

When Digital Finance Fails: In-Class Exercises

Standalone Lecture — 3 Short Exercises

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Digital Finance — BSc Course

How to use these exercises

- Three short in-class exercises, ~8–10 minutes each.
- Attempt on paper first, then discuss with a partner.
- Solutions are hidden by default; instructor build reveals them via `\solutionstrue`.

Companion to `lecture_when_digital_finance_fails`.

Exercise 1: Match Case to Primary Cause

Task. Match each failure case (left) to its dominant proximate cause (right). Each cause is used at most once.

Case	Cause (pick one per row)
(a) Wirecard (2020)	1. Operational / algorithmic code bug
(b) Archegos (2021)	2. Fraud: fabricated balances
(c) FTX (2022)	3. Over-leverage via opaque swaps
(d) Knight Capital (2012)	4. Commingling of customer funds

Difficulty: Introductory — tests recall.

Exercise 2: Archegos Leverage Math

Scenario. Archegos held approximately \$10B of equity and had synthetic exposure of \$50B via total-return swaps across a handful of concentrated long positions.

Task. Compute:

- a The leverage ratio (synthetic exposure \div equity).
- b The loss, in dollars, if the underlying stocks decline 20% in aggregate.
- c The loss as a percentage of equity.

Difficulty: Introductory — arithmetic with a stark intuition.

Exercise 3: Two Red Flags Across Cases

Task. Identify **two** red flags that are common to at least two of the cases above (Wirecard, Archegos, FTX, Knight). For each red flag, state which cases showed it and why supervisors or counterparties missed it. *Difficulty: Intermediate*
— *pattern recognition across incidents.*