

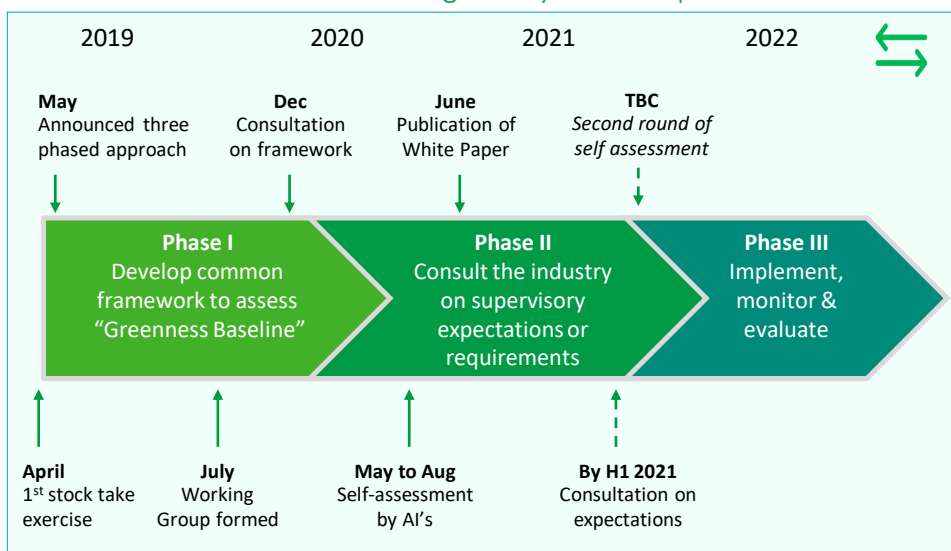
Building Climate Resilience in the Hong Kong Banking Sector

August 2020



The Hong Kong Monetary Authority (HKMA) has issued another document entitled **White Paper on Green and Sustainable Banking¹** on June 30, 2020. The objective of the paper is to present initial thinking on the HKMA's supervisory approaches to address climate-related issues. We see this paper as an excellent resource to understand the future policy direction of supervisory expectations in Hong Kong. The paper has also laid out **9 guiding principles** to help AI's implement a framework for managing the risk and opportunities brought by climate change.

HKMA's Regulatory Roadmap²



The White Paper also lays out a clear regulatory roadmap (see picture on the left) with dates and upcoming activities. **The next step will be a consultation on supervisory expectations in the first half of 2021** followed by a second self assessment later in 2021. In May 2020, the HKMA and the Securities and Futures Commission established the Green and Sustainable Finance Cross-Agency Steering Group (Steering Group). This group, in addition to other international regulatory sharing platforms, will support cross regulator collaboration when forming Hong Kong policy.

9 Guiding Principles These principles are meant to form the basis of a governance and risk framework:

- 1 Board Accountability in Climate Resilience
- 2 Board's Oversight of Climate Strategy Development & Implementation
- 3 Strategy Formulation
- 4 Strategy Implementation
- 5 Risk Identification
- 6 Risk Measurement
- 7 Risk Monitoring & Reporting
- 8 Risk Exposure Control & Mitigation
- 9 Disclosure of Climate Related Information

Range of Practices

*"We recognise that there is a wide spectrum among AIs in terms of size, nature of business, complexity of operations and stage of development in their capability in addressing climate-related issues. As such, **we expect that these principles will be applied to AIs on a proportionate basis**, and will initially focus on larger AIs which have a greater impact on the Hong Kong economy and the financial system as a whole."* HKMA

¹ <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2020/20200630e1a1.pdf>

² HKMA White Paper on Green and Sustainable Banking, Page 20

A brief description of each principle is provided which the HKMA has based on a range of practices observed. Banks can also refer to the circular "Range of practices for management of climate risks" issued separately by the HKMA³.

1 - Board Accountability in Climate Resilience

The board has responsibility for the bank's climate resilience and it should have sufficient understanding of the climate-related issues in determining approaches to address them. There should be designated individuals responsible for implementation of climate risk initiatives at the bank.

2 - Climate Strategy Development and Implementation

The board should exercise oversight of the development and implementation of the climate strategy, including embedding climate-related risks into the risk appetite statement (RAS). At first banks may use qualitative elements embedded into RAS but they should look to quantitative metrics also. Some banks may track performance to meet climate related targets and use this to evaluate management remuneration.

