

Financial Risks of Climate Change

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Value Chain	Banking portfolio
Risk type	Current regulation Carbon pricing mechanisms
Financial impact	Reduced profitability of investment portfolios
Company-specific description	<p>As of 2015, Controlled Entities of the 'GHG & Energy Target Management System' with an average GHG emissions of the 3 most recent years greater than 125,000tCO₂eq, a company that has one or more establishments with 25,000 tons or more or a company that has voluntarily applied for designation as an allocation target company are subject to participate in the Emission Trading System; they are allocated the emissions allowance based on the past GHG record and must carry out operation activities and emissions reduction activities within the given range.</p> <p>Among the Shinhan Financial Group's customers/investors, there are a total of 689 companies subject to the emission trading system, and their exposure scale is KRW 37,257 billion. Therefore some companies with negative profit margins by climate change which are related to these products could give SFG a loss of financial asset or profit margin due to the difficulty in repayment.</p>
Time horizon	2028 (after 6 years, Long term)
Potential financial impact figure (currency)	327,600,000,000 KRW
Explanation of financial impact figure	<p>The strictness of the regulation of the emission trading system(ETS) is affected by the nationally determined contributions(NDC). Last year, the Korean government raised the NDC from 27.3% reduction to 40% reduction. As a result, it is expected that the ETS will become stricter and the emission cap and allowances will decrease.</p> <p>The Network for Greening the Financial System (NGFS) predicts that the price of Korea's emission permits will rise from 26.7 dollars/ton at the end of 2021 to 139.5 dollars/ton in 2030. This can increase the operating costs of regulated companies and reduce their value added.</p> <p>The Bank of Korea, the central bank of Korea, estimated the change in the value added of regulated companies according to the NGFS scenario. In the case of high-carbon industries, the value added is analyzed to decrease by an average of 0.95% per year, and by 2030, the value added is expected to decrease by about 10%.</p> <p>Therefore, considering the impact of carbon regulations on the portfolio of regulated companies by 2030, it is expected that approximately 10% of the regulated company exposure (KRW 372.6 billion, which is 10% of regulated company exposure; KRW 37,257 billion) will turn into a negative margin.</p>
Cost of response to risk	1,700,000,000 KRW
Description of response and explanation of cost calculation	<p>The Shinhan Financial Group established a financed emission calculation system for the first time as a domestic financial company and set annual/industry reduction targets by 2050. The financed emission scope plans to expand its area and is currently used in reduction target management, identifying and managing vulnerable areas in terms of implementation risk, screening/investment process, and business divisions. Through this system, we monitor quarterly performance and conduct strategic analyses on assets and corporate customers to reduce financed emissions. Furthermore, from a risk management perspective, a financed emissions dashboard system was established to monitor financed emissions by group portfolios and risks caused by sharp increases or biases in intensity. High-emission areas are designated separately and are utilized for monitoring and business decision-making.</p> <p>A total of 17 personnel (including 1 person from each of the 15 group companies and 2 from the holding company) were included in the 2021 portfolio analysis. Assuming an average annual salary of KRW 100 million per person, labor costs for portfolio analysis are estimated to be approximately KRW 1,700 million.</p>

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Value Chain	Direct operations
Risk type	Acute physical Heavy precipitation (rain, hail, snow/ice)
Financial impact	Decreased revenues due to reduced production capacity
Company-specific description	<p>Acute physical hazards such as the rainy season, heavy rain, and typhoons can cause direct damage to the Shinhan Financial Group's business units by causing branch business and computer center operation suspension.</p> <p>According to the Korea Meteorological Administration's past climate change trend analysis (1912~2020), the amount of precipitation days is decreasing but annual precipitation increases by 17.71mm every 10 years, showing an increase in precipitation intensity. Similarly, as a result of the extreme climate index analysis, extreme climate phenomena such as torrential rain are appearing more frequently and intensely. In the South Korea Detailed Climate Change Prospect Report (2021) of the National Academy of Meteorological Sciences, the average amount of heavy rain days in Korea (the amount of days per year for days with daily precipitation of 80 mm or more) is 2.1 days. The amount of heavy rain days in Jeju (which has the greatest amount of extreme precipitation) was 4.9 days, which is more than twice the average. For Jeju Bank, as most of the branches of the Shinhan Financial Group are located in the Jeju area, the probability of physical damage due to heavy rain is higher than in other areas, and the probability of damage due to temporary business suspension is expected to be greater.</p>
Time horizon	2027 (In 5 years, mid-term)
Potential financial impact figure (currency)	433,000,000 KRW
Explanation of financial impact figure	<p>The Shinhan Financial Group measured the financial effect that will occur for Jeju bank by using the average amount of heavy rain days and annual operating profit.</p> <p>Jeju Bank may have to close the operation for approximately 4.9 days for recovering from physical damages due to heavy rainfall, in which case a financial loss of approximately 443 million KRW is expected to occur.</p> <ul style="list-style-type: none"> - Annual operating profit of Jeju Bank branch in 2021: KRW 22,602 million - Average number of business days per year: 250 days - Expected operating loss: (22,602 million won/250) *4.9 = 443 million <p>* Annual operating profit of Jeju bank : 22,602,403,649 KRW</p>
Cost of response to risk	18,240,000 KRW
Description of response and explanation of cost calculation	<p>In preparation for natural disasters such as flood, heavy snowfall, and typhoon, major subsidiaries of Shinhan Financial Group such as Shinhan Bank, Shinhan Card, Shinhan investment Corp., and Shinhan Life operate individual Disaster Restoration Centers. Furthermore, Shinhan Future Strategy Research Institute and Shinhan investment Corp. regularly carry out climate change researches to determine risks and opportunities. In particular, Jeju Bank is responding to Disaster/ Calamity crisis management through a safety management plan. Shinhan Bank has the 'Disaster/Calamity Crisis Management Guidelines' aimed at preventing damages from natural disasters such as typhoons, heavy rain, heavy snow, and earthquakes and responding to such events in a timely manner so as to protect both human and financial resources in advance and ensure continued operation. Following these Guidelines, occurrence of a natural disaster is reported to the branch manager, who then reports to the head of the sales division and the safety management office or the department in charge of each disaster situation (the department in charge of each major event/emergency measure) and related organizations (the Self-Governing Province Fire and Disaster Prevention Headquarters, Jeju Disaster Situation Office, National Police Agency, and Jeju Airport). The safety management division, upon receiving the report, works with other teams in charge of such event and reports a summary to the management. In case of emergency, the Head of the Crisis Center directly reports to the CEO about the status of the event and the entire organization is transformed to be on call.</p> <p>Moreover, we purchase comprehensive property insurance to minimize the cost of recovery from physical damage caused by natural disasters and to minimize financial damage. According to the 2021 business continuity plan, the training cost is KRW 12.4 million, and the comprehensive property insurance premium is KRW 5.84 million.</p>