Discovery Exercises

Module 4, Lesson 2: TCFD and TNFD Risk Assessment

Foundation level. Two pre-class and two in-class activities. Full worked solutions are at the back: try each activity before you check.

Four activities open the ideas of Lesson 4.2 before, and during, the lecture. The two pre-class tasks take 15 to 20 minutes each and you do them alone. The two in-class tasks take 5 to 10 minutes and you do them with others. Nothing here is graded; the point is to think first, then compare your thinking with the worked solution. The lesson gives you the global *framework* for assessing the risks you classified in Lesson 4.1.

PRE-CLASS Why four pillars, and why they form a chain

15 to 20 min, work on your own, pen and paper

Based on: guided discovery (Mayer 2004)

The **Task Force on Climate-related Financial Disclosures (TCFD)** organises climate risk into four pillars. They are meant to work as one connected system, not four separate boxes. Here are the four, in a scrambled order, each with its one-line job:

Pillar	Its job
Metrics and Targets	Measure and track progress (emissions, targets)
Governance	Decide who is responsible (board, management)
Risk Management	Identify, assess, and manage the risks day to day
Strategy	Work out how climate affects the business, test scenarios

1. Put the four pillars in the order that makes them a working chain: which must come *first* (someone has to be made responsible), which comes last (you can only measure once you are managing)? Write your ordered list.
2. Between two of your pillars, a feedback loop runs backwards: the numbers produced at the end are fed back to the people in charge at the start. Name the two pillars this loop connects, and say in one sentence what moves along it.
3. The lesson calls one pillar "the operational core". Which one do you think it is, and why? (Hint: which pillar decides whether climate risk is acted on in daily lending decisions?)

Your attempt (before you check the solution at the back):

PRE-CLASS Score a bank's climate maturity before you are taught the rubric

15 to 20 min, work on your own, pen and paper

Based on: productive failure (Kapur 2008)

Try this *before* the lecture gives you the scoring scale. A simple maturity rubric rates a bank on four things, each from 0 (nothing) to 3 (fully embedded): how well it *identifies* climate risk, how well it *assesses* it, how well it *manages* it, and how well it *integrates* climate into its

main risk system. Add the four to get a score out of 12.
Here is what a Thai commercial bank does. Read it, then score each dimension 0 to 3 using your own judgement (there is a natural scale hiding in the words):

Dimension	What the bank does
Identify	Systematic screening with a climate risk register; covers corporate and retail lending; updated every year.
Assess	Qualitative judgement only; very limited scenario analysis; no quantitative stress testing yet.
Manage	Sector-specific lending policies for power and agriculture; some credit integration; but no portfolio steering.
Integrate	Climate risk is reported separately from the main risk system; not yet in the board's risk-appetite statement.

1. Give each of the four dimensions a score from 0 to 3, and write one word or phrase justifying each score. Add them up: what is the total out of 12?
2. The scale bands are: 0 to 3 absent, 4 to 6 basic, 7 to 9 developing, 10 to 12 advanced. Which band is this bank in?
3. Which *two* single actions would raise the score the most? Name them, and say which dimension each one lifts.

Your attempt (before you check the solution at the back):

IN-CLASS From climate to nature: predict the four LEAP steps

5 to 10 min, think-pair-share

Based on: predict then reveal, testing effect (Roediger and Karpicke 2006)

The **Taskforce on Nature-related Financial Disclosures (TNFD)** extends the same four-pillar idea to *nature* (water, forests, pollination, fisheries) and adds a four-step process spelled **LEAP**. Unlike carbon, which is the same everywhere, nature risk is location-specific, so the first step is about *place*.

1. **Predict (1 minute, on your own).** LEAP stands for four steps that spell the word L-E-A-P. Given that a bank must first find *where* it touches nature, then work out what it *depends on* and *harms*, then judge the *financial* risk, then decide what to *do and report*, guess the word each letter stands for:
   - L = _____ E = _____
   - A = _____ P = _____
2. **Pair (2 minutes).** Compare with a neighbour. Agree on one sentence explaining why a bank lending to palm-oil plantations must start with *location* (think: a forest in Borneo is not the same as a forest in Scandinavia).
3. **Share and reveal.** Your instructor reveals the four LEAP words. How close were you? What is the one difference between a *dependency* risk and an *impact* risk?

IN-CLASS Does a disclosure rule help or hurt small banks?

5 to 10 min, small groups of 3 to 5

Based on: data and case interrogation, active learning (Freeman et al. 2014)

The lesson's key idea is that climate risk belongs *inside* a bank's normal **Enterprise Risk Management (ERM)**, using the same register, committee, and appetite limits, not run as a separate silo. But making every bank do this has a cost, and the cost is not the same for a big bank as for a small one. Use these lesson-level figures: the Philippine banking sector has 42 commercial banks, 46 thrift banks, and over 600 rural banks.

