The Weakness and Strength of the Mathematical Formulation in Existing Shariah Principle of Islamic Home Financing

Sharifah Arni Syed Jaaffar, Puspa Liza Ghazali, Zainudin Awang and Nurfadhlina Abdul Halim

Abstract: Islamic home financing has gained its popularity since last three decades as a substitute for interest-based-debt financing. There are top three-syariah principle applied in Malaysia, which are Bai Bithaman Ajil, Musyarakah Mutanaqisah and Tawarruq. The purpose of this paper is to compare the Shariah principle applied in Islamic home financing in Malaysia namely Bai Bitahaman Ajil, Musyarakah Mutanaqisah and Tawarruq. Based on an extensive literature review, this paper aims to highlight the weakness, methods of computation and pricing, calculations and benefits of each shariah principles and its distinctive features when compared to each other.

Key words: Islamic Home Financing • Bai Bithaman Ajil • Musyarakah Mutanaqisah • Tawarruq

INTRODUCTION

The existence of Islamic banking in Malaysia was started on 1963 with the establishment of Tabung Haji. People start to aware with ‘halal’ and ‘haram’ transaction as the basis of conventional home financing is in conflict with the principles of Islam, where riba (usury) and gharar (uncertainty) are integral part of the financing. Laldin [1], considers that the bank’s progress was very encouraging, with its activity rapidly expanding throughout the country. This has prompted the government to further develop the Islamic banking industry in Malaysia.

During the Malaysia’s economy crisis in 1997, many houseowner felt burdened with the existing conventional loan. As with conventional, there’s no ceiling rate to maximise the fluctuate rate if the economy gone worst. Starting from that, people get more aware with product offered by the bank as it is a major investment decision that is made out of necessity.

The Islamic aspect of the Islamic banking practice is considered one of the most important factors differentiating it from its conventional counterpart. Thus, for the Islamic banks to compete in the current dual markets, it is important for them to keep aligned with the shariahrequirements that represent the very essence of the religious rules of Islam. In fact, banks looking to move into the Islamic banking market first need to appoint a shariahboard or a shariahcounselor to ensure conformity and minimizeshariahrisk [2].

This article emphasizes on the strength and weaknesses of 3 most top Shariah principles practiced for home financing in Malaysia. The top listed Shariah principles in Malaysia are Bay Bithaman Ajil (deferred payment sale), Musyarakah Mutanaqisah (diminishing partnership) and Tawarruq (direct instrument of debt creation). There are 16 Islamic Financial Institution (IFI) in Malaysia. Table 1 show the summary of IFI in Malaysia as at March 2016.

Bai Bithaman Ajil (BBA): The most popular type of financing by almost every Islamic bank in Malaysia used is BaiBithaman Ajil (BBA). It is the earliest concept utilized in Islamic financing. BaiBithaman Ajil means a ‘deferred payment sale’. It is a mode of Islamic financing used for property, vehicle, as well as financing of other consumer goods. Bank Islam Malaysia Berhad uses the concept on its early establishment for replacing the practice of conventional loan but still BBA is based on debt that is expended to calculate the profit.
Table 1: Summary of Islamic Home Financing in Malaysia

