

ANNUAL OUTLOOK 2023

Resilience Required
to Confront Uncertainty



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Executive summary

Global economic prospects have dimmed for 2023, with many economies heading towards recession, accompanied by persistently high inflation and rising interest rates. Asia's economies look brighter, however, and some may defy the global trend.

This will hinge on factors that include an acceleration in digital transformation, greater regional coordination, and striking the right balance in monetary policy.

As elsewhere, the region faces both multiple and multi-faceted shocks, such as energy-price volatility, geopolitical conflict, and higher borrowing costs. Developing countries and emerging markets in Asia are especially vulnerable to seeing their economies contract.

We see three major risks.

The first is central banks making policy mistakes – by either under- or over-tightening. The former may prove costly, as it risks causing inflation to become entrenched. The latter risks prolonged recession.

To date, monetary policy responses across Asia have varied, with a general sensitivity to growth. The range of Taylor Rules calibrated in this report for analysing central bank policies suggests this has been the case with the People's Bank of China, the Reserve Bank of India, and Bank Indonesia. But there remains a danger that unforeseen interest-rate jumps from unsettled bond markets, or sudden stops¹ in investment flows in more vulnerable countries, could materialise.

The step-up in inflation, meanwhile, has dimmed the prospects for a robust turnaround in activity across Asia, including – crucially – in China. Although we anticipate a limited rebound in growth in China following the relaxing of restrictions, risk remains over the spread of COVID-19 and its impact on productivity, which constitutes the second major risk in 2023.

¹ See Calvo (1998).

The overall economic impact of COVID-19 will be less of an issue than it was in 2020 and 2021, moderating in most countries. But it is likely to persist in China, even with the scaling back of the zero COVID-19 strategy. The country is likely to balance the competing pressures of maintaining economic growth, providing stimulus measures to bolster domestic consumption, and improving health care capability in post-zero-COVID transition.

But the stresses remain, as do China-centred geopolitical risks.

While the risk of armed confrontation in the South China Sea cannot be overlooked, our 2023 report also notes some of the opportunities in relation to the cooperation between China, the US, and the claimant states in South East Asia. Both China and the US could strengthen existing crisis management mechanisms to prevent unanticipated incidents, given that encounters between the two militaries have become increasingly frequent.

US financial developments are likely to constitute the third key risk for 2023. Renewed risk aversion globally, or unexpectedly strong rate increases in the US, or both, would lead to currency markets elevating the safe-haven status of the US dollar at the expense of other currencies, including Asia's. How currencies fare in this climate could be decisive in dictating growth outcomes across Asia, given that, in net terms, lower domestic purchasing power (including for productive inputs) would restrain output. These could be offset by positive competitiveness effects, however.

Asia countries' progress in meeting their climate-change targets has been disappointing. Without prompt action, the climate crisis will be catastrophic for health, social well-being, and economic growth. More extensive digitalisation is needed to fight the climate crisis *and* to increase Asia's productivity. Asia's regionalism, in the form

of enhanced economic integration, will help meet these challenges.

The *Asia House Annual Outlook 2023* presents updated readings for Asia's economic readiness indices for green finance and digitalisation. Despite the financial volatility that has occurred, the eight economies tracked by the indices – China, Japan, India, Indonesia, Vietnam, Thailand, Malaysia and the Philippines – are likely to show continued improvement in their green finance ecosystems. Although South East Asia is likely to see further improvement in digitalisation from a low base, China, India and Indonesia could see a dip in their readings in 2023.

The eight economies tracked by the indices are likely to show continued improvement in their green finance ecosystems

Key among the recommendations made in this report are those relating to prioritising innovation – to spur carbon pricing, lower green premiums for zero-carbon alternatives, and boost underfunded and high-impact projects with blended finance. Our indices suggest that prioritising economic readiness to tackle both climate change and digitalisation, and the policies that link the two, will create a higher growth trajectory. The Asia House country readings for 2023 indicate that new innovations in digitalisation, e-commerce and in innovative trading solutions will help Asia's growth resilience.

Key messages:

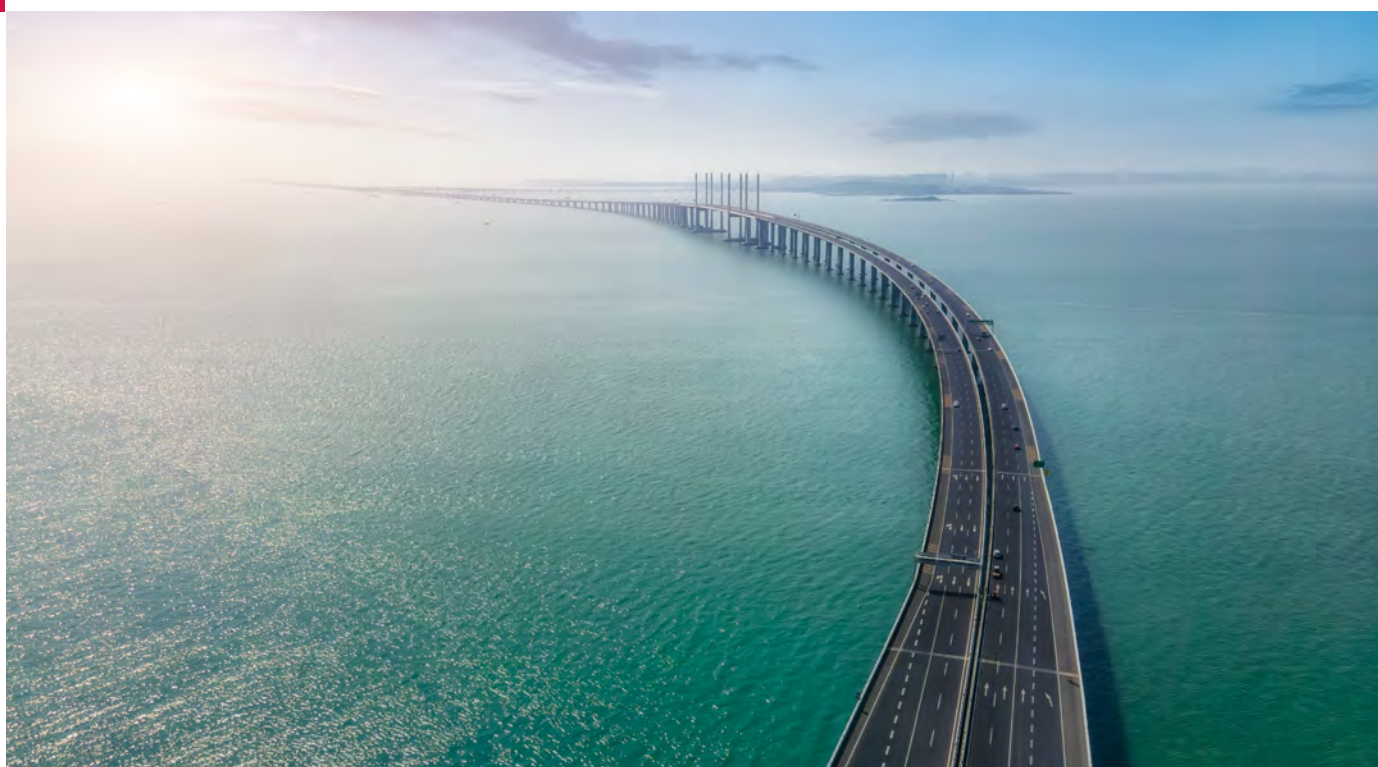
- **A resilient Asia will drive global economic growth in 2023**, despite the prevailing headwinds of monetary tightening and weak global growth. The region's economic momentum will come from strength in domestic demand.
- **Inflation has meant that, globally, central banks are more focused on restoring price stability** than boosting growth; accordingly, a quicker pace of global monetary tightening would weigh heavily on Asia's outlook.
- Notwithstanding **China's expected sluggish growth for 2023**, Asia is likely to prove resilient if investment and financial flows are directed to digital and green innovation to underpin sustainable growth and investment.
- **Asia House Economic Readiness Indices for 2023 indicate improvements** in green finance and digital transformation. Declines in Japan (for green finance) and in India (for both) were the exceptions.
- **Within South East Asia, digital development is likely to be scaled up in 2023**, although the outlook is comparatively less upbeat for China, India and Indonesia, owing, in part, to lags in the Industry 4.0 development.
- **Intermittent flare-ups in financial volatility could be triggered by rising borrowing costs**, high debt levels, and reduced global liquidity. Uncertainties in China and the risk of monetary policy errors also constitute risks.

Key policy recommendations:

- **The centre of global economic gravity continues to shift to Asia. Scaled-up regional coordination is necessary** to bolster economic integration further, particularly in the form of more economic zones and investment corridors.
- **Enhanced and coordinated reserve management is needed** at a time when Asia's reserves are declining. Supporting digital currency development and digital platforms for early-warning systems will catalyse coordination.
- **By adopting carbon-pricing mechanisms, the 'green premium', or the additional costs of opting for green technology, will be reduced.** Pricing mechanisms can account for the cost of fossil-fuel emissions, thus making net-zero alternatives cheaper.
- **The leveraging of private investment and risk absorption will support scaled-up sustainable finance** for borrowers and investors through an enhanced role for development banks and development finance institutions.
- **Innovations in blended finance – using development funds to spur private investment – need to funnel capital** into high-impact and under-capitalised green projects. We spotlight emerging-market green-bond funds.
- Asia's broader digital access and digital skills, particularly in the rural sectors in its larger economies, is a policy gap. **By addressing digital inequality, job market vulnerabilities will be mitigated among the rural poor across Asia.**

Country outlooks: Key messages

- **China** is likely to see continued sluggish growth, after having slowed significantly in 2022. It will see an improvement in economic readiness for green finance, which might not be mirrored in its digital development.
- **Japan** is likely to continue to bear the brunt of multiple financial shocks, including a weak yen and higher energy prices – both of which reduced its Readiness Index for green finance. Its digital readiness improved for 2023.
- **India** will see continued economic recovery, which will depend on myriad factors. Financial volatility points to deterioration in India's green finance; it has the lowest readings in readiness in both green finance and digitalisation.
- **Indonesia** will show economic resilience in 2023. Given the decline in its digital readiness reading, continued efforts to diversify away from energy towards digital transformation and sustainable growth are essential.
- **Vietnam** is likely to register one of the strongest economic growth rates in 2023 when compared with its Asian (and developed-country) counterparts. Its green finance and digital readiness readings are up significantly, although its digitalisation scores come from a low base.
- **Malaysia** is expected to make significant strides in 2023, given the likelihood of strength in domestic demand and digitalisation. In addition to robust economic growth in the year ahead, its economic readiness for both green finance and digitalisation should improve.
- **Thailand's** economic growth will remain resilient but is likely to slow. Overall, domestic inflation pressure remains comparatively muted. Encouragingly, Thailand's economic readiness readings for green finance registered the largest rise in our Asia sample.
- **The Philippines** will continue to see economic growth, surpassing many of its regional neighbours. Policymakers should use the resilience of the economy to improve the domestic ecosystem for green finance and digitalisation, given the lagging readings in our indices for both.



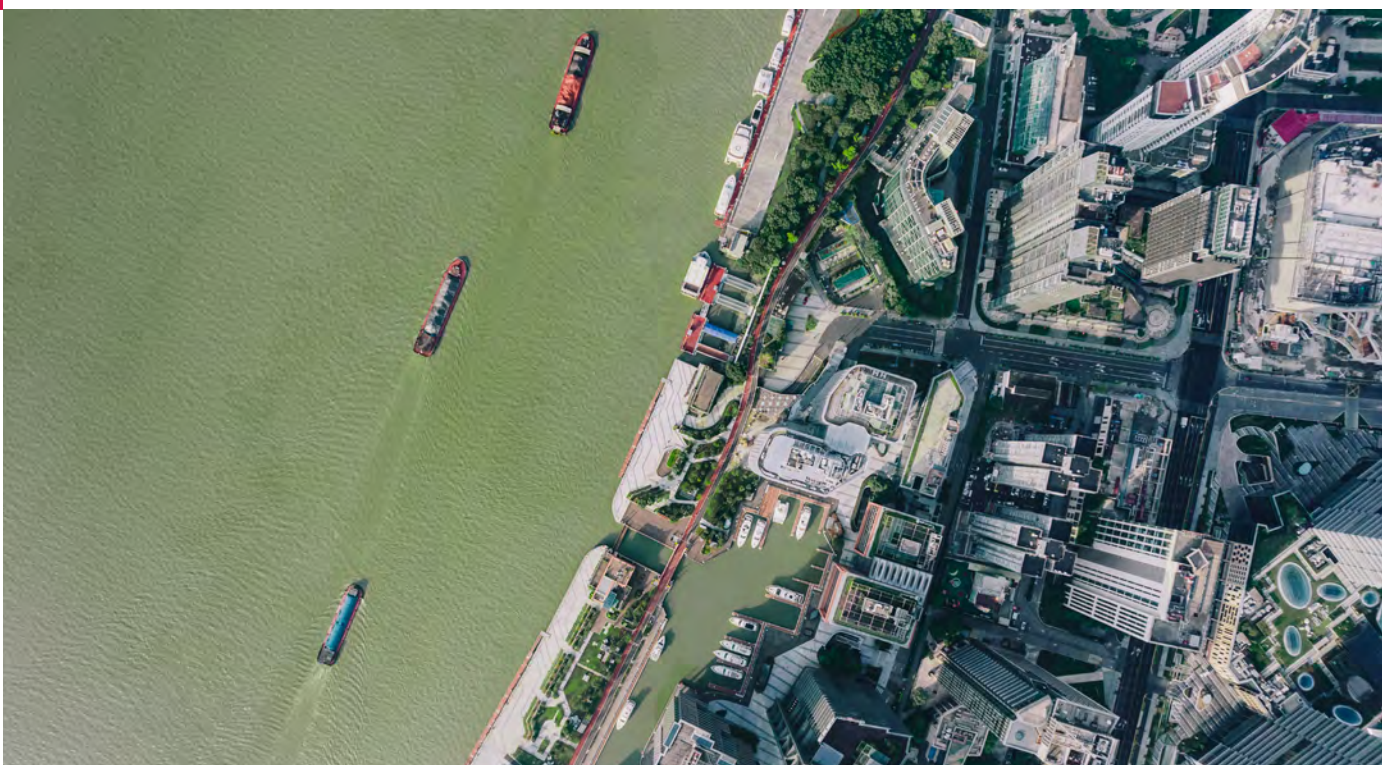
Introduction

In **Section 1**, we offer our outlook for Asia's economies, focusing on the risks, shocks, and uncertainties ahead in 2023.

Section 2 highlights policy trajectories for sustainable green finance and digitalisation and presents 2023 readings for economic readiness across Asia's eight major economies: China, Japan, India, Indonesia, Vietnam, Malaysia, Thailand, and the Philippines.

This is followed by an assessment of risks in **Section 3**, including the major ones of inadvertent policy errors, China's domestic developments, and US financial developments.

The country pages in **Section 4** provide a snapshot of how systemic and idiosyncratic risks in each of the eight economies are shaping – or hindering – the ability to channel green finance and scale digital innovation.





SECTION 1

Seeking resilience against uncertainty

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Seeking resilience against uncertainty

Global economic growth, trade, and investment are likely to slow in 2023, with approximately one third of the global economy expected to contract and the three largest economies – the United States, the European Union, and China – continuing to stall.

Asia, however, is widely expected to lead global growth, despite the ongoing headwinds of monetary tightening and weaker global demand restraining the region's export orders (IMF, 2022a). While it is likely that 2023 will feel like a recession to many (IMF, 2022b), Asia will prove to be resilient and lead in economic growth and transformation, if it continues to focus on digital and green initiatives.

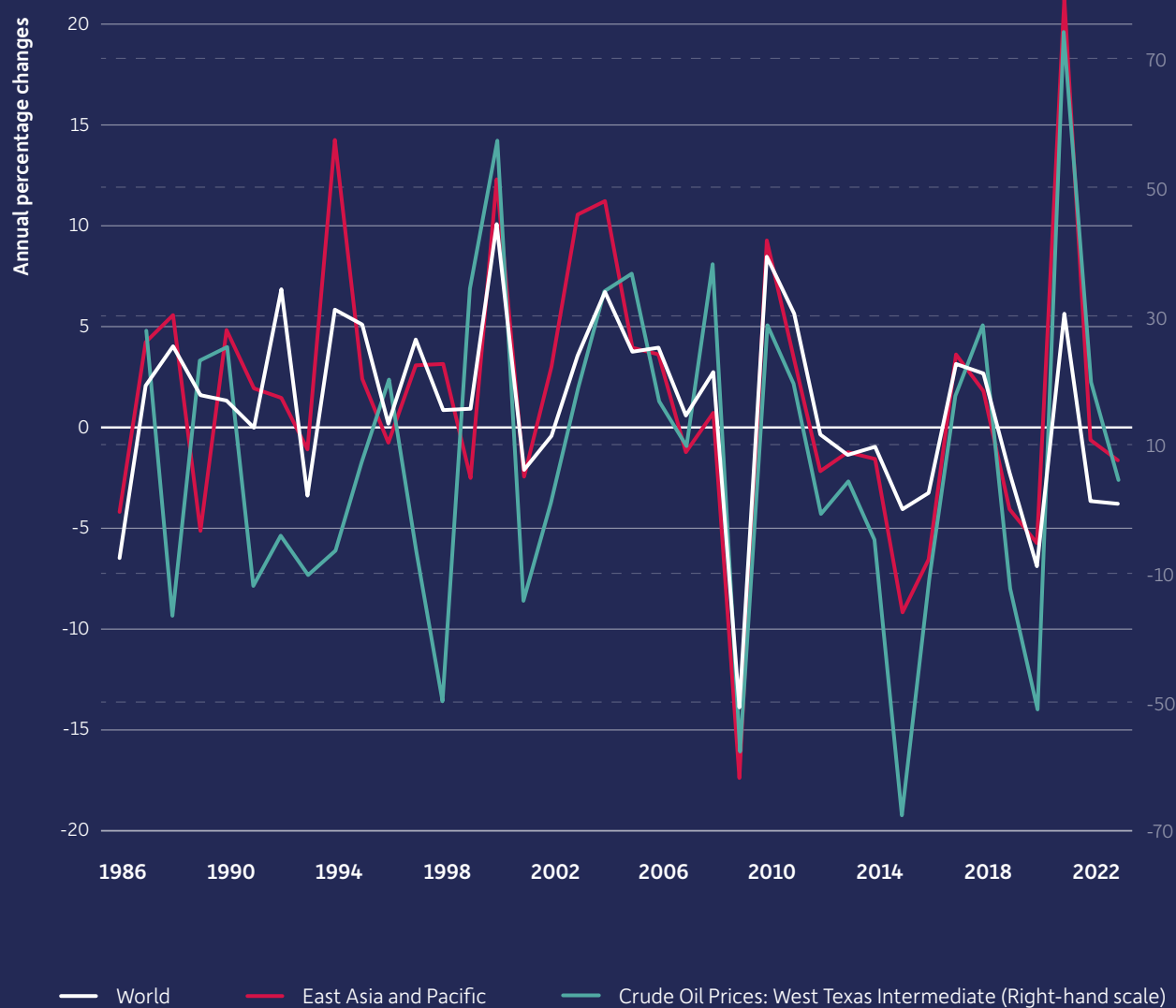
1.1 Global trade deceleration will become more acute

The downtrend in world trade as a share of global activity is likely to become more pronounced, with a slowdown in trade growth to 2.5 per cent expected (IMFb, 2022). Notably, export growth in both advanced and emerging economies is likely to slow, particularly in the former.

Amid the global slowdown and heightened risk aversion in financial markets, domestic demand, investment by small and medium-sized enterprises (SMEs), and digital innovation will, therefore, have to take up the slack to drive growth. And yet, the number and diversity of risks facing economies

Figure 1

Global and Asia trade shares and WTI oil prices (Annual percentage changes)



Source: World Bank, IEA, and Asia House research

indicate many potential outcomes, which hinge on the following.

