

# Model Risk Management (MRM): Changing Regulatory Expectations

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# Speakers



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# Agenda

1. Model Risk Principles
2. Applications

1

Model Risk principles

# Model Risk Assessment

## Using models introduces risk.

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs and reports. It can lead to financial loss, poor business and strategic decision-making, or damage to a banking organization's reputation.

01



## Model risk occurs primarily for two reasons:

A model may have fundamental errors and produce inaccurate outputs when viewed against its design objective and intended business uses;

A model may be used incorrectly or inappropriately or there may be a misunderstanding about its limitations and assumptions.

02



## Model risk increases with:

- greater model complexity
- higher uncertainty about inputs and assumptions
- broader extent of use
- larger potential impact

Banking organizations should manage model risk both from individual models and in the aggregate.

03



Erica Thompson (2022)  
*Escape from Model Land*

**Mode Land vs Real World**

04



## Risk vs Uncertainty

05



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**What model risk principles are the most challenging?**

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# Organisational Structure

Roles & Responsibilities Need to be Clearly Defined

**Senior Management Function**

**Model Risk Management**

Model Owner

Modeler

Validator

Implementation  
Manager

Model User

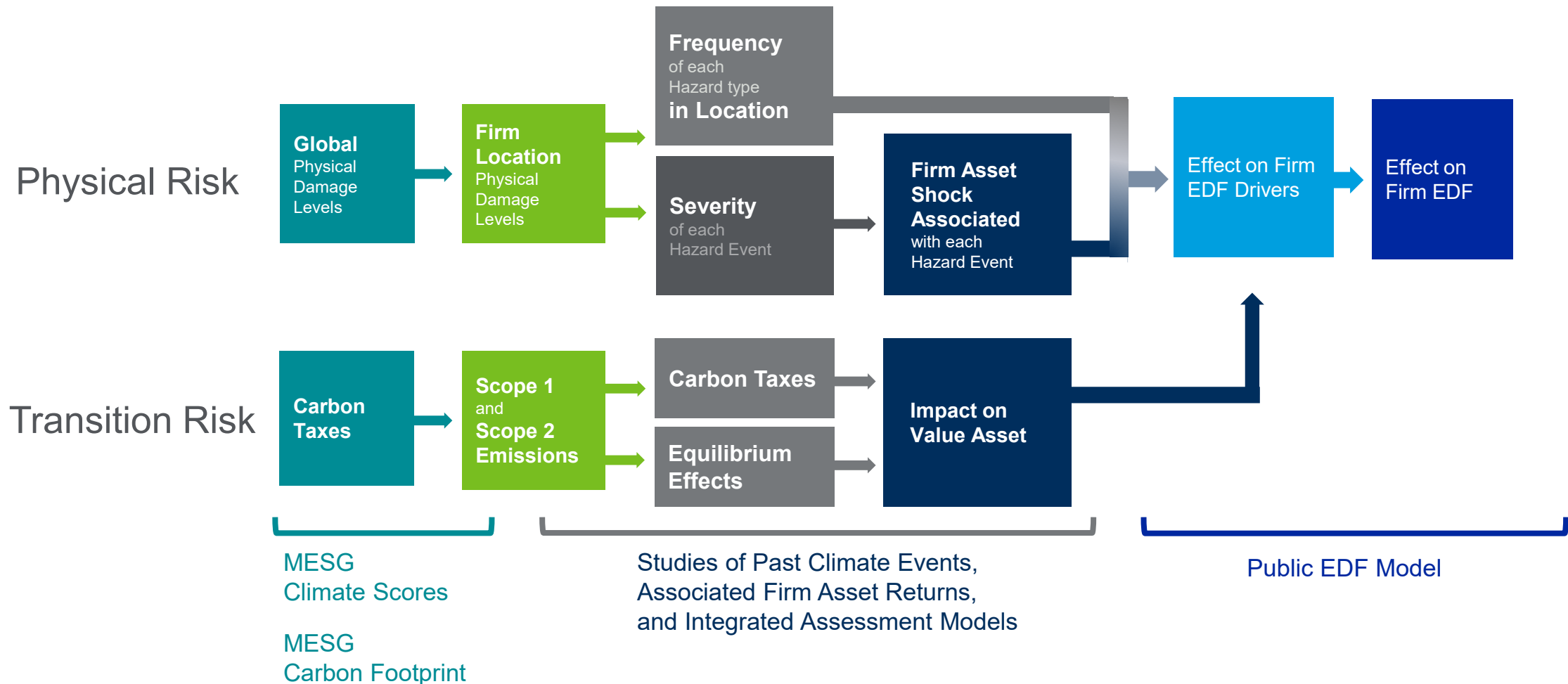


2

Applications

# Moody's Climate Adjusted EDF Model

Principle 1.3, CP 6/22: Model Tiering - Complexity



# Externally developed models, third party and vendor products

## Principle 2.6, PRA CP 6/22

» In line with PRA SS2/21, management boards and senior management are ultimately responsible for the management of model risk, even when they enter into an outsourcing or third-party arrangement.

