Analyzing Financial Synergy Through Leland's (2007) Framework and Ensuring Shariah Compliance in Sukuk Issuance

Fakhrunnas, F

Fakultas Bisnis dan Ekonomika, Universitas Islam Indonesia, Ring Road Utara, Condongcatur, Sleman, 55283 Yogyakarta, Indonesia
Tel: +62274-881546 Email: fakhrunnasfaaza@uii.ac.id

Ahmad, MHS (Corresponding Author)

Academy of Contemporary Islamic Studies, Universiti Teknologi MARA (UiTM)
Cawangan Terengganu, Kampus Dungun, Sura Hujung, 23000 Dungun, Terengganu, Malaysia
Tel: +6011-51111351 Email: hamdansyafieq@uitm.edu.my

Abstract

The objective of this study is to determine whether issuing sukuk as part of separate financing of a project would increase the value of business. This study adopts Leland Framework (2007) to measure the impact of several variables in separate financing to the value of the firm. The findings revealed that changes in maturity period, tax rate, interest rate and standard deviation can bring similar or different effects depending on each variable. It can be concluded that the separate financing using hypothetical sukuk issuance has a positive effect on the firm. This is visible from the value of the change in optimally levered firm as well as firm value in this paper which both are positive. This shows that the variables above have an impact on the optimal capital structure as well as the results of structured financing. This study further proposes to modify Leland's model (2007) by using a stochastic model rather than a static one, considering that some sukuk use a profit-sharing contract.

Keywords: Project financing; Limited liability; Sukuk issuance; Capital structure; Asset securitization

Introduction

Islamic finance is a concept of financial management that uses shariah as the basis for financial transactions. The concept of Islamic finance emphasizes real transactions and prohibits interest-based transactions as done by conventional finance. It also offers risk and profit sharing in financial contracts (Chong & Liu, 2009). On top of that, Islamic finance offers greater project financing opportunities, especially when using structured financing.

A company that is experiencing a positive trend in growth will take advantage of opportunities to expand its business and diversify it, despite the constraints of limited capital and maximum leverage. The classic methods of mergers and acquisitions are thought to be the best way to accommodate a management decision to expand its business by merging two or multiple activities into one entity. In the opposite direction, a spin-off scheme is used to split one business unit up into two or multiple activities and separate them into different entities (Marks, 2001).

In the Islamic finance sector, for example, Indonesia, a country with the largest Muslim population, exemplified the biggest and most eye-catching Shariah transaction in 2021, with the merger of PT Bank Syariah Mandiri, PT Bank BRI Syariah and PT Bank BNI Syariah. The three largest

Islamic state-owned banks were merged to optimize operational performance and increase the small market shares of Islamic banks compared with conventional banks (Bank Syariah Indonesia, 2023).

Apart from operational synergy, mergers and consolidations of companies should also produce positive financial synergy as long as the cash flow of the companies is imperfectly correlated (Lewellen, 1971). Nevertheless, the financial synergy from a merger may not always be positive, as risk contamination by sub-optimal companies can negate the co-insurance effect of the merger. Separation through asset securitization or spin-off can also lead to positive financial synergy via a limited liability shelter (Leland, 2007). The management team that is in charge of the consolidation must anticipate the negative effects that could damage the co-insurance effect, such as a drop in stock prices because of public perceptions that are misleading when assessing merger and acquisition agreements (Rahman et al., 2018).

This study answered the following questions: (1) How is the Leland model implemented in the case of sukuk issuance? and (2) What is the proposed modification that can be suggested in the Leland model for the development of Islamic finance? The answers to both questions are important for the development of Islamic finance, especially in calibrating Islamic finance performance when it comes to project financing. Therefore, this study determines whether issuing sukuk as part of separate financing of a project would increase the value of business. In this study, we adopted the Leland framework (2007).