- Lead indicators look mixed. The Federal Reserve Bank of New York's Global Supply Chain Pressure Index,² the VIX index,³ and the Baltic Exchange Dry Index⁴ indicate, respectively, continued (albeit fewer) supply-chain disruptions, lower financial-market volatility, and reduced shipping costs. The global purchasing managers' indices, which provide lead indications of economic activity, have remained below the 50 level, indicating a contraction in activity.
- The US dollar's appreciation in 2022 – by about 10 per cent in nominal effective terms at time of writing (and 45 per cent since its 2011 trough)⁵ – is likely to impede world trade growth. The currency's dominant role in trade invoicing will have led to higher local consumer and producer prices outside the US (Gopinath and Stein, 2020; Maas, 2018). For open emerging market economies, this also implies a reduced ability to purchase production inputs.
- Looking ahead, any further easing of oil prices could limit overall trade as a share of activity in net terms (Figure 1), particularly through lower revenues to Asia's exporters. This would be notwithstanding positive pass-through via cheaper transport prices (Brancaccio et al., 2021). Much will depend on the continuation, and destabilising pathways, of Russia's invasion of Ukraine, and on energy, commodity, and basic-goods prices (FAO, 2022; World Bank, 2022a).

1.2 Persistently high inflation will exacerbate the downturn

Inflation pressure is likely to continue unabated throughout 2023. This will weigh heavily on growth through higher costs for both producers and consumers, which will limit domestic demand. The rise in inflation has led central banks to focus on restoring price stability by raising interest rates – sharply, in some cases. An increase in borrowing costs and lending rates will therefore be a mitigating factor throughout 2023.

In some Asian economies, this tighter policy will hold back growth, but not to the extent that there is a widespread slowdown or disorderly market adjustment as a result. Indeed, some central banks in Asia – notably China, India, and Indonesia – are taking a more balanced approach to protect growth, as indicated by the Taylor Rule calibrations in this report (see section 3.3). Notwithstanding this, the risk of financial market volatility will persist in an environment of reduced global liquidity.

1.3 Greater global financial volatility will limit investment

We expect intermittent flare-ups in financial volatility in 2023 because of the link between rising borrowing costs, equity-market skittishness, profitability, and reduced global liquidity due to higher interest rates. This configuration creates a high risk of unsustainable debt levels becoming increasingly problematic and raising the spectre of unexpected debt defaults – in both the private and public spheres.

² <https://www.newyorkfed.org/research/policy/gscpi#/overview>

³ The VIX is typically used as a gauge of financial-market risk aversion, given that it estimates expected volatility in equity markets. For details of its methodology, see: https://www.cboe.com/tradable_products/vix/

⁴ The Baltic Exchange Dry Index measures shipping freight costs. For further details, see: <https://www.balticexchange.com/en/data-services/market-information0/indices.html>

⁵ Calculated using the US Federal Reserve Nominal Broad Dollar Index: <https://www.federalreserve.gov/releases/h10/summary/>

“Inflation pressure is likely to continue unabated throughout 2023. This will weigh heavily on growth through higher costs for both producers and consumers, which will limit domestic demand”



Tighter monetary policy will continue to unsettle both bond and equity markets. Across much of the world, at the time of writing, stock markets are lower and nominal bond yields have risen. This leaves Asia vulnerable, given that its share of total global debt has increased from 25 per cent before the global financial crisis to 38 per cent post-COVID (Srinivasan, 2022). Sector-specific debt, and its pathways of transmission into the broader economy, are a risk, as evidenced by China's property sector.

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Sri Lanka is a recent and extreme case of how indebted countries are susceptible to changes in global financial conditions. The run-up in debt triggered by the country's inability to access global capital markets led it to default on its external obligations (UNDP, 2022), many of them owed to China.⁶ Meanwhile, India, to aid Sri Lanka's recovery, has instituted a bilateral funding facility, one of its multiple support measures.

1.4 An uncertain backdrop for climate and digital readiness

Prioritising economic readiness to tackle both climate change and digitalisation will be crucial for Asia's growth transition in 2023 and beyond.

Our economic readiness readings for green finance and digitalisation for 2023 indicate an improvement in policy. Together with enhanced regionalism this will help build resilience to the downturn.

That said, a more pronounced economic crisis – an outright contraction in trade, softer import demand, continued energy-market disruptions – put climate commitments at risk of being reversed. Digitalisation also becomes even more essential in driving potential growth.

⁶ Sri Lanka's debt to China is estimated to be close to 20 per cent of its total public external debt (Do Rosario and Savage, 2022).



SECTION 2

Bolstering Asia's policy arsenal in a time of uncertainty



Section 2

Bolstering Asia's policy arsenal in a time of uncertainty

The economies of Asia, compared with others, are projected to see solid growth rates and be resilient to global challenges.

But for these projections to materialise, past experience has shown that new policy tools are necessary for new conditions. To this end, boosting household consumption *and* productivity is essential to overcome shocks and for recovery.

This section outlines the constituent measures that are necessary to overcome current uncertainty and bolster both green finance and digitalisation. Policy opportunities that connect the two are growing in Asia.⁷

In particular, closing the digital gaps in the region, can be a turning point for future economic

potential (Jun et al., 2022).⁸ Productivity enhancements have lagged in South East Asia, despite post-crisis recoveries (Figure 2).

What increases in productivity and innovation there have been so far have come from new innovations – including industrial robots, new electronics and apps, and the drive for digital inclusion in finance.

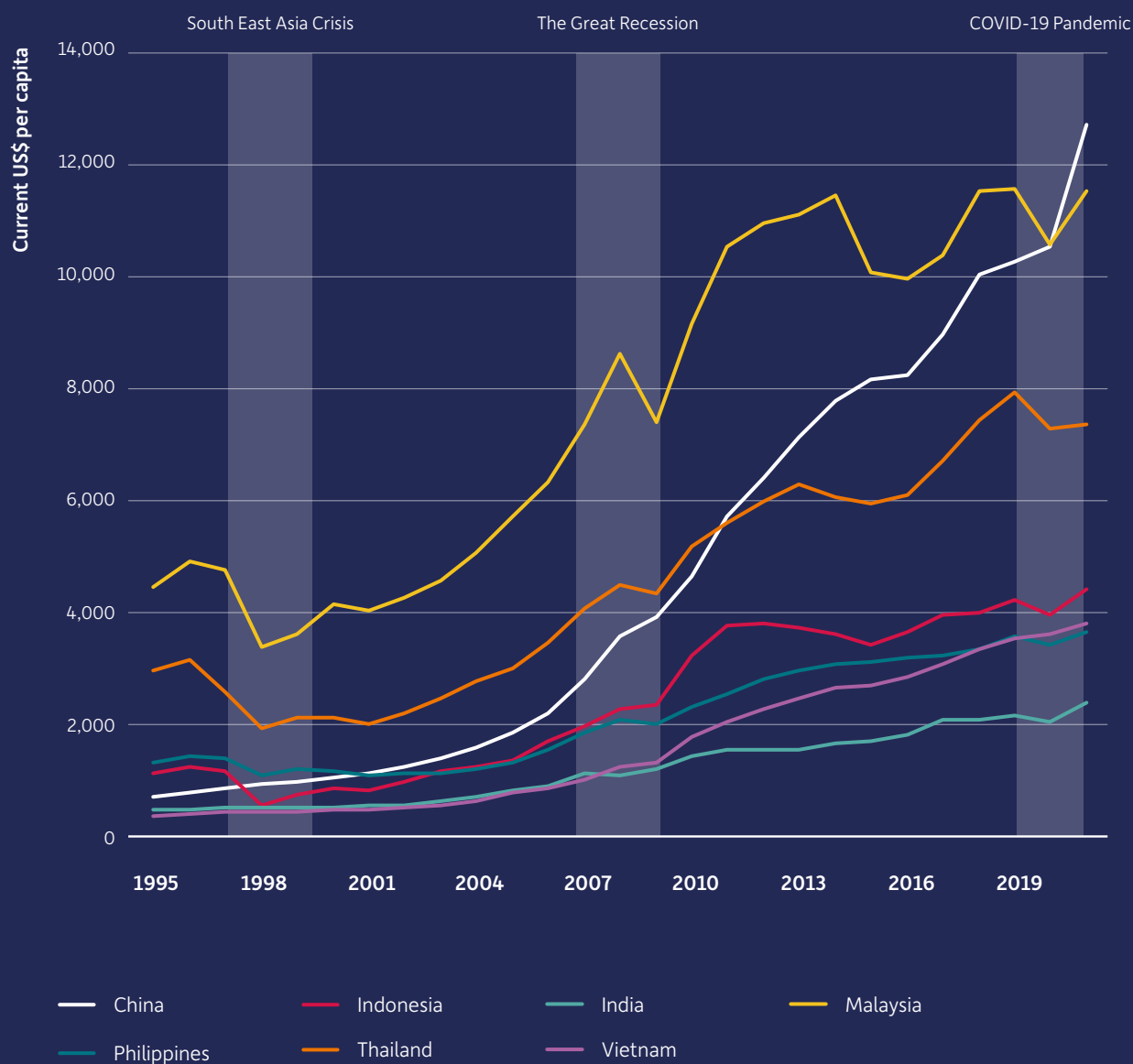
In 2023, as well as green finance and digital innovation, new and enhanced tools will be required to bolster financial stability against shocks. Under certain conditions, capital-flow

⁷ An example of this is innovation in climate-smart rice: <https://www.cgiar.org/innovations/climate-smart-rice/>

⁸ Bootle (2020) suggests that digitalisation is comparable to the industrial revolution.

Figure 2

GDP per capita across Asia-8 during crises



Source: World Bank World Development Indicators and Asia House research

Figure 3

Asia's inflation acceleration



*Asia-8 composites of inflation and interest rates are equally-weighted averages of China, Japan, India, Indonesia, Malaysia, Vietnam, Thailand and Philippines

Source: International Monetary Fund and Asia House research

management may be useful during a retreat from globalisation (Mercurio et al., 2020), but the implementation of capital controls can undermine investor confidence (BIS, 2021). On the plus side, inflation pressures are more moderate in Asia than elsewhere. However, along with slower economic growth, inflation increases in several economies have been moving above central bank targets (Gulde-Wolf and Peiris, 2022) prompting central banks to raise interest rates (Figure 3).

2.1 Fostering further breakthroughs in green finance tools

As with the rest of the world, managing the green transition, and the costs of the climate crisis, will become more difficult amid economic and financial shocks. Policymakers, therefore, need to re-engineer the conditions and systems necessary for supporting net-zero emissions with innovation and finance. The historic loss and damage fund⁹ for developing countries agreed at COP27 in November 2022 was an encouraging step in this direction. This section examines how enhanced coordination mechanisms can help strengthen the green finance ecosystem.

Lowering the green premium – the additional cost of choosing a clean technology, or a zero-carbon alternative, instead of one that emits more greenhouse gases¹⁰ – is a must. Innovation that spurs new technologies, would, in a virtuous circle, a lower the green premium. This, in itself, spurs innovation, supportive policies, deployment, and a further scaling of the technologies needed for further lowering the green premium (Figure 4).

Stacked against this green transition, however, are the economic downturn, higher borrowing costs, and the lower overall global liquidity expected in 2023 (Figure 5). Sustainable economic-growth initiatives, and climate-change commitments more broadly, risk moving in reverse unless proactive policy steps are taken.

- **Imposing pricing or taxes on greenhouse gases.** This puts a price on the previously free right to pollute, such as with the EU Carbon Border Adjustment Mechanism (CBAM) (Box 1). Greenhouse-gas taxes incentivise investment away from fossil fuels and generate fiscal revenues that can be redistributed to clean-energy innovations and to helping start-ups out of what has been dubbed the Valley of Death.¹¹ The redeployment of fiscal revenues in this way can re-shape an economy, despite having an inflationary impact potentially similar to a standard oil-price shock.¹²
- **Improving access to environmental, social, and governance (ESG) capital.** ESG bonds are expected to outperform regular bonds in weaker markets, as investors with ESG-specific mandates may be less inclined to sell their holdings, adding to demand (Pictet, 2022). Crucially, the growing pool of capital seeking ESG investment¹³ is bigger than the supply of investable assets (Boyde, 2022; Holt, 2022). This is a critical component for the green ecosystem, although it will come up against 2023's higher borrowing costs. The cost of servicing an estimated US\$85 trillion in global non-financial corporate debt¹⁴ will also rise.

⁹ <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries>

¹⁰ <https://breakthroughenergy.org/our-approach/the-green-premium/>

¹¹ The Valley of Death denotes a series of challenges, including funding gaps, which entrepreneurs, innovators, and technology-based companies face during early development (Gbadegeshin et al., 2022).

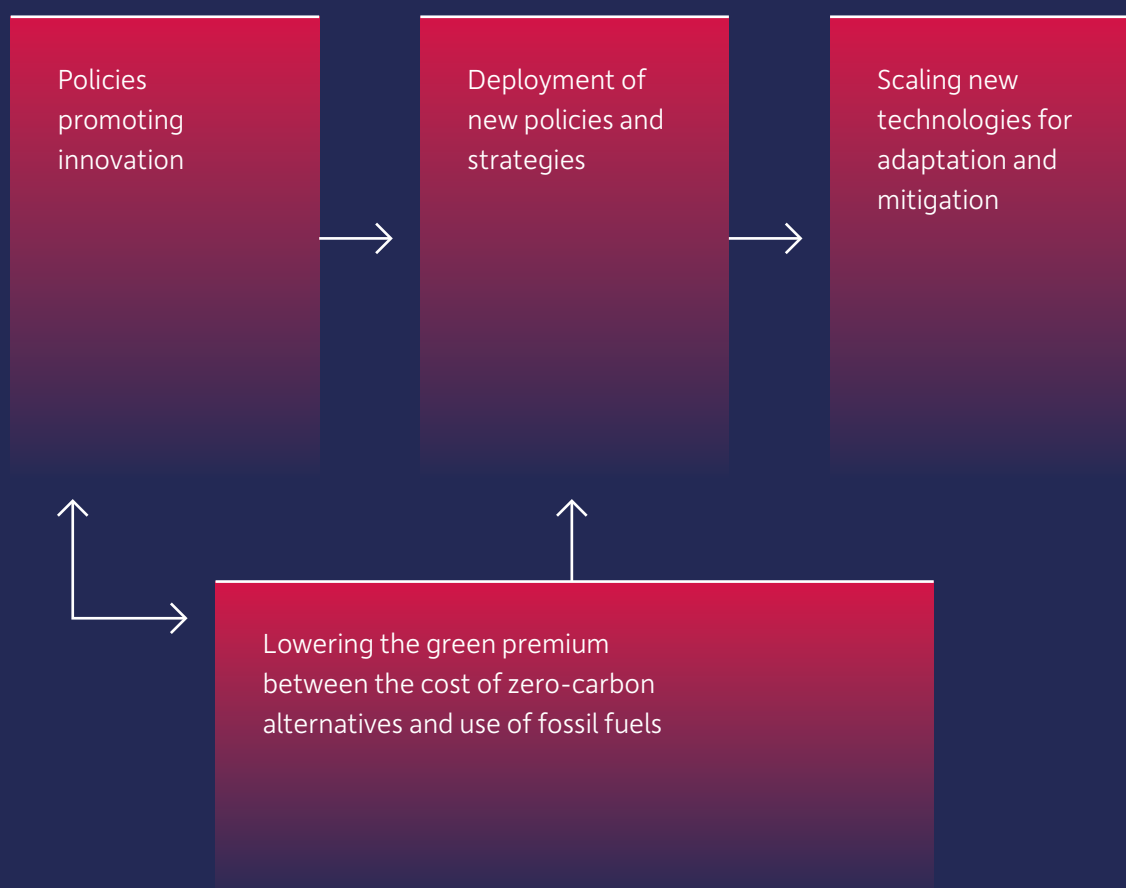
¹² <https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220108~0425a24eb7.en.html>

¹³ Investment screened for environmental, social, and governance purposes.

¹⁴ Bank for International Settlements data.

Figure 4

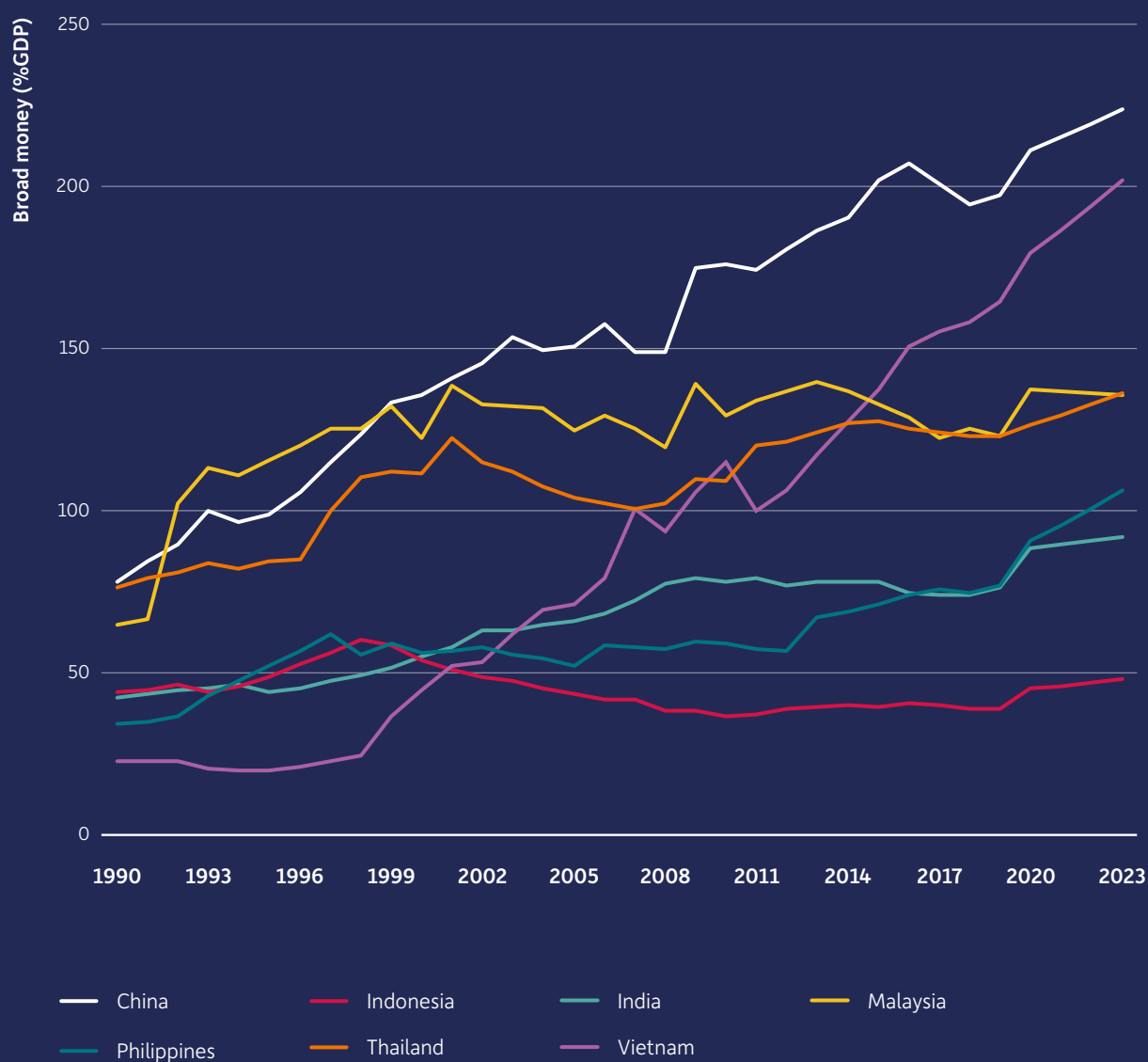
Lowering the green premium requires innovation



Source: Asia House research and Gates (2021).

Figure 5

Liquidity developments in Asia



Source: Bank for International Settlements and Asia House research

■ **Further mainstreaming of sustainable finance.**

Demand for such finance is now embedded among borrowers and investors, and, over time, is increasingly becoming indivisible from mainstream finance (Amundi, 2020). Globally, it is being driven by issuers' sustainability-led agendas and institutional investors' ESG mandates. Multilateral development banks and development financial institutions can also help leverage private investment and absorb some of the risks to borrowers and investors. The 'greenium', which sees investors willing to pay more (or receive less) in exchange for a sustainable impact, has also been an influence.

