



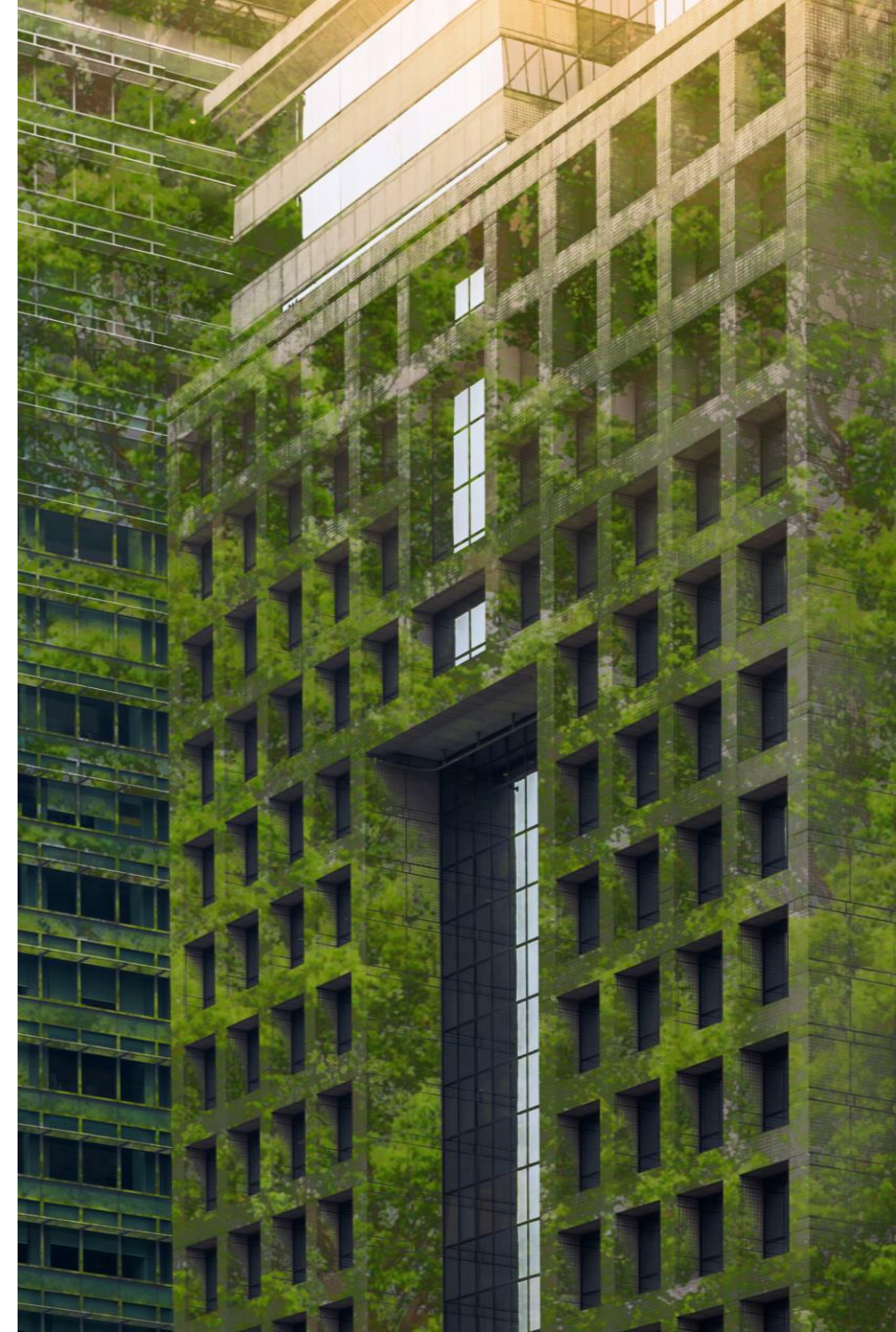
## The road to net-zero

Transition risk impact assessment exercise for Greek Large Corporates

Athens, June 2023

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# Foreword

Despite the considerable progress made so far with regards to the integration of Climate & Environmental (hereinafter referred to as “C&E”) risks into risk management frameworks and business practices, the road towards their effective management remains long with various challenges ahead including their measurement and quantification.

In this document, we present the results of the 1<sup>st</sup> exploratory transition risk impact assessment exercise for the Greek economy and their implications from a credit risk perspective by employing Deloitte’s Global Framework for the quantification and measurement of C&E risks.

The exercise is based on a sample of more than 800 Greek Large Corporates with the aim to shed light on the credit risk associated with their transition to a net zero economy as indicated by the transition risk-adjusted probabilities of default (hereinafter referred also to as “transition risk adjusted PDs”).

Three hypothetical climate scenarios from the NGFS<sup>1</sup> are used, namely orderly transition, disorderly transition and hot house world, estimating the impact on each corporate’s current PD across a 30-year horizon, up to 2050.

