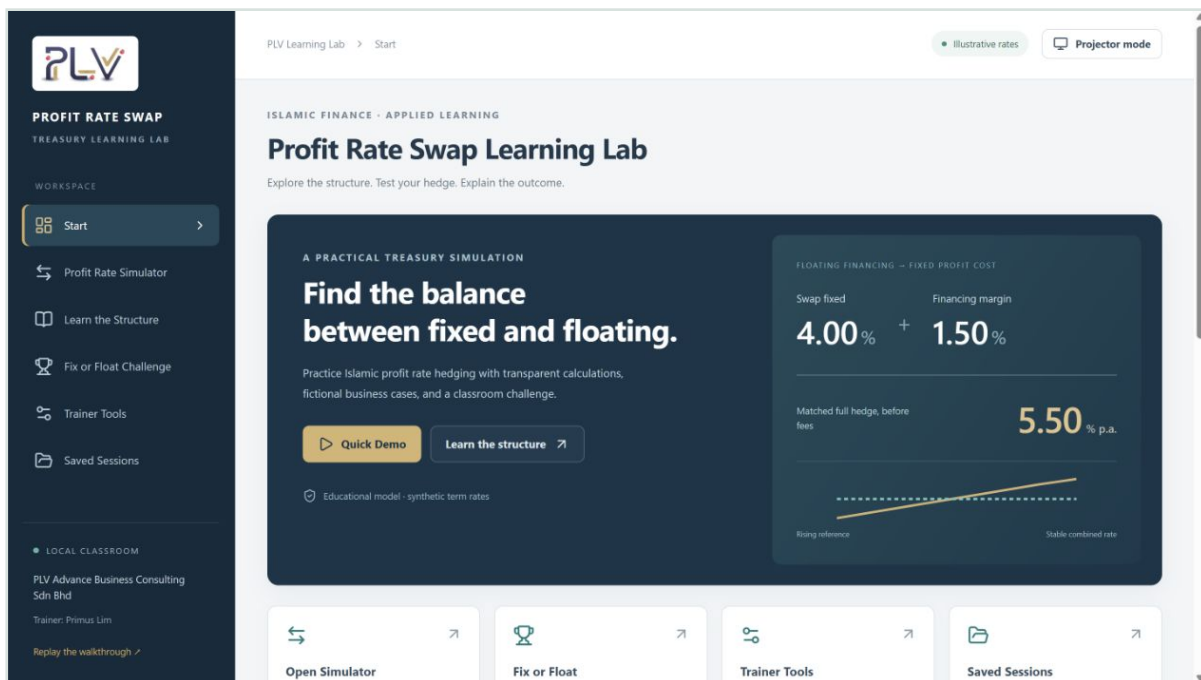


PLV LEARNING LAB

Profit Rate Swap Manual Version 2.0

PLV Islamic Profit Rate Swap Simulator

Follow the transaction. Calculate the payment.
Make a decision you can explain.



A practical guide for beginners and trainers

Start with the on-screen MYR 10 million demo. See the Islamic transaction concept, trace who pays whom, compare rising and falling rates, and complete a scored classroom challenge. A smaller MYR 100,000 worksheet is included.

PLV Advance Business Consulting Sdn Bhd

Trainer: Primus Lim • Rebuilt 3 October 2026

Manual edition 2.0 for application version 1.0.0. Educational examples use invented rates. The application models profit cash flows; it does not execute transactions or issue Shariah certification.

01 / WINDOWS QUICK START

Open the simulator

- 1. Open the project folder.** In File Explorer, open **28-PLV Islamic Derivatives > PLV Profit Rate Swap**. The PDF itself opens independently of the simulator.
- 2. Run the launcher.** Double-click **START-PLV-PROFIT-RATE-SWAP.bat**. Keep its server window open while you use the application.
- 3. Open the browser address.** <http://127.0.0.1:4183/> is the direct local link. Enter it in Edge or Chrome if the browser does not open automatically.
- 4. Select Quick Demo.** Look for the PLV logo and **Profit Rate Swap Learning Lab**. Complete the welcome guide or select **Skip walkthrough**.

If the page will not load

Run START first, then use the exact address above on this computer. Do not open dist/index.html directly. Port 4183 is for this swap app; the neighbouring FX app uses 4173. For other problems, see page 17.

