



Green finance in the Asia-Pacific region: mobilisation spearheaded by central banks and supervisory authorities

Central banks and supervisory authorities play a key role in the Asia-Pacific region in terms of green finance. They are often driving forces in their countries, both in terms of raising awareness of the effect of environmental risks on the financial system and in developing climate transition financing. And the repercussions are global, with Asia-Pacific being both the largest emitter of greenhouse gases and the region likely to be most significantly impacted by climate change. Central banks and supervisory authorities are stepping up their participation in international and regional forums, in particular the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), for which the Banque de France provides the international secretariat.

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number of Asian members of the Network of Central Banks and Supervisors for Greening the Financial System (NGFS)

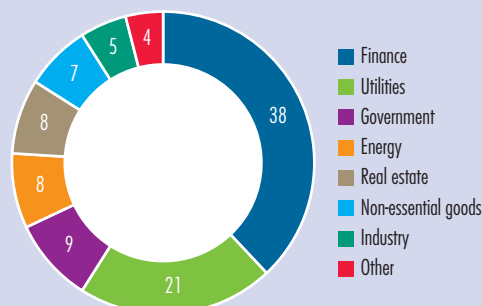
15.7 billion tonnes

annual CO₂ emissions in Asia-Pacific (APAC)

373 billion USD

annual needs to finance climate resilience in APAC

Breakdown of green bond issuance in ASEAN+3, by sector
(in %)



Source: Asian Development Bank (ADB).

Notes: ASEAN+3 includes the ten member countries of the Association of Southeast Asian Nations (Burma, Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Laos), plus China, South Korea and Japan.

Utilities are the services provided by local authorities for the production and distribution of water, gas and electricity.



1 Asia-Pacific is at the heart of climate change and green finance issues

Asia-Pacific is as much a contributor to global warming as it is impacted by it

The Asia-Pacific region (APAC) is both a major contributor to and a major victim of climate change. Over the last few decades, temperatures have risen twice as fast as in the rest of the world and the region is particularly exposed to the consequences of global warming (see Chart 1 below). It is home to 60% of the world's population, but accounts for 83% of the people affected by weather-related disasters over the past 20 years, i.e. more than 3 billion people. In total, damages are estimated at USD 50 billion per year over the period 2010-2019 (IMF, 2021).

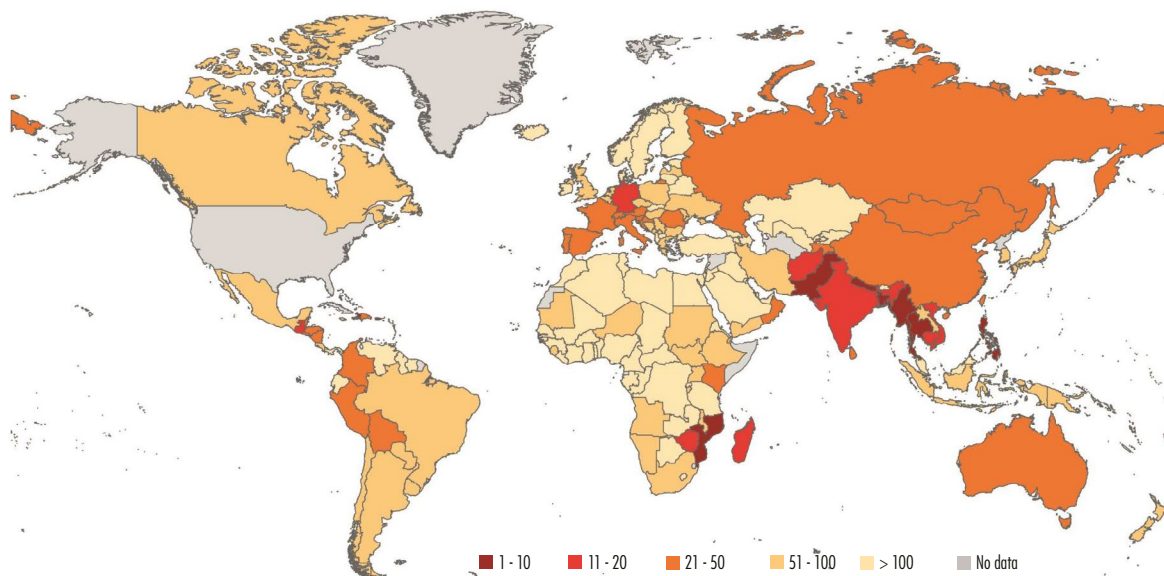
The Asia-Pacific region has been a key driver of world growth over the past 20 years. While turning into a manufacturing hub, it has simultaneously become a major emitter of greenhouse gases (GHGs)

