DROUGHT TOOL PROTOTYPE DEVELOPMENT

And the impact on corporate loan portfolios

Stephen Moss, director, RMS

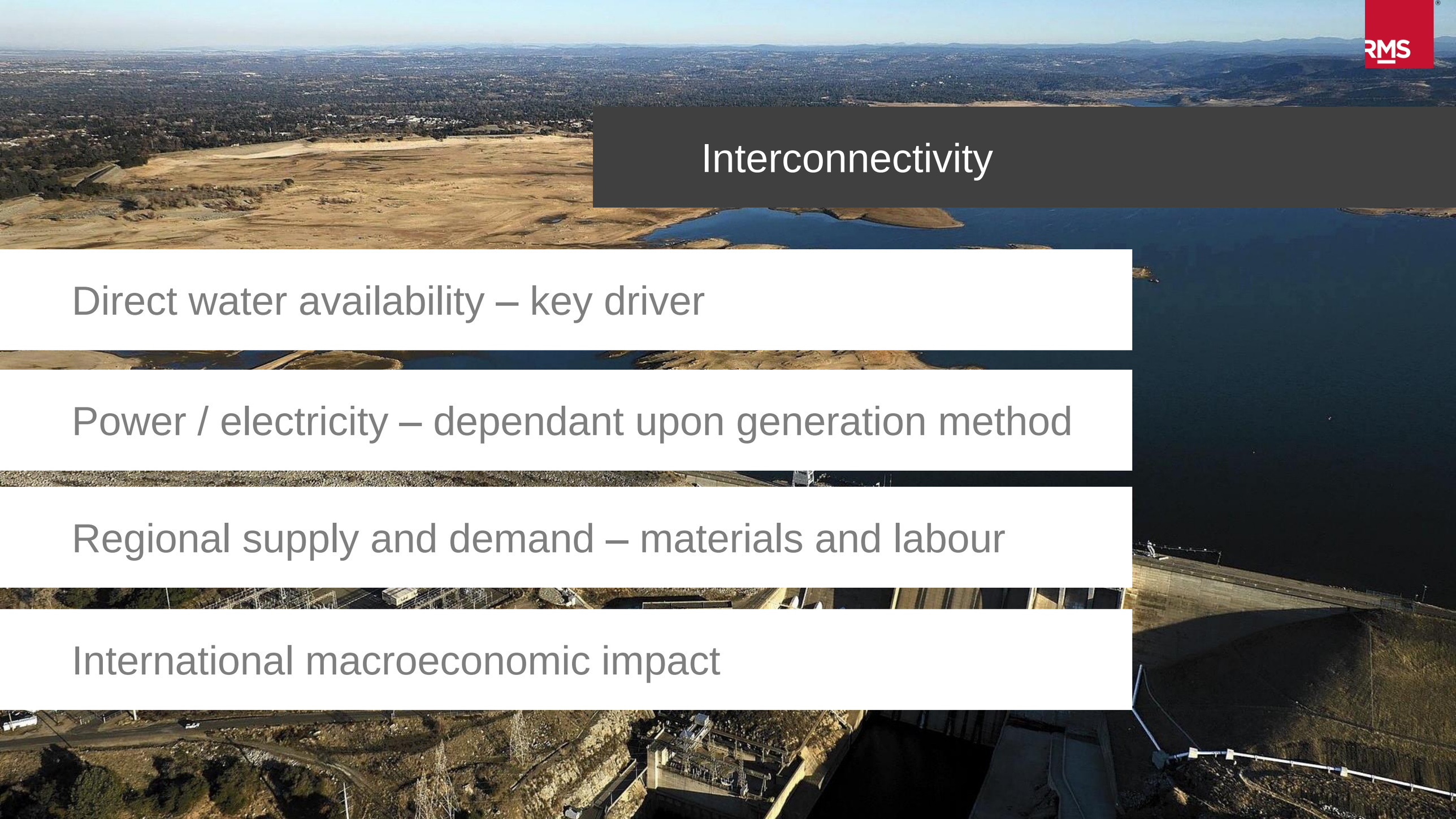
Background and Objectives

Most industries reliant upon water in some form – systemic risk (?)

