# CRIS easily quantifies climate-related physical risks to borrowers

TOKYO, JAPAN, July 17, 2024 /EINPresswire.com/ -- According to the Sixth Assessment Report of the IPCC (Intergovernmental Panel on Climate Change), the global average temperature was 1.09□ higher in 2011-2020 than 1850-1900, and global warming has become a serious problem. Global warming has a huge impact on the global economy, including an increase in natural disasters and a reduction in workforce due to the inability to work in the heat. As global warming progresses, the TCFD (Task Force on Climate-related Financial Disclosures) published recommendations in June 2017 to strengthen disclosure of climate change-related information.

| Flood depth | Collateral damage rate (2-story building) | Number of days of suspension |
|---|---|---|
| 0m or more, less than 0.5m | 21.4% | 15.8 days |
| 0.5m or more, less than 1m | 29.3% | 26.0 days |
| 1m or more, less than 2m | 45.8% | 37.8 days |
| 2m or more, less than 5m | 83.6% | 97.7 days |
| 5m or more | 100% | 97.7 days |

Figure□

In response to the TCFD's recommendations, the IFRS Foundation finalized two Sustainability Disclosure Standards, IFRS S1 "General Requirements for Disclosure of Sustainability-related Financial Information" and IFRS S2 "Climate-Related Disclosures," in June 2023. IFRS S2 requires disclosure of physical risks based on climate-related scenarios (direct damage to assets due to natural disasters and indirect impacts due to supply chain interruptions), transition risks based on climate-related scenarios (the impact of the transition to a low-carbon economy), and emissions related to investments and loans. In order to meet the need to quantify these climate-related risks, Nikkei Financial Technology Research Institute, Inc. developed a climate-related scenario analysis tool called "CRIS" in July 2022. In this article, we will introduce the quantification function of physical risks for borrowers, one of the various functions of CRIS.

CRIS can calculate physical risks by dividing them into 1) the impact of collateral value damage (the risk of collateral properties being flooded and losing value due to natural disasters such as floods) and 2) the impact of business stagnation (the risk of stores or factories being flooded and forced to close due to natural disasters such as floods). The impact of collateral value damage predicts the increase in the naked credit amount due to the damage to collateral value and the impairment loss of the borrower due to the damage to assets held by the borrower. The impact of business stagnation predicts decrease in sales due to stores and factories being flooded.

Taking these impacts into account, financial statements are created.

CRIS can also calculate credit ranks for financial statements it has predicted based on physical risk scenarios. A higher provision rate is applied to borrowers that have been downgraded. The difference between the loan loss reserve based on the downgrade, and the most recent actual loan loss reserve represents the quantified physical risk.

To quantify physical risk, information on flood depth by region and information on damage rate/number of business days off by flood depth are required. Information on flood depth by region is published by the Ministry of the Environment in Japan. Information on damage rate/number of business days off by flood depth is published by the Ministry of Land, Infrastructure, Transport and Tourism in Japan (Figure □).

Now, we will introduce the results of our physical risks calculation using actual data published by a Japanese power company. The scenario used was the IPCC adopted RCP8.5 scenario (a 4□ rise scenario), and the analysis was conducted on thermal power plants, which account for approximately 60% of power generation capacity. Based on the scenario analysis, the company fell into the red in the fiscal year ending March 2050 due to impairment losses and reduced sales due to suspension of business, and its credit rank was down one notch from A to A-.

The physical risk for each borrower is calculated as above, and the physical risk for all borrowers is then added together. In this way, the physical risk of the entire credit portfolio can be calculated.

If you are interested in our services, please feel free to contact us.
https://www.ftri.co.jp/eng/index.html#company

email us here
Public Relations Office
Nikkei Inc.

---