<table>
<thead>
<tr>
<th>Islamic Financial Institution</th>
<th>Name of Home Finance</th>
<th>Shariah Concept</th>
</tr>
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<tbody>
<tr>
<td>Affin Islamic Bank Berhad</td>
<td>Home Fin.-i MM</td>
<td>MM</td>
</tr>
<tr>
<td>Al Rajhi Banking &amp; Investment Corporation Malaysia Bhd</td>
<td>Home Fin-i BBA</td>
<td>BBA</td>
</tr>
<tr>
<td>Alliance Islamic Bank Berhad</td>
<td>i-Wish Home Fin-i BBA</td>
<td>BBA</td>
</tr>
<tr>
<td>Am Islamic Bank Berhad</td>
<td>Home Fin-i BBA &amp; MM</td>
<td>MM &amp; BBA</td>
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<tr>
<td>Asian Finance Bank Berhad</td>
<td>Home Fin-i MM</td>
<td>MM</td>
</tr>
<tr>
<td>Bank Islam Malaysia Berhad</td>
<td>Baiti Home Fin-i Tawarruq</td>
<td>Tawarruq</td>
</tr>
<tr>
<td>Bank Muamalat Malaysia Berhad</td>
<td>Home Fin-i MM</td>
<td>MM</td>
</tr>
<tr>
<td>Cimb Islamic Bank Berhad</td>
<td>Flexi Home Fin-i MM</td>
<td>Tawarruq</td>
</tr>
<tr>
<td>HSBC Amanah Malaysia Berhad</td>
<td>Home Smart-i MM</td>
<td>MM</td>
</tr>
<tr>
<td>Hong Leong Islamic Malaysia Berhad</td>
<td>Flexi Prop Fin-i Tawarruq</td>
<td>Tawarruq</td>
</tr>
<tr>
<td>Kuwait Finance House (Malaysia) Berhad</td>
<td>MM home Fin-i Ijarah Muntahiah Bi Tamlik</td>
<td>Ijarah Muntahiah Bi Tamlik</td>
</tr>
<tr>
<td>Maybank Islamic Berhad</td>
<td>Home Equity &amp; Maxi Home MM &amp; Tawarruq</td>
<td>MM &amp; Tawarruq</td>
</tr>
<tr>
<td>OCBC Al Amin Bank Berhad</td>
<td>Manarat Home-i MM &amp; Tawarruq</td>
<td>Ijarah Muntahiah Bi Tamlik</td>
</tr>
<tr>
<td>Public Islamic Bank Berhad</td>
<td>ABBA Home Fin-i Bai Al Inah</td>
<td>Ijarah Muntahiah Bi Tamlik</td>
</tr>
<tr>
<td>RHB Islamic Bank Berhad</td>
<td>Equity Home Fin-i MM</td>
<td>MM</td>
</tr>
<tr>
<td>Standard Chartered SaadiqBerhad</td>
<td>Saadiq My Home-i MM</td>
<td>MM</td>
</tr>
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</table>

**Criteria:** The underlying transactions of the BBA are based on the concept Murabaha(cost plus) whereby the sales price is added up with the profit.

Technically, this financing facility is based on the activities of buying and selling. Using this contract, the Islamic bank may finance the customer who wishes to acquire a given asset but to defer the payment of the asset for a specific period or to pay by installment. The asset that the customer wish to purchase for example, are bought by the bank and sold to customer at an agreed price.

An agreed price will include the bank's mark-up profit. Once the bank and customer determine the tenure, the manner of the installments will then be concluded. The customer is also allowed to settle payment within a pre-agreed period in a lump sum.

The price at which the bank sells the property will include the actual cost of the asset and will also incorporate the bank's profit margin. There is no interest charged and the extra price compensates the bank for its profit. Installments remain fixed over the period of the contract and no adjustment is made if interest rates fluctuate. The fixed monthly installments are determined by the selling price, repayment period and the percentage margin of financing.

**Weakness:** BBA is said to be popular in countries like Malaysia, Indonesia and Brunei. However, it has proven to be quite unsatisfactory to the customers and bankers [3].

Customers are particularly unhappy when it comes to early redemption or in the event of default as BBA carries a higher financing balance as compared to the conventional housing loan. To support the above, in recent years, the Islamic financing facility under the concept of BBA has attracted numerous judicial considerations [4] with the recent case of Affin Bank versus Zulkifli said to be a signpost of BBA.

BBA although is claimed to be an Islamic alternative to financing, its concept is still based on debt. The BBA is being criticized on the ground of not being Shariah compliant when the bank does not take the risk of ownership and liability of the property. Interest rate is still being used (although implicitly) to act as a benchmark in calculating the profit margin and thus, creating a feeling of uneasiness among the Muslim consumers.