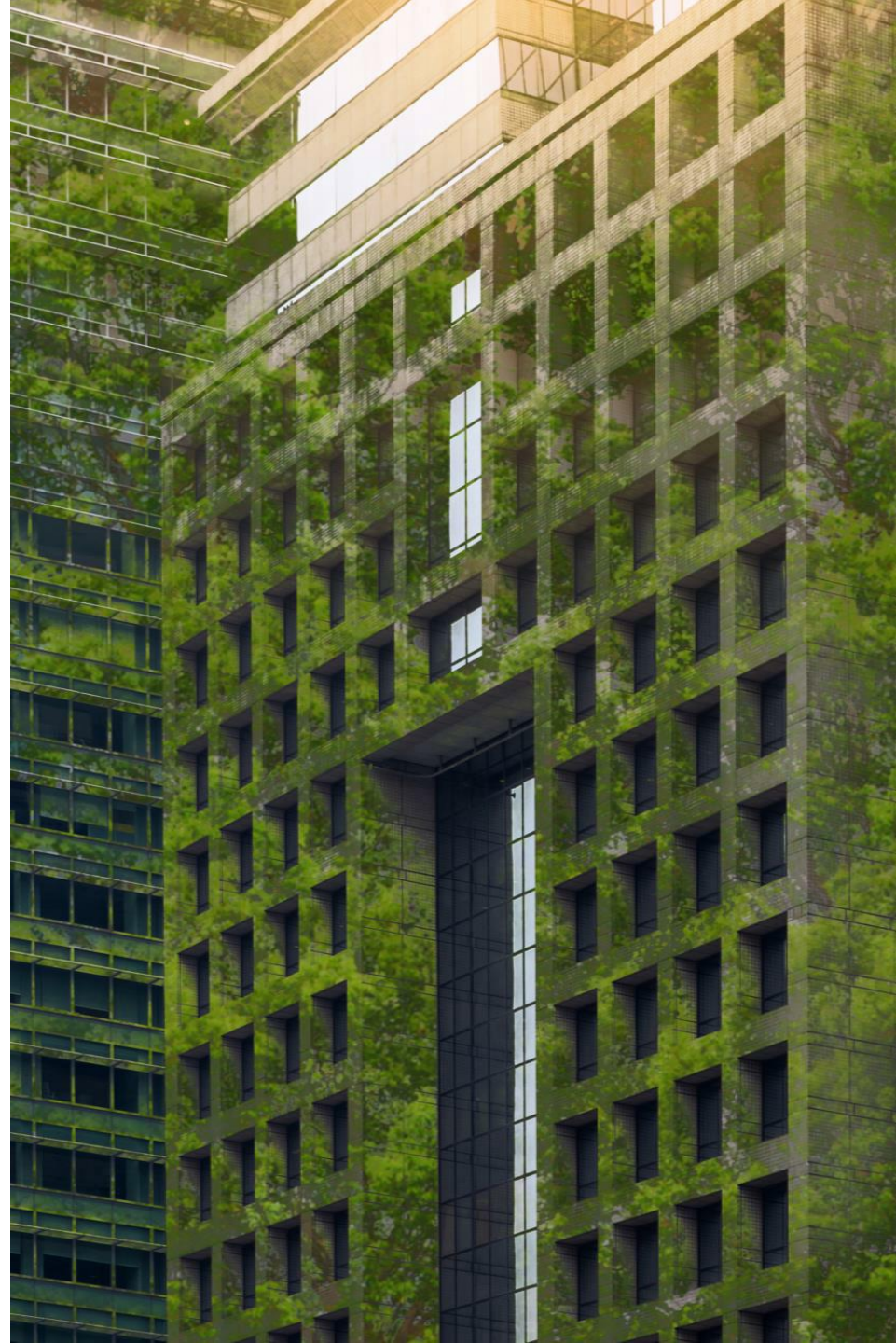
The results of this exercise aim to provide insights with regards to sector dynamics and level of resilience of the Greek economy with respect to its transition to net zero and lead to informed decision making.

<sup>1</sup> NGFS stands for Network for Greening the Financial System, a global group of central banks and financial regulators created in 2017 to tackle the financial risks associated with climate change.