Choose your route - click a page number

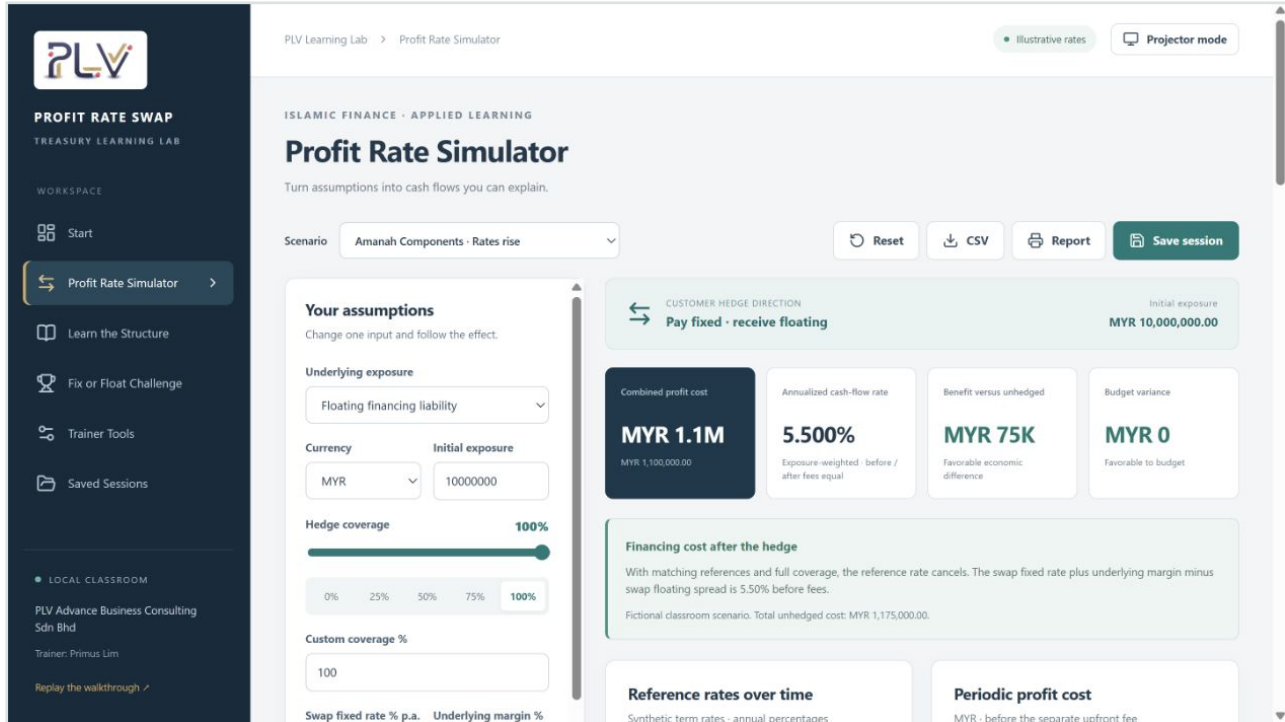
Topic	Page	Topic	Page
First exercise / screen guide	3-4	Starter cases / activities	12
Islamic structure / sale flows	5-6	Challenge / worked score	13-14
Financing / coverage / assets	7-9	Trainer lesson / saving	15-16
Fees, floors and formulas	10-11	Troubleshooting	17
Small-number worksheet	18	Answers / sources	19-20

Prepared computer: normal launch works offline, with no account or API key. External reference links need internet. **To stop:** save and export your work, then press Ctrl+C in the server window or close that window.

First setup elsewhere: install a supported Node.js release 22.12 or later with npm and PATH support. Copy the complete project and run SETUP-PLV-PROFIT-RATE-SWAP.bat with internet access. After setup completes, use START. No PowerShell execution-policy change is needed.

02 / LEARN BY DOING

Your first ten minutes



Screen shown: the unchanged Amanah demo. The left panel holds assumptions; the right panel explains the outcome. Scroll down for the schedule and calculations.

Step	What to do	What you should see
1 • Load	Start > Quick Demo . Choose Amanah Components if needed; select Reset .	Initial exposure MYR 10,000,000; 100% coverage.
2 • Check	Keep fixed rate 4%, margin 1.5%, quarterly payments and 30E/360.	Combined cost MYR 1,100,000 ; annualized rate 5.500% .
3 • Trace	Scroll to Show calculation for a period . Select period 1.	Financing 125,000; customer pays swap 12,500; cost 137,500.
4 • Compare	Select 50% hedge coverage.	Two-year cost MYR 1,137,500 . Some exposure still floats.
5 • Preserve	Select Save session and give the exercise a clear name.	Reopen it later from Saved Sessions . Export a backup on page 16.

Explain the result: Why does the full hedge cost more in period 1, yet save money when rates rise later? Use page 7 to trace the payments.

03 / PLAIN-LANGUAGE SCREEN GUIDE

Read the inputs and results

Input	Meaning / entry example
Underlying exposure	The financing cost or investment income being managed. Changing its type selects the matching hedge direction.
Initial exposure / coverage	Exposure is the amount at risk. 50% of MYR 10m gives MYR 5m hedge notional. Notional is a calculation reference.
Fixed / margin / spread	Fixed is the swap rate. Margin is added to the underlying reference. Spread is added to the swap reference. Type 4 for 4%, not 0.04.
Budget rate	A target used to compare outcomes. It does not cap the financing rate or guarantee an outcome.
Dates / payment schedule	Start, maturity, frequency and day count determine each period's year fraction. A quarter is 0.25 only under the example's chosen basis.
Reference paths and basis	Enter comma-separated percentages; press Apply values . Matching copies the underlying path to the swap; turn it off to enter different paths.
Floors / costs / notionals	Expand these sections for rate minima, assumed fees, reducing exposures or explicit hedge amounts. Pages 10-11 explain their effect.

Read the result from the customer's perspective

Result	How to interpret it
Combined cost / income	Financing: lower cost is favourable. Investment: higher income is favourable. The schedule contains profit amounts, not principal repayments.
Annualized cash-flow rate	Total combined amount divided by exposure-weighted year fractions. It is a simple cash-flow measure, not an IRR or market valuation.
Economic benefit / budget variance	Positive is favourable; negative is adverse. Benefit compares with no hedge. Budget variance compares with the target.
Customer net swap	Positive means customer receives; negative means customer pays. The bank's swap profit flow is the opposite, before external fees.

Amounts in this guide are MYR. The currency selector changes the label; it does not convert amounts. Enter amounts without thousands separators. A basis point is 0.01 percentage points: 50 basis points = 0.50 percentage points.

04 / STRUCTURE BEFORE ARITHMETIC

The Islamic transaction concept

A profit rate swap aims to manage an existing profit-rate exposure. The economic result and the contracts that produce it are separate things to understand.

