AGRICULTURAL SUSTAINABILITY

WHAT THE BANKING SECTOR MUST DO

Climate Risk Perspectives

CODE RED INSIGHTS

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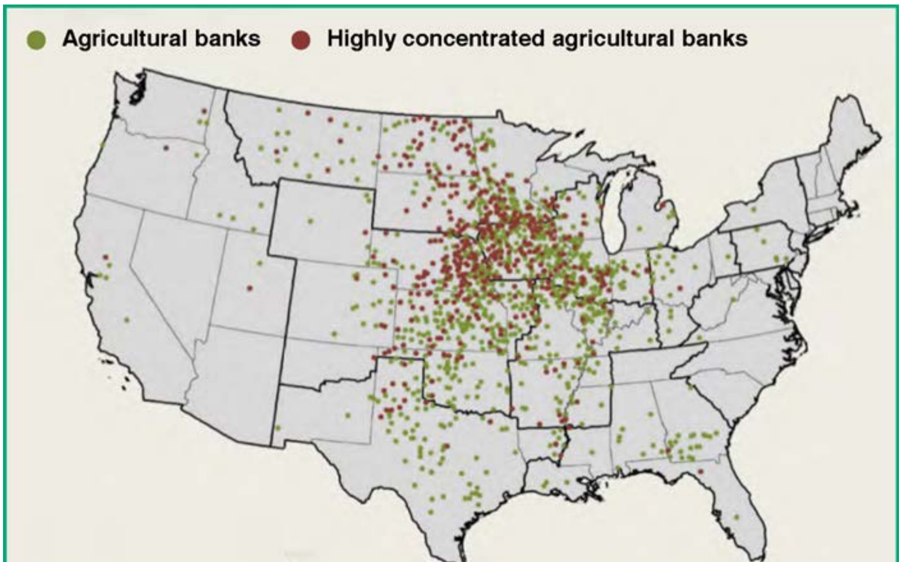
Climate change awareness and rising concerns have directed focus on sustainable agriculture. The Environmental Defense Fund (EDF) has been exploring the role of banking in agricultural sustainability (Financing Resilient Agriculture.)

Its major findings are:

- The farming sector is at the front-line of climate change from the perspective of cause and effect – from contributing to temperature rise to facing the consequences: droughts and fires; and extreme rainfalls, storms, and flooding.
- These risks are particularly acute for smaller farmers.
- 50% of lenders and banks to the sector have over 25% of their loan portfolio exposures to farming.
- Agricultural lending is local, leading to high geographic risk correlation.



Source: National information center and reports of condition and income (call reports)

A structured and systematic financial backbone for a climate-sustainable future will contribute towards:

- Stabilizing crop yields and long-term financial viability in the face of climate change.
- Enhancing water quality and quantity, biodiversity, reduction in greenhouse gas emissions, and carbon sequestration (climate change mitigation).

There are three key recommendations:

- Assessing climate risk at the bank/lending institution-level.
- Understanding the role of resilient agriculture in managing climate risk.
- Designing lending programs or products that support farmers in building climate resilience.

• Climate change issues facing agricultural banks in the US

The idea of including climate change into banking is not new. Internationally, several bodies including the Task Force on Climate-related Financial Disclosures (TCFD) have developed reporting frameworks for banks to audit their financing of CO2 emissions, referred to as scope 3 disclosures. However, their focus is on CO2, and it leaves the agricultural lending sector with a unaddressed areas including;

- Farms are exposed to the physical risks of climate change. This includes the impact of climate risk mitigation policy measures that will affect their capacity to conduct business.
- Sustainability issues facing farms and their lenders are highly complex, involving irrigation, water quality and greenhouse gasses such as methane – one of the main issues with beef farming.
- Lenders to the agricultural sector are exposed to much more than physical risks to their farms. They are typically involved in the entire supply chain financing, from equipment to processors and transportation.

The report makes it clear that banks are an integral part of the farming ecosystem and will play a vital role in creating financing and lending frameworks and products to enable the US agricultural sector to transition towards a greener, more viable future.

• Response to the emerging crisis

This decade is critical for changes in energy production and usage as well as agricultural production. Banks must be able to predict where risks would change across the supply chains. In effect, this would radically transform the risk profile of their balance sheets

Unfortunately, this is underway at the tail end of the regulatory responses to the 2008 credit crisis, whose measures include:

- Increased liquidity ratio reporting
  - Liquidity Coverage Ratio (LCR)
  - Net Stable Funding Ratio (NSFR)
- Introduction of liquidity simulations
  - DFAST/CCAR
- Forward looking credit-based accounting provision
  - Current Expected Credit Losses (CECL)

The result is clear – capital requirements as a buffer for systemic risks have become extremely onerous for banks. These regulations also imply that deteriorating credit exposures in their loan portfolios will be significantly costlier for banks. Banks are not only part of the local ecosystem, but they are facing the same risks as the farming sector.