*“If you cannot  
measure it, you  
cannot manage  
it”*

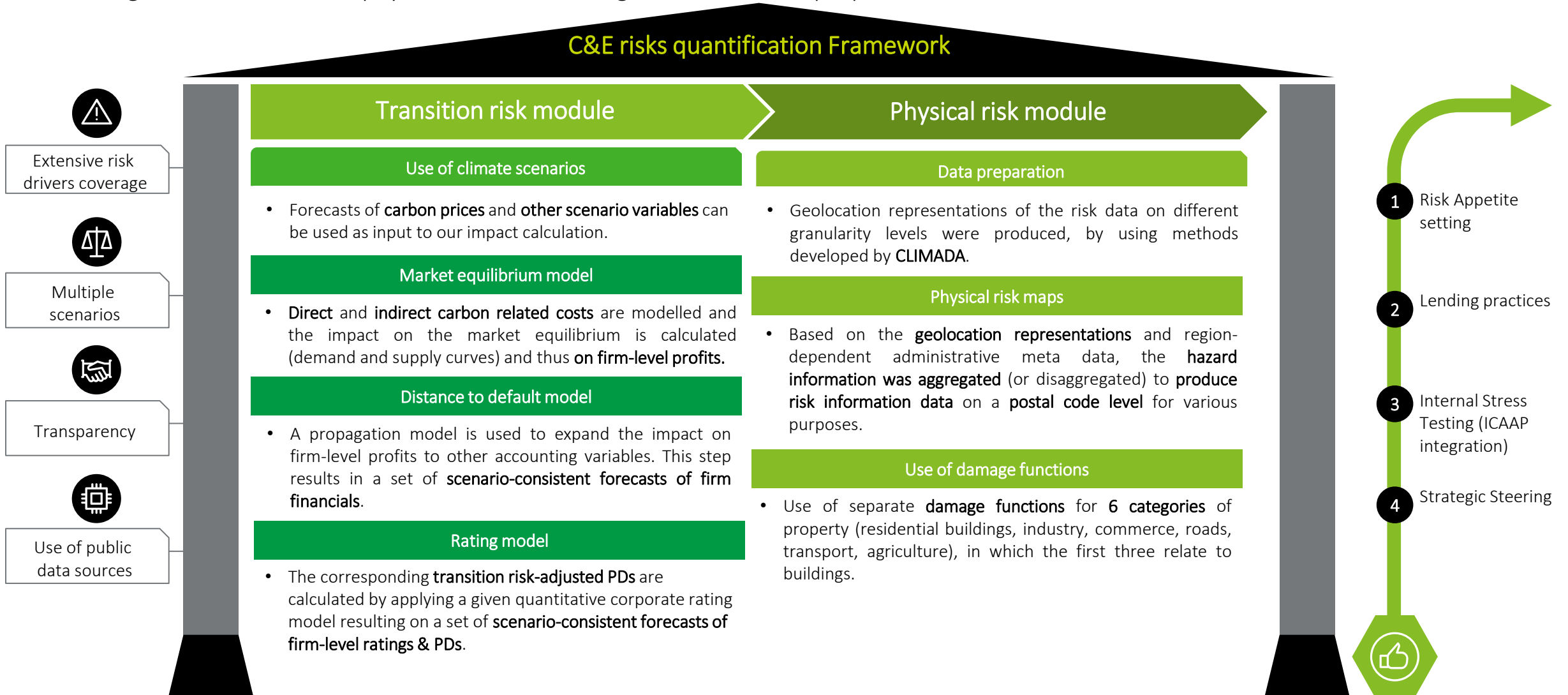
— Peter Drucker

# Methodological Framework



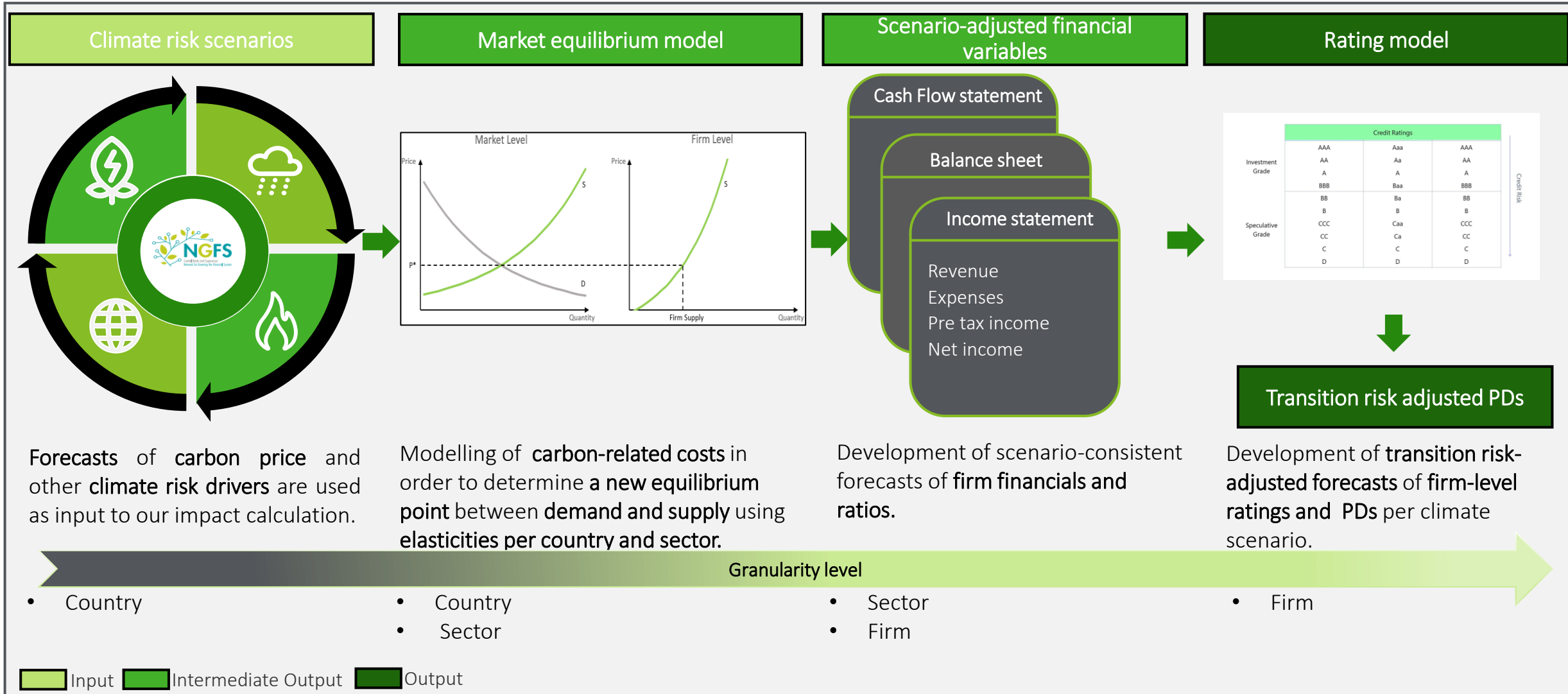
# Deloitte's Global framework for the quantification of C&E risks | Overview

