demonstrates China's dependence on semiconductor and machinery/electrical components from Japan, Korea, Taiwan Province of China, and to a lesser extent, the United States. The results of similar stress tests—assuming that US pressure on other economies leads to semiconductor and machinery/electrical components from the three economies declining by 30 percentage points—suggest that growth in China's high-tech exports could decline by 5 to 17 percentage points (Figure 2.11.4).

Figure 2.11.1. Import-Export Network of Selected Manufacturing Economies for Machinery/Electrical Products
(Trade values)



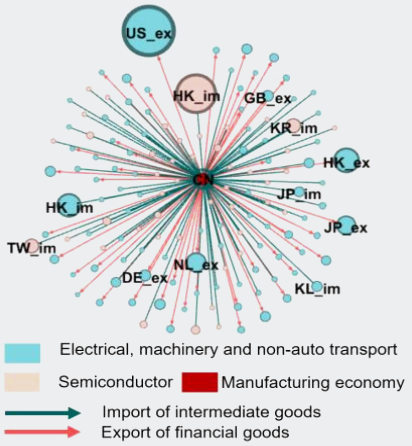
Sources: IHS Markit Global Trade Atlas; and AMRO staff calculations.
Note: A node represents an economy that provides intermediate inputs, for example, CN_im, if it has a green arrow going into the manufacturing economy in the center. A node represents an export destination of products, for example, US_ex, if it has a red arrow going out of the manufacturing economy in the center. Size of the node represents the import or export value of the manufacturing economy from the supplier origin or to the export destination. Data are 12-month averages of the import or export values from February 2019 to January 2020. CN = China; DE = Germany; HK = Hong Kong; JP = Japan; KR = Korea; MY = Malaysia; SG = Singapore; TW = Taiwan Province of China.

Figure 2.11.2. Stress Test on Machinery/Electrical Exports from Selected Manufacturing Economies
(Percent year-over-year; billions of US dollars)



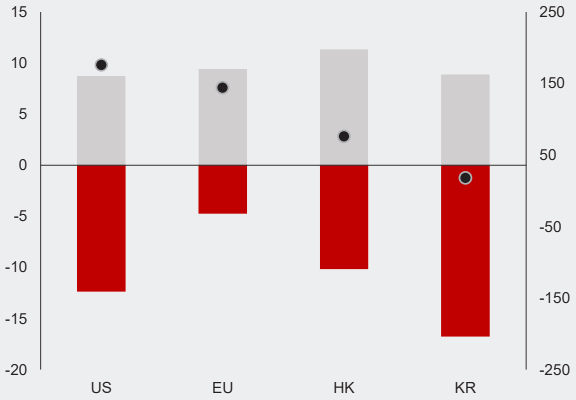
Sources: IHS Markit Global Trade Atlas; and AMRO staff calculations.
Note: The stress test assumes a 30 percent decline in China's supply of machinery parts. The growth rate is proxied by a one-year difference in log levels. Economies along the x-axis denote export destinations of the manufacturing economies. CN = China, EU = European Union, HK = Hong Kong, ID = Indonesia, KR = Korea, SG = Singapore, TH = Thailand, US = United States, and VN = Vietnam.

Figure 2.11.3. Import-Export Nexus for China's Machinery/ Electrical Production
(Trade values)



Sources: IHS Markit Global Trade Atlas; and AMRO staff calculations.
Note: A node represents an economy that provides intermediate input, for example, HK_im, if it has a green arrow going into the manufacturing economy in the center. A node represents an export destination of products, for example, US_ex, if it has a red arrow going out of the manufacturing economy in the center. Size of the node represents the import or export value of the manufacturing economy from the supplier origin or to the export destination. Data are 12-month averages of the import/ export values from February 2019 to January 2020. CN = China; DE = Germany; HK = Hong Kong; JP = Japan; KR = Korea; MY = Malaysia; NL = Netherlands; SG = Singapore; TW = Taiwan Province of China.

Figure 2.11.4. Stress Test on Machinery/ Electrical Exports from China
(Percent year-over-year; billions of US dollars)



Sources: IHS Markit Global Trade Atlas and AMRO staff calculations.
Note: The stress test assumes a 30 percent decline in semiconductor and machinery parts from the United States, Japan, Korea, and Taiwan Province of China. The growth rate is proxied by a one-year difference in log levels. See methodology in Sun and others (2021). Economies along the x-axis denote export destinations of the manufacturing economies. EU = European Union; HK = Hong Kong; KR = Korea; and US = United States.

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Will Tech Tensions Result in Technology Bifurcation?

What do the prevailing tit-for-tat technology measures mean for global trade? This is an important question because the United States and China are not only huge markets but also technology leaders. Some have argued that this tension could result in a bifurcation of technology globally, where some parts of the world uses Chinese technology, while others use US technology. As China becomes more technologically self-sufficient and able to export its technologies to other parts of the world, the prospect of a bipolar technology world is indeed a possibility. But can China successfully extricate itself from technologies that have been developed in the West and that are woven into many day-to-day applications?

What does technology bifurcation mean in the first place? To understand its meaning, we need to differentiate it from the status quo that we are familiar with. In the Internet realm, for example, unless filters and geo-blocking are put in place, a globalized internet means that one can access anything from anywhere at any time. A non-bifurcated technology means that devices can seamlessly connect with other devices, and communicate easily with one another. This interoperability is made possible because most devices work on common standards, or if not, program interfaces have a way of linking different standards.

Standards are like a common language that allows technology to work seamlessly, besides promoting trust in product quality and ensuring consumer safety. Technology standards are a set of characteristics or quantities that assure compatibility across products and devices. In the face of multiple languages, interpreters can still facilitate communication—similar to what program interfaces do in technology.

Non-bifurcated technology is particularly important as IoT is fully rolled out. These myriad of smart appliances and objects need to be interoperable and should communicate and interconnect—therein lies the need for common standards. Standards require transparent algorithms, open-source architecture, and applied program interfaces for manufacturers and third-party service providers to be able to connect with different devices or smart objects.

On the other hand, a bifurcated technology destroys the single universe of interoperability and creates different universes. Devices operating, say, on a distinct "China standard" will be a universe unto itself; while the rest of the devices will only communicate with others on a different (Western) standard. Is this situation bad? It is workable but not the first-best. In a way, we have seen this bifurcation happen before (Box 2.12). China had managed to seal off partially its domestic telecommunications sector by employing a different standard, its own WAPI, from the global WiFi standard. Japan, likewise, had its own technology universe geared to the more advanced and sophisticated Japanese market.

Notwithstanding, the lesson from these examples is that, because of the network effect, it is very likely that a global standard—one that is used by the greatest number—eventually emerges, and helps unify the market. The more users there are of devices based on a particular standard, the more users there would be of devices based on the same standard. This network effect[18/] helps many technology businesses to achieve a "winner-takes-all" or "winner-takes-most" advantage, often leading to a dominant market position, a monopoly, or an oligopolistic market structure. An example is the Ethernet, which became the standard protocol for local computer networks after the DEC, Intel, and Xerox were persuaded to adopt it. Competing protocols existed but as Ethernet pulled away and began to get more market share, Ethernet-compatible products flooded the market. Eventually, Ethernet ports became the standard feature of all modern computers (Currier 2019). Ethernet's "success" illustrates how network effects help embed a standard (protocol) in all products that are based on that protocol.[19/]

The network effect is not exhibited by all industries; it is observed mainly in new markets created by the internet as well as in ICT. In emerging technologies such as autonomous cars, for example, driver assistance systems such as Mobileye, become better the more miles the system drives (for example, more users); the better it becomes, the easier it is to sell the system (to more users). This network effect in the autonomous vehicle market helps establish a dominant position to whichever company that can lock in a large user base. Network effects are also found in hardware systems with large numbers of compatible software applications that attract buyers and thus further incentivize development of more apps; in social media platforms like Facebook with its massive number of users providing value to each new user who, in turn, adds value to existing users; as well as in e-commerce platforms where the large number of buyers attracts a large number of sellers that, in turn, helps attract even more buyers.

[18/] A phenomenon whereby the bigger the number of users or participants, the greater the user value of a good or service. User value also depends on the number of users of compatible products. For example, a hardware becomes more useful with the growth of compatible software.

[19/] Another example is how VHS won the video recording machine market competition with Betamax in the 1980s because more manufacturers supplied VHS machines, and more titles of pre-recorded cassettes were available for VHS than Betamax (Ezel and Atkinson 2014). That is, the bigger number of complementary goods (VHS cassettes) increased the value to the consumer of the product (VHS machines), which resulted in higher sales of VHS and to the production of more VHS cassettes. This was a result of JVC's widespread licensing of VHS format, in contrast to Sony's control over the license of the Beta format. Sony's mistake is a case of disregarding the network effects from the availability of rental tapes of pre-recorded movies (Economides 2008).

Understandably, the huge benefits to be reaped from technology dominance and capturing the first-mover advantage in new and emerging technologies help explain countries' urgency and rush to introduce their own technology to the global market. Whichever country is able to get the first-mover advantage—which depends on whether its technology is widely used and becomes established as the global standard—will crowd out other competing technologies, and determine the future of a whole body of products, services, and firms based on the technology (Besen and Farrel 1994, Marukawa 2014). The potential benefits from such dominance explain the current global competition in technology standards. China, a late starter, has been investing heavily in R&D to catch up with the other advanced economies. In 2020, it spent USD 563 billion on R&D, equivalent to 1.98 percent of its GDP, ranking second to the United States (Heney 2020) (Figure 2.36). Along with providing large government subsidies, China has also implemented measures that shield local technology companies from foreign competition in the domestic market (Appendix Table 2.2.1.).

All these measures have placed China among the top economies in terms of innovation, but especially in specific technologies such as facial recognition, AI, autonomous driving, and others. In R&D World (2020), China placed second to the United States last year for expenditure in R&D in advanced materials, computing and information technology, energy, ICT technologies, and electronics. It ranked second to Japan for automotive research expenditure and second to Germany for environmental and sustainability research spending (Heney 2020). With these efforts, China has groomed its own "big tech" companies into internationally recognized brands, such as Alibaba, Baidu, Huawei, Tencent, and ZTE.

China's technology firms have also been very active in global standard setting. They actively participate in standard-setting organizations like the International Standards Organization (ISO), the 3rd Generation Partnership Project (3GPP), and other multilateral organizations, while avoiding standard-setting organizations run by private companies that are usually dominated by American firms.[20/] China's technology companies have also been actively applying for patents with the World Intellectual Property Organization, and as of 2020, China is the top economy with the most patent applications.

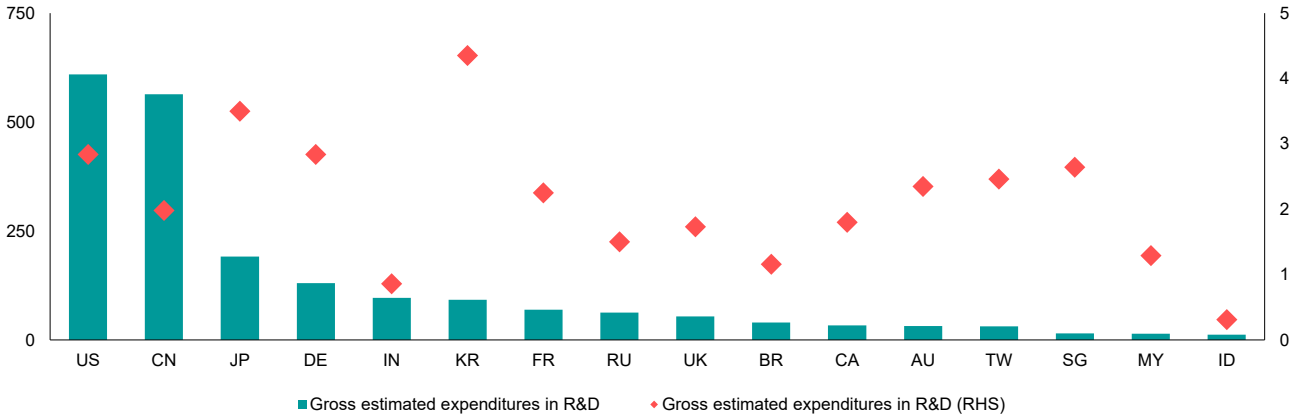
Although most patent applications from China are considered to be of mediocre quality and not foundational, some are considered highly advanced. In 5G technology, for example, Huawei and ZTE hold, respectively, 15 and 11.7 percent of standard essential patents (SEPs), which can make them dominant in later generations of 5G devices (Kim, Lee, and Kwak 2020).[21/] China's technology companies, altogether, already have 34 percent of total 5G SEPs, followed by firms from the European Union (Nokia and Ericsson) and then from Korea (Samsung and LGE) (Figure 2.37). With patents entitling its holders royalty incomes, the more these patents are used in devices, the greater the royalties for patent holders.[22/] Patents help dictate industry standards (Box 2.13); owning a significant portion of the patents in the underlying technology, say in 5G, helps in bidding cost-effectively for projects (for example, network projects)—with great potential for network externalities. It is also a security advantage because "whoever controls the technology knows intimately how it was built and where all the doors and buttons are" (Zhong 2018).

20/ The 3rd Generation Partnership Project (3GPP) is a group of telecommunications standards development organizations.

21/ These patents are indispensable for the implementation of a standardized technology.

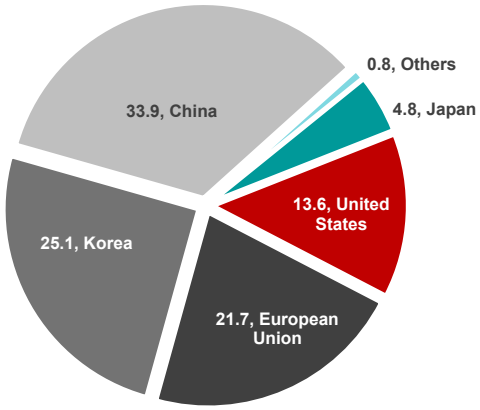
22/ Essential patents can be pooled to minimize risk and cost of negotiating individual royalties and facilitate further innovations. Patent owners receive royalties according to their proportion in the size of the patent pool.

Figure 2.36. Estimated Gross Expenditures on Research and Development, 2020
(Billions of US dollars in PPP terms; percent of 2019 GDP)



Source: *R&D World*.
Note: AU = Australia; BR = Brazil; CA = Canada; CN = China; DE = Germany; FR = France; ID = Indonesia; IN = India; JP = Japan; KR = Korea; MY = Malaysia; RU = Russia; SG = Singapore; TW = Taiwan Province of China; UK = United Kingdom; US = United States.

Figure 2.37. Selected Economies: Shares in 5G Standard Essential Patents
(Percent share to total)



Source: Adapted from Kim, Lee, and Kwak (2020).
Note: Standard-essential patents, or SEPS, are indispensable for the implementation of a standardized technology.

Box 2.12:

Technology Bifurcation: Not New

This box discusses two examples of how China sought to develop its own "endogenous" technology, as well as Japan's ICT experience of what is now known as the Galapagos Syndrome (Ezel and Atkinson 2014). For China, the first example is the rollout of WAPI, a wireless local area network (LAN) protocol developed for the domestic telecommunications market, the aim of which is to take the place of the international LAN standard WiFi. Another is TD-SCDMA, a China standard for 3G mobile technology. The result in both examples is the emergence of an ICT universe and ecosystem of devices, parallel to the global ICT, which leverages the large Chinese domestic market, but is not usable outside of China.

WAPI—Wireless Local Area Network Authentication and Privacy Infrastructure. WAPI is a home-grown security protocol for wireless local area networks (WLAN) that the Chinese government had pushed mobile carriers to adopt in China, instead of the international wireless standard WiFi. It is a policy that China arguably holds to be in line with the WTO/TBT Agreement.[1/] WAPI is designed to have built-in security standards that address its concerns over the existing encryption security flaws of WiFi which, to China, pose risks to national security. Nonetheless, the IEEE802.11i standard, commonly known as WiFi, is the approved standard by the Institute of Electrical and Electronic Engineers and is the global de facto technical protocol standard for data transfer in WLAN; as such, this is the standard that electronics manufacturers all over the world, outside China, conform to. One global standard helps create a single market in WLAN equipment, wherein parts and systems connect seamlessly across borders and device platforms.

Unlike the free WiFi algorithm, WAPI is a proprietary standard, whose algorithm is known to only 24 government-designated Chinese firms. To gain access to the WAPI, foreign firms must negotiate with these designated firms for a license. This carries the risk of technology transfers, loss of intellectual property, as well as high license charges. Foreign companies were required to pay royalties for the use of WAPI and provide their proprietary technical specifications to sell equipment in China. There is also the loss of economies of scale for wireless chip manufacturers associated with the single global WiFi standard. Since WAPI and WiFi standards are incompatible, many WiFi products cannot be used in the Chinese market. Intense pushback from foreign companies and governments has caused China to shelve the mandatory rollout of WAPI across the country, and allow alternative WLAN technologies to operate in parallel to access private networks. However, China continues to require WAPI protocol for all government procurement of WLAN technologies, as well as for access to public networks across the country.

Today, Chinese and foreign technology standards co-exist in the domestic market; wireless devices sold in China incorporate chipsets that support WAPI along with alternative WLAN technologies (for example, Wi-Fi Protected Access, Wi-Fi Protected Access II, and Wired Equivalent Privacy). With the use of WAPI, China earns from license fees collected from foreign manufacturers that sell in the Chinese market.

TD-SCDMA—Time division-synchronous code division multiple access. TD-SCDMA is the Chinese standard of third-generation (3G) mobile telecom technology, along with two other 3G international standards: Wideband Code Division Multiple Access (WCDMA) and Code Division Multiple Access (CDMA) 2000. For China, the TD-SCDMA is promoted for national security and is an accepted international standard. Although it did not manage to get worldwide adoption, it helped China gain experience in developing and working toward approval of global technology standards. TD-SCDMA was also a negotiating tool to lower royalties for overseas patents. The perception of weaker 3G technology standards, however, cost China Mobile, the state-owned telecommunications operator forced by the government to use TD-SCDMA, to lose its dominance in China's mobile phone market. While China Mobile's share in the 2G market was a commanding 70 percent, this dropped to 40 percent in 3G, while its competitors using WCDMA and CDMA2000 gained market shares (Ezel and Atkinson 2014).

1/ The WTO/TBT Agreement states as legitimate objectives for member economies the following: national security requirements; prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment (Article 2.2 of the TBT Agreement). Article 2.4 further specifies that where relevant international standards exist [. . .] members shall use them (or relevant parts thereof), as basis for their technical regulations except when such international standards or relevant parts would be ineffective or inappropriate for the fulfilment of the legitimate objectives. For China, the WiFi's fundamental security flaws make it inappropriate for national security protection.

China delayed the introduction of 3G mobile services for about three years until the TD-SCDMA standard was ready for the market. The delay unwittingly hurt the development of the domestic mobile phone economy that thrives on a mobile applications ecosystem.

Galapagos Island syndrome: Japan also has experience in developing unique technology standards for 2G and 3G mobile networks that gave local companies advantage in the domestic market. In fact, these standards were far more advanced and innovative than what were then used in the United States and in Europe in the 1980s and 1990s. But because these standards were developed for Japan's market, Japanese mobile manufacturers had difficulty exporting their products to foreign markets. They were eventually left behind by other manufacturers that were using global standards, and later emerged as ICT leaders. The Japanese cell phone phenomenon of technology isolation came to be known as the Galapagos Island Syndrome. It takes the name of the island in Ecuador that Charles Darwin discovered in 1835 to have fantastically evolved flora and fauna, the species of which were different from those in mainland Ecuador.

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Box 2.13:

5G: Standards and Patents

Fifth generation wireless technology, or 5G, is the emerging new standard for wireless telecommunications. Nonetheless, it is more than just a new wireless protocol. 5G is not only faster than 4G with low latency (that is, minimal delay), it is also a bunch of technologies like antennae designs and device communication protocols that can standardize how networks and network applications collaborate (Deloitte 2019). 5G is thus expected to spur the wider adoption of the next generation of technologies such as artificial intelligence, Internet of Things, augmented reality, robotics, and autonomous driving, among others.

While earlier telecommunication technology made people-to-people (P2P) connectivity possible, 5G enhances this, and also accelerates machine-to-machine (M2M) connectivity. The more devices are connected, the greater the network effect. The data from these machine interactions generate yet again another layer of network effect—the "data-network" effect. Just as the first group of economies that adopted the early generations of wireless technology—from 1G to 4G or LTE—reaped huge economic benefits, 5G adoption is also expected to generate unprecedented commercial payoff. The first-mover advantage for an economy that adopts 5G and installs a large base of users for its technology therefore beckons.[1/]

The huge benefits accruing to the global standard setter help explain the large financial support that some governments are providing for 5G research and development, for building infrastructure, as well as for influencing global standards in 5G and other advanced technologies.[2/] Efforts appear to be paying off for China—Huawei, for example, now leads the global 5G patent race (Figure 2.13.1).

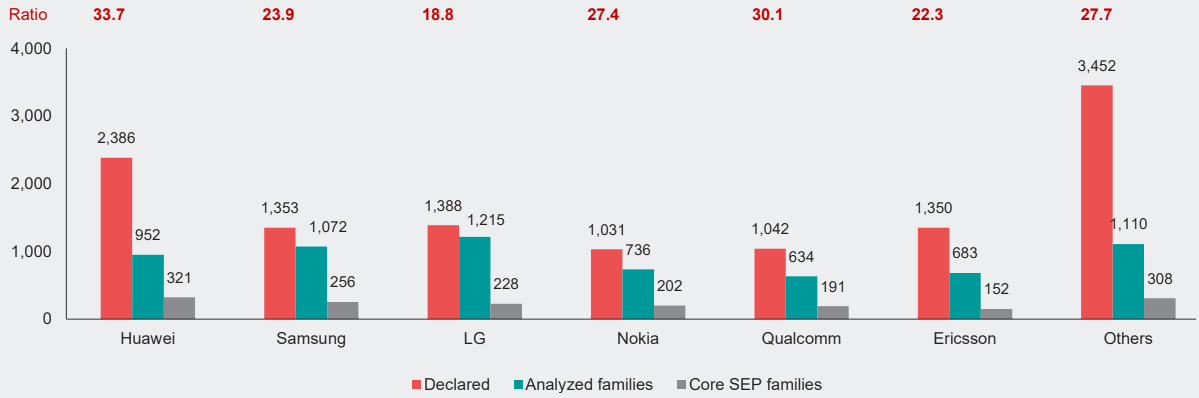
While a dominant firm, a regulatory body, or an industry body may set standards for the domestic market, where the battle is currently raging is in the setting of international or global standards. China has learned its lessons from previous efforts at establishing domestic standards that are not internationally compatible. Thus, instead of having a China-only domestic standard, it now seeks to influence the global standards through active participation in international standards-setting bodies such as the International Telecommunications Union (ITU), or the 3rd Generation Partnership Project (3GPP), an umbrella organization for a number of standards organizations that develop protocols for mobile telecommunications (Duesterberg 2019). Some 5G standards fall under the auspices of 3GPP.

Patent owners (or patentees) benefit from the established standards that use its patented technology through royalty payments. More importantly, the firm that controls a technology that becomes established as an industry standard can have an extremely profitable position, through the so-called "architectural franchise" (Besen and Farrel 1994). An early lead is a strong advantage, even if it is an inferior technology, if it is able to establish a large base of many compatible products. In network markets such as telecommunications, a winning standard eventually emerges as dominant (Besen and Farrel 1994). The prize is especially alluring in network markets where users want to buy products compatible with those bought by others. This explains the intense competition to have one's technology become the standard. The bigger the potential market and payoff, the fiercer the standards competition.

1/ Yet while 5G will generate new products and services, it is not certain whether the telecommunications operators who enable it will capture the benefits. Previously, instead of telecom operators reaping new revenue streams from LTE rollout, the benefits primarily went to over-the-top applications providers whose traffic volume grew exponentially. In other words, carriers generated positive externalities that did not translate into increased revenues for them but for others. Among carriers with legacy systems, an investment case is still being sought for the new 5G infrastructures and the capital expenditures they will involve.

2/ A standard is a technical requirement that establishes engineering or technical criteria, methods, process, and practices (WIPO 2014). Some standards aid in security or safety in the use of a product but from a commercial point of view, standards are important for the widespread use of new technologies that help companies attain economies of scale. Global standards obviate the need to significantly alter products for different markets. In turn, the savings derived from economies of scale can be used to generate new products and innovations.

Figure 2.13.1. Essentiality Ratio of Top Companies' Core Standard Essential Patents
(Number of patents)



Source: Telecoms.com.
Note: Standard essential patents, or SEPS, are those that are indispensable for the implementation of a standardized technology. Essentiality ratio is defined as "the ratio of actual standard essential patents to the total number of patents declared as essential for LTE Standard by prominent telecommunication companies" (Singh 2020). The ratio for Huawei, for example, is computed by dividing the value of the grey bar with the teal bar, multiplied by 100.

On the other hand, standards can also become barriers to entry for would-be competitors, especially if an otherwise voluntary standard—which most global standards in fact are—is made mandatory, usually through government fiat. Standards also become barriers to entry when switching from one standard to another is very difficult. However, once switching costs decline, returns from winning the standards competition diminish. In 3G standards, for example, the switching cost between WCDMA and CDMA2000 or for that matter, TD-SCDMA, eventually became negligible because technology made it possible to build chips that incorporate all types of 3G standards (Marukawa 2014). Indigenous standards under a low-switching cost scenario ultimately provide little help to domestic firms as they have minimal impact on foreign competitors. Alternatively, firms can agree to explicitly or implicitly make their products compatible, eliminating artificial barriers to competition between technologies. Instead, they compete in the usual market dimensions, such as price or specific product features and services.

Patentees may also own different patents relevant to a standard. In this case, a patent pool is formed and a standard license with respect to the patent pool is agreed on, where each patent owner is allocated an agreed share of the licensing fee. A patent owner may choose to become a barrier and refuse to join the pool, but competition rules can serve as a check on that patent owner's power.

The author of this box is Gloria O. Pasadilla.

What are the Implications of a Bifurcated Technology World?

The current tech tensions between the United States and China have led to concerns over the emergence of two competing technologies and a bifurcated technology world. However, in industries that exhibit network effects, for example 5G telecommunications technology, it is possible that one of them could eventually emerge as the dominant technology and the industry standard setter in the long term (Box 2.13).

Before one technology eventually dominates, however, the global market might have to work with different devices that are compatible with only one or the other technology standard. Simply put, technology bifurcation may emerge. It will limit the compatibility and communication among all 5G devices, which will be divided into two groups, with each group of devices aligned with the same standard. This has important ramifications for the Internet of Things wherein machines, appliances, and other smart objects need to communicate with each other. Such bifurcation can result in a loss of economies of scale (Boxes 2.12, 2.13). Still, just as what happened with other technologies, the switching cost to migrate from one technology standard to another is likely to decrease over time as interface technologies are developed to overcome the problem of incompatibility. Hence, divergent technology standards will not stymy the global advance in new technologies for long. While technology bifurcation can exist in the short term, developments in technology itself—such as tech interfaces—will likely solve the incompatibility issue, making the differences in technology standards inconsequential in the long term.