Corporations ability to service loans therefore also dependant

Gaps in financial institutions' (FI) analytical capabilities

- Currently, FI's quantification of environmental risk is limited
- Difficult to translate environmental impact into loss
- Location and certain financial data not utilised in analysis
- Potentially systemic nature important for whole portfolio
- Need to quantify portfolio's exposure and enable differentiation



Interconnectivity

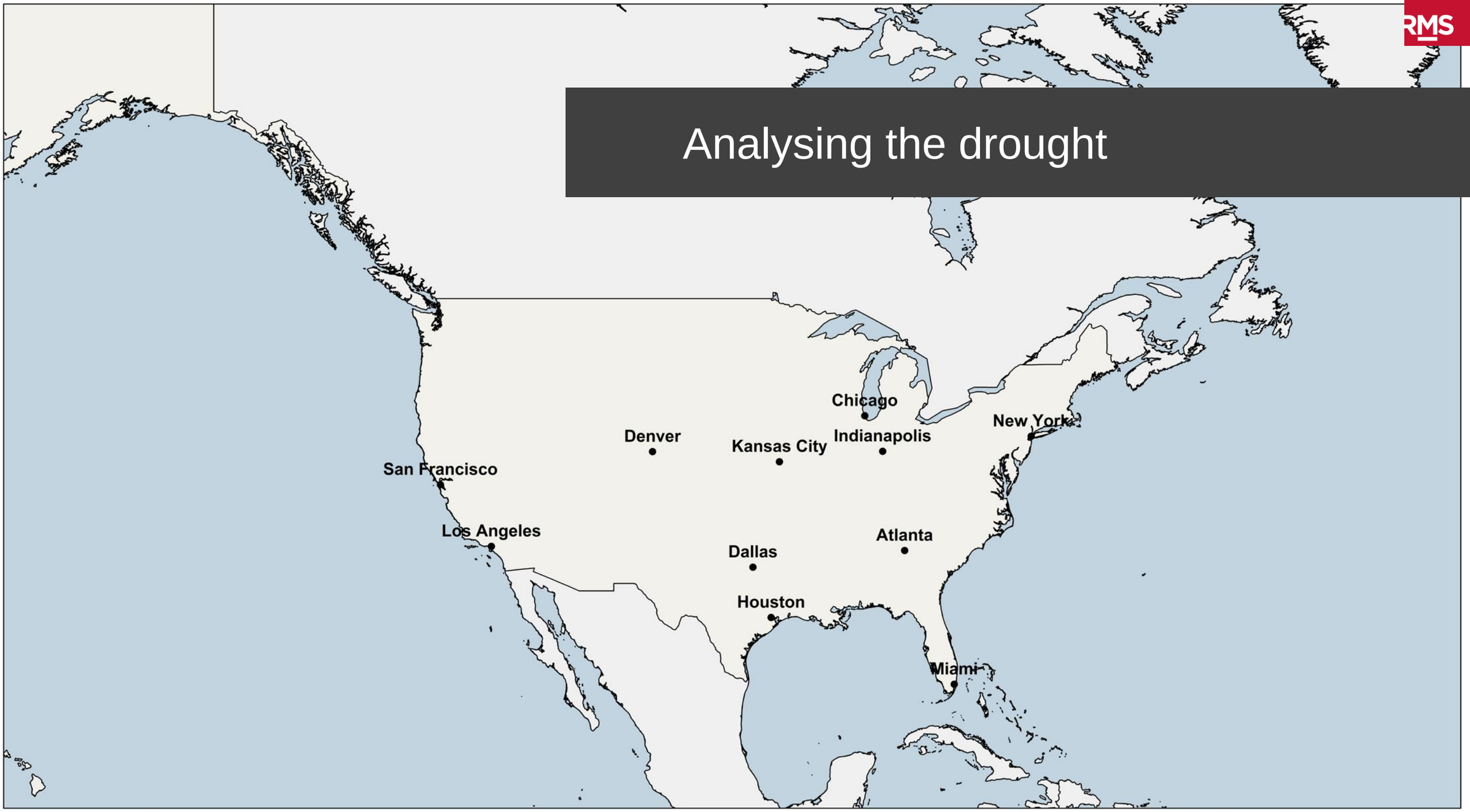
Direct water availability – key driver

Power / electricity – dependant upon generation method

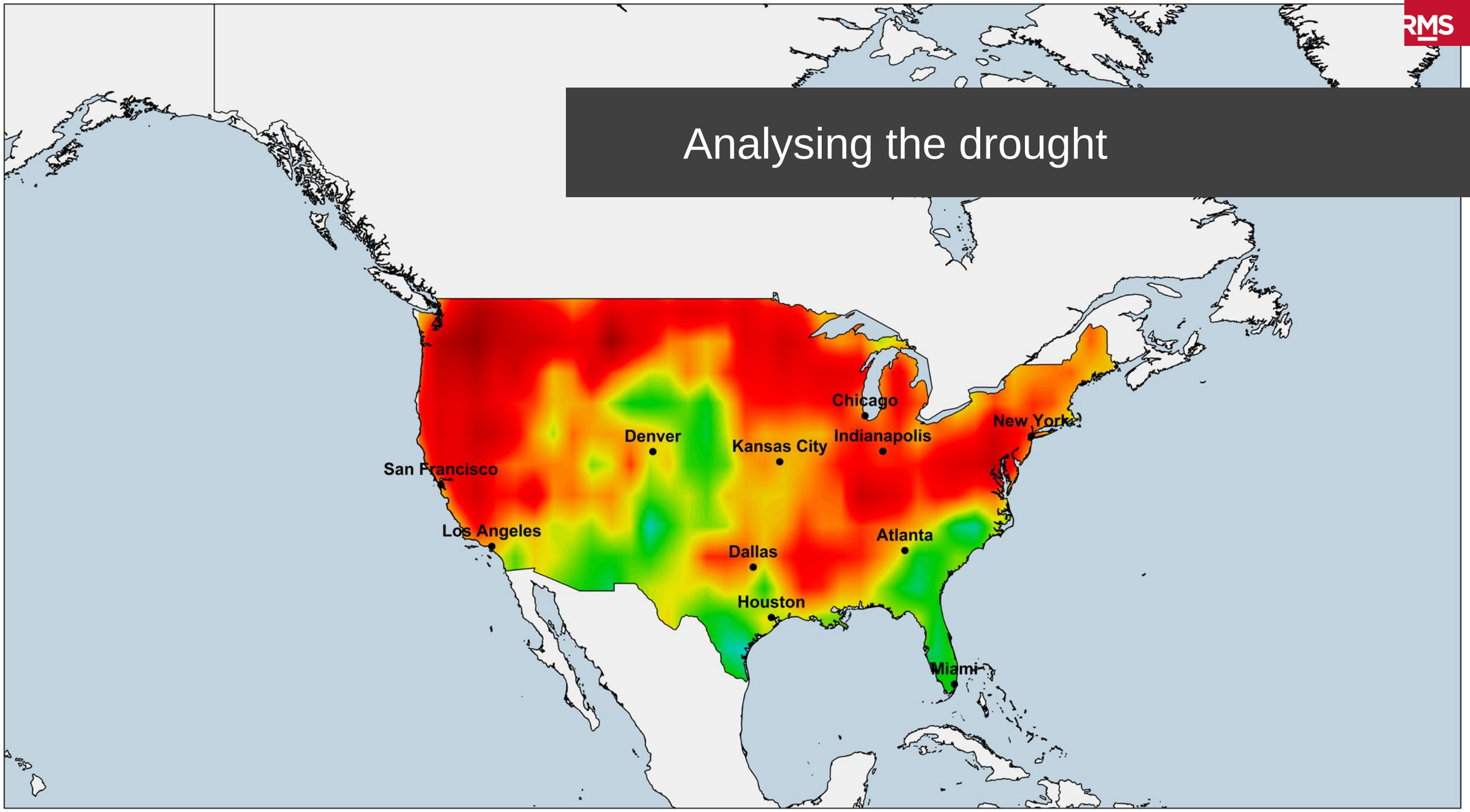
Regional supply and demand – materials and labour