Deloitte's global framework for the measurement and quantification of C&E risks, represents a scalable and transparent approach covering both transition and physical risks and aiming to serve various purposes within a Financial Institution

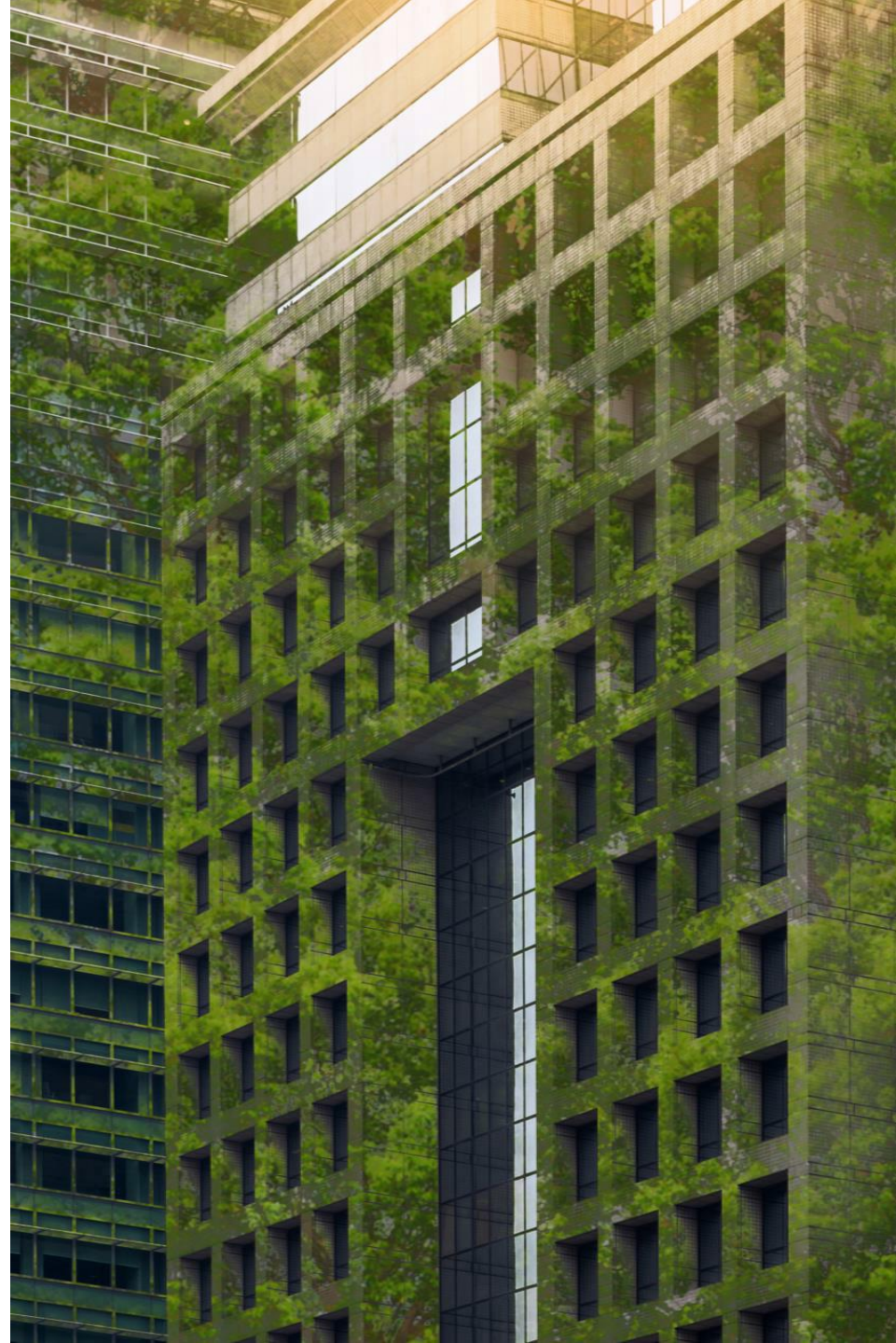


# Transition risk module | Model design at a glance

Transition risk module represents a multi-step approach along the lines of UNEP FI framework making deliberate modelling decisions and showing the hallmarks of good model design including transparency, proportionality, data leverage and industry best practice



# Transition risk impact assessment results



# Transition risk impact assessment exercise | Background

Our sample is comprised of 821 Greek Large Corporates, with annual turnover over € 20mn (FY 2021), representing a broad range of economic sectors of Greek economy while the analysis is based on three NGFS scenarios (i.e., orderly, disorderly and hot house world)

## Number of firms

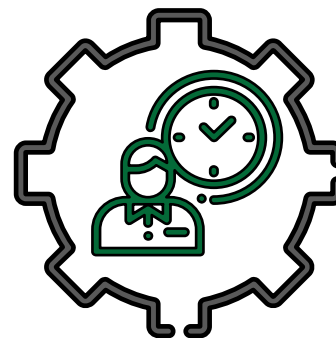


