building value together

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An Actuary's view of specific takaful/retakaful risks

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Takaful/Retakaful

- A sharia's complaint approach to insurance and reinsurance

Modern takaful is a hybrid with the operator being the *'wakil'* to the participants.

Insurance sources of Surplus/Profit or loss	Sharia's concerns	Takaful/Retakaful Solution
Interest income	*Riba*	Sukuk Income/Islamic Bank accounts
Underwriting Profits	*Maysir*	Surplus refund to participants
Underwriting Loss	*Maysir*	Borne by participants
Expense underruns/overruns	*Gharar*	Wakala fees

Underwriting profits and losses are shared by the participants. This risk sharing presents certain 'challenges'.

What are the specific Takaful / Retakaful Risks?

	Risk
Sharia Risk	Changes over time in Sharia views as to model/product compliance.
Surplus Sharing	Too much surplus being distributed initially as a result of inadequate reserves being set up.
***Qard* Write off**	Participants leaving the risk pool due to an expectation of no surplus sharing for some years to come as a result of a large unpaid *qard*.
Exit of investors	High capital requirement and low shareholder profitability will discourage investors impatient for return on capital.
Unreasonable participants expectations	Participants expecting ‘cheap’ takaful products.

Where are the root causes of these risks?

- Sharia Risk
  - Sharia scholars not familiar with the working of insurance.
  - Misunderstanding by management of the Sharia's role in takaful.
- Model Risk
  - Shareholders not understanding the implications on return from risks underlying the takaful model they adopt.
- Product Risk
  - Product selection or Product design which does not take into account limitations of the takaful model.
- Agent (the operator is the *wakil*) vs Principal (the participant) conundrum
  - What is good for the *wakil* is not necessarily good for the participants.

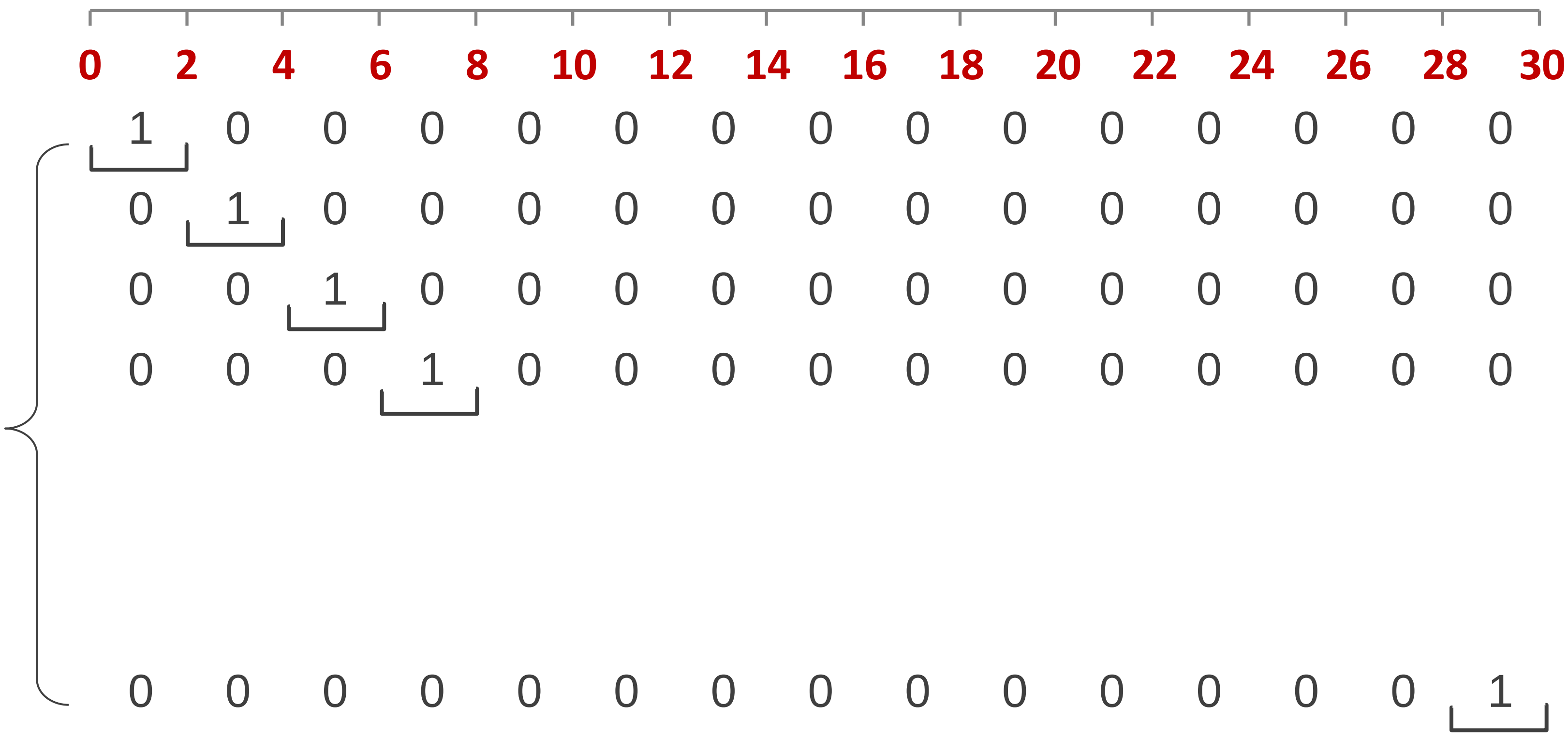
Managing product risk and model risk through managing underwriting volatility

