Gold-based housing financing model: proposing an alternative housing financing model for Islamic bank

Madha Adi Ivantri and Muhammad Hakim Azizi
Program of Shariah Economics, Faculty of Islamic Studies, Universitas Nahdlatul Ulama Surakarta, Surakarta, Indonesia

Ana Toni Roby Candra Yudha
Department of Shariah Economics, Faculty of Economics and Islamic Business, Sunan Ampel State Islamic University Surabaya, Surabaya, Indonesia, and

Yudi Saputra
Faculty of Economics and Business, Universitas Islam Internasional Indonesia, Depok, Indonesia

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Abstract

Purpose – This paper aims to propose a new housing finance mechanism through gold price as an alternative to interest rate in Islamic home financing, especially on Bai'Bithaman Ajil (BBA) contract.

Design/methodology/approach – This study using simulation approach to calculate the monthly installments for home financing using gold price references. In simple terms, propose a financing formula in the BBA contract by converting the selling price of the house to the gold price, and then the monthly installments also follow the actual gold price. The authors provide an example by simulating this formula using historical data and cases of housing financing at Indonesian Islamic banks. The authors compare housing financing models based on gold prices and interest rates. Finally, The authors can compare the two housing financing models that are affordable for low-income people.

Findings – The results show that in the initial period, monthly installments of BBA based on gold price were lower than home financing based on interest rate. This result makes it possible for low-income people who cannot access financing based on interest rates to access financing based on gold price. However, the total installments of financing based on gold prices are higher than the financing model based on interest rates.

Research limitations/implications – The paper confines one contract, namely, BBA, as it is claimed to be more Shariah-compliant than others.

Practical implications – These findings suggest an alternative model for Islamic banks and regulatory authorities in Indonesia to replace the interest rate reference with the gold price in BBA contract housing financing. This model can offer competitive advantages for Islamic banks, including lower initial installments and inflation-protected profits, serving as a means of differentiating them from conventional banks.

Social implications – Gold price-based housing financing model in Islamic banks will increase the affordability of housing financing for low-income people.

Originality/value – This paper tries to solve two problems, namely, first, the problem of assuming that Islamic and conventional banks are the same, and second, the problem of housing finance affordability. This study needs to be explored.

Keywords BBA contract, Islamic bank, Housing financing, Gold price, Interest rate

Paper type Research paper

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1. Introduction

Housing affordability is becoming an important concern in many countries (Li *et al.*, 2020; Rahman and Ley, 2020; Ramlan and Eleena, 2016; Soto-Rubio and Hausman, 2019; Wijburg, 2021). One measure of housing affordability is "financial affordability," which measures whether households are able to fund their home purchase, and usually use the ratio of housing prices to annual income (Gopalan and Venkataraman, 2015). The latest UN HABITAT data shows the median house price in developed countries can often be 2.5–6 times the average median annual salary. In Asia, house-price-to-income ratios are higher in many countries, as the selected capital cities, Vientiane has a house price to annual income ratio of 23.2, Dhaka has a ratio of 16.7 and Jakarta a ratio of 14.6. Home ownership in many emerging Asian countries is therefore a significantly more expensive and difficult proposition than in other countries (Majale *et al.*, 2011). The high house price becomes a serious problem for middle and lower society, where they are the largest population in developing countries. On the other hand, the low housing affordability creates a variety of adverse effects, such as high levels of homelessness, poor housing conditions, mortgage delinquency, default and seizure.

One of the factors of high housing prices is financing costs with high interest rates charged by banks or financial institutions (Kieti and K'Akumu, 2018). Nenova (2010) argues that housing finance with high interest rates and inflexible mechanisms will make it harder for people to get financing and monthly installments. Housing finance mechanisms contribute to the level of housing affordability (Mccord *et al.*, 2011). Therefore, banks and financial institutions need to evaluate the mechanisms of housing finance to help overcome housing affordability and also expand the housing finance market.