• The banking sector is critical in the green transformation of the agricultural sector

With all the possibilities and unknowns inherent in the climate change challenge, it is simplistic to assume that very little can be done until reliable data is available to make rational decisions. The agricultural sector needs financial backbone and support now. This implies creating new lending frameworks and products and actively working with the agricultural sector to price farming loans to encourage sustainability.

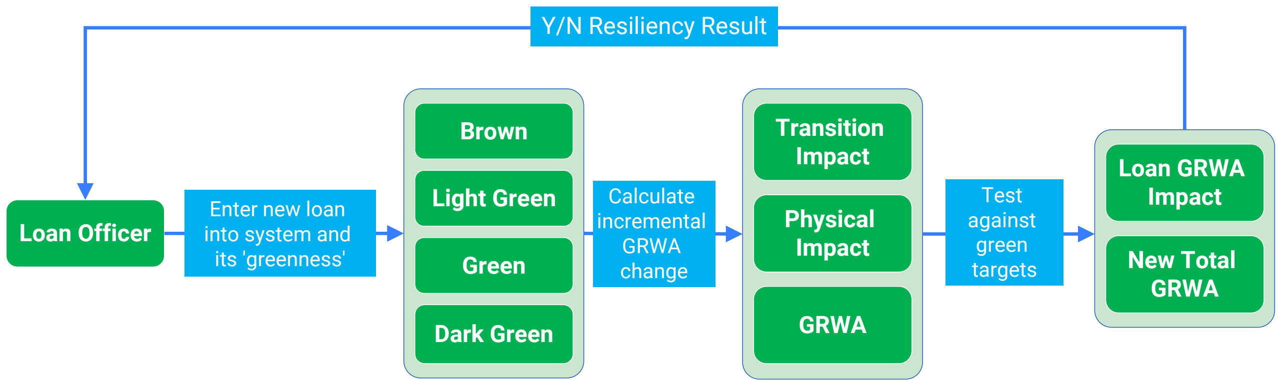
Banks should price evolving changes in creditworthiness in the agricultural sector:

- Positively, by farms adopting practices that adhere to climate and environmental policies, as well as ensuring protection from physical effects.
- At the same time, they must not ignore potential regulations until enforcement is imposed on them and fail to act to protect against physical impacts.

Banks need a system to build climate change into their credit and pricing policies. This needs to be within their current frameworks for calculating the underlying risks. To state this in banking terminology – there needs to be appropriate basis point adjustment on loans that supports climate risk mitigation and supports the agricultural sector to survive and flourish.

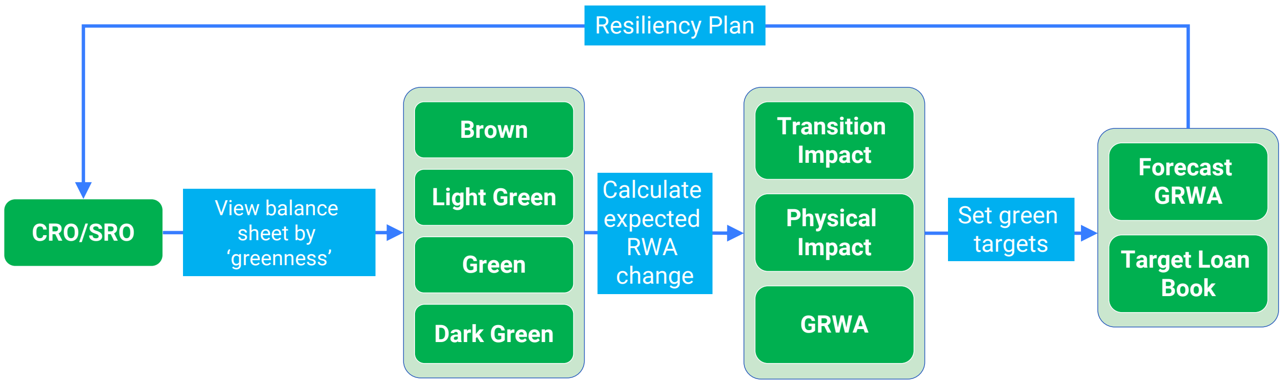
• Greening the credit framework

Greenpoint has built a framework that allows banks to calculate the transitional and physical risks into the credit-based capital (GRWA - Green Risk Weighted Assets) of the banks' balance sheets. Ultimately, this also allows pricing to be adjusted at the loan level to reflect sustainability efforts by the farm, creating a bottom-up approach to local banking.



By calculating and pricing resiliency into the rates, banks can work with their clients on an advisory level, bringing banking to the heart of environmental efforts.

From a top-down approach, banks can look at the whole supply chain, applying correlations to the impact. They can then adjust their strategies to avoid a 'brown' concentration that could be disastrous for banks if the crisis deepens along the worst predicted climate pathways.



Working with the data that is available and the best practices as advocated by the EDF, banks can structure their loan books and credit facilities to be fully prepared for the green future that lies ahead.

The system itself has been designed to be completely turnkey for Finastra clients and extremely simple to use for non Finastra banks.