However, while the technology bifurcation itself can be remedied in the long term by advances in technology interfaces or open architectures, the dominant position that was initially established can be sustained because of "path dependence" that also characterizes network industries.[23/] The concept refers to the dependence of a system or network on past decisions of producers and consumers (Economides 2008), which can explain why a dominant position may persist. This is also the reason economies and businesses put a high priority on establishing a large installed base of users of a technology and race to be a dominant firm early on. An example of how path dependence has protected a company's dominant position is Google. Now, even as other websites such as Bing have emerged, Google remains a leader in the search engine market outside China, because users are so used to using the search engine that "to Google" has become synonymous with searching the internet, even if another engine is being used.

Although technology itself might ultimately solve the problem of incompatible standards, the problems that are harder to unravel are those that are rooted in regulation, security, or more recently, geopolitics. In particular, the localization of data[24/] that is rooted in culture—for example, where personal privacy and security trump all other economic considerations, or the national security rationale wherein data transfer is considered a strategic matter—are what can significantly slow the interconnectedness that new technology is meant to create.

IV. Summary and Policy Implications for the ASEAN+3

This chapter discussed the likelihood and implications of GVC reconfiguration and technology bifurcation as a result of the tensions between the United States and China, amplified by the supply disruptions during the COVID-19 pandemic. The evidence, so far, does not point to a wholesale reshoring (or nearshoring) or transfers of manufacturing capacity out of China, which has become a dominant player in the global supply chains of many products. There are, undoubtedly, movements by a few Tier 1 suppliers of specific manufacturing products, either back to the United States or to other countries in the region, especially Vietnam. Many labor-intensive and cost-sensitive suppliers of GVCs have likewise left China even earlier, to move to other lower-cost economies in Asia or in other regions. More outward movements will no doubt be observed in the future as more MNEs seek to build global supply chains that are not only more efficient and cost-effective but also more resilient.

Nonetheless, the ASEAN+3 region remains an attractive location for GVCs because of its large and rapidly growing middle class and strong growth prospects, as discussed in Section II. It may also require considerable transition costs to completely decouple from China, because of the sticky

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23/ Path dependence is the dependence of a system or network on past decisions of producers and consumers (Economides 2008). This explains the importance of a large installed base of users of a technology and the race for early dominance.

24/ Data regulations are current issues that are too big to discuss in detail in this chapter. Nonetheless, the authors recognize that data regulations present major hurdles that can lead to "splinternet" or to the lack of interoperability among smart devices, and that further research on this area is needed.

characteristics of GVC investments, especially in sectors such as electronics and automotive manufacturing. The complex ecosystems that China has built around different GVCs, including in automotive and apparel manufacturing, are also difficult to transfer and replicate elsewhere. Hence, a China+1 strategy appears to be the most realistic and feasible option. Whichever economy—or subregion—captures most of the China+1 GVC investments stands to gain in higher employment and growth.

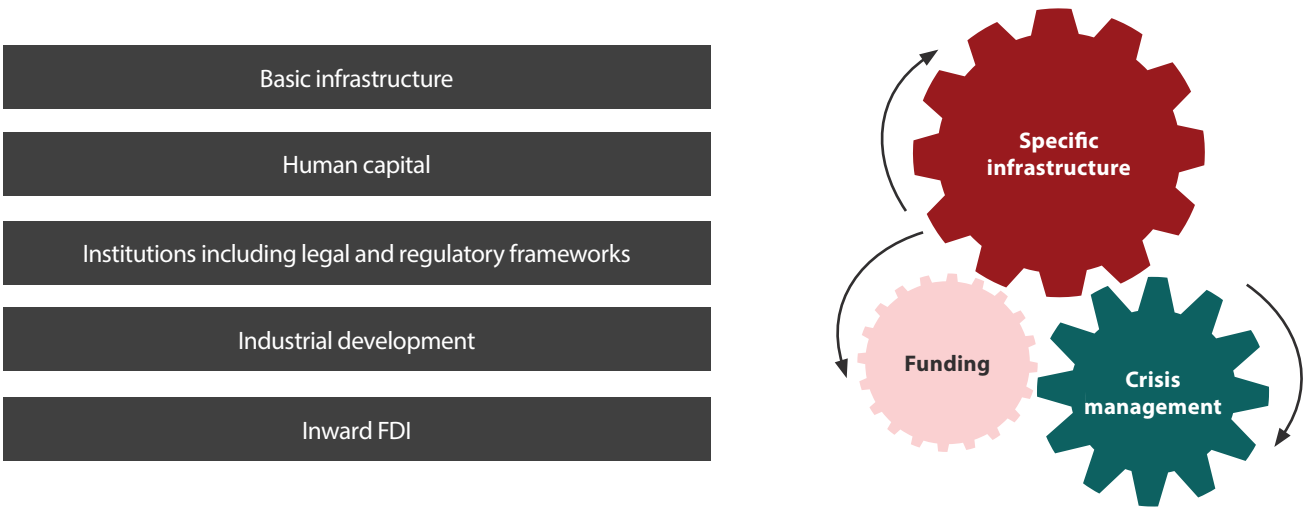
ASEAN is well-positioned to benefit from this global strategy given its diversity of factor endowments, its location in a fast-growing region, and a relatively well-developed manufacturing infrastructure. Every ASEAN economy will strive to attract GVC relocation investments and it is likely that each will attract those industries which play to its comparative advantage. Vietnam is an early beneficiary of the China+1 strategy because of its attractiveness as a manufacturing hub for labor-intensive industries. Indonesia and Thailand, on the other hand, would be attractive locations for the automotive industry and Malaysia for the electronics industry. Here, accelerating ASEAN's integration ambition, not only in goods but especially in services, will also be an enormous boost for attracting GVC relocation investments because integrated markets are favorable for supply chain operations.

The broad thrusts of ASEAN+3 economies' strategies for participating in GVCs, to grow and develop their economies, remain as relevant as ever. For manufacturing in particular, many ASEAN+3 economies have used an effective playbook. This has involved (1) building basic infrastructures and then adding to or improving them over time; (2) developing human capital and upgrading it with an increasingly strong vocational bent to meet industry needs; and (3) strengthening institutions, including legal and regulatory frameworks, and government bodies whose mandates include driving industrial development and attracting FDIs (Figure 2.38). These are basic but important elements of good economic policymaking and will remain relevant, no matter how GVCs are being, or will be, reconfigured. For developing economies in the region, these policies, especially building hard and soft infrastructures, should remain major priorities.

That said, at least three adjustments will be important for ASEAN+3 economies going forward in the wake of the COVID-19 pandemic experience. First, for most economies, this would mean tilting the balance from building generic to building digital infrastructure, such as telecommunications equipment for 5G networks, vocational schools for IT, and regulatory frameworks catering to the needs of the digital economy. For example, the ASEAN Digital Masterplan 2025 envisioning the region as an economic bloc powered by "secure and transformative digital services, technologies and ecosystem" (ASEAN 2021) and working closely with market players are steps in the right direction. Second, the region's economies must markedly strengthen their institutions and policy response frameworks for crisis management to better face future shocks. Third, they must work on rebuilding fiscal policy space and securing sustainable funding for the required infrastructure investments and institutional developments (Figure 2.38).

Leading manufacturing firms are increasingly looking for infrastructure ecosystems in production sites (World Economic Forum 2020b). Further, cases identified by the World Economic Forum's Global Lighthouse Network suggest that when MNEs decide where to anchor their global supply chains, they look for a minimum threshold of infrastructure quality. But once the minimum cross-border connectivity is met, these enterprises begin seeking high-technology and well-integrated sites from which they can carry out advanced production activities at scale, while ensuring operational continuity (World Economic Forum 2020b).

Figure 2.38. ASEAN+3: Strategies for Participating in GVCs, Past to Present and the Future



Source: AMRO staff.
Note: FDI = foreign direct investment.

For ASEAN+3 economies to attract and host leading MNEs, particularly in the 4IR sectors, it is important to focus on the specific types of infrastructures that lead firms require. As the 4IR picks up pace in the post-pandemic global economy—where financial resources are more limited than before and firms are more cautious about where to invest—such a policy focus would be necessary for ASEAN+3 economies to attract more inward FDIs and participate in the changed and digitalized GVCs. However, in less-developed ASEAN economies, "new infrastructures" such as charging stations for autonomous cars, should not displace the priority put on basic infrastructures like roads, hospitals, schools, or basic ICT. Plus-3 economies can help with technical and financial aid to transition infrastructures in less-developed ASEAN members toward more 4IR-supporting ones.

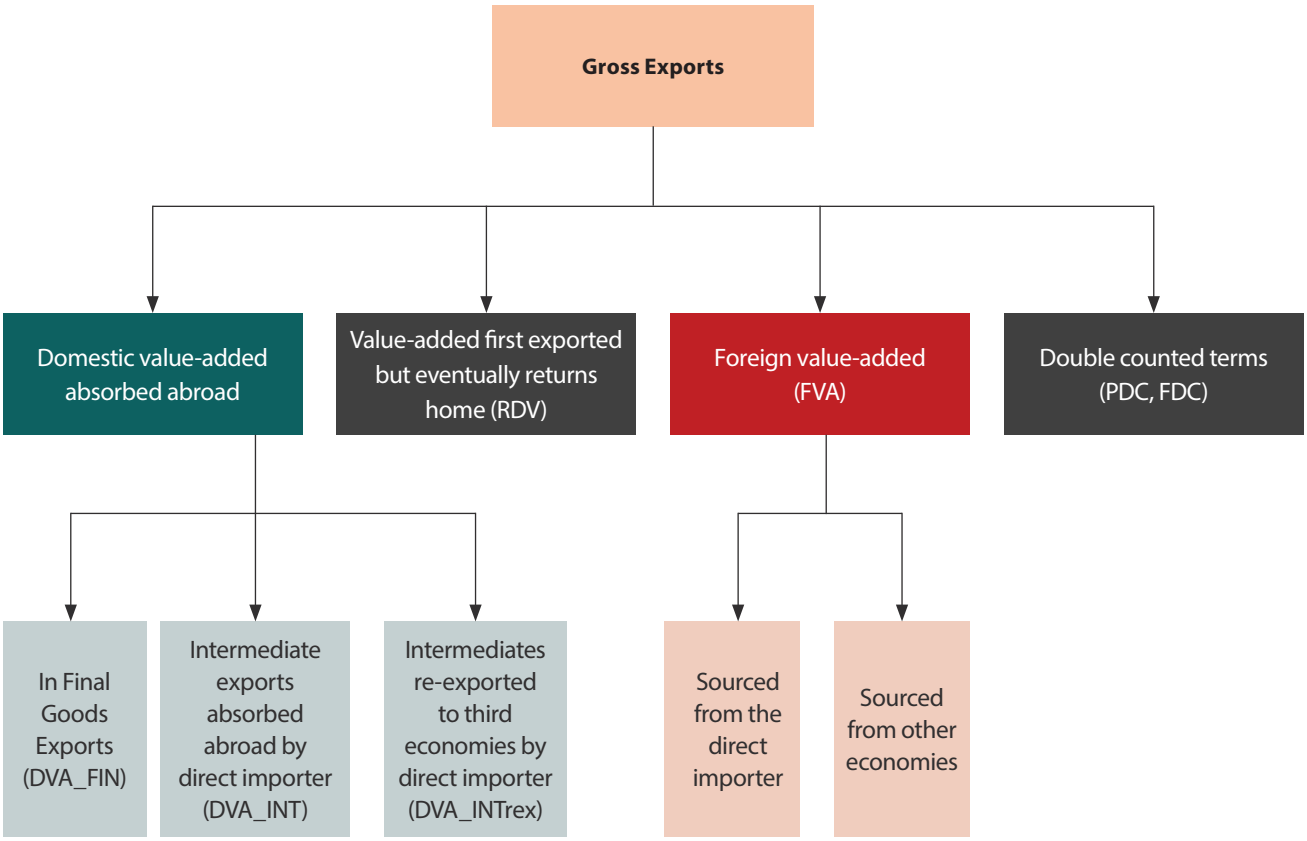
In the post-pandemic period, the nature of technological progress specific to different industries would likely lead to marked differences in whether supply chains in a given sector lengthen or shorten, become simpler or more complex, or turn out to be more capital- or infrastructure-intensive or less so. ASEAN+3 policymakers need to better understand the various factors driving the reconfiguration of GVCs. The pandemic experience has highlighted the need for a redesign of institutions and crisis management frameworks to ones that revolve not only around cost-efficiency, but also production at scale and resilience to operational disruptions. This has implications on how economies plan and design their cities to cater to the needs of the business community in the digital economy and in the design of industrial parks to cater to large-scale automated factories based on Internet of Things, AI, and robotics, as well as customer-centric plants that leverage on blockchain, data analytics, and AI for high degrees of customization and production.

The huge stimulus packages implemented to support the economies during the pandemic have reduced governments' policy space and fiscal buffers. This situation is more challenging for policymakers to mobilize the financial resources to fund the infrastructure needs and institutional reforms and developments. The pandemic experience has also underscored the need to rebuild the fiscal policy space as buffer against future shocks. Policymakers must therefore develop medium-term fiscal plans to rebuild policy space by restoring tax cuts, raising more revenue, reducing extraordinary transfers and spending during the pandemic, and restoring and prioritizing capital spending in their budget allocations—while ensuring that the withdrawal of stimulus measures does not jeopardize the transition of the economy to the "new normal."

Authorities should also partner with the private sector to mobilize funding and crowd in more investments, including tapping their expertise to develop the financial markets in the region. They could work more closely with the international community, especially the ASEAN+3 members, to strengthen financial cooperation and establish funding facilities for infrastructure investment and reform the institutional framework to enhance connectivity and promote the digital economy. The ASEAN Plus Three cooperation process can be tapped to explore more avenues for regional financial cooperation, as initiatives such as the development of local currency bond markets and the regional infrastructure for cross-border settlement will continue to be crucial in helping individual economies meet future investment and infrastructure needs. There is also scope for market practices across economies to be harmonized to facilitate closer financial ties, and in the aftermath of COVID-19, for these to be consistently reviewed and realigned with how markets change with the "new normal." Financial cooperation to provide more access to funding and markets for the region's SMEs, in particular, will also be critical in achieving strong and equitable growth for the ASEAN+3 in a post-pandemic world. Finally, taking the lessons of the pandemic to heart, policymakers should look ahead and prepare their economies to meet structural challenges from natural disasters, climate change, and other future disruptions.

Appendix 2.1. Methodology for Decomposing Exports

Appendix Figure 2.1.1. Decomposition of Gross Exports to Value-Added Terms



Source: Wang, Wei, and Zhu (2018).

Appendix 2.2. United States and China: Tech Tensions

Appendix Table 2.2.1. United States and China: Technology-Related Measures and Countermeasures

Measure	Implemented by the United States	Implemented by China
Export restrictions	Export control regime for sensitive technologies; prohibits transfer of US technologies Extended export restrictions on foreign country-produced semiconductor chips that use US software or technology (to bar China's semiconductor imports from third economies) Restrictions on sale of US software and technologies used in semiconductor manufacturing	Export control on rare earth metals (material used in electronics components manufacturing) Export control for additional 23 fields of cutting-edge technology, including laser, drones, ultra-high-voltage transmission, clean coal power generation, quantum encryption, early warning technology based on massive data harvesting, technologies used in 3rd and 4th generation nuclear equipment and materials, sea-borne satellite launching pads, engineering equipment, and machinery used in building manmade islands in deep water
Licenses	Sale of US technologies to Chinese firms in the Entity List requires US government license Firms on the Entity List are included on security grounds and for end-user and end-use direct control	License required to operate any Chinese website and requires local establishment License required for the technologies listed under export control License required for doing business with companies in Unreliable Entity List (a counterpart for the US Entity List)
Investment-related measures	Government review of foreign investments especially those targeting early-stage technology companies Prohibits foreign government-controlled (for example, state-owned) investment transactions in US technology	Foreign ownership limit of 50 percent on telecommunications value-added services Creation of Unreliable Entities List (of foreign companies) that succumbed to US pressure Outward investment strategy directed at foreign technologies, for example, design technologies (strategic priority)
Outright bans	Export control of US dual-use technology that could be used in weapons development, military aircraft, or surveillance technology	Foreign ICT products in critical infrastructures are banned for public procurement
Domestic regulations	US rural telecom carriers barred from using Huawei, ZTE network equipment in telecommunications infrastructure Reduce government's reliance on electronic parts from China Ban US telecommunications companies from buying, installing, or using foreign-made equipment from "foreign adversaries" Ban government procurement of contractors that use telecommunications or video surveillance equipment or services from five Chinese companies: Huawei, ZTE, Hytera, Hikvision, and Dahua	Centralized control of international gateways: blocking, filtering, and monitoring system through the "Great Firewall" Online censorship on media, blogs, forum content; data localization for online publishers Telecom operators, internet service providers required to monitor content and user behavior and to report to authorities Cross-border data transfer requires government permission Government procurement favors indigenous technologies where IPRs have been either created in China or been fully acquired Local content requirement of 60 percent minimum for export subsidies
Government subsidies		Subsidy on R&D and ICT technologies to reduce reliance on foreign technology imports Public investments in various Chinese internet startups
Taxes		Tax discrimination or discriminatory rebates for locally produced chips and software

Sources: Ferracane and Lee-Makiyama (2017); various media articles; and AMRO staff.

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Annex:

Developments in ASEAN+3 Economies

Brunei Darussalam

Brunei's economy is expected to continue growing in 2020, despite the adverse impact of the COVID-19 pandemic. After expanding quite strongly at 3.9 percent in 2019, growth moderated to 1.9 percent in the first three quarters of 2020. The slowdown was due to the decline in the growth of the oil and gas sector because of weakened global demand and lower oil production, which was partly driven by the national commitment to the OPEC and non-OPEC Cooperation to stabilize the global oil market. Meanwhile, the growth in the non-oil and gas sector was mainly due to the downstream activities following the new production of petroleum and chemical products. In addition, restrictions on overseas travel during the COVID-19 period have encouraged locals to increase domestic consumption, as evidenced in the increase in retail sales and car sales. The economy is expected to grow by around 0.9 percent in 2020 despite continued contraction in the oil and gas sector in Q4 2020. In 2021, economic growth is projected to rebound to 3.1 percent, based on the assumption of improving world oil demand and the commencement of some large investment projects.

CPI inflation turned positive in 2020. Inflation, which was –0.4 percent in 2019, has been rising since the beginning of the year and reached 2.6 percent in June 2020, with an average of 1.9 percent for the first nine months of the year. The increase in inflation partly reflected COVID-19 supply chain disruptions and the weakening of the exchange rates, which led to higher prices in imported food items and household products. Inflation is estimated at 1.7 percent in 2020 and projected to be 1.2 percent in 2021.

The overall external position has remained strong, with ample official reserves and foreign assets, despite the decline in the trade balance surplus in recent years. The export value fell sharply from January to October 2020, but increased by 5.3 percent from the same period in 2019. The export slowdown was driven by the contraction in crude oil and gas exports by more than 40 percent owing to reduced global demand and lower oil and gas prices. Meanwhile, exports of petroleum and chemical products have continued to grow steadily since the commencement of operations of the Petrochemical Industry in November 2019. On the other hand, import growth rose strongly in 2020, driven by an increase in crude oil imports as raw material for oil refinery production. As a result, the trade balance and current account surplus are expected to shrink further in 2020.

The financial sector remains sound with credit risks under control, amid slowing credit growth. Banks continue to be well capitalized, with ample liquidity and reasonable profitability. The policy of deferment of principal or interest payments since April 2020 has been successful in containing the deterioration in the nonperforming loan ratio. Credit growth, which had previously continued to increase and peaked in Q1 2020, slowed down and subsequently contracted in Q4 2020, mainly driven by a decline in credit to the household. On the upside, credit to the corporate sector has continued to increase.

The fiscal deficit has increased in recent years, due to the sharp decline in oil and gas revenues. After recording a surplus of 0.2 percent of GDP in FY 2018/19, the fiscal balance again recorded a deficit of 5 percent of GDP in FY2019/20. Although the government has succeeded in its fiscal consolidation efforts, as evidenced by the decline in current spending, the decline in oil and gas prices has resulted in an increase in the deficit in recent years. In the FY 2020/21, the sharp fall in oil and gas prices, accompanied by a reduction in the volume of oil exports in OPEC countries, contributed to a widening deficit, estimated at 11.1 percent of GDP. This deficit is expected to improve to 5.4 percent in the next fiscal year, in line with expectations of increasing world oil demand and prices.

In the short term, any economic recovery from the effects of the COVID-19 pandemic will depend on global oil demand and the realization of major FDI projects. Improvements in the former will have a significant impact on the economy, given the large role of the oil and gas sector in the country. The forecast for economic growth in 2021 also depends on the startup production of the Brunei fertilizer industry, as well as the commencement of the Hengyi Phase 2 project construction.

In the longer term, the main risk facing Brunei's economy comes from its high dependence on the oil and gas sector. The COVID-19 pandemic provides an important lesson that a broad-based global recession can lead to a decline in world demand and oil prices, which in turn affect economic growth, fiscal balance, and the external sector of Brunei. Therefore, efforts to diversify Brunei's economy through various structural reforms need to be continued to improve the prospects for economic growth in the future.

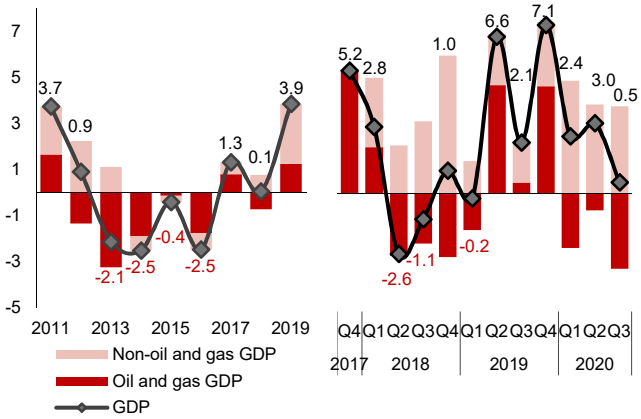
The author of this note is Muhammad Firdauz Muttaqin.

Brunei Darussalam: Selected Figures and Tables

The recovery momentum is slowing down amid the COVID-19 pandemic.

Contributions to Real GDP Growth, by Sector

(Percentage points, year-over-year)

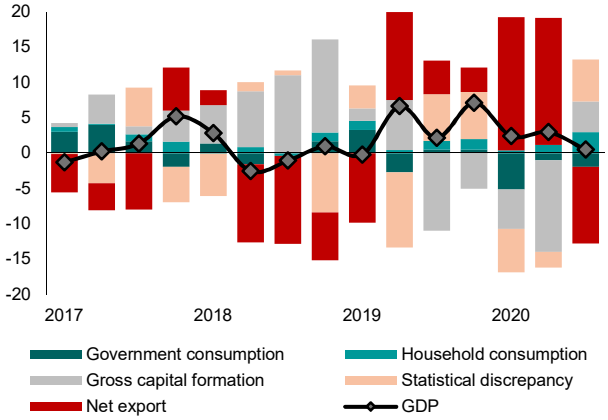


Sources: Department of Economic Development and Planning via CEIC; and AMRO staff calculations.

Public consumption is still quite high notwithstanding the various restrictions imposed during the pandemic.

Contributions to Real GDP Growth, by Expenditure

(Percentage points, year-over-year)

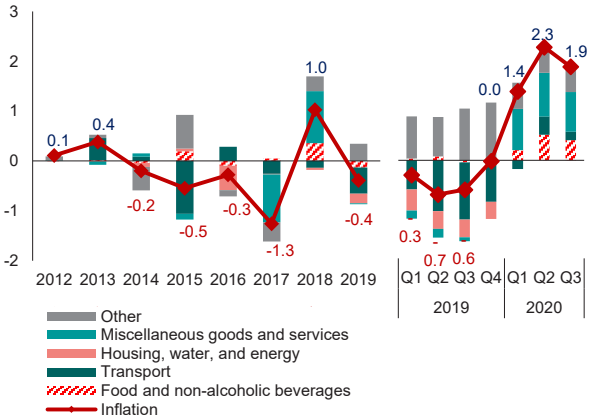


Sources: Department of Economic Development and Planning via CEIC; and AMRO staff calculations.

Although moderating, inflation has risen considerably on the back of currency depreciation and supply disruptions.

Contributions to CPI Inflation

(Percentage points, year-over-year)

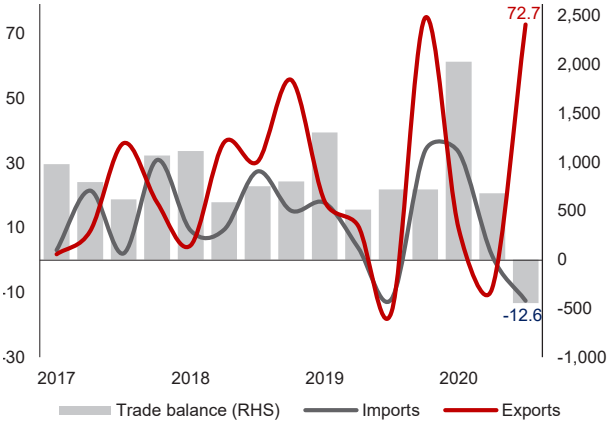


Sources: Department of Economic Development and Planning via CEIC; and AMRO staff calculations.

The trade surplus shrank further in 2020 as a result of lower oil and gas export volumes and prices.

Trade Balance

(Percent, year-over-year; millions of US dollars)



Sources: Department of Economic Development and Planning via CEIC; and AMRO staff calculations.

The banking sector remains sound with high levels of capital, liquidity, and profitability and contained credit risks.

Financial Soundness Indicators

(Percent)

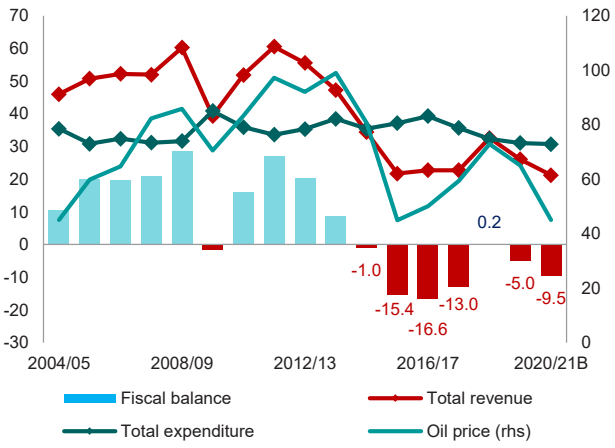
Indicator	2016	2017	2018	2019	2020
Capital Adequacy					
CAR	21.5	18.9	19.3	20.9	20.8
CAR tier 1	23.2	18.2	18.9	20.5	20.5
Asset Quality					
NPL gross	5.9	4.4	5.7	4.7	4.7
NPL net	3.3	1.6	2.9	2.4	2.4
Profitability					
ROA	1.0	1.3	1.5	1.8	1.5
ROE	6.5	8.9	11.2	12.6	10.6
Liquidity					
Liquid assets to total assets	50.4	51.0	51.7	46.8	48.2
Loan to deposit ratio	35.8	34.5	35.7	37.2	39.8

Sources: Autoriti Monetari Brunei Darussalam; and AMRO staff calculations.
Note: CAR = capital adequacy ratio; NPL = nonperforming loan; ROA = return on assets; ROE = return on equity.