International macroeconomic impact

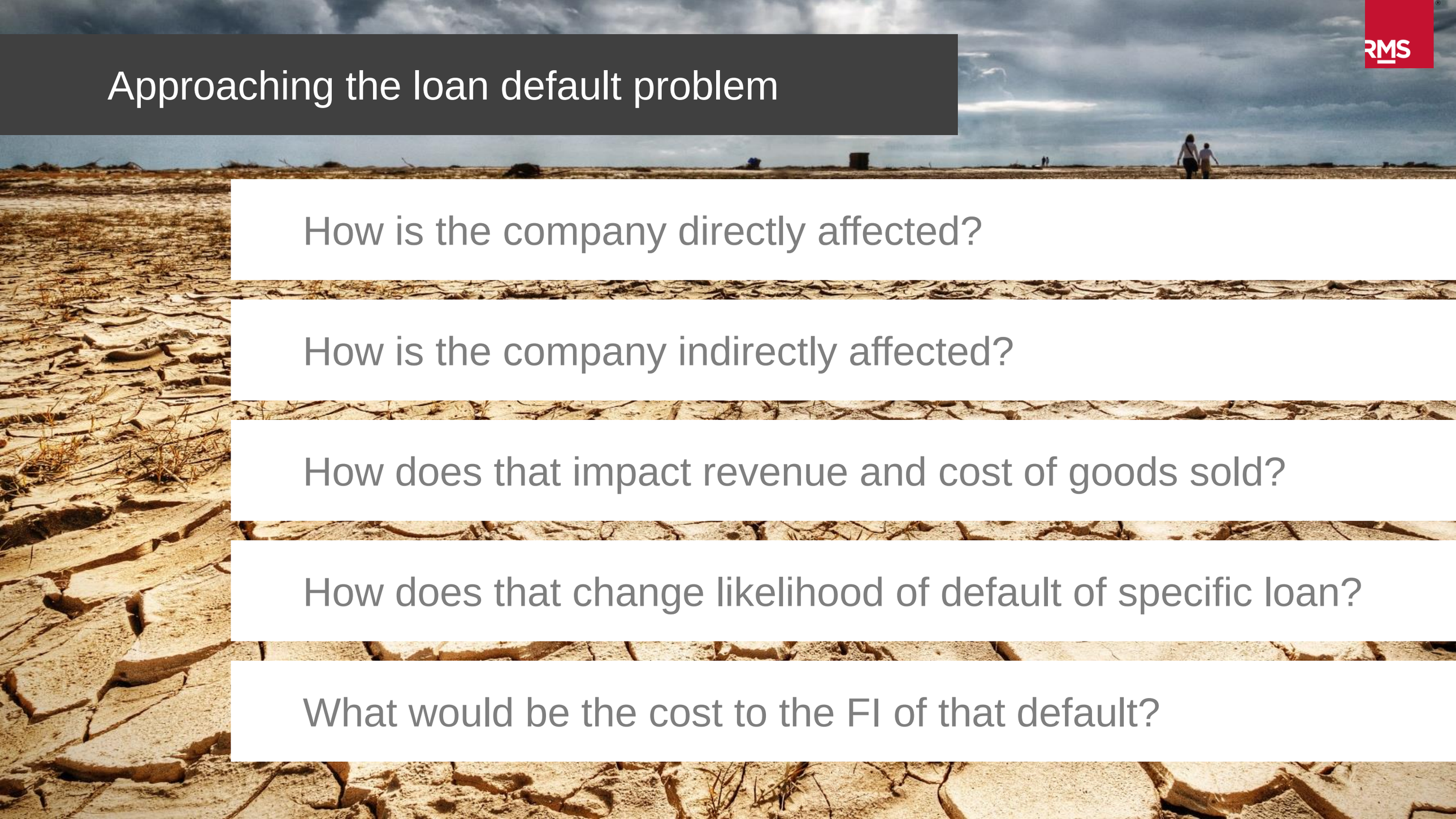
Analysing the drought



Analysing the drought



Approaching the loan default problem



How is the company directly affected?