Methodology

This paper presents financial assumptions on asset securitization as a hypothetical sukuk issue and implements Leland's (2007) framework. Leland explains the model for implementing financial synergies in the firm's value and describes in detail how financial synergies can be achieved through a merger or separate financing. Leland, using a two-time period method where t={0,T}, delineated the limited liability value of the company in the pretax condition as:

$$L_0 = H_0 - X_0,$$
$$= -\frac{1}{(1+r_T)} \int_\infty^0 X dF(X) \geq 0$$

Where the value of firm's activity in the pre-tax condition is defined by $H_0 = \frac{1}{(1+r_T)} \int_0^\infty X dF(X)$ and the value of operational cash flow of the firm in t=0 is $X_0 = \frac{1}{(1+r_T)} \int_{-\infty}^\infty X dF(X)$. In addition, the value of L_0 can be negative when the probability of the firm to generate zero future cash flow is zero. Then, with the rate of the tax is τ, the value of unlevered firm after tax is,

$$V_0 = \frac{1}{(1+r_T)} \int_0^\infty (1-\tau) X dF(X),$$
$$= (1-\tau)H_0$$

Moreover, during the issuance of the zero-coupon bond, the bondholders generate promised interest payments from the difference between the principal value (P) and the minus debt value at t=0 (D_0). The firm is assumed to be in default when the minimal cashflow (X_0) is less than minimal cashflow in the default circumstances (X^z), defined as income after tax while the tax is equal to zero.

In the Leland (2007) model, the capital structure is assumed to be made up of equity (E_0) and debt (D_0). During the firm's action, either to do a merger or separate financing, it can be seen from the difference in the value of the firm before and during a

merger or de-merger (Δ). It is formulated by,

$$\Delta = \Delta V_0 + \Delta\,\text{TS} - \Delta\,\text{DC}$$

where ΔV_0 is defined as the difference of firm value (represent limited liability effect), ΔTS explains the difference of tax saving, and ΔDC reflect the difference of default cost value. The last two indicators explain the leverage effect. When the value of $\Delta > 0$, it indicates that merger possesses more benefit from separate financing, and it occurs inversely when the value of $\Delta < 0$.

The effectiveness of merger and de-merger activities can be measured through several measurements: (1) $(\Delta/\,V_{01} + V_{02})$ explaining the percentage of benefit from financial synergies compared to the pre-merged firm value before merger; (2) Δ/v_{02}^* discussing the percentage of value premium to before merger value; and (3) E_{02}^*, highlighting the financial advantage for the shareholders of targeted firm. From the perspective of Islamic finance, the implementation of the Leland model can be adopted for sukuk issuance because it can reduce default costs through separate financing. It means, sukuk issuance results in a bankruptcy remote instrument through a special purpose vehicle for project financing (Radzi & Lewis, 2015). Lastly, Leland (2007) stresses the importance of correlation and volatility among the financing projects or firm's activities to determine merger or de-merger action by the firm. All the results in this paper are generated using Python.

Results and Discussion

Base-case Parameter
To demonstrate the implementation of Leland's (2007) optimal Capital Structure model in Islamic Finance, we developed financial assumptions for asset securitization as a hypothetical sukuk issue.

Before securitization, the originating company ("sponsor") engaged in toll road management, had four cash flows from the four currently operating concessions, of these has a high traffic density.

The company securitizes one of the most traffic-intensive toll projects, where low-risk assets are transferred to SPV. Proceeds from the sukuk issuance would be used to compensate sponsors for financing the acquisition of two new toll concessions. Due to inflationary pressures, the basic case parameters of companies issuing bonds with a BBB rating in Malaysia for 2022 have been increased as follows:

1. The interest rate (in Islamic Finance called the "margin rate") for sukuk for a six-year period (T = 6) is 6% (r = 6%) per annum, has increased by more than 1% compared to the previous year and is close to the latest interest rate for long-term risk-free debt securities ("Treasury Note").
2. T-period risk-free rate $r^T = (1 + r)^T - 1 = (1 + 6\%)^6 - 1 = 41.9\%$.
3. The capitalization factor for the 6-year cash flow is $Z = (1 + r)^T / [(1 + r)^T - 1] = (1 + 6\%)^6 / (1 + 6\%)^6 - 1) = 1.42 / 0.42 = 3.38$.

