



彰化銀行

2021

Task Force on Climate-related Financial Disclosures  
**TCFD Report**



## 2021 TCFD Report

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## Changing for the climate begins with individuals

Climate change is now a global issue. Chang Hwa Bank has long been focused on corporate sustainability. Starting in 2014, we have prepared CSR reports to strengthen disclosures and communication. Chang Hwa Bank has combined the FSC "Corporate Governance 3.0-Sustainable Development Roadmap", "Green Finance Action Plan 2.0", and the Ministry of Finance Public Sector Banks "ESG Initiative Program" with our business developments and included these in our sustainability goals. Chang Hwa Bank's operating locations span from the Americas and Asia to Europe. The supervisory authorities of these countries are focused on financial institutions' response to climate risks. Additionally, with the 26th United Nations Climate Change Conference (COP26) being held in the UK from October to November 2021, the financial industry must be prepared to respond to climate issues.

With the support of our Board of Directors, Chang Hwa Bank has increased green technology and green industry credit limits for the second consecutive year. In 2021, we decreased credit for high energy consumption industries and the investment limit in response to climate risks. In terms of investment and financing reviews, we have fully included ESG key factors and are expected to sign the "Equator Principles" in 2022, carefully evaluating the social and environmental risks and human rights implementation of credit accounts. We are fully supporting climate transformations and carbon reducing industries to promote co-prosperity between finance, corporations, society, and the environment.

Chang Hwa Bank has been filling out the CDP climate change questionnaire since 2018. We introduced the TCFD framework in 2020 and actively joined the TCFD initiative in 2021. We officially became a signatory supporter of TCFD in July 2021.

Chang Hwa Bank shows its adaptability to related risks through the voluntary disclosure of governance, strategy, risk management, and metrics and targets. In September 2021, we completed the TCFD compliance review. Chang Hwa Bank and our climate related financial disclosure maturity model was rated by the BSI as "Level 5: Excellent", the highest rating possible. We became the first public sector bank to receive TCFD third party reviews, increasing the dependency and compliance of our information and achieving the Ministry of Finance's goal of an "ESG Initiative Program".

The effects of climate change impact the daily lives of the public and the global economy. With the constant threat of natural disasters around the world, we are calling on every one to do their part for the Earth, such as eating vegetarian meals, carrying their own utensils, walking or cycling more, reducing water and energy waste, and purchasing green products.

These actions are not only good for environmental sustainability, but also good for people's health. In response to "Changing for the climate", we must start with our own actions. We must combine the individual with the company and society to bring about change. Let's work together to care for the Earth!

Chairperson

*Joanne Ling*



## Introduction

The "Global Risks Report", published by the World Economic Forum (WEF) in recent years, has defined climate change as one of the most severe international risks. In response to the challenges of climate change, the Financial Stability Board (FSB) established the Task Force on Climate-related Financial Disclosures (TCFD) in 2015 to formulate financial information disclosure suggestions for climate related risks and opportunities. It emphasizes the quantification of the financial impacts of climate risks and opportunities, in order to help stakeholders understand the major risks, allowing investors to identify the impact of climate change on finances and make the correct investment decisions.

As an important part of the international financial industry, Chang Hwa Bank has made more commitments and stipulated the "Chang Hwa Bank Corporate Social Responsibility Best Practices", formulating the 5 major management directions for CSR. The directions include corporate governance, customer care, employee care, social welfare, and environmental sustainability. We will continue to comply with the UN Global Compact, the 17 UN Sustainable Development Goals (SDGs), the Paris Agreement, the Principles for Responsible Banking (PRB), and other important international guidelines in the future. We base our corporate information disclosures on GRI, SASB, and TCFD to maintain good communications with related stakeholders. At the same time, we are incorporating the ideals of corporate sustainability in our core business plan and operating activities, creating a sustainable corporate culture and laying the foundation for the next century.

Chang Hwa Bank continues to focus on environmental sustainability issues by responding to the TCFD initiative. The implementation results of TCFD from 2020 to 2021 are as follows:

- In 2020, the 2nd Sustainable Development Committee was formed, which comprised of the Chairperson, President, and three Independent Directors, with the Chairperson being the convener.
- In order to improve the implementation of sustainable development issues and the international visibility of our corporate social responsibility image, Chang Hwa Bank officially became a TCFD Supporter in July 2021.
- By adopting international standards, we conduct disclosures based on the four aspects of governance, strategy, risk management, and metrics and targets, and have received the highest rating from the verification institution. Chang Hwa Bank became the first public sector bank to pass TCFD third party verification and our climate related financial disclosure maturity model was rated Level-5: Excellence.
- The Board of Directors passed the "Chang Hwa Bank Industry Credit and Investment Limit Management Guidelines", which increased the credit limit for green technology and green industries by 1% and reduced the credit and investment limit for high energy consumption industries by 2%.
- The Bank continues to fill out the Carbon Disclosure Project (CDP) climate change questionnaire. We received a "B" management rating in 2019 and 2020.
- The Bank has established emerging risk management mechanisms. Risk governance and the diverse transformation of financial services are effectively implemented through the framework of "Identification, Assessment, Management, Supervision". Apart from regularly reporting TCFD implementation to the Sustainable Development Committee and Board of Directors, climate risk management shall be reported to the Risk Management Committee and included in the risk management report before being reviewed by the Board of Directors.

## About this report

### (I.) Operating boundaries

The business activities of Chang Hwa Bank are the disclosure boundaries of the Report.

### (II.) Report scope

The scope of the Report covers the period from January 1, 2020, to December 31, 2020.

### (III.) Basis for announcement and preparation

The Report is based on the framework of the "Recommendations of the Task Force on Climate-related Financial Disclosures" (hereinafter referred to as TCFD) of the Financial Stability Board (FSB). It is focused on the core criteria of governance, strategy, risk management, and metrics and targets.

## Core elements of climate-related financial disclosures



#### Governance

Governance of climate related risks and opportunities of the organization

#### Strategy

The actual and potential impacts of climate related risks and opportunities on the organizations' operations, strategies, and financial planning

#### Risk Management

The organization's procedure for identifying, assessing, and managing climate related risks

#### Metrics and Targets

The metrics and targets used to evaluate and manage the climate related risks and opportunities

Source: Recommendations on climate related financial disclosures (2019)