Our selected teaching structure

This guide uses an **illustrative two-sale Wa'ad / Murabahah concept**. Wa'ad is an undertaking; Murabahah is a sale at disclosed cost plus agreed profit. The two sales support opposing fixed and floating profit components.

What the public sources support

Maybank's IPRS description explains profit-stream exchange and describes commodity Murabahah using disclosed cost and profit, with ownership passing on delivery and payment on agreed terms. It also explains Wa'ad. [\[1\]](#)

RHB describes IPRS using Wa'ad, commodity Murabahah and Muqasah (set-off), with no exchange of the swap notional. [\[2\]](#) The historical IIFM paper illustrates opposing sales and purchase undertakings, asset delivery and deferred prices. [\[3\]](#)

Stage	What to identify in this lesson
1 • Identify exposure	Amanah wants predictable cost on floating financing.
2 • Undertakings	Promises support the intended later sale transactions.
3 • Determine the period rate	PLV's synthetic term rate is known at the period start.
4 • Sale and delivery	Identify seller, buyer, asset, cost and profit in each sale.
5 • Deferred payment	Identify each complete price and the payment date.
6 • Assess the hedge	Combine the economic swap result with financing cost.

Current documents: IIFM publicly lists 2024 Two Sale and Single Sale standards, with operative documents restricted to members. This manual uses public explanations and a historical concept; it does not reproduce or verify those current agreements. [\[4\]](#) [\[5\]](#)

For an actual transaction, the chosen documents, asset ownership and possession, agency, execution and applicable institutional Shariah review must be established. The simulator's profit arithmetic alone does not establish compliance.

05 / TWO-SALE TEACHING ILLUSTRATION

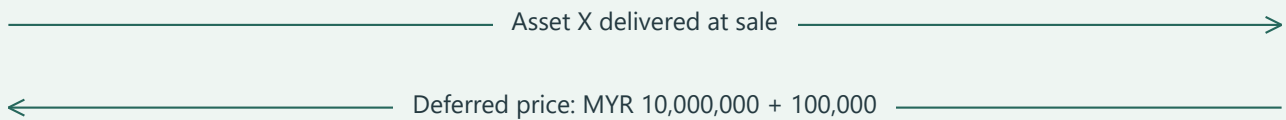
Follow the assets and sale prices

Use period 1: hedge notional MYR 10m, fixed 4%, floating 3.5%, year fraction 0.25. For this **separate illustrative ledger**, assume each commodity cost is MYR 10m. That equality is an example assumption, not the meaning of swap notional.

SALE X • fixed profit component

BANK - seller

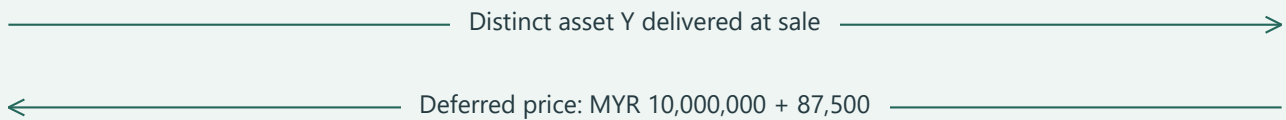
CUSTOMER - buyer



SALE Y • floating profit component

CUSTOMER - seller

BANK - buyer



Payment at the assumed common due date

MYR

Customer owes complete price for asset X	10,100,000
Bank owes complete price for asset Y	10,087,500
If valid set-off applies: customer's net payment	12,500

How this connects to the simulator

Equal assumed cost amounts cancel in this illustration: $100,000 - 87,500 = 12,500$ paid by the customer. The simulator displays the profit difference. Neither 100,000 nor 12,500 is the complete Murabahah sale price.

The opposing-sale pattern and possible set-off are drawn from the historical concept. [\[3\]](#) The amounts above are original PLV teaching assumptions. Asset acquisition, onward sales, broker funding and their cash flows are outside this bilateral view; actual documents determine set-off conditions.

Single-sale view in the app: conditional undertakings identify a sale whose profit element is the economic difference. Its price still includes asset cost. Changing the learning view does not change the simulator's profit calculations. [\[3\]](#)

06 / AMANAH - FLOATING FINANCING

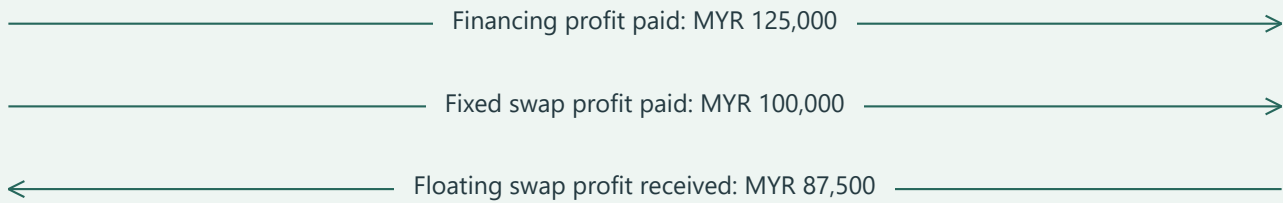
One financing payment at a time

Amanah pays the financing reference + 1.5% margin. Its full hedge **pays 4% fixed and receives the same reference**. Each quarter uses MYR 10m × rate × 0.25; fees and floors are off.

PERIOD 1 • 1 January-1 April 2027

CUSTOMER

FINANCIER / SWAP BANK



Combined cost = 125,000 + 100,000 – 87,500 = MYR 137,500.