3 - Strategy Formulation

Climate considerations should be embedded throughout the strategy formulation process, from strategic assessment to action plan development. Internal and external assessment factors should be incorporated into the bank's strategic planning with regards to climate risk (i.e. policy changes, new technologies, and lending strengths). More advanced banks will consider scenario analysis outcomes incorporated into capital planning and ICAAP.

4 - Strategy Implementation

Banks should enhance their organization structures, policies, systems, resources, and capabilities to ensure that climate risk strategies are effectively embedded into operations. For example, updating client screening processes and updating lending policies to support transition to a low-carbon economy. Banks should incorporate climate risk consideration into their risk management framework.

5 - Risk Identification

Banks should identify transmission channels to assess the impacts from transitional and physical risks. This should be executed at a client and at a portfolio level looking to identify those exposures which are at greater risk from climate change. Climate risk concentrations in portfolios, vulnerable sectors, and counterparties should be identified.

6 - Risk Measurement

Capabilities to measure climate related risks should be established and enhanced. This can include scenario analysis and the development of tools to estimate impacts to the bank's clients (i.e. top-down sector level or bottom-up client level). Customer level impacts can include scenario impacts modelled to probabilities of default (PD) and Excepted Losses (EL).

7 - Risk Monitoring & Reporting

Exposures to climate related risk should be reported and monitored to ensure that limits and climate exposures are within established risk appetite thresholds. Timely reports should be provided to management and the board. Some banks may include metrics such as total exposures to a climate sensitive industry or total carbon-related loan assets as a % of total loans.

8 - Risk Exposure Control & Mitigation

Banks should implement measures to control and mitigate exposures to climate-related risks to ensure effective management of these risks. Portfolio, sector, and client level limits should be established in the credit approval and client onboarding process to drive lending towards more green exposures. Banks should consider the location of clients operations with regards to 'physical risks' such as those exposures near vulnerable coastal areas.

9 - Disclosure

Banks should take an appropriate approach to disclosing climate-related information and look to the TCFD recommendations as the core reference. Both risks and opportunities posed by climate change can be reported and disclosures should include information on the banks governance and risk management as per the TCFD recommendations.

¹ <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2020/20200707e1a1.pdf>

Integration of ESG Risk into ERM

The integration of ESG into bank-wide ERM and governance frameworks is the first major step that institutions will need to take. The board of directors and senior management will need to set the tone from the top to start the integration process. Leading banks will have already established committees to review and undertake the exercise of ESG implementation while others are still in the process of establishing such committees.

Once a governance framework has been set out to define the strategy for integration, the process of identifying, assessing and prioritizing ESG-related risks should be undertaken. This is coupled with defining the mechanisms needed to respond to risks.

Moving towards full integration does present some challenges for banks in Hong Kong which include:

- Lack of existing tools, methodology, and experience
- Lack of understanding of the interconnectedness of climate-related risks
- Identifying the right people to take on the ESG initiatives within the bank
- Data challenges (i.e. lack of available data)
- Prioritization of ESG during times of major disruptions (i.e. COVID-19)

ESG Integration Framework

- Enhance terms of reference of current risk board committees to oversee ESG issues
- Define and assign roles and responsibilities on ESG issues for each function across the company



- Align ESG objectives to support the business strategy
- Integrate ESG into the Risk Appetite Statement (RAS) and annual ICAAP

- Develop methodology and tools to support climate-related risk measurement
- Identify material ESG risks in portfolios
- Tailor risk assessment criteria, in terms of magnitude of impact and likelihood including scenario analysis and stress testing

- Set and monitor quantitative or directional Key Performance Indicators (KPI) on ESG targets, including environmental and social related risks
- Integration of these KPI's into annual performance reviews

- Formulate strategy for risk reporting and disclosure communication
- Robust management information reporting to support oversight of climate risk management

- Enhance ESG risk awareness in company culture by embedding ESG elements into mission, objectives, and core values of the company

- Review current KPI tools for ERM to further enable ESG KPI reporting, in terms of data availability and reliability
- Update data collection and exposure data management to support climate risk management, modelling, and reporting



Risk Measurement - Climate Change Transmission to Traditional Risks

In the white paper, the HKMA makes numerous references to the Network for Greening the Financial System Technical document⁴. A key focus of that document is the supervisory review process with regards to the assessment of risks to bank capital and bank liquidity. The HKMA provides some examples in the white paper on how **climate-related risks can become drivers of traditional bank risks** such as credit risk, market risk, operational risk, liquidity risk and reputation risk.