From the case study: Philippines BSP Circular 1085 implementation (case study 8)

The Bangko Sentral ng Pilipinas (the Philippine central bank) issued Circular 1085 requiring every bank to build an environmental and social risk-management system, run climate stress tests, and report on sustainability. Compliance cost is regressive: it runs about 0.3 to 0.8 percent of net income for a large bank but about 2 to 5 percent of net income for a small bank. Green lending grew about plus 40 percent per year after the rule, but smaller enterprises and rural banks faced tighter credit, and small-bank mergers accelerated.

1. **Vote first (no arithmetic).** As a group: does a uniform disclosure-and-risk rule like this help or hurt the *smallest* banks more? Agree on one answer before reading further.
2. **Now reason with the numbers.** The same fixed cost (an ESG team, systems, training) is 0.3 to 0.8% of net income for a big bank but 2 to 5% for a small one. Explain in one or two sentences why the *same* rule lands so unequally, and what the case says happened to small banks as a result.
3. Green lending still grew 40 percent per year overall. So is the rule a success or a failure? Give one sentence for each side (who won, who lost), then state one design change that would keep the climate benefit while easing the burden on small banks.

Full Solutions

Try each exercise on your own before you read its solution.

Solution: Why four pillars, and why they form a chain

1. The working order is **Governance** then **Strategy** then **Risk Management** then **Metrics and Targets**. Governance assigns responsibility, which enables Strategy; Strategy requires Risk Management to act on it; Risk Management produces the Metrics that measure progress.
2. The feedback loop connects **Metrics and Targets** back to **Governance**: the emissions numbers and target performance produced at the end are reported back to the board, so that the people in charge can adjust direction. Metrics without governance lack accountability.
3. The operational core is **Risk Management** (identify, assess, manage). Governance and Strategy set direction and Metrics measure outcomes. But this pillar is where day-to-day processes live: it decides whether climate risk enters a lending decision.

Common misconception. That the four pillars are four independent disclosures you can do in any order or pick from. They are a system: governance without risk management is performative, and risk management without metrics is unverifiable.

Solution: Score a bank's climate maturity before you are taught the rubric

1. A defensible scoring: Identify = 2 (systematic and annual, but not yet comprehensive); Assess = 1 (qualitative only, no quantitative stress testing); Manage = 2 (sector policies and some credit integration, but no portfolio steering); Integrate = 1 (reported separately, not in the risk-appetite statement). Total = $2 + 1 + 2 + 1 = 6$ out of 12.
2. A total of 6 falls in the 4 to 6 band, so the bank is **basic**, at the top of the band and one point below developing.
3. The two highest-value moves: (i) implement scenario analysis, which lifts *Assess* from 1 toward 2 or 3; (ii) put climate risk into the board's risk-appetite statement, which lifts *Integrate* from 1 toward 2 or 3. These two are worth more than polishing the dimensions that already score 2.

Common misconception. That a bank with a good climate risk register is therefore "advanced". Identifying risk well (a 2 or 3 on one dimension) means little if assessment stays qualitative and climate never reaches the risk-appetite statement; maturity is the sum across all four dimensions.

Solution: From climate to nature: predict the four LEAP steps

LEAP stands for **Locate** the interface with nature, **Evaluate** dependencies and impacts, **Assess** the material risks and opportunities, and **Prepare** to respond and report.

Why start with location: nature risk is location-specific, unlike carbon which is globally fungible (a tonne of CO_2 is the same anywhere), so a bank must first map exactly where its borrowers touch sensitive ecosystems before it can judge the risk. A **dependency** risk is the firm relying on an ecosystem service that may fail (water, pollination, flood control); an **impact** risk is the firm suffering regulatory, reputational, or legal consequences of *harming* nature (for example deforestation penalties).

Common misconception. That nature risk can be captured by one number like carbon is. There is no single nature metric equal to tonnes of CO_2 equivalent; candidates such as Mean Species Abundance and the Biodiversity Intactness Index are all location-specific, which is exactly why LEAP starts with Locate.

Solution: Does a disclosure rule help or hurt small banks?

1. It hurts the smallest banks more (in relative terms), even though the climate goal is sound. The cost is regressive.
2. The rule has large *fixed* costs (an ESG team, systems, training) that do not shrink with the bank. Spread over a big bank's large income they are only 0.3 to 0.8%, but over a small bank's tiny income they are 2 to 5%, several times heavier. The case reports the result: tighter credit from small and rural banks and accelerated small-bank mergers (consolidation).
3. Success side: green lending grew about 40 percent per year, so capital did shift toward sustainable sectors. Failure side: smaller enterprises and rural banks were squeezed and some small banks disappeared. A design fix: scale the requirement to bank size (lighter, standardized templates for small banks) so the climate benefit stays while the burden on small institutions eases.

Common misconception. That a rule which raises average green lending must be working for everyone. Averages hide distribution: the same mandate can grow total green credit while cutting off the smallest banks and their borrowers, which is why proportionate design matters.

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