The sample consists of **Greek Large Corporates**

**821**

Firms

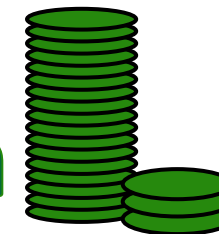
## Criteria selection



Profitable firms (FY2021) with **annual turnover >€20mn** as of 31.12.2021

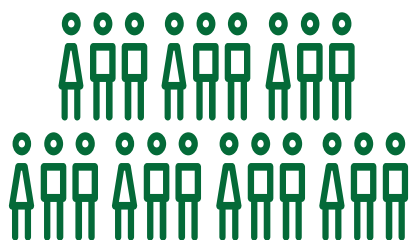
Turnover

**>€ 20 mn**



Data extracted from ICAP and Exiobase

## Number of sectors



**16** → **96**

Sectors

Sub-sectors

The analysis was performed at **sub-sector** level in order to enhance granularity and interpretability of results

## Scenarios used



Three **NGFS scenarios** (orderly, disorderly, hot house world) were used, with key distinctive feature the **carbon price** over a **30 – year horizon**.



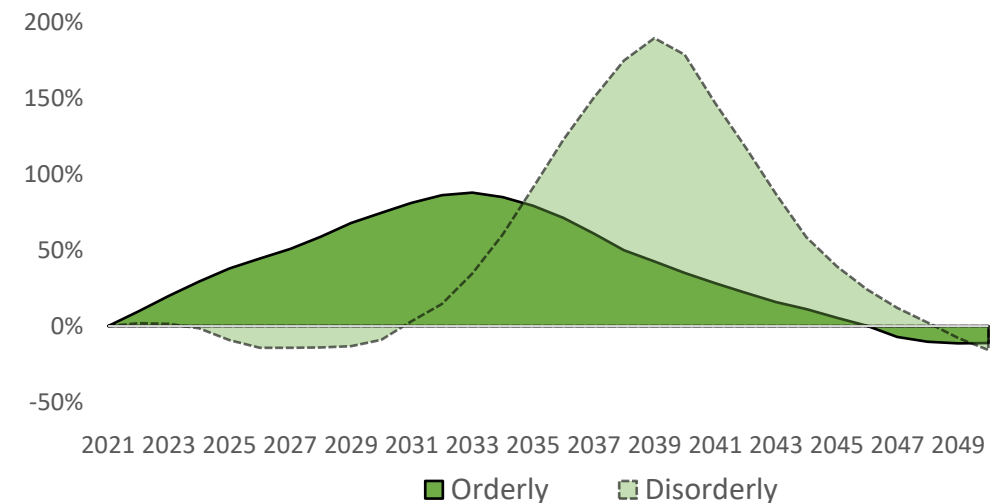
# Transition risk impact assessment exercise | Summary of main observations

Impact assessment results suggest that the credit risk associated with a disorderly transition with delayed but abrupt phasing-in of climate-related policies is expected to be much higher than that of an orderly transition as indicated by the maximum increase in PDs