and now accounts for about half of global emissions (15.7 billion tonnes of CO₂). Since 1970, while global CO₂ emissions have surged by 135%, Asia-Pacific has accounted for more than 70% of this growth. Excluding China, however, the cumulative per capita figures are still considerably lower than those for North America and Europe.¹ In contrast, China's emissions (9.2 billion tonnes of CO₂ in 2017) exceed those of North America and Europe combined (5.3 and 3.5 billion tonnes respectively).

The macroeconomic impact of climate change is substantial. It affects economic growth through lower output and labour productivity, reduced capital accumulation and poorer human health. The short-term macroeconomic effect is uneven across countries and disproportionately affects countries with high average annual temperatures, which is often the case for developing Asian economies. A prolonged 1°C rise in temperatures lowers annual real per capita GDP growth by 0.74 to 1.52 percentage points in developing countries (de Bandt et al., 2021).

C1 Asia-Pacific particularly impacted by global warming

(Global Climate Risk Index – 2000-2019 ranking)



Source: Germanwatch (World Bank, 2021).

Note: The Climate Risk Index measures the human and economic losses linked to extreme weather events.

¹ The per capita CO₂ emission rate in ASEAN is half the world average, even though the rate of CO₂ emitted per GDP point is higher (Payerols, 2020).



BOX 1

Japan's climate change commitments are gaining momentum

The Japanese government has initiated an ambitious climate policy: in October 2020, it announced its plan to achieve carbon neutrality by 2050 and, in April 2021, it raised the target to reduce greenhouse gas emissions from 26% to 46% by 2030 compared to 2013 levels.

To this end, the government has drawn up a green growth strategy which details the policies to be implemented to green Japan's energy mix (target of 50-60% renewable energy by 2050, up from 20% today): (i) creation of a subsidy fund for green innovation (EUR 17 billion); (ii) tax incentives and preferential rate loans for green investments; (iii) regulatory reform in favor of clean energy; (iv) discussion around border carbon adjustment; and (v) establishment of a framework for green business and climate-related financial reporting. On this last point, progress is rapid. In May 2021, the Japan Financial Services Agency (JFSA), in conjunction with the Ministry of the Economy, Trade and Industry (METI) and the Ministry of the Environment, issued a set of guidelines to assist companies in their low-carbon transition financing strategy. The JFSA, building on the recommendations of its Expert Panel on Sustainable Finance (EPSF) set up in December 2020, is also shortly due to publish a set of guidelines for financial institutions, including recommendations on governance, risk management, disclosure, evolution of transition strategies, etc.

In addition, in June 2021, the Bank of Japan (BoJ) announced the creation of a lending facility for activities aimed at mitigating climate change. This consists of interest-free collateralised loans extended by the BoJ. The eligible assets are green or sustainability-linked bonds and loans, or aimed at financing climate transition, without any specific taxonomy but with disclosure requirements. This new facility was accompanied by the presentation of BoJ's strategy on climate change (stress tests in conjunction with the JFSA, disclosure, research, international cooperation).

The authorities hope that the implementation of all these tools will make it possible to finance the climate transition by attracting to Japan part of the ESG financing available at the global level (which they estimate at EUR 24,000 billion), and by mobilising EUR 2,000 billion of new Japanese private financing in the long term.