The fiscal deficit has widened due to the decline in oil and gas revenues.

Fiscal Position and Oil Prices

(Percent of GDP; US dollars per barrel)



Sources: Ministry of Finance and Economy; and AMRO staff calculations.
Note: Budget data are for FY2020/21. B = budget.

Brunei Darussalam: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	1.3	0.1	3.9	0.9
Private consumption	4.7	2.2	5.9	–
Government consumption	7.4	1.6	1.8	–
Gross fixed capital formation	8.0	28.1	–4.4	–
Exports of goods and services	-5.3	5.7	14.9	–
Imports of goods and services	1.3	28.1	13.8	–
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	16.4	7.8	6.6	3.0
Trade balance	19.8	17.4	16.4	–
Capital and financial account balance	–11.8	–0.7	–7.7	–
Errors and omissions	-6.8	–6.3	–6.2	–
Overall balance	-2.3	–0.1	–7.4	–
International reserves (in USD million, end of period)	3,300	3,221	4,052	3,721
Fiscal sector[1]	(in percent of GDP)			
Revenue and grants	22.7	32.7	26.1	21.2
Expenditure	35.7	32.5	31.1	30.7
Fiscal balance	–12.9	0.2	-5.0	–11.1
Monetary and financial sectors	(in annual percentage change)			
Broad money	–0.4	2.8	4.3	–0.4
Domestic credit[2]	–16.7	3.5	2.3	18.4
Private sector credit	–5.3	–3.1	2.0	0.2
Memorandum items				
Nominal GDP (in BND million)	16,748	18,301	18,375	19,080
Nominal GDP (in USD million)	11,412	12,136	13,469	13,826
Headline inflation (in percent yoy, period average)	–1.3	1.0	–0.4	1.7
Exchange rate (in BND/USD, period average)	1.37	1.35	1.36	1.38

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Figures are for fiscal year that run from April 1 to March 31; 2020 data are budget figures for FY2020/21.
2/ Domestic credit is based on "domestic claims" from Depository Corporations Survey.

Cambodia

Cambodia's economy has faced massive headwinds from the COVID-19 pandemic and is estimated to have contracted by 3 percent in 2020. Garment exports fell by 9.5 percent in 2020. Tourism has also been badly affected, with international arrivals falling by almost 80 percent. Amid these challenges, the domestic economy has slowly recovered following the relaxation of lockdown measures and relatively successful containment of the COVID-19 infections within the country. Agriculture has proven to be a bright spot, supported by the continued development of agro-processing and strong agriculture exports. Growth is expected to return to positive territory in 2021, but recovery could be slow due to the weak demand in major export markets and bleak prospects in the tourism sector.

Inflation rose to 2.9 percent in 2020 from 1.9 percent in 2019, as higher food prices generally offset lower energy prices. A spike in prices of key food items due to disrupted supply lines at the onset of the pandemic pushed up overall prices, which remained elevated until June 2020. Floods and higher pork prices also led to higher food prices in Q4 2020. Food prices are expected to stabilize in 2021, while any upward pressure on prices is expected to emanate mainly from higher oil prices.

The current account deficit narrowed to 10.3 percent of GDP in 2020 from 15 percent of GDP in 2019. Total exports were able to maintain growth as the contraction in garment exports was fully offset by surging gold exports and increasing exports of agricultural products and other manufactured items. Meanwhile, imports fell across the board due to slower economic activity. After registering inflows in the past due to strong tourism receipts, the services account recorded a net deficit following the collapse in tourism while remittances dipped by double digits. Foreign direct investment (FDI) inflows fell in 2020, with some projects either delayed or put on hold as a result of the pandemic. However, FDI inflows could fully offset the current account deficit, keeping the overall balance of payments in surplus. International reserves increased to USD 21.3 billion as of the end of December 2020, equivalent to 11.6 months of imports of goods and services.

Credit growth has steadily slowed to below 20 percent since April 2020 but stabilized at about 16 percent toward the end of 2020, amid supportive policies implemented by the National Bank of Cambodia (NBC) to enhance liquidity and maintain financial stability. These measures included cutting interest rates, reducing the reserve requirement and providing guidance to banks to help ease the debt burden of companies. Nonperforming loans have remained relatively low, attributable in part by the regulatory forbearance exercised by the NBC. Meanwhile, the Capital Adequacy Ratio remains well above the minimum requirement, which may provide a buffer against losses from any deterioration in the loan portfolio.

The economy was supported by expansionary fiscal policy in 2020, with the fiscal deficit rising to about 6.7 percent of GDP (excluding grants) from 1.2 percent in 2019. A broad fiscal stimulus package of 5.1 percent of GDP was rolled out in response to the COVID-19 pandemic, which included additional health spending, provision of cash transfers to the poor, and support for workers and firms through wage subsidies and soft loans. Despite the significant increase in the fiscal deficit, public debt remained manageable at 32.2 percent of GDP in 2020, an increase from 28.1 percent in 2019. The government has been drawing on its sizable fiscal savings, in addition to foreign financing from development partners, to finance the stimulus measures. With several support measures set to continue at least until Q1 2021, coupled with increased capital expenditure, the fiscal deficit is expected to widen further to 8 percent of GDP in 2021.

Main risks could come from weaker than expected global growth due to the pandemic, which will severely impact Cambodia due to its high reliance on garment exports and tourism. The risks to garment exports are intensified by their concentration in the US, EU, and UK markets, which continue to record high numbers of COVID-19 cases. Regulatory forbearance and other policy support have provided a lifeline for businesses during the pandemic. However, the extent of the deterioration in credit quality once support is withdrawn remains unclear. The duration of the pandemic, combined with continuing travel restrictions and slow recovery in international travel, could result in greater damage to company balance sheets, with knock-on effects for the financial sector.

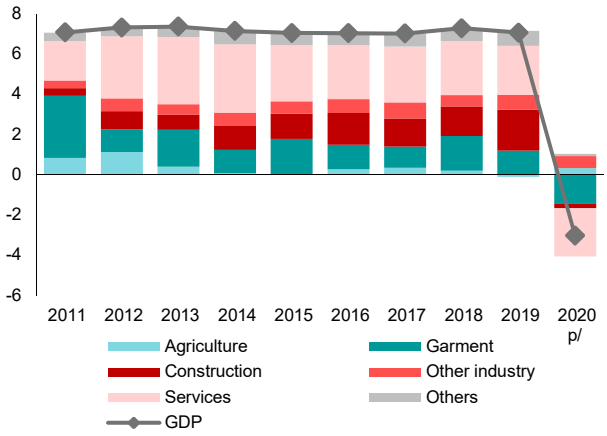
Given Cambodia's vulnerability to external downturns amid the continuing global pandemic, any rollback of support measures needs to be effected cautiously and gradually. Fiscal policy will need to shift away from providing short-term support toward allocating more resources to boost medium-term economic resilience. However, targeted assistance to those most in need has to continue, while facilitating sectoral resource allocation and enhancing investments in infrastructure and social safety nets.

The author of this note is Paolo Hernando.

Cambodia: Selected Figures

The Cambodian economy is estimated to have contracted in 2020 after many years of high growth.

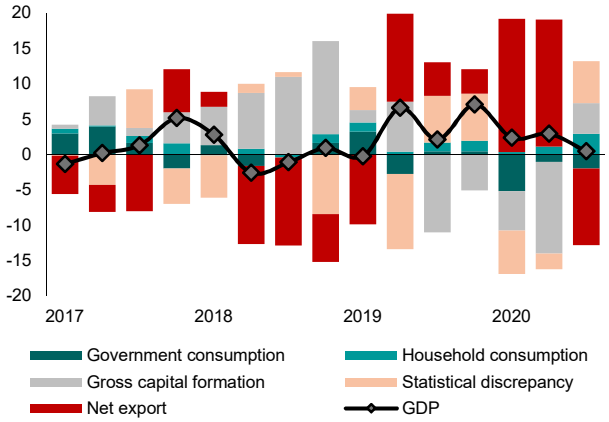
Contributions to Real GDP Growth
(Percentage points, year-over-year)



Sources: National Institute of Statistics of Cambodia; and AMRO staff estimates.
Note: p denotes preliminary.

Inflation rose in 2020 due to higher food prices, which generally offset the lower energy prices.

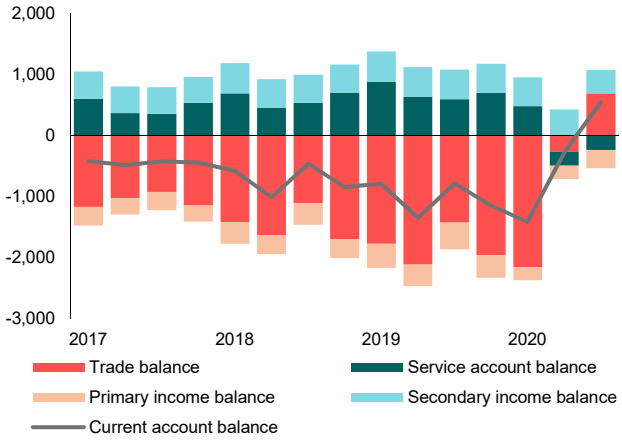
Contributions to CPI Inflation
(Percentage points, year-over-year)



Sources: National Bank of Cambodia; and AMRO staff calculations.
Note: Food includes non-alcoholic beverages.

The current account turned positive in Q3 2020 due to a drop in imports, while exports continued to grow.

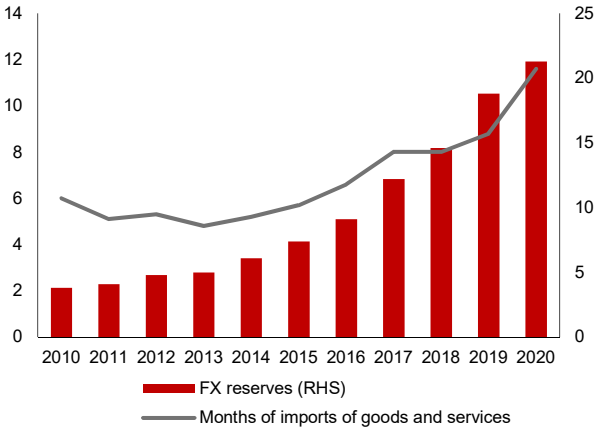
Current Account Balance
(Millions of US dollars)



Sources: National Bank of Cambodia; and AMRO staff calculations.

International reserves continued to rise, reaching USD 21.3 billion as of the end of December 2020.

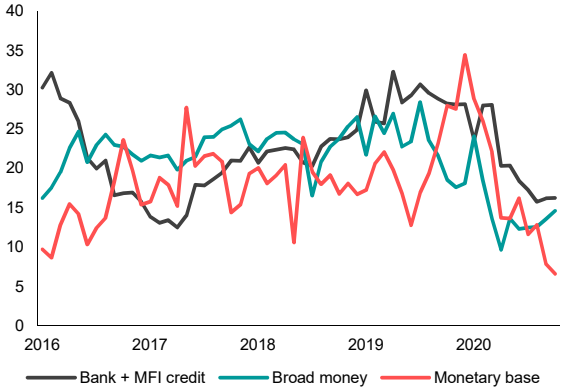
International Reserves
(Months of imports; billions of US dollars)



Sources: National Bank of Cambodia; and AMRO staff calculations.

Credit to the economy has moderated since April 2020, in line with monetary aggregates, and has recently stabilized.

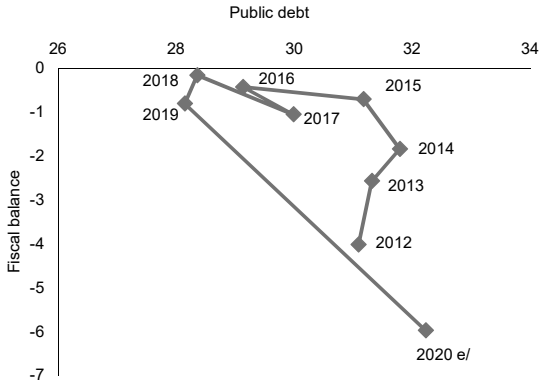
Credit and Monetary Aggregates
(Percent, year-over-year)



Sources: National Bank of Cambodia; and AMRO staff calculations.
Note: MFI = microfinance institution.

After steady improvement, the fiscal deficit rose in 2020 due to measures to mitigate the impact of the pandemic.

Fiscal Balance and Public Debt
(Percent of GDP)



Source: Ministry of Economy and Finance.
Note: e/ denotes estimate.

Cambodia: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	7.0	7.3	7.1	–3.0
Agriculture	1.7	1.1	–0.5	2.0
Industry	9.8	11.0	11.3	–2.9
Services	7.0	6.8	6.2	–6.2
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	–8.1	–11.8	–15.0	–10.3
Trade balance	–19.3	–23.8	–26.8	–12.8
Capital and financial account balance	16.6	16.2	24.8	9.6
Direct investment	12.1	12.6	13.1	11.8
Portfolio investment	0.0	–0.2	0.0	0.0
Other investment	3.3	2.5	10.4	–3.2
Errors and omissions	1.1	1.5	0.6	0.9
Overall balance	7.4	5.9	9.8	0.2
External debt	51.8	53.8	54.5	53.7
International reserves (in USD billion, end of period)	12.2	14.6	18.8	21.3
Fiscal sector	(in percent of GDP)			
Revenue and grants	21.9	23.8	26.2	20.4
Expenditure	23.4	24.5	27.3	27.2
Fiscal balance[1]	–2.6	–1.7	–1.2	–6.7
Government debt	30.0	28.4	28.1	32.2
Monetary and financial sectors	(in annual percentage change)			
Broad money	23.8	24.0	25.5	14.5
Domestic credit	15.6	21.1	24.4	18.1
Private sector credit	18.5	23.2	24.3	18.3
Memorandum items:				
Nominal GDP (in KHR billion)	89,831	99,544	110,014	109,776
Nominal GDP (in USD million)	22,177	24,572	27,089	26,896
Headline inflation (in percent yoy, period average)	2.9	2.5	1.9	2.9

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Excluding grants.

China

The Chinese economy has rebounded sharply from the acute contraction in Q1 2020. The economy was hit hard by the COVID-19 outbreak and contracted by 6.8 percent inQ1 2020. It has since rebounded sharply, growing by 4.9 and 6.5 percent in Q3 and Q4 2020 following success in containing the spread of infections and the timely and effective stimulus package.

The recovery was uneven but has broadened significantly. The recovery was led by the manufacturing sector as production resumed rapidly with the lifting of the lockdown. The services sector, such as retail, has also improved but at a slower pace. In recent months, the services sector has been catching up with easing travel restrictions and increasing consumer spending.

Labor market conditions have improved significantly with declining unemployment. The surveyed unemployment rate peaked at 6.2 percent in February 2020 and declined to 5.2 percent in November 2020. In H1 2020, a sizable number of workers temporarily dropped out of the labor force, particularly migrant workers. Since then, many of these workers have been able to return to their jobs, with the steady improvement in labor market conditions alongside recovering economic conditions.

CPI inflation has declined as a result of decelerating pork prices and is expected to be stable in the coming quarters. CPI inflation peaked at 5.4 percent in January 2020 following a spike in pork prices as a result of a swine fever. Prices declined sharply by 0.5 percent in November, reflecting the passing of base effects and the pandemic impact on the economy. CPI inflation is expected to recover gradually, as the economy continues to recover and energy prices rise, and then stabilize.

The Chinese authorities have taken effective measures to contain the COVID-19 outbreak, support growth, and mitigate the impact on micro, small, and medium enterprises (MSMEs), vulnerable groups, and lower-tier governments. Economic policy measures at the beginning of the outbreak were responsive but measured. Subsequent measures have become more sizable and more targeted to shore up growth and employment.

Targeted fiscal measures have provided timely and needed support since the beginning of the COVID-19 outbreak. The government responded to the pandemic by deploying significant tax and fee relief measures. The government's revenue declined with the economic contraction in H1 2020. So far, spending on social security, employment and health has increased significantly. However, total expenditure has decelerated due to the constraint from the sharp fall in revenue. The deficit in the government's general account is expected to rise significantly to 3.6 percent of GDP in 2020, from 2.8 percent in 2019. It is expected to decline to 3 percent of GDP in 2021 as the economy rebounds, leading to growing revenue and as policy support is gradually phased out.

Several monetary policy measures were deployed to ensure ample liquidity and stimulate credit growth. Open market operations were quickly adjusted to support the sharp liquidity needs in Q1 2020. The central bank increased medium-term lending facility operations and cut the reserve requirement ratio. Moreover, the central bank expanded the usage of targeted relending and rediscounting and introduced new targeted tools, to support key sectors and MSEs. Regulatory requirements were eased and macroprudential assessment parameters were adjusted to enhance the banking sector's capacity and incentives for credit extension during the pandemic period. Meanwhile, the central bank has also continued to strengthen the pricing of the loan prime rate, the policy rate.

To mitigate systemic risks arising from highly leveraged real estate developers, the authorities have introduced tight financing rules on both property developers and banks, given the former's linkages with banks and other financial institutions, and upstream and downstream enterprises. The authorities have introduced the "three red lines" rules for developers, by setting thresholds for the debt-to-asset ratio, net gearing ratio and cash-to-short-term debt ratio. They also have imposed quantitative constraints on banks' real estate-related loans.

In response to high and rising corporate debt and an increasing number of state-owned enterprise (SOE) bond default, the authorities have taken measures to rein in debt and manage spillover risks. China's corporate debt-to-GDP ratio was 151.3 percent in December 2019, among the highest in emerging markets, rising further to 165 percent in September 2020. SOE bond default has risen significantly, and default events have had spillover effects on other SOEs in the same provinces or industries. The authorities have also emphasized the need to rein in growth in local government financing vehicle debt and taken timely measures to prevent spillovers from bond defaults.

As economic growth has gained momentum and become more broad based, policymakers have paid more attention to the need to reduce long-term risks and boost economic growth potential.

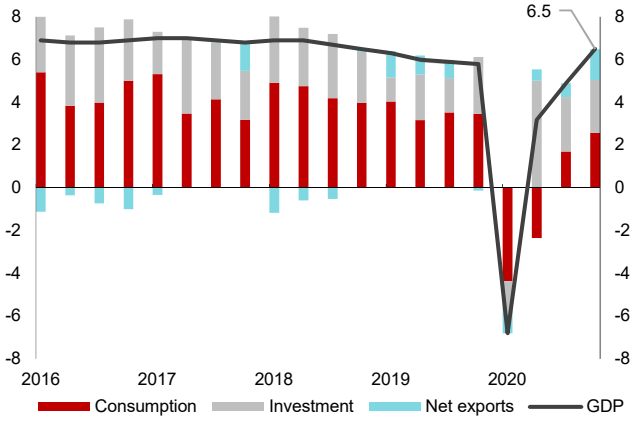
The author of this note is Simon Xinyi Liu.

China: Selected Figures

GDP has rebounded sharply and sequentially, after an acute fall in Q1 2020.

Contributions to Real GDP Growth

(Percentage points, year-over-year)

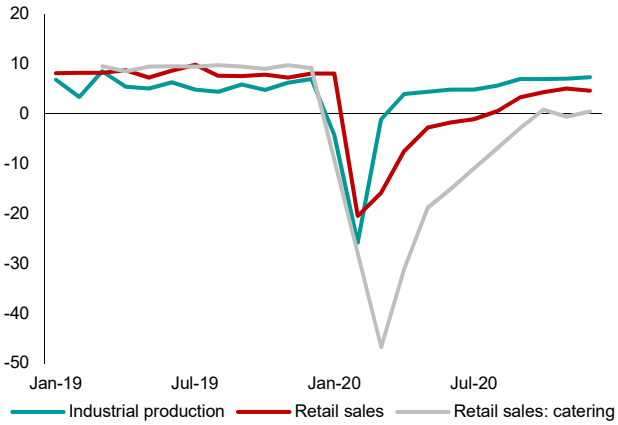


Sources: Wind; and AMRO staff calculations.

Divergences have emerged among sectors, with retail sales, especially catering, lagging behind.

Industrial Production and Retail Sales

(Percent, year-over-year)

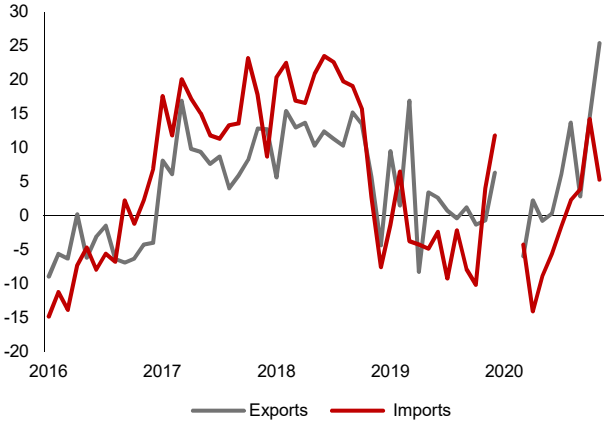


Sources: Wind; and AMRO staff calculations.

Exports grew sharply, as China quickly restored production with policy support, and overseas demand surged.

Trade Volume

(Percent, year-over-year, seasonally adjusted)

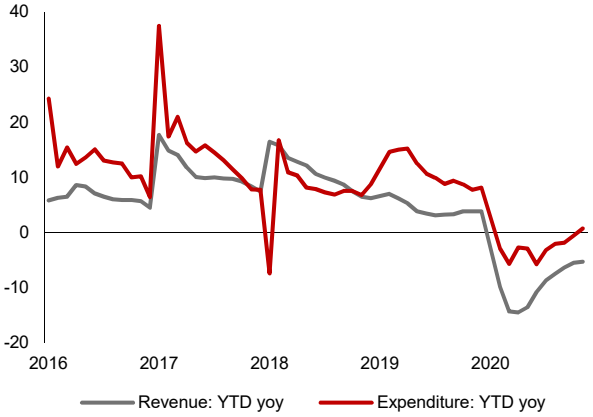


Source: Wind.

Fiscal revenue declined sharply, as a result of tax and fee cuts and the economic slowdown, while expenditure declined moderately.

Fiscal Revenue and Expenditure

(Percent, year-over-year)

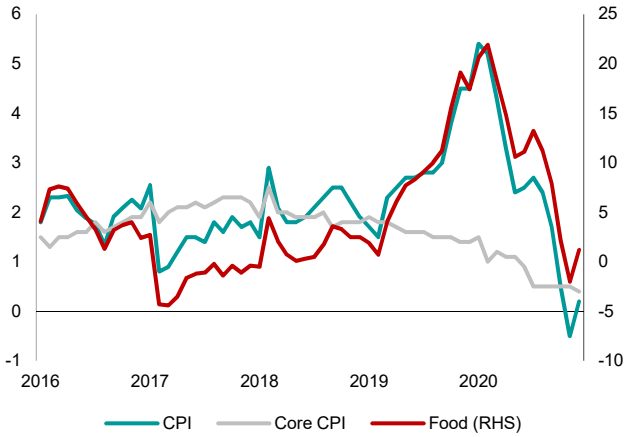


Source: Wind.
Note: yoy = year-over-year; YTD = year-to-date.

Inflation has declined with falling pork prices and will increase modestly with continued economic recovery.

CPI Inflation

(Percent, year-over-year)

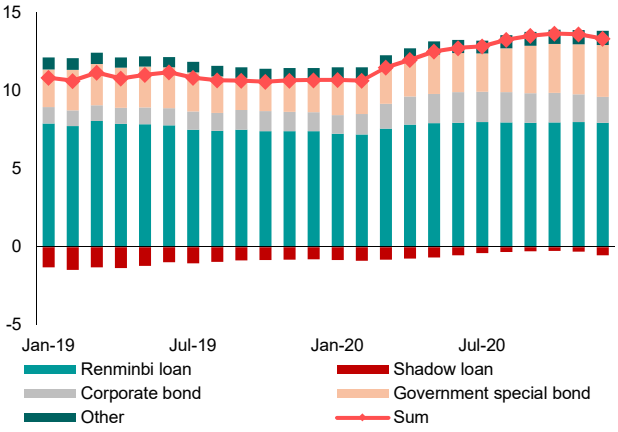


Source: National Bureau of Statistics.
Note: CPI = consumer price index.

Credit expansion has been strong on the back of policy measures to support the economy.

Total Social Financing Growth

(Percentage point contribution, year-over-year)



Sources: Wind; and AMRO staff calculations.

China: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real Sector	(in annual percentage change)			
Real GDP	6.9	6.7	6.0	2.3
Private consumption	11.1	10.4	9.0	–
Government consumption	11.2	11.9	8.9	–
Gross fixed capital formation	6.1	6.6	4.5	–
Imports of goods and services	15.5	13.0	1.0	–
Exports of goods and services	12.1	7.2	5.4	–
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	1.6	0.2	1.0	–
Trade balance	1.8	0.8	1.1	–
Capital and financial account balance	0.1	1.1	0.4	–
Direct investment	0.2	0.7	0.4	–
Portfolio investment	0.2	0.8	0.4	–
Other investment	0.4	–0.6	–0.5	–
Errors and omissions	–1.7	–1.3	–1.4	–
Overall balance	2.5	1.3	2.3	–
Gross external debt	14.6	14.8	14.4	–
International reserves (in USD billion, end of period)	3,139.9	3,072.7	3,107.9	3,216.5
Fiscal sector[1]	(in percent of GDP)			
Revenue	22.0	21.6	21.3	18.0
Expenditure	24.4	24.0	24.2	24.2
Fiscal balance	–2.9	–2.6	–2.8	–3.6
Monetary and financial sectors	(in annual percentage change)			
Broad money[2]	8.1	8.1	8.7	10.1
Total social financing	14.1	10.3	10.7	13.3
Bank loans	12.7	13.5	12.3	12.8
Memorandum items:				
Nominal GDP (in CNY trillion)	83.2	91.9	99.1	101.6
Headline inflation (in percent yoy, period average)	1.6	2.1	2.9	2.5
Shanghai Interbank Offered Rate, Overnight (in percent)	2.8	2.6	1.7	2.4
Exchange rate (in USD/CNY, period average)	6.8	6.6	6.9	6.5

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Includes only general government account, and incorporates AMRO staff estimates.
2/ Refers to M2, the measure of broad money supply or aggregate, which has implications for the conduct of monetary policy.

Hong Kong, China

Hong Kong's economy was in recession in 2020 due to the COVID-19 pandemic, with growth coming in at –6.1 percent for the year, but recovery momentum improving through the course of the year. Key factors include the unemployment rate rising above 6 percent, the government having to impose stringent social distancing measures, and confidence remaining subdued.

The inflation rate has eased markedly as a result of the downturn. The headline CPI inflation rate eased and turned negative in the later months of the year. The underlying inflation rate (netting out the effects of all of the government's one-off relief measures) came in marginally positive. Price pressures are likely to remain low because of subdued domestic demand and the global recession, as well as supportive government policy measures.

Domestic financial conditions eased moderately, and are likely to remain accommodative. Moderate bank credit growth has been supported by government actions to underwrite credit risks, particularly for loans to small and medium enterprises (SMEs). Meanwhile, Hong Kong Interbank Offered Rates have fallen, reflecting the US Federal Reserve's monetary policy easing. The Hong Kong Monetary Authority's establishment of the US Dollar Liquidity Facility in April 2020, and subsequent extension of the facility to September 30, 2021, have helped build confidence.