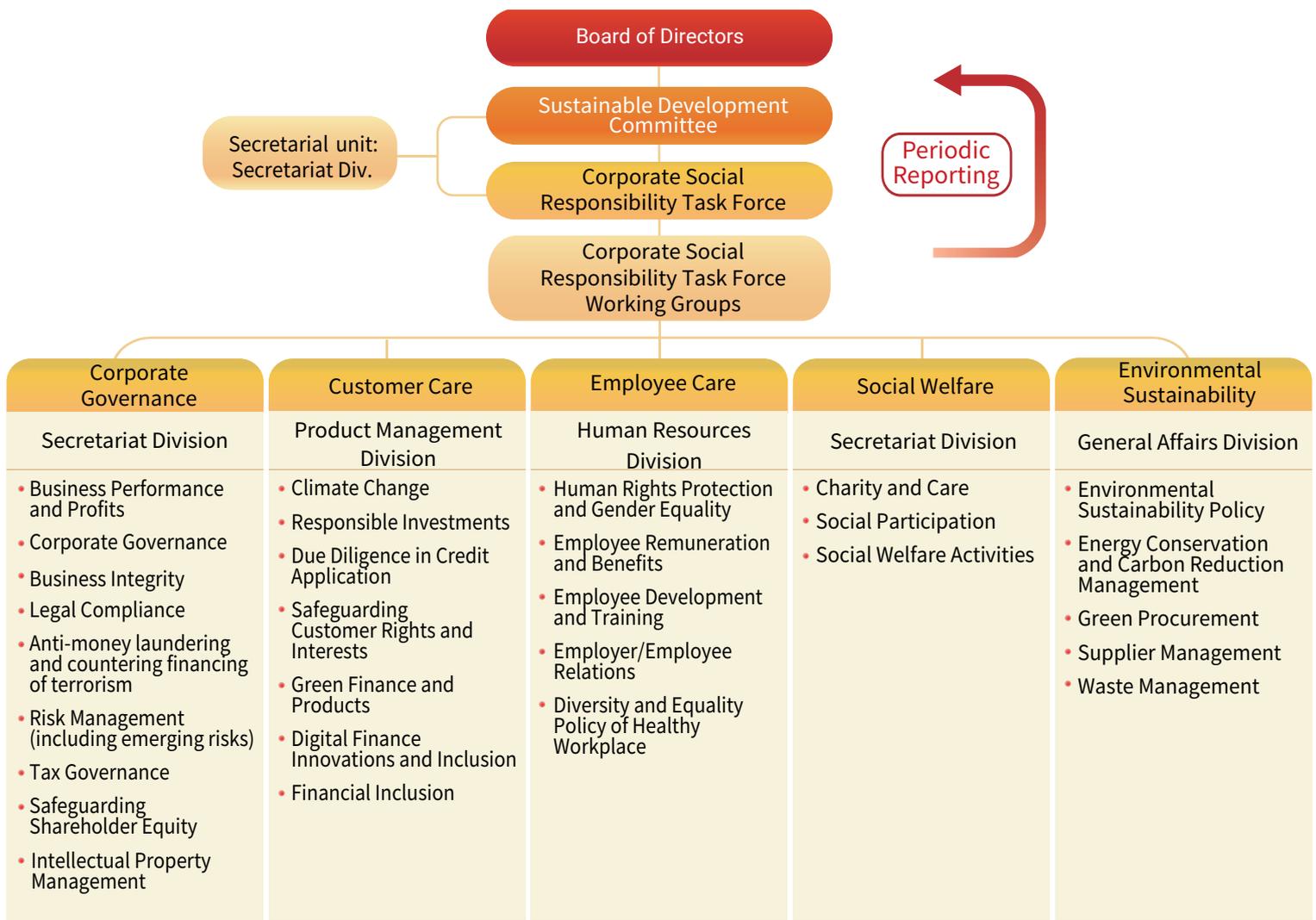
## TCFD general disclosure item

### (I.) Governance

#### 1. The Board of Directors' monitoring of climate related risks and opportunities

The corporate social responsibility organization structure of Chang Hwa Bank is as shown in Figure 1. Chang Hwa Bank has long been focused on the trends in society. We are dedicated to fulfilling our corporate social responsibilities. We have made many efforts in terms of corporate governance, sustainable environment developments, and social welfare maintenance, in order to fulfill the ideals of sustainable development. The highest governing body of climate issues in Chang Hwa Bank is the Board of Directors. The Sustainable Development Committee has been established under the Board of Directors, which is composed of the Chairperson, three Independent Directors and the President, with the Chairperson acting as the convener. The Committee is responsible for promoting corporate social responsibility implementation, coordinating the establishment of related systems, supervising and reviewing the implementation and effects of the policies, and regularly reviewing related implementation reports. The Sustainable Development Committee shall convene at least 2 meetings every year. The secretarial unit shall regularly report to the Board of Directors. The reported issues include: 1. Environmental sustainability policies 2. Energy conservation and carbon reduction management 3. Green procurement 4. Supplier management 5. Waste management.

Figure 1. Corporate Social Responsibility Organization Structure

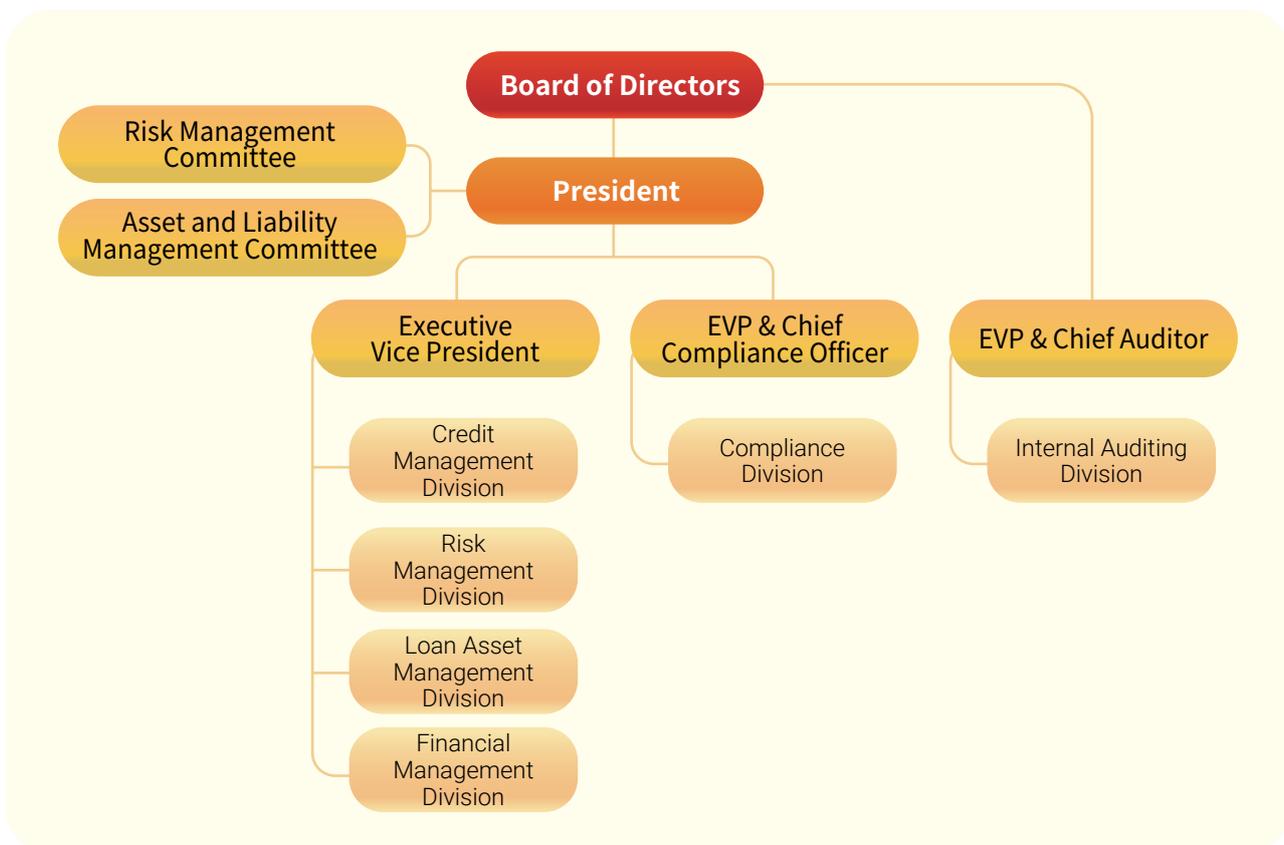


## 2. The role of managers in assessing and managing climate related risks and opportunities

The interdepartmental corporate social responsibility task force (hereinafter referred to as the CSR Task Force) is established under the Sustainable Development Committee. The Sustainable Development Committee appoints one Executive Vice President as the group leader and adjusts the main promotion units for the different operational teams (Corporate Governance, Customer Care, Employee Care, Social Welfare, and Environmental Sustainability). The team leaders are established to conduct the daily operations and improve the overall operations of the group.

The climate governance and management are related to corporate governance, risk management, climate change, responsible investments, due diligence in credit application, and environmental sustainability. Chang Hwa Bank also uses the risk management organization structure (Figure 2) to manage the risks faced by the company's operations.

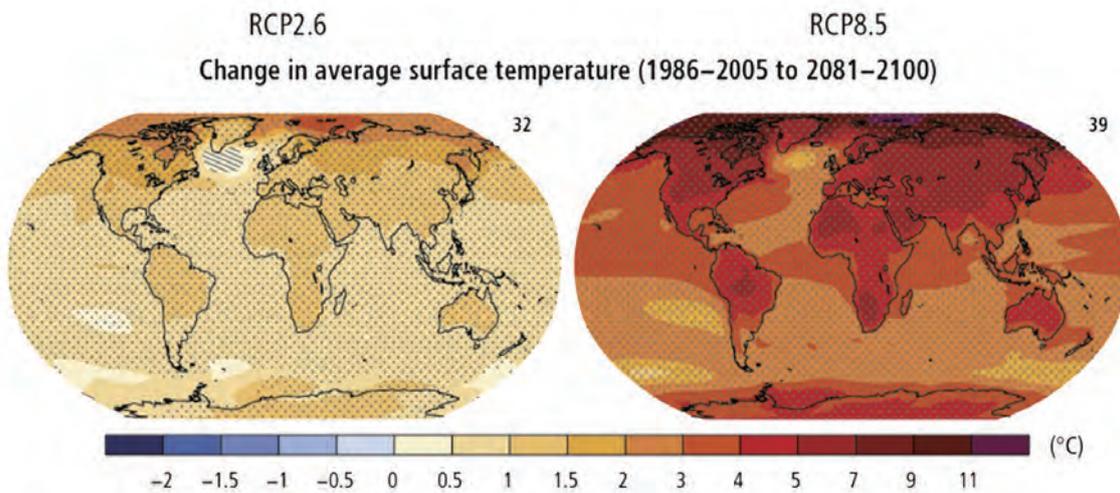
Figure 2. Risk Management Organization Structure