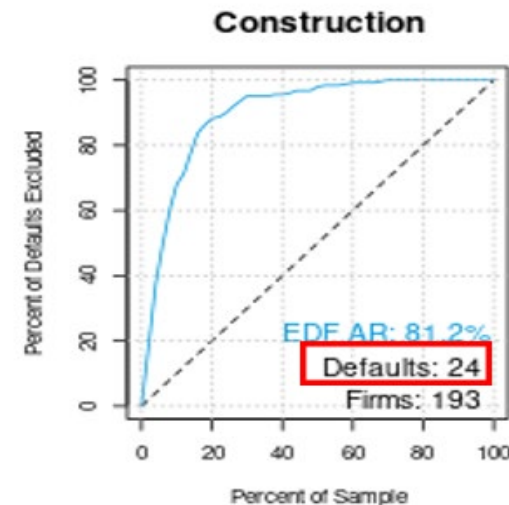
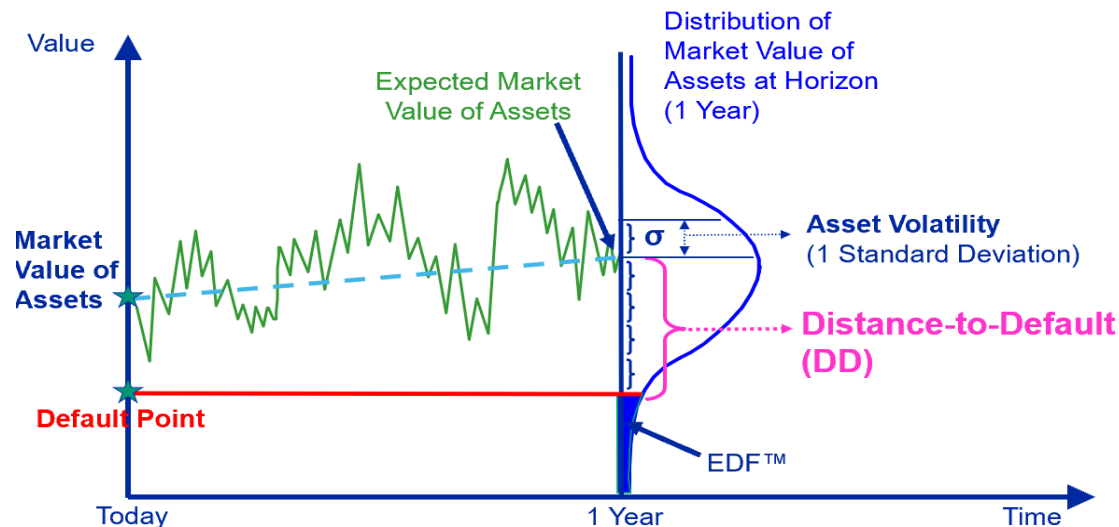
» Regarding third-party vendor models, firms should:

**Satisfy** themselves that the vendor models have been validated to the same standards as their own internal MRM expectations

**Verify** the relevance of vendor supplied data and their assumptions

**Validate** their own use of vendor products and conduct ongoing monitoring and outcomes analysis of vendor model performance using their own outcomes