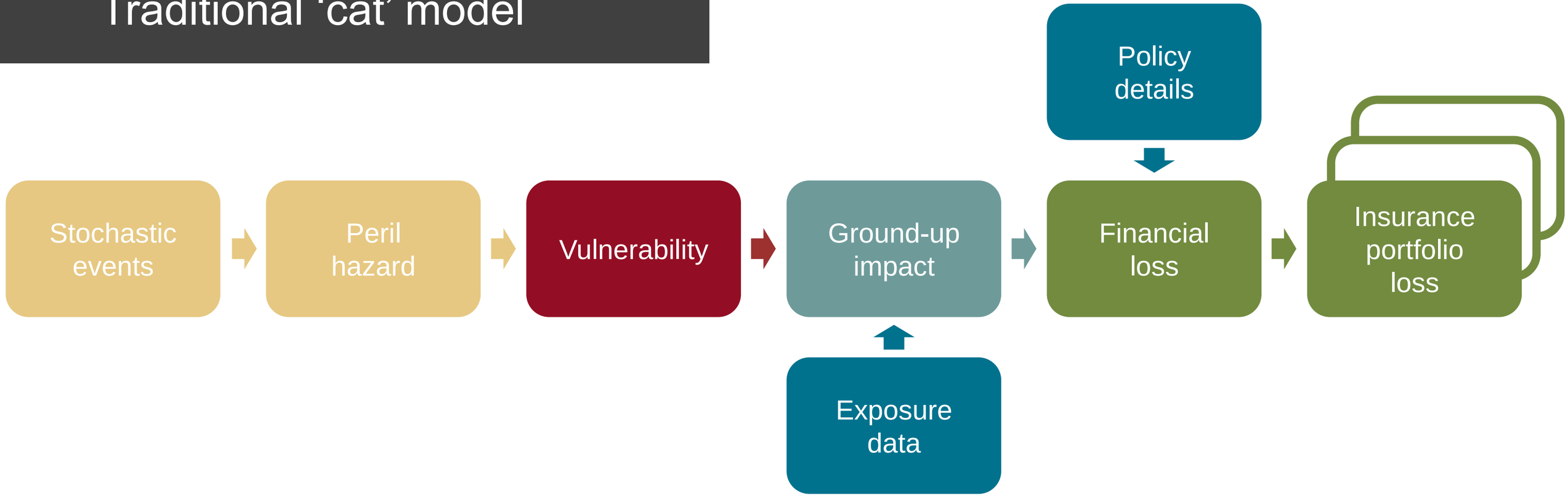
How is the company indirectly affected?

How does that impact revenue and cost of goods sold?