The HKMA paper also provides some projected annual temperature change (C°) scenarios up to the year 2100 from the Hong Kong Observatory. This data can serve as a basis for banks to use when developing their own internal scenario analysis. Techniques and data from the insurance world can also be leveraged. For example, the American Institute of Actuaries has developed a Climate Risk Index which models temperature change to property losses⁵. Credit risk is highlighted as an example where the probability of default (PD) or the loss given default (LGD) of borrowers are negatively impacted by physical and / or transition risks and by the degree of sector concentration. We have provided a simplified illustrative example below on how a bank might look to model temperature change scenarios over a 50 year horizon to a static credit portfolio to measure the vulnerability of exposure to certain sectors.

M_1 is a matrix of forecasted change in Degree Celsius by different scenario and upcoming decades; M_2 is the probability of occurrence of each of the Degree Celsius scenario:

$$M_1 = \begin{bmatrix} \Delta \text{Celsius}_{\text{Scenario 1;2019}} & \Delta \text{Celsius}_{\text{Scenario 2;2019}} & \dots \\ \vdots & \ddots & \ddots \\ \Delta \text{Celsius}_{\text{Scenario 1;2059}} & \Delta \text{Celsius}_{\text{Scenario 2;2059}} & \dots \\ \Delta \text{Celsius}_{\text{Scenario 1;2069}} & \Delta \text{Celsius}_{\text{Scenario 2;2069}} & \dots \end{bmatrix}$$

$$M_2 = \begin{bmatrix} \text{Probability of Scenario 1} \\ \text{Probability of Scenario 2} \\ \vdots \\ \text{Probability of Scenario 10} \end{bmatrix}$$

Z is the scenario probability-weighted average change in Degree Celsius change in upcoming decades:

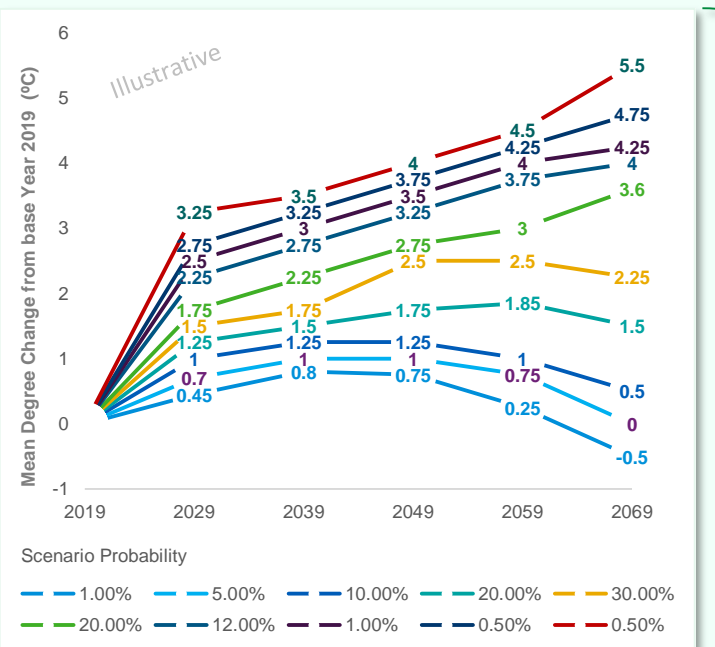
$$Z = M_1 \times M_2 = \begin{bmatrix} \Delta \text{Celsius}_{2019} \\ \Delta \text{Celsius}_{2029} \\ \vdots \\ \Delta \text{Celsius}_{2069} \end{bmatrix}$$

$\rho_{(\text{industry}_i)}$ is the correlation factor between the average degree change and Credit Losses ("CL") by industry which can be estimated using long run external loss event data (i.e. loss databases such as Hazard Event and Loss Database SHELDUS⁶):

$$\Delta CL = \begin{bmatrix} \Delta \text{Degree Celsius}_{2019} \times \rho_{\text{industry}_i} \\ \Delta \text{Degree Celsius}_{2029} \times \rho_{\text{industry}_i} \\ \vdots \\ \Delta \text{Degree Celsius}_{2069} \times \rho_{\text{industry}_i} \end{bmatrix}$$