### 3. Description of climate change governance methodology

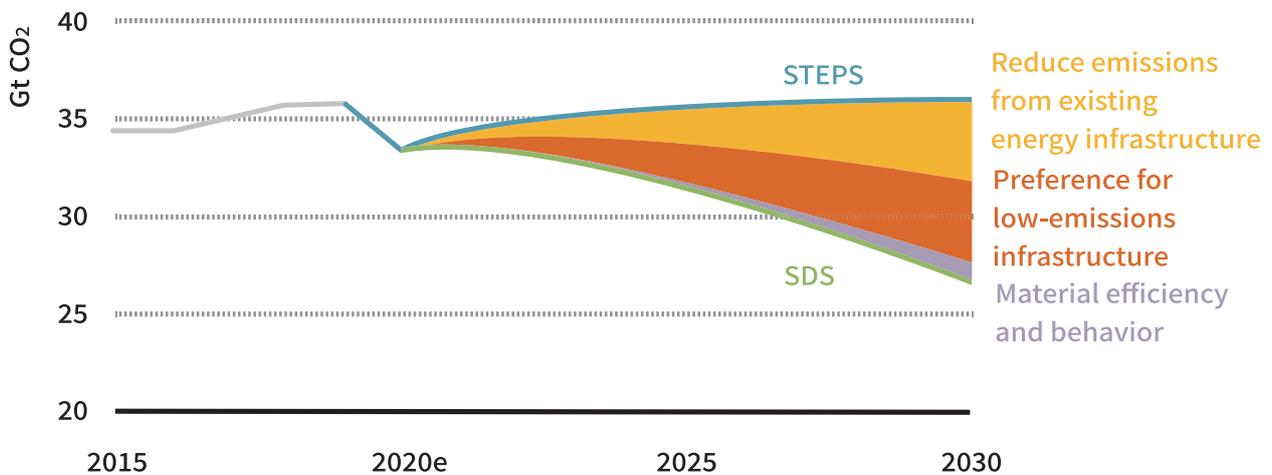
Chang Hwa Bank's climate related risks and opportunities originate from the IPCC AR5 and World Energy Outlook Report. The climate related risk issues in the simulated physical risk scenario RCP8.5 and transformational risk scenario STEPS are used as the basis for the issue database. Department interviews are conducted to internalize external viewpoints to better conform with business development strategies. Furthermore, Chang Hwa Bank compiles the TCFD supplemental guidelines and references the CSR reports of others in the industry. The information is included in the Chang Hwa Bank issue database to improve the integrity of future questionnaire content, facilitating the ranking of climate related risks.

Figure 3. RCP Temperature Increase Scenario



Source: AR5 Synthesis Report Climate Change (2014)

Figure 4. STEPS Scenario



Source: International Energy Agency (2020)

## (II.) Strategy

### 1. The short, mid, and long-term climate related risks and opportunities identified by the organization and the related financial impacts

Chang Hwa Bank has defined short-term as within one year, mid-term as one to seven years, and long-term as more than 7 years according to the credit regulations of the Banking Act of The Republic of China.

In 2020, Chang Hwa Bank identified three physical risks and nine transition risks. We evaluated their impacts on the operations of Chang Hwa Bank and explained the financial impacts of the top 5 risk items. Regarding climate related opportunities, Chang Hwa Bank compiled six types of opportunities and reviewed the effects of the opportunities on the operations and financial benefits of Chang Hwa Bank. The climate related risks and opportunities, time frame, and financial benefits of Chang Hwa Bank are as follows:

**Table 1. Impact of Climate Related Risks and Corresponding Time Frames**

Physical risks			
Items	Event	Time Frame	Impact on the operations of Chang Hwa Bank
Acute	Collateral flooded	Short-term	<ul style="list-style-type: none"> <li>• Flooding will cause property prices to fall in the area where the collateral is located</li> <li>• Collateral depreciates and liquidity decreases</li> <li>• Loss of borrower's assets makes repayment difficult</li> </ul>
Acute	Branch flooded	Short-term	<ul style="list-style-type: none"> <li>• Asset losses of the branches</li> <li>• Falling house price of the branches</li> <li>• Employees may be injured during commute</li> </ul>
Chronic	Average temperature rise	long-term	<ul style="list-style-type: none"> <li>• Increased air-conditioning and water costs lead to an increase in operating costs</li> </ul>



## Transition risks

Items	Event	Time Frame	Impact on the operations of Chang Hwa Bank
Policy and Legal	Raising credit standards	Short-term	<ul style="list-style-type: none"> <li>• Introduction of the Equator Principles.</li> <li>• If a customer violates the ESG situation, they will be checked in accordance with the Bank's "Corporate Customers Early Warning Evaluation Procedure".</li> <li>• Investment risk of high-carbon assets increases.</li> <li>• Conduct reviews on high carbon emission industries to adjust the internal ratings according to the different carbon payments.</li> </ul>
	Domestic carbon emission control	Mid-term	<ul style="list-style-type: none"> <li>• Some customers are included in the EPA's carbon emission control list.</li> <li>• Our customers' revenue is impacted, leading to credit risk for banks.</li> </ul>
	Green energy policy is uncertain	Mid-term	<ul style="list-style-type: none"> <li>• It is unclear whether green energy is installed. Therefore, additional assessments were required, increasing operational cost.</li> <li>• The customers do not have clear investment needs. Therefore, suitable products cannot be provided.</li> </ul>
	Stricter laws in other countries	Mid-term	<ul style="list-style-type: none"> <li>• Stricter environmental laws have been implemented in China and the EU. The increase in customer investments and operational costs has increased Chang Hwa Bank's credit risks.</li> </ul>
Market	Consumers reduce demand for high-carbon products	Mid-term	<ul style="list-style-type: none"> <li>• The increase in energy conservation awareness among consumers has caused the demand for some products to decrease (e.g. fossil fuel vehicles).</li> <li>• The impact on customer profitability has increased Chang Hwa Bank's credit risks.</li> </ul>
	Fluctuations in oil prices has slowed energy transformations	Mid-term	<ul style="list-style-type: none"> <li>• Oil prices have fluctuated greatly in recent years, increasing uncertainty and lowering the budget customers were planning to invest in energy transformation.</li> <li>• Reduced customer need for loans.</li> </ul>
Reputation	Downgraded for poor ESG performance	Short-term	<ul style="list-style-type: none"> <li>• If the ESG performance of an investment target is poor in the international assessment of the corporate ESG performance in all aspects, it will affect the Chang Hwa Bank's profit and reputation.</li> </ul>
	Investment institutions reduce investment positions of Chang Hwa Bank	Short-term	<ul style="list-style-type: none"> <li>• If Chang Hwa Bank does not disclose or the ESG performance is poor, investment institutions will reduce their investment positions.</li> </ul>
	Investment impairment	Short-term	<ul style="list-style-type: none"> <li>• If the ESG performance of an investment target is poor in the international assessment of the corporate ESG performance in all aspects, foreign capital may withdraw.</li> </ul>

Figure 5. Climate Related Risk Matrix for Chang Hwa Bank



- A** Flooding causes losses on branches.
- B** Laws and regulations are tightened, impacting the investment willingness and the loan demand.
- C** Average temperature rises result in an increase of operating costs.
- D** Customers in industries with high carbon emissions are not easy to get high ratings in the ESG evaluation, resulting in withdrawal of foreign investment.
- E** Carbon emission control regulations impact customers' revenue and increase credit risk.
- F** Green energy policy is uncertain.
- G** Volatility of oil prices slow down the development of biofuels and reduce loan demand.
- H** Flooding causes loss of customers' assets and reduces the value of collateral.
- I** The introduction of Equator Principles raises the credit standards.
- J** Investment target does not meet ESG standards, leading to decrease in profit.
- K** Consumers reduce demand for high-carbon products, impacting customers' revenue and increasing credit risk.
- L** Investment institutions reduce investment positions.

Chang Hwa Bank identifies each risk event according to the results of the risk matrix. The Bank ranks the various risks as high risk, medium risk, and low risk, and identifies the top 5 risk events.

Table 2. Ranking of the Top 5 Climate Related Risks of Chang Hwa Bank

Risk Sequence	Risk Type	Risk Event	Risk Level	Control method
1	Physical	Flooding causes loss of customers' assets and reduces the value of collateral.	High	Control
2	Transition	Raising credit standard: Introduce Equator Principles.	High	Control
3	Transition	Carbon emission control regulations impact customers' revenue and increase credit risk.	High	Control
4	Transition	The investment target does not meet the ESG standards, leading to a decrease in profit.	High	Control
5	Physical	Flooding causes losses on branches.	High	Reduce/transfer

The climate risk matrix shows that the main risks arise from extreme climate, such as typhoons and flooding. The risks may cause the market price of collateral to fall. Once the price falls below the original valuation, it will create potential credit risk for Chang Hwa Bank. Therefore, Chang Hwa Bank included the potential for flooding of the areas where collateral is located in the credit considerations, to reduce the impact of physical risks on Chang Hwa Bank's operations.

Transition risks are mostly policy and legal risks. Some credit customers of Chang Hwa bank may be listed in the major carbon emitter companies list for the first carbon fee payment by the Environmental Protection Administration and pose credit risks. Therefore, the controlled companies will invest funds in carbon emission reductions or purchase carbon rights every year, which will increase the company's operating costs and even may cause investors to withdraw their investments, affecting the customer's ability to make loan payments. Therefore, Chang Hwa Bank has included the Equator Principles in the credit evaluation standards. When conducting related credit operations, we will support companies with good ESG performance.

**Table 3. Descriptions of the Financial Impacts of the Top 5 Climate Risks**

Risk Level	Type	Risk Event	Description of the Financial Impact
1	Physical	Flooding causes loss of customers' assets and reduces the value of collateral.	Chang Hwa Bank has conducted flooding risk analysis for the top 50 real-estate collaterals in terms of the valuation amount. Five places were identified as facing medium or above flooding risks. The financial impact (decline in real estate price) of every 1% increase to flooding probability was calculated.
2	Transition	Raising credit standards.	In response to climate change, Chang Hwa Bank reduced the credit limit for the sectors highly affected by climate, in 2020. As of April 2021, the industry limit and undertaking of sectors highly affected by climate of petroleum, chemicals, and related manufacturing industries, and logistics and warehousing were reduced by 1.33% and 0.83%, respectively, compared to the previous year.