The last two arrows are economic profit components; page 6 explains the fuller sale-price view. The financier and swap bank may be different parties.

Period / end date	Reference	Financing	Net swap ¹	Cost
1 / 1 Apr 2027	3.50%	125,000	–12,500	137,500
2 / 1 Jul 2027	3.75%	131,250	–6,250	137,500
3 / 1 Oct 2027	4.00%	137,500	0	137,500
4 / 1 Jan 2028	4.25%	143,750	+6,250	137,500
5 / 1 Apr 2028	4.50%	150,000	+12,500	137,500
6 / 1 Jul 2028	4.75%	156,250	+18,750	137,500
7 / 1 Oct 2028	5.00%	162,500	+25,000	137,500
8 / 1 Jan 2029	5.25%	168,750	+31,250	137,500
Total • MYR	-	1,175,000	+75,000	1,100,000

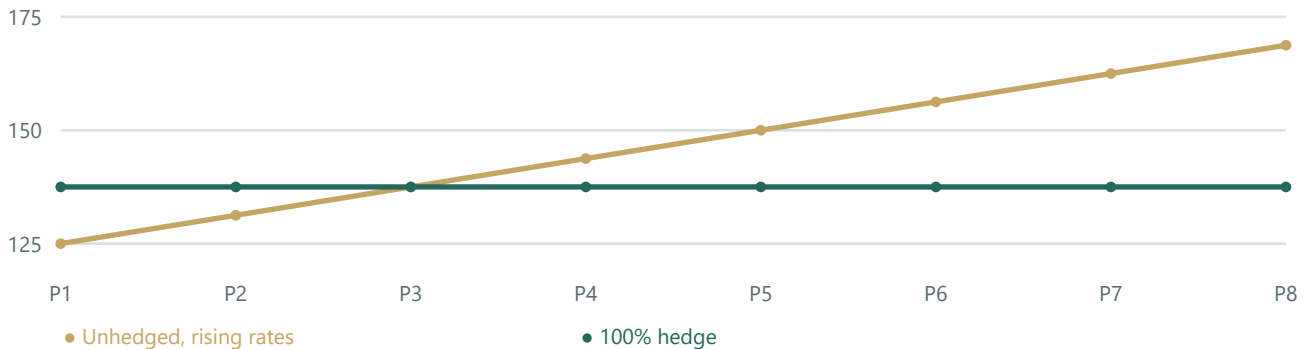
¹ Positive = customer receives; negative = customer pays. Fixed swap profit is MYR 100,000 each quarter. In period 7, floating profit is MYR 125,000, so the bank pays the MYR 25,000 net difference.

Why 5.5%? The matched reference cancels: reference + 1.5% + 4% – reference = 5.5%. Thus 10,000,000 × 5.5% × 2 years = 1,100,000. This relies on matching dates, amounts, references and conventions, without floors or fees.

07 / PREDICTABILITY AND OPPORTUNITY COST

Choose how much to hedge

Quarterly cost • MYR thousands



Full coverage keeps the example's quarterly cost at MYR 137,500. Partial coverage stabilizes only part of the exposure. Zero coverage leaves the entire amount floating.

Coverage	Rising path cost	Falling path cost
0% - no hedge	1,175,000	825,000
50%	1,137,500	962,500
75%	1,118,750	1,031,250
100%	1,100,000	1,100,000

Two-year costs in MYR; otherwise the same MYR 10m financing and 4% quote. Rising path: 3.50%, 3.75%, 4.00%, 4.25%, 4.50%, 4.75%, 5.00%, 5.25%. Falling path: 3.50%, 3.25%, 3.00%, 2.75%, 2.50%, 2.25%, 2.00%, 1.75%.

Try it in the application

Rising rates: Load Amanah, select Reset, then compare 0%, 50%, 75% and 100%. At 50%, the combined cost lies halfway between the no-hedge and full-hedge totals.

Falling rates: Choose **Bayu Logistics • Rates fall**. Repeat the coverage choices. A full hedge costs MYR 275,000 more than remaining unhedged on this path.

Judge the decision using its original purpose

Amanah wanted predictable financing cost. The hedge delivers that under the matched assumptions, but gives up some or all benefit from falling rates. A payment on the swap is not, by itself, proof that the original decision was wrong.

Pause and explain: Which coverage best fits a strict budget? Which leaves more benefit from favourable rate movements? What does the policy permit? The challenge scores this reasoning alongside arithmetic.

08 / FINANCING AND INVESTMENT

Match the direction to the exposure

Exposure and objective	Customer's matching swap
Floating financing → steadier cost	Pay fixed / receive floating
Floating investment → steadier income	Receive fixed / pay floating
Fixed financing → floating cost	Receive fixed / pay floating
Fixed investment → floating income	Pay fixed / receive floating

Delima: protect floating investment income

Select **Delima Treasury** and 100% coverage. The asset earns reference + 1%. It receives 4% fixed and pays the reference on the hedge. At a 3.5% reference in period 1:

PERIOD 1 • customer is the investor

CUSTOMER

ASSET PAYER / SWAP BANK

←	Investment income received: MYR 112,500	←
←	Fixed swap profit received: MYR 100,000	←
→	Floating swap profit paid: MYR 87,500	→

Combined income = 112,500 + 100,000 – 87,500 = MYR 125,000. That is 5% p.a. on MYR 10m for a quarter. Over the falling two-year path, full-hedge income is MYR 1,000,000, versus MYR 725,000 without the hedge.