Further to that, the Middle Eastern Shariah scholars disapprove BBA contract, mentioning that BBA contract is similar to the conventional loans. The BBA sale deals with two parties only, namely the bank as the selling party and customers as the buying party. According to Shariah, the bank must purchase the house from the developer but this transaction does not constitute a BBA sale. But current practices today do not allow the above to take place. This is because a bank whether Islamic or otherwise, can only provide financing facilities.

**Calculation:** A sample calculation of a 20 years property financing is as follows:
Assume that you take out a 20 years financing for a house terrace of RM200, 000 at a profit rate of 6.5%. Down payment value is RM 20, 000. The monthly installments and total repayment would be based on the following formula (BSN formula guide):

\[
(PMT) = \frac{FA \times (1 + r) \times n}{1 + (1 + r) \times n - 1}
\]

where by: PMT is payment of monthly installment
FA is facility amount
r is profit rate (per month) = (6.5% / 100) / 12 = 0.0054
n is periodic payment (no of months) = 20 years x 12 = 240 months

Monthly installment
\[ = \frac{180,000 (1 + 0.0054)^{240} (0.0054)}{1 + (1 + 0.0054)^{240} - 1} \]
\[ = RM 972.00 \]

whereas the Bank’s selling price is
\[ = RM 972 \times 240 \text{ months} \]
\[ = RM 233,280.00 \]

**Musyarakah Mutanaqisah (MM):** The facility combines both musyarakah and ijarah and involves the bank and the customer entering into joint ventures (musyarakah) with both parties contributing capital (financing and deposits). With home financing, the home is acquired by the joint venture, and the bank gives the sole right of occupancy to the customer, for which the customers agrees to pay rent under a rental agreement (ijarah) over the tenure of the financing to the IFI.

Conceptually it has been argued that house-financing concept based on Musyarakah Mutanaqisah (MM) is more superior to the BBA. The argument is based on the advantages of MM which is seen to promote the welfare of the people as the outstanding balance of financing at any point in time never exceed the original price of asset [5].

**Criteria:** The process started when customer submits project proposal and applies for the financing?Bank, once application is approved, enters into a musyarakaharrangement with customer either leases bank's shares in the project or shares the profit and loss with bank. Customer will use his portion from the lease rental amount to buy the bank's stake in the property. The partnership will be terminated with the customer owning 100% of the project and by that the title will be transferred to customer.

Bendjilali and Khan [6] stated that MM could help the people to reduce the reliance on other financing facilities such as the BBA, Murabaha and etc.a major differences with BBA is it’s a sharing ownership compared to BBA is debt financing.

**Weaknesses:** However, MM is not favorable among practitioner. It is less attractive to bankers because MM does not charge interest of advance profits. As such the banks cannot make more profit. MM is purely based on rental payment [7].

It is less attractive for the banks since the MM would bring lower profits to the Islamic banks. By using BBA mode of finance, Islamic banks earn higher profits with less risk and efforts invested in the projects. However, following basic economic theories, as the price of the products/services decreases (in this case MM mode of financing) the demand for that service would increase. Therefore, while the banks may lose some profits by implementing MM, compared to the BBA financing, it will gain some extra profits and therefore offset some of that loss, by initial increase in demand for their services (i.e. MM).

Since the rental price do change over the time and is dictated by the location of the property (in case of home financing), keeping track of these changes may not be an easy job for the banks. At the same time, as the rental rate increase, it may be difficult for the bank to convince the customer that now he/she has to pay higher rental on the property.

Legal amendments may be needed especially with regards to the tax structure. This means that the law should be there to make sure that the customer is not taxed twice for the same property.

Land laws and the laws related to the Islamic banking and finance (i.e. Islamic Banking Act 1983 and the Banking and Financial Institutions Act 1989) may have to be amended in order to allow banks to become legal co-owners of properties.

**Calculations:** The MM uses the same formula as conventional Banks to calculate the monthly payment but MM replaces the interest rate with the rental rate [5] and it is calculated as: ?