The external position is strong, with the balance of payments in surplus for most quarters alongside capital inflows. The international investment position remains robust. Foreign currency reserve assets cover more than 40 months of retained imports. Confidence in the Hong Kong dollar is well-anchored; the pandemic's impact on sentiment has been offset by a continuing flow of funds into the banking system and stock market.

Overall, risks have heightened markedly since the turn of the year—similar to other economies across the region:

- The main risk is that recurring outbreaks of COVID-19 infections in Hong Kong and globally could exert a sharp drag on growth by dampening domestic activities as well as exports including trade-related services and tourism activities.

- Stress on businesses especially SMEs could worsen. If so, more workers could be retrenched and wages could fall, while investment could dip further, both of which would impede recovery.

- Worsening credit quality for hard-hit sectors and SMEs will pose challenges for banks, although the banking sector will likely remain resilient and effective.

- Uncertainty from US–China tensions also has risen following the enactment of the National Security Law and the US decision to remove Hong Kong's special status.

- Risks related to real estate will likely be contained, although a prolonged recession could lead to significant property price corrections.

Pandemic policy response has been swift, large in scale, and broad in scope. Fiscal support has totaled more than HKD 300 billion or about 11 percent of GDP. The measures have provided comprehensive support for businesses, jobs, and livelihoods. Policy support has also entailed leveraging the banking sector's strong buffers, with authorities exercising regulatory forbearance, implementing a pre-approved principal payment holiday scheme and boosting credit guarantees for businesses.

Fiscal reserves provide ample policy space to deal with the difficult near term and address long-term challenges. The annual fiscal deficit is estimated to average 3.2 percent of GDP between FY2021/22 and FY2024/25. Fiscal reserves are anticipated to fall from about HKD 902.7 billion (33.3 percent of GDP) in FY2020/21 to about HKD 540 billion (about 16 percent of GDP) by end-FY2024/25, which could still cover about 8–9 months of government spending.

This crisis highlights the need for measures to sustain growth potential, strengthen resilience, enhance inclusiveness, and boost safety nets. Further diversifying sources of growth and playing a key role in connecting China with the world would enhance growth. Strengthening support for the least upwardly mobile groups and creating more jobs across wage brackets would boost inclusiveness and resilience. Strengthening safety nets such as an enhanced unemployment benefits program would help policy support to kick in promptly when needed. Boosting affordable housing supply rightly remains a top priority. Increasing fiscal revenue to meet long-term challenges and preserve fiscal reserves will be important.

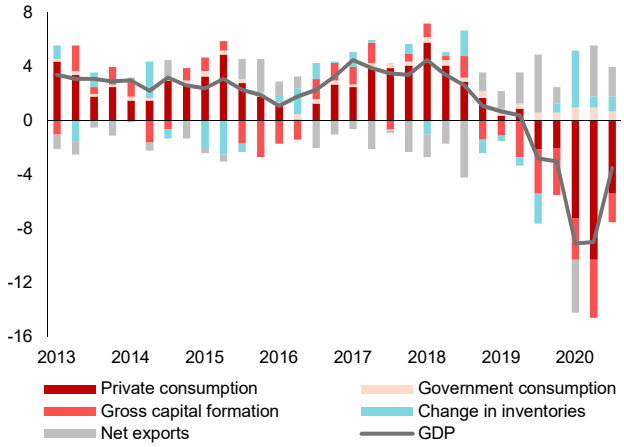
The author of this note is Suan Yong Foo.

Hong Kong, China: Selected Figures

Hong Kong's economy was in recession in 2020 as a result of the COVID-19 pandemic.

Contributions to Real GDP Growth

(Percentage points, year-over-year)

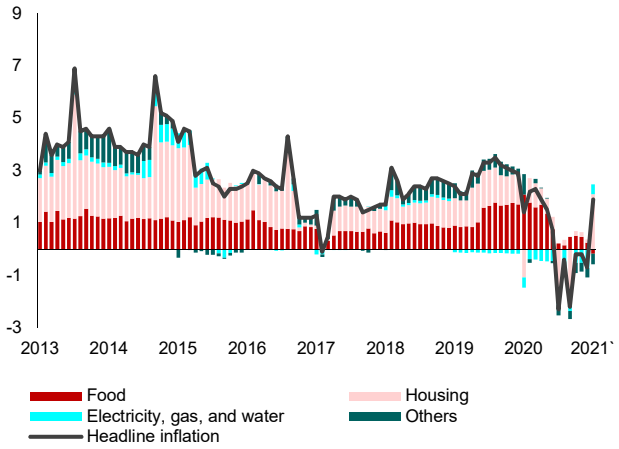


Sources: Hong Kong authorities via CEIC; and AMRO staff calculations.

Inflation has eased markedly given the economic downturn and is likely to remain muted ahead.

Contributions to CPI Inflation

(Percentage points, year-over-year)

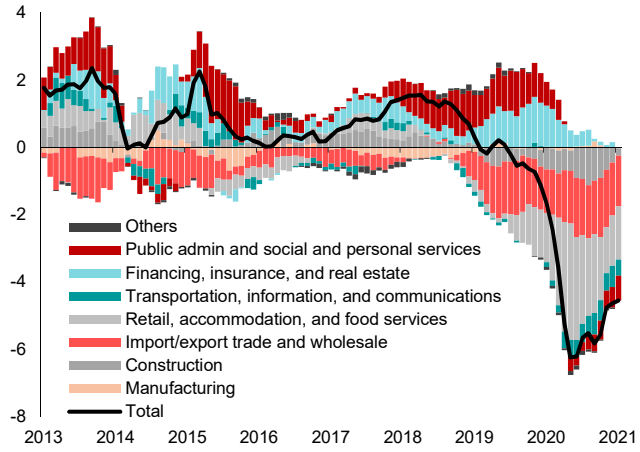


Sources: Hong Kong authorities via CEIC; and AMRO staff calculations.
Note: CPI = consumer price index.

Employment conditions worsened markedly, before showing signs of stabilization toward the end of 2020.

Contributions to Employment Creation

(Percentage points, year-over year)

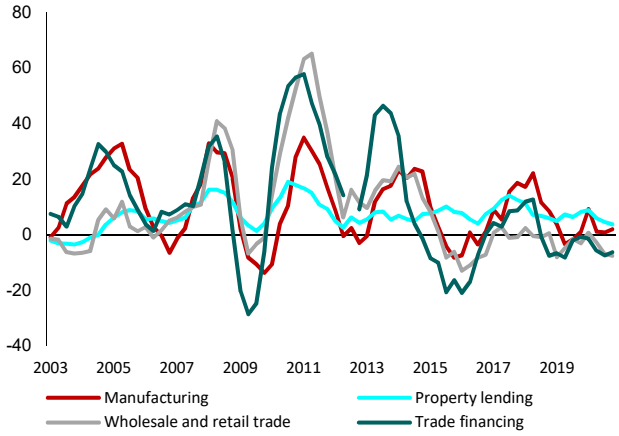


Sources: Hong Kong authorities via CEIC; and AMRO staff calculations.

Credit growth remained supportive, with help from strong policy action.

Credit Growth

(Percent, year-over-year)

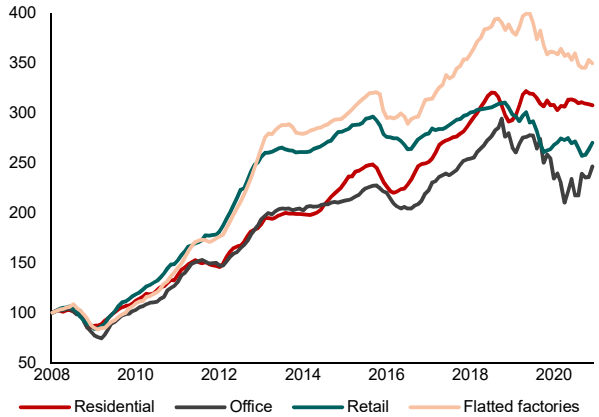


Sources: Hong Kong authorities via CEIC, and AMRO staff calculations.

Residential property prices have remained resilient despite the sharpness of the economic downturn.

Property Price Indices

(January 2008 = 100)

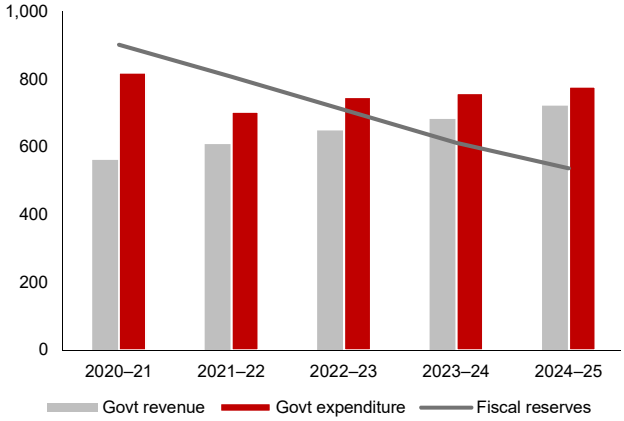


Sources: Hong Kong authorities via CEIC; and AMRO staff calculations.

Despite sizable use of fiscal reserves in response to the pandemic, reserves are projected to remain substantial in the coming years.

Fiscal Revenue, Expenditure, and Reserves

(Billions of HK dollars)



Sources: Hong Kong authorities; and AMRO staff calculations.

Hong Kong, China: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	3.8	2.8	–1.2	–6.1
Private consumption	5.5	5.3	–1.1	–10.1
Government consumption	2.8	4.2	5.1	7.8
Gross fixed capital formation	3.1	1.7	–12.3	–11.5
Imports of goods	7.3	4.7	–7.3	–2.1
Imports of services	2.0	2.8	–2.4	–35.1
Exports of goods	6.5	3.5	–4.6	–0.3
Exports of services	2.8	4.6	–10.2	–36.8
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	4.6	3.7	6.0	–0.5
Goods trade balance	1.0	–0.2	1.7	–1.1
Capital and financial account balance	6.6	–5.9	–8.6	–6.8
Direct investment	7.0	6.1	5.6	4.0
Portfolio investment	9.9	–21.7	–7.5	–5.5
Other investment	–12.7	8.6	–6.7	–1.8
Errors and omissions	–1.7	2.4	2.3	1.8
Overall balance	9.4	0.3	–0.3	0.5
International reserves (in USD billion, end of period)	432.8	424.2	438.9	486.0
Fiscal sector	(in percent of GDP)			
Revenue and grants[1]	23.3	21.2	20.6	20.7
Expenditure	17.7	18.8	21.2	30.2
Fiscal balance	5.6	2.4	–0.6	–9.5
Government debt	0.1	0.1	0.3	0.1
Monetary and financial sectors	(in percent)			
Total loans (in annual percentage change	16.1	4.4	6.7	7.2
Loan to deposit ratio	73.0	72.6	75.3	83.5
Classified loan ratio	0.6	0.6	0.5	0.8
Capital adequacy ratio	19.1	20.3	20.7	20.0
Memorandum items:				
Nominal GDP (in HKD billion)	2,659.4	2,835.2	2,865.7	2,710.7
Headline inflation (in percent yoy, period average)	1.5	2.4	2.9	0.3
Three-month HIBOR (end of period)	1.3	2.3	2.4	0.3
Exchange rate (in HKD/USD, end of period)	7.81	7.83	7.79	7.75

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. HIBOR = Hong Kong Interbank Offered Rate; yoy = year-over-year.
1/ Includes 0.7 percentage point from the net proceeds from the issuances of green bonds.

Indonesia

The economy of Indonesia remains resilient despite COVID-19 and is on the way to recovering from the adverse impact of the pandemic. Real GDP contracted by 2.1 percent in 2020, as the imposition of large-scale social restrictions led to a decline in domestic demand. Economic activity had gradually turned around in H2 2020, following the resumption of mobility and aided by pro-active monetary and fiscal stimulus measures. The launch of a vaccination program, together with continued supportive policies and the global economic recovery, are expected to underpin a rebound in growth to 4.9 percent in 2021.

The external position remains resilient. Muted domestic demand led to a decline in imports, while exports have gained traction on the back of a recovery in commodity prices. Consequently, the current account deficit narrowed to 0.5 percent of GDP in 2020. Inflows to financial markets have resumed—underpinned by improved investor sentiment and global portfolio rebalancing—after the large sell-off in early 2020. Improvement in the current account balance and the return of capital inflows have supported the rupiah rebound and reserve accumulation.

Strong capital buffers and increased provisioning have underpinned overall banking resilience, as the economic downturn affected banks' asset quality. Weakened household and corporate sector balance sheets have spilled over to banks' asset quality, as reflected in an increase in banks' nonperforming loans (NPLs). To provide a cushion for affected businesses, banks have been allowed to relax their quality assessment for loans of up to IDR 10 billion and restructured loans. Meanwhile, banks have stepped up loan loss provisioning, in part because of the implementation of new financial reporting standards, sufficient to cover about 165 percent of NPLs, as of September 2020. At close to 24 percent, the Indonesian banking system's capital adequacy ratio remains among the highest in the region.

Bank Indonesia (BI) has actively recalibrated its policy mix to support economic recovery while safeguarding financial stability. The measures include providing substantial liquidity support and conducting triple interventions in the spot exchange rate, domestic non-deliverable forwards, and secondary government bond markets to buffer against volatility shocks while maintaining rupiah flexibility. Given the subdued inflation environment, BI lowered its benchmark 7-day reverse repo rate by a cumulative 150 basis points, to 3.5 percent, as of February 2021. Macroprudential measures have also been eased to stimulate financing to priority sectors. Total liquidity injected into the system—notably through lower reserve requirements, term repos, FX swaps, and purchase of government bonds in the secondary market—is estimated at IDR 727 trillion (about 4.7 percent of GDP) as of the end of 2020.

Sizable fiscal packages have provided assistance to affected households and businesses. The revised Budget for 2020 introduced fiscal packages of about IDR 695 trillion (4.4 percent of GDP), to cover COVID-19 healthcare spending, social assistance to affected households, and sectoral and regional support ("public goods" package), and support to businesses, including both micro, small, and medium enterprises (MSMEs) and non-MSME firms. Additional fiscal stimulus has also been approved for the 2021 Budget, to provide continuing support for a sustainable recovery.

A forward-looking regulation, Perppu 1/2020, was issued to suspend the fiscal deficit ceiling of 3 percent of GDP in 2020–22. It also allows BI to purchase government bonds in the primary market to finance the budget. BI has done so through market-based mechanisms in line with a joint decree with the Finance Minister in April 2020. Under a one-off burden sharing agreement in July 2020, BI also financed the "public goods" package through private placements and absorbed the interest costs, as well as shared part of the interest costs of the MSME and corporate support packages.

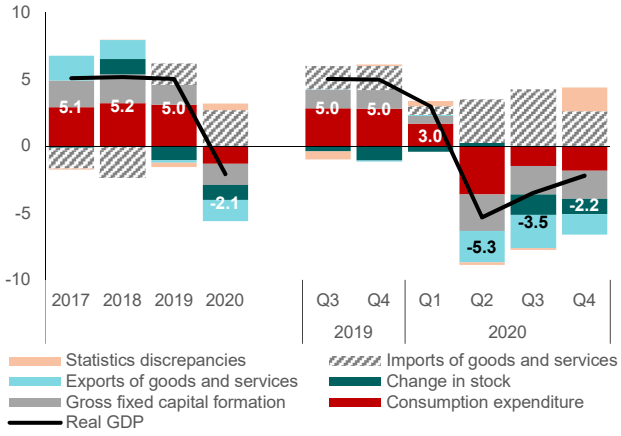
With speedy vaccine developments and continuing policy support lifting the outlook for 2021, downside risks are attributable to ongoing pandemic uncertainties in the short-term. The pace of rebound may be capped by current elevated infections and tightened social restrictions. Possible delays in inoculation or weaker-than-expected vaccine efficacy could trigger renewed lockdowns elsewhere and cast a shadow on global prospects, which may affect the demand for Indonesia's commodity exports. On the upside, a swift and effective vaccination program will enable a stronger recovery by Indonesia. The recent passage of an Omnibus Law on Job Creation is a major breakthrough in improving the investment climate and facilitating job generation.

The author of this note is Nguyen Thi Kim Cuc.

Indonesia: Selected Figures

The economy is on the way to recovering from a sharp contraction in Q2 2020.

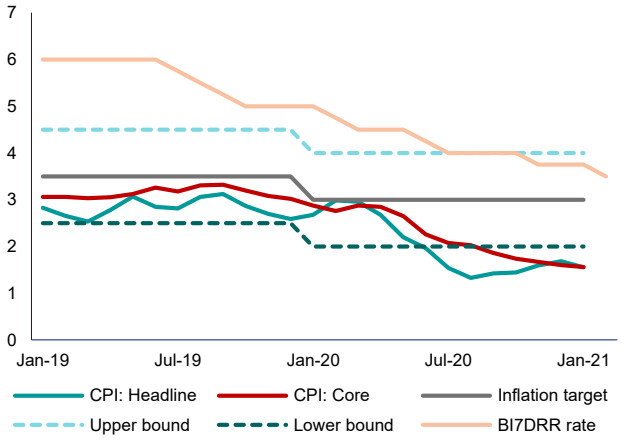
Contributions to Real GDP Growth
(Percentage points, year-over-year)



Sources: Statistics Indonesia via CEIC; and AMRO staff calculations.

Bank Indonesia lowered its policy rates and injected liquidity to support the economy, amid subdued inflation.

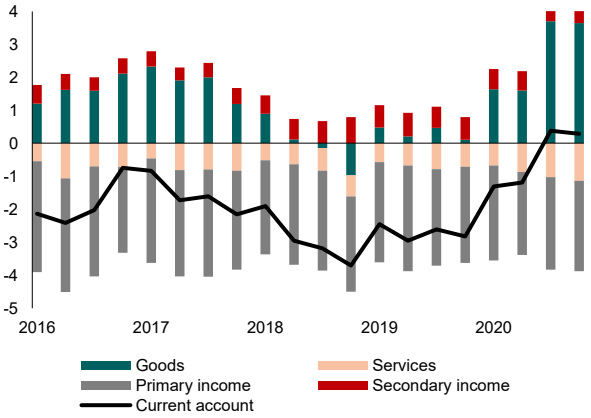
Policy Rate and Inflation
(Percent)



Source: Statistics Indonesia via CEIC.
Note: BI7DRR refers to Bank Indonesia's 7-day reverse repo rate.
CPI = consumer price index.

The current account balance improved.

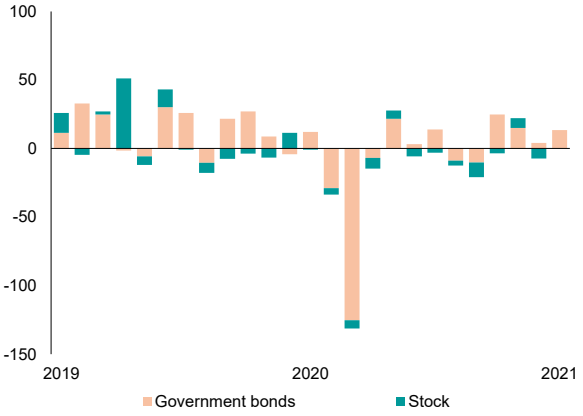
Current Account Balance
(Percent of GDP)



Sources: Bank Indonesia via CEIC; and AMRO staff calculations.

And capital inflows into the government bond market resumed.

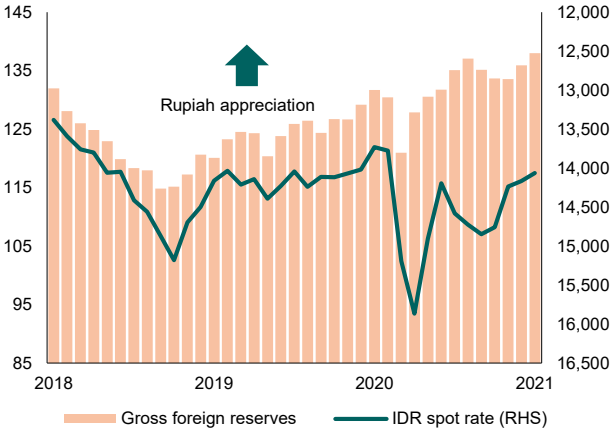
Net Capital Flows to Bond and Equity Markets
(Trillions of Indonesian rupiah)



Sources: Bank Indonesia, Indonesia Stock Exchange and Ministry of Finance all via CEIC; and AMRO staff calculations.

The rupiah rebounded and BI accumulated foreign exchange reserves.

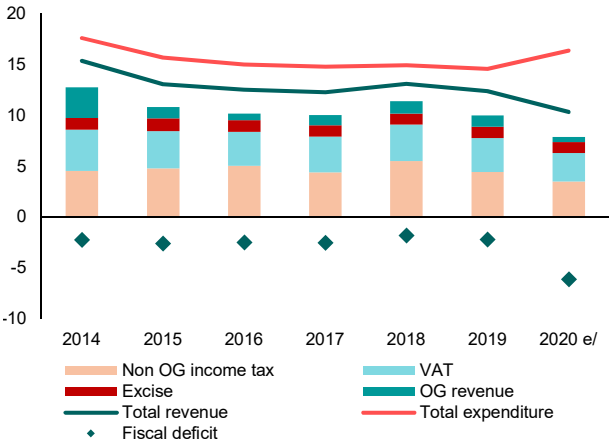
Gross Foreign Reserves and Rupiah Spot Rate
(Billions of US dollars; IDR/USD inverse)



Source: Bank Indonesia via CEIC.

Budget expenditure increased to support affected sectors while revenue declined, widening the deficit.

Budget Revenue, Expenditure, and Overall Balance
(Percent of GDP)



Sources: Ministry of Finance via CEIC; and AMRO staff estimates.
Note: Data for 2020 are AMRO staff estimates based on the preliminary fiscal realization data reported by Ministry of Finance of Indonesia. OG = oil and gas; VAT = value-added tax.

Indonesia: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	5.1	5.2	5.0	–2.1
Household consumption	4.9	5.1	5.0	–2.6
Government consumption	2.1	4.8	3.3	1.9
Gross fixed capital formation	6.2	6.7	4.5	–5.0
Imports of goods and services	8.1	12.1	–7.4	–14.7
Exports of goods and services	8.9	6.5	–0.9	–7.7
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	–1.6	–2.9	–2.7	–0.5
Trade balance	1.9	0.0	0.3	2.7
Capital and financial account balance	2.8	2.4	3.3	0.7
Direct investment	1.8	1.2	1.8	1.3
Portfolio investment	2.1	0.9	2.0	0.4
Other investment	–1.1	0.3	–0.5	–1.0
Overall balance	1.1	–0.7	0.4	0.2
Gross external debt	34.7	36.0	36.1	39.4
International reserves (in USD billion, end of period)	130.2	120.7	129.2	135.9
Fiscal sector	(in percent of GDP)			
Revenue and grants	12.3	13.1	12.4	10.3
Expenditure	14.8	14.9	14.5	16.4
Fiscal balance	–2.5	–1.8	–2.2	–6.1
Government debt	29.4	30.4	30.6	37.7
Monetary and financial sectors	(in annual percentage change)			
Broad money	8.3	6.3	6.5	12.4
Private sector credit	8.0	12.5	5.5	–2.4
Memorandum items:				
Nominal GDP (in IDR trillion)	13,590	14,838	15,834	15,434
Headline inflation (in percent yoy, period average)	3.8	3.2	3.0	2.0
Policy rate (in percent per annum)	4.3	6.0	5.0	3.8
Exchange rate (in IDR/USD, period average)	13,385	14,246	14,148	14,525

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.

Japan

The Japanese economy has started to rebound after being severely hit by the COVID-19 pandemic. After the first wave of infections in April 2020, the economy contracted by 29.3 percent (annualized quarter-over-quarter) as economic activity, particularly private consumption, shrank sharply amid the nationwide state of emergency. In Q3 and Q4, real GDP expanded by 22.7 and 12.7 percent, respectively, mainly driven by a sharp rebound in private consumption and net exports. For the whole year of 2020, the economy has contracted 4.8 percent. Private consumption began to recover strongly in H2 2020, but the pace was uneven between goods and services consumption. Exports bounced back on growing external demand in H2, while imports remained weak. Business investment jumped in Q4. Public investment accelerated on the back of large-scale economic stimulus packages. The unemployment rate rose to above 3 percent in H2 2020 but avoided a huge spike-up, largely attributable to the government's enhanced Employment Adjustment Subsidy program.

Looking ahead, GDP growth is expected to rebound in 2021. Private consumption is projected to expand at a moderate pace, while another state of emergency, declared in January 2021, will lead to a temporary reduction in Q1. Business investment will slowly recover under the assumption of a wider deployment of vaccines in H2 2021. Exports are likely to accelerate with stronger global demand. Public spending will continue to provide support to growth.

CPI inflation decelerated in 2020, falling into the negative territory in Q4. Service prices declined sharply whereas goods prices have fared well since the onset of the pandemic. The recent drag on consumer prices may be attributable to not only the sharp economic downturn, but also policy measures such as free education and the travel subsidy program. Looking ahead, CPI inflation is projected to stay slightly negative in 2021.

Japan's current account remained resilient, posting a surplus amounting to 3.3 percent of GDP in 2020. The trade balance has recovered from a temporary dip in Q2 following a surge in global demand for goods, in particular, for automobiles. The services account, which was hit hard by international travel restrictions, posted a deficit. The primary income account remained the major contributor to Japan's strong current account surplus. Outbound foreign direct investment (FDI) and portfolio investment have been robust, suggesting that the impact of the pandemic on Japanese overseas investments could be limited.

The overall financial system remains sound, although financial institutions face some pressure from rising credit risks. In response to the COVID-19 pandemic, the Bank of Japan strengthened its liquidity support for corporate financing, mainly through a special program totaling about JPY 140 trillion. The growth in bank lending has jumped to 5–6 percent year-over-year since Q2 2020, reflecting a surge in demand from firms, amid highly accommodative financing conditions. Overall, the banking sector has sufficient capital buffers, while nonperforming loan ratios have stayed low. However, Japanese mega banks posted a significant decline in net profits because of increased provisions in H1 FY2020, led by the economic fallout from the pandemic.

The fiscal deficit is projected to widen sharply in FY2020, mainly attributable to the government stimulus packages to combat the COVID-19 pandemic. Given the sharp economic downturn, tax revenues in FY2020 are likely to fall short of the budget. The government has adopted unprecedented large economic stimulus packages, amounting to about 52 percent of GDP, including three supplementary budgets in FY2020. As a result, the fiscal deficit is expected to widen significantly in FY2020, before narrowing in FY2021.