## Impact assessment results

- ✓ Results are consistent with the aggregated outcome of the SSM climate stress 2022, indicating a high degree of **differentiation** across scenarios in terms of both **magnitude** and **timing** of **realization** of impacts in the **long – term**.
- ✓ Under the **disorderly scenario** PDs are expected to increase by a **maximum of 180%** (i.e., almost a threefold increase) from their current levels, observed in **t+18** (i.e. 2039);
- ✓ **Orderly scenario** results to a front-loaded impact on PDs which are expected to increase by a **maximum of 88%** from their current levels, observed in **t+12** (i.e. 2033);
- ✓ The impact of **hot house world** scenario remains to be seen since it needs to be taken into consideration in combination with the **physical risk** impacts which were out of the scope of the exercise.

Exhibit 1: Transition risk-adjusted PD Δs (% cumulative change) per scenario



	Orderly (Net Zero 2050)	Disorderly (Delayed transition)	Hot-house world (Current policies)
Maximum increase in PDs (x-fold)	1.88x	2.80x	-
Duration of impact	25 years	19 years	~ 0 years
Timing of max impact (t=2021)	t+12	t+18	n/a

Sources: ICAP, Exiobase, Deloitte C&E Credit Analytics calculations

# Transition risk impact assessment exercise | Sector level analysis

Sector level analysis on transition risk dynamics (indicated by a maximum PD change) reveals the hardest hit sectors over the 30-year period



**Disorderly scenario** implies a higher transition risk for all sectors of the economy.

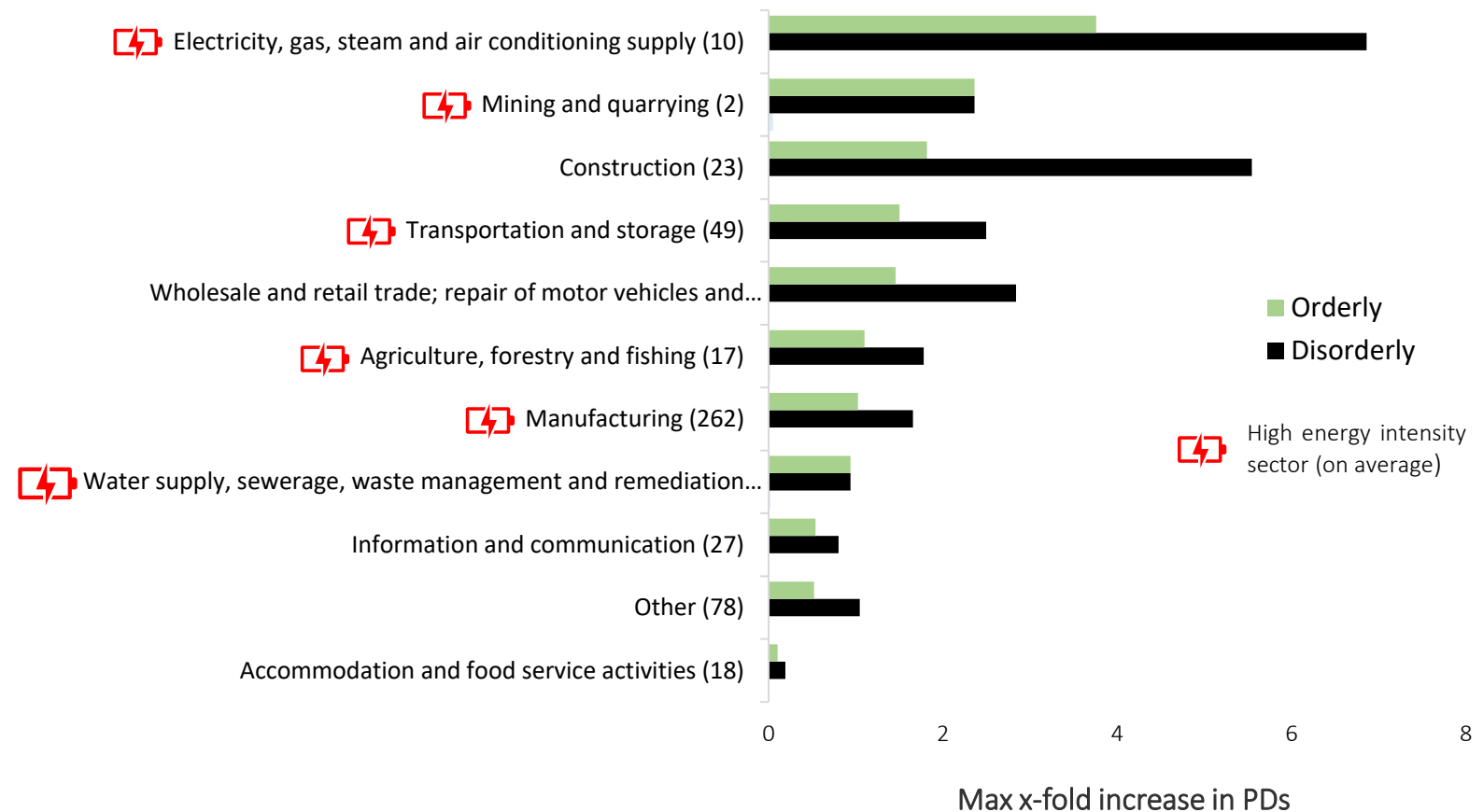


The **hardest hit sectors** under both orderly and disorderly scenarios are **energy, mining and quarrying, construction, transportation and storage.**