Today, housing finance is not only done by conventional financial institutions but also by Islamic financial institutions. The entry of Islamic finance institutions into housing finance can contribute to meeting the demand in underserved market segments and needs to be developed. The empirical findings indicate that Islamic banking market share in housing finance has increased but has no role in reaching low- and middle-income people (Nenova, 2010). This cannot be separated from the similarity of operational practices between Islamic banks and conventional banks, mainly the similarity of the use of interest rates as a reference of financing.

Some researchers have pointed out similarity of practice in Islamic and conventional banks. Smolo and Hassan (2011) revealed that the level of margin financing in Islamic banks with *bai* '*bithaman ajil* (BBA) contracts follows debt-based financing in conventional banks. Razak and Taib (2011) and Baber (2017) claiming that the BBA price calculation only changed the term "interest rate" to "profit margin". Meanwhile, Amin (2011) proves that the similarity of the use of housing finance reference between conventional and Islamic banks produces the same price. Critics of the practice of using interest rates in Islamic banks proposed by Jaman (2011). He argues for the existence of Islamic banks to prevent Muslims from usury (riba), but Islamic banks use interest rates as a reference. According to some sharia experts, the use of interest rates as a reference is not prohibited but not desirable. Therefore, Islamic economists suggest creating a new benchmark for replacement interest rates.

Based on the above background, the main question that arises is:

Q1. Will the implementation of gold price reference as a substitute for interest rate for the Islamic house financing enhance housing affordability?

This study attempts to answer this question with a housing finance simulation approach by comparing the use of reference gold prices and interest rates. Furthermore, the simulation

results are discussed regarding the impact of the implementation of gold price reference for banks and customers. This research is expected to contribute to the literature on the housing market and Islamic banking. In addition, it can offer ways to increase housing affordability and provide an alternative benchmark of interest rates in Islamic banks.

2. Review of the literature

Some researchers have sought alternatives to benchmark interest rates (Ahmed *et al.*, 2018; Azad *et al.*, 2018; Omar *et al.*, 2010; Tahiri Jouti, 2021). Yusof *et al.* (2011) analyzed the possibility of relying on the rental rate (RR) rather than conventional interest-based lending rates for the price of Islamic financing products in Malaysia. They found consistent evidence that RR is a better alternative than lending rates for the price of Islamic housing finance products. RR proved resilient to short-term economic volatility while, in the long run, reflecting economic fundamentals. Then, Mohammad and Ghauri (2015) show that the benchmark interest rate cannot be used for the price of Islamic financial products. The study explains that interest-based benchmarks do not represent real economic activity. So he suggested for the Islamic financial industry players to create benchmarks that are relevant to the real sector.

A suggestion from Yusof *et al.* (2011) for the implementation of house rent price index is not easy because it has been shown that the rental price of a house has a high degree of diversity and depends on the value, location and characteristics attached to the house. While a suggestion from Mohammad and Ghauri (2015) to make price reference in the form of composite index of real economy variables also has constraint, which is price diversity of commodity between region. Both suggestions from previous studies have other limitations, in which estimates of RRs for housing and creating of reference indexes for each economic sector become complicated and costly. Therefore, this study proposes the use of gold price as a reference standard of housing finance prices in Islamic banks. The use of gold as a standard is considered more effective and easy to implement. The proposed gold price has the same price characteristics among regions of the world, and there have been many trusted agencies that publish price movements accurately.

Another reason to use gold prices as a substitute for interest rates is the view of the great cleric Imam Ghazali. In his work, "Ihya Ulumudin" explained that Allah creates gold and silver for both of them to be a fair weight in giving value or price, with the gold of men getting the things they need. Based on Imam Ghazali's statement, gold can act as a medium of exchange and standard price of goods. The role of gold as the standard price of goods is very likely in the model of interest-free debt because it has the characteristics of hedging.

Many researchers argue that gold acts as a hedge of inflation (Bampinas and Panagiotidis, 2015; Hoang *et al.*, 2016; Shahbaz *et al.*, 2014; Wang *et al.*, 2011). This role can be used by Islamic banks to keep assets in the distribution of financing, both short and long term. On the other hand, the implementation of the gold price reference will also protect the bank's profits derived from the margin on the type of debt-based contracts. Currently, Islamic banks use interest rate benchmarks to address changes in inflation rates. Thus, the ability of Islamic banks to predict the interest rate and inflation will determine bank's performance.