Table 3. Descriptions of the Financial Impacts of the Top 5 Climate Risks

Risk Level	Type	Risk Event	Description of the Financial Impact
3	Transition	Carbon emission control regulations impact customers' revenue and increase credit risk.	<p>1. Risk identification: According to the list of companies to undergo the first greenhouse gas emissions survey released by the Environmental Protection Administration, 77 of the companies had credit accounts with Chang Hwa Bank, including companies in the power industry, steel industry, petrochemical industry, concrete industry, and electronics industry.</p> <p>2. Risk analysis: Although it is still uncertain when carbon fee payments will begin in Taiwan, Chang Hwa Bank has planned for 3 carbon fee scenarios according to international trends:</p> <p>(1) The Taiwan Greenhouse Gas Reduction and Management Act is plan to amendment to stipulate a carbon fee of NTD100/ton (approx. USD3).</p> <p>(2) The price of the Beijing carbon trading market is USD4.</p> <p>(3) The price of the EU carbon trading market is USD50. We have evaluated the carbon fees for the 77 credit customers accordingly. The fees are included in the model for evaluation. 8 of the credit customers reduced their internal credit rating when considering the EU price of USD50. However, it was not severe enough to be reduce from IFRS9 Stage 1 to Stage 2, as defined by Chang Hwa Bank. Therefore, it was determined that this has no impact on the customer's expected credit.</p> <p>The 8 companies with reduced internal credit ratings shall be reclassified as IFRS9 Stage 2, no matter the magnitude of the rating reduction. This will cause expected credit loss, accounting for 1.08% of overall expected credit loss for the Bank. (Based on December 2020).</p>
4	Transition	The investment target does not meet the ESG standards, leading to a decrease in profit.	Based on ESG investment principles, Chang Hwa Bank will suspend investments in corporate bonds of companies that have been punished. However, the company has actively invested in environmental protection and social sustainability in recent years, fulfilling their corporate social responsibilities. Therefore, we have resumed investments in the company.
5	Physical	Flooding causes losses on branches.	<p>Chang Hwa Bank conducted flooding risk analysis on all 185 bank locations in Taiwan. We have identified the regional and future (2081 to 2100) probability of flooding and simulated flooding depth in the most severe scenarios of RCP8.5 in the areas where the branches are located according to the NCDR flooding risk assessment results. Nine high flooding risk areas were identified.</p> <p>Financial impact evaluation formula: Monetary value of potential impacts on Chang Hwa Bank = Real estate price per unit area * magnitude of decrease * branch size. The real estate price per unit area uses the average real estate price in 2020. According to studies conducted by domestic researchers, with every 1% increase in flooding probability, real estate prices will decrease by 1.28% on average.</p>

Climate change does not only create risks, it also creates related business opportunities. In recent years, Chang Hwa Bank has continued to increase investments in sustainable development bonds and has supported the green energy industry policies introduced by the government. We have introduced several green loans, such as the "Solar Photovoltaic Equipment Installation Loan Project", expanding Chang Hwa Bank's business scope. We are promoting various online services and the digitization of transactions and actively implementing green procurements and green building planning, in order to effectively reduce operating costs. The results and benefits of climate related opportunities are as shown in the following table:

**Table 4. Climate Related Opportunities and Corresponding Impacts**

Type of Opportunity	Opportunity Event	Time frame	Impact on the operations of Chang Hwa Bank	Description of the Financial Impact
Products and services	Promotion of green loan products	Short-term	<ul style="list-style-type: none"> <li>• Raise the funds needed by corporations entering green energy related industries.</li> <li>• The Bank has launched a number of green loan products, such as the "Solar Photovoltaic Equipment Installation Loan Project".</li> </ul>	We have introduced the "Solar Photovoltaic Equipment Installation Loan Project", "Taoyuan City Green Energy Industry Loan Project", "Machine and Equipment Upgrade Loan", "Low-carbon Sustainable Project Loan", and "Offshore Wind Power Loan" to support the government's green energy industry policies. In 2020, a total of 131 new loans were added.
Market	Invest in sustainable development bonds	Mid-term	<ul style="list-style-type: none"> <li>• We continue to increase investments in green bonds, sustainable bonds, and social bonds, in order to promote and encourage corporate sustainability related actions.</li> </ul>	In 2019, the investments in sustainable development bonds totaled NT\$300 million. In 2020, investments in green bonds and sustainable bonds were NT\$3.7 billion and NT\$1.1 billion, respectively, totaling NT\$4.8 billion. As of September 8, 2021, investments in green bonds and social responsibility bonds were NT\$3.1 billion and NT\$1.2 billion, respectively, totaling NT \$4.3 billion.
Resource efficiency	Digital finance	Mid-term	<ul style="list-style-type: none"> <li>• We promote all kinds of online services and electronic transactions.</li> <li>• We reduce administrative costs at locations, achieve paperless, and effectively reduce operating costs.</li> </ul>	We promote the digitization of transactions and provide customers with various online transactions and information. We are actively developing Bank 3.0 online operations and online loan services to achieve the benefits of paperless operations.



Table 4. Climate Related Opportunities and Corresponding Impacts

Type of Opportunity	Opportunity	Time frame	Impact on the operations of Chang Hwa Bank	Description of the Financial Impact
Resource efficiency	Green procurement	Short-term	<ul style="list-style-type: none"> <li>We prioritize the purchasing of products certified with environmental protection and energy-efficient labels to reduce operating costs effectively.</li> </ul>	Chang Hwa Bank began implementing green procurements in 2017. The green products purchased include LED lights and energy saving air conditioning units. The replacement of lights and air conditioning in 2020 has reduced energy usage by 400 thousand kWh and reduced greenhouse gas emissions by 200 tons.
Resource efficiency	Green Buildings	Mid-term	<ul style="list-style-type: none"> <li>The designs, materials and equipment of green buildings can effectively improve energy usage efficiency and reduce carbon emissions and operating costs.</li> <li>Application for green buildings is expected to increase the rewarded floor area by 6%.</li> </ul>	Because during the planning stage for green buildings, there is no confirmed volume or floor area of the buildings, the financial benefits are estimated using only the expected energy-saving and carbon reduction benefits. By using the Chiencheng building as an example, the air conditioning and lighting in green buildings is expected to reduce carbon emissions by 27% and energy usage by 800 thousand kWh compared to the base case.
Market	CSR	Short-term	<ul style="list-style-type: none"> <li>We actively disclose carbon management information and compile the corporate social responsibility report. We actively participate in the promotion of the FSC Corporate Governance 3.0 - Sustainable Development Blueprint to improve our image and investor recognition.</li> </ul>	Chang Hwa Bank prepares the CSR report to actively disclose climate change issues and carbon emission management, in order to highlight sustainable development as part of brand value.

The promotion of green loans is the a favorable climate related opportunity for Chang Hwa Bank. Apart from participation in many large-scale green energy joint loans, Chang Hwa Bank has introduced green energy and technology industry loans, renewable energy generation industry loans, wind power industry loans, and low-carbon sustainable project loans in response to the green energy industry policies of the government.

## 2. Impacts of climate related risks and opportunities on operations, strategies, and financial planning

Chang Hwa Bank has identified the impacts of climate related risks and opportunities on the various aspects of the company (products and services, supply chain and/or value chain, R&D investments, and operations) (Table 5). The descriptions include the company policies and credit mechanisms for climate related issues and the specific impacts of climate related risks and opportunities on Chang Hwa Bank's financial planning are listed in Table 6.

**Table 5. Impact of Climate Change on Operational Strategies**

Business area	Description of impact
Products and services	<p>The operating strategies stipulated by Chang Hwa Bank according to risks and opportunities are as follows:</p> <ol style="list-style-type: none"> <li>1. Incorporate the spirit of Equator Principles in the credit standard We stipulated the "Operating Procedures for Loans". The Equator Principles are applicable to all corporate credit. According the Chang Hwa Bank corporate credit warning system and operating rules, whether the customer has violated the equator principles in the most recent year will be used as an indicator for credit.</li> <li>2. Promote green loans For the green energy technology industry and the green industries based on the classification of the "Green Enterprise Project Loan", the credit limit ratio was increased by 1% for 12 green industries, and the amount committed was increased to increase the undertaking rate. Apart from expanding the credit ratio for green loans, the credit risks of related climate change impacts shall be dispersed.</li> <li>3. Expected to expand the scope of high carbon emission industries According to the high carbon emission industries defined by SASB, the customer credit conditions will be adjusted based on the possible payment of different carbon fees for mid to long-term credit customers with total credit amount over NT\$ 200 million (inclusive) and who have been defined as major carbon emitters or power users.</li> <li>4. Regular reviews and reporting of real-estate collaterals Considering that climate change may lead to a decrease in the value of or damage to collateral, Chang Hwa Bank discloses the balance of loans and the overdue situation according to the division of the Taiwan administrative region according to the real estate collateral location each month, and reports the matters to the Risk Management Committee.</li> </ol>
Supply chain and/or value chain	<ul style="list-style-type: none"> <li>● Chang Hwa Bank has stipulated the "Corporate Social Responsibility Standards of the Supplier", which requires suppliers with single transactions exceeding NT\$1 million to sign the "Undertaking to Commit to Social Responsibility by the Supplier", in order to ensure compliance with labor rights and human rights, environmental protection, and ethical management.</li> <li>● In 2020, 76 companies signed the "Undertaking to Commit to Social Responsibility by the Supplier" and filled out the "Supplier Corporate Social Responsibility Self Assessment Form". Substantive transitions can only be carried out after no legal violations were found after review.</li> <li>● Chang Hwa Bank periodically visits suppliers with single transactions exceeding NT\$30 million and fills out the "Supplier Visit Report" according to the visits, in order to confirm the supplier's fulfillment of its corporate social responsibilities.</li> </ul>