The commitments made in the face of global warming

The Paris Agreement (Conference of the Parties – COP 21, 2015), now ratified by 189 countries, aims at limiting global warming to well below 2 °C, and preferably 1.5 °C by 2100, compared to pre-industrial levels. To meet this goal, many countries in the region have set ambitious timetables. For example, China, which is the world's largest emitter of GHGs and responsible for a quarter of emissions, has committed to reaching the peak of its CO₂ emissions before 2030 and to becoming carbon neutral by 2060. Japan (see Box 1), South Korea, Taiwan and

Hong Kong hope to achieve carbon neutrality by 2050, and India has set a target of reducing its emissions to below 2005 levels by 2030. However, officials in emerging Asian economies regularly point out that because of their level of development, the transition to a low-carbon economy will be more costly and difficult than for developed economies.²

Mitigating climate change in the Asia-Pacific region will necessarily require less use of coal. Coal accounts for 60% of the region's energy mix, compared to 40% in the rest of the world (IEA, 2020), and is responsible for 90% of GHG emissions generated

² As Yi Gang, Governor of the People's Bank of China, pointed out at a PBoC-IMF seminar on green finance and climate policy on 15 April 2021: "It will take 70 years for the EU, 45 years for the US, and about 30 years for China to move from carbon peak to net zero. The time is shorter and the curve is much steeper for China."



by the production of electricity. For example, the Philippines now prohibits any new coal-fired power plants. The shift to more responsible agriculture will also be critical, as this sector generates 15% of the region's total GHG emissions (FAO, 2020). In 2017, agricultural activity produced about 3.7 billion tonnes of CO₂ in the region, corresponding to 48% of the global emissions from this sector.

These transformations will need to be financed. For example, the Asia-Pacific region will need to invest an estimated USD 373 billion per year until 2030 to improve its climate resilience,³ through renewable energy, greater energy efficiency and adaptation infrastructures (Unescap, 2019). In China, according to work conducted at Tsinghua University, achieving carbon neutrality will involve over USD 13 trillion in green investments over the next 30 years.

Financial instruments implemented for the climate transition

Green bond issuance is one of the vectors for financing the climate transition, including in Asia, which, in 2020, accounted for around 20% of

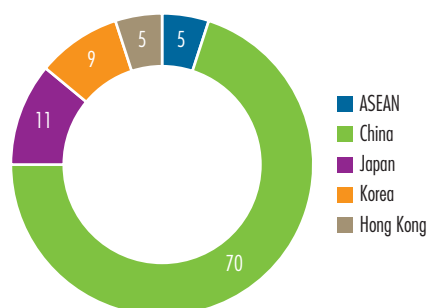
green bond issuance worldwide, on a par with North America but far behind Europe (nearly 50%). Among Asian countries (excluding South Asia and Oceania), China stands out, with 70% of the stock of green bonds, ahead of Japan (11%) and South Korea (9%). The share of members of the Association of Southeast Asian Nations (ASEAN) is still very small (see Chart 2). As regards the sectoral breakdown, the financial sector plays an important role in Asian green bond issuance, particularly in China.

The development of green bonds in Asia has been encouraged by regulatory initiatives. Thus, as early as 2015, the Chinese authorities (including the central bank – the People's Bank of China, PBoC) published a nomenclature on the subject (Green Catalogue), which was revised in 2021 to be more aligned with international standards (exclusion of "clean" fossil fuels in particular). In 2017, the ASEAN Capital Markets Forum (ACMF), which brings together the region's financial market authorities, adopted Green Bond Standards. These various initiatives aim at ensuring that climate transition financing remains compatible with the industrial development imperatives of emerging economies and the constraints imposed by their energy mix.