Two fixed-rate examples

Gemilang Infrastructure: Fixed financing at 5%; receive fixed 4% and pay floating. Under the falling path, combined two-year cost is **MYR 725,000** (3.625% annualized). It now varies with rates.

Harmoni Investments: Fixed investment at 5%; pay fixed 4% and receive floating. Under the rising path, combined two-year income is **MYR 1,075,000** (5.375% annualized).

Keep the sign rule consistent

A positive net swap is always a customer receipt. Subtract that receipt from financing cost; add it to investment income. A swap payment raises financing cost or reduces investment income.

09 / FEES, BASIS DIFFERENCES AND FLOORS

When the result is not 5.5%

A • Add known fees

Reset Amanah. Open **Rate floors and additional costs**. Set **Upfront fee (once)** to 1000 and **Fee per hedged settlement** to 250, keeping 100% coverage.

Calculation	MYR
Base two-year profit cost	1,100,000
One upfront fee + eight settlement fees	$1,000 + 8 \times 250 = 3,000$
Combined cost including fees	1,103,000

Annualized rate = $1,103,000 \div (10,000,000 \times 2) = \mathbf{5.515\%}$. Fees increase cost for financing and reduce investment income. A settlement fee applies only to a period with a positive hedge amount; no hedge means no hedge fee.

B • The two reference rates differ

Select **Firdaus Services**. The financing reference is 0.50 percentage points above the swap reference. Even at 100% coverage, the residual 0.50% remains: $4\% + 1.5\% + 0.5\% = \mathbf{6\%}$. Two-year cost is **MYR 1,200,000**. This is basis risk.

C • Only the financing has a floor

Reset Amanah. Under **Reference paths and basis**, keep matching on, enter **2,2,2,2,2,2,2,2** and press Apply values. Enable **Underlying all-in floor** and enter **4.5**. Keep the swap floor off and both fees at zero.

One quarter • MYR 10m × rate × 0.25	MYR
Financing: $\max(2\% + 1.5\%, 4.5\%)$	112,500
Swap: receive 2%, pay 4%	50,000 paid
Combined cost: $112,500 + 50,000$	162,500

What the floor changes

MYR 162,500 corresponds to **6.5%** for this quarter. The financing stops falling at its floor, while the swap floating receipt continues to fall. In the app, the underlying floor applies after margin; the swap floor applies after spread.

10 / A REFERENCE PAGE FOR CHECKING YOUR WORK

The calculation rules

For one period: **N** is exposure; **H** is hedge notional; **α** is the year fraction; **K** is the fixed swap rate; **B** is a reference rate. Convert percentages to decimals when multiplying: 4% = 0.04.

Amount	Rule
Underlying profit U	Floating: $N \times \max(B_{\text{under}} + \text{margin, floor if enabled}) \times \alpha$. Fixed: $N \times \text{underlying fixed rate} \times \alpha$.
Fixed swap profit A	$H \times K \times \alpha$
Floating swap profit L	$H \times \max(B_{\text{swap}} + \text{spread, floor if enabled}) \times \alpha$
Customer net swap S	Pay fixed: $S = L - A$. Receive fixed: $S = A - L$.
Combined profit amount	Financing cost = $U - S + \text{settlement fee}$. Investment income = $U + S - \text{settlement fee}$.
Whole-life total	Sum period amounts; add the one-time upfront fee for financing, or subtract it for investment, if any period is hedged.

Dates determine the fraction of a year

30E/360 Eurobond: set each day-of-month to min(day, 30), then use $[360 \times \text{year difference} + 30 \times \text{month difference} + \text{day difference}] \div 360$. **ACT/365 Fixed:** actual calendar days $\div 365$. From 1 January to 1 April 2027: 30E/360 gives 0.25; ACT/365F gives 90/365. Calendar dates are unadjusted; the final period can be a short stub.

A reducing exposure needs a reducing hedge

In **Embun Manufacturing**, quarterly exposure is MYR **10m, 10m, 8m, 8m, 6m, 6m, 4m, 4m**. At 100% proportional coverage, total exposure-years = $(10 + 10 + 8 + 8 + 6 + 6 + 4 + 4)m \times 0.25 = 14m$. Combined cost = $14m \times 5.5\% = \text{MYR } 770,000$.

The annualized rate is $770,000 \div 14,000,000 = 5.5\%$; dividing by the initial MYR 10m alone would be wrong. New explicit hedge amounts cannot exceed each period's exposure. Changing a coverage preset clears the explicit hedge schedule.

Advanced controls: enter one notional per period and Apply values. After changing dates or frequency, review all paths, notionals and stresses; extended paths repeat their last value. Strategy comparisons use proportional coverage, even when the current scenario has an explicit hedge schedule.

11 / A GUIDED LEARNING ROUTE

Explore the eight starter cases

Choose each case in the simulator and use its original assumptions at 100% coverage. Values below are the two-year outcomes, including the applicable exposure schedule. All companies and rate paths are fictional.