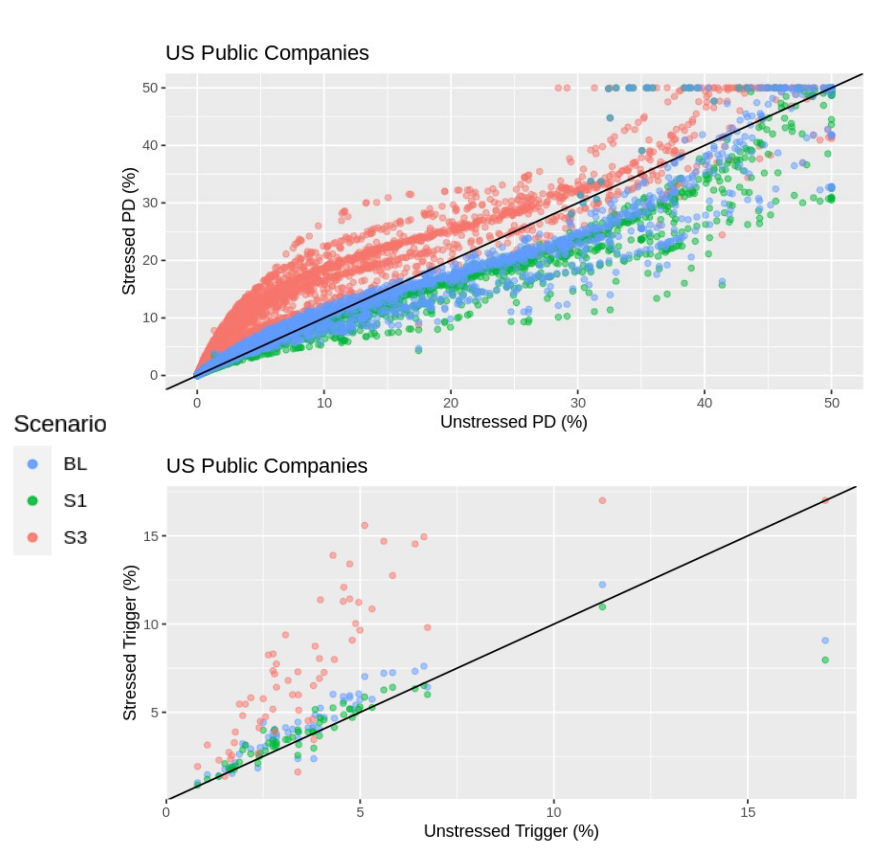
## EDF – development using European data – application in the UK



# Stressed EWS

Principle 3.3 Model development testing should demonstrate that a model works as intended

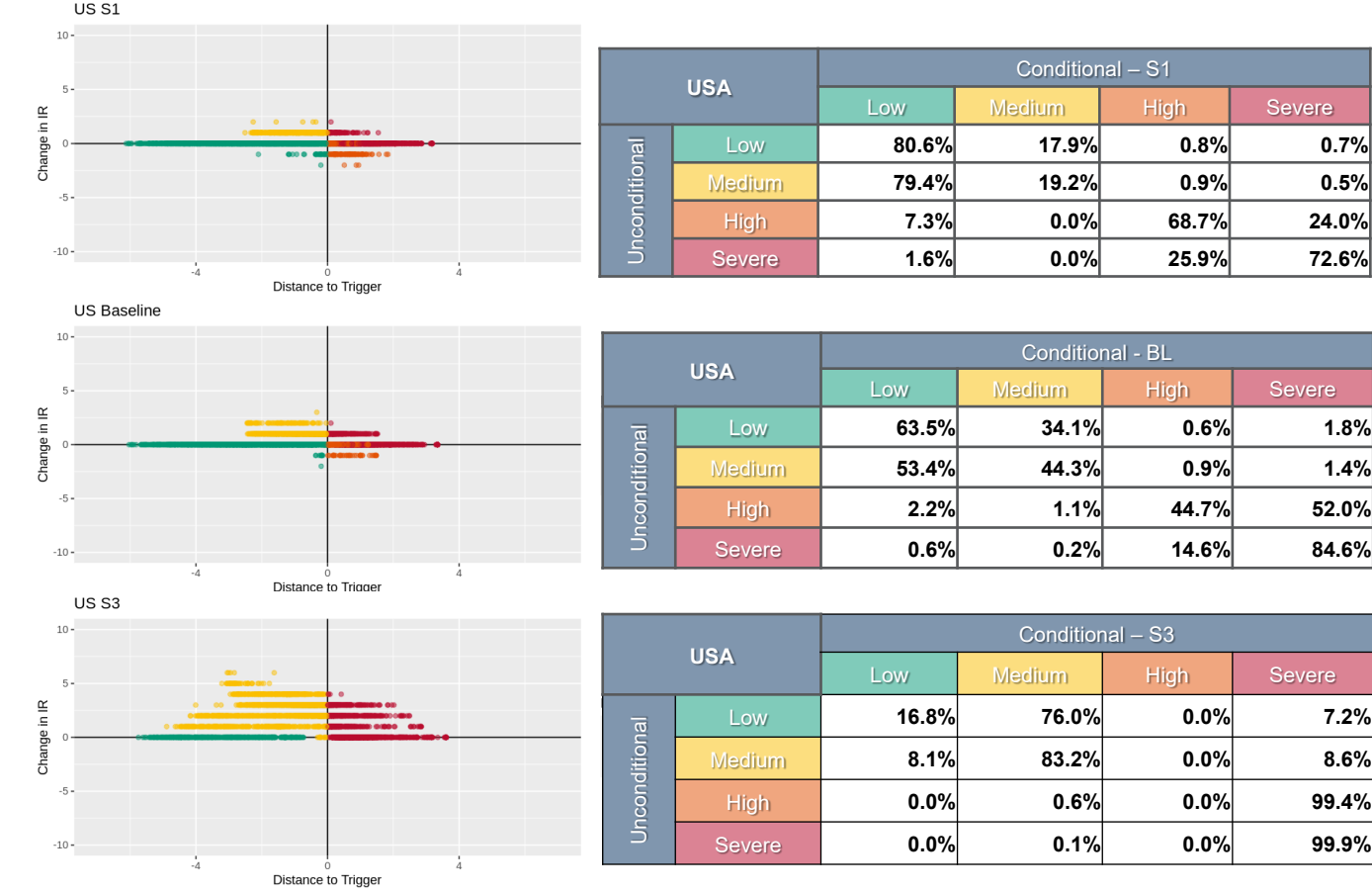
## PDs and Triggers increase under stress