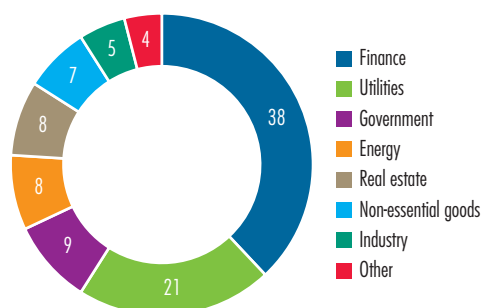
C2 Breakdown of green bond issuance in ASEAN+3, by country and by sector

(in %)

a) By country



b) By sector



Source: Asian Development Bank (ADB).

Notes: ASEAN+3 includes the ten member countries of the Association of Southeast Asian Nations (Burma, Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Laos), plus China, South Korea and Japan.

Utilities are the services provided by local authorities for the production and distribution of water, gas and electricity.

³ This covers the cost of both mitigating climate risk by changing the energy mix and adapting to the impact of climate change.



Asian financial institutions are gradually taking up the issue: an increasing number of banks in ASEAN, Japan and South Korea are integrating climate priorities into their risk management, products, investments and governance (WWF, 2020). However, financial centres remain highly diverse: the consideration of climate risks is more obvious in those that are more developed and better integrated internationally. In China, the PBoC estimates that the country is the world's leading market for green loans, with an outstanding amount of RMB 13 trillion (EUR 1,650 billion). Large institutional investors are also set to play a leading role, such as Japan's Government Pension Investment Fund, which in 2017 included environmental, social and governance (ESG) criteria in its investment principles, and Singapore's sovereign wealth fund Temasek, which is expected to take on a central role in the country's strategy to support green investments.

The increased sophistication of green finance in Asia is also reflected in the development of carbon markets and markets dedicated to green products. In China, where several regional pilot markets already exist, a unified national carbon market (which initially covered emissions generated from the production of electricity) was launched in Shanghai on 16 July, and emissions-related derivatives will be offered on the Guangzhou Futures Exchange (GFEX). The authorities are actually integrating these developments into the process of modernising and opening up the Chinese financial markets as a whole. The Hong Kong Stock Exchange (HKEx) has opened a platform dedicated to green and sustainable financial products, STAGE (Sustainable and Green Exchange). Singapore has also announced the upcoming launch of a carbon market (Climate Impact X – CIX), which will focus on the voluntary exchange of standardised carbon offsetting solutions (reforestation, mangroves, etc.).

The high exposure of the Asia-Pacific region to the consequences of climate change also raises the question of the insurability of natural risks (typhoons, floods, droughts, etc.). One of the preferred solutions

is the development of cat bonds, which make it possible to finance coverage against these risks on the markets. This technique relies in particular on partnerships with public authorities, such as the Southeast Asia Disaster Risk Insurance Facility (Seadrif), or the issuance of a cat bond by the Philippine government in conjunction with the World Bank in late 2019.

2 Central banks play a leading role on climate issues in the Asia-Pacific region

The impetus and framework for greening the economy

Asian central banks and supervisory authorities are generally very involved and proactive in their countries' climate transition efforts (Durrani et al., 2020). These efforts are reflected in the development of national green finance strategies that often rely on coordinated action by the authorities concerned. Boxes 1 and 2 illustrate this approach in the cases of Japan and Hong Kong, but other examples exist. For example, in Malaysia, the central bank (Bank Negara Malaysia – BNM), together with the Securities Commission (SC) and market participants, established the Joint Committee on Climate Change in 2019 (Chew, 2020). In the Philippines, the central bank (Bangko Sentral ng Pilipinas – BSP) and the Ministry of Finance have set up a Green Finance Task Force, which brings together various agencies and ministries (in the fields of the environment, energy, land use planning, and finance). In Thailand, the Working Group on Sustainable Finance, which brings together financial and tax authorities around the Bank of Thailand (BoT) published its Key Strategic Initiatives in August 2021. In some cases, green finance is on the agenda of the coordinating bodies of financial regulators, as is the case in New Zealand (Fiennes, 2021). In Singapore, the central bank (Monetary Authority of Singapore – MAS) unveiled its Green Finance Action Plan at the end of 2019; it reflects its priorities in this area (consideration of climate risks, support for the green bond and loan market, fintechs, research and training). In China, the authorities included green finance in their objectives as early as the 13th Five-Year Plan in 2016.