Leland (2007) adopted a simple two-period model to determine the optimal capital structure, which had previously been developed by DeAngelo and Masulis (1980) and Kale, Noe, and Ramirez (1991). In a risk-neutral environment, the two simple periods are t = {0, T} where T is the length of time traversed by both periods and in this case is assumed to be 6 years. The operating cash flow at t = 0 is X_0 indicating the discounted expected value and to simplify the analysis, we follow the Leland assumption, where the expected operating cash flow at t = 0 is $X_0 = 100$. Thus, the expected operating cash flow at T = 6 is the

mean (Mu) which is calculated by the formula: $Mu = X_0 (1 + r)^T = 100 (1 + 6\%)^6 = 141.85\%$.

Leland did not show the calculation of the σ (standard deviation) percentage using the standard statistical formula in his paper where he assumed the figure was 22%. We use Leland's σ assumption to calculate the standard deviation in terms of currency: $\sigma \times X_0 \times T^{0.5} = 22\% \times 100 \times 6^{0.5} = 53.89$.

The tax rate plays a significant role in the Leland Model, as it affects the value after tax of the limited liability. We use the same 20% tax rate as Leland because it is appropriate for the current business environment. The interest rate (r), and the time period (T) are two other variables that affect the value of limited liabilities. We calculate the value of the LL activity (the value of the limited liability after taxes) using the different interest percentages and tenors from Leland's assumptions. This variable is used to calculate the last base-case parameters, which consist of the value of the unlevered firm with limited liability $V_0 = 80.040$ and the value of the limited liability after tax = -0.040 (Table 1). In addition, Leland (2007) stated that the LL effect is always negative if operational cash flows have a positive probability of being negative and are less than perfectly correlated.

Table 1: The Baseline Model

No	Variables	Symbol	Value
1	Annual risk-free rate	r	0.060
2	T-period/debt maturity (yrs)	T	6.00
3	T-period risk-free rate	$r(1+r)^T-1$	0.419
4	Default costs	α	0.240
5	Capitalization factor	Z	3.389
No	Unlevered Firm Variables		
1	Expected future operational cash flow at T	Mu	141.852
2	Expected operational cash flow value (PV)	$X_0=Mu/(1+r)^T$	100
3	Cash flow volatility at T	Std	53.889
4	Annualized operational cash flow volatility	$Std/X_0\sqrt{T}$	0.220
5	Tax rate	τ	0.20
6	Value of unlevered firm w/limited liability	V_0	80.040
7	Value of limited liability after tax	$(1-\tau)L_0$	-0.040

Assuming the default cost is the same as Leland's which is 23%, raising the interest rate by 1% and extending the loan tenor to 1 year changes the recovery rate from 49.3% (as in Leland (2007)) to 51.1% (Table 2). This is an interesting increase (if not unique), because the simple logic of finance says that a higher interest rate and a longer repayment period can increase the risk of default, and lead to a lower recovery rate. It is strongly suspected that the increase in the creditor's income due to the addition of interest rates and the term of the facility, which should be part of the rate of return component, is also considered an additional factor in the recovery rate.

Table 2: Optimal Capital Structure from Baseline Model

No	Variables	Symbol	Value
1	Optimal zero-coupon bond principal	P^s	69.572
2	Default value	X^d	81.044
3	Break event profit level	X^z	23.683
4	Value of optimal debt	D^s_0	45.889
5	Value of optimal equity	E^s_0	36.265
6	Optimal levered firm value	v^s_0	82.154
7	Optimal leverage ratio	l^s_0	0.559
8	Annual yield spread of debt	s	1.182
9	Recovery rate R	R_0	0.511
10	Tax saving of leverage	TS_0	3.311

11	Expected default cost	DC_0	1.197
12	Value of optimal leveraging	$TS_0\text{-}DC_0$	2.114
13	Capitalized value of optimal leverage	$Z^*(v^s_0\text{-}V^s_0)/V^s_0$	0.090

In essence, joint financing or separate financing methods will not succeed in providing positive financial synergies if creditors or investors assess the recovery rate to be low or lower than the average recovery rate for similar industries. The increase in the recovery rate has been proven to significantly optimize the capacity and willingness of investors to provide the principle of zero-coupon bonds to companies, with an increase in the value from 57.1 to 69.57. The improved recovery rate also opens opportunities for companies to obtain more financing from creditors such as banks and other third parties, which is evident from the large increase in the optimal leverage ratio from 51.8 to 55.9.