Looking ahead, innovations in blended finance – bringing together philanthropic funds, government financing, and investors – will help catalyse high-impact, under-capitalised sectors. Instruments, such as emerging-market green-bond funds,¹⁵ can attract the necessary institutional investors. And outcome-based debt instruments, such as sustainability-linked bonds,¹⁶ can also benefit issuers. The Monetary Authority of Singapore's seed-capital injection into a SG\$5 million Asia Climate Solutions Design Grant to fund innovations in blended finance is an example of this. It will provide early-stage funding for testing the theory and feasibility of scalable blended finance.

BOX 1

The EU seeks to put a price on carbon

How do you price in the *real* costs of greenhouse gas emissions? This is an essential question for policymakers, for markets, and for investors, if there is to be a reduction – or, ultimately, an elimination – of the green premium that makes carbon-free options more expensive.

One long-debated pathway is through carbon pricing – though this is not a simple undertaking, as attempts by the European Union have shown. It can be costly and be met with resistance. The EU's proposed Carbon Border Adjustment Mechanism (CBAM)¹⁷ essentially places a tariff on imports of carbon-intensive products, hence making greener alternatives more competitive. As far as many Asian exporters are concerned, CBAM is an import tax that will lose them export share. Goods produced in countries with weaker carbon-pricing mechanisms could become highly uncompetitive (Yin and Yep, 2022).

There are broader concerns that such a unilateral move by the EU will not only distort international trade but also shift the burden of addressing climate change to developing countries.¹⁸ The financial cost of complying with the EU, meanwhile, could further erode the capacity of some low-income countries to decarbonise their economies. As was highlighted at COP27, allowances and adjustments need to be made for developing countries.

15 An example of this is Amundi Funds Emerging Markets Green Bond Fund: <https://www.amundi.com/globaldistributor/product/view/LU2138388900>

16 For sustainability-linked bond principles, see: <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/sustainability-linked-bond-principles-slbpr/>

17 Planned to come into effect in January 2026, after a three-year transition.

18 Task Force on Climate, Development, and the IMF of Boston University's Global Development Policy Centre.

2.2 Asia needs digital dynamism to soar

Digital technologies continue to re-shape economies, with Asia's being no exception. Expanding digital skills and the digital domestic knowledge base, and funding digital initiatives will expedite economy-wide productivity gains. So, too, will increasing the breadth and scale of Industry 4.0, the 'fourth industrial revolution', in which manufacturing is linked with 'smart' technology, automation, and cross-border digital exchange through new infrastructure.

Asia's greater digital depth will depend on the following pathways becoming further entrenched in 2023:

- **Greater digital knowledge diffusion** through reskilling and digital foreign direct investment (FDI). Digital technologies are already re-shaping labour markets, increasing demand for people with digital skills and competencies. Digital hiring is on the rise and has been highly resilient during the pandemic (OECD, 2020). This transformation promises higher productivity, but unequal access to digital technologies threatens to widen the wealth gap for the disadvantaged, and between firms that are not digitalised and those that are (Abidi et al., 2022).
- **Increasing Industry 4.0¹⁹ to foster smart cities.** Although there is no standard definition for smart cities, they were initially predicated on ICT networks, and, subsequently, digital and other modern technologies.²⁰ The 5G mobile technology represents a major breakthrough in the areas of smart cities and smart business planning (Kunder et al., 2022). Cities priorities are pivoting to even more digital resilience as they grow and countries' smart cities strategies

become more explicit (Doagoo, 2022). Increased data collection and transmission requirements will require adaptable governance.

- **Industry 4.0 technologies will bolster the semiconductor industry.** Swathes of Asia's manufacturing remain low-tech with low productivity relative to what can be achieved through Industry 4.0. And semiconductor sales have been a weak spot in Asia²¹ in particular, posting annual declines in late 2022, necessitating further support mechanisms. As an example of this can be found in semiconductor manufacturing in Singapore; the sector is leveraging advanced analytics to predict product failures and optimise maintenance operations.

Where elements of Industry 4.0 have been adopted, Asia's industries have achieved productivity gains of 10 to 50 per cent, with improvement in overall equipment effectiveness of 10 to 20 per cent (Arbulu et al., 2022). In the near future, Asia's young population will expand the region's workforce and support economic growth, digital data technology and e-commerce will continue to re-shape demand, and the size of Asia's digital economy will continue to expand (Figure 6).

Ultimately, funding and investing in Industry 4.0 will help Asia's economies gain a larger share of global manufacturing activity. China's economy is shifting from an export-driven model to one focused on domestic consumption, meaning more demand and potentially less export competition. To take advantage of this and of global trends, however, ASEAN manufacturers must first overcome their productivity gap. Labour costs in most ASEAN countries are lower than those in

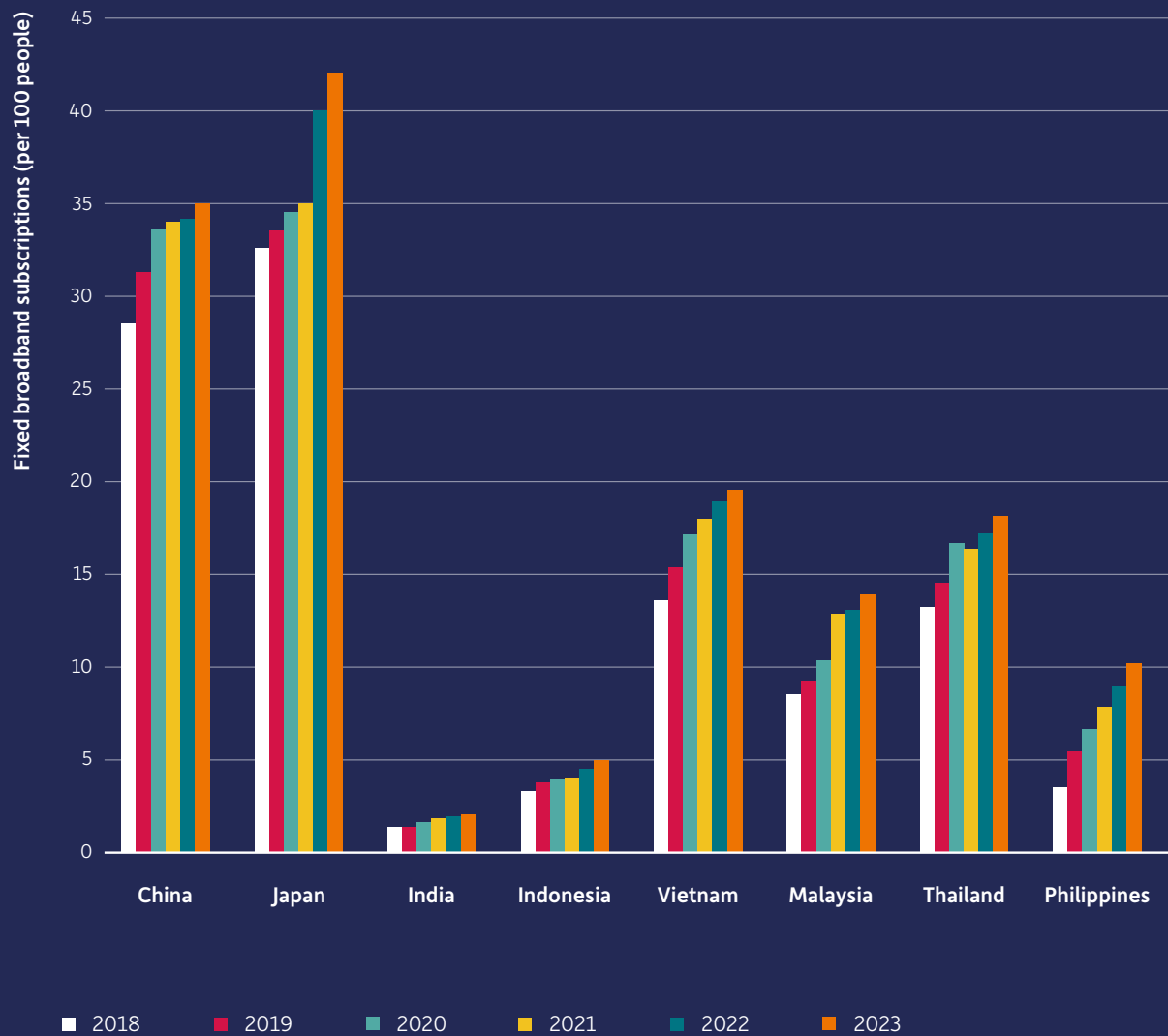
¹⁹ In this context, Industry 4.0 refers to the smart production systems that are designed to sense, predict, and interact with the physical world to support production in real time (Sirimanne et al., 2022).

²⁰ For example, IBM's 'smart city' definition includes three key characteristics: instrumented, interconnected, and intelligent, with instrumented being defined as the availability of efficient links between the physical world and the virtual world.

²¹ <https://www.semiconductors.org/monthly-semiconductor-sales-decrease-0-5-globally-in-september/>

Figure 6

A snapshot of South East Asia's digital economy



Source: Asia House research

China – in many cases, they are much less than half of China's costs. But low labour productivity rates²² erase this advantage when it comes to producing goods of higher added value (ADB, 2022a).

2.3 Regional coordination: The importance of economic zones

As the centre of global economic gravity continues to shift to Asia, regional economic cooperation becomes even more essential to address the challenges inherent in climate change and in digitalisation. The evolution of Asia's burgeoning and diverse economic zones – and how catalytic they are for sustainable development finance and digital innovation – will be a key marker for 2023.

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Asia's cross-border cooperation is spread across several economies, with emerging clusters of green and special economic zones located within them. Helpfully, such zones can evolve and transform into broader economic clusters.²³

To date, the region's economic zones have been dominated by manufacturing, but service-sector zones leveraging new technologies continue to emerge. A successful example of the latter is Malaysia's Multimedia Super Corridor, designed to attract global technology and information companies. Indonesia has set up tourism zones, while Thailand maintains highly digitalised service hubs within its Eastern Economic Corridor innovation zone.²⁴

There is increasing awareness of environmental concerns, which is being translated into the creation of eco-industrial parks, with China and Indonesia gaining particular prominence.²⁵

When it comes to the promotion of green finance in a coordinated fashion, the urgency is twofold:

- **Multilateral development banks and development finance institutions can leverage blended finance to expand green economic zones.** Multiple initiatives are in place already, with the Asia-Pacific region long seen as the next frontier in blended finance, based on early models in Indonesia, such as the Tropical Landscapes Financing Facility (Convergence, 2020). Achieving net-zero climate goals by 2050 will require between US\$3 trillion and US\$6 trillion a year.²⁶ Blended finance has been targeted towards tackling shocks – food security in Bangladesh and digitalisation in Africa. Prospects for Asia's blended finance facilities were bolstered under Indonesia's G20 presidency. Many public banks, however, remain wedded to fossil-fuel financing.

²² Except in Brunei and Singapore.

²³ Economic zones are government-designated industrial areas developed by public and/or private entities, offering enabling environments in a limited place with a single administrative regime and infrastructure, such as roads and power and other utility services. While the principle for economic zones is firms' clustering activity and generating agglomeration economies, zones differ from clusters in terms of both origin and entry (Aggarwal, 2022).

²⁴ <https://www.eeci.or.th/en/home/>

²⁵ <https://www.unido.org/unido-industrial-parks>

²⁶ Asian Infrastructure Investment Bank.

- **Government pivot to expanded carbon pricing.** At COP26 in Glasgow, guidelines for the implementation of Article 6 of the Paris Agreement were finally adopted, meaning there is now an agreed set of rules for trading carbon credits. It is estimated that trading in carbon credits could reduce the cost of implementing nationally determined contributions (NDCs) by more than half, i.e. by as much as US\$250 billion, by 2030 and will ultimately become redundant as countries reach net-zero emissions.²⁷ To address the low, variable, and often uncertain returns from green investments, a carbon price ensures the viability of new green projects. Now that the rulebook has been set up, a core barometer in 2023 will be further details on inter-country carbon trading following COP27 – and how to scale carbon markets – including the degree to which digital ledgers of carbon trades are exposed to outside scrutiny (Nasralla and Abnett, 2022).

Looking ahead, third-generation economic zones – i.e. ones that are sustainable, carbon-neutral and digitalised – will form the pillars of economic growth and regional cooperation. The implementation of digital innovation, and Industry 4.0, will mean that Asia's economies continue to move up the production value chain, to varying degrees. Creating a virtuous circle between digital skills, Industry 4.0, blended finance, and carbon pricing will spur and catalyse dynamic economic zones across the region. Over time, the result will be enhanced skill-intensive activities in industries, including in the electronics, automotive, rubber, food products, textiles and garments, and chemical and petrochemical sectors.

2.4 How ready are Asia's economies for a green and digital future?

Asia is at an important crossroads: its constituent economies are poised to transition to higher levels of income, innovation, and resilience. To gauge progress in the region's core economies (Asia-8)²⁸ – both the notable greenhouse-gas emitters and those most vulnerable to the climate crisis – our annual outlook has updated its flagship Asia House Economic Readiness Indices for green finance and digitalisation.

China is projected to continue to lead in both areas in 2023, topping the regional list with scores of 76 for green finance and 68 for digitalisation. Japan follows close behind for digitalisation but has been overtaken by Thailand and Vietnam in economic readiness for green finance (Figures 7 to 9).²⁹

²⁷ <https://www.worldbank.org/en/news/feature/2022/05/24/countries-on-the-cusp-of-carbon-markets>

²⁸ The eight countries are China, Japan, India, Indonesia, Vietnam, Malaysia, Thailand, and the Philippines.

²⁹ The indices measure progress by scoring out of 100; see Appendix for components and construction details.

Figure 7

Asia House Economic Readiness Index scores for green finance

















	China	Japan	India	Indonesia	Vietnam	Malaysia	Thailand	Philippines
Economic readiness	 76 (72)	 57 (63)	 47 (55)	 52 (50)	 64 (51)	 59 (54)	 66 (48)	 48 (41)
Financial resilience	61 (70)	65 (72)	45 (60)	67 (58)	75 (48)	68 (71)	65 (52)	62 (48)
Financial development	64 (44)	46 (64)	37 (47)	45 (47)	62 (45)	77 (59)	65 (44)	69 (46)
Ease of capital measure	86 (84)	43 (44)	43 (53)	24 (21)	57 (54)	32 (27)	44 (25)	34 (28)
Equitable ecosystem	94 (91)	72 (72)	61 (62)	52 (73)	64 (60)	59 (58)	66 (73)	48 (41)

Figure 8

Asia House Economic Readiness Index scores for digitalisation

	China	Japan	India	Indonesia	Vietnam	Malaysia	Thailand	Philippines
Economic readiness	 68 (72)	 61 (59)	 33 (36)	 45 (50)	 43 (37)	 59 (49)	 46 (41)	 47 (40)
Digital facilitation of trade	80 (83)	60 (58)	43 (51)	42 (62)	46 (50)	77 (65)	66 (70)	87 (68)
Expanding Industry 4.0	80 (76)	66 (64)	22 (39)	44 (40)	29 (27)	28 (33)	14 (10)	26 (32)
Domestic digital depth	53 (71)	47 (46)	27 (22)	47 (63)	55 (31)	65 (38)	64 (48)	46 (31)
Digital knowledge transfer	59 (57)	70 (69)	39 (33)	45 (36)	42 (40)	65 (61)	38 (34)	29 (28)

Source: Asia House research

Figure 9

Asia House Economic Readiness scores for Asia-8



Source: Asia House research



3

SECTION 3

Risks to the 2023 outlook

Section 3

Risks to the 2023 outlook

We see three major risks to our 2023 outlook for Asia: China's domestic and foreign policies, spillover from US financial dynamics, and the chances of monetary-policy errors.

3.1 China's domestic and foreign policies to be decisive in shaping 2023

China's economy is expected to pick up moderate speed in 2023, having slowed significantly in 2022. How much it speeds up depends, in part, on the loosening, in response to public discontent, of its growth-restraining COVID-19 restrictions that began in late 2022, and on the acceleration in domestic demand. The direction of tensions in the South China Sea – subject to territorial and maritime disputes – will also shape the outlook. These are the dual dynamics for China in 2023.

COVID-19 restrictions

Despite the government abolishing nearly all COVID-19 restrictions, this is unlikely to significantly boost growth in the short-term, owing to the risk of surging infections and cautious behaviour (Box 2). While consumption will rebound in the medium term due to the overall excessive household saving, the result is likely to be mild, owing to the pandemic's impact on personal income and the lack of household stimulus. Despite the abolishment of nearly all restrictions since December 2022, uncertainties remain.

BOX 2

China's zero COVID policy

Dr Zhouchen Mao, Head of Research and Advisory, Asia House

Since the first COVID-19 outbreak in January 2020, China has maintained a stringent policy to suppress the virus. The approach, involving mobility restrictions and regular mass testing, has resulted in an economic slowdown, evidenced by marginal 2.5 per cent growth in the first half of 2022. The performance of the consumer, services, and manufacturing sectors remains far below pre-pandemic levels as a result of intermittent lockdowns hampering economic activity.

The impact of the 'dynamic zero COVID'³⁰ policy has also reverberated across different countries and business sectors. For instance, travel restrictions have caused physical interactions between China and the rest of world to plummet, a main factor that is driving business uncertainties and policy misunderstandings both within and regarding China. Furthermore, limited people-to-people exchanges have precipitated economic headwinds and re-adjustments in countries that depend on Chinese investors and consumers.

After the recalibration of the COVID-19 strategy in late 2022. In December, the Chinese government announced ten new requirements that drastically reversed its rigid zero-COVID restrictions without formally abandoning the policy. On 3 December, the government abolished mandatory testing for using public transport and entering public spaces. Then, on 13 December, it took the significant decision to shut down the COVID-19 tracking app. This means normalisation of intercity travel and an end to the domestic quarantine system. Centralised quarantine for inbound international travellers were abolished, while borders between Hong Kong and Mainland China opened on 8 January albeit with a daily quota. The dual moves effectively dismantled the last remaining key restrictions associated with zero-COVID policy.

The abrupt end to restrictions subsequently caused widespread infections, which could overwhelm the healthcare system and pose further challenges to the fragile domestic economy. While Chinese exports have been one of the few bright spots, the fact that external demand is continuing to diminish means Beijing will need to rely more on the domestic market. A shift away from tight restrictions will boost demand in the medium term given the country's overall excessive savings, but consumption will remain sluggish in the short term, owing to surging infections and more cautious behaviour.

South China Sea

Tensions in the South China Sea and the potential for upset and shifts in regional geopolitical dynamics are a core risk

– and increasingly likely, given growing tensions between China and the United States (Box 3).

³⁰ A new term, which reflects the government's aim to strike a balance between pandemic control, involving targeted and localised lockdowns, and economic development.

BOX 3

South China Sea: Two competing normative orders

Dr Zhouchen Mao, Head of Research and Advisory, Asia House

Increasing strategic competition between the US and China, the world's two largest economies, is expected to add to the intractability of the multi-party disputes in the South China Sea. In addition, a less unpredictable China-US relations is likely to further aggravate the instability in the Taiwan Strait as cross-strait tensions have reached a new height since August 2022. That said, the risk of an outright war in the Taiwan Strait remains low in the short-term.

Tensions there have been framed as a case of 'power transition theory', whereby a rising power (China) challenges the incumbent power (the US) amid a shift in power balance and increasing 'assertiveness' in the former's behaviour. Building on this view, the South China Sea dispute is more than just a transition, it is a contest between two competing normative orders. On one side is the order led by the US and underpinned by the post-World War II legal framework of international law (including the United Nations Convention on the Law of the Sea – UNCLOS); on the other is a Sino-centric narrative focused on 'historic rights' and 'historic ownership' over South China Sea islands. The dispute is largely driven by China and the US's attempts to assert and promote their preferred normative order.

For Beijing, the concept of 'historical rights', which is enshrined in Chinese domestic law, argues that China was the first country to discover, name, and explore the resources in the area (Heritage and Lee, 2020). For this reason, China claims sovereignty and believes it reserves the sole right to develop untapped natural resources in the maritime territory within the nine-dash line. The US, on the other hand, seeks to uphold its preferred order, based on the rule of law and international norms, by labelling Chinese claims in the South China Sea a contravention of these.