BOX 2

In Hong Kong, agencies cooperate to develop green finance

In May 2020, the Hong Kong Monetary Authority (HKMA), which has as one of its missions to promote Hong Kong as an international financial centre, joined forces with the Securities and Futures Commission (SFC), the Insurance Authority (IA) and other local regulators to form the Green and Sustainable Finance Cross-Agency Steering Group. This group aims at coordinating the various actions carried out by the financial centre in the field of climate and environmental risks, speeding up the growth of green and sustainable finance in Hong Kong, and supporting the government's climate strategies. A strategic plan was drawn up in December 2020. It includes six key long-term actions for enhancing Hong Kong's green financial ecosystem: strengthening climate-related financial risk management; promoting information flows, at all levels, to facilitate risk management; raising public awareness; fostering innovation to facilitate capital flows to green and sustainable causes; capitalising on opportunities in mainland China to promote Hong Kong as a green financial centre within the Greater Bay Area;¹ and finally, strengthening regional and international cooperation.

In addition, the strategic plan also includes five short-term actions, the most emblematic of which are the adoption of a taxonomy (as part of the work of the International Platform on Sustainable Finance – IPSF) and the promotion of climate scenario analysis to assess the impact on financial institutions (notably through stress tests).

¹ Chinese megalopolis comprising nine cities in Guangdong and the two special administrative regions of Hong Kong and Macao.

Asian central banks and supervisors are also very active in international cooperation forums on green finance, most notably in the Network of Central Banks and Supervisors for Greening the Financial System (NGFS). The MAS and the PBoC are among the founding members, each chairing one of the working groups (microprudential supervision and research, respectively), and the BNM and the

JFSA (Japan Financial Services Agency, the financial supervisor) joined the NGFS Steering Committee in late 2020 (NGFS, 2021).

Regional cooperation forums are also being set up. The publication in November 2020 of a report by ASEAN central banks on their role in dealing with climate risk (ASEAN, 2020) illustrates this commitment to deepening initiatives specific to Southeast Asia. The report also calls for the implementation of an ASEAN Green Map, which would be a roadmap for financial services, and even for the establishment of common principles regarding taxonomy and green lending. In his speech at the Boao Forum for Asia in April 2021, Yi Gang, governor of the PBoC, also insisted on Asian regional cooperation in the field of green finance, through forums such as the ASEAN+3 (ASEAN plus China, South Korea, Japan) and the EMEAP (Executives' Meeting of East Asia-Pacific Central Banks). Within the framework of EMEAP, the Asian Bond Fund (ABF) will be used to invest in the green transition in Asia and facilitate the development of green infrastructure. Finally, in

NGFS members and observers in the Asia-Pacific region, by date of membership

Year	Institution
2017	Founders: MAS (CB of Singapore), PBoC (CB of China)
2018	BNM (CB of Malaysia), JFSA (SA of Japan), RBA (CB of Australia), RBNZ (CB of New Zealand)
2019	BI (CB of Indonesia), BoJ (CB of Japan), BoK (CB of Korea), BoT (CB of Thailand), HKMA (CB of Hong Kong)
2020	BSP (CB of the Philippines), NBC (CB of Cambodia), OJK (SA of Indonesia), Asian Development Bank (observer)
2021	APRA (SA of Australia), FSC-FSS (SA of Korea), RBI (CB of India)

Source: Banque de France.

Notes: CB: central bank; SA: supervisory authority.

NGFS: Network of Central Banks and Supervisors for Greening the Financial System.