Summary

There is a growing global and national interest in resolving the climate change challenge. We are already feeling the impact and US farmers are at the forefront of that change. Agricultural and community banks have to be active and integral to the system as it changes. To achieve this, they must maintain stability by using the optimal processes, the applicable data as it become available and by encouraging best practices. GreenCap has been designed and built with the goal to assist every bank in achieving those goals.

Please visit www.greencap.live to take a drive-through of the system and the resource support provided by Greenpoint.

ABOUT GREENCAP

- GREENCAP is a turnkey 'Risk as a Service' (RaaS) solution, designed for banks to include climate change as a category in their risk management frameworks.
- The solution allows banks to replicate climate pathways within their scenarios for economic impact and risk analysis.
- Using GreenCap, banks can modify pathways and scenarios to include the timing effects of delayed sustainability transition measures.
- Loans and credit facilities are measured and monitored against risks arising from both ‘physical’ and ‘transition’ impacts.
- GreenCap provides support for risk reporting and governance in the areas of ‘Responsible Banking’ and climate change.
- With GreenCap, banks can ensure that their climate strategies are financially grounded, and loan pricing is optimized throughout the transition to a green global economy.

ABOUT GREENPOINT FINANCIAL

- GreenPoint Financial is a division of GreenPoint Global, which provides software-enabled services, content, process and technology services, to financial institutions and related industry segments.
- GreenPoint is partnering with Finastra across multiple technology and services platforms.
- Founded in 2006, GreenPoint has grown to over 400 employees with a global footprint. Our production and management teams are in the U.S, India and Israel with access to subject matter experts.
- GreenPoint has a stable client base that ranges from small and medium-sized organizations to Fortune 1000 companies worldwide. We serve our clients through our deep resource pool of subject matter experts and process specialists across several domains.
- As an ISO certified by TÜV SÜD South Asia, GreenPoint rigorously complies with ISO 9001:2015 and ISO 27001:2013 standards.
- GreenPoint is owned by its founders and principals and is debt free.

Marcus Cree

MANAGING DIRECTOR AND
CO-HEAD OF FINANCIAL TECHNOLOGY AND SERVICES

Marcus has spent 25 years in financial risk management, working on both the buy and sell side of the industry. He has also worked on risk management projects in over 50 countries, gaining a unique perspective on the nuances and differences across regulatory regimes around the world.

As Managing Director, Marcus co-heads GreenPoint Financial Technology and Services and has been central in the initial design of GreenPoint products in the loan book risk area, including CECL and sustainability risk. This follows his extensive experience in the Finastra Risk Practice and as US Head of Risk Solutions for FIS. Marcus has also been a prolific conference speaker and writer on risk management, principally market, credit and liquidity risk. More recently, he has written and published papers on sustainability and green finance.

Marcus graduated from Leicester University in the UK, after studing Pure Mathematics, Phycology and Astronomy. Since graduation, Marcus has continually gained risk specific qualifications including the FRM (GARP's Financial Risk Manager) and the SCR(GARP's Sustainability and Climate Risk). Marcus's latest academic initiative is creating and teaching a course on Green Finance and Risk Management at NYU Tandon School of Engineering.

Sanjay Sharma, PhD

FOUNDER AND CHAIRMAN

Sanjay is the Founder and Chairman of GreenPoint Global - a risk advisory, education, and technology services firm headquartered in New York. Founded in 2006, GreenPoint has grown to over 380 employees with a global footprint and production and management teams located here in the U.S, India and Israel.

During 2007-16 Sanjay was the Chief Risk Officer of Global Arbitrage and Trading Group and Managing Director in Fixed Income and Currencies Risk Management at RBC Capital Markets in New York. His career in the financial services industry spans over two decades during which he has held investment banking and risk management positions at Goldman Sachs, Merrill Lynch, Citigroup, Moody's and Natixis. Sanjay is the author of "Risk Transparency" (Risk Books, 2013), Data Privacy and GDPR Handbook (Wiley,2019) and co-author of "The Fundamental Review of Trading Book (or FRTB)- Impact and Implementation" (RiskBooks,2018).

Sanjay was the Founding Director of the RBC/Hass Fellowship Program at the University of California at Berkeley and is an Adjunct Professor at EDHEC, Nice in France. Sanjay is also Adjunct Professor at Fordham University where he teaches a similar master's capstone course and at Columbia University. He has served as an advisor and a member of the Board of Directors of UPS Capital (a Division of UPS) and is a frequent speaker at industry conferences and at universities. He served on the Global Board of Directors for Professional Risk International Association (PRMIA).

He holds a PhD in Finance and International Business from New York University and an MBA from the Wharton School of Business and has undergraduate degrees in Physics and Marine Engineering. Sanjay acquired his appreciation for risk firsthand as a merchant marine officer at sea where he served for seven years and received the Cheif Engineer's certificate of competency for ocean-going merchant ships. Sanjay lives in Rye, NY with his wife and two teenage sons.