Case	Main lesson	Combined outcome
Amanah Components	Rising financing reference; full hedge stabilizes cost.	MYR 1,100,000 cost 5.500%
Bayu Logistics	Falling reference; predictability has opportunity cost.	MYR 1,100,000 cost 5.500%
Cempaka Foods	Steady 3.5% reference; the 4% quote still matters.	MYR 1,100,000 cost 5.500%
Delima Treasury	Floating asset income; receive fixed / pay floating.	MYR 1,000,000 income 5.000%
Embun Manufacturing	Reducing exposure; match the hedge amount each period.	MYR 770,000 cost 5.500%
Firdaus Services	Underlying reference 0.5 points above swap reference.	MYR 1,200,000 cost 6.000%
Gemilang Infrastructure	Fixed financing becomes floating; rates fall.	MYR 725,000 cost 3.625%
Harmoni Investments	Fixed investment becomes floating; rates rise.	MYR 1,075,000 income 5.375%

Use Learn the Structure as an activity

- 1. Start with Amanah.** Select **Learn the Structure**. Use **Two-sale concept** and Next step to follow all six stages. The displayed numbers use your current simulator assumptions.
- 2. Change the view.** Select **Single-sale concept** and compare the sale explanation. It changes the learning view, not the economic formula or fee assumptions.
- 3. Test understanding.** Complete **Put the steps in order**, then **Check sequence**. Try the five questions in **Check your understanding** and read the feedback.

Discuss one operational problem

Choose delayed settlement, unexpected early repayment or unavailable commodity execution from Risks to discuss. Explain what the model calculates, what it leaves out, and what a real implementation would need to address.

12 / DECIDE BEFORE FUTURE RATES ARE REVEALED

Run a Fix or Float challenge

This is a local classroom activity on one computer. One team name also works for solo practice. Teams make a decision using the disclosed brief, then inspect the outcome together.

Stage	Action and expected result
1 • Set up	Open Fix or Float Challenge ; use New challenge if an earlier game appears. Enter a name and 1-12 unique team names, separated by commas. Choose 1-12 rounds; select Start challenge .
2 • Read	Read the objective, exposure, fixed quote, first known reset, budget, policy and published stress paths. Future realized rates are not displayed in the participant brief.
3 • Decide	Choose the team, customer hedge direction and coverage. Explain why the hedge fits. Calculate period 1's combined cost or income for that choice, including a settlement fee if applicable. Exclude any upfront fee from this answer.
4 • Lock	Select Lock this decision . It saves immediately and cannot be edited. Move to the next uncommitted team. All teams must commit before the reveal.
5 • Reveal	The trainer selects Open trainer controls , then Begin rate reveal . Use Reveal next period to progress through the rate path and events.
6 • Debrief	Review the outcome and automatic subtotal. Select each team, mark four rationale criteria from 0-5, enter feedback and select Save rationale marks .
7 • Finish	Use Team report , then Complete round and continue or Complete challenge . Automatic and fully marked rankings are shown separately.

Optional timer

Open **Timer settings**; enter 1-60 whole minutes and select **Apply timer duration**. Start or pause using the play/pause control. Sound is optional. Running out of time does not automatically lock a decision or change a score.

Protect the learning sequence

Keep trainer controls and future-rate data off the participant projector until commitments are locked. The local controls are not examination security. Start a fresh challenge to try a different decision; the earlier attempt remains saved.

Committed progress is retained in Saved Sessions. Unsubmitted answers, rationale drafts and timer state are not a backup; complete a commitment or save the relevant work before leaving.

13 / AMANAH • 75% COVERAGE

A complete worked challenge score

Use the original Amanah case: pay fixed / receive floating, **75%** coverage, policy 50-100%, budget 5.5% and stress tolerance MYR 100,000. Enter **134375** for the period 1 arithmetic answer.

Check the answer: hedge notional = MYR 7.5m; fixed profit = 75,000; floating profit = 65,625. Cost = 125,000 + 75,000 – 65,625 = **MYR 134,375**.

Published stress ¹	Two-year cost	Budget shortfall
Stable • 3.5% each period	1,075,000	0
Higher • 5.5% each period	1,175,000	75,000
Lower • 2.0% each period	1,000,000	0

¹ Matched underlying and swap references. Budget amount = MYR 10m × 5.5% × 2 = **MYR 1.1m**. For financing, shortfall = max(cost – budget, 0). For investment, shortfall = max(budget – income, 0). The worst stress shortfall W is **MYR 75,000**.

Automatic component	Calculation	Points
Direction / 20	Matching hedge direction	20
Policy / 20	75% is within 50-100%	20
Stress protection / 30	$30 \times \max(0, 1 - 75,000 / 100,000)$	7.5
Arithmetic / 10	Correct period 1 combined amount	10
Automatic subtotal / 80	$20 + 20 + 7.5 + 10$	57.5

If tolerance is zero, protection earns 30 only when the model finds no adverse shortfall; otherwise it earns zero. The score uses the published stresses, not luck on the realized path.

Add the trainer's rationale marks

Example rationale: "Our floating financing is exposed to rising rates. A 75% pay-fixed hedge is within policy and stabilizes most of the cost. The remaining 25% benefits if rates fall, but can exceed budget if they rise. Basis differences, fees and counterparty performance remain relevant."

If the trainer awards **4/5 each** for **Exposure identification**, **Objective alignment**, **Opportunity cost** and **Remaining risks**, rationale marks total 16. Final score = **57.5 + 16 = 73.5/100**. These marks are illustrative, not automatic.

Realized result: on Amanah's rising path, this decision costs MYR 1,118,750, saves MYR 56,250 against no hedge and exceeds budget by MYR 18,750. Realized savings do not themselves award points.

14 / 30 MINUTES • ONE COMPUTER AND A PROJECTOR

A ready-to-run trainer lesson

Learning outcome: participants can identify the exposure, select a matching direction, calculate one payment and explain the trade-off. Open the app before the lesson and prepare one Amanah challenge with two teams.