Design Climate Change Scenarios and Probabilities

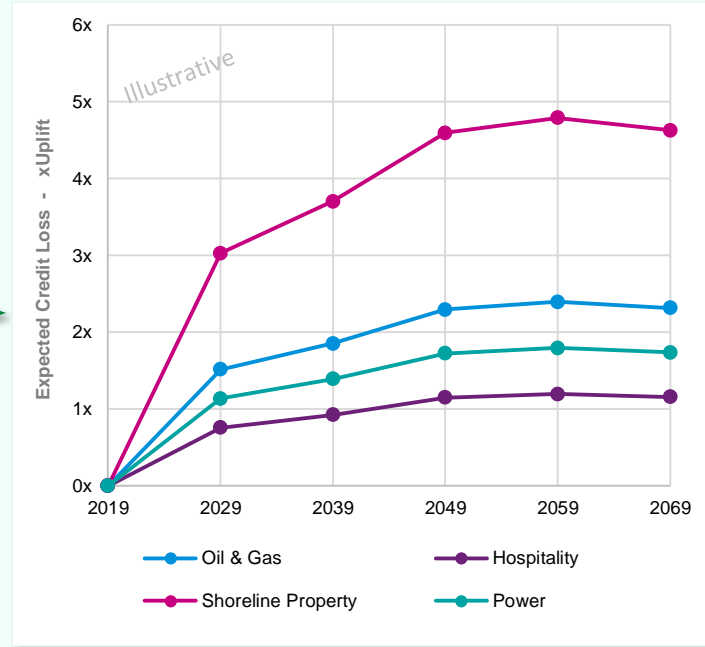
How would average temperatures change over the next 50 years?



Note: These are illustrative figures only and are not based on scientific data
Source: KPMG

Transition and Physical Risks on Key Sectors

How much additional Credit Loss uplift due to climate change?



Maximum uplift in Credit Losses is close to 5x for the exposures that are linked to Shoreline Property based on the probability weighted scenario analysis.

⁴ https://www.ngfs.net/sites/default/files/medias/documents/ngfs_guide_for_supervisors.pdf

⁵ <https://www.actuary.org/sites/default/files/2020-01/ACRI.pdf>

⁶ <https://cemhs.asu.edu/sheldus/metadata>

How KPMG can help you

Step 1 Independent Review



Three weeks

- Conduct independent review of your internal risk management and other related policies and procedures.
- Benchmark against the HKMA framework and best practices in ESG.
- Prepare a gap analysis to highlight key weaknesses with a recommendations.

Step 2 Implementation Plan



Two weeks

- Workshops to formulate or refine the ESG strategy.
- Recommendations on governance and ERM structure including key metrics and KPI's.
- Provide a detailed ESG implementation and roll out and communication plan.
- Training to the bank on the implementation

Our other offerings in ESG



01 ESG Governance

- Establish Board and Senior Management structure
- Establish ESG governance structure
- Develop Board-level ESG training plans
- Assist Board and Senior Management with KPI development



02 ESG Strategy and Risk Appetite

- Review peers and regulatory landscape
- Develop Group ESG strategy
- Develop a high-level ESG roadmap
- Perform HKMA self-assessment gap analysis



03 ESG Risk Management Process

- Identify and measure exposure to environment and climate risk including scenario analysis and stress testing
- Integrate with enterprise wide risk management framework
- Develop reporting dashboards and reports
- Refresh KPIs and targets to incorporate ESG metrics



04 ESG Policy Development

- Develop policies relating to lending, investment, products and services
- Identify operational aspects to be impacted by ESG integration
- Develop operating procedures
- Update workflows and related documentation



05 Risk Culture

- Assess skills gaps and conduct workshops to communicate staff in how ESG impacts their day-to-day roles
- Embed ESG culture within the organization, create awareness and common understanding



06 ESG Reporting and Verification

- Develop consistent reporting procedures linking all reporting and communications
- Assurance for ESG disclosures (i.e. data and report)
- TCFD maturity assessment and reporting
- Define approach to external communications on ESG commitment (i.e. what external initiatives to participate in UNPRI? UNGC? and fulfil associated commitments)

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