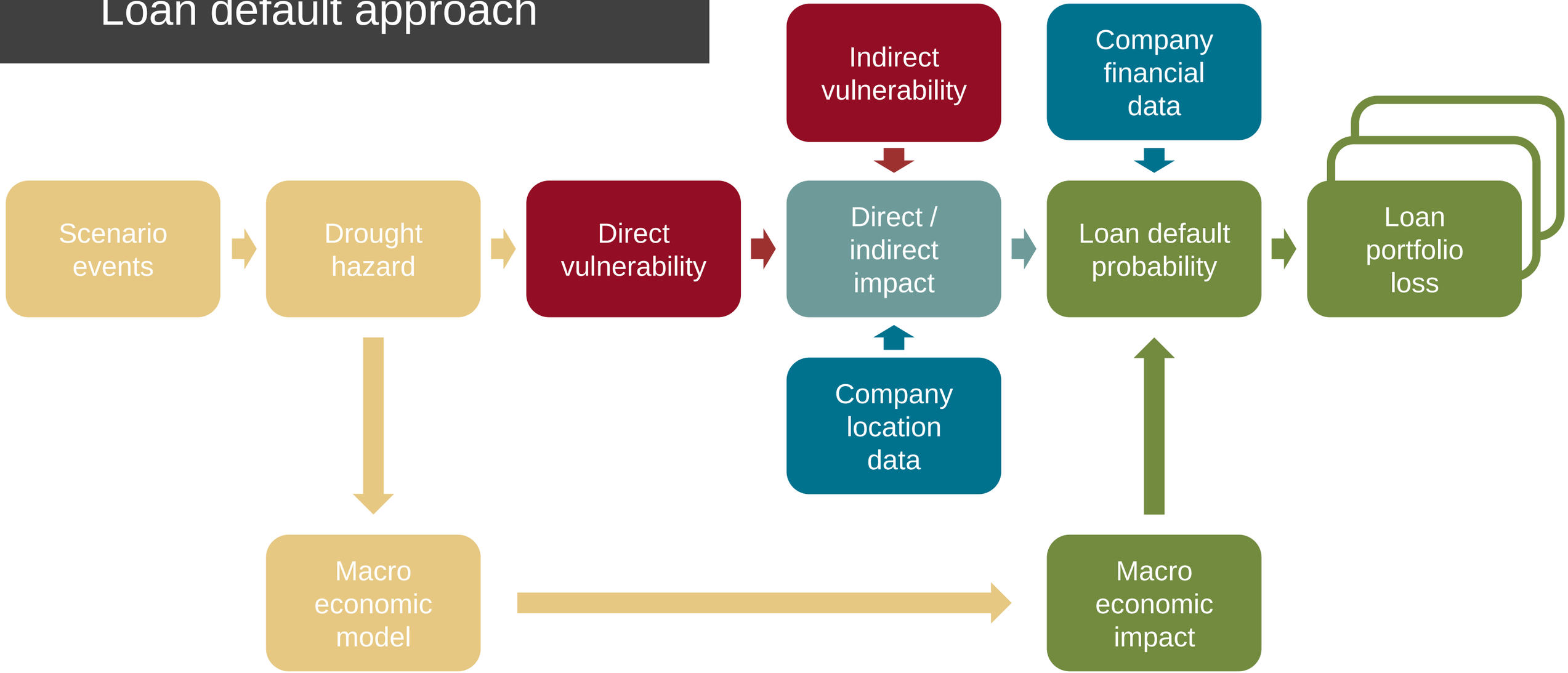
How does that change likelihood of default of specific loan?

What would be the cost to the FI of that default?