The economy is facing significant uncertainty in the macro-financial outlook, which is highly dependent on the future path of pandemic. Given the continuing uncertainty about when the COVID-19 vaccines will be widely available globally, recurrent waves of infections would have significant and lasting impact on economic activity at home and abroad. This could, in turn, further postpone firms' investment decisions while impairing labor market conditions and SME businesses, in particular, in the services sector. Delayed economic recovery may continue to put downward pressure on the prices of goods and services, while dampening inflation expectations of both households and firms. A prolonged pandemic would also have adverse effects on financial institutions, in particular on regional banks, in the form of deteriorating asset quality and profitability. Meanwhile, eventual unwinding of the government's special lending programs for SMEs, when the COVID-19 infections are contained, may lead to a pick-up in bankruptcies. Structural challenges include lack of digitalization, demographic drag from population aging and low fertility rates, prolonged easing of monetary policy, and a deterioration in the fiscal situation, which has been exacerbated further by massive economic stimulus packages against the pandemic.

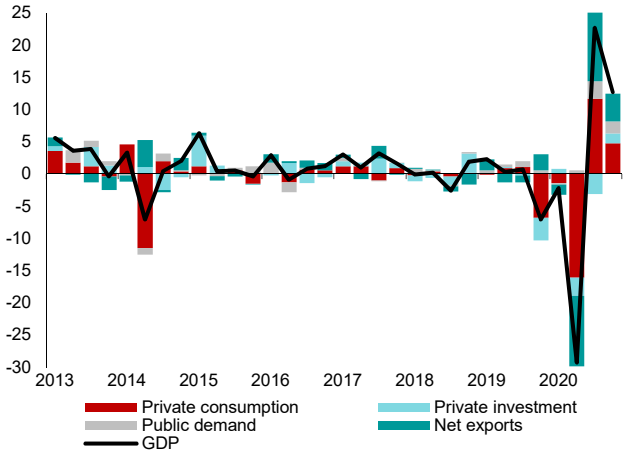
The author of this note is Jinho Choi.

Japan: Selected Figures

The Japanese economy strongly rebounded in H2 after being severely hit by the COVID-19 pandemic in Q2 2020.

Contributions to Real GDP Growth

(Percentage points, quarter-over-quarter, seasonally-adjusted annualized rate)

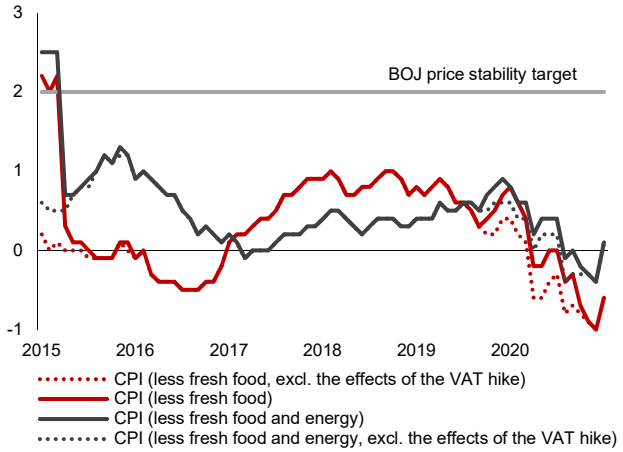


Sources: Cabinet Office via CEIC; and AMRO staff calculations.

Core CPI inflation decelerated in 2020, falling into the negative territory in Q4 2020.

CPI Inflation

(Percent, year-over-year)

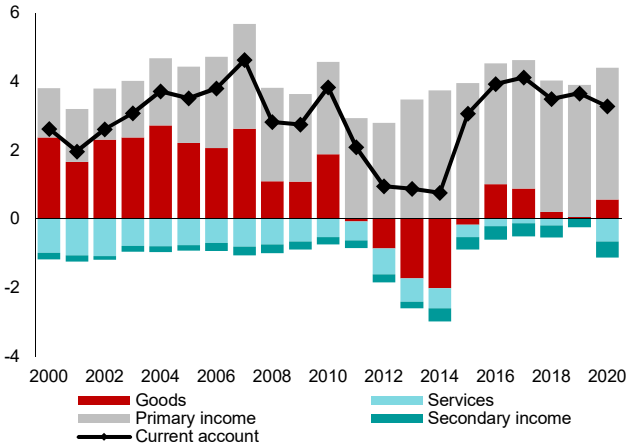


Sources: Ministry of Internal Affairs and Communications via Haver Analytics; and AMRO staff calculations.
Note: BOJ = Bank of Japan; CPI = consumer price index.

The current account surplus remained robust at about 3.3 percent of GDP in 2020.

Current Account Balance

(Percent of GDP)

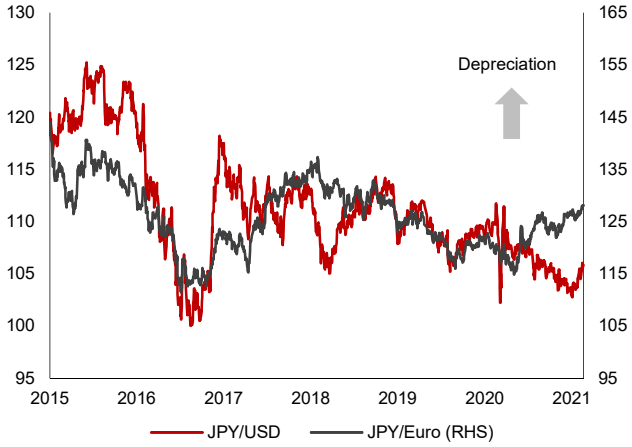


Source: Ministry of Finance via Haver Analytics.
Note: The 2020 figures are based on AMRO staff estimates.

In 2020, the Japanese yen has gradually strengthened against the US dollar following the market turmoil in March.

Exchange Rates

(Japanese yen/US dollar; Japanese yen/euro)

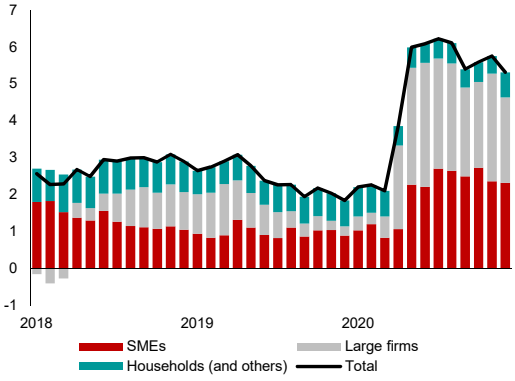


Source: Bank of Japan via CEIC.

Bank lending growth has jumped in 2020 amid highly accommodative financing conditions.

Bank Lending Growth

(Percent, year-over-year)

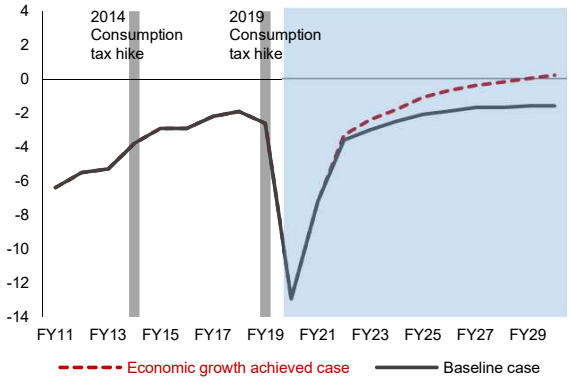


Sources: Bank of Japan via CEIC; and AMRO staff calculations.
Note: SME = small and medium enterprise.

Fiscal deficit has widened sharply due to unprecedentedly large economic stimulus packages in FY2020.

Primary Balance of Central and Local Governments

(Percent of GDP)



Source: Cabinet Office via CEIC (January 2021).

Japan: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	1.7	0.6	0.3	–4.8
Private consumption	1.1	0.3	–0.3	–5.9
Government consumption	0.1	1.0	1.9	2.7
Gross fixed capital formation	1.6	0.2	0.9	–4.1
Imports of goods and services	3.3	3.8	–0.4	–6.8
Exports of goods and services	6.6	3.8	–1.4	–12.3
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	4.1	3.5	3.7	3.3
Trade balance	0.8	0.1	0.1	–0.1
Capital account balance	–0.1	0.0	–0.1	0.0
Financial account balance	2.9	3.1	3.9	3.1
Direct investment	3.1	2.7	4.2	2.1
Portfolio investment	–1.0	1.8	1.7	0.8
Financial derivatives	0.6	0.0	0.1	0.2
Other investment	0.2	–1.4	–2.0	0.1
Errors and omissions	–0.7	0.2	0.8	0.1
Overall balance	0.5	0.5	0.5	0.2
Gross external debt	73.5	80.0	82.4	93.0
International reserves (in USD billion, end of period)	1,264.3	1,271.0	1,323.8	1,394.7
Fiscal sector[1]	(in percent of GDP)			
Revenue and grants	34.8	35.5	35.3	37.2
Expenditure	37.7	37.8	38.3	53.9
Fiscal balance	–2.9	–2.4	–3.1	–16.7
Government debt	233.9	237.9	236.8	255.0
Monetary and financial sectors	(in annual percentage change)			
Broad money	3.0	2.1	1.9	4.1
Domestic credit	4.3	3.1	3.0	5.2
Private sector credit	5.9	4.2	3.8	5.5
Memorandum items:				
Nominal GDP (in JPY trillion)	553.1	556.2	561.3	539.3
Headline inflation (in percent yoy, period average)	0.5	1.0	0.5	0.0
Core inflation, less fresh food (in percent yoy, period av	0.5	0.9	0.6	–0.2
Policy rate (in percent per annum, end of period)	–0.1	–0.1	–0.1	–0.1
Exchange rate (in JPY/USD, period average)	112.2	110.4	109.0	106.8

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Refers to fiscal year.

Korea

The Korean economy contracted by 1 percent in 2020, from an expansion of 2 percent in 2019, following the outbreak of the COVID-19 pandemic. That said, the magnitude of growth shrinkage was the lowest among OECD countries, primarily attributable to not implementing a nationwide lockdown, various economic relief measures, and robust demand for information and communication technology (ICT) products. Private investment inched up from the expansion of ICT facilities, even though domestic private consumption remained weak. By sector, small merchants and self-employed business operators in face-to-face services were the most severely hit by the pandemic, while production in the manufacturing sectors recovered gradually in H2 2020, in line with the global economic recovery.

The labor market continued to experience job losses, although many industries resumed production. The number of job losses averaged 218,400 jobs per month in 2020, larger than the 87,200 job losses per month recorded during the global financial crisis. Restrictions on cross-border travel and social distancing practices dampened employment, especially in face-to-face service sectors. The manufacturing sector also continued to retrench workers, although production had almost returned to pre-COVID-19 levels.

Headline inflation remained well below the Bank of Korea's (BOK's) 2 percent target for the second consecutive year. The pandemic and a plunge in global oil prices have softened inflationary pressures, in part attributable to policy-induced reductions in education and telecommunications costs. CPI inflation stayed at 0.5 percent in 2020.

Amid lingering global economic uncertainty, Korea's external position remained strong, supported by a sustained surplus in the current account, a net external asset position, and ample international reserves. The current account is expected to remain in surplus amounting to 4.6 percent of GDP in 2020, on the back of strong goods exports. The bulk of the current account surplus continued to be channeled overseas through direct and portfolio investment, including through pension funds and insurance companies, which expanded their portfolio investment abroad. Gross international reserves rose to USD 443 billion at the end of December 2020, equivalent to more than 10 months of goods and services imports and almost three times short-term external debt.

Monetary conditions were eased through the BOK's policy rate cuts and unconventional monetary tools, compounded by the government's finance support measures. The acceleration in small and medium enterprises (SMEs) loan growth was driven by rising corporate demand, while household loan growth also strengthened, with a significant proportion flowing into equities and residential property purchases.

Korea's financial system has remained generally sound. Korean commercial banks are well capitalized, with low substandard-and-below loan ratios at 0.4 percent. Meanwhile, the US dollar liquidity squeeze, which occurred in March 2020, was stabilized by the activation of the BOK–US Federal Reserve swap line. By the end of the 2020, a brighter outlook for the Korean economy, together with the implementation of economic stimulus measures by many countries around the world, led to sustained gains in the Korean won and equity market.

On the fiscal front, the government rolled out sizable economic stimulus packages in 2020 to stimulate economic activity. Total government spending was expanded dramatically to 29.6 percent of GDP in 2020, while revenue was expected to be at 25.5 percent of GDP. The boom in asset markets helped shore up government revenue, although revenue from income taxes was expected to decline as a result of the economic fallout. The fiscal deficit (excluding the Social Security Fund) was expected to widen to 5.9 percent of GDP in 2020 from 2.8 percent of GDP in 2019, because of stimulus spending.

Going forward, Korea's economic growth is forecast to rebound to 3.2 percent in 2021, underpinned by strong global demand for ICT products, and government spending. Upside risks to the growth outlook would come from the resumption in global economic activity. At the same time, downside risks to Korea's economy may stem from lingering US–China trade tensions, any sustained recurrence of COVID-19 infections globally, as well as the delayed recovery of local SMEs, small merchants and self-employed business operators.

From a longer-term perspective, economic fallout from the pandemic has manifested in a very divergent impact between low- and high-income earners, and between large corporations and SMEs. Similar to other countries, higher-paid workers in Korea are able to work from home and keep their jobs, while low-paid blue-collar workers, especially daily and temporary ones, have been retrenched. Among firms, large Korean companies have been able to withstand the crisis, but small merchants, SMEs and self-employed business operators are at risk from the slow recovery in demand and lean financial buffers. Income inequality will most likely worsen in the post-pandemic period. In addition, the rise in non-face-to-face economic activity is expected to accelerate the shift toward the digital economy. To pre-emptively mitigate any deterioration in income distribution, the Korean government is taking several measures and initiatives to strengthen and expand the coverage of social safety nets and create quality jobs.

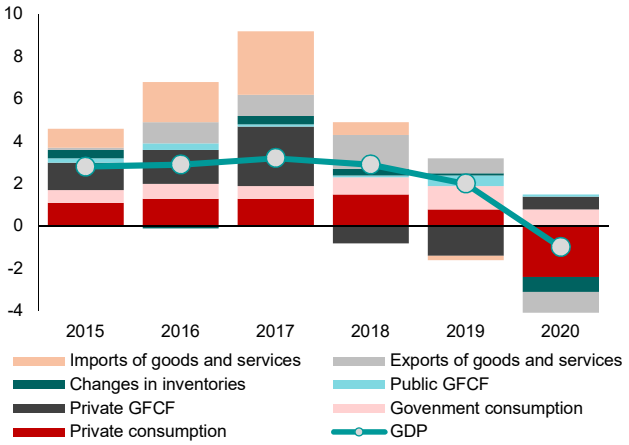
The author of this note is Wanwisa May Vorranikulkij.

Korea: Selected Figures

Growth contraction in 2020 was underpinned by investment slump of domestic demand.

Contributions to Real GDP Growth

(Percentage points, year-over-year)

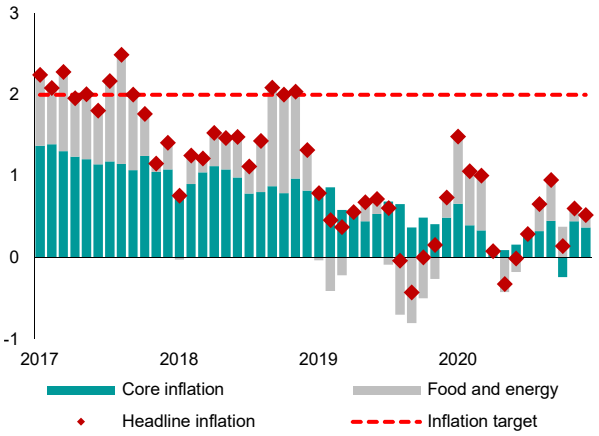


Sources: Bank of Korea; and AMRO staff calculations.
Note: GFCF = gross fixed capital formation.

Headline inflation stayed below the Bank of Korea's 2 percent target for the second year running, in 2020.

CPI Inflation

(Percent, year-over-year)

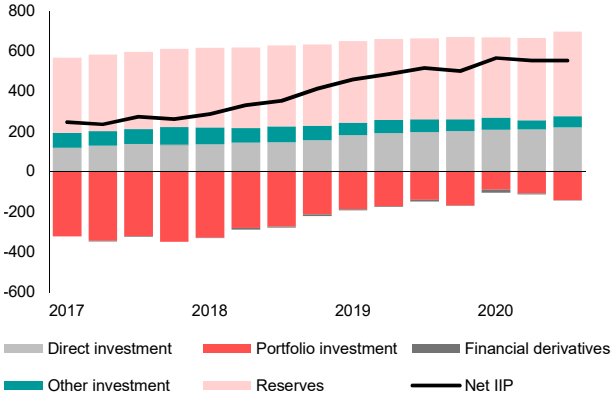


Sources: Statistics Korea; and Bank of Korea.
Note: CPI = consumer price index.

Korea's net asset position expanded further despite external uncertainty.

Net International Investment Position

(Billions of US dollars)

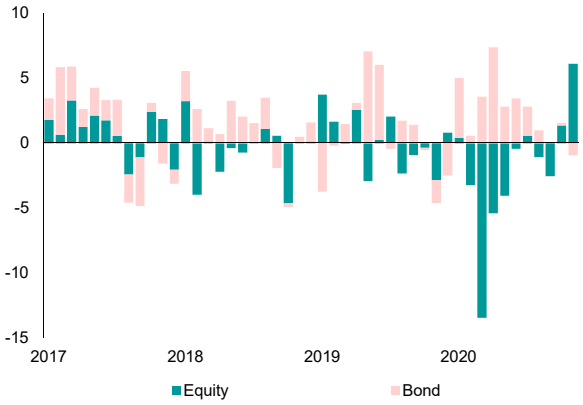


Sources: Bank of Korea; and AMRO staff calculations.
Note: IIP = international investment position.

Nonresident portfolio flows pointed to opposite positions in Korean equities and bonds.

Portfolio Flows

(Billions of US dollars)

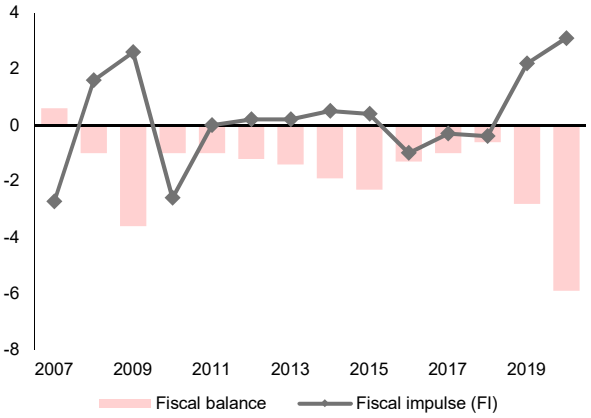


Source: Bank of Korea.

The sizable fiscal deficit in 2020 was the result of economic stimulus packages to combat the pandemic.

Fiscal Balance

(Percent of GDP)

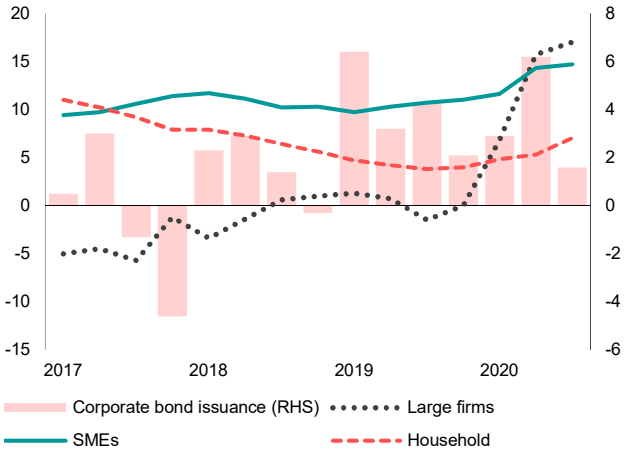


Sources: Ministry of Economy and Finance; and AMRO staff estimates.
Note: Fiscal balance does not include the Social Security Fund. FI is the difference between fiscal balance of the current and previous fiscal years. FI<0 indicates less expansionary (or more contractionary), while FI>0 indicates more expansionary (or less contractionary) policy.

Private loan growth accelerated in 2020 as monetary conditions were eased.

Credit Growth

(Percent year-over-year; Trillions of Korean won)



Sources: Bank of Korea; and AMRO staff calculations.
Note: SME = small and medium enterprise.

Korea: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	3.1	2.9	2.0	–1.0
Private consumption	2.7	3.1	1.7	–5.1
Government consumption	3.9	5.2	6.4	4.8
Gross fixed capital formation	9.3	–2.2	–2.9	2.6
Imports of goods and services	8.5	1.7	–0.6	–3.9
Exports of goods and services	2.5	3.9	1.7	–2.6
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	4.9	5.1	3.6	4.5
Trade balance	7.4	7.2	4.6	5.1
Capital and financial account balance	5.2	3.9	3.2	2.8
Direct investment	5.5	4.7	3.6	1.6
Portfolio investment	1.1	1.6	1.5	1.5
Other investment	3.8	2.9	2.3	–0.7
Errors and omissions	–0.5	–0.1	0.3	0.0
Overall balance	0.9	–0.8	–0.7	1.8
Gross external debt	25.0	26.9	26.7	30.5
International reserves (in USD billion, end of period)	389.3	403.7	408.8	443.1
Fiscal sector	(in percent of GDP)			
Revenue and grants	23.5	24.5	24.7	25.5
Expenditure	22.1	22.9	25.3	29.6
Fiscal balance[1]	–1.0	–0.6	–2.8	–5.9
Government debt	36.0	35.9	37.7	44.5
Monetary and financial sectors	(in annual percentage change)			
Broad money[2]	5.1	6.7	7.9	9.8
Domestic credit[3]	5.5	7.2	9.1	9.9
Private sector credit[4]	6.7	7.1	7.0	10.1
Memorandum items:				
Nominal GDP (in KRW trillion)	1,740.8	1,835.7	1,888.6	1,887.9
Headline inflation (in percent yoy, period average)	1.9	1.5	0.4	0.5
Policy rate (in percent per annum)	1.50	1.75	1.25	0.50
Exchange rate (in KRW/USD, period average)	1,122.3	1,100.6	1,165.2	1,180.3

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.

1/ Excludes social security fund.
2/ Refers to M2, which includes currency in circulation, demand deposits, transferable saving deposits, money market funds, short-term time and savings deposits, beneficiary certificates, marketable financial instruments, short-term debentures, short-term money in trust.
3/ Domestic credit refers to claims of other depository corporations on domestic agencies that comprise the central government, local governments, social security office and private sector. It does not include claims of the Bank of Korea.
4/ Private sector credit refers to corporate loans and consumer loans lent by commercial banks, specialized banks and non-banks

Lao People's Democratic Republic

The Lao PDR economy is estimated to have grown by 0.5 percent in 2020 amid the global COVID-19 outbreak. The service sector was hit hardest by containment measures—namely, lockdown and border closure—and agricultural production suffered from severe drought and flooding. The mining sector contracted as the reopening of gold mines could not offset the closure of major copper mines. However, increased electricity generation from added capacity and continued large-scale construction projects have contributed positively to growth. In 2021, the economy is expected to gradually recover as restrictions are lifted and economic activities normalize, as long as there is no resurgence in COVID-19 virus infections or natural disasters.

Inflation remained high at 5.1 percent on average in 2020, gradually moderating throughout the year after peaking at 6.9 in January. Repeating natural disasters since the second half of 2019, such as floods, drought, and African swine flu, led to price hikes of agricultural goods, while persistent depreciation of the Lao kip caused lingering effects on prices of not only imported consumer goods, but also other goods and services under the multicurrency environment. Going forward, continued depreciation of the Lao kip is likely to impose inflationary pressure, although domestic food prices are expected to stabilize without severe natural disasters.

The current account is estimated to have posted a surplus of 1.5 percent of GDP in 2020, after chronic deficits in the past. Notwithstanding the COVID-19 pandemic and border closure, exports grew as electricity exports to neighboring countries increased substantially. On the other hand, imports plummeted across all types of goods, reflecting sluggish domestic demand. The service balance in 2020 stayed similar to 2019 as both inbound and outbound tourists disappeared after March. Interest payments for external debt remained elevated, constraining the improvement of the current account balance. The financial account showed net inflows, mainly attributable to FDI inflows to ongoing infrastructure projects and the government's external borrowings exceeding the repayment of maturing debt. The overall balance of payments recorded a surplus, and gross international reserves rose to USD 1.3 billion at the end of 2020 from USD997 million at the end of 2019.

Meanwhile, the Lao kip continuously depreciated by 4.7 percent against the US dollar and 10.7 percent against the Thai baht throughout 2020. Tight US dollar liquidity in the foreign exchange market widened the gap between commercial and parallel exchange rates to 10 percent at the end of 2020.

Liquidity was relatively ample, supported by the Bank of the Lao PDR's policy measures to mitigate the impacts of the pandemic, such as a policy rate cut, a required reserve rate cut, lending to small and medium enterprises (SMEs) to support domestic production. However, credit growth was subdued due to low borrowing demand and cautious lending behavior of banks. On the contrary, deposits grew substantially, dragging down the loan-to-deposit ratio. Lao PDR's financial sector remained broadly sound. The nonperforming loans ratio and capital adequacy ratio remained at similar levels compared to pre-pandemic, while profitability deteriorated but maintained positive.

The government revised down the revenue and expenditure targets for 2020, reflecting revenue shortfalls and reprioritized spending. The fiscal deficit widened to 5 percent of GDP in 2020 from 3.2 percent of GDP in 2019, and public debt rose to 62.8 percent of GDP in 2020 from 57.5 percent of GDP in 2019. As a fiscal consolidation effort, the 2021 budget targets a deficit of less than 3 percent of GDP, by maintaining domestic spending within domestic revenue, while financing capital expenditure externally from international donors.

The Lao PDR economy is confronted with risks and challenges from various sources. First, given limited public healthcare capacity, the economic recovery remains susceptible to another wave of the COVID-19 pandemic. The authorities should remain vigilant in monitoring and controlling the virus spread, while enhancing the public health readiness, including the procurement of vaccines. Second, public debt has continuously risen and the external debt service burden has increased. Policy priority should be given to securing affordable financing sources, while fundamentally improving debt management capacity, strengthening revenue mobilization, and enhancing expenditure efficiency. Third, financial stability will be at risk if the pandemic is prolonged and economic recovery delayed. The authorities should closely monitor the financial soundness of the banking sector, support banks to strengthen capital buffers, and carefully normalize forbearance measures, to avoid sudden shocks to beneficiary companies and the financial system. Fourth, the economy continues to be vulnerable to external shocks with low international reserves. More structural reforms to improve the current account should be accompanied by immediate policy efforts to enhance external buffers.

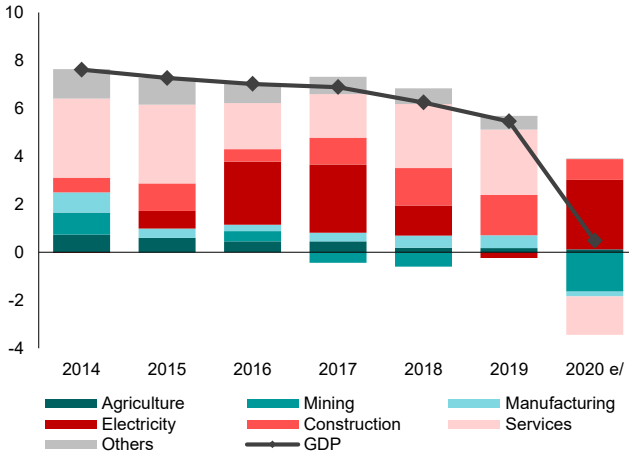
This author of this note is Byunghoon Nam.