Freedom of navigation: The front line of normative contestation

One of the main drivers of this normative contestation is the varying interpretations of UNCLOS, particularly in relation to military activities in the exclusive economic zone claimed by various players and freedom of navigation. China's interpretation of the international law provision on freedom of navigation – driven by Beijing's distinctive world view, values, and reading of history – aims to preclude foreign military vessels from conducting innocent passage through what it deems to be its own territorial seas.³¹ This has resulted in frequent condemnation from Beijing of what it sees as illegitimate foreign military activities.

China's narrower interpretation stands in contrast to the norms of ruled-based maritime order that are deemed critical for US regional status and regional connectivity. That said, the

³¹ Under the law of the sea, territorial sea is defined as the area extended up to 12 nautical miles from a country's coastline over which it can exercise jurisdiction.

US position in underscoring UNCLOS as the foundation of the ruled-based maritime order is somewhat undermined by its own non-ratification of the convention (Bateman, 2006).

Tensions in the South China Sea and regional implications

Overlapping territorial claims in the South China Sea have resulted in risky Chinese and US military encounters. As Washington continues to assert freedom of navigation, China has stepped up its rhetoric and military actions to defend what it considers to be its territorial waters. A conflict triggered by unintended events would precipitate further instability in the bilateral relationship, as well as at the regional and global levels.

Such an unintended conflict would trigger severe disruptions to international shipping between Europe and Asia, forcing ships to embark on longer and costlier courses. Diversion-related delays and soaring shipping costs would exacerbate supply-chain bottlenecks and reduce global economic activity.³²

Another spillover could be the fuelling of nationalism, leading to unintended policy consequences that dampen bilateral relations and economic engagement. An example is Vietnam, where resentment towards Chinese actions in the South China Sea triggered waves of popular protests throughout the 2010s, resulting in consumer boycotts of Chinese products and attacks against Chinese assets in the country.

Opportunities for cooperation

While the risk of armed confrontation in the South China Sea is acute, there remain opportunities for cooperation between China, the US, and the claimant states in South East Asia. Both China and the US, for example, could strengthen existing crisis management mechanisms³³ to prevent unanticipated incidents.

Moves towards a fisheries enforcement mechanism involving claimant states would serve as a confidence-building measure, help narrow the scope of disputes, and prevent escalation of smaller incidents involving maritime-law enforcement agencies and fishing interests (Hsiao, 2020). This could include cooperation in combating piracy and shoring up environmental protection.

Broadly speaking, opportunities for cooperation between China and South East Asia are in Beijing's interest, boosting its relations with the Global South and enhancing its Global Development Initiative.³⁴

³² <https://www.aspistrategist.org.au/southeast-asia-will-take-a-major-economic-hit-if-shipping-is-blocked-in-the-south-china-sea/>

³³ These mechanisms include military hotlines and guidelines on maritime encounters.

³⁴ Proposed in September 2021 to enhance sustainable recovery from the COVID-19 crisis.



**“US interest rates
are likely to rise by a
comparatively greater
magnitude than
policy rates in other
economies”**

3.2 US financial dynamics risk unsettling Asia's economies in 2023

Continued US dollar strength is likely through 2023: despite some recent moderation, it had, at the time of writing, gained around 16 per cent against major currencies over the previous two years.³⁵ There is a risk that this appreciation becomes more pronounced against a number of emerging economies, including Asia's. US interest rates are likely to rise by a comparatively greater magnitude than policy rates in other economies. Further and larger US rate rises than previously anticipated (Smith, 2022) would be a trigger for US dollar appreciation.

As well as attracting financial inflows with comparatively higher interest rates, the US dollar may continue to benefit from its status as a safe-haven currency, given continued risk aversion in 2023. A potential offset would be a recovery in oil, given the typically inverse link between the two.³⁶ This could occur in tighter oil markets with each successive OPEC+ decision to keep output steady, rather than increase production. Oil prices rose by as much as 2 per cent on the day of the decision in December 2022 to stick to the plan to cut output by 2 million barrels per day throughout 2023.³⁷ The loosening of China's COVID-19 restrictions was also, in part, behind the price rise.

On balance, 2023 is likely to see the US dollar continue to appreciate, including against Asia's currencies. This could contribute to headwinds for Asia's growth, because of the impact of higher borrowing cost, lower domestic purchasing power (including for productive imports into Asia), and lower household spending as a result of the

decline in purchasing power. Notwithstanding this, for some economies with large export sectors – such as Vietnam and Malaysia – a positive competitiveness effect could provide some offset for the outlook (Figure 10).

Within the ASEAN+3 region³⁸ the impact of the US dollar and energy-price shocks will vary depending on the magnitude and nature of individual countries' US dollar exposure. Emerging Asian economies that are more dependent on US dollar funding typically see higher borrowing costs coupled with currency depreciation (Lee et al., 2021). The share of outstanding international debt securities denominated in US dollars, although it has declined somewhat, still ranges from 66 per cent (in Thailand) to 88 per cent (in the Philippines).³⁹

3.3 The peril of policy errors

Our third significant risk for 2023 relates to the scope for monetary-policy errors. The extent and scope of the global economic slowdown could keep policymakers in firefighting mode throughout 2023 – largely coping with shocks. Energy-price volatility, geopolitical conflict, and higher borrowing costs are all threats to Asia's outlook: in these conditions, the risk of policy mistakes – of under- or over-tightening – is elevated.

Not tightening monetary policy enough may prove a costly mistake, as it risks causing inflation to become entrenched. Similarly, over-tightening could risk prolonged recession in some economies where higher borrowing costs disproportionately

³⁵ The Dollar Index (DXY).

³⁶ The US dollar and the oil price have typically shown an inverse relationship. This is owing to a number of factors, including the frequent use of the US dollar as the invoicing currency of crude-oil trading. The causality of the link and the spillover between the two also varies according to time period (Zhang et al., 2008). The link does not always hold, however (Ghaddar and Chatterjee, 2022).

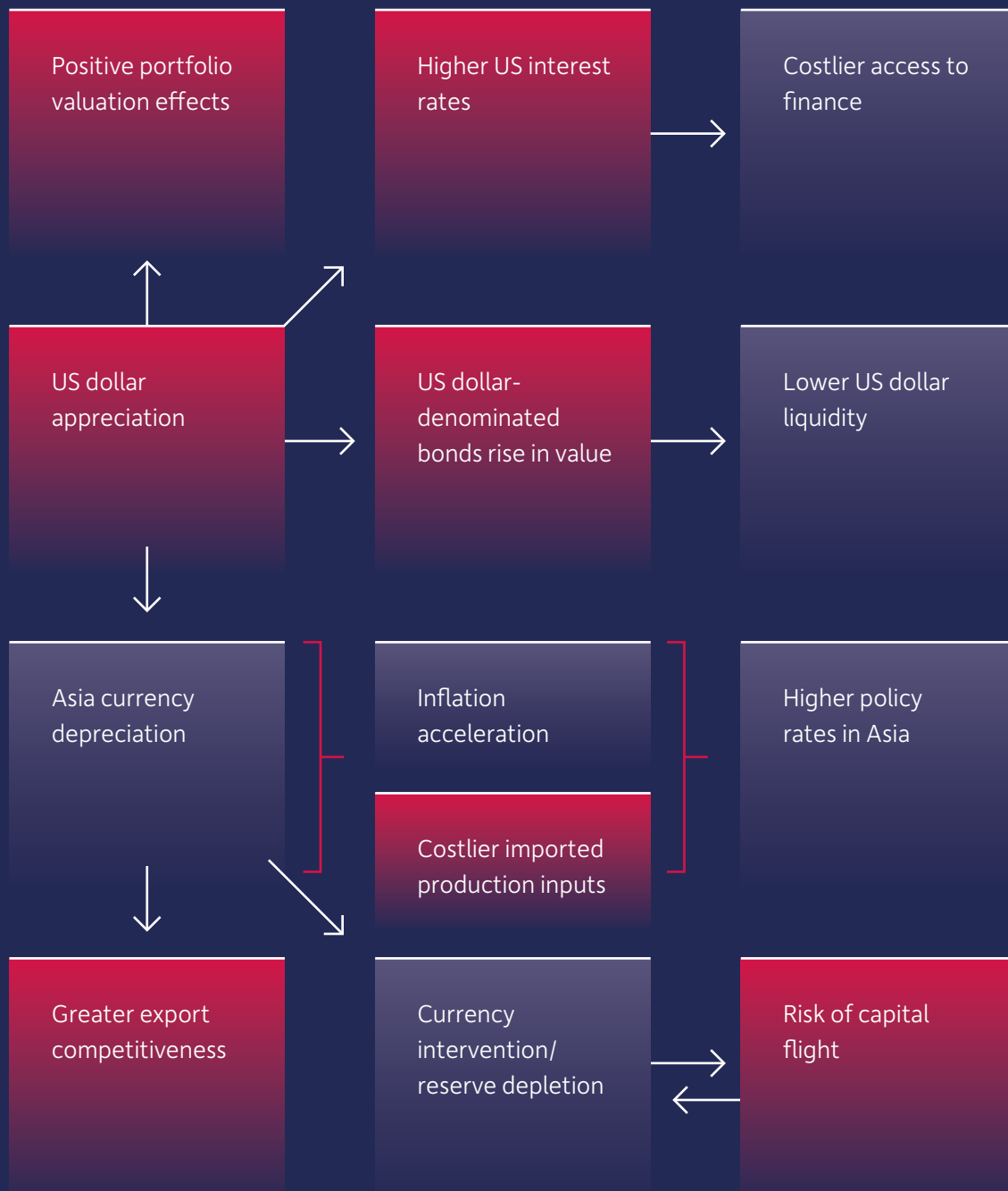
³⁷ <https://www.reuters.com/business/energy/oil-rises-after-opec-holds-oil-output-targets-china-eases-covid-curbs-2022-12-04/>

³⁸ ASEAN+3 comprises the Association of Southeast Asian Nations plus China, Japan, and South Korea.

³⁹ Statistics sourced from the Bank for International Settlements.

Figure 10

US dollar dynamics and pathways to Asia



Source: Asia House research

hurt growth. A number of economies is already projected to contract, with emerging and developing countries especially vulnerable.

Monetary-policy responses to inflation and the economic downturn have varied across Asia, including, in some cases, greater responsiveness to waning growth rather than to inflation. To an extent, the general Taylor Rule calibrations in this report suggest that this has materialised in China, India, and Indonesia. To gauge this, we use alternative inflation sensitivity weightings within the Taylor Rules, giving an approximation of interest rates based on inflation and output gaps.⁴⁰

Countries that have leaned towards over-tightening in the face of inflation are at higher risk of a growth slowdown. But the major central banks in Asia are attuned to growth. Notably, the People's Bank of China, the Reserve Bank of India, and Bank Indonesia have shown more sensitivity to growth than to price rises (Figures 11 to 14). Thailand and Japan, meanwhile, have comparatively lower inflation rates than elsewhere and can afford to maintain a more accommodative policy. These difficulties will be exacerbated by the complexities of calibrating monetary policy to the impacts of the climate crisis (Hukkinen et al., 2022).

⁴⁰ The Taylor Rule is an equation formulated in Taylor (1993) that prescribes a short-term interest rate based on the values of inflation, relative to a target, and on economic slack, as measured by the output gap (the difference between actual and potential growth as a share of potential growth).

The basic formulation used in this report is: $i = r^*p^* + 0.5(p-p^*) + 0.5(y)$

Whereby:

p is inflation,

p^* is targeted inflation,

r^* is the long-run level of the interest rate, and

y is the output gap, defined as the difference between actual growth and potential growth as a share of potential growth.



Figure 11

China's monetary policy dynamics

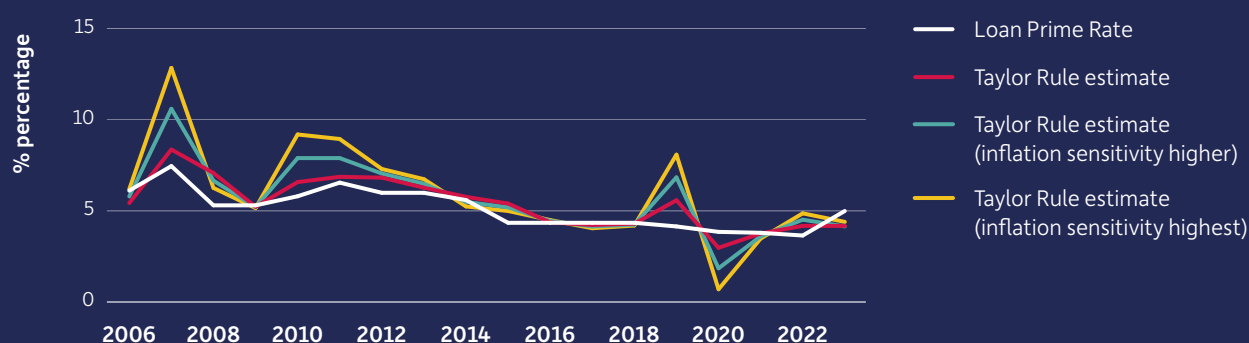


Figure 12

India's monetary policy dynamics

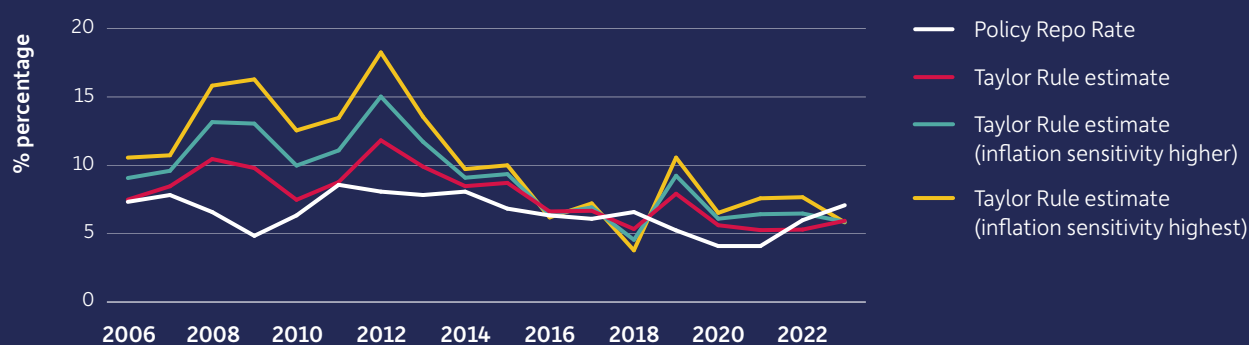
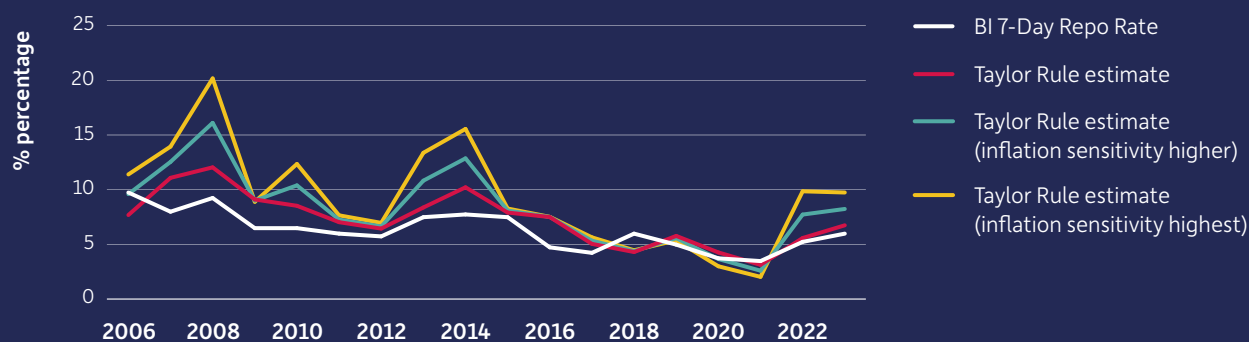


Figure 13

Indonesia's monetary policy dynamics



Source: International Monetary Fund, World Bank, Bank for International Settlements, and Asia House research



4

SECTION 4

Assessing Asia's economic readiness by country

Section 4

Assessing Asia's economic readiness by country

4.1 China: Domestic reform could mitigate 2023 risks

China's outlook for 2023 is particularly uncertain. The loosening of COVID-19 restrictions has meant the domestic economy could fare better than previously anticipated. However, concerns pertaining to the spread of the virus may now restrain the economy, depending on the vaccination rollout.

China's expansion and deepening of its digital economy, and its plans for a lower-carbon energy path, could pave the way for an acceleration in growth and in moving the long-term – or potential – growth rate of the economy. Notwithstanding some spillover from 2022's financial and economic instability, our indices indicate that China is continuing to lead in economic readiness for both

green finance and digitalisation within the Asia-8 economies. This is despite some slippage in 2023 in digitalisation.

China's obstacles to growth and its embedded structural constraints, meanwhile, could continue to prove challenging when looking to build sustainable and equitable growth. This includes addressing income disparities within the domestic economy and the economic and labour-market vulnerabilities within China's rural areas (Rozelle and Hell, 2020). This also includes the gap in export revenues, and fiscal wealth, between the richer eastern provinces and the poorer western ones (Wang et al., 2020).

With regard to China's green transition, its share of global emissions remains comparatively high: it accounts for 27 per cent of annual global carbon

dioxide and one third of the world's greenhouse-gas emissions.⁴¹ The transition to clean energy will be dominated by Beijing continuing to prioritise and largely frame a domestic energy strategy around energy security, given China's significant structural demand for coal and oil (Yergin, 2020).

With regard to China's green transition, its share of global emissions remains comparatively high

BOX 4

The Two Sessions

Dr Zhouchen Mao, Head of Research and Advisory, Asia House

The March 2023 National People's Congress and the Chinese People's Political Consultative Conference, known collectively as the Two Sessions, will be keenly watched for key economic policy announcements, coming as they do only months after broad priorities for the next five years were announced at the 20th Party Congress.

Moreover, major Party and government reshuffles will be completed at the sessions. Crucially, a new cohort of top economic team members will be unveiled, marking the biggest shake-up in a decade. Four key officials – Premier Li Keqiang, Chief Economic Adviser and Vice-Premier Liu He, banking regulator Guo Shuqing, and People's Bank of China Governor Yi Gang – are among those who are retiring.

Despite this personnel overhaul, the country's policy direction and priorities will remain consistent, reinforced by the 20th Party Congress Work Report's emphases on building an economy geared to consumption, digitalisation, and 'high-quality' and sustainable growth.

The upcoming Two Sessions will shed more light on the policies to achieve these priorities. For instance, questions remain on how China intends to balance between decarbonisation and energy security although China's long term objective on decarbonisation will remain intact. In addition, the government is likely to announce a GDP growth target for 2023, but it is unclear what objective might be, given the new emphases outlined at the 20th Party Congress. Relatedly, Beijing is expected to announce monetary measures to boost domestic consumption following the dismantling of nearly all major COVID restrictions.

⁴¹ <https://www.worldbank.org/en/news/press-release/2022/10/12/china-s-transition-to-a-low-carbon-economy-and-climate-resilience-needs-shifts-in-resources-and-technologies>

China will continue to lead in green finance readiness

China's coal production and consumption are likely to rise in the near term as energy security is prioritised amid accelerating demand in Asia⁴² (Xie, 2022). Despite this, renewable energy capacity, and the associated need for green finance⁴³ to support China's energy transition, are also needed to meet the targets of reaching peak emissions by 2030 and turning carbon-neutral by 2060. New green guidelines issued by the China Banking and Insurance Regulatory Commission⁴⁴ could be decisive in accelerating growth in green finance.

China's development banks are active in driving green finance and implementing green regulations, which have recently been extended to the Belt and Road Initiative (BRI), too. Domestic banks and insurance companies are actively supporting the green low-carbon construction within the BRI. China Development Bank (CDB), one of the country's policy banks, has issued 12 billion yuan (about US\$1.69 billion) of green bonds to boost the green transformation of infrastructure.⁴⁵ CBD Securities⁴⁶ has helped accelerate green-bond issuance and China's opening-up agenda, alongside underwriting bonds issued by Zhejiang Hengyi Petrochemicals.

Accordingly, the outlook for economic readiness for green and sustainable financing in China is positive. Its 2023 Asia House Economic Readiness Index for green finance tops other economies in the region, despite a decline in its headline

reading, owing to a deterioration in its financial markets. Demand for environmental, social, and governance-focused managed funds is boosting demand for green financing. New bond rules making it easier for foreign investors will boost longer-term prospects, even if, in the short term, investor interest in China's green bonds slides, because of unfavourable debt market conditions (Isjwara et al., 2022).

