

Automating Shariah Compliance Assessment: Enhancing Efficiency in PLC Evaluation

Domain 2, UMHackathon x



To determine

Shariah status of Public Listed Companies (PLCs)

1. Business Activities Benchmarks

- ☐ The 5% benchmark
- ☐ The 20% benchmark

For specific list of non-shariah compliant businesses or activities

2. Financial Ratio Benchmarks

- ☐ Cash over total assets
- ☐ Debt over total assets

Source Location:

- [List of Shariah Compliant Securities by Shariah Advisory Council of The SC](#)
- [PLC Annual and Audited Account Reports](#)



Problem Faced by Users

Manual, time consuming, prone to errors



Manual extraction of financial figures from the PLC's statements: balance sheets, income statements, and cash flow statements



Manual input of extracted data into a pre-set calculation platform for Shariah status assessment

d-Shelter. Each point is for a separate run; it pl
coefficients on the inverse-recency reward feat
agents. As is visually clear, one agent tends to
negative coefficient while the other agent tends t
ly positive coefficient. Recall that a positive coe
inverse-recency reward features encourages the a
; to visit places it hasn't visited recently, and th
ent become better at finding food which move
o place. The agent with a slightly negative coe
inverse-recency reward feature is discourager
ng and this helps it stay put at the shelter locati
ar that the critic-agents for the two agents lear
t guidance reward functions, i.e., there is special
guidance reward functions. Figure 6(a-d) show th
alization also in behavior as a result. Each panel
rber of time steps spent in each location of it
lighter color means more time spent. Panels (c
for the UCT-ObjRe MAS and correspond respec
agent that gathers food more often and the age
the shelter more often. Similarly, panels (c) i
the UCT-GRD MAS food and shelter agent
ut there is increased behavioral specialization
hat learns guidance reward functions; the shelte
rates more on the shelter location in the UCT-
compared to the shelter agent in UCT-ObjRe M.

PLC financial statements are unstructured, reflecting their principal activities



Financial line items reported by PLCs are not standardised

The 5% benchmark

Shariah non-compliant businesses or activities

- conventional banking and lending;
- conventional insurance;
- gambling;
- liquor and liquor-related activities;
- pork and pork-related activities;
- non-halal food and beverages;
- tobacco and tobacco-related activities;
- interest income² from conventional accounts and instruments (including interest income awarded arising from a court judgement or arbitrator);
- dividends³ from Shariah non-compliant investments;
- Shariah non-compliant entertainment; and
- other activities deemed non-compliant according to Shariah principles as determined by the SAC.

Company's group revenue and profit that comes from these activities must be less than 5%

^{2,3} Interest income and dividends from Shariah non-compliant investments will be compared against the Group revenue. However, if the main activity of the company is holding of investments, the dividends from Shariah non-compliant investments will be compared against the Group revenue and Group profit before taxation.

The 20% benchmark

Shariah non-compliant businesses or activities

- share trading;
- stockbroking business;
- rental received from Shariah non-compliant activities; and
- other activities deemed non-compliant according to Shariah principles as determined by the SAC.

Company's group revenue and profit that comes from these activities must be less than 20%

Cash/Debt over total assets

Financial Ratio Benchmarks	<ul style="list-style-type: none">• Compare against total assets of PLCs• Ensure each ratio is less than 33%	
Compute	$\frac{Cash}{Total Asset} \leq 33\%$	$\frac{Debt}{Total Asset} \leq 33\%$
Exclude	Cash placed in Islamic— <ul style="list-style-type: none">• Accounts; and• Instruments	<ul style="list-style-type: none">• Islamic financing; and• Sukuk

Kronologi Asia Berhad



Company Name	Kronologi Asia Berhad						
Principal activities	1) Infrastructure technology business providing data protection, hardware and software solutions to enterprises.						
	2) Managed services business providing a holistic comprehensive and automated daily backup targeted at medium sized enterprises.						
Group Revenue	314,238,393.00						
Group Profit Before Tax (PBT)	29,213,012.00						
Compliance criteria							
Gambling							5%
Interest Income							5%
Liquor and liquor related products							5%
Tobacco							5%
Rental received from non halal activities							20%
Share trading							20%
Stockbroking business							20%
Group compliance criteria							
Benchmark: 5%							
Benchmark: 20%							
Financial Ratio							
Total Cash							
Total Debt							
Total Asset							
Preliminary Status							

Case Study

1. Identify Principal Activities

6. SUBSIDIARIES (CONT'D)

A. Investment in subsidiaries (Cont'd)

The details of the subsidiaries are as follows:-

Name of subsidiaries	Country of incorporation	Effective interest		Principal activities
		2023 %	2022 %	
Quantum Storage (South Asia) Pte. Ltd. ("QSA") #	Singapore	100	100	Infrastructure technology business providing data protection, hardware and software solutions to enterprises.
Kronicles (Singapore) Pte. Ltd. ("KS") #	Singapore	100	100	Managed services business providing a holistic comprehensive and automated daily backup targeted at medium sized enterprises.
Kronicles (Malaysia) Sdn. Bhd.	Malaysia	100	100	Managed services business providing a holistic comprehensive and automated daily backup targeted at medium sized enterprises.
Quantum Storage (Hong Kong) Limited ("QHK") *	British Virgin Islands	100	100	Investment holding and infrastructure technology business providing data protection, hardware and software solutions to enterprises.