The rental rate, x = X/P ?Where:
\[ X = \text{Monthly rental payment} \]
\[ P = \text{Total value of the asset} \]

The formula that conventional Banks use is as follows: ?
\[ PV= \frac{Pmt}{i} \left[ 1-1/(1+i)^{n} \right] \]

Rearranging and making Pmt the subject, the formula become as follows:
where: PV= Pmt = i= n=Pmt = i (1+i)^{n}/(1+i)^{n} -1

Present value of the loan Monthly Payment? Interest rate paid periodically number of the period.

In order to get the MMP formula, we replace the interest rate (i) with the rental rate (x), thus, we get MMP formula as follows:
M = x \frac{(1+x)^n B}{(1+x)^n - 1}

where: M = Periodically payment to the bank (include the additional amount of rental)

\( x = \) Rental rate periodically

\( n = \) Number of periods

\( B = \) Initial bank share

The customer makes periodic payment to the Bank, which includes the additional amount of rent that will be used to redeem the Bank’s share gradually. Example is if the rental is RM2, 000, but the customer pays RM2, 500, RM500 is the additional amount that can be used to redeem the bank’s share until the customer owns 100% of the asset.

The formula that is used to find the additional amount is as follows:

\[ A = \frac{x[P - (1 + x)^n C_o]}{(1 + x)^n - 1} \]

where:

\( A = \) Additional amount that customer needed to pay in order to increase its ownership.

\( X = \) Rental rate?

\( P = \) Total value of the asset

\( C_o = \) Contribution of the customer to purchase of the asset?Number of period all formulas taken from [5].

A sample calculation of a 20 years property financing is as follows:

Customer wishes to buy a house priced at RM 200, 000. Customers pays the 10 percent of the price RM20, 000, the financier put the remaining 90 percent, RM 180, 000 and that the average rental of similar homes in the locality is agreed upon between the two parties to be RM 1, 000 per month. And the customer wishes to add another RM 289,58 monthly in order to redeem the financier’s share in 20 years. This gives the total monthly payment as RM 1, 289.25. Table 2 below provides the schedule for the MMP contract:

**Tawarruq:** Tawarruqis one of the Shariah-compliant modes used for cash-based financial instruments due to the nature of the tawarruqmechanism, that is, to provide cash liquidity. Therefore, the concept suits most of the facilities provided by conventional banking, such as deposit, loan, bond and money market instruments. This mode of cash-based instrument, which is widely known in the Gulf Region, has recently become popular in Malaysia as an alternative to Bai Al Inah that was adopted in the early days.

Tawarruq as it practiced by IFI nowadays is divided into two segments that are classical tawarruq and tawarruq that its applied in modern banking sectors nowadays. It is known as tawarruqmunazzam or organized tawarruq.

**Criteria:** Tawarruq consists of two sale and purchase contracts where the first involves the sale of an asset to a purchaser on a deferred basis and the subsequent sale involves sale of the asset to a third party on a cash basis.

According to Dusuki [8], tawarruq technically is the purchasing of a commodiyon credit by the mutawwariq (seeker of cash) and selling to a person other than the initial seller (third party) for a lower price on a cash. The initial structure if tawarruq transaction can be seen on Figure 3 as practiced to Bank Islam Malaysia Berhad.