Amid **high profit margins** (60% on average), the **power sector** is the **most vulnerable** mainly due to its **high carbon intensity.**

Exhibit 2: Transition risk-adjusted PD Δs (at maximum) per sector



Sources: ICAP, Exiobase, Deloitte C&E Credit Analytics calculations

**Notes:** Number of firms in parenthesis. Median values were used for sector aggregations. Other sectors include administrative activities, arts, education, financial and insurance, health and scientific activities.

# Transition risk impact assessment exercise | Main transition risk drivers

Besides carbon intensity which represents a profound driver, the analysis reveals current profitability levels as another major driver of transition risk impact and thus squares with business logic, as most profitable firms are found to be more resilient



**Energy intensity** represents the primary driver of transition risk, as expected.

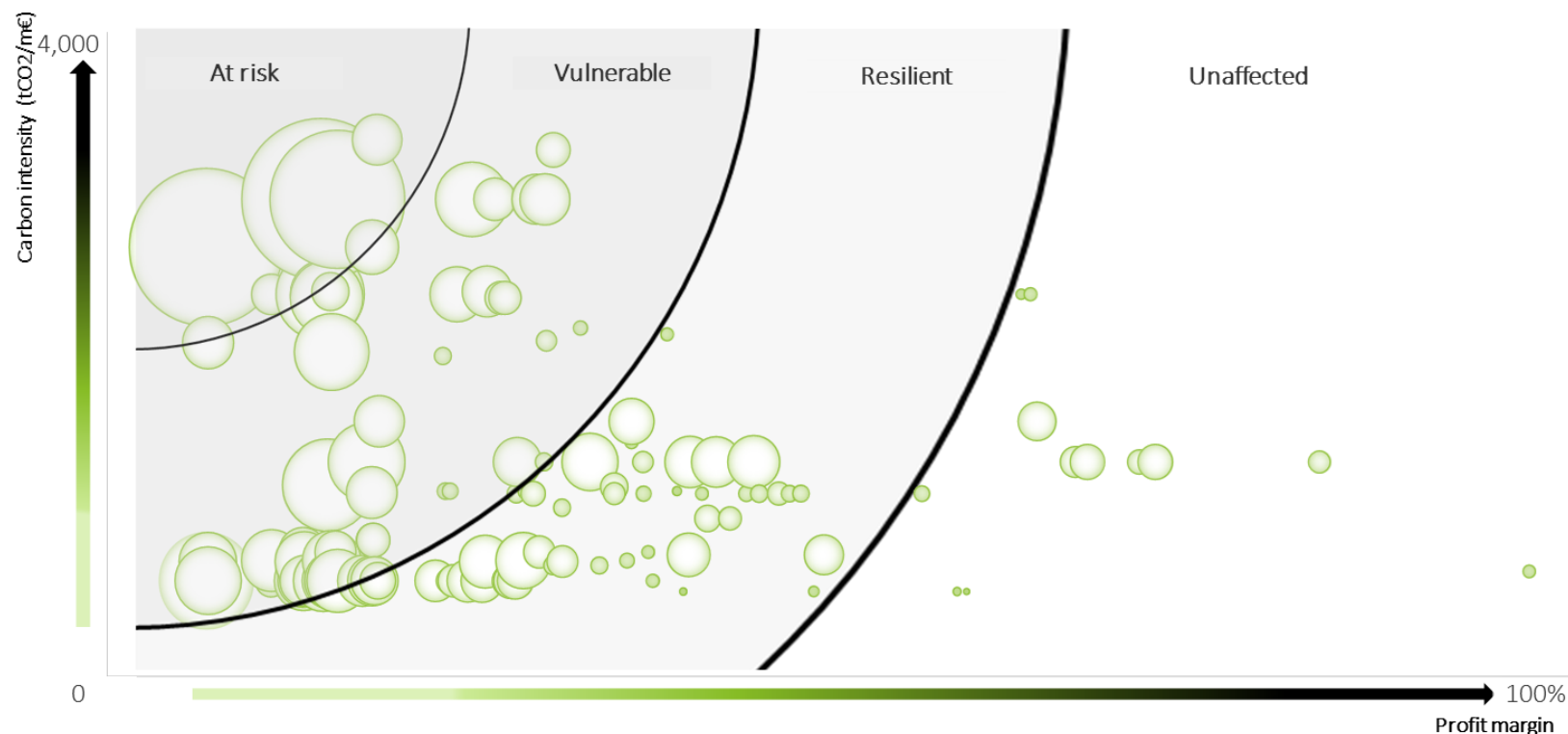


Transition risk **decreases** materially as **profit margins increase** (bubble size gets smaller).