The calculation of the results of other related variables also reinforces the validity of Leland's framework that the recovery rate improvement has succeeded in encouraging the formation of an optimal capital structure through increasing leverage and reducing self-financing (the equity portion), including: (1) the optimal value of debt increased significantly from 42.2 to 45.89, (2) the optimal value of leveraged firm changed better from 81.47 to 82.15, (3) the value of capital leveraging increased from 1.42 to 2.11, (4) the capitalized value of optimal leverage increased from 8.21% to 9%, and (5) the optimal value of equity indicating the firm's obligation to provide self-financing decreased from 39.2 to 36.2.

The default value increased from 67.7 to 81.04, and the expected default cost also increased from 0.89 to 1.197. This increase was in line with changes in the assumption of an increasing interest rate and extending the term of the facility. Leland's two-period model is not only intended to show the optimal capital structure variables but also succeeded in proving a decrease in the annual debt yield spread from 1.23% to 1.18% due to the addition of interest expense and the term of the facility.

Factors Contributing to Financial Gains for Asset-based Sukuk

According to Leland (2007), the advantages of asset securitization can be examined from three indicators; (1) the increase in value of limited liability shelters reflected by the value of $-\Delta V_0$, (2) adding with an increase in the tax saving caused by an increase in the optimal leverage represented by $-\Delta TS$, (3) then it is minus by an increase in the expected default cost reflected by $-\Delta DC$.

Table 3 shows that the value of the unlevered firm has a positive change, reflecting that the benefit from the structured financing is better than the old firm. In addition, Leland (2007) explained that the optimal leverage firm value can be explained with $-\Delta$ for demerger activities where $\Delta = LL + LE, LE = \Delta TS - \Delta DC$. The finding in Table 3 explains that the value of $-\Delta$ is equal to 0.667. It shows that demerger activities increase the leverage effect. Moreover, the separate limited liability after a demerger also increases, which is indicated by the pre-tax value of LL, positively changing by about 0.25.

Table 3: Asset Securitization

No	Variables	Symbol	Old firm	SPV	New Firm	Change
1	Value of cash flow	X_0	100	25.00	75.000	0
2	Value of unlevered firm	V^s_0	80.040	20	60.235	$0.195 - \Delta V_0$
3	Pre-tax value of LL	LL^s_0	-0.050	-0.000	-0.294	0.245
4	Annual volatility	σ	0.220	0.040	0.286	
5	Optimal zero-coupon bond principal	P^s	69.572	25.095	55.294	10.817
6	Value of optimal debt	D^s_0	45.889	17.651	34.327	6.089
7	Value of optimal equity	E^s_0	36.265	3.362	27.481	-5.419
8	Optimal levered firm value	v^s_0	82.154	21.013	61.808	$0.667 - \Delta$
9	Optimal leverage ratio	l^s_0	0.559	0.840	0.555	
10	Annual yield spread of debt	s	1.182	0.040	2.270	
11	Recovery rate	R^s_0	0.511	0.700	0.449	0.638
12	Tax savings of leverage (PV)	TS_0	3.311	1.050	2.853	$0.592 - \Delta TS$
13	Expected default costs (PV)	DC_0	1.197	0.037	1.280	$0.12 - \Delta DC$

Summary of Benefits to Asset Securitization			
Variable	Symbols	Demerger	
1	(Negative) merger benefits	$-\Delta$	0.667323
2	(Negative) measure 1	$\Delta Z/(v1+v2)$	2.730956

The value of measure 1 expresses the future payment that is received compared to the value of all firms (Leland, 2007). According to the result, demerger creates a positive value, which is 2.730, reflecting that it has the benefit of performing asset securitization. In asset securitization through asset-based sukuk issuance, the portion of SPV and new firm is modelled to be 25% and 75% respectively. In addition, the cash flow correlation between the SPV and the financiers of asset based sukuk is 0.5. A positive sign of correlation indicates that when the financer has an increase of cash flow 1, the cash flow of asset based sukuk rises 0.5.

