Banks and Financial Services Use Case

A Major U.S. Bank Integrates Jupiter Analytics to Quantify Physical Climate Risk to its Asset Portfolio, and Respond to Changing Disclosure Requirements

The urgent need to understand physical impacts of climate change demands a transparent, enterprise-grade risk modeling solution.

For banks, the mounting pressure to quantify potential physical climate risk to their assets, operations, and systemic resilience is coming from all sides.

The central banks of the world's largest financial hubs regard physical and transitional climate risks as critically important to their economies. A growing list of governments that now includes the U.S., the EU, and Japan are joining ranks with early adopters such as France, the U.K., Hong Kong, and New Zealand by formulating stricter and more comprehensive legislation that mandates climate risk assessment and disclosure. Organizations like the TCFD and authorities like the PRA are forcefully urging financial services companies to adopt more comprehensive disclosure and—ultimately—better management of climate-related financial risks. This will compel banks to integrate robust, scenario-based climate risk analytics into their enterprise risk management framework across key processes such as portfolio planning, market value analysis, underwriting and deal structuring, model development, and risk avoidance. The Climate Biennial Exploratory Scenario (**CBES**) exercise in the UK mandated by the Prudential Regulatory Authority is but one example of this.

After surveying the financial services firms that it regulates, the PRA noted in July 2020 that "metrics and quantification were identified as the most challenging aspect of assessing climate-related financial risks." To support and enhance their model development and Model Risk Management (**MRM**) validation, banks seek best-in-science, enterprise-grade physical climate risk analytics based on transparent, explainable methodologies, as well as domain expertise that helps them integrate and properly use the data.

One of the United States' five biggest global financial institutions is setting the pace and meeting this challenge. It has engaged Jupiter Intelligence to help it embed physical climate risk data into the bank's existing analytical models to optimize its enterprise risk management processes, and to better quantify and disclose climate risk exposure to shareholders, regulators, and entities such as the TCFD and PRA. Jupiter and the bank's internal MRM team are working together to ensure that data from climate risk models meet the bank's stringent transparency requirements and can be applied to its processes.

Three key factors drive Jupiter's selection

The bank selected Jupiter Intelligence™ for this task for three significant reasons:

Transparency and collaboration

Supporting best-in-class enterprise model governance and providing optimal decision-useful data demand complete model transparency. Jupiter understands the need for and rigor of modern MRM and retains critical details and intermediate estimates along every point in the modeling process to support effective model governance and validation. Government regulators such as the U.S. Office of the Comptroller of the Currency (**OCC**) reject proprietary, "black-box" approaches to climate modeling. Jupiter's underlying model, data, and quality assurance transparency enables both a bank and its regulators to assess and verify the objectivity and quality of physical risk projections.

Jupiter's enterprise-grade solutions, methodologies, and willingness to provide intimate collaboration with the bank's MRM team(s) are based on the commitment to both excellence and transparency. Jupiter understands the needs of major financial institutions to provide rigorous independent modeling evaluation and validation. Jupiter employs dozens of the scientific community's most respected physical models of the atmosphere and hydrosphere, coupled with explainable machine learning, land use, elevation data, and extensive observations of the systems it models. It also builds robust verification and validation into every step of the model chain, with its methods natively accounting for the changing frequencies and characteristics of extreme events in time.

Scalable data delivery

As banks move beyond simple episodic scoring exercises for regulatory or shareholder response to an ongoing incorporation of physical climate impact analysis into risk modeling and underwriting, they need access to data on millions of properties. Jupiter satisfies this need with its high-performance APIs; its scalable infrastructure, capable of handling intense computation and storage demands; and enterprise-grade security. Its advanced technology foundation is tuned to the rigors of the most demanding banks.

Breadth of data and quantified uncertainty

Embedding physical climate risk analysis into banks' disclosure and risk management processes, though an urgent need, is in its early days. Jupiter understands that climate science is always improving and provides metrics that quantify the uncertainty surrounding all projections. Asset classes like commercial and residential estate are exposed to direct physical risk. Others such as consumer lending are exposed to potential credit risk from indirect local economic slowdowns or job market shocks. Auto and corporate entity credit risk can arise from a combination of both factors. Each asset type will have specific required metrics that differ by geography, time scale, and risk threshold. From hyper-local assessments of real estate assets at rooftop latitude and longitude resolution, to area-level analysis for business and supply-chain interruption, Jupiter is able to provide global, forward-focused, scenario-based projections over flexible time horizons to meet the needs of any major asset class. Jupiter's technical and scientific personnel team works closely with their peers within banks to scale their capabilities to accept our data platform and accelerate their preparedness for a climate-resilient future.

With massive exposure to both physical and transitional climate risk, financial services companies are "on the front lines" of a potential systemic crisis, notes CERES, an American nonprofit that focuses on sustainability. Anticipated regulatory pressure is giving new urgency to many initiatives to quantify and disclose physical climate risk—but discerning banks, like the one described here, are also focused on resiliency and advantage in the face of this existential threat.

About Jupiter

Jupiter Intelligence is the global market, science, and technology leader in physical climate analytics for risk management and resiliency planning.

Jupiter's analytics are used across the private and public sectors. Customers include at least one of the world's five largest firms in asset management, banking, chemicals, insurance, minerals and mining, oil & gas, pharmaceuticals, power, and reinsurance—as well as critical departments and agencies within both the United States government and climate-change-vulnerable geographies around the world.

Jupiter's best-in-science solutions—ClimateScore™ Global, and the ClimateScore Planning suite—together form the world's leading global-to-street resolution climate analytics offering. ClimateScore Global quantifies climate risk at portfolio scale, for all points on the planet's land surface, for all perils (flood, heat, wind, wildfire, drought, hail, and extreme precipitation), and over flexible time horizons and emissions scenarios. ClimateScore Planning delivers very-high-resolution projections of peril-specific climate impacts on individual assets, facilities, neighborhoods, and communities.

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