- Volatility is a measure of the range of expected experience.
  - High volatility
    - There is a one in thirty chance that it will rain in any one day in the month of November in Abu Dhabi.
  - Low volatility
    - There is a one in two chance that it will rain in any one day in the month of November in Kuala Lumpur.
- Assume we have an insurance against rain, premium is Dirham5 per day in Abu Dhabi, payout is Dirham150 should rain occur.
- In Kuala Lumpur the premium is RM75 per day while the payout is also RM150 should rain occur.

Managing Underwriting Volatility
-Two day accounting periods

- Assume one policy in Abu Dhabi incepted on November 1, contributions are payable daily.

It can rain in any of 15 ‘two day periods’



Possible combinations (1-indicates rain : 0-no rain)

Managing Underwriting Volatility

- Assuming accounts are drawn up every two days (three out of fifteen possible scenarios are shown below)

Accounting Period	Period 1	Period 2	Period 3	Period 4
Scenario 1	Income (two days) 10 Claim 150 Loss 140 Qard 140 Reported Profit -	Income 10 Claim 0 Surplus 10 Repayment of qard 10 Reported Profit -	Income 10 Claim 0 Surplus 10 Repayment of qard 10 Reported Profit -	Income 10 Claim 0 Surplus 10 Repayment of qard 10 Reported Profit -
Scenario 2	Income 10 Claim - Surplus 10 Transfer to reserve 10 Reported Profit -	Income 10 Claim 150 Loss 140 Release Reserve 10 Adjusted Loss 130 Qard 130 Reported Profit -	Income 10 Claim - Surplus 10 Repayment of qard 10 Reported Profit -	Income 10 Claim - Surplus 10 Repayment of qard 10 Reported Profit -
Scenario 3	Income 10 Claim - Surplus 10 Transfer to reserve 10 Reported profit -	Income 10 Claim - Surplus 10 Transfer to reserve 10 Reported Profit -	Income 10 Claim 150 Loss 140 Release Reserve 20 Adjusted Loss 120 Qard 120 Reported profit -	Income 10 Claim - Profit 10 Repayment of qard 10 Reported Profit -

Defining Volatility

- Two drivers of volatility
  1) Claim Frequency (CF)
  2) Claim Severity (CS)

- For takaful to work without complications, we need relative stability in total claims amount for each accounting period where (assuming N is the number of insureds):

$N \times CF \times CS$ *does not vary significantly from one accounting period to another*

How can stability in claims experience be achieved

1) High claims frequency, low claims severity.

2) Diversified risks within the risk pool.

3) Sufficient volume of business (related to (1)) to give a good spread of risk.

All the above should be measured over one accounting period.

What happens in KL?

- One policy incepted on November 1, contributions payable daily.

For each of the 15 accounting periods	
Contributions (75×2) (one accounting period)	150
Claims (one event)	150
Surplus/Deficit	-

Stable underwriting results are observed in KL as contributions are expected to cover claims in each and every accounting period. Volume of business can be as small as 1 as long as *Claims Frequency* × *Claims Volatility* is stable over each accounting period.

- To achieve the same claim stability in Abu Dhabi, the accounting period will need to be extended from two days to thirty days.

Contributions (5×30) (one accounting period)	150
Claims (one event)	150
Surplus/Deficit	-

Conclusion

- Choose carefully the risk class to cover in takaful, strive for a risk class which is expected to demonstrate claims stability over one accounting period.
- If necessary, fix your accounting period (the period you determine your underwriting results) so as to achieve claims stability.
- Any surplus distribution should consider the stability of claim experience over the accounting period. Low claims observed may not indicate underlying experience, only volatility.
- Your premium rates after deducting wakala fee should be adequate to cover claims.

Starting takaful is not only about having sufficient capital.

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