Table 5. Impact of Climate Change on Operational Strategies

Business area	Description of impact
Adaptation and mitigation activities	<p>The climate change adaptation and mitigation activities of Chang Hwa Bank are as follows:</p> <ul style="list-style-type: none"> <li>● High carbon emission industry reviews are conducted during the credit process. The customer credit conditions will be adjusted based on the possible payment of different carbon fees for mid to long-term credit customers with total credit amount over NT\$ 200 million (inclusive) and who have been defined as major carbon emitters or power users.</li> <li>● Old lighting and air conditioning equipment are replaced to increase energy usage efficiency and reduce carbon dioxide emissions.</li> <li>● Capital expenditures are conducted each year to improve the natural disaster tolerance and adaptability of important operating locations. The adopted measures include:               <ol style="list-style-type: none"> <li>(1) Purchase of disaster prevention equipment (installation of flood gates, uninterrupted power supply systems, and generators).</li> <li>(2) Insurance for assets.</li> <li>(3) Maintenance and repair of the premises.</li> <li>(4) Dedicated personnel to conduct environmental reviews before the raining season. The environmental reviews include inspections of the surrounding drainage and the flood gates on rooftops or the adequacy of sandbags. The motor pump shall be inspected each year.</li> </ol> </li> </ul>
R&D investments	<p>Chang Hwa Bank continues to promote digital finance and paperless operations. We are actively developing "Bank 3.0" online operations to promote a low carbon economy. We continue to invest in the research and development of products and services.</p> <ul style="list-style-type: none"> <li>● We plan to establish a "Next Generation Omni-media Customer Service System" which introduces an Omni-Channel management platform. The services include phone, internet, mobile app, and social media customer service functions, effectively reducing labor and operating costs.</li> <li>● An official LINE account was created to guide users through opening digital savings accounts and attract young customers who use mobile devices.</li> <li>● The AI system provides customers with 24-hour chat services online through the official website, online bank, and mobile app.</li> </ul>
Operations	<ul style="list-style-type: none"> <li>● All corporate credit applications shall be reviewed for environmental protection violations and the violations shall be disclosed. If the violation was punished by the competent authority, apart from asking the customer to conduct impact assessments and provide an improvement plan, Chang Hwa Bank shall immediately implement the review and assessment procedures to assess the impact on management, environmental protection, and social responsibilities. The credit conditions will be readjusted to fulfill our social responsibilities and protect environmental sustainability, in order to implement the Equator Principles.</li> <li>● Expected to expand the scope of high carbon emission industries: In response to the potential investment losses caused by climate related risks, apart from considering financial performance, Chang Hwa Bank shall consider the climate risk response and ESG performance of the investment target during the investigation and analysis stages of the investment target selection process.</li> <li>● Promote the digitization of transactions: We are actively developing "Bank 3.0" online services to provide customers with convenient digital services and improve energy conservation and carbon reduction benefits.</li> </ul>

Table 6. Impact of Climate Change on Financial Planning

Financial type	Description of impact
Revenue	<p>Chang Hwa Bank continues to develop products and services in order to fulfill our corporate responsibilities and respond to climate related issues. We provide green energy loans to not only encourage companies to participate in green manufacturing and services, but also contribute to the revenue of the Bank. The results in 2020 are as follows:</p> <ol style="list-style-type: none"> <li>1. The total amount issued for "Solar Photovoltaic Equipment Installation Loan Project" increased by NT\$370 million compared to 2019.</li> <li>2. The total amount issued for "Low-carbon Sustainable Project Loan" increased by NT\$80 million.</li> <li>3. The total amount issued for "Machine and Equipment Upgrade Loan" increased by NT\$30 million.</li> <li>4. Loans to the renewable energy generation industry totaled NT\$3,017 million.</li> </ol>
Assets Capital allocation	<p>In response to the potential investment losses caused by climate related risks, apart from considering financial performance, Chang Hwa Bank shall consider the climate risk response and ESG performance of the investment target during the investigation and analysis stages of the investment target selection process.</p> <p>For investment targets classified by SASB as in high carbon emission industries and as mid to long-term credit customers with total credit amounts exceeding NT\$200 million (inclusive), the customers are required to explain whether it has been defined as a high carbon emission or high power usage company. The internal ratings of the customer will be adjusted according to the different carbon fees. For credit customers with a lowered risk rating, the probability of default (PD) is expected to increase, thereby affecting the expected loss. Chang Hwa Bank hopes to use this process to help promote sustainable social developments and pursue long-term and stable profits.</p>
Capital Expenditure	<p>In order to reduce carbon emissions created by our own operations, Chang Hwa Bank Peimen Branch will comply with the urban renewal project of the Taipei City Government in 2023 and obtain the silver-level of the EEWH. Compared to the capital expenditure required for the construction of normal commercial buildings, the need to comply with the high standards of green buildings has increased the capital expenditure for Chang Hwa Bank.</p> <p>At the same time, in order to avoid damages caused by long-term natural disasters, Chang Hwa Bank implements capital expenditures to improve the tolerance and adaptability of important operating locations against natural disasters.</p> <p>The adopted measures include:</p> <ol style="list-style-type: none"> <li>1. Purchase of disaster prevention equipment (installation of flood gates, uninterrupted power supply systems, and generators).</li> <li>2. Insurance for assets.</li> <li>3. Maintenance and repair of the premises.</li> <li>4. Dedicated personnel to conduct environmental reviews before the raining season. The environmental reviews include inspections of the surrounding drainage and the flood gates on rooftops or the adequacy of sandbags. The motor pump shall be inspected each year.</li> </ol>

### 3. The strategic resilience of the organization against different climate related scenarios

Chang Hwa Bank adopts RCP 8.5 and IEA Stated Policies Scenario (STEPS) to review the potential physical and transition risks. The descriptions of the scenarios, risk identification results, and adopted measures are shown in the table below:

**Table 7. Climate Scenario Adopted by Chang Hwa Bank**

Scenario type	Description
RCP 8.5	<p>Chang Hwa Bank refers to the research conducted by the Taiwan National Science and Technology Center for Disaster Reduction (NCDR) when implementing climate scenario assessments. The NCDR is a national level research institute in Taiwan that compiles domestic resources and data to conduct climate change research. The global atmospheric circulation model created by the Meteorological Research Institute, Atmosphere General Circulation Model, MRI-AGCM, simulates the RCP8.5 scenario information in the AR5 report published by IPCC in 2014. It highlights the diverse geographical features of Taiwan (furthest distance from east to west is 143km, maximum height difference of geographical features is 4,000m. With the varying heights of features, erosion from rivers is abundant, creating different landscapes and micro-climates). The resolution is increased through dynamical downscaling and the grid dimensions can reach 5km*5km. It can provide highly accurate predictions of the environment in Taiwan and specifically evaluate the probability of flooding and simulate the depth of flooding.</p> <p>Chang Hwa Bank has adopted the NCDR predictions and used the most severe scenario, RCP8.5, to understand the probability of flooding and simulated depth of flooding in the areas containing the 185 bank branches in the future (2081 to 2100), in order to assess the flooding risk. A total of 9 branches were identified as having high flooding risk. In response to this, the Bank has planned various flooding prevention measures, such as the installation of flood gates and procurement of water pumps, in order to prevent asset losses caused by flooding.</p> <p>In 2020, 70% of Chang Hwa Bank's net income came from interest. The source of deposits and the changes in interest rates are relatively important for net income. Therefore, Chang Hwa Bank has placed importance on the impact of climate change issues on credit customers. In general, collateral placed by credit customers are real estate properties. Chang Hwa Bank adopted the same procedure to assess the level of flooding risk in the future (2081 to 2100) for the areas where collateral is located. We are assessing the possible decrease in real estate prices in these areas when flooding occurs, which may lead to the market price of the collateral falling below the original valuation. Starting in 2020, Chang Hwa Bank began assessing the flooding risk of the areas where the top 50 real estate collaterals are located according to their valuation. 5 properties were identified as having moderate or above risk and will be included in the observation list. The credit customers are contacted to inquire if flood preparations have been made in order to improve the resilience of the collateral and reduce the impact of flooding. In order to prevent the potential risks, the possibility of flooding the area where the collateral is situated must be included in the collateral assessment.</p>