From the viewpoint of volatility, the old firm volatility is 22% and after securitization occurs, the new firm volatility increases to 28.6% while the SPV is only 4%. However, from a practical aspect, the SPV finances high risk business activities. As mentioned by Leland (2007), if the volatility increases after securitization, it indicates that the benefit of asset securitization increases as well.

The value of optimal debt also increases by 6.09%, where it provides more opportunity for the company to increase necessary debt, in which the bond holders after demerger obtain more benefit from gaining a higher optimal zero-coupon asset based sukuk principal of around 10.82%. However, an increase in the coupon rate indicates that asset based sukuk is much riskier. Hence, it may also cause the value of asset based sukuk to fall. This argument is also supported by an increase in the expected default cost of about 0.12%. In contrast, the probability of the firm after performing demerger activities is lower due to a decrease of value in optimal equity of about 5.42%. According to Leland (2007), during the demerger, the bondholders tend to fall, and it benefits shareholders more.

Extension from the Baseline Model

Analysis of changes in the assumptions shows that the four assumptions are in fact different in their impact on the optimal capital structure. For example, in Table 4, changes in maturity and tax rates do not have a significant impact on the recovery rate, compared to an increase in the interest rate causing an increase in the recovery rate, and conversely, an increase in the standard deviation has an impact on a decrease in the recovery rate.

Table 4: Optimal Capital Structure from Extended Baseline Model

No	Variables	Symbol	Leland (2007)	T=6	T=8	T=10	r=6	r=8	r=10	τ=23	τ=26	τ=30	Var=24	Var=26	Var=28
1	Optimal zero-coupon bond principal	P^s	69.572	62.420	76.016	90.133	62.002	74.127	86.626	58.340	60.535	63.333	56.290	57.194	58.868
2	Default value	X^d	81.044	73.276	87.757	102.59	72.965	86.114	99.466	71.116	75.953	82.652	66.552	67.443	68.868
3	Break event profit level	X^z	23.683	18.993	29.054	40.298	18.149	26.180	35.268	15.568	16.656	18.256	15.242	16.199	17.370
4	Value of optimal debt	D^s_0	45.889	43.426	46.962	49.835	43.853	47.947	51.358	42.772	43.880	45.007	41.048	40.996	41.198
5	Value of optimal equity	E^s_0	36.265	38.348	35.487	33.260	37.909	34.508	31.823	35.942	32.119	27.307	40.423	40.563	40.503
6	Optimal levered firm value	v^s_0	82.154	81.775	82.449	83.095	81.762	82.455	83.181	78.714	75.998	72.385	81.472	81.559	81.701
7	Optimal leverage ratio	l^s_0	0.559	0.531	0.570	0.60	0.536	0.581	0.617	0.543	0.577	0.623	0.504	0.503	0.504
8	Annual yield spread of debt	S	1.182	1.234	1.205	1.105	1.172	1.105	1.022	1.405	1.647	2.037	1.519	1.886	2.290
9	Recovery rate R	R_0	0.511	0.487	0.493	0.504	0.510	0.546	0.575	0.493	0.496	0.499	0.465	0.444	0.426
10	Tax saving of leverage	TS_0	3.311	2.804	3.866	4.842	2.697	3.551	4.370	2.784	3.366	4.256	2.358	2.487	2.643
11	Expected default cost	DC_0	1.197	1.097	1.516	1.858	0.964	1.107	1.193	1.114	1.410	1.911	0.984	1.109	1.242
12	Value of optimal leveraging	TS_0-DC_0	2.114	1.707	2.350	2.984	1.733	2.44	3.178	1.670	1.956	2.345	1.374	1.378	1.401
13	Capitalized value of optimal leverage	$Z^*(v^s_0-V^s_0)/V^s_0$	0.090	0.084	0.091	0.096	0.086	0.096	0.105	0.100	0.122	0.155	0.079	0.079	0.081

In addition, the maturity extension and the increase in interest rate and tax rate have a significant effect on the increase in zero coupon bonds, but conversely, an increase in the standard deviation has no significant effect. The increase in the standard deviation has no effect on the leverage ratio, but changes in maturity, interest rate and tax rate increase the optimal leverage ratio. In addition, an increase in maturity, interest rate, tax rate and volatility have a significant impact on the expected cost of default. Changes in maturity and interest rates have relatively few influences on the annual debt yield spread.