September 2020, the Singaporean authorities announced the launch of a Global Asia Insurance Partnership (GAIP), which will bring together a dozen Asian supervisory authorities, (re)insurers and various non-governmental organisations. This partnership is intended to serve as a think tank, a training institute and an incubator for solutions to market problems.

The levers of intervention for sustainable finance

The measures adopted or envisaged by central banks and supervisory authorities in the field of green finance, in the Asia-Pacific region as elsewhere, are essentially organised along four lines: improving the consideration of climate risks by financial institutions; developing the standardisation and dissemination of information on climate exposures; promoting green financial products and the emergence of specific ecosystems; and integrating climate constraints into monetary policy and reserve management operations. For now, these measures are generally still at the stage of non-binding recommendations.

First, the idea is to make financial institutions more aware of the impact of climate risks. For example, in late 2020, the Monetary Authority of Singapore (MAS) issued guidelines on environmental risk management. Similarly, in Australia, the Australian Prudential Regulation Authority (APRA) released a prudential practice guide on climate change financial risks for consultation in April 2021. These two initiatives are aimed at banks, but also at other supervised entities (insurers, asset managers, pension funds). In Hong Kong, the Hong Kong Monetary Authority (HKMA) put out guidelines on climate risks for consultation in summer 2021. In Indonesia, the financial regulator (Otoritas Jasa Keuangan, Indonesia Financial Services Authority – OJK) published a Sustainable Finance Roadmap in 2015; it includes a “phase II” for 2021-2025 that aims at strengthening the commitments made by banks and authorities. Similar measures exist

or are being prepared in Japan, the Philippines, Vietnam, Thailand, among others, and since 2011 in Bangladesh, which is a forerunner in this field. They may also aim at integrating climate risks into the supervision process of the supervisory authorities themselves. The PBoC has adopted this latter approach and will shortly integrate the assessment of the greening of banks’ balance sheets into its quarterly internal rating system for the country’s main banks (see Box 3).

From a more quantitative point of view, several Asian central banks and authorities have announced their willingness to conduct specific stress tests on climate risks, along the lines of the climate pilot exercise that the Autorité de contrôle prudentiel et de résolution (ACPR, 2021) has just conducted in France. This is notably the case for the APRA in Australia, which will conduct a Climate Vulnerability Assessment with the country’s five largest banks this year. Stress tests will also be conducted in Hong Kong (see Box 2 above), in Singapore by the MAS by the end of 2022, and in Japan, where such an exercise is planned jointly by the JFSA and the central bank. Participation in these tests is not intended to introduce new capital requirements specific to climate risks. Other macroprudential tools may also be used, such as the adjustment of loan-to-value⁴ (LTV) ratios by Bank Indonesia (BI) for real estate or car loans considered as green.

As regards the disclosure of financial information on climate risks, the Asia-Pacific region has so far relied on an essentially voluntary framework, based in particular on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), and there is room for improvement in this area. Several central banks and authorities in Asia (including Singapore, China, Hong Kong and Japan) have recently announced a gradual move towards more binding requirements: in this respect, they follow the example of New Zealand, which this year enshrined in law the obligation of financial disclosure by banks and insurers.

⁴ Debt risk ratio, which is the ratio of the amount of the loan over the value of the asset financed.



BOX 3

In China, the People's Bank of China (PBoC) is carrying out a wide range of actions to contribute to China's climate transition objectives

For several years, the PBoC has been taking proactive action in the area of green finance, using a wide range of often innovative instruments. As early as 2015, it drew up a Green Catalogue for green bonds, which was updated in 2021 in conjunction with the National Development and Reform Commission (NDRC) and the China Securities Regulatory Commission (CSRC). In June 2018, it expanded the collateral eligible for its medium-term refinancing operations to include green bonds by giving them a "primus inter pares" status. This policy has had a significant favourable impact on the spread of these bonds (Macaire and Naef, 2021).