China's digitalisation: An essential domestic growth engine

China's digital economy, which ranks second worldwide in terms of size, has become a major domestic growth engine.⁴⁷ By June 2022, there were 1.05 billion internet users in China, and its internet penetration rate had reached 74.4 per cent. The country hosts the world's largest 5G network and has become one of the global leaders in 5G standards and technology, with 1.85 million 5G cell towers and 455 million 5G cell-phone subscribers.⁴⁸ The BeiDou-3 global navigation satellite system rivals America's GPS, Russia's GLONASS, and Europe's Galileo.⁴⁹

The digital transformation of China's manufacturing industry continues, driven largely by firms aiming to become more efficient in their production. By February 2022, 55.3 per cent of the key processes of China's large industrial enterprises had become digitally controlled, and the application of digital R&D tools was as high as 74.7 per cent.⁵⁰ China's digital transformation and upgrading of its agriculture sector is making steady progress too, particularly in the experimental

⁴² <https://www.iea.org/news/the-world-s-coal-consumption-is-set-to-reach-a-new-high-in-2022-as-the-energy-crisis-shakes-markets>

⁴³ <http://www.pbc.gov.cn/en/3688006/3995557/4508973/index.html>

⁴⁴ <https://www.cbirc.gov.cn/cn/view/pages/governmentDetail.html?docId=265725&itemId=861&generaltype=1>

⁴⁵ http://www.china.org.cn/business/2022-10/14/content_78465040.htm

⁴⁶ China Development Bank Securities is a subsidiary of China Development Bank and is a major corporate bond underwriter.

⁴⁷ 'Jointly Build a Community with a Shared Future in Cyberspace' was released by China's State Council Information Office.

⁴⁸ http://english.scio.gov.cn/m/whitepapers/2022-11/07/content_78505690.htm

⁴⁹ <https://newatlas.com/mobile-technology/china-beidou-gps-satellite/>

⁵⁰ https://en.ndrc.gov.cn/news/pressreleases/202211/t20221121_1343310.html

applications of the Agriculture Internet of Things⁵¹ (Xu et al., 2022). In China, this has facilitated high-precision information monitoring (ibid., 2022).

More broadly, China's readiness for digitalisation will be driven by both the digital facilitation of trade and the continued expansion of Industry 4.0 and smart technology, in multiple sectors. New measures to further develop basic data systems have been published to bolster China's application systems.⁵² This could boost its e-commerce market, mobile payments, video-streaming platforms, and the scaling of third-party payment transactions at a time when China's e-commerce market is coming up against domestic constraints because of strong domestic competition.

China's regional coordination: Trade with ASEAN to accelerate

China's 'dual circulation' development strategy, emphasising both domestic demand and its export markets, is likely to remain a cornerstone of the country's economic policy. Alongside this, the formal coming into force of the Regional Comprehensive Economic Partnership (RCEP) in January 2022⁵³ has meant that the constituent countries⁵⁴ have benefited from lower import costs and more export opportunities, particularly to China.

- Chinese cities – including Nanning, Jiangmen, and Ningbo – have prioritised RCEP

⁵¹ The Agriculture Internet of Things is defined in Xu et al. (2022) as a network in which physical components, such as animals and plants, environmental elements, production tools, and virtual objects in the agricultural system are connected through the internet to perform information exchange and communication.

⁵² <https://www.globaltimes.cn/page/202212/1282215.shtml>

⁵³ <https://asean.org/rcep-agreement-enters-into-force/>

⁵⁴ The Regional Comprehensive Economic Partnership (RCEP) Agreement entered into force in January 2022 for Australia, Brunei Darussalam, Cambodia, China, Japan, Lao PDR, New Zealand, Singapore, Thailand and Vietnam. Malaysia and South Korea ratified membership later in 2022.



cooperation. Guangxi saw trade growth of 470 per cent with Brunei in the first nine months of 2022, and 55 per cent growth with Singapore.⁵⁵

- China has maintained its position as ASEAN's largest trading partner since 2009.⁵⁶ Trade between ASEAN and China more than doubled between 2010 and 2021, from US\$235.5 billion to US\$507.9 billion in 2019.
- China is the fourth largest source of FDI among ASEAN's Dialogue Partners.⁵⁷ Its outbound investment has been significant to Cambodia, Indonesia, Philippines, Singapore, and Vietnam.
- With both RCEP and the Belt and Road Initiative, Fujian Province saw rapid growth in investment from foreign capital: it amounted to US\$4.49 billion from January to September, up an annual 23 per cent. Investment from RCEP members rose by 66 per cent, and from ASEAN by 156 per cent.⁵⁸

In addition to its regional trade links, China's financial involvement in the region has grown. The central bank has actively pursued signing bilateral currency-swap agreements with other central banks, aiding in the international use of the renminbi. The impact of instituting swap lines is unevenly distributed across China's trade partners, but it can bring benefits. Small economies, trade-deficit economies, and economies with fewer reserves benefited from increased exports to China with swap facilities in place (Hao et al., 2022).

4.2 Japan: Financial shocks to dominate outlook

Japan has borne the brunt of multiple shocks in 2022, including multi-decade lows in its exchange rate and a more expensive energy import bill. At the time of writing, the Japanese yen's lows against the US dollar have meant it has depreciated by more than 26 per cent over the past two years, in broader trade-weighted terms. Its depreciation stems from US dollar strength and Japan's demand for dollars to cover higher oil prices, given its high dependency on energy imports.

The loss of purchasing power inherent in the weaker yen has meant imported inputs to production have become significantly costlier. The likelihood of comparatively looser monetary policy from the Bank of Japan (BOJ),⁵⁹ compared with global monetary tightening elsewhere – and notwithstanding the recently unexpected changes in the management of its interest rates⁶⁰ – will also mean the yen (and yen-denominated assets) will depreciate.

Boosting inward investment, digital and otherwise, to raise productivity growth is critical and overdue. Access to finance, such as with the National Strategic Special Zones,⁶¹ where entry barriers on service imports and inward foreign direct investment have been reduced in targeted areas,⁶² has boosted Japan's export growth and its industrial development.

⁵⁵ <https://www.globaltimes.cn/page/202210/1278294.shtml>

⁵⁶ <https://asean.org/our-communities/economic-community/integration-with-global-economy/asean-china-economic-relation/>

⁵⁷ <https://asean.org/joint-media-statement-of-the-twentieth-aem-mofcom-consultations/>

⁵⁸ Sourced from the provincial commerce department through its official WeChat account.

⁵⁹ The Bank of Japan governor has stated that the central bank would keep its accommodative monetary stance to support the economy (Kajimoto, 2022).

⁶⁰ On 20 December 2022, the Bank of Japan surprised financial markets with an unexpected monetary-policy announcement that signaled a wider band of fluctuation around its interest-rate target, thus allowing for the possibility of rises in its long-term rates and potential monetary tightening.

⁶¹ https://japan.kantei.go.jp/101_kishida/actions/202203/_00004.html

⁶² Including in Tokyo Metropolis, Kanagawa prefecture, and Chiba City: <https://www.investtokyo.metro.tokyo.lg.jp/en/about/>

The outlook for Japan's economic readiness for green finance has deteriorated, but that for digitalisation has improved. The deterioration in financial conditions largely accounted for the drop in its green finance reading in our economic readiness indices. By contrast, continued efforts to bolster Industry 4.0, together with the digital facilitation of trade, accounted for the improvement in Japan's digital readiness for 2023. Digital knowledge transfer also registered a moderate improvement.

Japan's green finance

Japan's commitment to achieving carbon neutrality by 2050⁶³ is supported by its aims to cut coal power to 19 per cent of its energy mix by March 2031 (from 32 per cent in March 2020) and double renewable energy sources to at least 36 per cent during the same period. The Japan Bank for International Cooperation (JBIC) plans to raise the necessary funds for Japan's green finance via greater green-bond issuance.⁶⁴

Japan's 2021 issuance of ¥990.3 trillion raised the ratio of outstanding issuance to GDP to more than 250 per cent – the highest in the world (Yamaguchi, 2022). Only a small percentage of that was green issuance, however, but there was a 33 per cent year-on-year increase between 2020 and 2021. Japanese green transition bonds totalled US\$4.4 billion in 2021, less than 1 per cent of the US\$522.7 billion green bonds issued globally, according to the Climate Bonds Initiative.

Prime Minister Fumio Kishida has proposed raising global issuance of Japanese green transition bonds. Accordingly, issuance in Japan of green bonds, including transition bonds,⁶⁵ will increase, probably offering higher returns as a means to drive the

nation towards carbon neutrality by 2050. With more than ¥20 trillion needed for Japan's energy transition efforts, the premium on the associated financing instruments and bonds needs to be high enough to attract investors.

The outlook for Japan's economic readiness depends, in part, on some stabilisation in its financial conditions

The outlook for Japan's economic readiness depends, in part, on some stabilisation in its financial conditions, including moderation in the yen's depreciation and steady, well-telegraphed changes in the BOJ's accommodative monetary stance.⁶⁶ Ease of capital and financial resilience will be the key factors that hold back – or facilitate – Japan's green finance ecosystem. The BOJ will have to manage any upward pressures in its borrowing costs, alongside depreciation pressures in the yen exchange rate.

Japan's digitalisation: Connected industries to drive innovation

With economic growth likely to decelerate in 2023 – the IMF sees 1.6 per cent growth versus 2022's estimated 1.7 per cent – Japan's digital economy will be pivotal for a future rebound. Japan is one of the world's biggest users of industrial robots and a leader in the electronics industry,⁶⁷ but it lags in adopting digital technology in areas of the public and private sectors (Sodsriwiboon et al., 2022).

⁶³ https://www.meti.go.jp/english/policy/energy_environment/global_warming/roadmap/

⁶⁴ <https://www.jbic.go.jp/en/ir/greenbond.html>

⁶⁵ Transition bonds are focused on the change to a greener economy rather than a specific green project.

⁶⁶ <https://www.reuters.com/markets/asia/boj-must-phase-out-yield-cap-negative-rate-govt-panel-member-okina-2022-11-11/>

⁶⁷ <https://internationalfinance.com/japans-robots-are-conquering-the-world/>

To increase manufacturing competitiveness, Japan has launched the Connected Industries digital transformation initiative to enhance connectivity between consumers, suppliers, machines, and companies. Currently, Japan's leading digital platforms in manufacturing⁶⁸ are limited to IT or software used for smart connectivity within factories and they do not have models encompassing the entirety of the supply chain (Kim et al., 2021). Japan's Society 5.0 transformation plan also includes the use of technology to transform the health sector by combining medical data and artificial intelligence (ibid., 2021).

The development of next generation 'post-5G' semiconductors could be a 2023 focal point for Japan. Semiconductors are at the core of its electronics industry, supporting both digitalisation and decarbonisation, so these advanced chips will allow for smart gadgets and smart cities with high-speed sensors and transmission. They will build sustainability into the manufacturing processes (Favino, 2022). Sony, SoftBank, Toyota, and telecoms giant NTT have joined forces on a new venture – Rapidus – to develop and mass-produce next-generation semiconductors by 2027.⁶⁹

Japan's regional coordination

Membership of the Regional Comprehensive Economic Partnership (RCEP), which is now in force, will be a boon for Japanese SMEs in the form of low tariffs that will boost exports, including to China. Indeed, bilateral trade between China and Japan has already been growing. The growth in bilateral swap agreements between the major economies, including Japan,⁷⁰ has been conducive

to greater trade and reflects greater financial integration. A summit due to be held in Tokyo at the end of 2023 to mark 50 years of cooperation between Japan and ASEAN⁷¹ may result in further important announcements on regional links.

Japan continues to foster constructive relations with China through multiple consultation channels, including between Japan's Ministry of Economy, Trade, and Industry and China's Ministry of Commerce. Discussions have centred on optimal business environments, government procurement, and import restrictions on Japanese food products. The two sides have agreed to continue to communicate regularly – an encouraging trend, including for WTO reform and RCEP implementation.⁷²

Japan's relationship with India under the India-Japan Industrial Competitiveness Partnership has focused principally on knowledge-sharing on industrial competitiveness, in particular through improving logistics in India. Both sides have confirmed their intention to strengthen bilateral investment and logistics cooperation.⁷³ The Japan-Indonesia Public-Private Economic Dialogue, meanwhile, seeks to promote the efforts by the Japanese and Indonesian public and private sectors in the areas of digital technology, human capital, supply chains, and green industry, based on 'the ASIA-Japan Investing for the Future Initiative'.⁷⁴

4.3 India: Leading the G20 in 2023

The 2023 outlook for India is a positive one, with the head of the IMF calling the new G20 presidency's economy 'a bright spot on [an]

⁶⁸ These include Mitsubishi Electric's EDGE CROSS, Fanuc's FIELD System, Hitachi's LUMADA, DMG Mori's ADAMOS, Komatsu's LANDLOG, and Fujitsu's COLMINA.

⁶⁹ <https://www.japantimes.co.jp/news/2022/11/17/business/corporate-business/rapidus-chip-challenges/>

⁷⁰ https://www.mof.go.jp/english/policy/international_policy/financial_cooperation_in_asia/bsa/index.htm

⁷¹ <https://www.japantimes.co.jp/news/2022/11/12/national/politics-diplomacy/asean-summit-tokyo/>

⁷² https://www.meti.go.jp/english/press/2022/0906_001.html

⁷³ https://www.meti.go.jp/english/press/2022/1026_002.html

⁷⁴ https://www.meti.go.jp/english/press/2022/0518_001.html

otherwise darkening horizon'.⁷⁵ This is due both to its growth and the structural reforms it has undertaken. India's economy posted double-digit growth of 13.5 per cent in the middle months of 2022, as a favourable base effect and a rebound following the relaxation of pandemic-led restrictions took effect. The domestic economy is expected to show strength in investment and household demand in 2023, though, as in the case of other economies, expectations have been progressively downgraded.

India's relative economic strength has, to some degree, reflected the insulated nature of its economy; a low trade share as a percentage of its total economy means the transmission of

global shocks has been comparatively muted. Additionally, government policy, including increased public investment and credit guarantees to SMEs⁷⁶ through the Credit Guarantee Fund Trust for Micro and Small Enterprises, may have helped.

India's inflation and monetary dynamics have been driven by several factors. Monetary policy interventions by the Reserve Bank of India (RBI) have kept inflation – which has historically been high in India – relatively in check. India's purchases of discounted oil from Russia (Verma and Ahmed, 2022; Kasturi, 2022) have helped buffer its inflation rates, given the asymmetric⁷⁷ impact of oil on India's domestic prices (Ray, 2022; Abu-Bakar

⁷⁵ <https://www.imf.org/en/News/Articles/2022/10/13/tr101322-transcript-of-md-press-briefing-annual-meetings>

⁷⁶ <https://www.startupindia.gov.in/content/sih/en/government-schemes/cgtsme.html>

⁷⁷ Asymmetric is defined here as a situation where an increase in global oil prices has a strong pass-through to domestic inflation, but a decrease in global oil prices does not have a statistically significant association with domestic prices.



and Masih, 2018). Inflation, and the prospect for its acceleration in food prices, remains challenging.

Despite a positive growth outlook for 2023, India's economic readiness readings for both green finance and digitalisation have slipped lower, to make them the lowest of the eight economies covered in this report. India's low index reading for green finance was driven by a deterioration

in its financial resilience – in part, because of the reduction in its reserves. The decline in its ease-of-capital index reading was brought on by a spike in real interest rates. The deterioration in India's overall digital readiness reading was the result of low scores in all its digital sub-indices, particularly for the promotion of Industry 4.0. The promotion of data flows will be essential to watch under its G20 presidency (Box 5).

BOX 5

Cross-Border Data Flows Under India's G20 Presidency

Dr Zhouchen Mao, Head of Research and Advisory, Asia House

Ayon Dey, Asia House Research Associate

Freeing up cross-border data flows first emerged as a priority area for the G20 during Japan's presidency in 2019, with the launch of the Osaka Track initiative. But little progress has been made since then, because of the diverging approaches of developed countries (US, EU, and Japan) and leading emerging markets (China, India, and Indonesia).

While G20 members broadly agree that the free flow of data would promote economic growth, innovation, and social benefits, there are disagreements over the potentially unequal distribution of the benefits associated with increasing digitalisation and over the risks of infringing national security, including consumer data privacy (Parsheera, 2022).

Sceptical India is now G20 president. It has pledged that cross-border data flows will continue to be a key discussion area. It has also recognised the economic benefits of free-flowing data and has supported many G20 digital-economy priority areas, such as development of digital infrastructure, strengthening cybersecurity, and improving workers' digital skills.

But India has concerns over the adverse impact domestically from cross-border flows of data; it abstained, along with Indonesia and South Africa, over the Data Free Flow with Trust declaration in Osaka in 2019 (Matthan and Ramann, 2022).

India's G20 presidency is expected to focus on both selective data localisation and bolstering the free flow of data.⁷⁸ It is also likely that India will focus on the needs of developing countries and build on the principles of lawfulness, fairness, and transparency in data-sharing that were proposed during Indonesia's G20 presidency.

⁷⁸ India's approach to data governance has emerged from domestic priorities, namely the protection of consumer data and data security, and engagement with global data regulations, such as the General Data Protection Regulation (GDPR). In other words, instead of a pro-development approach that promotes building trust by reducing barriers to cross-border data flow, India's approach looks to build trust by promoting accountability and security.

Green finance in India: Issuance framework an important milestone

In November 2022, India launched its Sovereign Green Bonds Framework – an important policy milestone. The proceeds from sovereign green bonds are expected to fund renewable energy initiatives, clean transport, water and waste management, pollution prevention and control, and the development of green buildings.⁷⁹ The newly created Green Finance Working Committee⁸⁰ is tasked with allocating the funds, deposited in the Consolidated Fund of India, and ensuring the timely allocation of green finance into sustainable initiatives.⁸¹

Coal-heavy electricity generation continues to make India one of the world's largest greenhouse-gas and air-pollutant emitters

Such financing is crucial. India is the world's third-largest economy, with growing electricity demand from what has been low per capita electricity consumption. Despite the growth of renewable energy, and an ambitious renewable energy plan, coal-heavy electricity generation continues to make India one of the world's largest greenhouse-gas and air-pollutant emitters. Renewable electricity capacity is concentrated mostly in wealthier states in southern and western

India, while hydroelectric power is located predominantly along the Himalayan (northern) border and in north-eastern India. Coal capacity is widespread.⁸²

Each state in India largely manages its own power capacity and distribution, which can be a challenge when it comes to achieving national decarbonisation (Mitra, 2022). Policies that have modest or negligible emissions-reduction impacts at the national level have disparate effects locally too, including in relation to the costs of implementing projects.⁸³

Digitalisation in India: Leading in digital talent

India's digital ambitions for 2023, and beyond, remain high. In addition to the Digital India initiative,⁸⁴ which is expected to boost the country's digital economy to US\$1 trillion by 2025, progress has been driven by growing digital public infrastructure as a result of national identity system Aadhaar, one of the fastest and largest in the world. This has prompted increased inward investment into sector-specific projects. Additionally, artificial intelligence (AI) is expected to add US\$450–500 billion to India's GDP by 2025, accounting for 10 per cent of its forecast GDP.⁸⁵

Digital innovation will continue to drive India's significant start-up ecosystem. Venture capital funding is consistently flowing to AI projects in the e-commerce, banking, and healthcare sectors (OECD, 2021). India's national AI strategy has fuelled record government funding. As a result, the number of AI patent applications has increased dramatically. India is ranked 8th in the top 10 countries by AI patent families,

⁷⁹ <https://dea.gov.in/sites/default/files/Framework%20for%20Sovereign%20Green%20Bonds.pdf>

⁸⁰ The GFWC will meet at least twice a year to support the Ministry of Finance with selection and evaluation of projects and other work related to the Framework.

⁸¹ <https://dea.gov.in/sites/default/files/Framework%20for%20Sovereign%20Green%20Bonds.pdf>

⁸² <https://coal.gov.in/en/major-statistics/coal-reserves>

⁸³ <https://unfccc.int/topics/capacity-building/workstreams/capacity-building-portal/projects-case-studies-and-tools#Projects>

⁸⁴ <https://www.digitalindia.gov.in/>

⁸⁵ <https://swarajyamag.com/technology/as-new-chair-of-the-global-partnership-on-ai-india-can-help-set-humane-priorities-veering-away-from-big-biz-interests>

with the majority of the patents in electronics and healthcare.