On the other hand, changes in the tax rate and standard deviation have a significant impact on increasing the yield spread. Some of the impacts on other optimal capital structure variables can be stated as follows: (1) Maturity and interest rates are positively related to the value of debt, while the tax rate and standard deviation relatively do not have a significant impact on these variables. (2) Maturity, interest rate and tax rate are negatively related to the value of equity while the standard deviation is relatively insignificant. (3) Maturity, interest rate and tax rate are positively related to the capitalized value of optimal leverage while the standard deviation has insignificant impact.

In the case of asset securitization parameters (Table 5), extending the period is positively correlated with the trend value of unlevered firms, conversely, increasing interest rates, tax rates and standard deviations reduce this value where the biggest decrease occurs due to an increase in standard deviation. Moreover, tax savings are a very important parameter in determining how much financial synergy is generated. In the analysis above, it can be seen that an increase in the tax rate together with a change in maturity adds significantly to the tax savings, but on the contrary, a change in the standard deviation has a negative relationship to the tax savings in leverage. Interestingly,

rising interest rates increase tax savings
initially but reduce them afterwards.

Table 5: Asset Securitization from Extended Baseline Model

No	Variables	Symbol	Leland (2007)	T=6	T=8	T=10	r=6	r=8	r=10	τ=23	τ=26	τ=30	Var=24	Var=26	Var=28
1	Change in Value of unlevered firm	$-\Delta V_0$	0.21	0.268	0.34	0.364	0.16	0.085	0.042	0.205	0.196	0.186	0.16	0.077	-0.042
2	Change in optimal levered firm	$-\Delta$	0.61	0.725	0.900	0.993	0.565	0.504	0.454	0.659	0.727	0.839	0.566	0.479	0.337
3	Change in tax saving in leverage	$-\Delta TS$	0.54	0.592	0.664	0.716	0.518	0.520	0.507	0.678	0.915	1.451	0.41	0.281	0.125
4	Change in expected default costs	$-\Delta DC$	-0.14	0.134	0.124	0.087	0.113	0.520	0.094	0.223	0.385	0.798	0.041	-0.120	-0.253
5	Measure I	$\Delta Z/(v1+v2)$	3.510	3.464	3.341	3.059	2.719	1.902	1.432	3.839	4.377	5.295	3.189	2.698	1.898

The results of this assumption change analysis show the validity of Leland's framework that securitization results in a substantial increase in value from pure financial changes. It is impressively shown by other important parameters that are inelastic to changes in the four assumptions. For example, the SPV's annual volatility and recovery rate, two parameters that are of great concern to creditors and investors, are relatively stable and consistently show that assets transferred to the SPV are truly categorized as low-risk assets.

Proposed Modification and Improvement

It is important to highlight that some proposed modifications to the framework and improvements to the paper might be necessary to make it relevant to the Islamic finance field. Firstly, it is crucial to emphasize how different Islamic finance is from traditional corporate finance, which forbids the use of interest and stipulates that the profit derived from a financing arrangement may not be defined ex ante. Furthermore, Islamic finance encourages the financier and the financed to share the risk through risk-sharing contracts such as *musharakah* (Anwar & Haji-Othman, 2023). Thus, it would not be ideal to just use the valuation framework proposed by Leland (2007) without any modification due to the unique characteristics of Islamic financing products.

To cater for profit generated by some type of sukuk which can only be known *ex-post*, perhaps a good modification to be made to the Leland (2007) framework to suit this characteristic is by having a stochastic model on the returns replacing the fixed return from interest. Another plausible modification to the model would be the calculation of the default cost. Since in some sukuk, a profit and loss sharing contract is utilized, the default cost in this type of sukuk would be theoretically lower due to the fact that the downside losses of the project will be absorbed together by both the financier and the financed as opposed to only being absorbed by one party, the financed. Therefore, in this kind of situation, the value of a limited liability shelter could be reduced since the nature of the contract itself has partly provided the shelter. However, this is probably a premature hypothesis and more research on this matter needs to be done to see the extent of value from the profit and loss sharing contract over the value from the limited liability shelter.