Identify whether the subsidiaries are involved in Shariah non-compliant business activities

The SC will further enquire the PLC if the information on Shariah non-compliant income is not made available in the Annual Report

Case Study

2. Extract data from Income Statement

Capture 4 main items:

1. Financial Year Ended (FYE)
2. Revenue
3. Profit/(Loss) Before Tax
4. Interest Income / Finance Income

STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE FINANCIAL YEAR ENDED 31 JANUARY 2023

	Note	Group 2023 RM	Group 2022 RM	Company 2023 RM	Company 2022 RM
Revenue	24	314,238,393	308,010,254	49,167,560	20,971,634
Cost of sales		(252,668,680)	(244,883,587)	(50,918,954)	(18,217,371)
Gross profit/(loss)		61,569,713	63,126,667	(1,751,394)	2,754,263
Other income		4,836,647	4,364,810	1,249,808	124,737
Selling and distribution expenses		(17,502,136)	(17,269,983)	–	–
Operating expenses		(17,585,367)	(21,230,779)	(1,480,496)	(2,418,983)
Net gain/(loss) on impairment of financial asset		60,414	802,995	(17,225,200)	(2,931,950)
Interest income		500,583	237,111	1,064	189,851
Interest expense		(2,666,842)	(1,427,785)	(15,083)	(8,587)
Share of results of equity - accounted associate		–	(102,771)	–	–
Profit/(Loss) before tax	26	29,213,012	28,500,265	(19,221,301)	(2,290,669)
Tax expense	27	(4,710,181)	(4,846,819)	(70,376)	(43,747)

3. Extract data from Balance Sheet (Cash)

STATEMENTS OF FINANCIAL POSITION AS AT 31 JANUARY 2023

	Note	2023 RM	Group 2022 RM
ASSETS			
Non-current assets			
Property, plant and equipment	4	71,391,623	57,409,008
Goodwill on consolidation	5	263,294,574	263,294,574
Investment in subsidiaries	6A	—	—
Intangible assets	7	230,611	3,398,536
Other receivables	8	7,967,671	7,914,927
Deferred tax assets	9	1,845,008	1,331,020
Total non-current assets		344,729,487	333,348,065
Current Assets			
Inventories	10	13,634,771	15,888,712
Trade receivables	11	83,451,695	54,216,692
Other receivables	8	38,695,670	51,781,328
Amount due from subsidiaries	6B	—	—
Tax recoverable		386,366	214,795
Other investment	12	3,112,487	5,018,115
Cash and bank balances	13	103,320,488	112,560,864
Total current assets		242,601,477	239,680,506
Total assets		587,330,964	573,028,571

1. Capture total assets
2. Capture cash and cash equivalent related items:

Asset classified as held for sale: Cash and cash equivalents

Cash and bank balances

Cash at bank

Cash held under Housing Development Accounts

Cash placed in conventional accounts and instruments

Deposits with licensed bank

Investment in cash funds

Money market instrument

Other cash equivalents

Resale agreement

Short term deposits

Short term funds

Short term investment

Unit trust funds

Case Study

4. Extract data from Balance Sheet (Debt)

LIABILITIES

Non-current liabilities

Deferred income	19	9,178,401	11,821,693
Lease liabilities	20	6,512,090	8,604,960
Borrowings	23	6,636,157	–
Other payables	21	83,026	78,303
Retirement benefits obligations	17	1,316,559	2,144,736
Deferred tax liabilities	9	5,033,968	3,173,598
Total non-current liabilities		28,760,201	25,823,290

	Note	2023 RM	Group 2022 RM
LIABILITIES (CONT'D)			
Current liabilities			
Trade payables	22	55,676,075	53,814,650
Other payables	21	29,993,860	80,330,776
Deferred income	19	16,872,364	19,686,615
Lease liabilities	20	4,285,162	6,255,677
Borrowings	23	31,436,891	28,359,643
Current tax payable		3,581,551	3,363,920
Total current liabilities		141,845,903	191,811,281
Total liabilities		170,606,104	217,634,571
Total equity and liabilities		587,330,964	573,028,571

Capture non-current and current borrowings related items:

Bank borrowings
 Bank overdrafts
 Bankers' acceptances
 Bill discounting
 Bill payables
 Bridging loans
 Capital securities
 Commercial Papers
 Commodity Financing
 Conventional bonds
 Debentures
 Deferred liability
 Export credit refinancing
 Hire purchase payables
 Invoice financing
 Lease liabilities
 Loan Stocks
 Loans and borrowings

Screening Report

Preliminary results of a PLC's Shariah status



Company Name	Kronologi Asia Berhad									
Principal activities	1) Infrastructure technology business providing data protection, hardware and software solutions to enterprises.									
	2) Managed services business providing a holistic comprehensive and automated daily backup targeted at medium sized enterprises.									
Group Revenue	314,238,393.00									
Group Profit Before Tax (PBT)	29,213,012.00									
					TO		PBT			
Compliance criteria					Contribution	%	Contribution	%		
Gambling										5%
Interest Income					500,583.00					5%
Liquor and liquor related products										5%
Tobacco										5%
Rental received from non halal activities										20%
Share trading										20%
Stockbroking business										20%
Group compliance criteria										
Benchmark: 5%					500,583.00	0.16	-	0		
Benchmark: 20%					-	0	-	0		
Financial Ratio										
Total Cash					103,320,488.00	17.59%				
Total Debt					38,073,048.00	6.48%				
Total Asset					587,330,964.00					
Preliminary Status					Shariah-compliant					

What are we looking for?

Solution

Automate extraction of
financial figures from the
statements

Automate input of extracted
data into a pre-set
calculation

Improve accuracy of
extraction

Reduce processing time

Enhance overall efficiency

Thank you!

Domain 2, UMHackathon x 