The deployment of 5G infrastructure in urban and rural areas will accelerate the adoption of advanced technologies. These include edge computing (bringing data closer to source), the Internet of Things in industry, and robotics in agriculture, e-commerce, healthcare, education, and pharmaceuticals. Adopting 5G will boost remote patient monitoring, improve image processing, and accelerate data processing. The scope for smart factories will expand with increased automation and the adoption of AI, machine learning, and augmented/virtual reality.

Helping drive digitalisation in India is a huge digital talent pool that is growing exponentially.⁸⁶ In 2021, India's tech-industry talent pool was estimated to comprise 3.8 million people. The country is ranked second globally, after China, producing 2.14 million graduates in science, technology, engineering, and mathematics per year.⁸⁷ AI development alone could generate more than 900,000 jobs and 3.6 million indirect jobs by 2030, according to the National Association of Software and Service Companies. AI-first software applications, AI application programming interfaces such as India Stack,⁸⁸ and platforms supporting outsourcing services are likely to expand.

India's regional coordination: Focus on ASEAN

ASEAN has been at the centre of India's foreign policy for decades. This is likely to continue but also to come under growing scrutiny (Bajjee, 2022). In 2014, India revamped its Look East policy into the Act East policy, to add strategic focus to engagements with ASEAN. In June 2018, Prime Minister Narendra Modi emphasised that relations with ASEAN would be at the centre of India's policy for the Indo-Pacific region.

But ASEAN countries remain peripheral to India's engagement with the Quad – the strategic security dialogue with Australia, Japan, and the United States to counter the influence of China. ASEAN became China's largest trading partner in 2020 and the economic ties between the two easily outrank those of ASEAN with India. ASEAN's total trade with China for the four months of 2022 amounted to US\$274.50 billion;⁸⁹ India's 12-month trade with ASEAN to March 2022 totalled US\$78.90 billion.⁹⁰

ASEAN-India ties are nonetheless being enhanced. A meeting of senior officials from both sides in 2022 noted steady progress in the implementation of the ASEAN-India Plan of Action, a strategy for building relations by 2025. Progress was noted in tourism, the blue economy,⁹¹ biodiversity conservation, smart agriculture, digitalisation, sustainable development, and climate change.⁹² Outside ASEAN, India's bilateral swap facilities with both Japan⁹³ and Sri Lanka⁹⁴ have been renewed.

⁸⁶ <https://www.thestatesman.com/opinion/indias-growing-technology-talent-pool-is-attracting-global-companies-1503130006.html>

⁸⁷ <https://www.peoplesmatter.in/article/strategic-hr/how-to-attract-and-retain-top-talent-at-tech-companies-35943>

⁸⁸ <https://indiastack.org/>

⁸⁹ <https://asean.org/our-communities/economic-community/integration-with-global-economy/asean-china-economic-relation/>

⁹⁰ <https://commerce.gov.in/about-us/divisions/foreign-trade-territorial-division/foreign-trade-asean/>

⁹¹ The sustainable use of ocean resources for economic growth, improved livelihoods, and jobs, while preserving the health of marine and coastal ecosystems (World Bank).

⁹² <https://asean.org/asean-india-committed-to-strengthen-cooperation/>

⁹³ https://www.rbi.org.in/scripts/FS_PressRelease.aspx?prid=53337&fn=2767

⁹⁴ <https://timesofindia.indiatimes.com/world/south-asia/india-extends-duration-of-usd-400-million-currency-swap-facility-with-sri-lanka/articleshow/91001639.cms>

4.4 Indonesia: Diversifying from energy to underpin growth

Indonesia's economic performance in 2023 is set to be boosted by moderately recovering consumer confidence.⁹⁵ The business sector will also largely be supported by high commodity and energy prices, helped along by the upgrade of Indonesia's oil refineries.⁹⁶ But it is the continued efforts to diversify away from energy and to encourage digital transformation and sustainable growth that will underpin economic resilience during the year.

There are headwinds. A tripling of Indonesia's inflation rate since the start of 2022 to an above-target rate⁹⁷ necessitated significant monetary tightening by Bank Indonesia, which raised its policy rate by a cumulative 125 basis points over the year.⁹⁸ Financial instability risks also remain, so any unexpected shocks or unanticipated impacts from global monetary-policy tightening could adversely impact Indonesia's outlook, particularly given intermittent exchange-rate weakness.

The recent downtrend in Indonesia's reserve position will be worth monitoring. Reserves remain comparatively high, at US\$130.2 billion,⁹⁹ but have decreased – in part, by the need to prop up rupiah stabilisation as it has depreciated. Bank Indonesia, however, considers its official reserve assets ample for maintaining macroeconomic and financial-system stability (Bank Indonesia, 2022b).

The uneven pace of economic recovery following the pandemic was notable in a number of economies, including Indonesia's (IMF, 2022c).

The risk of long-term scarring due to lower investment and productivity growth should be managed through targeted policies elevating initiatives for human capital development and investment.

Indonesia's green finance: Challenges from emissions and deforestation

The government's broad-based effort to scale up green finance has been notable, despite the comparatively small size of Indonesia's domestic financial market. Throughout Indonesia, however, forests continue to be cut down and cleared for the purpose of planting palm trees, which generate the palm oil that is Indonesia's most exported product – with China and India constituting the two top importing economies.¹⁰⁰

Bank Indonesia is committed¹⁰¹ to developing green-finance instruments, as well as technical assistance and the instruments to go with it (taxonomy, verification services, green certification and rating bodies), and to providing green financing for micro, small, and medium-sized businesses. Indonesia's financial sector, however, still lacks sufficient depth and breadth to fully meet the challenges involved in developing green finance. Credit availability needs to be greater for projects that are commercially viable and that simultaneously address sustainability.

An exception is the multi-stakeholder Tropical Landscapes Finance Facility,¹⁰² which supports deforestation-free supply chains through strict lending criteria. It aims to mobilise international capital at scale to incentivise sustainable

⁹⁵ At time of writing, the consumer confidence survey conducted by Bank Indonesia remains high and in positive territory, above the 100 level (Bank Indonesia, 2022a).

⁹⁶ Pertamina has had its ability to process more sour crude enhanced in the past few years.

⁹⁷ The Government set the inflation targets for 2022–2024 at 3.0 per cent, 3.0 per cent, and 2.5 per cent, respectively, within a ± 1 per cent corridor. See: <https://www.bi.go.id/en/fungsi-utama/moneter/inflasi/default.aspx>

⁹⁸ <https://www.bi.go.id/en/statistik/indikator/bi-7day-rr.aspx>

⁹⁹ As at end-October 2022: https://www.bi.go.id/en/publikasi/ruang-media/news-release/Pages/sp_2430022.aspx

¹⁰⁰ <https://oec.world/en/profile/bilateral-product/palm-oil/reporter/idn>

¹⁰¹ https://www.bi.go.id/en/publikasi/ruang-media/news-release/Pages/sp_245922.aspx

¹⁰² <https://www.tlffindonesia.org/about-us/#section1>

**“A new generation
of tech-enabled
entrepreneurs is rising
and Indonesia is one
of the most dynamic
markets for digital
innovation”**



agriculture and renewable energy in Indonesia in order to decrease environmental damage.

Palm-oil production and the palm-oil sector have been linked to Indonesia's high rates of deforestation (Cisneros et al., 2020). Small-scale agriculture and small-scale plantations were behind a fifth of forest losses nationwide and were the dominant drivers of loss outside the major islands of Indonesia. Forest conservation policy responses tailored at the subnational level are needed as a result (Austin et al., 2018).

Indonesia's digitalisation: Tech unicorns rise up

As an emergent South East Asian tech hub, Indonesia's internet economy is expected to double, to be worth US\$146 billion by 2025. In tandem, a new generation of tech-enabled entrepreneurs is rising¹⁰³ and Indonesia is one of the most dynamic markets for digital innovation.

Indonesia is home to more than 10 tech unicorns – start-ups worth more than US\$1 billion without being listed on a stock exchange – including Blipli, Bukalapak, Traveloka, and GoTo, according to Credit Suisse. Agritech start-up eFishery is one example: it is a smart feeder that enables farmers to feed their fish remotely via smartphone. It recently completed a pilot in Vietnam and is now testing in Thailand and India. It already serves more than 62,000 fish and shrimp farmers across 234 districts in Indonesia.

Indonesia's tech ambitions have created various new opportunities to increase financial access among micro, small, and medium-sized businesses. The accessibility of financial services to these enterprises is critical to increasing their productivity and resilience to economic shocks.¹⁰⁴

Micro, small, and medium-sized businesses in Indonesia have adapted quickly and readily to digital-based enterprise: A Bank Indonesia survey conducted in 2021 revealed that 20 per cent of such firms effectively mitigated the COVID-19 impact through business digitalisation. The adoption of cashless transactions, including debit cards and electronic money, has experienced rapid growth; Internet use has enabled smaller firms to improve labour productivity and exports. The associated monetary benefit due to internet use is also substantial for local people (Falentina et al., 2021).

Despite all this, digitalisation is not yet widespread in Indonesia. The current penetration rate is below that of several ASEAN member states, neighbouring countries, and developed economies. The internet enables automation and coordination, thereby promoting efficiency. Additionally, it enables typically frictionless communication and collaboration, thereby supporting new delivery modes, collective action, and innovation through technology platforms.

Indonesia's regionalism: Forests and finance

Following its G20 presidency in 2022, Indonesia will hold the ASEAN chairmanship in the year ahead and will play an essential role in managing coordination and the effectiveness of the organisation. Growth – and the centrality of ASEAN in promoting it – will be the core theme of Indonesia's chairmanship, during which it aims to build the institutional capacity of ASEAN to ensure faster growth, inclusivity, and the region's economic sustainability.¹⁰⁵

¹⁰³ <https://www.financeasia.com/article/indonesias-start-up-scene-the-land-of-plenty/482023>

¹⁰⁴ https://www.bi.go.id/en/publikasi/ruang-media/news-release/Pages/sp_243422.aspx

¹⁰⁵ <https://www.bangkokpost.com/opinion/opinion/2450387/indonesia-takes-2023-asean-chair>

The year ahead for Indonesia's ASEAN chairmanship has been bolstered by the EU-ASEAN 45th commemorative summit, where a leaders' summit was held for the first time¹⁰⁶ and a plan of action for 2023–2027 was adopted. The European Union's proposed EUR10 billion investment package to South East Asia – to strengthen regional ties – is expected to support infrastructure, energy, transport, and digital projects, according to initial announcements.¹⁰⁷

In terms of financial risk mitigation, Bank Indonesia and the Monetary Authority of Singapore have a US\$10 billion financial arrangement running through 2023 (Bank Indonesia, 2022c). It is designed to preserve monetary and financial stability in both countries in the face of global macroeconomic uncertainties. Part of the arrangement is a local currency bilateral swap agreement that allows for the exchange of local currencies between the two central banks of up to SGD9.5 billion or IDR100 trillion. There is also a bilateral repo agreement of USD3 billion that allows for repurchase transactions between the two central banks to obtain US dollars.¹⁰⁸

In addition to the bilateral arrangement, the central banks of Indonesia, Malaysia, the Philippines, Singapore, and Thailand have agreed to strengthen and enhance cooperation on payment connectivity to support faster, cheaper, more transparent, and more inclusive cross-border payments. Beyond finance, Indonesia is part of an emerging environmental alliance with Brazil and the Democratic Republic of Congo that brings together the world's three largest tropical-rainforest nations. Dubbed 'OPEC for Rainforests', the alliance countries are looking to coordinate their forest conservation efforts (Greenfield, 2022).

4.5 Malaysia: Slower trade to buffet the economy

Malaysia is one of the most open economies in the world, with a trade to GDP ratio averaging more than 130 per cent since 2010 versus a global average nearer 21 per cent. Openness to trade and its economic transformation from agriculture-driven growth to industry-based growth have both been instrumental in creating jobs. Approximately 40 per cent of all employment in Malaysia is linked to its export sector.¹⁰⁹ On its current trajectory, Malaysia's economy is expected to transition to high-income status between 2024 and 2028.

Malaysia's transition is, however, contingent on increased competitiveness¹¹⁰ and productivity to accelerate its underlying, or potential, growth: productivity growth over the past 25 years has been below that of advanced economies, although Malaysia has led in South East Asia.

Financially, the strong buffers of banks, insurers, and Islamic *takaful* insurance operators should protect financial institutions against unexpected losses. The central bank, Bank Negara Malaysia, applied severe shocks to its finance-industry stress tests and found post-shock aggregate capital ratios remained comfortably above regulatory minimum levels (BNM, 2022).

Green finance in Malaysia: Policies on pause amid political uncertainty

The National Energy Policy up to 2040, launched in September 2022, and the Corporate Green Power Programme, which followed in November 2022, were notable policy developments. The National GHG (greenhouse gas) Centre, expected

¹⁰⁶ <https://www.orfonline.org/expert-speak/the-eu-and-asean-deepen-ties/>

¹⁰⁷ <https://www.bloomberg.com/news/articles/2022-12-14/eu-plans-to-propose-10-billion-investment-in-southeast-asia>

¹⁰⁸ The original bilateral financial arrangement was established between BI and MAS in November 2018, following the Indonesia-Singapore Leaders' Retreat. The arrangement has been extended annually since then.

¹⁰⁹ <https://www.worldbank.org/en/country/malaysia/overview>

¹¹⁰ <https://www.worldbank.org/en/news/press-release/2021/03/16/aiminghighmalaysia>

to be live in early 2023, will delve into climate-risk data and draw implications for adaptation and investment decisions.¹¹¹

Malaysia has updated its emissions targets and will now seek to reduce economy-wide carbon intensity by 45 per cent by 2030.¹¹² It is expected to announce plans this year to reach net zero as early as 2050, along with a published roadmap for getting there. Malaysia's Climate Change Act is also due to take effect in 2023.

The allocation of funding from developed countries is skewed towards mitigation, where the technology is largely in place, rather than adapting by altering behaviours or systems

Adaptation finance is crucial for Malaysia, which is struggling to deal with flooding and has, in the past, turned to the UN-sponsored Green Climate Fund. The allocation of funding from developed countries is skewed towards mitigation, where the technology is largely in place, rather than adapting by altering behaviours or systems.¹¹³

Malaysia registered a significant improvement in its economic readiness index for green finance, owing, in large part, to an improvement in financial market developments and strength in inward financial investments. Financial resilience looks to have strengthened for 2023,

owing to the lower-than-expected readings for domestic non-performing loans. The decline in reserves was largely commensurate with neighbouring economies.

Malaysia's digitalisation: AI to drive digital developments

Traces of AI are already appearing in the banking and manufacturing industries, while the government has set out frameworks for incorporating AI into numerous sectors of the economy. The Malaysia Artificial Intelligence Roadmap 2021–2025 (AI-Rmap) and the Malaysian Digital Economy Blueprint, spearheaded by the government's MyDIGITAL initiative and the Economic Planning Unit, are among the main vehicles.

The MyDIGITAL initiative includes a digital upskilling platform, which, through AI, aims to gradually transform Malaysia's education system and narrow the gaps in digital access and economic inequality. Past estimates suggest that AI is expected to double the rate of innovation and improve workers' output by 60 per cent in Malaysia.¹¹⁴ The Ministry of International Trade and Industry's National Industrial Revolution 4.0 policy is designed to increase the country's output by 30 per cent across all sectors by the end of 2030, with AI playing a substantial role in attaining that target.

Malaysia's digital readiness scores registered a sizeable improvement, which was driven in large part by a significant rise in its digital depth score. The size of Malaysia's digital economy, particularly in relation to its e-commerce market, accounted for the rise in its readings. Looking to 2023, some challenges remain. An AI-Rmap survey conducted by the Ministry of Science, Technology, and

¹¹¹ For instance, they could avoid building in flood-prone areas, fortify their assets against increased rainfall, or prepare for lower agriculture yield due to higher temperatures.

¹¹² <https://climatepromise.undp.org/what-we-do/where-we-work/malaysia>

¹¹³ <https://www.worldwildlife.org/stories/what-s-the-difference-between-climate-change-mitigation-and-adaptation>

¹¹⁴ <https://news.microsoft.com/en-my/2019/04/02/artificial-intelligence-to-nearly-double-the-rate-of-innovation-in-malaysia-by-2021-microsoft-study/>

Innovation included financing constraints as the two top challenges faced by Malaysian companies in implementing digitalisation, particularly AI.

Malaysia's regional coordination: ASEAN and China

Regional international trade and investment play a significant role in Malaysia's economy; excluding the United States, the country's main partners are China, Singapore, Japan, Thailand, and Vietnam, according to the International Monetary Fund. Thus, relations with ASEAN are Malaysia's key focal point when it comes to its foreign policy. Malaysia's strategic partnership with China, meanwhile, is closely related to the latter's Belt and Road Initiative (BRI).

The OECD cites Malaysia's technical cooperation programme as an effective mechanism for South-South cooperation. Japan is likely to continue to

be one of Malaysia's largest cooperation partners; it has been actively supporting Malaysia's South-South policies, including by focusing on sharing expertise on trade and developing small and medium-sized businesses.¹¹⁵

4.6 Vietnam: Robust economic growth to continue

Vietnam's trade openness has led to standout growth; the IMF projects 6.2 per cent GDP growth in 2023. Resilient manufacturing, particularly in textiles, and a robust rebound in its services sector, particularly in technology, allowed for a speedy rebound from the COVID-19 downturn (Hoang, 2022). Pent-up consumer demand and a continued pick-up in tourism, particularly in Hanoi,¹¹⁶ will add to domestic growth. Factory relocations from China are also likely to continue (Leung, 2022; Mickle et al., 2022).

¹¹⁵ <https://www.jica.go.jp/malaysia/english/index.html>

¹¹⁶ <https://en.vietnamplus.vn/solutions-sought-to-further-boost-hanois-tourism-recovery-and-development/240589.vnp>



There are heightened risks, including from the global economic slowdown. Vietnam's manufacturing sector, for example, could be adversely impacted by a slowdown in global demand, though cross-border inward investment is likely to continue. Commodity-price volatility and disruption in global supply chains will also weigh heavily on its garment, textile, and seafood industries (Thong, 2022). It is also likely that State Bank of Vietnam will have to tighten monetary policy further, which could slow the generally high rates of credit growth of near-11 per cent.¹¹⁷

Enhanced policy support is important, given Vietnam's ambition to become a high-income country by 2045. The economy would have to grow at an annual average rate of 5.5 per cent per capita for the next 25 years, according to the World Bank.¹¹⁸ A core risk to this transition is access to education. At below 30 per cent, the gross enrolment rate in higher, technical, and vocational education and training programmes is one of the lowest among East Asian countries. The rate is more than 98 per cent in South Korea, more than 53 per cent in China, and 43 per cent in Malaysia.

Vietnam's green finance: Green bonds offer promise

Vietnam has committed to carbon neutrality by 2050,¹¹⁹ despite its heavy reliance on coal. After China and India, Vietnam has the world's third-largest pipeline of new coal power projects. It has indicated its plans to scale back coal-fired power

projects,¹²⁰ but the country is expected to make an additional 2.4GW of coal capacity operational.¹²¹ The most recent national Power Development Plan proposals have re-invigorated coal dependence away from renewable energy transition. Coal investment is likely to be hit, however, by Chinese President Xi Jinping's pledge to ban overseas coal. Japan and South Korea have similar bans.¹²²

One of the largest obstacles to Vietnam's energy transition is its long-term financing. Funding for both climate adaptation and climate mitigation is urgent, given Vietnam's extreme vulnerability to flooding in areas where 46 per cent of its population live (Rentschler et al., 2022). With green financing, though, the private sector could take over and play a dominant role in the transition (Dan, 2022).

Vietnam's green-bond market has been growing significantly.¹²³ Domestic companies, such as PC1¹²⁴ and Phu Yen TTP, have led the green finance and credit market using the Climate Bonds Initiative's green-loan verification process¹²⁵ for their wind and solar energy projects. In July 2022, EVN Finance issued Vietnam's first certified green bond, following the International Capital Market Association's green-bond issuance framework.