3. Research methodology

3.1 Research design

This study was designed using a simulation-based approach to housing finance. The facts in some countries show that housing finance is done by conventional banks and Islamic banks, so the simulation is done on the financing schemes of both banks. Conventional

banks have differences with Islamic banks, especially in the types of housing finance contracts. The contracts offered by conventional banks are loans, while the contracts offered by Islamic banks are of three types, namely: buying and selling (*bai bithaman ajil*/BBA), leasing purchase (*ijarah muntahiyah bittamlik*/IMBT) and ownership cooperation (*musyarakah muntanaqisah*/MMQ). Among the three types of contracts, BBA contracts in Islamic banks and loan contracts in conventional banks are claimed to have similarities (Baber, 2017; Mydin Meera and Abdul Razak, 2005; Razak and Taib, 2011; Smolo and Hassan, 2011). The similarity in terms of calculation and interest rate used is debated by some jurists in relation to the shari'a compliance of the BBA contract. Therefore, this study only focuses on loan schemes in conventional banks and BBA schemes in Islamic banks. This research is trying to build BBA scheme with gold price reference, so the BBA and loan schemes are different.

The simulation in this study is divided into three parts. First, present a simulation of the calculation of housing financing using loan and BBA scheme with interest rate reference. Second, present simulation of calculation of housing financing of BBA scheme with gold price reference. Third, presents a simulation of the calculation of housing financing affordability. Simulations in each section use the same case of housing finance.

Examples of cases in the simulation using conditions that occurred in Indonesia at the end of 2002. Assume that the prospective customer wants to buy a house for Rp 100,000,000. The bank requires a down payment of 15%, or Rp 15,000,000, and the remaining 85%, or Rp 85,000,000, is financed by the bank. It is also assumed that the bank offers two types of interest rates on the loan/profit margin, i.e. interest rate/fixed profit margin of 10% until the end of the period, and the interest rate/profit margin that remains at five years early and floats in the next year. The duration of financing agreed in the contract for 17 years. Upon approval of the contract, a prospective customer may make an installment payment at the end of each month beginning in January 2003 and ending in December 2019.

Based on the case example, the calculation in each simulation section is as follows:

- Simulation of the calculation of housing finance for loan and BBA schemes with interest rate references. In this section, the simulation calculations use references from previous studies. Mydin Meera and Abdul Razak (2005) have presented calculations on loan and BBA schemes with interest rates using the same equation, i.e. present value, as follows:

$$PV = \frac{PMT}{i}\left[1 - \frac{1}{(1+i)^n}\right] \tag{1}$$

installment payments are obtained based on (1) as follows:

$$PMT = \frac{i(1+i)^n PV}{(1+i)^n + 1} \tag{2}$$

Note: PV is a symbol of present value, reflecting the present value of financing, i is a symbol of interest rates, n is a symbol of payment period and PMT is an annuity payment symbol.

Based on equation (2), by using fixed interest rate/margin, a fixed installment value is obtained until the end of the contract period. On the other hand, both conventional banks and Islamic banks also use a benchmark floating interest rate/margin. In this case, the installment value will change to adjust the specified interest rate/margin;

- Simulation of calculation of housing financing of BBA scheme with gold price reference. In this section, the price of gold becomes an important component in determining the value of financing. The financing value of a BBA contract is the selling price of goods. The selling price of goods is calculated by the following equation:

$$SP = COP + PM \tag{3}$$

$PM = COP\,x\,pr$, then equation (3) becomes:

$$\begin{aligned} SP &= COP + (COP \quad x \quad pr) \\ &= COP(1 + pr) \end{aligned} \tag{4}$$

where SP acronym of the selling price of the goods, COP acronym of cost of purchased, PM acronym of profit margin and the pr is the profit rate. The selling price of this item, using the gold price as a reference, must be converted to gold with the following equation:

$$GCV = \frac{SP}{GP_{t=0}} \tag{5}$$

where GCV acronym of gold converse value, GP acronym of gold price and $t = 0$ is the starting time of the contract. The unit of conversion value of gold is grams. After determining the value of gold conversion, calculate the installments per period by dividing the gold conversion value by the number of installments. The result is still in grams of gold; the installments of each period are multiplied by the price of gold per gram in the period to find out the amount of installments in units of rupiah:

$$IP_t = \frac{GCV}{n}\,x\,GP_t \tag{6}$$

where IP acronym for installment payments, n is number of periods and t is the time of installment payment. So the value of installments will fluctuate according to the actual price of gold; and