Lao PDR: Selected Figures

Growth slowed in 2020 after being hit by the COVID-19 pandemic and natural disasters.

Contributions to Real GDP Growth

(Percentage points, year-over-year)

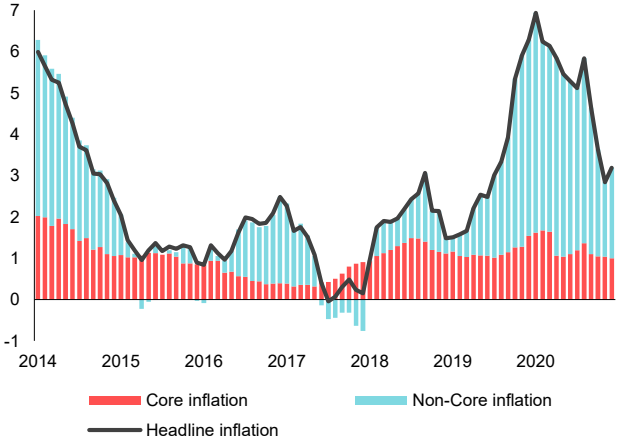


Sources: Lao Statistics Bureau; and AMRO staff estimates.

Inflation remained high in 2020, attributable to frequent natural disasters and the steep depreciation of the Lao kip.

Contributions to CPI Inflation

(Percentage points, percent year-over-year)

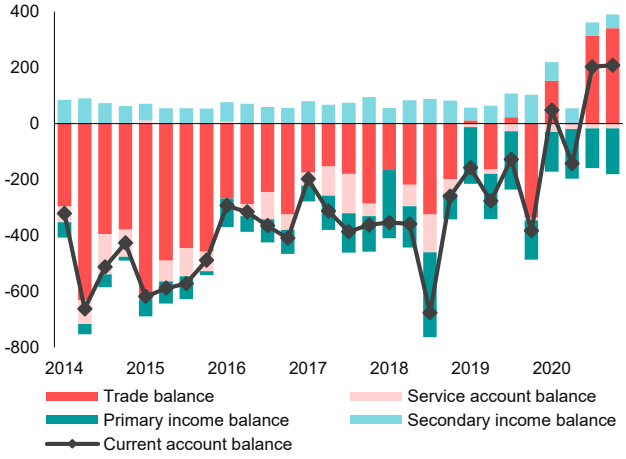


Sources: Lao Statistics Bureau; and AMRO staff calculations.
Note: CPI = consumer price index.

The current account recorded a surplus in 2020, driven by rising electricity exports and shrinking imports.

Current Account

(Millions of US dollars)

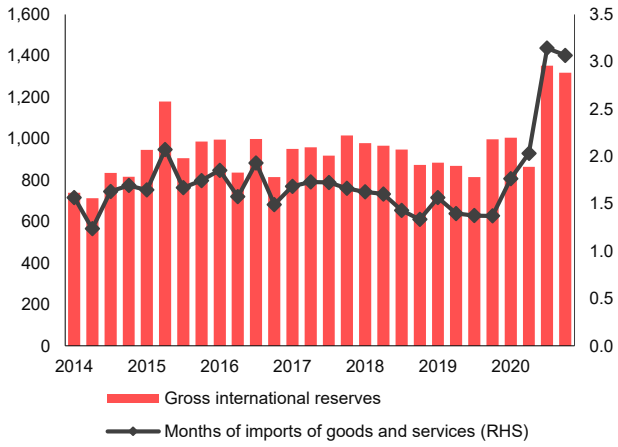


Source: Bank of Lao PDR.

Foreign exchange reserves rose to USD 1.32 billion at the end of 2020, which would cover 2.8 months of imports.

International Reserves

(Millions of US dollars; months of imports)

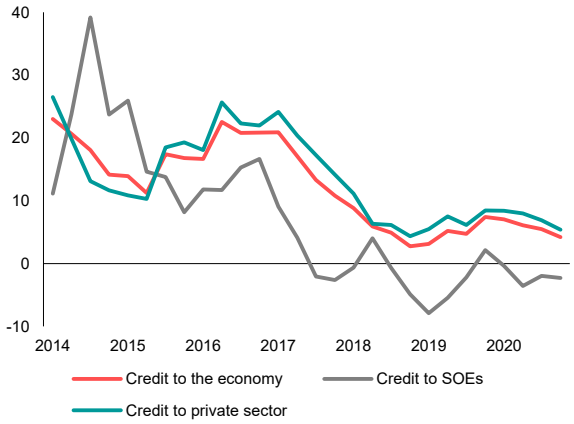


Sources: Bank of Lao PDR; and AMRO staff estimates.

Credit growth was subdued due to low borrowing demand and cautious lending behavior of banks.

Credit Growth

(Percent year-over-year)

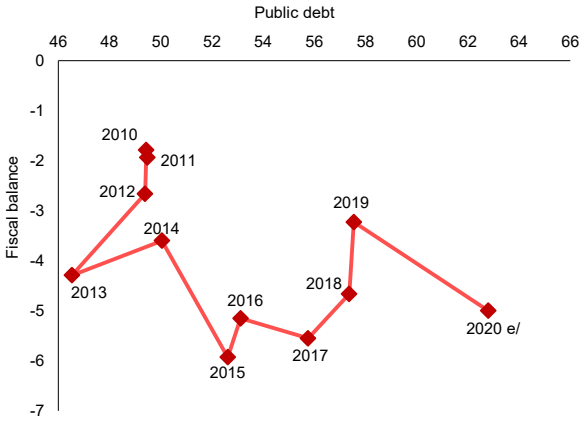


Sources: Bank of Lao PDR; and AMRO staff calculations.
Note: SOE = state-owned enterprise.

The fiscal deficit increased substantially due to revenue shortfall despite spending cuts, accumulating public debt.

Fiscal Balance and Public Debt

(Percent of GDP)



Source: Bank of Lao PDR.
Note: e/ denotes estimate.

Lao PDR: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	6.8	6.3	5.5	0.5
Agriculture	2.9	1.3	1.2	0.9
Industry	11.6	7.8	5.6	5.4
Services	4.5	6.8	6.9	–4.0
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	–7.4	–9.1	–5.0	1.5
Trade balance	–4.7	–5.0	–2.5	4.2
Capital and Financial account balance	12.7	12.1	10.7	3.6
Direct investment	9.8	7.5	4.0	4.8
Portfolio investment	1.9	2.9	–0.2	–1.7
Other investment	1.0	1.7	6.9	0.5
Errors and omissions	–4.3	–3.9	–5.1	–3.5
Overall balance	1.2	–0.8	0.7	1.7
External debt	82.6	82.2	82.9	88.1
International reserves (in USD million, end of period)	1,016.0	873.2	997.2	1,319.2
Fiscal sector	(in percent of GDP)			
Revenue and grants	16.3	16.2	15.4	13.3
Expenditure	21.8	20.9	18.7	18.3
Fiscal balance	–5.6	–4.7	–3.2	–5.0
Government debt	55.8	57.4	57.5	62.8
Monetary and financial sectors	(in annual percentage change)			
Broad money	12.2	8.4	18.9	17.0
Credit to the economy	10.8	2.8	7.4	4.2
Private sector credit	14.2	4.4	8.5	5.4
Memorandum Items:				
Nominal GDP (in LAK billion)	140,698	152,414	164,017	170,156
Headline inflation (in percent yoy, period average)	0.8	2.0	3.3	5.1
Policy rate (in percent per annum)	4.25	4.00	4.00	3.00
Exchange rate (in LAK/USD, period average)	8,247	8,407	8,690	9,055

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.

Malaysia

Following a steep recession in Q2 2020, a strong recovery momentum took hold in Malaysia in the following quarter as the nationwide lockdown was lifted and production caught up with backlogs and pent-up demand. However, the resurgence of infections in September prompted partial lockdowns in some parts of the country, which consequently dampened the growth momentum in Q4. Malaysia may face another recession in Q1 2021, as most of the country underwent lockdowns at the start of 2021. That said, the recession is expected to be less severe than that of 2020, given the targeted coverage of the latest movement restrictions, including allowing more businesses in the affected areas to remain open.

The pandemic has had an uneven impact on the Malaysian economy. The manufacturing sector recorded an export-led expansion in H2 2020 as global economic activity improved, while construction and service-oriented activities remained largely depressed. Still, labor market conditions have weakened, with the unemployment rate rising to an average of 4.7 percent over the March–December 2020 period, from the long-term average of 3.3 percent.

As the collapse in oil prices spilled into domestic fuel prices, headline inflation dropped to –1.2 percent in 2020 from 0.7 percent in 2019. It was also pulled down by policy measures such as electricity bill discounts and a sales tax exemption on passenger cars, as part of the economic stimulus package. Meanwhile, core inflation stayed in positive territory but likewise moderated over the course of 2020 owing to weak domestic demand.

The weak inflationary environment provided Bank Negara Malaysia (BNM) with ample room to ease monetary conditions, stabilize financial markets, and support the economy. The policy rate was cut by a total of 125 basis points in the first seven months of 2020, to a record low of 1.75 percent. Additional liquidity was injected into the financial system in 2020 through adjustments to banks' statutory reserve requirements and increased monetary operations by the BNM. The subsequent improvement in risk sentiment manifested in a decline in bond yields and rebound in the equity market after March 2020. Supported by the easing in domestic financing conditions and economic support measures, bank lending and corporate bond issuances expanded by 4 percent in 2020.

The resumption of foreign capital inflows after the massive sell-off in March 2020 reinforced BNM's reserves buffer and Malaysia's strong external position. Portfolio investments by both nonresidents and residents recorded nearly USD10 billion of outflows in Q1 2020, but sentiment improved thereafter, with the bond market sustaining nonresident inflows from May through the end of the year. The resumption of inflows supported the Malaysian ringgit/US dollar exchange rate and facilitated a steady rebuilding of BNM's international reserves after the decline in Q1 2020. Malaysia's external position remains strong, supported by a sustained surplus in the current account and buoyant foreign direct investment inflows.

Strong capital and liquidity buffers have placed banks in a position to implement an extensive loan repayment assistance and withstand increased credit risks. The six-month automatic loan repayment moratorium until September 2020 and the subsequent targeted repayment assistance still in place have provided affected borrowers time to rebuild their finances. The measures have likewise kept loan impairments low and stable at 1.6 percent in 2020. Stress-testing exercises by AMRO and BNM indicate that the banks have ample room to absorb loan impairments before capital buffers fall below regulatory thresholds. BNM estimates that impairments will rise to 4.1 percent at the end of 2021.

Economic stimulus measures were recalibrated progressively as the health and economic crisis continued to evolve. The economic stimulus package grew from the initial amount of MYR 20 billion in February 2020 to MYR 320 billion by January 2021. The bulk of the package comprised non-fiscal measures, such as the loan moratorium extended by banks, withdrawal of pension savings and reduced contributions, credit guarantees, and BNM's soft loans to small and medium enterprises (SMEs). Meanwhile, the fiscal burden totals only less than 20 percent of the entire package, and primarily comprises cash transfers to vulnerable households and wage subsidies to SMEs. Despite fiscal prudence, the deficit rose to 6.2 percent of GDP in 2020, and is expected to post 5.4 percent in 2021, up from 3.3 percent in the preceding five years. Government debt likewise expanded, prompting a temporary upward revision in the statutory debt limit, to 60 percent of GDP in 2020–22, before returning to the pre-pandemic level of 55 percent from 2023 onward.

The greater debt burden underscores the importance of restoring fiscal buffers over the medium term. At the same time, sustaining the policy momentum to protect the people's welfare and raise productivity would be critical to achieving a dynamic and inclusive economy in the post-pandemic new normal.

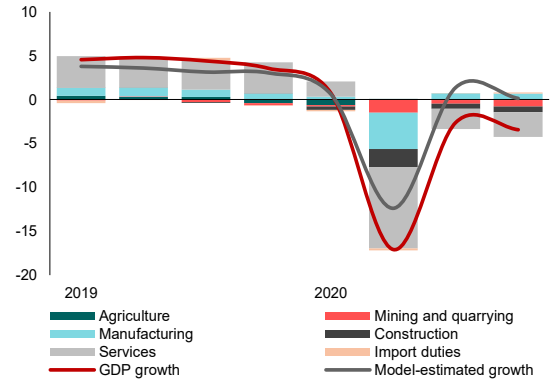
The author of this country note is Diana del Rosario.

Malaysia: Selected Figures

Renewed movement restrictions dampened the growth momentum in Q4 2020 after the sharp rebound in Q3.

Actual and Model-Estimated GDP Growth

(Percentage points, year-over-year, contributions to growth)

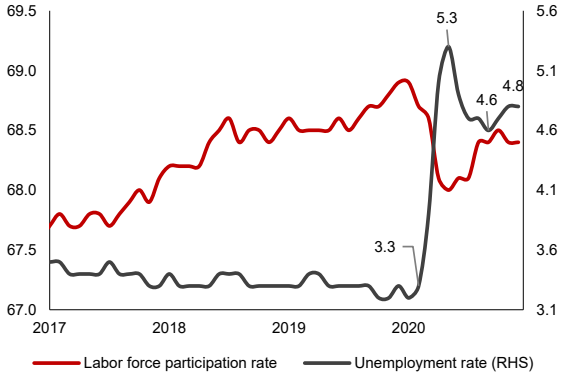


Sources: Department of Statistics Malaysia; and AMRO staff estimates.
Note: Estimates and projections are by AMRO staff. GDP growth is modeled as a function of inflation and growth rates of industrial production, car sales, bank loans, and government expenditure.

Labor market conditions improved slightly in H2 2020, but remained weaker than pre-pandemic levels.

Labor Force Participation and Unemployment

(Percent; percent, seasonally-adjusted)

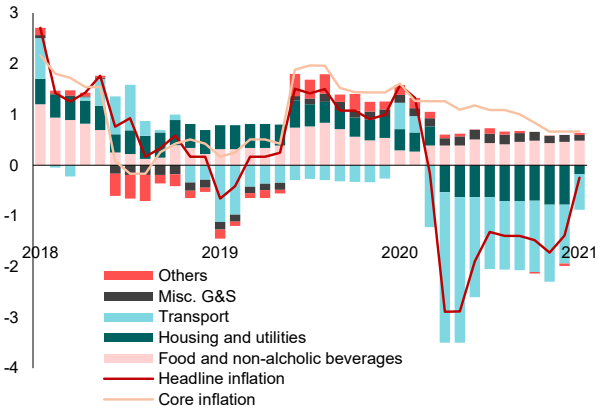


Source: Department of Statistics Malaysia.

The collapse in oil prices spilled into domestic fuel prices and led to a sharp decline in headline inflation.

Contributions to Headline and Core Inflation

(Percentage points, year-over-year)

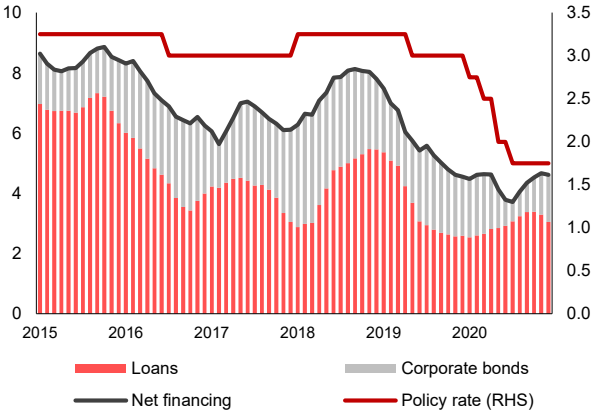


Source: Department of Statistics Malaysia.
Note: Misc. G&S = miscellaneous goods and services.

Easier monetary conditions helped to sustain the growth in bank lending and corporate bond issuances.

Net Financing and Overnight Policy Rate

(Percent, year-over-year, 3-month moving average; percent)



Source: Bank Negara Malaysia.

Risk sentiment improved after the sharp sell-off in March 2020, led by sustained foreign bond inflows through end-2020.

Nonresident Portfolio Flows

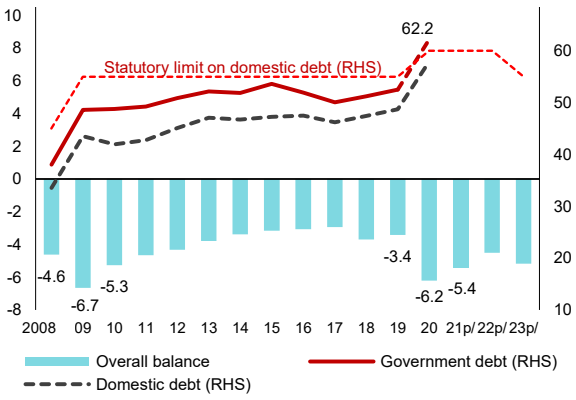
(Billions of US dollars)

Sources: Bank Negara Malaysia; Bursa Malaysia; and AMRO staff calculations.

The fiscal stimulus led to an increase in the fiscal deficit and a temporary upward adjustment to the debt ceiling.

Fiscal Balance and Federal Government Debt

(Percent of GDP)



Sources: Bank Negara Malaysia; Department of Statistics Malaysia; and AMRO staff calculations.
Note: Projections by the government. Domestic debt refers to Malaysian Government Securities, Malaysian Government Investment Issues, and Malaysian Islamic Treasury Bills.
p/ denotes projections.

Malaysia: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	5.8	4.8	4.3	–5.6
Private consumption	6.9	8.0	7.6	–4.3
Government consumption	5.7	3.2	2.0	4.1
Gross fixed capital formation	6.1	1.4	–2.1	–14.5
Imports of goods and services	10.2	1.5	–2.5	–8.3
Exports of goods and services	8.7	1.9	–1.3	–8.8
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	2.8	2.2	3.4	4.4
Trade balance	8.5	7.9	8.2	9.8
Capital and financial account balance	–0.3	0.8	–2.2	–5.6
Direct investment	1.2	0.7	0.4	0.0
Portfolio investment	–1.1	–3.4	–1.9	–3.5
Other investment	–0.4	3.4	–0.7	–2.2
Errors and omissions	–1.2	–2.5	–0.6	–0.1
Overall balance	1.2	0.5	0.6	–1.4
Gross external debt	64.5	63.8	62.6	67.7
International reserves (in USD billion, end of period)	102.4	101.4	103.6	107.6
Fiscal sector	(in percent of GDP)			
Revenue and grants	16.1	16.1	17.5	15.9
Expenditure	19.0	19.8	20.9	22.1
Fiscal balance	–2.9	–3.7	–3.4	–6.2
Government debt	50.1	51.2	52.5	62.2
Monetary and financial sectors	(in annual percentage change)			
Broad money	4.9	9.1	3.5	4.0
Private sector credit	5.8	8.4	4.4	3.5
Loans	3.8	7.1	4.2	3.2
Securities	23.6	18.5	5.7	6.0
Memorandum items:				
Nominal GDP (in MYR billion)	1,372	1,447	1,511	1,415
Headline inflation (in percent yoy, period average)	3.7	1.0	0.7	–1.2
Policy rate (in percent per annum)	3.00	3.25	3.00	1.75
Exchange rate (in MYR/USD, period average)	4.30	4.04	4.14	4.20

Sources: National authorities via CEIC.
Note: yoy = year-over-year.

Myanmar

Myanmar's economy was significantly affected by the COVID-19 pandemic in 2020. Growth slowed to 3.2 percent in FY19/20 from 6.8 percent in the previous fiscal year.[1] The economic downturn came from both manufacturing and service activities. The agricultural sector remained stable and provided some support to growth. Foreign direct investment inflows continued to be sluggish in 2020, despite an accelerated process for investment approval. As of January 2021, the purchasing managers' index was contractionary as the infection rate remained high even though it has been on the decline. The declaration of a one-year state of emergency by the military in early February has caused significant uncertainty and could weigh on the economy going forward. Growth momentum will remain soft in the short term, while the outlook depends on the progress of vaccinations and the development of the political situation.

Inflation slowed to 5.8 percent in FY19/20 as the pandemic and social distancing measures dampened consumption and investment. The appreciation of the Myanmar kyat in FY19/20 also helped to contain imported inflation. Since the declaration of the state of emergency, the Myanmar kyat has depreciated against the US dollar by about 6 percent within one week. Overall, inflation in FY20/21 is expected to be stable in an environment of below-potential economic growth.

As service receipts fell sharply and the trade deficit deteriorated, the current account balance worsened in FY19/20. Tourism-related services dropped as international arrivals were banned due to the pandemic. The trade deficit narrowed as imports contracted amid the decline in domestic demand. Since October 2020, exports have been rebounding supported by agriculture exports, leading to a mild trade surplus.

Overall monetary conditions have remained accommodative to support the economy. The Central Bank of Myanmar (CBM) cut the interest rate three times in March and April 2020, from 10 percent to 7 percent. To boost liquidity conditions, the CBM lowered the minimum reserve requirement ratio from 5 percent to 3.5 percent. It also extended the regulatory compliance timeline by three years on capital and loan restructuring. Broad money grew by 15 percent in Q3 2020, same as in the previous year. On the other hand, credit growth to the private sector stayed soft, slowing to 8.6 percent as of Q3 2020, from 16.1 percent one year ago.

Fiscal policy was focused on overcoming the economic fallout from the pandemic. The government rolled out various fiscal measures for economic relief, as described in the Myanmar COVID-19 Economic Relief Plan—a package of 2–3 percent of GDP to be implemented in 2 years. The fiscal deficit in FY19/20 was estimated to widen to –6.2 percent of GDP, compared to –3.6 percent in FY18/19. Against subdued tax revenues, the fiscal deficit is expected to widen further in FY20/21, to about 8 percent of GDP, as the government aims to scale up infrastructure projects, to be financed externally.

Risks to growth arise mainly from a prolonged COVID-19 pandemic and uncertainty associated with the recent political situation. The ongoing wave of infections has hit Myanmar strongly although the infection rate has been trending downward recently. Given that the virus has been mutating and continues to spread globally, a more adverse scenario would drag growth further down.

With rising nonperforming loans, the whole banking sector has become more vulnerable and risks are rising. However, restructuring and rescheduling have helped to reduce the pressure temporarily. But recapitalization remains slow and lags behind the deterioration in asset quality. For some individual banks, the pandemic-induced economic crisis is likely to pose solvency risks.

Myanmar can sustain its expansionary fiscal policy as its debt level is modest. The domestic bond market has been growing rapidly, allowing for more government bond issuance rather than direct CBM financing. There could be more room for external borrowing to push forward much-needed infrastructure projects. Banks have been using their funds to purchase government securities, as a sign of their risk aversion. Meanwhile, the CBM should ensure that banks are strengthening their balance sheets before regulatory forbearance ends.

The authorities should continue to push their agenda of contributing to medium-term economic development, while implementing measures aimed at short-term economic relief this year.

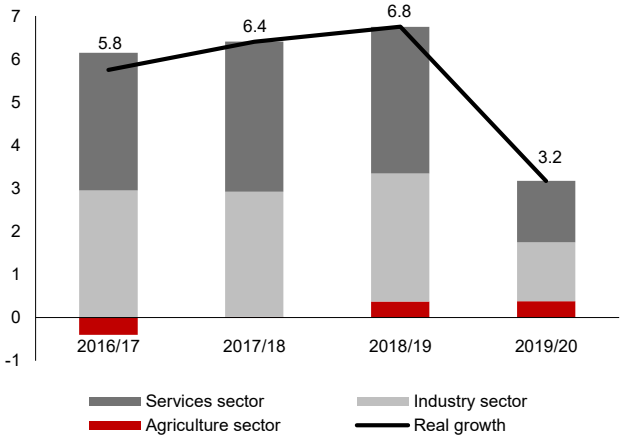
The author of this note is Jerry Xianguo Huang.

[1] The fiscal year in Myanmar runs from October 1 to September 30.

Myanmar: Selected Figures

Growth slowed significantly in FY2019/20.

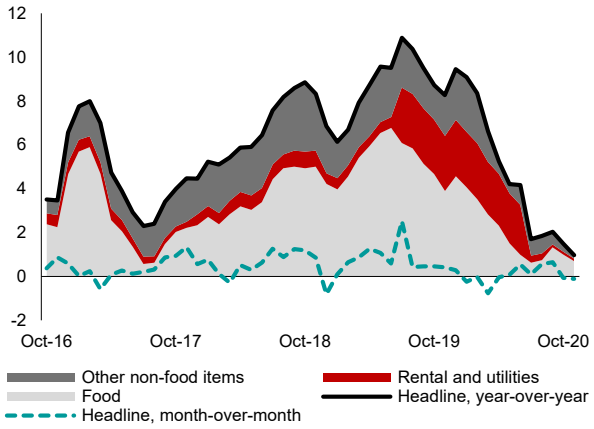
Contributions to Real GDP Growth
(Percentage points, year-over-year)



Sources: Ministry of Planning, Finance, and Industry; and AMRO staff calculations.

Inflation softened in FY2019/20 as a result of the diminishing base effect of the electricity tariff hike and sluggish demand.

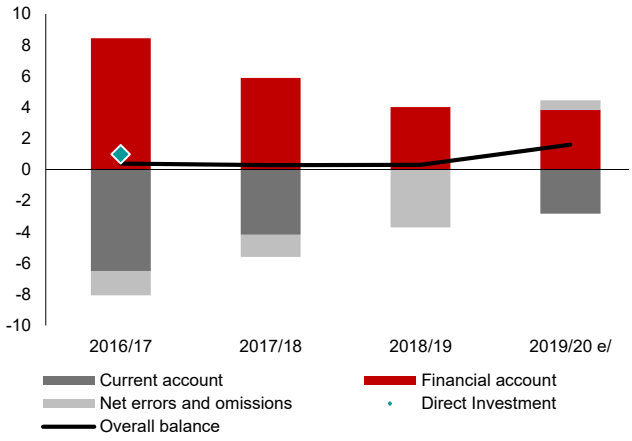
Contributions to CPI Inflation
(Percentage points, year-over-year; percent month-over-month)



Source: Central Statistical Organization.

The current account deteriorated in FY2019/20.

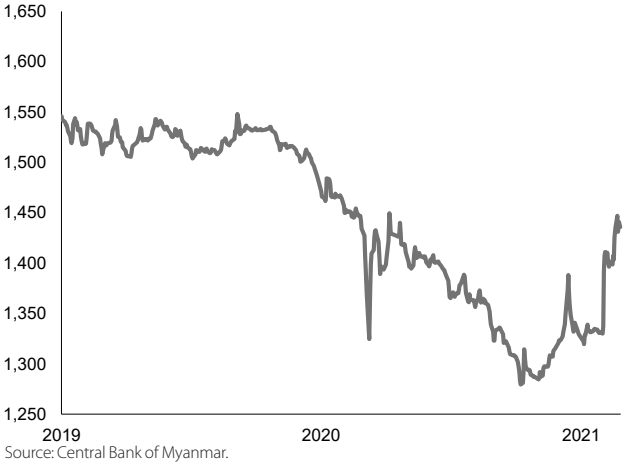
Balance of Payments
(Percent of GDP)



Sources: Central Bank of Myanmar; and AMRO staff calculations.
Note: e/ denotes estimate.

Appreciation in the Myanmar kyat has been reversed.