Mechanisms for clean power projects are essential, given estimates that electricity demand in Vietnam is forecast to increase by 8.5 per cent per year to 2030.¹²⁶ Vietnam's use of electric-powered two-wheelers nearly doubled

¹¹⁷ <https://www.sbv.gov.vn/>

¹¹⁸ <https://www.worldbank.org/en/country/vietnam/overview>

¹¹⁹ <https://www.reuters.com/business/environment/vietnam-targeting-carbon-emission-neutrality-by-2050-minister-says-2021-11-01/>

¹²⁰ <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/112421-vietnam-cuts-back-on-lng-coal-fired-power-projects-after-net-zero-pledge>

¹²¹ <https://kinhthedothe.vn/khong-dua-6-800mw-nhiệt-dien-than-vao-can-doi-trong-quy-hoach.html>

¹²² <https://www.reuters.com/world/china/xi-says-china-aims-provide-2-bln-vaccine-doses-by-year-end-2021-09-21/>

¹²³ <https://vir.com.vn/the-significant-growth-of-green-bonds-97772.html>

¹²⁴ PC1 is a national energy leader in Vietnam: <https://pc1group.vn/en/>

¹²⁵ <https://www.climatebonds.net/certification/phu-yen-ttp>

¹²⁶ <https://vietnamenergy.vn/towards-carbon-neutrality-by-2050-the-mechanisms-for-clean-power-projects-in-vietnam-28562.html>

from 2019 to 2020, from 4.9 per cent of the market to 8.3 per cent. But Vietnam's reliance on motorbikes has also risen: the number has increased 48-fold over the last three decades, from 1.2 million in 1990 to more than 58 million in 2018, according to the Department of Traffic Safety at the Ministry of Transport.¹²⁷ Technology innovation, such as swappable batteries, would speed up the transition to electric and reduce fuel consumption considerably.¹²⁸

Vietnam's economic readiness readings for green finance have improved in our indices

Vietnam's economic readiness readings for green finance have improved in our indices, driven by the country's comparatively resilient domestic financial conditions, its ease of capital, and positive developments in its financial developments. The still-high level of its reserve buffers and a more muted rise in its real interest rates, compared with elsewhere, boosted the score.

Vietnam's digitalisation: A growing foundation

Vietnam is deepening its digital economy, particularly in banking, e-commerce, and environmental technology. Cross-border agreements relating to digitalisation and the greater application and usage of AI among small and medium-sized businesses and start-ups are also providing a foundation. However, digital developments will have to accelerate productivity

gains for a change in underlying or potential growth to occur.

Digital developments will build on already established partnerships:

- Vietnam's Sacombank¹²⁹ has linked with digital banking platform Temenos to meet demand for digital financial products and services.¹³⁰ Sacombank's Infinity platform will boost Vietnam's cashless ecosystem, digital product development, e-commerce, social networking, and front-to-back banking capabilities.
- Technology provider Microlink Solutions Bhd has signed a memorandum of understanding with Vietnam-based water supply and treatment company AquaOne Corp to explore digitalising business processes. It will apply to automation, analytics, the Internet of Things, and monitoring, with the aim of pioneering new environmental technologies for clean water supply.
- Enhanced cooperation between Vietnam and Singapore in digitalisation, cybersecurity, the green economy, and sustainable infrastructure has been a notable cross-border policy initiative.
- FTP – Vietnam's largest information and communications tech company – is helping global and domestic businesses incorporate AI into their core functions. Vietnam generally lags in AI (Kaur, 2022).

Looking ahead, the partnership between Vietnam's start-ups and the accelerating of AI investment will support the country's goal of being an ASEAN innovation and AI hub by 2030. State-run organisations Viettel and VNPT, and private

¹²⁷ <http://dtinews.vn/en/news/017/63299/-vietnam-has-4th-highest-number-of-motorbikes.html>

¹²⁸ <https://theicct.org/publication/2w-lvs-vietnam-asia-baseline-feb22/>

¹²⁹ Sacombank is one of Vietnam's largest banks, with more than 15 million customers.

¹³⁰ <https://www.temenos.com/news/2022/11/09/sacombank-selects-temenos-infinity-to-elevate-digital-banking-and-deliver-seamless-omnichannel-experience/>

“The partnership between Vietnam’s start-ups and the accelerating of AI investment will support the country’s goal of being an ASEAN innovation and AI hub by 2030”



companies VNG and Vingroup, are investing heavily in AI. Viettel and Vingroup have invested in supercomputer technologies while accelerating the development of AI technology. Vingroup has boosted investment in technology and has applied AI technology in healthcare, smart automobiles, and self-driving cars.

Vietnam's regional coordination: FDI and trade pivotal

Vietnam's membership of the Regional Comprehensive Economic Partnership (RCEP) is significant in that it bolsters the country's bilateral trade and its participation in regional supply chains. Vietnam has signed 15 free trade agreements with 60 countries and territories, including the world's largest markets.¹³¹ Further bilateral or ASEAN free trade agreements are likely to be generated through RCEP, given Vietnam's overriding emphasis on multilateralism and diversification – alongside independence and self-reliance. It works for a united and strong ASEAN as its first priority.

Foreign direct investment inflows are also expected to grow in Vietnam, owing to its strong financial regional integration, and this is vital in reducing economic inequality (Hoi Le et al., 2021) and enhancing ease of capital, and access to digital knowledge. Facilitating market expansion, attracting investment to upstream manufacturing sectors, and enhancing specialisation will improve added value and productivity in the industries where Vietnam is already strong. That will, in turn, attract more foreign direct investment and help domestic enterprises further engage in global supply chains.

4.7 Thailand: Productivity needed to stop decline

Thailand continues to be widely cited as a development success story, with sustained strong, job-intensive growth. But the reputation belies some actualities: the Thai export-led growth model is showing risks of stalling, owing, in part, to slower productivity and investment. The latter, for example, has declined from more than 40 per cent of GDP before the Asian financial crisis to 17 per cent in 2019. Structural transformation is essential to divert Thailand's resources from agriculture to industry.

Structural transformation is essential to divert Thailand's resources from agriculture to industry

The domestic manufacturing sector faces a spectrum of downside risks from the global economy, owing to its dependence on foreign inputs and increasing competition from regional neighbours. A bright spot, however, is Thailand's travel and tourism sector; it has been the driving force of the country's recovery, particularly helped by the Thai baht hitting a multi-year low against the US dollar in late 2022.

The occurrence of natural disasters remains a threat to Thailand's outlook. Its greenhouse-gas emissions rose markedly during the recent period of rapid growth, and Thailand is a major plastic polluter on land, in river systems, and along coastlines. A National Action Plan on Marine Plastic Debris due to run from 2023 to 2027 aims to identify ways for the public, private, and consumer

¹³¹ https://mpi.gov.vn/_layouts/MPIPortalCMS/InChiTietTin.aspx?idTin=56004

segments of society to segregate plastic waste and to enhance re-use and recycling.

Thailand's May 2023 general election¹³² will test the role of the military and be shaped by increased involvement of young people seeking participatory democratic rights, and by multiple new parties created by new electoral laws.¹³³ Most decisive, in economic terms, will be the degree of new and diverse investment and trade partnerships – such as that with Saudi Arabia – which will be important to the outlook and create a virtuous cycle in employment-intensive sectors.

Green finance in Thailand: Net zero balanced by energy security

Thailand's climate commitments for net-zero emissions and carbon neutrality are, in part, overshadowed by its long-standing focus on energy security. Coal and natural gas remain essential for industry. Elevated liquefied natural gas (LNG) prices and lower domestic gas supply¹³⁴ have led to plans to extend coal-plant capacity.¹³⁵ Ranged against that, however, the government has plans to boost renewable energy.

In its Power Development Plan, the government has said it wanted to generate 53 per cent of its electricity from natural gas, 35 per cent from non-fossil fuels, and 12 per cent from coal in 2037. Discussions of a Bio-Circular-Green¹³⁶ economic model – linking biodiversity, technology and innovation to transform Thailand into a value-based and innovation-driven economy – have been proposed floated as a way of raising the

country out of a middle-income trap. But the model has also been criticised for being more attuned to large domestic conglomerates rather than regional economic development.¹³⁷

The Bank of Thailand has recognised the importance of finding financing mechanisms to re-incentivise Thai industry away from its continuing reliance on high-carbon technologies. This will be key if the EU's Carbon Border Adjustment Mechanism raises tariffs to account for emissions; this could severely jeopardise Thai industry (Bank of Thailand, 2022).

Thailand has unveiled a number of green initiatives, including the Bank of Thailand's green taxonomy, and a range of green, social, and sustainability bonds to fund 900 billion (US\$25 billion) in investment projects from 2023 to 2027 at different maturities and different risk levels. The state will provide economic stimulus in early 2023 to boost consumer spending via spending on infrastructure projects in the transport, energy, and utility sectors, as well as the development of commercial space to boost productivity.

Digitalisation In Thailand: Regional 'digital heavyweight'

Thailand's digital economy was projected to have grown 17 per cent year-on-year in 2022, to reach US\$35 billion (BHT1.28 trillion) – largely driven by e-commerce¹³⁸ which remains the primary driver of digital economy growth in 2022 – and is also the second largest in South East Asia, after Indonesia.

¹³² <https://www.eastasiaforum.org/2022/10/24/thailands-political-catch-2023/>

¹³³ See Strangio (2022) and Jatusripitak (2022).

¹³⁴ Thailand's largest gas field, Erawan, has seen a decline in output, due, in part, to a dispute between Chevron and Thailand's state-owned oil and gas company, PTT Exploration and Production (PTTEP). Owing to a decline in supplies from the Gulf of Thailand, the share of domestic gas supply in Thailand fell from 64 per cent to 40 per cent in the first half of 2022 (Power Technology, 2022).

¹³⁵ <https://www.asiafinancial.com/record-lng-prices-mean-thailand-will-use-coal-longer>

¹³⁶ The Thai government has embedded the BCG model into its 20-year national strategy and has already mapped out an action plan for 2021–2027.

¹³⁷ <https://www.thaibpworld.com/how-far-can-thailands-ambitious-bcg-push-go-in-the-apec-community/>

¹³⁸ <https://economysea.withgoogle.com/report/>

- Thailand's Digital Financial Services platform saw double-digit growth in 2022 across all sectors – payments, remittance, lending, investment, and insurance. It accounted for the highest share of total investor funding in Thailand, with more than US\$150 million raised in the first half of 2022 alone.
- Thailand's Industry 4.0 initiatives, under the umbrella of the 5G Global Enterprise Solution Consortium,¹³⁹ will spread to municipalities and enterprises that can build private 5G networks. Japan's telecom giant NTT Docomo and leading international firms signed an agreement to establish the 5GEC in Thailand.
- The Thailand Digital Valley project in Chon Buri is geared to supporting tech companies from around the world in designing, developing, and testing technologies and innovations. The Digital Innovation Centre will house labs for 5G tech, AI, the Internet of Things, virtual

and augmented reality, and cloud computing, as well as a design centre for large tech (Tortermvasana, 2022).

- US tech giant Cisco Systems, dubbing Thailand the 'digital economy heavyweight in the region',¹⁴⁰ has pledged – in part, through its financing arm Cisco Capital – to build user applications, digital infrastructure transformation, enterprise cybersecurity, and hybrid work support to innovation in Thailand.

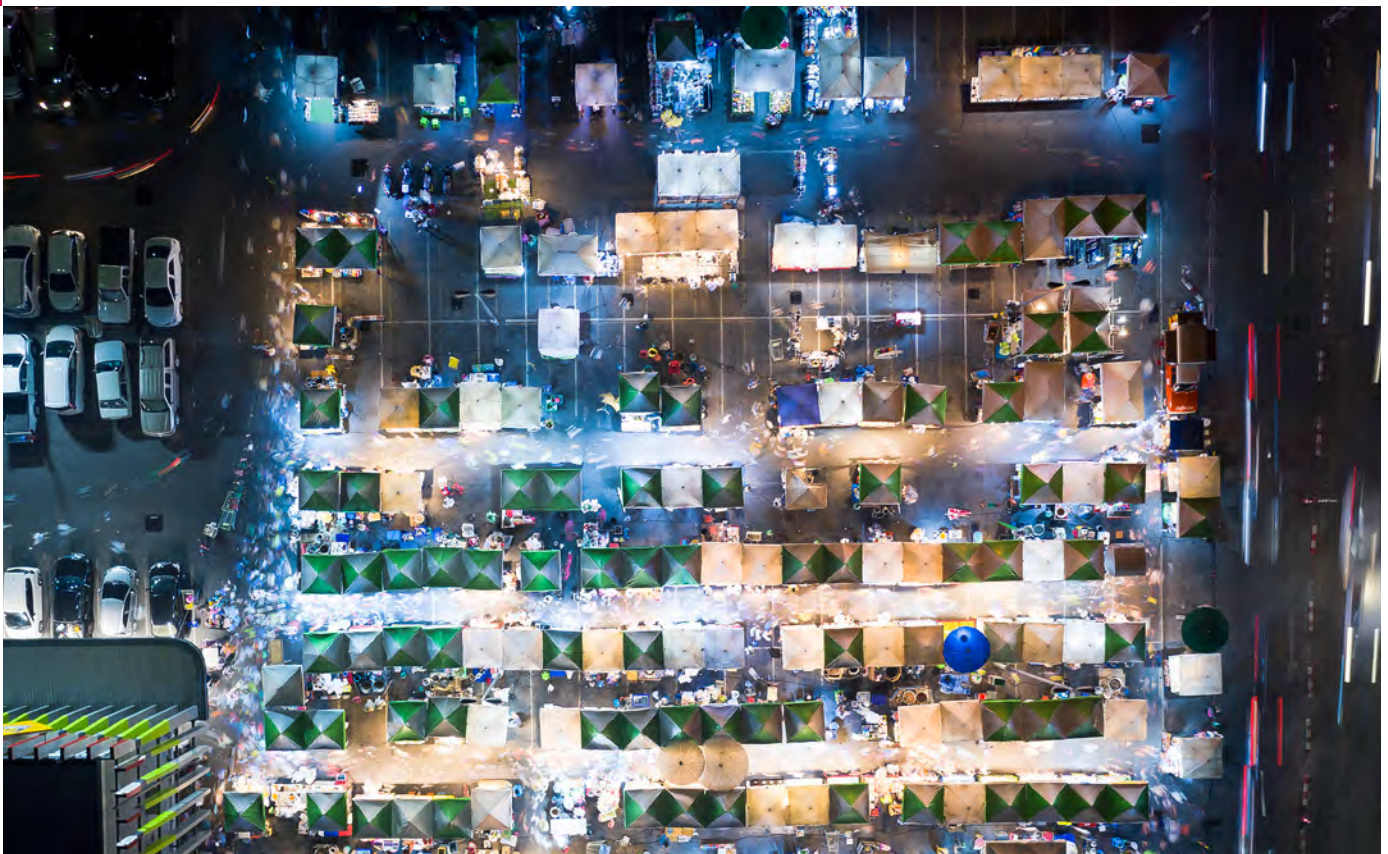
Thailand's regional coordination: Leaning on a growth triangle

Regionally, as well as within its ASEAN grouping and within the Regional Comprehensive Economic Partnership, Thailand is likely to continue to benefit from the Indonesia-Malaysia-Thailand Growth Triangle – a cooperation initiative formed in 1993 to accelerate economic and social transformation.¹⁴¹ The three countries are close

¹³⁹ NTT Group, a global tech and business solutions provider, plans to support this.

¹⁴⁰ <https://www.bangkokpost.com/business/2406390/cisco-sets-out-strategies-to-drive-thai-digitalisation>

¹⁴¹ <https://www.adb.org/what-we-do/themes/regional-cooperation/overview/imt-gt>



neighbours, who share particularly close historical, economic, and geographic ties. Additionally, Thailand is the sixth ASEAN partner to sign a Partnership and Cooperation Agreement (PCA) with the EU in a number of policy areas, including the environment, energy, climate, employment and education.¹⁴²

Tourism remains a core driver of Thailand's growth: in 2019, it accounted for approximately 11 per cent of its GDP, and around 20 per cent of the domestic labour force is employed in the sector (BOT, 2022). The sector was hurt by the COVID-19 pandemic; however, Thailand's tourism officials now predict up to 18 million visitors for 2023, notwithstanding the uncertainty around whether Chinese tourists, who comprise nearly 30 per cent of all arrivals, will be part of those tourism flows. The projection is a large increase from the 2020–22 pandemic hiatus, but way short of the record 40 million visitors recorded pre-pandemic.

4.8 Philippines: Private-sector dynamism to boost growth

With the Philippines' increasing urbanisation, its growing middle class, and a large and young population, 2023 will be underpinned by strength in domestic demand. Economic growth is expected to accelerate, driven by households. As with its neighbours, a weaker external environment will be a risk and slower global growth could result in reduced household remittances from abroad, thus affecting the Philippines domestic economy.

The Philippines' bilateral trade and investment relationships typically transmit external shocks. The deterioration of its current account balance has been notable, with high import growth after

the re-opening from the COVID-19 lockdowns combining with a deceleration in export growth. A widening current-account deficit, as projected by the central bank,¹⁴³ is also a risk.

Notwithstanding the deterioration in its external accounts, banking sector assets and loan portfolios remained manageable, having declined to a lower level than expected, making for a brighter picture for 2023, particularly in relation to green finance. Additionally, banks' capital adequacy ratios are well above the minimum threshold of 10 per cent set by the Bangko Sentral NG Pilipinas.

Philippines' green finance: Green-bond growth needed

Bangko Sentral NG Pilipinas launched the Sustainable Central Banking Programme in 2019 and has sought to support the Philippines' sustainability agenda, including through regulatory incentives to encourage banks to extend green loans or finance sustainable investments. It has also proposed a broader recognition of sustainable finance in the country's agriculture sector.¹⁴⁴

The Philippines has set strategic environmental and social objectives to be considered in banks' capital planning. The embedding of environmental and social risks in credit-risk strategies should accelerate the Philippines' sustainable finance market.¹⁴⁵

Having development goals in investment strategies is critical for demand. Some 67 per cent of underwriters, for example, believe that attracting new investors is the key motivation for green-bond issuance (ADB, 2022c). This may require providing more access to locally priced bonds.

¹⁴² <https://www.consilium.europa.eu/en/press/press-releases/2022/12/14/indo-pacific-the-european-union-and-thailand-sign-partnership-and-cooperation-agreement/>

¹⁴³ <https://www.reuters.com/markets/asia/philippine-cbank-sees-wider-2022-2023-ca-deficits-global-growth-woes-2022-09-16/>

¹⁴⁴ <https://www.bsp.gov.ph/Regulations/Issuances/2022/CL-2022-011.pdf>

¹⁴⁵ This is particularly true since ASEAN-wide efforts, and those of the SEC, were instituted.

The majority of the sustainable bonds issued by Philippine companies are in a foreign currency (predominantly the US dollar and Swiss franc).¹⁴⁶ Issuance in local currency has been relatively low: as at December 2021, local currency sustainable bonds accounted for only 4.5 per cent of the local-currency corporate bond market.

Digitalisation in the Philippines: Upskilling for transformation

Digitalisation, particularly e-commerce, is slated to play an important role in the Philippines' economic development. The country's internet economy is growing and expected to reach US\$35 billion by 2025, a roughly 75 per cent increase on 2022 levels.¹⁴⁷ E-commerce comprises the lion's share. The Philippines is also one of the major adopters of blockchain technology in South East Asia – second only to Vietnam.

The Philippines is also one of the major adopters of blockchain technology in South East Asia

On the policy front, the Department of Trade and Industry launched an e-commerce roadmap¹⁴⁸ to improve the digital infrastructure and, accordingly, the contribution of e-commerce to the Philippine economy. The country faces several barriers to digital transformation, including low adoption by medium-sized and smaller businesses, a lack of awareness of existing digital policies, and gaps in digital access and digital skills.

Private-sector initiatives have been notable. Google continues to support both digitalisation and jobs growth.¹⁴⁹ It has provided more than 110,000 jobs in the Philippines, offers upskilling and income-earning opportunities to female entrepreneurs, and offers programmes to businesses to build digital capabilities. Decentralised digital ID provider Affinidi and Digital Pilipinas (a private-sector group working with tech start-ups) are working together to enable workers in the country to access verifiable credentials of their skills on their smart phones. Affinidi will use its mobile application and digital wallet, Ceal.