- Simulation of the calculation of affordability of housing finance. In this section, the simulation is carried out using a debt burden ratio (DBR). Simply put, it is the ratio of the entire installment of debt (I) against to yield (Y). DBR value is determined by the bank and is used to assess the ability to repay customer installments. DBR is presented in the following equation:

$$DBR \geq \frac{I}{Y} \tag{7}$$

If the DBR value of the calculation is greater than the specified DBR, then the customer is considered not worthy of financing. Meanwhile, the value of a reasonable income to obtain financing can be found using the following equation:

$$Y \geq \frac{I}{DBR} \tag{8}$$

The DBR criteria from banks are the financing constraints for low-income households. In a housing study in England, Andrew (2012) pointed out that financing constraints play a role in delaying ownership of housing. However, the same DBR value and the lower installment (I) will provide ease of financing for the customer. This study compares the value of BBA installments based on interest (Ii) and gold price (Ig) to the housing affordability.

3.2 Data

The simulation in this study uses data from Indonesia. The data used includes data on house prices, interest rates, gold prices and US$-IDR exchange rates. Data on house prices in Indonesia is obtained from Residential Housing Price Index published by Indonesia Central Bank. The house price data is used as a reference to the actual price at the beginning of the financing. The house price in the simulation of Rp 100,000,000 is the average price of medium-type house (type of building 36–75 square meters) in the 4th quarter of 2002. Interest rate data is obtained from Central Bureau of Statistics. The interest rate used is the monthly interest rate on consumption credit from the Persero bank for the period 2003–2019. This data is a reference to the application of floating interest rates in the first simulation. The last, gold price and US$-IDR exchange rate data are obtained from the website www.investing.com. The site provides actual data on gold price movements and exchange rates. The price of gold in US$ units is converted to Rupiah using US$-IDR exchange rate data.

4. Findings

4.1 Simulation of the calculation of housing finance for loan and Bai'Bithaman Ajil schemes with interest rate reference

The simulation results of housing finance for loan and BBA schemes with interest rate references are shown together in Tables 1 and 2. Remember that the loan scheme is used in conventional banks, while the BBA scheme is used in Islamic banks. Table 1 shows the results of installment calculations using fixed interest rates, while Table 2 shows the results of installment calculations using floating interest rates. The table presented the principal installments, interest/margin and total monthly installments.

Tabel 1. Installment of housing financing using fixed interest rate reference in loan and BBA scheme

No.	Month	Principal installment (Rp)	Interest / margin installment (Rp)	Monthly payment on loan scheme (Rp)	Monthly payment on BBA scheme (Rp)
1	Jan-03	159,695.56	708,333.33	868,028.89	868,028.89
2	Feb-03	161,026.35	707,002.54	868,028.89	868,028.89
3	Mar-03	162,368.24	705,660.65	868,028.89	868,028.89
...	...	...	...	868,028.89	868,028.89
...	...	...	...	868,028.89	868,028.89
202	Oct-19	846,684.88	21,344.00	868,028.89	868,028.89
203	Nov-19	853,740.59	14,288.30	868,028.89	868,028.89
204	Dec-19	860,855.10	7,173.79	868,028.89	868,028.89
Total		85,000,000.00	92,077,893.22	177,077,893.22	177,077,893.22

Source: Authors' work based on Mydin Meera and Abdul Razak (2005)