Table 7. Climate Scenario Adopted by Chang Hwa Bank

Scenario type	Description
IEA Stated Policies Scenario (STEPS)	<p>The transition risks of Chang Hwa Bank are based on the 2019 IEA Stated Policies Scenario (STEPS). The scenario covers current policy intentions and objectives. The purpose is to reflect the plans of the current policy makers and clarify the results. In the scenario, energy requirements will increase by 1% annually until 2040. In 2040, over half of the energy supply in the world will come from low carbon energies, which will mainly be composed of solar energy. The percentage of solar energy will exceed 50% and natural gas will account for 35%. The growth in oil supplies will cease by 2030.</p> <p>As of the end of 2020, the credit balance of Chang Hwa Bank is mainly composed of logistics and warehousing (9.33%), industrial product wholesaling (8.17%), and real estate developments (7.66%). In terms of the manufacturing industries, the top 5 constituents of the credit balance are electronic parts manufacturing, metal manufacturing, basic metal manufacturing, petroleum, chemical and related product manufacturing, logistic tools and parts manufacturing. The first four industries are classified as high greenhouse gas emissions industries or major power users. Therefore, it is clear that IEA Stated Policies Scenario will affect the aforementioned asset credit risks. This is explained below:</p> <p>Regarding local management, starting in 2015, the Taiwan Environmental Protection Administration has announced the gradual inclusion of companies in the first list of companies to be surveyed for greenhouse gas emissions, with the possibility of imposing carbon taxes in the future. Currently, 77 credit customers have been included in the Taiwan EPA list, accounting for 3.19% of Chang Hwa Bank's issued loans. In the future, when Taiwan implements emission trading, the companies on the list are likely to become the first targets for restrictions. Chang Hwa Bank has assessed the loans of the customers on the aforementioned list and will further evaluate the impact on the Bank. Furthermore, Taiwan amended the "Renewable Energy Development Act" in 2019. Starting in 2021, companies with a contracted usage of more than 5,000 KW will be deemed as major power users. These companies are now required to use renewable energies for 10% of their contracted usage, purchase green energy certificates (T-REC) to cover the requirement, or use other higher cost alternatives. If the amount required by law and the price of NT\$4.06 per kWh is used for calculations, renewable energy obligations will equal 133% of the current industrial electricity price of NT\$3. Both of the above will increase the financial burden of corporations, increase the credit risk of discounting, lending and investment in corporate debt instruments.</p> <p>In 2020, interest accounted for 70% of Chang Hwa Bank's net income. Therefore, Chang Hwa Bank is concerned with the effects of climate change on credit customers. Chang Hwa Bank reviews and inspects the credit limit table for different industries every year. The TCFD framework and physical and transition risk analyses are introduced and implemented after approval from the Board of Directors. Chang Hwa Bank referenced the government startup industry - green technology industry and green industries based on the classification of Chang Hwa Bank's "Green Enterprise Project Loan" to pass the credit limit increase of 1% for 12 green industries. The increase commitment amount increases the undertaking rate.</p> <p>Furthermore, in response to the voluntary reduction cooperation mechanism for climate change, the limit was reduced by 2% for 4 high energy consumption industries. The categories defined in the rules will be gradually expanded according to the SASB disclosures of high energy consumption industries related to climate risks.</p>

### (III.) Risk Management

#### 1. The identification and assessment procedures for climate related risks of the organization

Chang Hwa Bank referred to the Traditional Chinese version of the TCFD report to compile the climate related risk items of the major banks in domestic and international for reference. We have compiled multiple climate change risks and opportunities related to the banking industry and designed surveys that are issued to various units to assess the existence of climate related risks. The climate change risks and traditional banking risks assessed by Chang Hwa Bank are as shown in the following table:

**Table 8. Connection Between Climate Change Risks and Traditional Risks**

Traditional risks	Description
Credit Risks	Chang Hwa Bank observed that physical risks will affect the value of real estate or equipment asset collateral of credit customers and cause their credit ratings to decrease. Transition risks will create the possibility of financial and revenue decreases for specific industries in the future. Although the assessment concluded that the impacts may cause credit ratings to decrease, the credit rating level will not change, which will limit the impacts.
Market Risks Liquidity risk	Chang Hwa Bank has encountered the possibility that the ESG bonds of a particular company will reduce the price of bond commodities and their liquidity due to climate-related risks or their related management, and there will be similar risks when extended to certain securities products.
Operational risks	Regarding the natural disasters caused by climate change, Chang Hwa Bank will implement a reporting system according to the "Chang Hwa Bank Emergency Reporting Operation Guidelines" and adopt related response measures, in order to reduce the impact of physical risks on daily operations and procedures.



## 2. Management procedures and actions for climate related risks

The management procedures adopted by Chang Hwa Bank for the top 5 climate related risks are as follows:

**Table 9. Management Procedures for the Top 5 Climate Risks**

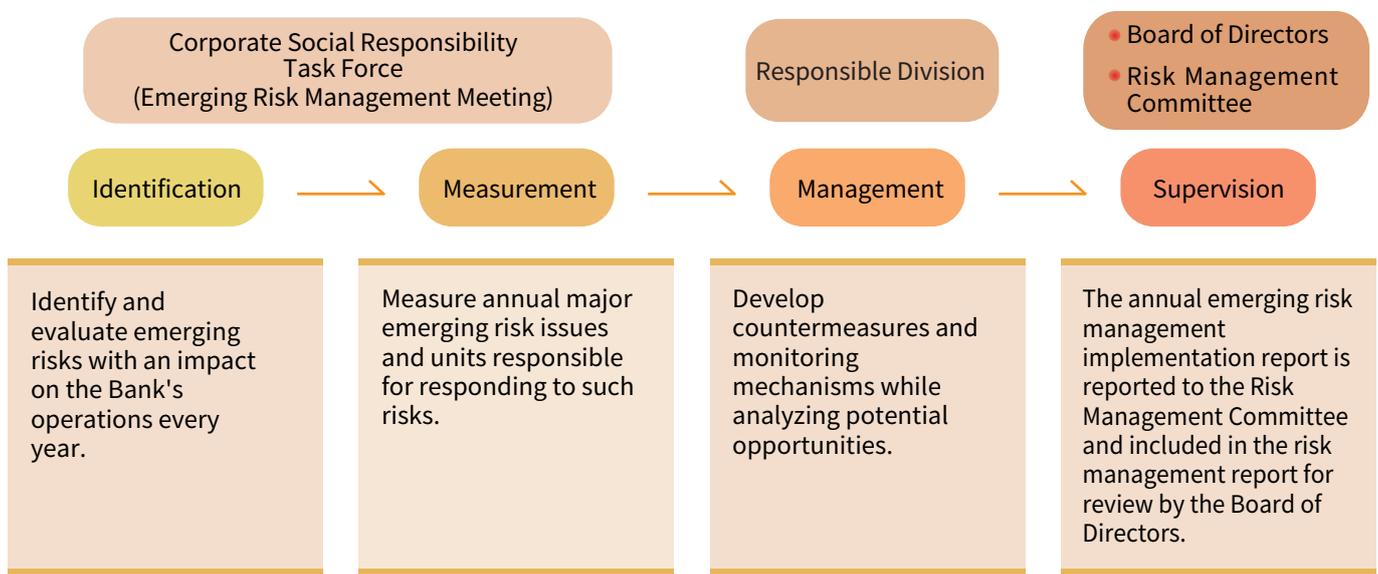
Risk Event	Management actions
Flooding causes loss of customers' assets and reduces the value of collateral	The accelerated maturity clause in the Letter of Credit indicates that the value of the collateral is insufficient to cover the debt.
Raising credit standard: Introduce Equator Principles	Regarding the undertaking limits Chang Hwa Bank has imposed on industries highly affected by the climate, the limits for the petroleum, chemical, and related products industry and the logistics and warehousing industry have been reduced by 1.33% and 0.83%, respectively, compared to 2020.
Carbon emission control regulations impact customers' revenue and increase credit risk	The carbon fees required for 77 companies have been assessed according to the three types of planned carbon fees around the world (NTD100, USD4, and USD50). The assessment results show no significant losses.
The investment target does not meet the ESG standards, leading to a decrease in profit	Based on ESG investment principles, Chang Hwa Bank will suspend investments in corporate bonds of companies that have been punished. However, the company has actively invested in environmental protection and social sustainability in recent years, fulfilling their corporate social responsibilities. Therefore, we have resumed investments in the company.
Flooding causes losses on branches	Adopted measures include: <ol style="list-style-type: none"> <li>1. Improve the installation of flood gates, uninterrupted power supply systems, and other disaster prevention equipment.</li> <li>2. Asset insurance.</li> <li>3. Building maintenance and repair.</li> <li>4. Designated personnel to conduct building inspections before raining seasons. The motor pump shall be inspected every year.</li> </ol>



### 3. Integration of the overall risk management system of the organization

Chang Hwa Bank has established emerging risk management mechanisms. It can effectively fulfill risk governance and promote the diverse transformation of financial services through the four frameworks of "Identification, Measurement, Management, and Supervision".

Figure 6. Emerging Risk Management Mechanism for Chang Hwa Bank



Chang Hwa Bank has included climate related risks in the existing emerging risk management system. The potential losses caused by climate risks are identified and assessed each year and the emerging risk management status is reported to the Risk Management Committee. The results are included in the risk management report and submitted to the Board of Directors, in order to implement comprehensive management.