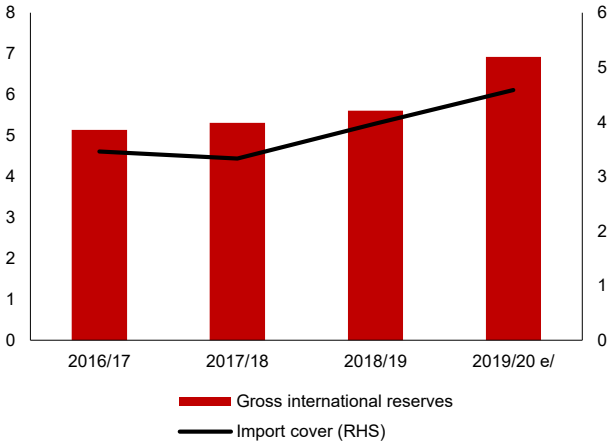
Exchange Rate
(Myanmar kyat/US dollar)



Source: Central Bank of Myanmar.

The foreign exchange buffer improved on the back of stronger official inflows to offset low FDI.

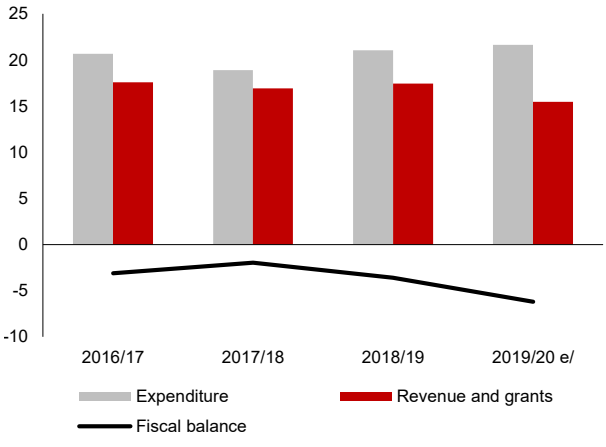
Gross International Reserves
(Billions of US dollars; months of total imports)



Sources: Central Bank of Myanmar; and AMRO staff calculations.
Note: e/ denotes estimate.

Fiscal policy was expansionary in FY19/20 to support of growth.

Fiscal Balance
(Percent of GDP)



Source: Ministry of Planning, Finance, and Industry.
Note: e/ denotes estimate.

Myanmar: Selected Economic Indicators

Indicator	FY16/17	FY17/18	FY18/19	FY19/20
Real sector	(in annual percentage change)			
Real GDP	5.8	6.4	6.8	3.2
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	–6.5	–4.2	0.0	–2.8
Trade balance	–9.5	–6.5	–4.3	–4.8
Capital and financial account balance	8.4	5.9	4.0	3.8
Direct investment	5.8	4.8	3.1	2.2
Other investment	2.6	1.1	0.9	1.6
Errors and omissions	–1.6	–1.4	–3.7	1.2
Overall balance	0.4	0.3	0.3	2.2
Net external debt	13.4	15.5	14.7	15.1
International reserves (in USD billion, end of period)	5.1	5.3	5.6	6.9
Fiscal sector[1]	(in percent of GDP)			
Revenue and grants	17.6	16.9	17.4	15.4
Expenditure	20.7	18.9	21.1	21.6
Fiscal balance	–3.1	–2.0	–3.6	–6.2
Government debt	35.6	38.4	38.7	42.2
Monetary and financial sectors	(in annual percentage change)			
Broad money	21.4	18.6	15.4	15.0
Domestic credit	22.3	21.4	17.4	14.4
Private sector credit	27.6	21.1	16.1	8.6
Memorandum items:				
Nominal GDP (in MMK billion)	82,700.0	92,789.0	105,258.5	112,774.0
Headline inflation (in percent yoy, period average)	4.7	5.9	8.6	5.8
Policy rate (in percent per annum)	10.00	10.00	10.00	7.00
Exchange rate (in MMK/USD, period average)	1,345	1,382	1,532	1,426

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Refers to fiscal year, which starts on October 1 and ends on September 30.

The Philippines

The Philippine economy plunged into a deep recession amid the COVID-19 crisis in 2020 and contracted by 9.5 percent (at constant 2018 prices) in 2020. The dampened domestic demand was broad-based and particularly acute in sectors requiring physical contact and close engagement, such as the hotel and accommodation industry. As community quarantine restrictions have been gradually lifted, the economy will continue to recover with government policy support.

Despite some supply disruptions, inflation generally remained low and stable. Headline inflation fluctuated within the 2–4 percent range and averaged 2.6 percent in 2020, while core inflation (excluding selected food and energy items) hovered about 3 percent for the whole year. Going forward, annual inflation is expected to continue to stay within the target range, albeit possibly at the high end of the range in 2021, amid a gradual recovery of domestic demand and a relative benign outlook of global oil prices.

The current account shifted to a large surplus in Q1 2020, largely because of the sharp contraction in domestic demand. In Q1–Q3 2020, the current account recorded a surplus of USD 8.7 billion (3.4 percent of GDP). The sharp narrowing of the goods trade deficit was the main contributor to the surplus. Capital flows became more balanced following large outflows in Q1, in part supported by large government external borrowing. As a result, the overall balance of payments significantly improved and international reserves rose to a record high level of USD 110.1 billion as of December 2020, which reflected inflows mainly from the foreign exchange operations and the national government's foreign currency deposits.

A series of unprecedented monetary and timebound regulatory policy responses were deployed to mitigate the adverse impact of the COVID-19 crisis. Financial assistance was provided to affected micro, small, and medium enterprises and vulnerable households through specialized microfinancing loans and loan restructuring. The Bayanihan II Act of September 11, 2020, provides additional fiscal support (about 0.8 percent of 2019 GDP) to vulnerable households, workers and businesses in hard-hit industries; the use of the unspent Bayanihan II funds has been extended to June 30, 2021. The government also announced a series of regulatory relief measures for the banking sector. Moreover, the 200 basis point policy rate cuts and up to 200 basis point reserve requirement ratio cuts ensured ample liquidity in financial markets and the banking system. However, credit growth has continued to moderate owing to subdued demand and tighter lending standards.

The government devised a four-pillar strategy in response to COVID-19 and its economic impact. Fiscal expenditure has been reprioritized to address the pandemic crisis. The budget for pandemic containment was significantly increased, and critical support was provided to businesses and households. However, reallocation of the budget has come at the expense of capital spending. Meanwhile, the government has proposed several legislative measures to hasten the economic recovery. The Corporate Recovery and Tax Incentives for Enterprises Act and the Financial Institutions Strategic Transfer (FIST) bill have already been passed by the Congress.

Government borrowing was significantly increased to meet the revenue shortfalls. As of the end of December, total government debt rose by 26.7 percent to PHP 9.8 trillion, or from 39.6 percent of GDP in 2019 to 54.5 percent of GDP in 2020. Domestically, the government mainly increased issuance in the local bond market, but also borrowed directly from the Bangko Sentral ng Pilipinas, as a temporary source of financing; externally, the government sourced most of its funds from multilateral development partners, it also issued US dollar and euro-denominated bonds in international bond markets.

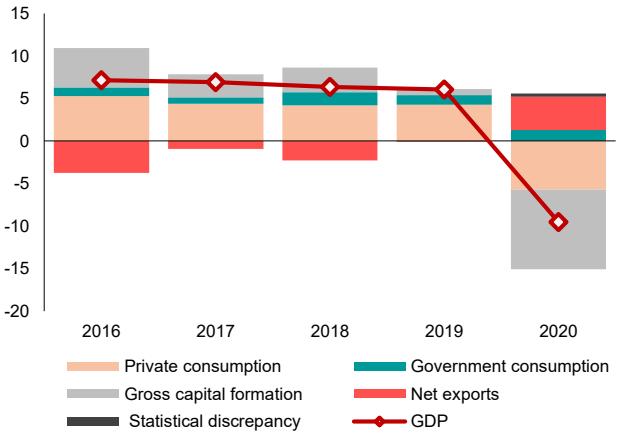
Despite the progress in containing the virus, the Philippine economy continues to face multiple risks and challenges on the path to recovery. Risks to recovery may come from another prolonged wave of COVID-19 infections, a slower-than-expected global recovery, potential financial distress of businesses in the short term, and possible lower potential growth owing to the scarring effects of the pandemic in the medium to long term. Mitigation of these risks mainly hinge on the effective management of COVID-19 infections, a calibrated reopening of the economy and speedy passage of key reforms. Although the global success in vaccine development is encouraging, significant challenges and uncertainties remain, including their wide availability, distribution and logistical challenges, and financial costs. The worldwide resurgence of new infections since November 2020 could delay the fragile global recovery. Moreover, a service-oriented and micro, small, and medium enterprise-dominant economic structure also makes any economic recovery in the Philippines more arduous.

The author of this note is Zhiwen Jiao.

The Philippines: Selected Figures

Economic growth contracted sharply as a result of the COVID-19 pandemic.

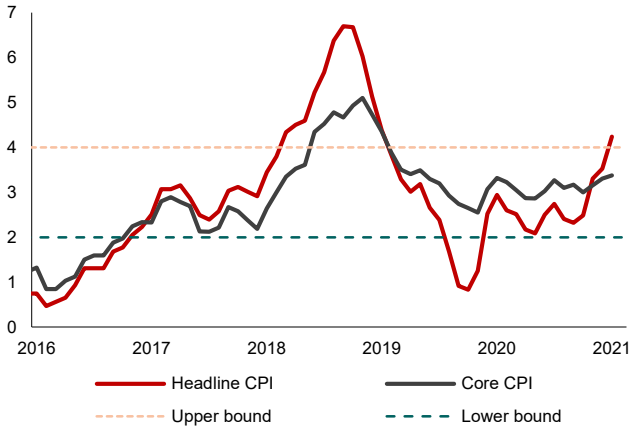
Contributions to Real GDP Growth
(Percentage points, year-over-year)



ources: Philippine Statistics Authority; and AMRO staff calculations.

Inflation remained generally stable within the target range.

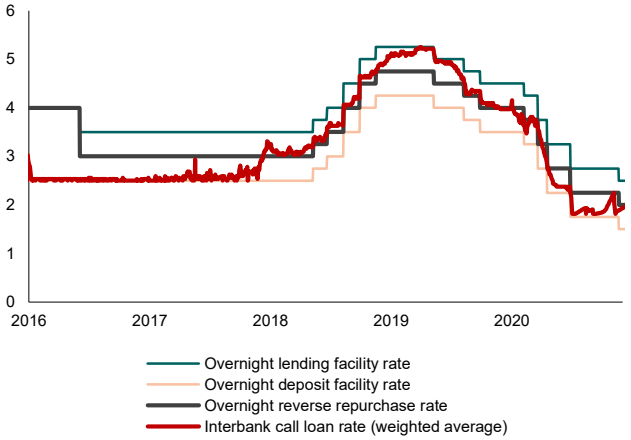
Headline CPI and Core CPI
(Percent year-over-year)



Sources: Philippine Statistics Authority; and AMRO staff calculations.
Note: CPI = consumer price index.

Monetary conditions were significantly eased in response to the adverse impact of the pandemic.

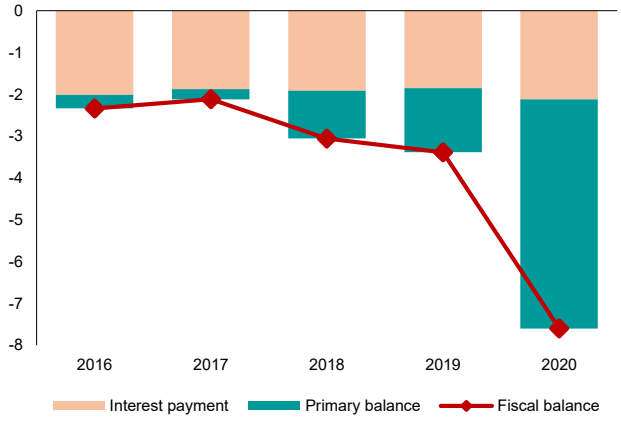
Monetary Policy and Market Rate
(Percent)



Source: Bangko Sentral ng Pilipinas.

Fiscal deficit widened markedly due to a sharp loss of revenue and higher spending.

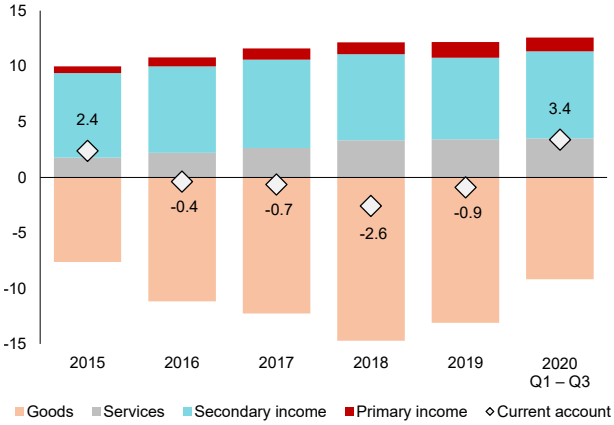
Fiscal Balance
(Percent of GDP)



Source: Bureau of the Treasury.

The current account reversed to a large surplus.

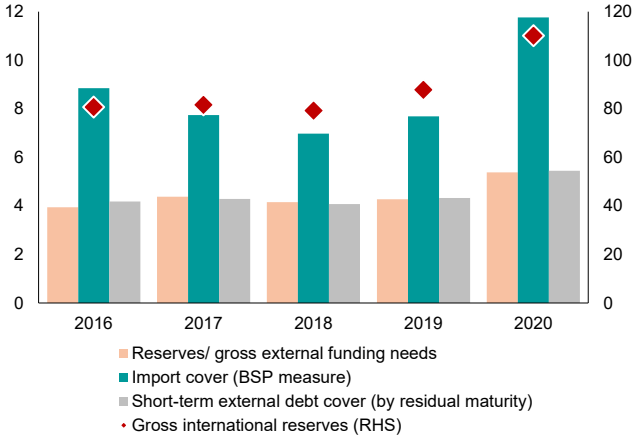
Current Account Balance
(Percent of GDP)



Source: Bangko Sentral ng Pilipinas.

International reserves increased to record highs.

International Reserve Adequacy
(Times; billions of US dollars)



Source: Bangko Sentral ng Pilipinas.
Note: Import cover refers to number of months of average imports of goods and payment of services and primary income. BSP = Bangko Sentral ng Pilipinas.

The Philippines: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	6.9	6.3	6.0	–9.5
Private consumption	6.0	5.8	5.9	–7.9
Government consumption	6.5	13.4	9.6	10.4
Gross fixed capital formation	10.6	12.9	3.9	–27.5
Imports of goods and services	15.1	14.6	1.8	–21.9
Exports of goods and services	17.4	11.8	2.4	–16.7
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	–0.7	–2.6	–0.9	3.4
Trade balance	–9.6	–11.3	–9.7	–8.6
Capital and financial account balance	–0.8	–2.7	–1.9	0.7
Direct investment	–2.1	–1.7	–1.2	–1.0
Portfolio investment	0.7	0.4	–0.9	1.3
Other investment	0.5	–1.4	0.2	0.5
Errors and omissions	–0.5	–0.8	1.0	0.4
Overall balance	–0.3	–0.7	2.1	3.1
Total external debt	22.3	22.8	22.2	26.4
International reserves (in USD billion, end of period)	81.6	79.2	87.8	110.1
Fiscal sector	(in percent of GDP)			
Revenue and grants	14.9	15.6	16.1	15.9
Expenditure	17.1	18.7	19.5	23.5
Fiscal balance	–2.1	–3.1	–3.4	–7.6
Government debt	40.2	39.9	39.6	54.5
Monetary and financial sectors	(in annual percentage change)			
Broad money [1]	11.3	9.0	9.8	8.6
Domestic claims	13.9	14.9	10.7	4.7
Claims on private sector	16.4	15.1	7.8	-0.6
Memorandum items:				
Nominal GDP (in PHP billion)	16,556.7	18,265.2	19,516.4	17,976.0
Headline inflation (in percent yoy, period average)	2.9	5.2	2.5	2.6
Policy rate (in percent per annum, end of period)	3.0	4.75	4.0	2.0
Exchange rate (in PHP/USD, period average)	50.4	52.7	51.8	49.6

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Refers to M4, which is the broadest measure of liquidity in the monetary system.

Singapore

Singapore's economy has been severely affected by the COVID-19 pandemic. Real GDP contracted by 5.4 percent in 2020, from 1.3 percent growth in 2019. Services activities declined as a result of travel restrictions and Circuit Breaker measures, which significantly affected domestic demand. Notwithstanding the economic contraction, the manufacturing sector grew in 2020, led by strong expansion in the biomedical and electronics sectors.

Overall employment declined at a record pace. Based on preliminary estimates, overall employment fell by 186,600 in 2020, notably in the services sector. While employment among nonresidents continued to contract in Q4 2020, resident employment rose for the second consecutive quarter. Workers who were placed on short work weeks or temporary layoffs also fell sharply with the resumption of business activities. The overall unemployment rate has eased slightly in January 2021 but remained elevated.

The Monetary Authority of Singapore's (MAS') core inflation declined and turned negative in 2020 because of the contraction in growth and employment. The fall in global oil prices, which led to a decline in fuel and utilities costs, has also contributed to disinflationary pressures.

After contracting in 2019, non-oil domestic exports (NODX) have turned around despite the global pandemic, led by pharmaceuticals and specialized machinery, as well as electronics. NODX to key markets, such as the European Union, Japan, and the United States, rose while it declined for China and a few countries in the region.

Domestic bank lending to businesses slowed while lending to households continued to contract further. Nonbank loan growth slowed sharply due to weak demand. The banking system's overall nonperforming loan ratio rose to 2.7 percent in Q3 2020 from 2 percent in 2019. It increased to 5.9 percent in the general commerce segment, reflecting the impact of the pandemic on the retail and tourism-related sectors. Nevertheless, local banking groups continue to maintain strong capital and liquidity buffers, which are well above regulatory requirements.

The prices and transactions of residential properties recovered as homebuyer sentiment improved. Private residential property prices fell initially but rebounded in H2 2020. Prices of resale public housing also increased further during this period. Transactions fell during the lockdown period but picked up following the easing of the Circuit Breaker measures.

Four large fiscal stimulus packages were deployed to support businesses and households in 2020. The total size of the fiscal support was close to SGD 100 billion (19.2 percent of GDP). Past reserves of up to SGD 52 billion could be drawn down to help fund the large fiscal spending. In 2021, the government announced that SGD 11 billion would be set aside for a COVID-19 Resilience Package to help safeguard public health, ensure safe re-opening, support workers and businesses, and provide targeted support for sectors under stress.

Monetary policy remains accommodative in view of the growth slowdown and subdued inflation outlook. The slope of the SGD nominal effective exchange rate policy band was kept unchanged in October 2020, after it was set to neutral and the mid-point of policy band was re-centered at a lower prevailing level of the exchange rate in March 2020. Further easing may be necessary if another wave of COVID-19 infections emerges.

Measures to ease the cash flow constraints of businesses and households have been extended to avoid any cliff effect. The loan moratorium for households and businesses has been extended, with the resumption of loan repayments but at a lower level. The extension of the MAS Singapore dollar facility for Environmental, Social, Governance loans in partnership with Enterprise Singapore would help ensure that small and medium enterprises continue to have access to low financing costs amid the prolonged uncertainties and economic headwinds from the pandemic, and to emerge stronger. In addition, the MAS has made adjustments to financial regulations and supervision programs so that banks can better assist their customers during the pandemic. These measures, including adjusting banks' capital and liquidity requirements, allowing banks to take into account the government's fiscal assistance in setting loan loss provisioning, and deferring the implementation of regulatory reforms, amongst others.

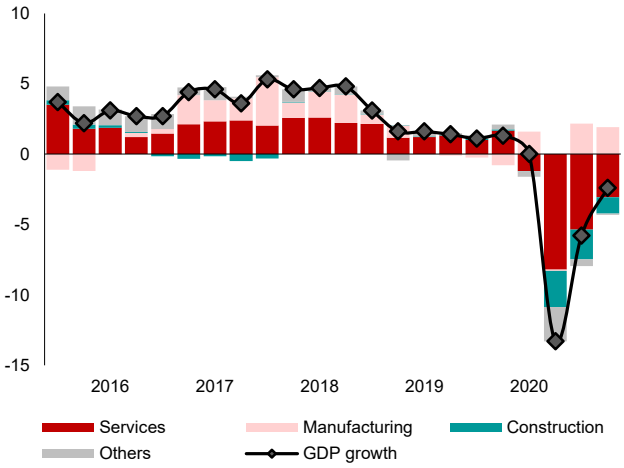
A possible resurgence of the COVID-19 infections domestically—notwithstanding the development of vaccines—or among major trade partners, and a prolonged downturn in global growth are the major risks to growth. Any renewed spread of the virus could lead to a temporary resumption of lockdowns and additional social distancing measures, which would further inhibit the recovery in Singapore's services and travel-related sectors.

The author of this note is Justin Ming Han Lim.

Singapore: Selected Figures

Growth contracted sharply in 2020 as a result of the pandemic.

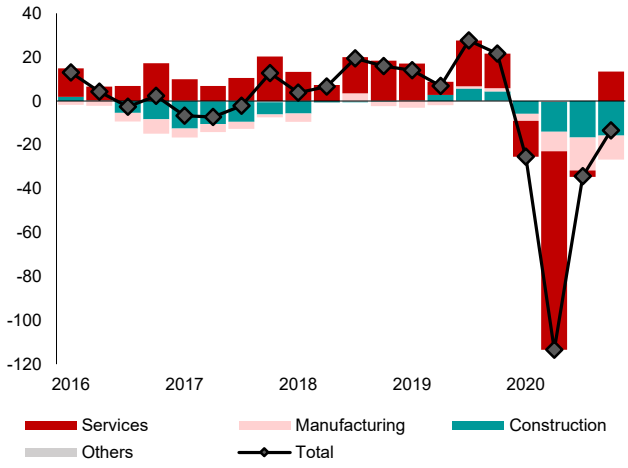
Contributions to Real GDP Growth
(Percentage points, year- over-year)



Source: Singapore Department of Statistics.

Overall employment has also declined at a record pace, particularly in the services sector.

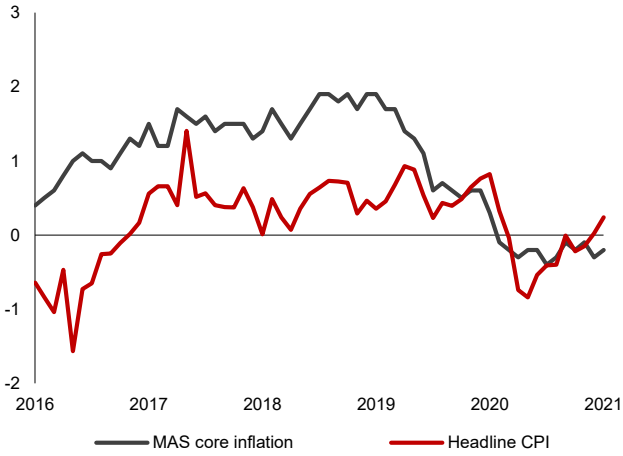
Net Change in Employment by Sector
(Change in employment, thousands of persons)



Source: Manpower Research & Statistics Department, Ministry of Manpower.

Inflation turned negative from disinflationary pressures.

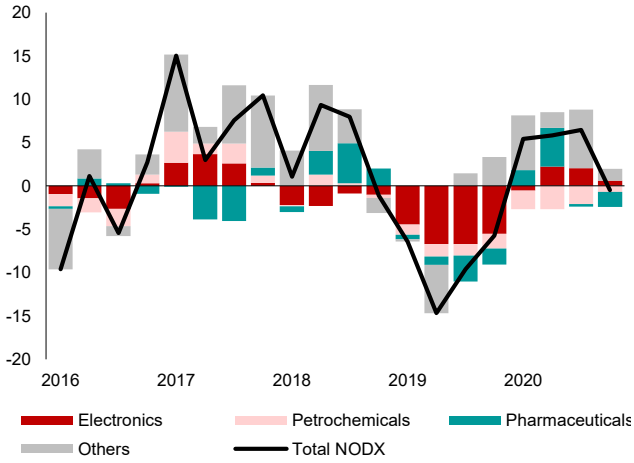
Headline and MAS Core Inflation
(Percent year-over-year)



Source: Singapore Department of Statistics.
Note: MAS = Monetary Authority of Singapore.

Exports were resilient to the downturn and rebounded in 2020.

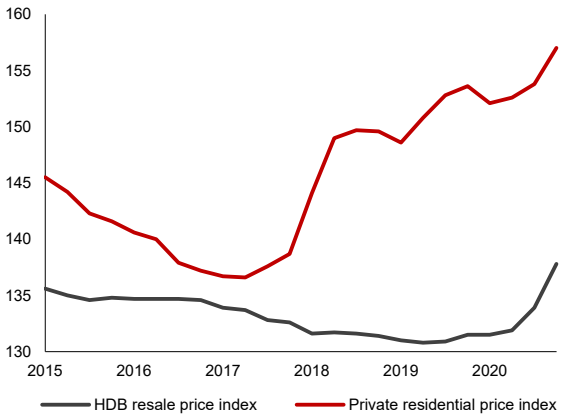
Contributions to Non-Oil Domestic Export Growth
(Percentage points, year-over-year)



Source: Enterprise Singapore.
Note: NODX = non-oil domestic exports.

Private residential property prices rebounded while resale prices of public housing increased more.

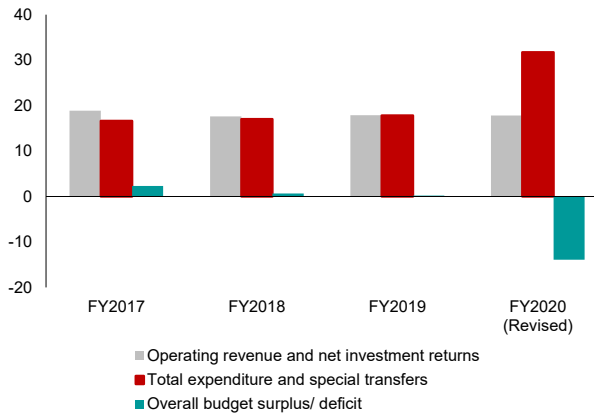
Private Residential and HDB Price Index
(Index, Q1 2009 = 100)



Sources: Housing and Development Board (HDB); and Urban Redevelopment Authority.

Fiscal policy was highly expansionary in support of growth in 2020.

Overall and Accumulated Budget Surpluses
(Percentage of GDP)



Source: Ministry of Finance Singapore.