Regional coordination in the Philippines: Balancing the US and China

Enhanced regional cooperation is important to mitigate economic shocks for the Philippines, which is expected to be one of the region's fastest-growing economies in 2023. Mitigating shocks typically has helped in supporting countries' transition to high-income status, and this is applicable to the Philippines. Its bilateral trade and investment relationship with China will be essential in fostering growth in 2023 and beyond – though it will continue to counterbalance China's economic importance with its long-standing links to the US.

Notably, the Philippines does not have a dedicated institution to supervise development cooperation, although the Technical Cooperation Council of the Philippines is in charge of formulating and implementing South-South cooperation programmes. President Ferdinand Marcos Jr has said he wants to elevate regional cooperation with ASEAN on maritime security, climate change, food security, and economic recovery at a time of heightened uncertainty (Romero, 2022).

¹⁴⁶ Securities and Exchange Commission and AsianBondsOnline.

¹⁴⁷ Google Temasek Bain e-Conomy SEA 2022 report: https://services.google.com/fh/files/misc/philippines_e_economy_sea_2022_report.pdf

¹⁴⁸ https://ecommerce.dti.gov.ph/madali/images/eCommerce_Philippines_Roadmap_2022.pdf

¹⁴⁹ <https://mb.com.ph/2022/09/29/google-to-equip-39000-filipino-youths-with-in-demand-job-ready-skills-through-google-career-certificate-scholarships/>

5

SECTION 5

Conclusion – Multiple challenges, but Asia will fare well

Section 5

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Economic, geopolitical, and financial-stability risks have increased. This is likely to continue in the year ahead and result in a global slowdown. But the magnitude of the economic slowdown will vary, as well as hitting different countries in different ways.

Multi-decade highs in inflation could subside, although the spillovers from Russia's invasion of Ukraine will still reverberate in global energy markets. Less accommodative liquidity conditions, higher borrowing costs, and investor risk aversion are all downside risks, including for Asia's economies.

A sudden, disorderly tightening in financial conditions via higher interest rates, or a currency depreciation brought on, in part, by such rates elsewhere, would just add to existing vulnerabilities. This could, in turn, spur large

outflows, sudden stops in investment flows, and protracted crises.

In China, the property downturn has deepened, with sharp declines in home sales exacerbating pressures on developers, and threatening risks of spillover to the financial sector (IMF, 2022a). In Japan, the elevated oil price, alongside the rapidly depreciating yen, will continue to weaken growth. In India, the low level of digitalisation and the vulnerability to higher borrowing costs in relation to bad debt are likely to affect confidence. Indonesia's position as a resource exporter should

stand it in good stead, but further economic diversification is essential.

Malaysia, Vietnam, Thailand, and the Philippines are in a comparatively stronger position, in that their reserve buffers are high – although they have been drawn down by currency interventions.

Financial stability remains a concern in light of the global economic and financial transmission mechanisms propagating shocks. Engaging in the type of economic, infrastructural, financial, and digital transformation that induces greater productivity will be of even more importance for South East Asia.

5.1 Outlook for green finance

Encouragingly, accelerated growth in supply and demand for sustainable finance and investment is under way. This will help re-incentivise investors and shift funds towards achieving sustainable growth and digital innovation. Investors recognise the need to limit future sources of market volatility and to seize green investment opportunities. But sustainable finance can only deliver and have impact if the countries – and projects – with the largest financing needs benefit from it.

Given the likely fiscal and credit tightness from higher interest rates, raising domestic revenue should be prioritised. Externally, what is needed is finance aligned to integrated national strategies in developing countries, including pooling technical assistance to help countries access sustainable funds, and targeting debt swaps, bonds, and guarantees, where appropriate.

Finally, higher-income countries can help improve the global frameworks for the transparency and accountability of external debt in the poorest and most vulnerable countries.

5.2 Outlook for digitalisation

Digital platforms have emerged to manage and re-shape multiple aspects of Asia's economies. It may take some time for the effect of digitalisation to materialise in Asia's productivity data – the Solow Paradox¹⁵⁰ – given that there may be an under-utilisation of technology due to bottlenecks (Acemoglu et al., 2014; Katz and Koutroumpis). Additionally, the measurement of digitalisation in calculating aggregate output (HBR, 2019), and in implementing policy, may be flawed or incorrect (ECB, 2021).

By contrast, sector-specific dynamics suggest that digital technology is essential in promoting welfare, consumption, and medium-sized and smaller businesses in emerging and developing economies, including Asia's. Extensive adoption of mobile phones reduces search costs and improves market efficiency particularly in lower income developing economies (Aker and Mbiti, 2010), enhances digital inclusivity in rural areas (Muto and Yamano, 2009), and has been seen to reduce prices in multiple sectors, including fishing, and for wholesalers (Jensen, 2007).

5.3 Outlook for regional coordination

There is a growing awareness in Asia of the need to take a more regional approach to economic development, especially as a response to the COVID-19 pandemic and the economic and geopolitical shocks that have followed. Opportunities for triangular cooperation – combining countries, international organisations, and the private sector – will continue to grow. So too will joint finance for sustainable development, climate action, and information sharing. Bolstering initiatives for economic cooperation and cross-border trade and investment is more necessary than ever.

¹⁵⁰ In 1987, economist Robert Solow noted the slowdown in productivity growth in the United States in the 70s and 80s that occurred despite the rapid rise of information technology.

Asia's regional cooperation will be foundational in promoting sustainable economic growth and digital development. In the near term, early-warning systems centred on enhanced bilateral swap facilities – given the overall decline in reserves and the likelihood of further financial market volatility – are key.

Additionally, initiatives to elevate blended finance (with the help of multinational development banks and development finance institutions), digital currency development, and effective carbon-pricing mechanisms will be key in building resilience in 2023 and beyond.

Most, but not all, of the eight countries in our Asia House Economic Readiness Indices have seen improvements in green finance and/or digitalisation heading into a challenging 2023.

Most, but not all, of the eight countries in our Asia House Economic Readiness Indices have seen improvements in green finance and/or digitalisation



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Appendix

Methodology of the Asia House Readiness Indices

Economic readiness for green finance

The Asia House index for gauging readiness for green finance is calculated using the following data components. (These are also presented in Figures 15 and 16.)

Data composition for *financial resilience*

- Non-performing bank loans to total gross loans are sourced from the World Bank World Development Indicator database.
- Broad money, as a percentage of GDP, is sourced from the World Bank World Development Indicator database.
- Total reserves (including gold) are in current US dollars and are sourced from the World Bank World Development Indicator database.

- Official exchange rates are in local currency per US dollar and are period averages. Data is sourced from the World Bank World Development Indicator database.

Data composition for *financial market development*

- Market capitalisation of listed domestic companies (as a percentage of GDP) is sourced from the World Bank World Development Indicator database.
- Credit (to the non-financial private sector) is sourced from the Bank for International Settlements database.
- Net portfolio investment is in current US dollars. Data is sourced from the World Bank World Development Indicator database.

- Net inflows of foreign direct investment are in current US dollars. Data is sourced from the World Bank World Development Indicator database.

Data composition for *ease of capital*

- Monetary sector credit to private sector (as a percentage of GDP) data are sourced from the Bank for International Settlements.
- Real interest-rate data is in percentage terms and is sourced from the World Bank World Development Indicator database.
- Relevant central bank announcements related to green policy initiatives are cumulated for each central bank under consideration, ranked, and scored.
- Blended finance capacity is approximated using data on private-sector finance mobilised by development finance institutions, from the OECD.

Data composition for *equitable ecosystem*

- Ratios of female to male labour-force participation rates are ILO-modelled estimates and are sourced from the World Bank World Development Indicator database.
- Data on per capita food supply variability (kcal/cap/day) is sourced from the United Nations Food and Agriculture Organization (FAO).
- Access to finance for lower-income households is denoted by account ownership (with a financial institution or a mobile-money service provider) for the poorest 40 per cent of the population aged 15 and older. Data is sourced from the World Bank World Development Indicator database.

- Data on the agriculture share of government expenditure is sourced from the World Bank World Development Indicator database.

Economic readiness for *digitalisation*

The Asia House index for gauging digital transformation is calculated using the following data components.

Data composition for *trade facilitation*

- ICT goods exports are as a percentage of total goods exports. Data is from the World Bank World Development Indicator database.
- ICT goods imports are as a percentage of total goods imports. Data is from the World Bank World Development Indicator database.
- Digital currency policy developments are cumulated for each country under consideration, ranked and scored.
- Ease of digital trade is approximated by cumulating developments for each country, including in e-documentation, digital infrastructure, and e-platform development.

Data composition for *gauging industrialisation 4.0*

- Medium- and high-tech manufacturing are as a percentage of manufacturing value-added. Data is from the World Bank World Development Indicator database.
- Gross fixed capital formation is as a per cent of GDP. Data is from the World Bank World Development Indicator database.
- Salaried workers are a percentage of total employment and are ILO-modelled estimates. Data is from the World Bank World Development Indicator database.

- The number of installed industrial robots is per 10,000 employees in the manufacturing sector. Data is from the International Federation of Robotics.

Data composition for *digital economy development*

- Mobile cellular subscriptions are per 100 people. Data is from the World Bank World Development Indicator database.
- Fixed broadband subscriptions are per 100 people. Data is from the World Bank World Development Indicator database.
- Growth in e-commerce is in millions of US dollars and denotes business to consumer (B2C) transactions. Data is from Statista and JP Morgan.
- Digital remittances are in millions of US dollars. Data denotes transaction values in cross-border remittances and is from Statista.

Data composition for *digital knowledge diffusion*

- Greenfield foreign direct investment (FDI) is the value of announced greenfield FDI projects, by destination, and is in millions of US dollars. Data is from UNCTAD.
- Government expenditure on research and development is as a percentage of GDP. Data is from UNESCO.
- Researchers, in full-time equivalent, are per million inhabitants for each country. Data is from UNESCO.
- STEM graduates are as a percentage of total graduates in tertiary education. Data is from UNESCO.

Asia House Economic Readiness Index construction

The 2022 data points for each of the four indicators, under each of the eight sub-themes, are calculated for each of the eight countries. A linear transformation is then imposed on each of the 32 data points for each country, to re-scale and normalise each of the readings for comparability.

The linear transformation used for the 2022 readings is:

$$\frac{((\text{worst reading} - \text{2022 reading}) / (\text{worst reading} - \text{best reading}))}{1}$$

where worst denotes the worst-performing country for the particular indicator in the sample of eight countries for 2022, and best denotes the best performing country in the sample of eight countries.

Indicators where a higher value indicates a deterioration (such as with non-performing loans, or real interest rates) are transformed using an inverted re-scaling. The worst-performing economies therefore have higher values and so there is an inversion imposed.

All variables are scaled according to each country's GDP, income level or population, where relevant, to ensure that progress according to country context is being monitored and measured. Where relevant, the rate of change has been applied to the variables.

Figure 14

Economic readiness barometers for green finance

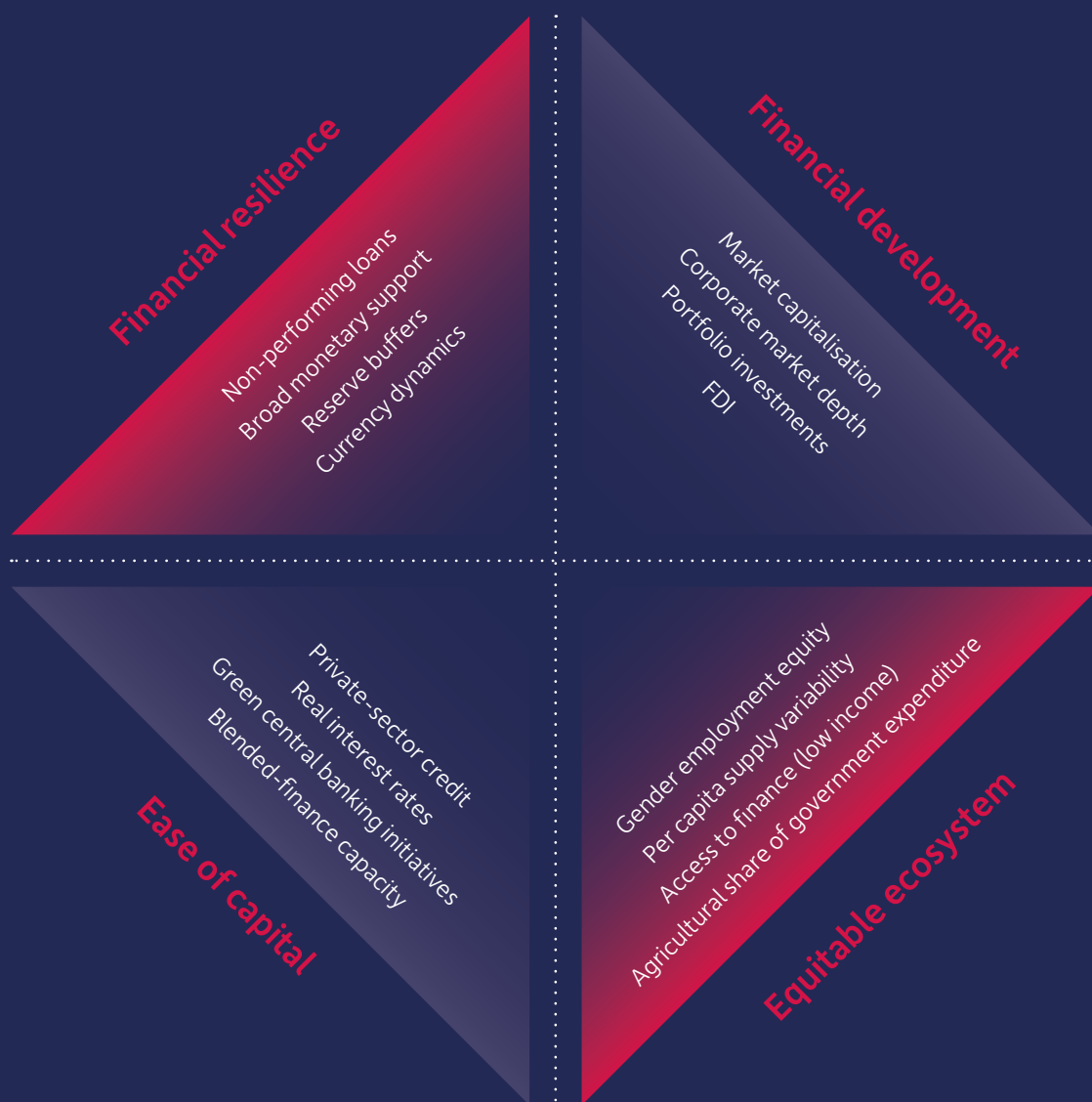
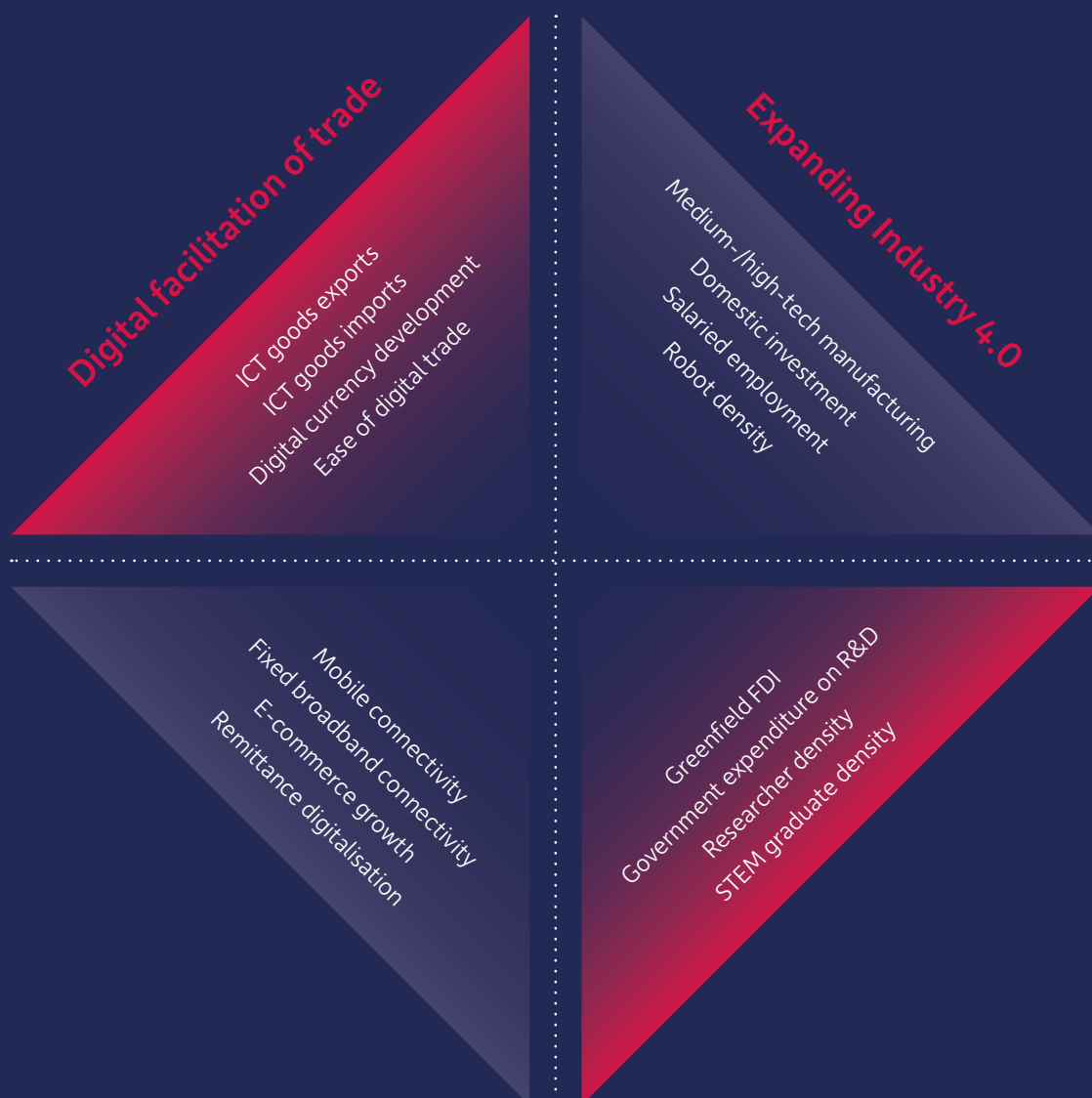


Figure 15

Economic readiness barometers for digitisation



Report authors



Lead author


Phyllis Papadavid is Director of Research at Asia House. She leads Asia House's Research and Advisory work, driving the organisation's research agenda and directing projects. Before joining Asia House, Phyllis was a Research Associate and formerly head of international macroeconomics at the Overseas Development Institute, and held leadership roles at BNP Paribas and Societe Generale CIB, and has advised the Government of Mongolia. She has also advised multilateral organisations including the World Bank and the United Nations. Phyllis is an associate faculty member in Applied Analytics and Strategy at Columbia University. Phyllis's recent research has focused on the management of financial shocks, the economic impact of COVID-19 on emerging markets, and the rising role of the renminbi, which was featured in Barron's Asia's Best Minds. She has a strong interest in financial inclusion, economic transformation and spatial economics.



Contributing author on China

Zhouchen Mao is the Head of Research and Advisory at Asia House, managing and contributing to the organisation's research as well as engaging with stakeholders that range from various sectors. Holding a PhD in International Relations, prior to joining Asia House, Zhouchen was the Senior Analyst at AKE International, leading the firm's Asia Pacific desk. He was also a Teaching Fellow at SOAS, University of London where he taught both undergraduate and postgraduate courses on international relations of East Asia and China's foreign policy. Zhouchen's research focuses on international norms, China's domestic and foreign policy, and geopolitical and macroeconomic risks.

Research contributions were made by **Ayon Dey**, Research Associate at Asia House. Ayon previously worked at the World Wildlife Fund (WWF) as a Monitoring and Evaluation Specialist. He holds a MSc Political Economy of Development, with distinction, from SOAS, University of London.

A stylized map of the Asian continent is shown in a light blue color, centered on a dark blue background that represents the Earth's globe. The map includes major landmasses and surrounding waters.

Asia House
63 New Cavendish Street
London W1G 7LP

asiahouse.org