Traditional ‘cat’ model



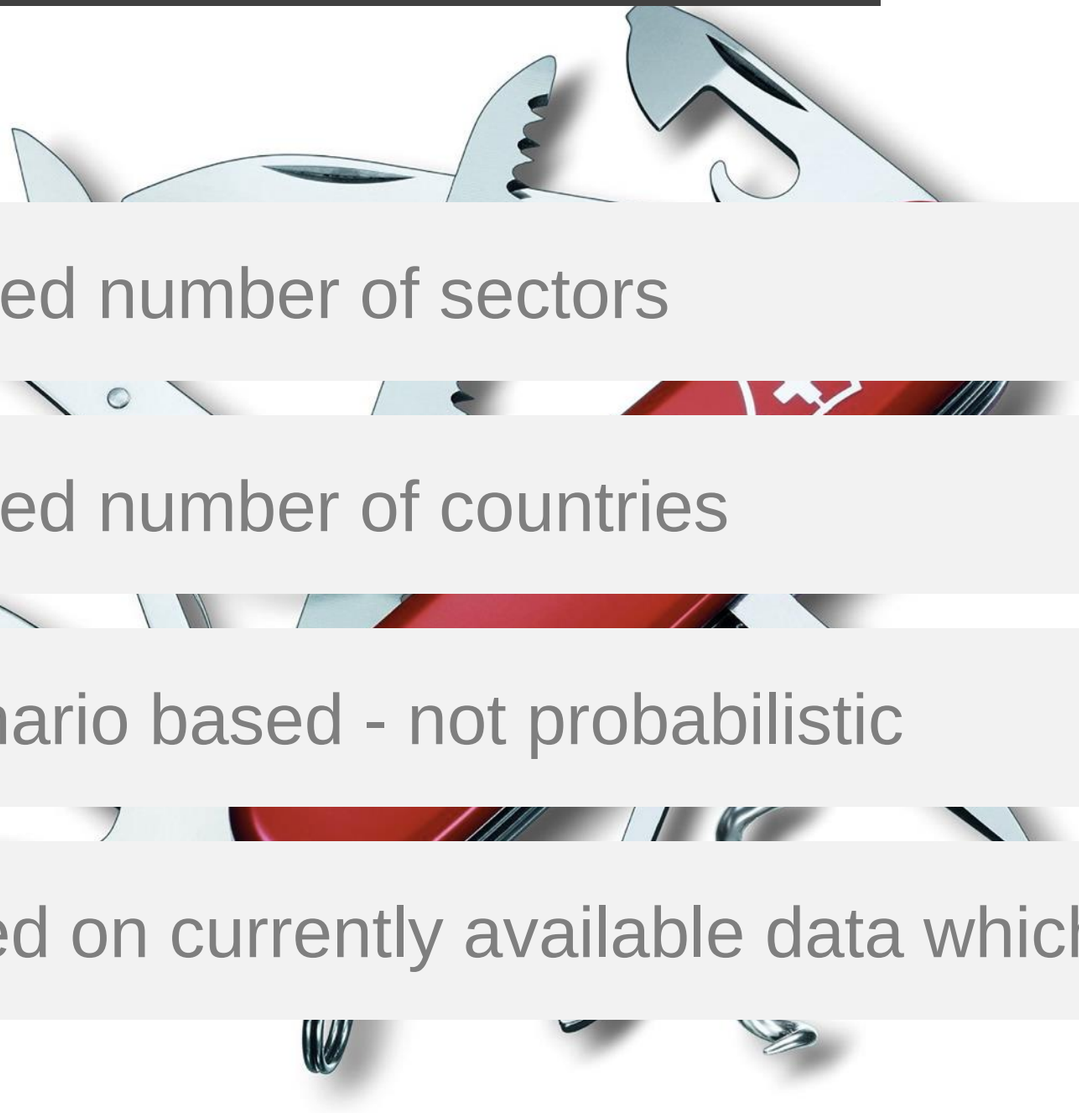
Loan default approach



High level example

Company data (sector / location / financial)	Drought Scenario hazard	Sectoral impact (direct / indirect)	Change in revenue and COGS	Loan default probability and $ loss
Food and beverage manufacturing	Severe five-year drought in West and Central United States	Reduced water supply in Chicago restricts bottling plant operations	Revenue decreases by 40% to $60MM due to decreases in productivity	Reduced revenue and greater costs increase probability of default
Production facilities in: • Chicago • Indianapolis • San Francisco	Reduced rainfall in certain regions by 90%	Power supply from hydro electric supply reduced by 80%, forcing other sources to be used	Water costs increase by 60%	In 3rd year of drought, company becomes insolvent
• $75MM loan • $100MM rev. • $30MM costs		Reduced availability of raw food products from California	Power costs increase by 40% Costs increase by 30% to 40MM	Loan default, and loss to FI of $75MM

What are the tool's limitations?



Limited number of sectors

Limited number of countries

Scenario based - not probabilistic

Based on currently available data which could improve

Value and benefits

Provides FI’s context into potential scale of drought-driven default loss

Build intuition around sectors & regions more / less exposed to drought

Modular in nature – enabling FIs to tailor components to internal view

Provides general framework to develop environmental risk models

QUESTIONS