As from July 2021, the PBoC will also attribute a quarterly internal green finance rating to the country's 24 largest banks. This rating will be based on quantitative indicators (share in assets, portfolio growth, associated credit risks) and qualitative indicators (governance). It will initially include green bonds and loans, but will then be extended to other types of green assets and fund management. It will be included in the overall rating of banks and their prudential assessment.

The PBoC has also announced that it is working on initiatives in other areas: mandatory disclosure, climate stress tests, "greening" of foreign exchange reserves and encouraging financial institutions to invest in ESG products and in the domestic carbon market.

In order to facilitate the publication of such information, the authorities are seeking to define taxonomies. Thus, as early as 2015, the Chinese authorities published a nomenclature for green bonds (see above), which was recently updated to bring it into line with the main international standards. They also co-lead, together with the European Commission, the development of common taxonomy principles within an international platform (International Platform on Sustainable Finance – IPSF). Work is also underway in Singapore, as well as in Malaysia, where the BNM has published principles aimed at combining climate imperatives and the constraints linked to the country's economic development. This concern is also shared by other ASEAN countries, which wish to retain a certain amount of flexibility and a margin of discretion in relation to global standards (ASEAN, 2020).

The growth of green financial products is also seen as an opportunity for developing financial markets, particularly in Hong Kong and Singapore. Both the HKMA and MAS have introduced subsidies to cover the costs of issuing green bonds and loans, as well

as cat bonds for insurance. This is accompanied by programmes aimed at expanding the green finance ecosystem, notably through industrial cooperation, training and research structures (Alliance for Green Commercial Banks in Hong Kong, Sustainable Finance Institute Asia in Singapore).

In addition, several Asian central banks have taken initiatives to integrate climate objectives into their monetary policy and reserve management operations, as well as into their internal organisation. After expanding the collateral eligible for its refinancing operations (see Box 3), the PBoC is preparing a refinancing facility dedicated to green projects, and an increase in the share of green bonds in its reserves. The Bank of Japan has announced that it will soon set up a lending facility dedicated to the fight against climate change (see Box 1). And the MAS has analysed the impact of three climate scenarios on its foreign exchange reserves over a 20-year horizon before gradually decarbonising its equity portfolio. The MAS has also set up a dedicated USD 1.8 billion fund for green investments.



BOX 4

Green Fintechs: the Monetary Authority of Singapore aims to take the lead

Singapore is a financial centre at the forefront of technological innovation and the Monetary Authority of Singapore (MAS) is looking to create synergies around its green finance ambitions. At the Singapore Fintech Festival 2020, the MAS announced the launch of its Greenprint project, which aims to encourage the development of Green Fintech solutions along three lines: i) connecting banks, investors and project providers; ii) monitoring the commitments made in the projects funded (using the Internet of Things, for example); and iii) measuring and quantifying the actual ESG (environmental, social and governance) impact of these projects. In addition, the MAS will dedicate 20% of its technology innovation budget to Green Fintech solutions, i.e. a total amount of EUR 31 million. The CIX (Climate Impact X – see above, end of part 1) project also has a strong technological component, as it relies on artificial intelligence and the Internet of Things to ensure real-time monitoring of carbon offset projects.

Finally, the BSP in the Philippines has incorporated environmental considerations into its operational activities, with its Sustainable Central Banking Program being one of its strategic priorities. This concern about placing climate change at the heart of central banks' actions can also be seen in the MAS' Sustainability Report published for the first time last June (MAS, 2021) or in the analysis of its carbon footprint conducted by the Reserve Bank of New Zealand (RBNZ) in its annual report.

The actions of central banks and supervisory authorities in the Asia-Pacific region with regard

to green finance take on a wide variety of forms. These forms respond to various constraints: cost and timetable of emissions reduction; consideration of climate risks by financial institutions; promotion of financial centre; articulation with other public authorities, etc. However, these actions all reflect a desire to move forward on a subject that is now considered to be of primary importance and for which Asia-Pacific central banks and supervisory authorities are playing a leading role in their countries and within increasingly strong regional and global dynamics.



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