## (IV.) Metrics and Targets

### 1. The metrics used in the strategy and risk management procedures of the organization for assessing climate related risks and opportunities

Chang Hwa Bank uses carbon emission and water usage levels as management metrics. The target for carbon reductions is an annual carbon emission reduction of 30,000 to 60,000 kgCO<sub>2</sub>. Carbon emissions in 2030 will be reduced by 10% compared to 2020. The target for water usage and waste reductions is an annual decrease of 1%, and the addition of green procurement and renewable energy certificates. Furthermore, in order to achieve the goal of a sustainable environment, Chang Hwa Bank implements various energy conservation and carbon reduction actions and regularly reviews environmental protection issues. We will continue to promote improvement measures in order to achieve our greenhouse gas reduction goals.

**Table 10.** Climate Related Metrics, Targets, Implementation Performance, and Management Measures

Metrics items	Target	2020 Target performance	Descriptions of corresponding management measures
GHG Emissions	Annual carbon emission reduction of 30,000 to 60,000 kgCO <sub>2</sub> . Carbon emissions in 2030 will be reduced by 10% compared to 2020	The target was revised in 2020. The performance of the target will be surveyed at the end of 2021.	The greenhouse gas emissions are survey regularly every year and the goal attainment status is reviewed. Rolling revisions are made to carbon reduction actions.
Water	Annual reduction of 1% (scope: the head office in Taipei)	A reduction of 6.35% in the head office in Taipei in 2020 compared to 2019.	Monthly follow ups and water conservation signage to remind employees to conserve water.
Waste Disposal	Annual reduction of 1% (scope: the head office in Taipei)	A reduction of 0.19% in the head office in Taipei in 2020 compared to 2019.	Monthly follow ups and garbage classification signage to remind employees to recycle waste.

## 2. Greenhouse gas emissions and related risks

Chang Hwa Bank has continuously implemented greenhouse gas inventories for many years and has passed ISO 14064-1 external certification. The energy conservation and carbon reduction effects are confirmed using the changes in greenhouse gas emissions over the past years. The inventory and verification scope has been expanded to Scope 3 in 2020, in order to actively find reduction opportunities in the scope.

Figure 7. Greenhouse Gas Emissions of Chang Hwa Bank from 2017 to 2020

Items	2020	2019	2018	2017
Scope 1 Emissions (t-CO <sub>2</sub> e) (Note 1)	2,231.307	1,896.699	1,717.69	1,999.7486
Scope 2 Emissions (t-CO <sub>2</sub> e) (Note 2)	14,926.995	15,683.359	15,621.01	15,257.4040
Total Carbon Emissions (Scope 1 + Scope 2)	17,158.302	17,580.058	17,338.70	17,257.153
Scope 3 Emissions (t-CO <sub>2</sub> e) (Notes 3 and 4)	13,023.129	11,742.129	3,335.21	-

Note 1: Scope 1 emissions are mainly emissions from the combustion of official vehicles, diesel generators, gas, natural gas, etc., as well as fugitive emissions from greenhouse gas fire extinguishing agents, refrigerant filling equipment, and septic tanks.

Note 2: Scope 2 emissions are emissions from purchased electricity.

Note 3: In 2018, Scope 3 is based on the fuel and energy-related activity data multiplied by the life-cycle emission factor announced by the Environmental Protection Administration, less the emission factor from combustion.

Note 4: According to the classification of the new version of ISO 14064-1: 2018, scope 1 corresponds to category 1, scope 2 corresponds to the category 2, and scope 3 corresponds to categories 3 to 6.

Note 5: The selection of the emission factor is based on the GHG Emission Factor Table published by the Environmental Protection Administration, Executive Yuan (Version 6.0.4). The GWP value used is based on the 5th IPCC Assessment Report.

Moreover, Chang Hwa Bank's investment portfolio carbon emissions (Scope 3 Category 15) is Scope 3 emissions of Chang Hwa Bank loans = publicly announced Scope 1 and Scope 2 emission data of loan customers \* proportion of the loan applied for by the customer from Chang Hwa Bank compared to total customer loans. Chang Hwa Bank has learned of the Scope 1 and Scope 2 emissions of the top 10 loan customers, among which, 9 customers have publicly disclosed Scope 1 and Scope 2 information. The Chang Hwa Bank's disclosure scope for the current year is based on this information. The 9 loan customers are separated into the following industries. 4 companies are in transportation, 1 is in consumer services, 1 is in optoelectronics, 1 is in electronic parts distribution, and 2 are in technological hardware and equipment. The loans issued to the 9 aforementioned companies account for 4.82% of total loans issued by Chang Hwa Bank. The total emissions attributed to Chang Hwa Bank are 3,042,182.97 t-CO<sub>2</sub>e.

For the environment, Chang Hwa Bank continues to promote energy saving solutions and daily management. We aim to implement Chang Hwa Bank's energy policies of "Continuously improving energy performance and maximizing the value of energy", "Observing energy management regulations and promoting energy conservation concepts", "Supporting the procurement of energy-saving products and building an energy-saving environment", and "Continuously investing necessary resources and achieving the goals and indicators", in order to do our part for environmental protection. The adopted action plans are shown in the following table:

**Table 11. Energy and Resource Improvement Measures Continuously Promoted by Chang Hwa Bank**

Items	Description
Electricity	<ul style="list-style-type: none"> <li>● Replace old lighting with LED lights and lighting usage management.</li> <li>● Replace old air conditioning equipment and regularly clean and maintain the equipment</li> <li>● Indoor temperatures are kept between 26 to 28 degrees, reducing the load on air conditioning.</li> </ul>
Water	<ul style="list-style-type: none"> <li>● Include water usage in management to improve water management efficiency Install.</li> <li>● water saving devices in all locations and fully regulate the flow of faucets.</li> <li>● Regularly clean the water towers of buildings and conduct water quality tests.</li> </ul>
Renewable Energy	Assess and purchase renewable energy certificates according to business needs and market conditions (222 thousand kWh of renewable energy certificates were purchased between 2018 and 2020).
Green Buildings	Promote Chang Hwa Bank to obtain the "EEWH Labels" for Peimen Branch, Chengtung Branch, the dormitory in Tianjin Street, and the constructing new Chiencheng building, which are built by participating in urban renewable projects.

### 3. The management targets of climate related risks and opportunities, and the attainment of the targets

Chang Hwa Bank has stipulated metrics according to our own climate related risks and opportunities and has set specific targets to review the implementation of the metrics. The related information is shown in the table below:

**Table 12. Climate Related Metrics, Targets, and Implementation Performance**

Items	Target	Description
Green loans	Actively respond to government policies and develop related products and services.	Implemented the "Solar Photovoltaic Equipment Installation Loan Project", "Low-carbon Sustainable Project Loan", and "Machine and Equipment Upgrade Loan".
Credit limit ratio	The credit and investment limits are reviewed regularly each year. The goal is to gradually reduce the limit percentage of high carbon emission industries.	<ol style="list-style-type: none"> <li>1. The Board of Directors passed the "Chang Hwa Bank Industry Credit and Investment Limit Management Guidelines" in January 2021.</li> <li>2. Increase the credit limit for green energy technology and green industries by 1%.</li> <li>3. Reduce the credit and investment limits for high energy consumption industries by 2%.</li> </ol>
Green Buildings	Promote Chang Hwa Bank's participation in urban renewal projects and attain the "EEWH Labels" for new buildings or housing.	The ongoing construction projects of Chang Hwa Bank include Chiencheng Building, Peimen Branch, Chengtung Branch, and the dormitory in the Tianjin Street. The planning of green buildings is aimed at achieving silver level or above.

## Items from the TCFD supplemental guidelines for the banking industry

### (I.) Strategy

#### 1. Describe the short, mid, and long-term climate related risks and opportunities identified by the organization

Chang Hwa Bank currently includes loans as an evaluation item for Scope 3. As a funds provider, Chang Hwa Bank shall evaluate the external impacts on loan customers. Chang Hwa Bank has learned of the Scope 1 and Scope 2 emissions of the top 10 loan customers, among which, 9 customers have publicly disclosed Scope 1 and Scope 2 information, as shown in Table 13. The Chang Hwa Bank's disclosure scope for the current year is based on this information. The 9 loan customers of Chang Hwa Bank account for 4.82% of total loans, which creates credit risks for Chang Hwa Bank.