Time	Trainer action	Participant output
0-3 min	Show the dashboard. Explain fixed, floating, margin and notional (page 4).	Name the exposure and objective.
3-8 min	Use pages 5-6 and the structure walkthrough. Trace asset delivery and deferred prices.	Explain why profit is not the complete sale price.
8-13 min	Show period 1 and period 7 on page 7. Give pairs a calculator.	Reproduce MYR 137,500 in both periods.
13-17 min	Compare 0%, 50% and 100% on rising and falling paths.	State one benefit and one opportunity cost.
17-22 min	Read the challenge brief, set a three-minute timer and collect commitments.	Lock direction, coverage, rationale and first-period answer.
22-27 min	Reveal the path. Explain the stress score with page 14; mark rationales.	Distinguish a sound decision from a fortunate outcome.
27-30 min	Ask the debrief questions below, then export a backup and a report.	Save evidence and identify one remaining risk.

Three useful debrief questions

Exposure: Which cash flow was the hedge intended to stabilize, and did the direction offset it?

Trade-off: Why might a sensible hedge produce an adverse result compared with remaining unhedged?

Structure: Which asset, sale-price and execution facts are missing from a profit-only cash-flow chart?

Prepare your own case in Trainer Tools

Select a scenario or **Use current exploration**, then **Duplicate**. Edit the narrative, economic inputs, permitted coverage, stress tolerance, stress paths, event reveals and debrief. Apply array edits; keep one value per payment period. Select **Try in simulator**, review the result, then **Save custom scenario** or **Export scenario JSON**.

Set policy and stresses before the challenge. Later scenario edits do not alter a saved challenge snapshot. The "reviewed" label records a trainer content check, not institutional or Shariah approval. For a longer class, add the worksheet on page 18.

15 / KEEP YOUR LEARNING WORK

Save, export, print and restore

Need	What to do
Return to an exploration	Choose Save session , enter a name and select Save snapshot . Open Saved Sessions > Saved exploration sessions > Reopen . Duplicate creates another saved copy.
Export the cash flows	Choose CSV , then Download CSV file . If a download is blocked, copy the displayed CSV text into a UTF-8 .csv file. CSV contains results; it is not a restore backup.
Print a participant report	Choose Report (or Team report), then Print / Save as PDF . Choose Save as PDF or Microsoft Print to PDF , A4 landscape. Disable browser headers/footers and review the preview.
Back up all local work	Open Saved Sessions and select Export full JSON backup . Keep the downloaded .json file in a dated backup folder. If blocked, copy the Portable backup text into a UTF-8 .json file.
Import a backup	Select Import JSON , or open Restore from pasted JSON and use Validate pasted backup . Inspect the validated preview and counts before applying.
Add or replace	Add imported entries copies entries with fresh IDs and keeps current data. Apply replacement import replaces the saved store after confirmation. Export current data before replacement.

Browser storage is not your project folder

Saved work belongs to the browser, profile and exact address. Use <http://127.0.0.1:4183/> consistently. Edge, Chrome, an embedded browser and localhost can have different stores. OneDrive syncing the project folder does not back up the browser's saved work.

A simple end-of-class habit

Save the exploration → finish or retain committed challenge progress → export a full JSON backup → open the downloaded file's folder and check it exists → export the participant report. Use names such as **PRS-class-2026-10-03.json**.

The app retains up to 40 exploration sessions, 100 custom scenarios and 20 challenges; import files are limited to 2 MB. Delete only entries you no longer need after exporting a backup. If a recovery warning appears, use Export raw recovery file before attempting repair.

16 / TROUBLESHOOTING AND MODEL BOUNDARIES

Solve common problems

What happens	What to check
The browser page will not load	Run START from File Explorer and keep its window open. Enter <code>http://127.0.0.1:4183/</code> exactly. If the window reports missing build files, run SETUP. If another program owns the port, inspect the message instead of stopping unrelated programs.
I see the launcher's code	A Codex file preview is not execution. Open the project in File Explorer and double-click the .bat file there.
My result differs from this guide	Choose the named starter case and Reset. Check exposure, coverage, direction, rates, dates, day count, floors, fees and explicit schedules. Main examples use MYR 10m; the worksheet uses MYR 100,000.
A path change has no effect	Press Apply values. Supply one comma-separated number per period. Use 4 for 4%. With matching on, the swap follows the underlying reference.
Inputs show an error	Correct the highlighted values. Maturity must follow start; arrays must match the payment count; rates after applicable adjustments must be valid. An incomplete input can temporarily suppress results.
My saved work seems missing	Use the same browser, profile and exact address. Check Saved Sessions. Import your JSON backup if browser data was cleared or you moved computers.
The score is only out of 80	The automatic subtotal excludes rationale marking. Mark all four criteria and Save rationale marks to obtain a total out of 100.

Understand what the application measures

It calculates undiscounted profit cash flows using invented term rates fixed at period start and paid at period end. It excludes financing principal, commodity cost/funding flows, tax, collateral, counterparty default modelling, market-value adjustments, accounting and early-termination pricing.

The model's reset-in-advance path is not a specification for MYOR-i, SOFR or another actual overnight benchmark. Real observation, compounding, fallback, calendar and contract conventions require separate treatment. A predictable modelled rate does not remove liquidity or execution risk.

Ending a real hedge need not be free: UOB's public PRS-i FAQ discusses market risk and cancellation costs based on mark-to-market. [\[6\]](#) This application does not estimate those costs.

17 / PARTICIPANT WORKSHEET - ANSWERS ON PAGE 19

Practise with MYR 100,000

Start a fresh Amanah exploration with **Reset**. Change **Initial exposure** to **100000**. Keep 100% coverage, pay fixed 4%, receive the matching reference, financing margin 1.5%, quarterly 30E/360, no fees and both floors off. Save it as "Small-number practice".