Secondly, as a conventional economist, to maximize the capital structure, Leland's view rests more on increasing financial synergies that can satisfy stakeholders. Whether the method used is project financing or asset securitization (the latter being the split financing model which has grown rapidly in the last three decades), positive financial synergies are achieved when successful in increasing a company's ability to raise debt. Islam does not prohibit people from taking on debt as the word of Allah SWT in the Al-Qur'an, Surah Al-Baqarah 282: "O believers! When you contract a loan for a fixed period of time, commit it to writing.". However, Islam also obliges them to pay off all their debts based on an agreement with creditors as stated in the word of Allah SWT in the Al-Qur'an Surah Al Maidah 1: "O you who believe! Honor your obligations.".

For the debt to be paid according to the contract, Islam sets conditions for the debtor, including only having to owe debt under forced circumstances, having a strong intention to return the debt, avoiding usury, and paying it off immediately, because the Prophet Muhammad PBUH said: "Delay (payment) for those who being able to afford it is tyranny." (Reported by Bukhari). Therefore, the idea of maximizing a company's ability to increase debt is discouraged in Islamic teachings as it will lead to greater default payments (Zainol et al., 2016).

Thirdly, from the viewpoint of limited liability, another improvement that can be incorporated into the paper to make it in line with Islamic finance – apart from the framework is by including the Shariah rulings on limited liability. Since Islamic finance is based on Shariah principles, it is important to know the rulings pertaining to limited liability. Does Islam condone limited liability company holdings? Islam takes the matter of fulfilling debt very

seriously and discourages its believers from taking debt unless necessary. In Surah Al-Ma'idah: 1, Islam urges its believers to fulfil all their contracts, and of course that would include debt contracts. And it is also recorded by al-Bukhari, hadith No. 2387 that the Messenger of Allah said, "The one who takes people's wealth intending to pay it back, Allāh will pay it back for him, and the one who takes it intending to destroy it, Allāh will destroy him.".

Despite that, does it mean that Islam does not recognize limited liability and that everyone including legal entities should have unlimited liability? This issue arises from the matter of whether Islam acknowledges legal entities as separate and distinguished entities from the individual entities of its shareholders. If Islam accepts this, should the legal entity file for bankruptcy, the liabilities of the legal entity should not exceed the assets that it owns and would not extend to its shareholders since they are separate entities. This is similar to the fact that if a genuine person, or a human being, passes away insolvent, his creditors have no claim on his estate other than the amount of his remaining assets. The creditor will undoubtedly lose if the debtor's liabilities are greater than his assets because there will be no way to recover their losses after the debtor's passing.

For the sake of brevity without going into the details of the discussion, prominent scholars in this field have opined that Islam has acknowledged the separation of legal entities from individual entities following that Shariah gives early institutions like mosque, waqf and baitul mal legal status. To justify this matter, they also take the analogy of the limited liability of the master of a slave over the business that is done by his slave due to its close resemblance to the limited liability holdings that we have today (Hasanuzzaman, 1989). Despite that, in line

with the hadith reported by al-Bukhari, No. 2387, limited liability should not become a means for cheating and escape from the natural liabilities' consequent to a profitable trade (Usmani, 1998).

Fourthly, in the issue of interest rates, Islamic finance strictly prohibits the use of interest rates in the financial system particularly in lending and borrowing activities. As practiced in conventional finance, charging interest to the borrower as a pre-determined profit in the lending activities is also strictly not allowed. The interest rate is permissible to be used as a benchmark for the return in trading-based contract where the profit is determined by buying-selling activities (Suharto, 2014). Moreover, the use of the interest rate can also be replaced with an indicative return depending on in which sector the financial transaction occurs. Intuitively, a different sector possesses a different level of risk and expected return, so each sector must be treated differently. In the case of asset valuation, to examine present and future value, the use of an indicative return can also be implemented in the Leland (2007) model. Furthermore, for profit-loss sharing contracts, the use of an indicative return can be implemented but subject to the contribution of the project either in the form of financial investment or management activities.