**High risk area** is comprised of firms with thin profit margins coupled with high carbon intensity levels.

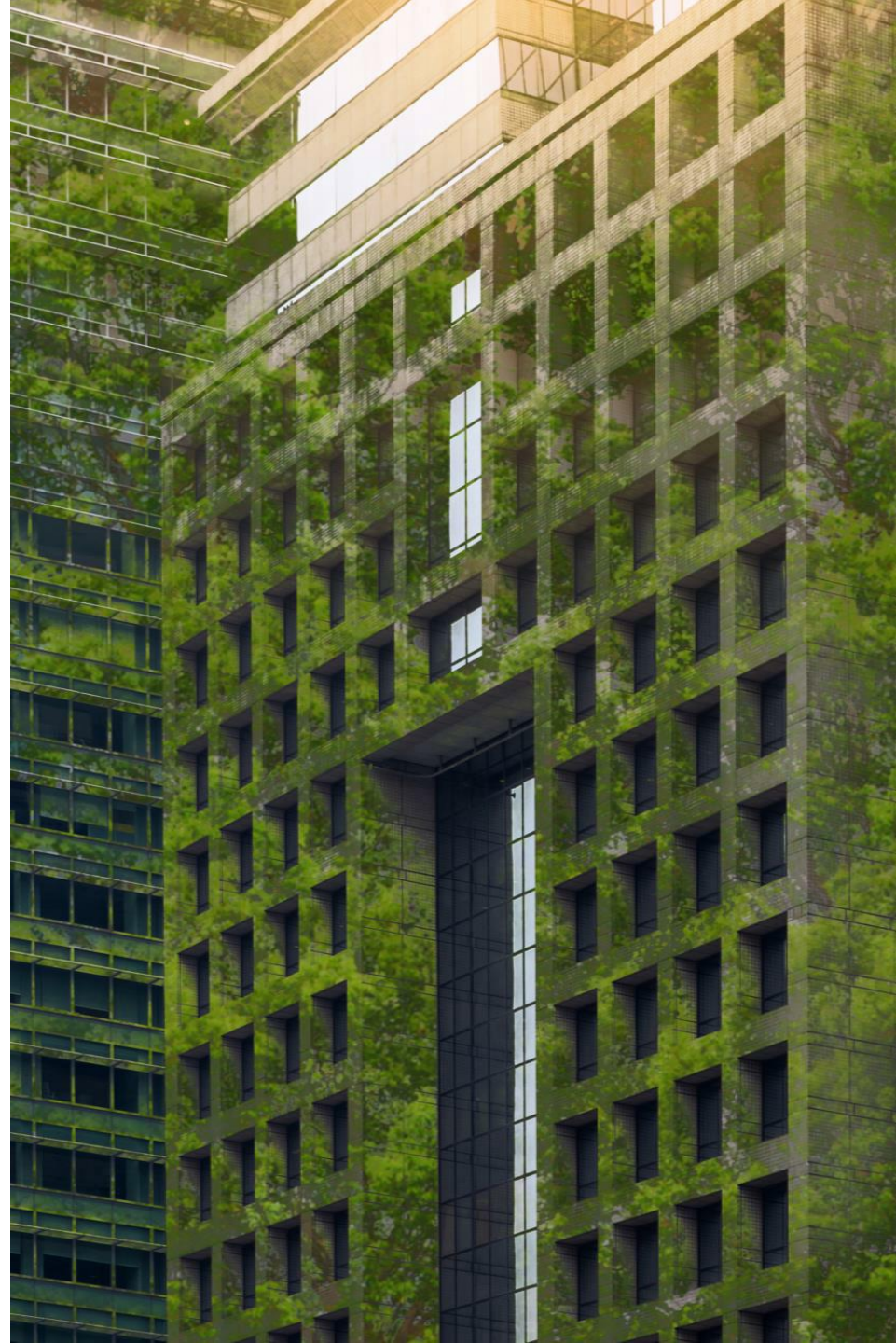
Exhibit 3: Transition risk-adjusted PD (at maximum) per energy intensity and profit margin



Sources: ICAP, Exiobase, Deloitte C&E Credit Analytics calculations

**Notes:** Bubble size represents the maximum (x-fold) increase in transition risk over the scenario horizon. Granularity is at firm level, except for carbon intensity which has been calculated at sub-sector level. Contour lines in the graph mark areas of distinctive firm clusters and are not linked to specific levels for profit margin and carbon intensity.

# Deloitte Contacts



# Deloitte contacts



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