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**Table 2: Payments Schedule for MusyarakahMutanaqisah Partnership**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C= A+B</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1,000</td>
<td>289.58</td>
<td>1,289.25</td>
<td>0.10195</td>
<td>100.00</td>
<td>900.00</td>
<td>20, 389.58</td>
</tr>
<tr>
<td>2</td>
<td>1,000</td>
<td>289.25</td>
<td>1,289.25</td>
<td>0.10391</td>
<td>101.95*</td>
<td>898.05</td>
<td>20, 781.11</td>
</tr>
<tr>
<td>3</td>
<td>1,000</td>
<td>289.58</td>
<td>1,289.25</td>
<td>0.10587</td>
<td>103.91**</td>
<td>896.09</td>
<td>21, 174.59</td>
</tr>
<tr>
<td>4</td>
<td>1,000</td>
<td>289.58</td>
<td>1,2289.25</td>
<td>0.10785</td>
<td>195.87</td>
<td>894.13</td>
<td>21, 570.05</td>
</tr>
<tr>
<td>5</td>
<td>1,000</td>
<td>289.25</td>
<td>1,289.25</td>
<td>0.10984</td>
<td>107.85**</td>
<td>892.15</td>
<td>21, 967.48</td>
</tr>
<tr>
<td>6</td>
<td>1,000</td>
<td>289.25</td>
<td>1,289.25</td>
<td>0.11183</td>
<td>109.84</td>
<td>890.116</td>
<td>22, 366.89</td>
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<tr>
<td>240</td>
<td>1,000</td>
<td>289.58</td>
<td>1,289.58</td>
<td>1.0000</td>
<td>993.59</td>
<td>6.41</td>
<td>200, 000</td>
</tr>
</tbody>
</table>
Tawarruq have two main stages, Murabah stage and Asset liquidation stage. Murabah stage is when the bank and the customer enter into a commodity. Murabah contract is governed by the Murabahah rules of the Shariah Supervisory Board. The customer will own either physically or constructively the assets subject of the Murabahah contract. Whereas Asset liquidation stage is customers can choose either to sell or liquidate the commodity directly in the market on his own or through an agency agreement through the bank.

**Weaknesses:** Referring to two segments of tawarruq, which are classical tawarruq and organized tawarruq. The difference between both mechanisms is the existence of the arrangement to resell the commodity by the bank in the modern application via a wakalah contract. This evolvement is required, as the bank’s customer does not have the capability to do so. Hence, the component becomes debatable insomuch, as it influences the scholar’s decision on the verdict of tawarruq, in particular the international fiqh councils’ [9].

Islamic banks are equally reproached the large reliance on Bayal inah [10] and tawarruq, which is a direct instrument of debt creation [11] and that do not conceptually and practically differ much from the conventional. In addition, it is an indirect way of obtaining funds without involving in sale transactions and their implications [10].

**Calculation:** A sample calculation of a 20 years property financing is as follows:

Assume that you take out a 20 years financing for a house terrace of RM200,000 at a profit rate of 6.5%. Down payment value is RM 20,000. The monthly installments and total repayment would be based on the following formula (Bank Islam formula guide):

\[ C = \frac{r P (1+r)^n}{(1+r)^n - 1} \]

- **C** = Total amount
- **P** = Total amount
- **n** = Facility period term (month)= 20 years x 12 = 240 months
- **r** = profit rate (per month) = [6.5% / 100]/12 = 0.0054
- **C** = \[ \frac{(0.0054) (180,000)(1+0.0054)^{240}}{(1+0.0054)^{240} – 1} \]
  \[ = 3539.9268 / 2.6419 \]
  \[ = RM 1339.92 \]

The bank’s selling price is

\[ C = RM 1339.92 \times 20 \text{ years} \]
\[ = RM 321,580.80 \]

**CONCLUSION**

IFI has applied each of shariah principle in bank’s product. This is necessary so that a IFI can runs smoothly according to shariah. The said shariah principles had stressed each strength and weakness, which proved that each principle is not an ultimate choice in both parties (IFI and customers).

From the calculation on installment, BBA offered the lowest but due to Shariah concept the transaction is not allowable as only two parties (bank and seller) join in the transaction. Whilst in term of MM, the Shariah concept practice is enhanced but the installment also tawarruq is slightly higher and burden the lower income applicants that wish to own a house.

Apart from reviewing each Shariah principle, it is critical to construct another mathematical formulation to ensure lower income started from RM3000 per month earners can enjoy owning the facility of RM 200,000 below with acceptable installment to pay each month.

**REFERENCES**