**Table 13. Climate Related Credit Risks Identified by Chang Hwa Bank**

Calculation method	Industry type	Credit risk amount	
The proportion of long-term loans lent by Chang Hwa Bank to loan customers as a percentage of all long-term loans to loan customers, multiplied by the total emissions of the loan customers themselves, is equivalent to recognizing the emissions that Chang Hwa Bank should amortize by using the calculation method based on the proportion of the amount.	Transportation (4 companies)	The total Scope 1 and Scope 2 emissions	Loans applied for from Chang Hwa Bank of total customer loans
		334.8k tonCO <sub>2</sub>	9.33%
		6,130.5k tonCO <sub>2</sub>	13.20%
		5,931.4k tonCO <sub>2</sub>	8.25%
	Consumer services (1 company)	5,477.5k tonCO <sub>2</sub>	10.10%
		26.4k tonCO <sub>2</sub>	14.90%
	Opto-electronics (1 company)	3,140.0k tonCO <sub>2</sub>	4.47%
		Electronic parts distribution (1 company)	3,773.1k tonCO <sub>2</sub>
	Technological hardware and equipment (2 companies)	624.5k tonCO <sub>2</sub>	2.62%
		431.6k tonCO <sub>2</sub>	3.66%



## (II.) Risk Management

### 1. Describes the identification and assessment procedures for climate related risks

The risk management structure adopted by Chang Hwa Bank is based on Basel II and the FSC three lines defense best practice principles for internal controls of banks. We have established a complete risk management system and included emerging risks as a risk category for consideration. In recent years, climate risks have been listed as the primary risk for observation.

The climate related risk identification and assessment procedure of Chang Hwa Bank considers the connection between traditional banking risks and climate related risks, especially for credit risks. We evaluate the real estate collateral (physical risks) of customers and industry carbon emission risks. We also include the market risks of the customer's industry. We assess the financial expenditures of customers caused by extra costs due to market risks, and the customer's credit rating is based on the assessment. We hope to completely include climate related risks in Chang Hwa Bank's risk management practices.

#### (1) Physical risk identification and assessment

Chang Hwa Bank bases our climate scenario assessment on the research conducted by the Taiwan National Science and Technology Center for Disaster Reduction (NCDR). We simulated the IPCC in the RCP8.5 estimated scenario information of the AR5 report published in 2014 to understand the probability of flooding and simulated depth of flooding between 2081 to 2100, in order to evaluate the level of flooding risk for real estate collaterals or investment targets. The results are used to adjust the customer's credit risk and rating accordingly.

Chang Hwa Bank is aware that once flooding occurs, the real estate prices in the area where the collateral is located may decrease, leading to the market price of the collateral being lower than the originally valuated amount. Starting in 2020, Chang Hwa Bank began to review the flooding risks of the top 50 real estate collaterals in terms of their valuation. Credit customers are asked if flooding preparations have been made in order to increase resilience and minimize the impact of flooding. In order to prevent the potential risks, the possibility of flooding the area where the collateral is situated must be included in the collateral assessment.

#### (2) Transition risk identification and assessment

In response to the potential investment losses caused by climate related risks, apart from considering financial performance, Chang Hwa Bank shall consider the climate risk response and ESG performance of the investment target during the investigation and analysis stages of the investment target selection process, in order to assess the sensitivity of the industry's market to climate related issues. The financial impacts on the investment targets are also assessed to adjust their credit risks and ratings. Planned investment targets that are in high carbon emission industries as defined by SASB are as shown in the following table:



Table 14. High Emission Industry Categories of Chang Hwa Bank

SASB categories	Chang Hwa Bank categories
Metals & Mining	Agriculture, Forestry, Fisheries and Animal Husbandry, and Mining and Quarrying
Oil & Gas – Exploration & Production	Petroleum
Chemicals	Chemicals and Chemical Product Manufacturing
Construction Materials	Non-metallic Mineral Products Manufacturing
Iron & Steel Producers	Basic Metal Manufacturing
Electric Utilities & Power Generators	Electricity and Gas Supply
Airlines	Logistics and Warehousing

As mid to long-term credit customers with total credit amounts exceeding NT\$200 million (inclusive), the customers are required to explain whether it has been defined as a high carbon emission or high power usage company. The internal ratings of the customer will be adjusted according to the different carbon fees. For credit customers with a lowered risk rating, the probability of default (PD) is expected to increase, thereby affecting the expected loss. The aforementioned scenario analysis results will be reported to the Risk Management Committee for review.



### (III.) Metrics and Targets

#### 1. Disclose the metrics used by the organization to assess climate related risks and opportunities

Chang Hwa Bank introduced three carbon fee scenarios in the model and calculations for the credit customers listed in the first controlled list of the Environmental Protection Administration. There are 77 customers of Chang Hwa Bank affected by the carbon fees, among which, credit ratings have been lowered for 8 of the companies due to the USD50 carbon fees in the EU carbon trading market. They accounted for 0.05% of all OBU and overseas credit account ratings (17,621 cases). However, because the credit customers were not moved from IFRS9 Stage 1 to Stage 2 as defined by Chang Hwa Bank, it does not affect the expected credit loss of the customer. Chang Hwa bank then evaluated the increase credit loss of the 8 credit customers if they were listed as Stage 2, no matter the magnitude of the rating decrease. The affected percentage is 1.08%.

Chang Hwa Bank has conducted risk and opportunity assessments according to the TCFD framework. The potential transition risks, physical risks, and opportunities of the Bank have been analyzed and assessed. The results have been included in the current management system. The Risk Management Division discloses credit balances for 29 industries each month and reports to the Risk Management Committee. The industry limit percentages are regularly reviewed each year. Chang Hwa Bank referenced the government startup industry - green technology industry and industries related to the Green Enterprise Project Loans. 12 green industries were identified from the 29 types of industries. In order to fulfill corporate social responsibilities and reduce the funding pressure for green industries, the credit limit for green industries has been increased by 1% to increase undertaking rates. The increase has been passed by the Board of Directors in January 2021.

## Future outlook

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Chang Hwa Bank complies with the TCFD framework to conduct climate change risk and opportunity assessments, in order to understand the impact of climate change risks on the Bank. With the uncertainties of climate change, Chang Hwa Bank uses TCFD to conduct initial assessments of climate change issues, both in terms of the time of occurrence or the scale. In the future, we will continue to collect information related to climate change from domestic and international. We will review its relevance to our operational developments and business promotion and update our climate risk matrix, in order to identify possible opportunities.

Chang Hwa Bank also become an official supporter of TCFD in July 2021. We hope to use the signing of the initiative to improve the focus on climate related risks in all departments. We will review the related metrics regularly each year and actively stipulate short, mid, and long-term targets. Together with the implementation of strategies and risk management procedures, we will regularly review the potential climate risks of investment and financing activities, in order to prevent the climate risks from manifesting. Furthermore, Chang Hwa Bank has planned to sign the Equator Principles in 2022 and implement the ideas in project financing reviews. We aim to establish carbon reduction goals and mitigation measures with customers through multi-sided communications, thereby creating benefits for all parties.

In the future, Chang Hwa Bank will continue to focus on environmental sustainability issues by strengthening greenhouse gas emission management and reducing the impact of climate change. At the same time, we will continue to uphold our practical attitude and shoulder the responsibilities of environmental sustainability. We will incorporate the sustainable actions of environmental, social, and governance in our daily operations to transform Chang Hwa Bank into an outstanding sustainable financial institution.

## Appendix 1

### TCFD Disclosure Comparison Table

Aspect	TCFD general disclosure items	Corresponding Chapter/Page
Governance	The Board of Directors' monitoring of climate related risks and opportunities	CH3.1.1 P7
	The role of managers in assessing and managing climate related risks and opportunities	CH3.1.2 P8
	Description of climate change governance methodology	CH3.1.3 P9
Strategy	The short, mid, and long-term climate related risks and opportunities identified by the organization and the related financial impacts	CH3.2.1 P10
	Impacts of climate related risks and opportunities on operations, strategies, and financial planning	CH3.2.2 P17
	The strategic resilience of the organization against different climate related scenarios	CH3.2.3 P20
Risk Management	The identification and assessment procedures for climate related risks of the organization	CH3.3.1 P22
	Management procedures for climate related risks	CH3.3.2 P23
	Integration of the overall risk management system of the organization	CH3.3.3 P24
Metrics and Targets	Metrics used by the organization in the assessment of climate related risks and opportunities	CH3.4.1 P25
	Greenhouse gas emissions and related risks	CH3.4.2 P26
	The targets and attainment of the targets for the organization's management of climate related risks and opportunities	CH3.4.3 P28
Aspect	Items from the TCFD supplemental guidelines for the banking industry	Corresponding Chapter/Page
Strategy	Describe the short, mid, and long-term climate related risks and opportunities identified by the organization	CH4.1.1 P29
Risk Management	Describes the identification and assessment procedures for climate related risks	CH4.2.1 P30
Metrics and Targets	Disclose the metrics used by the organization to assess climate related risks and opportunities	CH4.3.1 P32

## Appendix 2

### BSI Conformity Statement

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## Conformity Statement

### Climate related Financial Disclosure

This is to conform that

Chang Hwa Commercial Bank Ltd. No. 57, Sec. 2 Zhongshan N. Rd. Zhongshan Dist. Taipei City 104411 Taiwan	彰化商業銀行股份有限公司 臺灣 台北市 中山區 中山北路二段 57 號 104411
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Holds Statement Number <CFD 756008>

As a result of carrying out conformity check process based on TCFD requirement, BSI declares that:

- **Chang Hwa Commercial Bank Ltd.** follows Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to disclose climate-related financial information which is clear, comparable and consistent about the risks and opportunities and its financial impact. The disclosures cover four core elements and have been prepared by seven principles for effective disclosures.
- The maturity model for the Climate-related Financial Disclosures is **Level-5: Excellence** grade.

For and on behalf of BSI

Managing Director BSI Taiwan, Peter Pu

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