BL: Baseline, S1: Upside, S3: Severely Adverse

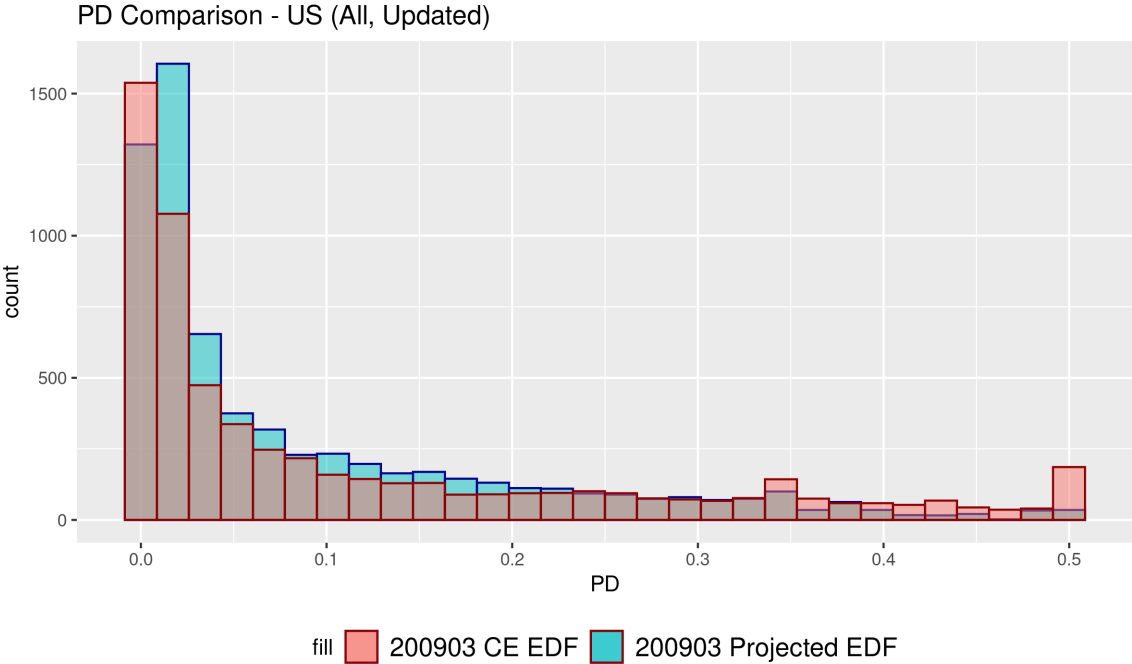
## We observe upward and rightward movement under stress

Unconditional: 202206; Conditional: 202306



# PD Comparison

200903 **Unconditional** vs. 200903 **Conditional** (Realized Macro Factors)



	Starting EDF	CE EDF (200903 Unconditional)	Projected EDF (200903 Conditional)
Min.	0.01%	0.01%	0.02%
1 <sup>st</sup> Qu.	0.27%	0.85%	1.12%
Median	0.88%	4.08%	3.39%
Mean	6.03%	11.45%	8.87%
3 <sup>rd</sup> Qu.	5.06%	18.31%	13.17%
Max.	50.00%	50.00%	50.00%

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