Singapore: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	4.5	3.5	1.3	–5.4
Private consumption	3.1	4.0	3.3	–14.1
Government consumption	3.1	3.2	3.4	12.6
Gross fixed capital formation	5.4	–4.3	1.2	–13.7
Imports of goods and services	7.8	7.5	0.2	–7.1
Exports of goods and services	7.1	7.7	0.1	–4.3
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	17.3	15.4	14.3	17.6
Goods balance	29.5	27.0	25.9	27.6
Capital and financial account balance	10.0	12.1	16.5	–4.2
Direct investment	–10.5	–16.3	–18.7	–16.2
Portfolio investment	5.7	13.1	28.4	15.1
Other investment	12.3	9.7	4.2	–7.3
Derivatives	2.4	5.6	2.5	4.1
Errors and omission	0.7	0.0	0.0	0.2
Overall balance	8.0	3.3	-2.2	22.0
Net international investment position[1]	244.5	207.2	236.3	273.5
International reserves (in USD billion, end of period)	279.9	287.7	279.5	362.3
Fiscal sector[2]	(in percent of GDP)			
Revenue[3]	18.9	17.6	17.9	17.8
Expenditure[4]	16.6	17.0	17.8	31.7
Fiscal balance	2.3	0.7	0.2	–13.9
Government debt[5]	105.9	107.8	125.5	150.2
Monetary and financial sectors	(in annual percentage change)			
Broad money	4.2	5.1	4.4	11.9
Total domestic credit (DBU and ACU)	4.0	5.7	4.8	–1.0
Memorandum items:				
Nominal GDP (in SGD billion)	474.1	507.1	510.7	469.1
Headline inflation (in percent yoy, period average)	0.6	0.4	0.6	–0.2
Exchange rate (in SGD/USD, period average)	1.3807	1.3491	1.3642	1.3792

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. ACU = Asian currency unit; DBU = domestic banking unit; yoy = year-over-year.

1/ Net International investment position (IIP) as a percentage of GDP indicated under reference year 2020 is computed based on the net IIP as of end Q3 2020, divided by sum of quarterly GDP from 4Q 2019 to 3Q 2020; 4Q 2020 IIP estimates will be available by end-March 2021.
2/ Refers to fiscal year. Figures may not add up due to rounding.
3/ Revenue refers to the sum of operating revenue and net investment returns contribution.
4/ Expenditure refers to the sum of total expenditure and special transfers.
5/ Presently, the Singapore government issues domestic debt securities to: (1) develop the domestic debt market using marketable Singapore Government Securities; (2) meet the investment needs of CPF (Singapore's national pension fund) using Special Singapore Government Securities; and (3) provide individual investors with a long-term savings option that offers safe returns using the Singapore Savings Bonds. The borrowing proceeds from the issuance of these securities under the Government Securities Act cannot be spent and are invested. Singapore is in a net asset position; its financial assets are well in excess of its liabilities.

Thailand

The Thai economy was severely impacted by the COVID-19 pandemic in 2020. Thailand's GDP contracted sharply by 12.1 percent year-over-year in Q2 2020 , and by 6.4 percent and 4.2 percent in Q3 and Q4 2020, respectively. Private consumption started to rebound, partly supported by the relaxation of domestic containment measures and implementation of fiscal stimulus policies (for example, cash handouts, consumption support, domestic travel perks), while private investment contracted less. The economic rebound of trading partners also helped lift Thai exports in H2 2020. On the production side, accommodation and food services were boosted by government domestic tourism and consumption support initiatives.

Going forward, the economy is expected to recover gradually, but remain below its pre-pandemic GDP levels in 2021 and through most of 2022. The growth trajectory will depend on the speed of vaccinations as well as the effective containment of the second wave of virus infections. Domestic demand, although likely to remain soft, is expected to be the main driver of growth until international tourists gradually return, likely in the second half of 2021 as vaccines become more widely available.

Inflation fell into negative territory. Headline inflation softened to an average of –0.8 percent in 2020 from 0.7 percent in 2019, driven by the decline in oil prices, as well as a softening in core inflation. Going forward, inflationary pressures are likely to be subdued, reflecting the weak economic conditions, and headline inflation is projected to be close to the lower bound of the Bank of Thailand's (BOT's) inflation targeting band.

The external position remains strong, supported by ample international reserves and the still substantial current account surplus. In 2020, imports contracted more than exports, increasing the trade balance, while tourist arrivals fell by 83.2 percent year-over-year. Overall, the current account surplus declined in 2020 compared to the previous year, although it remained sizable at USD 16.5 billion. The capital account remained in deficit, as residents continued their direct investments abroad, while foreigners pulled back their portfolio investments in Thailand. The overall balance of payments recorded a surplus and international reserves increased.

Bond yields spiked in March and April 2020 but started to stabilize following BOT measures to stabilize financial markets. The intensity of capital outflows and the equity market's decline in the early part of the year have also receded. The BOT lowered the policy rate three times in 2020, by a cumulative 75 basis points, to a historical low of 0.5 percent. To address liquidity and financial stability risks, the BOT established mutual fund liquidity and corporate bond stabilization facilities. At the same time, it is supporting small and medium enterprises (SMEs), households, and banks with soft loans, household debt burden relief, regulatory forbearance, and a reduction in the Financial Institutions Development Fund fee.

Fiscal policy has become more expansionary in support of the weak economy, with the fiscal deficit expanding from 3 percent of GDP in FY2019 to 5.2 percent in FY2020. With the implementation of three rounds of stimulus packages, expenditure has increased from 18.2 percent in FY2019 to 19.9 percent in FY2020.

Downside risks to growth stem mainly from delays in the administration of vaccines and resurgence of infections, and a wider-than-anticipated impact of COVID-19 on external demand. In an adverse scenario, any delay in the rollout of vaccines or new round of infections could result in a longer-than-expected return of international tourists as well as lower domestic tourism activity and consumer confidence. A resurgence of infections, either locally or in major trading partners, could also deepen the contraction or delay the recovery. Potentially higher job losses and prolonged recovery of firms' capacity utilization may also result in a slower recovery.

Risks to financial stability have been contained thus far. The potential increase in the nonperforming loan ratio requires increased vigilance, particularly for loans to SMEs and other vulnerable sectors, as well as loans issued by specialized financial institutions. The household debt-to-GDP ratio, which is high compared to regional peers, had increased somewhat even before the pandemic.

With a very low fertility rate, Thailand is aging at a relatively fast pace and pension and health-related spending is expected to rise in the medium-term. Considering the significant increase in public debt arising from the large COVID-19 fiscal stimulus, fiscal sustainability would need to be safeguarded. Post-pandemic, economic restructuring should be facilitated to adjust to the new normal.

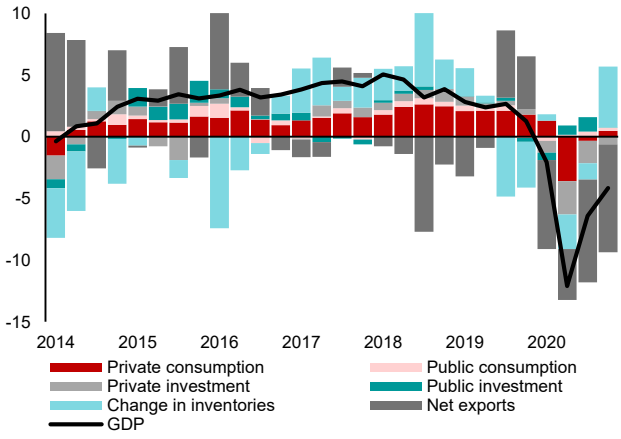
The author of this note is Ruperto Majuca.

Thailand: Selected Figures

The Thai economy was significantly impacted by the COVID-19 pandemic.

Contributions to Real GDP Growth

(Percentage points, year-over-year)

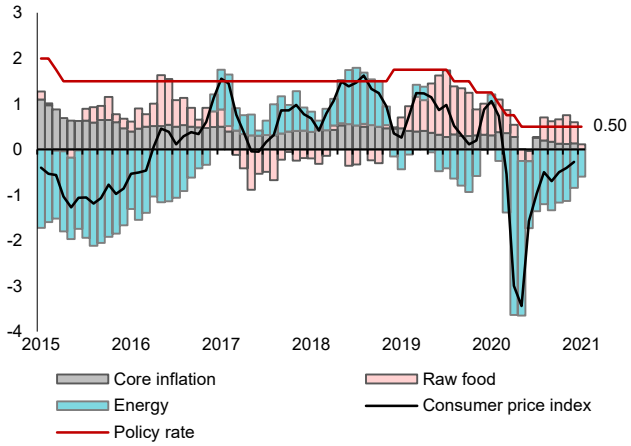


Sources: National Economic and Social Development Council via CEIC; and AMRO staff calculations.

Inflation fell into negative territory.

Contributions to CPI Inflation

(Percentage points, year-over-year)

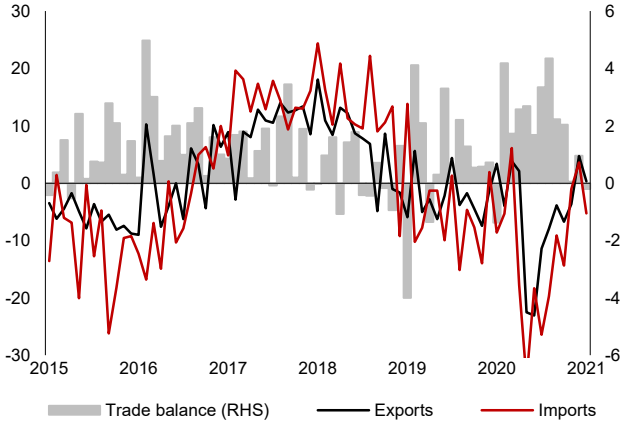


Sources: Bank of Thailand, Bureau of Trade and Economic Indices, all via CEIC; and AMRO staff contributions.

Imports contracted more than exports.

Trade Balance

(Percent year-over-year; Millions of US dollars)

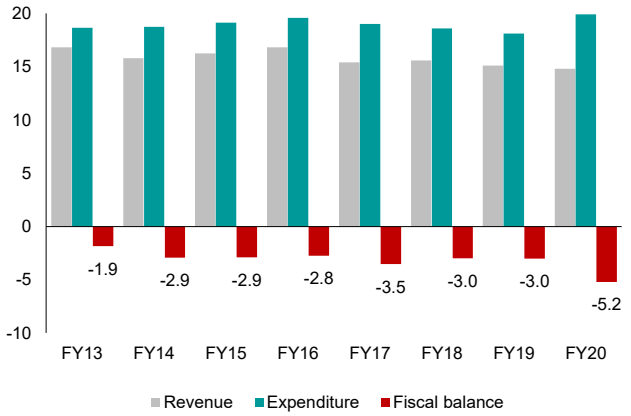


Sources: Ministry of Commerce via CEIC; and AMRO staff calculations.

Fiscal policy has become more expansionary in support of the economy.

Government Fiscal Position

(Percent of GDP)

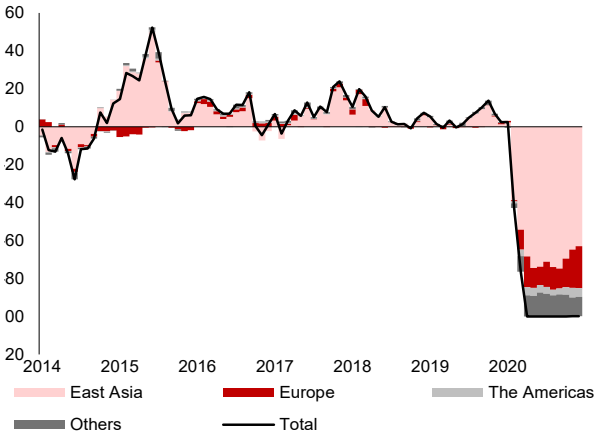


Sources: Bureau of Budget and Fiscal Policy Office, both via CEIC.

Risks to growth stem mainly from delays in vaccine rollout and resurgence in infections, which could delay the return of international tourists.

International Tourist Arrivals

(Percent year-over-year; percentage point contribution)

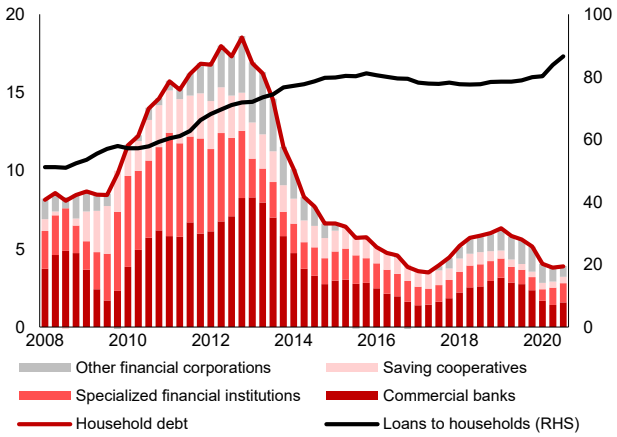


Sources: Ministry of Tourism and Sport via CEIC; and AMRO staff calculations.

The household debt-to-GDP ratio, which is high compared to regional peers, had increased somewhat even before the pandemic.

Household Debt

(Percent year-over-year; percent of GDP)



Sources: Bank of Thailand via CEIC; and AMRO staff calculations.

Thailand: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in annual percentage change)			
Real GDP	4.1	4.2	2.4	–6.1
Private consumption	3.1	4.6	4.5	–1.0
Government consumption	0.1	2.6	1.4	0.8
Gross fixed capital formation	1.8	3.8	2.2	–4.8
Exports of goods and services	5.2	3.3	–2.6	–19.4
Imports of goods and services	6.2	8.3	–4.4	–13.3
External sector	(in percent of GDP, unless otherwise specified)			
Current account balance	9.6	5.6	7.0	3.3
Trade balance	7.1	4.4	4.9	7.9
Capital and financial account balance	–2.3	–2.7	–2.9	–
Direct investment	–1.3	–0.8	–1.0	–
Portfolio investment	–0.5	–1.2	–1.6	–
Other investment	–0.6	–0.6	–0.5	–
Errors and omissions	–1.6	–1.4	–1.6	–
Overall balance	5.7	1.4	2.5	3.7
Total external debt	36.8	35.5	34.2	–
Gross official reserves excl net forward position				
(in USD billion, end of period)	202.6	205.6	224.3	243.0
Fiscal sector[1]	(in percent of GDP)			
Revenue	15.4	15.6	15.1	14.8
Expenditure	19.0	18.6	18.1	19.9
Budget balance	–3.5	–3.0	–3.0	–5.2
Public debt	41.8	42.0	41.1	49.3
Monetary and financial sectors	(in annual percentage change)			
Policy rate (percent per annum, end of period)	1.50	1.75	1.25	0.50
10-year government bond yield (end of period)	2.5	2.5	1.5	1.3
Memorandum items:				
Nominal GDP (in THB billion)	15,488.6	16,368.7	16,898.1	15,703.0
Headline inflation (in percent yoy, period average)	0.7	1.1	0.7	–0.8
Unemployment rate (in percent, period average)	1.2	1.1	1.0	1.7
Exchange rate (in THB/USD, period average)	33.9	32.3	31.1	31.3

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.
1/ Fiscal year 2019 runs from October 1, 2018 to September 30, 2019.

Vietnam

After a slump due to the pandemic, growth started to rebound in Q3 2020 and recovered further in Q4, registering 2.9 percent on an annual basis for 2020. Manufacturing activity was boosted by robust exports, while domestic consumption recovered following containment of the COVID-19 infections and the relaxation of mobility restrictions. The rebound further benefited from an acceleration in public investment disbursement. Growth is expected to rise to 7 percent in 2021.

High food prices were chiefly responsible for elevated inflation in early 2020. However, effective food supply management helped bring down inflation later in the year. Moreover, the decline in energy prices dragged down transportation and housing costs, allowing the authorities to maintain inflation within the 4 percent target ceiling.

Despite a relatively subdued export performance in a number of sectors, continued demand for Vietnam's electronics exports has helped the export sector recover. Meanwhile, capital inflows have been dragged down by a decline in portfolio investment and other investment. As a result, the balance of payments surplus has narrowed, slowing the accumulation of foreign reserves—which stood at about USD 92 billion as of September 2020—while the Vietnamese dong was relatively stable in 2020.

Strengthened tax administration helped offset the impact of soft economic growth and emergency measures, allowing revenue collection to reach 98 percent of the target. Meanwhile, the government's total expenditure reached 102 percent of the target on the back of pandemic support measures and higher investment spending. Consequently, the 2020 deficit increased to 3.4 percent of GDP, from the original target of 2.9 percent of GDP. As for 2021, the budget targets a conservative level of revenue collection and relatively flat expenditure, with a deficit of about 3.9 percent of GDP.

The State Bank of Vietnam (SBV) has cut key policy rates by a total of 150–200 basis points since the start of 2020, which has supported credit growth. Furthermore, the SBV issued guidelines for banks to reschedule loan payments and reduce or waive interest and fees, in addition to providing regulatory forbearance with respect to loan classification.

Key external and domestic risks stem mainly from the impact of the pandemic. The recovery remains susceptible to the risks of of a slump in external demand, supply chain disruptions, as well as further waves of domestic COVID-19 infections. Moreover, lasting scars from the pandemic may undermine the prospect of growth recovery. At the end of 2020, Vietnam was labeled a currency manipulator by the US Treasury, a decision that could lead to the imposition of some trade measures on Vietnam.

Financial sector risks may arise from the impact of the pandemic on asset quality. Vulnerabilities may also emerge from the rising holdings of corporate bonds by banks. Furthermore, the SBV's forbearance policy on loan classification has made it difficult to accurately assess banking system soundness.

With economic recovery still subject to heightened uncertainty, greater fiscal support may be warranted to help support economic recovery. Meanwhile, targeted support to micro, small, and medium enterprises and low-income households needs to continue and be regularly reviewed for their relevance and effectiveness. Furthermore, enhancements to the operationalization of support programs will help facilitate the effective disbursement of government funds. In addition, it is important to ensure continuing acceleration in public investment disbursement.

The easing of monetary policy has been beneficial, and it is essential that monetary policy remains supportive of economic recovery going forward. The forthcoming expansion of debt rescheduling is welcome and is expected to ease the pressure on affected borrowers.

The SBV's heightened supervision of lending to risky sectors and sizeable consumer lending is warranted. Meanwhile, regulatory forbearance demands regular monitoring, and the forthcoming three-year roadmap on normalization of provisioning is a welcome move.

Supported by strong export performance, foreign direct investment inflows, as well as remittances, Vietnam has accumulated foreign reserves up to about 4.3 months of imports as of the end of 2020. Considering the ongoing uncertainty in the global economic environment, the country needs to continue strengthening its external buffer flexibly, with greater reliance on exchange rate variability.

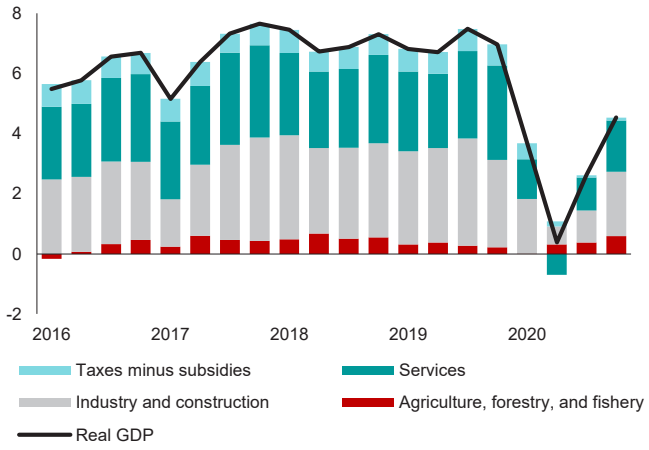
With state-owned enterprise equitization slowing substantially in recent years, resolving structural obstacles is critical. Further efforts to develop domestic-supporting industries are increasingly needed. Lastly, it is essential to ensure continuing support for long-term development issues while carefully managing risks to long-term fiscal sustainability.

The author of this note is Jade Vichyanond.

Vietnam: Selected Figures

The economy has been quite resilient, having been able to maintain growth in positive terrority throughout 2020.

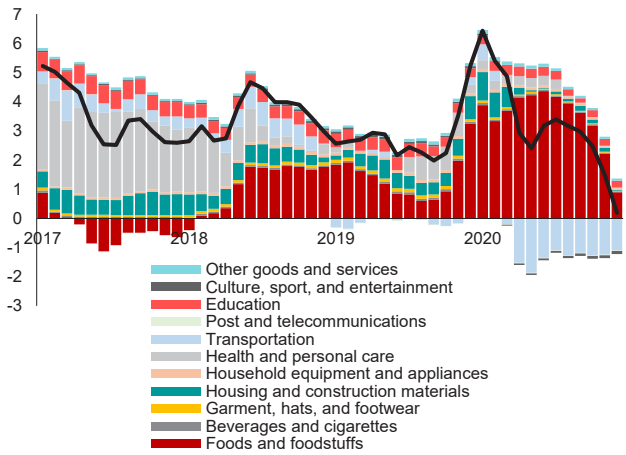
Contributions to Real GDP Growth
(Percentage points, year-over-year)



Sources: General Statistics Office via CEIC; and AMRO staff calculations.

Subdued global oil prices and cooling aggregate demand have kept inflation under control.

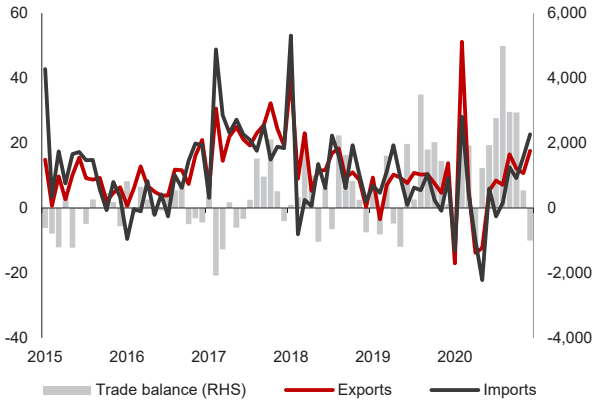
Contributions to Headline CPI Inflation
(Percentage points, year-over-year)



Sources: General Statistics Office via CEIC; and AMRO staff calculations.

Export growth has been recovering over the past few months.

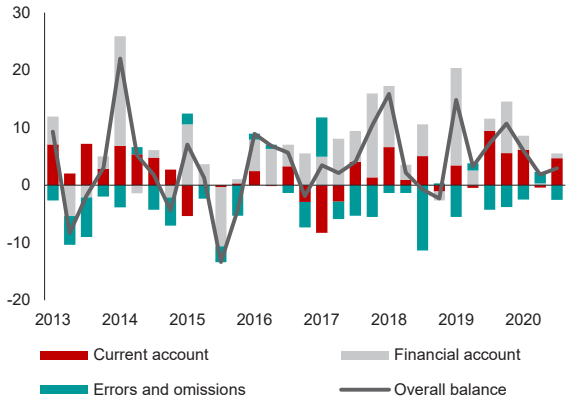
Export and Import Growth, and Trade Balance
(Percent, year-over-year; millions of US dollars)



Sources: General Statistics Office via CEIC; and AMRO staff estimates.

Moderation in capital inflows have narrowed the balance of payments surplus.

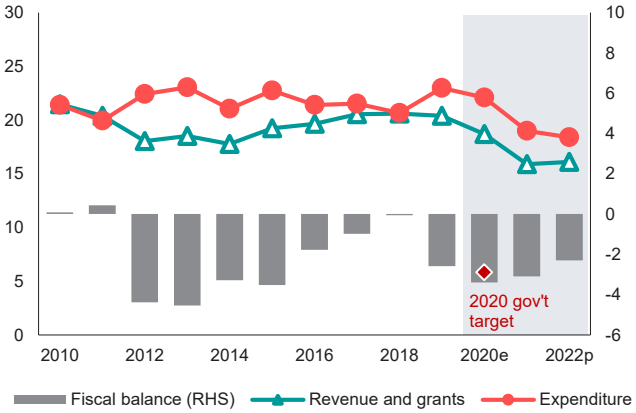
Balance of Payments
(Percent of GDP)



Sources: State Bank of Vietnam via CEIC; and AMRO staff estimates.

The 2020 fiscal deficit widened to about 3.4 percent of GDP, compared to the budget target of 2.9 percent of GDP.

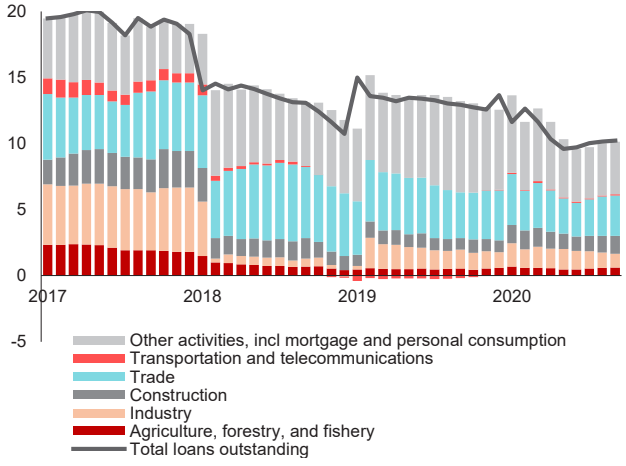
Fiscal Revenue and Expenditure, Fiscal Balance
(Percent of GDP)



Sources: Ministry of Finance and National Assembly Economic Committee, both via CEIC; and AMRO staff calculations.
Note: The data are based on revised GDP; based on the old GDP data, the 2020 target is 3.4 percent of GDP.

Reductions in policy rates by 150–200 basis points have helped support the recovery in credit growth.

Contributions to Credit Growth
(Percentage points, year-over-year)



Sources: IMF and State Bank of Vietnam, both via CEIC; and AMRO staff calculations.

Vietnam: Selected Economic Indicators

Indicator	2017	2018	2019	2020
Real sector	(in percentage point contribution to GDP growth)			
Real GDP (in annual percentage change)	6.8	7.1	7.0	2.9
Agriculture, forestry, and fishery	0.4	0.4	0.3	0.4
Industry and construction	2.8	2.9	3.1	1.4
Services	2.9	2.9	3.0	0.9
Taxes minus subsidies	0.7	1.0	0.6	0.2
External sector	(in USD billion, unless otherwise specified)			
Current account balance	–1.6	5.9	12.5	15.6
Trade balance	10.8	16.5	21.2	25.4
Capital and financial account balance	20.0	8.5	19.0	8.6
Direct investment	13.6	14.9	15.7	15.3
Portfolio investment	2.1	3.0	3.0	2.1
Other investment	4.3	–9.5	0.3	–8.8
Errors and omissions	–5.8	–8.3	–8.2	–7.5
Overall balance	12.5	6.0	23.3	16.7
Gross external debt (in percent of GDP)	38.9	38.8	39.6	39.4
International reserves (in USD billion, end of period)	49.1	55.5	78.3	95.0
Fiscal sector	(in percent of GDP)			
Revenue and grants	20.6	20.5	20.3	18.7
Expenditure	21.5	20.5	22.8	22.1
Fiscal balance	–1.0	–0.1	–2.6	–3.4
Public debt	48.8	46.2	43.4	43.6
Monetary and financial sectors	(in annual percentage change)			
Broad money	14.3	12.7	13.6	12.5
Private sector credit	17.4	13.8	13.5	12.1
Memorandum items:				
Nominal GDP (in VND trillion)	6,294	6,998	7,654	8,003
Headline inflation (in percent yoy, period average)	3.5	3.5	2.8	3.2
Exchange rate (in VND/USD, period average)	22,374	22,609	23,504	23,209

Sources: National authorities via CEIC; and AMRO staff estimates.
Note: Numbers in red denote AMRO staff estimates. yoy = year-over-year.

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