Your calculation toolkit

For each quarter: amount = notional × annual rate × 0.25.

Customer swap receipt = floating swap profit – fixed swap profit.

Financing cost = financing profit – signed swap receipt + fee.

Exercise	Write your answer
1 • First quarter, reference 3.5% a. Financing profit b. Fixed swap profit c. Floating swap profit d. Customer receives or pays? e. Combined financing cost	a. _____ b. _____ c. _____ d. _____ e. _____
2 • Period 7, reference 5% a. Financing profit b. Net swap receipt c. Combined financing cost	a. _____ b. _____ c. _____
3 • Period 7, only 50% coverage a. Hedge notional b. Fixed / floating swap profit c. Combined financing cost	a. _____ b. _____ c. _____
4 • Period 7, 100% coverage Add a MYR 20 settlement fee, no upfront fee. What is the combined cost?	_____
5 • Compare two-year totals On the rising path, find full-hedge and no-hedge costs. Then use Bayu at MYR 100,000 to find the cost of forgoing falling rates.	Rising full: _____ Rising none: _____ Falling opportunity cost: _____

Explain in one sentence: Why can a hedge be useful even when the swap requires a payment? Then state one condition that could prevent 100% coverage from producing an exactly fixed combined rate.

When switching to Bayu, change its initial exposure to 100000 again; selecting a different starter loads that starter's original assumptions. Restore fees to zero before comparing totals.

18 / WORKSHEET SOLUTIONS AND QUICK REFERENCE

Check your answers

Question	Working and answer • MYR
1 • First quarter	Financing: $100,000 \times 5\% \times 0.25 = 1,250$. Fixed: $100,000 \times 4\% \times 0.25 = 1,000$. Floating: $100,000 \times 3.5\% \times 0.25 = 875$. Customer pays 125 ; combined cost = 1,375 .
2 • Period 7	Financing: $100,000 \times 6.5\% \times 0.25 = 1,625$. Swap receipt: $1,250 - 1,000 = 250$. Combined cost: $1,625 - 250 = 1,375$.
3 • Half coverage	Hedge notional = 50,000 . Fixed = 500 ; floating = 625 ; receipt = 125. Combined cost: $1,625 - 125 = 1,500$.
4 • Settlement fee	Combined cost: $1,625 - 250 + 20 = 1,395$.
5 • Two-year comparison	Rising: full hedge 11,000 ; no hedge 11,750 . Falling: full hedge 11,000 ; no hedge 8,250 . Forgone saving on the falling path = 2,750 .

The explanation matters as much as the number

A possible answer: "The hedge helps the business plan its combined cost; it exchanges some benefit from falling rates for protection against rising rates." A differing reference, floor, notional or payment convention can leave residual exposure. Fees can also change the final rate.

Keep this rule	Use it when
Positive swap = customer receipt	Reading any schedule or calculating financing cost and investment income.
Full matched floating exposure $\approx$ fixed + margin – spread	Checking the simplified result, before floors and fees, with aligned dates and notionals.
Financing: lower is better; investment: higher is better	Interpreting economic benefit and budget variance.
Total $\div$ sum(exposure $\times$ year fraction)	Checking the annualized cash-flow rate, especially with reducing exposure.

A final teach-back test

Explain the exposure, hedge direction, one payment, an opportunity cost and a remaining risk. Why is the profit difference not the complete Murabahah sale price?

19 / PUBLIC REFERENCES AND SCOPE

Sources and essential terms

Public sources checked 3 October 2026. Click a title to open it; internet is required. These sources explain product concepts and document availability. The fictional numerical cases and application instructions are PLV teaching material.

[1] [Maybank Islamic - Islamic Profit Rate Swap](#)

Product description and explanations of commodity Murabahah and Wa'ad. Other concepts listed on the bank page are not blended into this manual's selected two-sale illustration.

[2] [RHB Islamic - Islamic Treasury / IPRS](#)

IPRS section: Wa'ad, commodity Murabahah, Muqasah and net settlement. Bank-specific rate and execution conventions are not reproduced by the simulator.

[3] [IIFM - historical Wa'ad-based profit rate swap concept paper](#)

Historical discussion paper, especially pages 1-8: opposing-sale and conditional single-sale concepts. Its legacy benchmark examples and open questions do not establish current contract terms.

[4] [IIFM - 2024 Two Sale public listing](#)

Confirms the 2024 Two Sale document listing; operative agreement access and usage are restricted to IIFM members.

[5] [IIFM - 2024 Single Sale public listing](#)

Confirms the separate 2024 Single Sale listing. This is not evidence that this simulator implements an approved current agreement.

[6] [UOB Malaysia Islamic Banking - Product FAQ / PRS-i](#)

PRS-i / CCS-i FAQ: product structure, market-risk and cancellation-cost explanations. Used for the limited risk note on page 17.

Term	Meaning in this guide
Wa'ad / Murabahah	Undertaking / sale at disclosed cost plus agreed profit.
Muqasah / basis risk	Set-off / risk that underlying and hedge references differ.
Notional / coverage	Reference amount for profit calculation / proportion of exposure hedged.
Margin / spread / floor	Rate additions to underlying / swap reference, and an applicable minimum rate.
Opportunity cost / shortfall	Favourable movement forgone / adverse gap against a budget target.

About this edition

Profit Rate Swap Manual Version 2.0 • User & Trainer Guide

PLV Advance Business Consulting Sdn Bhd • Trainer: Primus Lim

Examples checked against the application's calculation and scoring engine; application version remains 1.0.0.