Conclusion

Leland's (2007) model has made a significant contribution to the development and understanding of separate financing and mergers in finance theory. It is a benchmark to measure the efficiency of a merger or separate financing. In the case of Islamic finance, the model can also be implemented to project or separate financing such as sukuk issuance and ideally with some modifications since the nature of some types of sukuk like

musharakah-based sukuk does not allow profit to be determined ex ante. Nonetheless, some types of sukuk that are based on *murabahah* and *ijarah* that do have fixed returns can still utilize Leland's (2007) model without any modification. This is because the nature of their returns is similar to conventional bonds. According to the findings, using hypothetical sukuk issuance, the separate financing has a positive impact on the firm. It can be seen from the value of change in the optimal levered firm and firm value in the paper which both are positive. In addition, the findings also reveal that when there are changes in maturity period, interest rate, tax, and standard deviation, each of the variables changes affect similarly as well as differently depending on the variables. It indicates that each change in the above-mentioned variables does matter in influencing the optimal capital structure and the result of structured financing in the model. Finally, it is important to highlight that some proposed modifications are necessary when the Leland model is fully implemented in Islamic finance particularly embracing the unique characteristics of Islamic finance where some sukuk may have a different structure and use a stochastic model rather than a static one, considering that some sukuk use a profit-sharing contract.

Acknowledgements

References

Anwar, S., & Haji-Othman, Y. (2023). How Islamic is Islamic Banking? Developing the Falah Scoring. Global Journal Al-Thaqafah, 13(2): 68–84. http://site.gjat.my/Clients/gjatmy/gjatvol13-2-6.pdf

Bank Syariah Indonesia. (2023). Sejarah Perseroan. Bank Syariah Indonesia. https://ir.bankbsi.co.id/corporate_history.html *(In Indonesian)*.

Chong, B. S., & Liu, M. H. (2009). Islamic Banking: Interest-free or Interest-based? Pacific Basin Finance Journal, 17(1): 125–144. https://doi.org/10.1016/j.pacfin.2007.12.003

Hasanuzzaman, S. M. (1989). Limited Liability of Shareholders: An Islamic Perspective. Islamic Studies, 28: 353–361. http://www.jstor.org/stable/20839968

Leland, H. E. (2007). Financial Synergies and the Optimal Scope of the Firm: Implications for Mergers, Spinoffs, and Structured Finance. Journal of Finance, 62(2): 765–807. https://doi.org/10.1111/j.1540-6261.2007.01223.x

Lewellen, W. G. (1971). American Finance Association a Pure Financial Rationale for the Conglomerate Merger. The Journal of Finance, 62(2): 521–537.

Marks, M. L. (2001). Making Mergers and Acquisitions Work: Strategic and Psychological Preparation. Academy of Management Executive, 15(2): 80–92. https://doi.org/10.5465/AME.2001.4614947

Radzi, R. M., & Lewis, M. K. (2015). Religion and the Clash of "Ideals" and "Realities" in Business: The Case of Islamic Bonds (Sukuk). Thunderbird International Business Review, 57(4): 295–310. https://doi.org/10.1002/tie.21706

Rahman, Z., Ali, A., & Jebran, K. (2018). The Effects of Mergers and Acquisitions on Stock Price Behavior in Banking Sector of Pakistan. Journal of Finance and Data Science, 4(1): 44–54. https://doi.org/10.1016/j.jfds.2017.11.005
Suharto, U. (2014). Analysis of the Concept of Islamic Choice (ikhtiyar) on Opportunity Cost and Time Value of Money in Islamic Economics and Finance. International Journal of Economics, Management and Accounting, 22(2): 1–20. https://journals.iium.edu.my/enmjournal/index.php/enmj/article/download/269/181

Usmani, M. T. (1998). The Principle of Limited Liability. In an Introduction to Islamic Finance (pp. 152–160). https://archive.org/details/AnIntroductionToIslamicFinanceByShaykhMuftiTaqiUsmani/page/n3/mode/2up

Zainol, Z., Nur, A., Khairol Nizam, H., & Rashid, R. A. (2016). Exploring the Concept of Debt from the Perspective of the Objectives of the Shariah. International Journal of Economics and Financial Issues, 6(S7): 11–13. https://dergipark.org.tr/en/download/article-file/364059