No.	Month	Interest/margin rate (%)	Principal installment (Rp)	Interest / margin installment (Rp)	Monthly payment on loan scheme (Rp)	Monthly payment on BBA scheme (Rp)
1	Jan-03	10	159,695,56	708,333.33	868,028.89	868,028.89
2	Feb-03	10	161,026.35	707,002.54	868,028.89	868,028.89
3	Mar-03	10	162,368.24	705,660.65	868,028.89	868,028.89
...	...	...	...	...	...	...
61	Jan-08	13.84	198,804.34	837,708.02	1,036,512.37	1,036,512.37
62	Feb-08	13.84	201,097,22	835,415,15	1,036,512,37	1,036,512,37
...	...	...	...	...	...	...
121	Jan-13	11.92	423,566.23	548,081.13	971,647.35	971,647.35
122	Feb-13	11.92	427,773.65	543,873.70	971,647.35	971,647.35
...	...	...	...	...	...	...
202	Oct-19	11.14	953,907.26	26,813.70	980,720.96	980,720.96
203	Nov-19	11.14	962,762.69	17,958.27	980,720.96	980,720.96
204	Dec-19	11.14	971,700.34	9,020.62	980,720.96	980,720.96
Total			85,000,000.00	111,124,865.16	196,124,865.16	196,124,865.16

Source: Authors' work based on Mydin Meera and Abdul Razak (2005)

Tabel 2. Installment of housing financing using floating interest rate reference in loan and BBA scheme

Using equation (2), the monthly payment for loan and BBA schemes with interest rates reference is Rp 868,028.89; the nominal installments for both schemes are the same. The installment value is fixed and is paid over a period of 204 months, so the total monthly installment payment is Rp. 177,077,893.22. The total interest/profit margin obtained by the bank amounted to Rp 92,077,893.22. This simulation applies the annuity interest method, thus generating to increase of principal installment and to shrink of interest/profit margin installment. According to Fatwa Dewan Syariah Nasional, 2012 No. 84, this method is called *thariqah al-hisab al tanazuliah* which is allowed to be applied in Islamic banks.

Table 2 shows the monthly installment changes following the floating interest/margin reference. Total installment amounted to Rp 196,124,865.16, while the total interest/profit margin earned by the bank amounted to Rp111,124,865.16. The average of floating interest/margin rate is higher than fixed interest/margin rate, thus resulting in an increase in the total installments and profits of the bank. Application of floating interest/margin by conventional and Islamic banks to face competition in the banking industry. Changes in floating interest/margin are carried out in anticipation of existing market risks. It should be underlined that the installment value between the two schemes, namely, the loan and the BBA, is the same.

4.2 Simulation of the calculation of housing finance for Bai'Bithaman Ajil schemes with gold price reference

Based on the same case, where a customer wishes to buy a house priced at Rp 100,000,000, the customer makes a down payment of 15%, or Rp 15,000,000, and finances the remaining 85%, i.e. Rp 85,000,000, using BBA scheme. Assuming an agreed profit of 10%, the amount of financing agreed with the BBA contract is Rp 93,500,000 [using equation (4)]. The amount of such financing is converted to actual gold price; when contract occurs, gold price is Rp 100,021.62, thus becoming 934.80 g in total. The monthly payment for the financing is 4,582 g of gold, which is payable in 204 period. Payments are made by customers in rupiah units by converting based on the actual gold price at the time of payment; the first payment

installment is equal to Rp 481,286.,83. Installments in rupiah units fluctuate following the price of gold. The monthly installments in rupiah are shown in Table 3, Column 5.

Notice that monthly installments between loan and BBA schemes using interest rates reference are same. Monthly installments at the beginning of a fixed and floating interest rate reference are same value of Rp 868,028.89 because the interest/margin in the first five years at the floating interest/margin reference is the same value, namely, 10%. The same results were between the loan scheme and the BBA benchmark interest rate, consistent with finding of Amin (2011). Meanwhile, financing based on gold prices gives the initial installment value smaller than interest-based financing. In this case, until the 54th month, the value of installments of gold-based financing still shows smaller numbers (see Appendix A). Among the three financing reference schemes, the total installment financing based on fixed interest rates shows the smallest value, while the gold-based financing shows the greatest value. The results of the comparison of the third installment of financing references are shown in Table 4.

The low initial installment rate on BBA financing using gold price reference can be offered by Islamic banks to attract customers. However, it should be pointed out that the use of gold price reference will affect the level of future installments. From the point of view of

Table 3.
Installment of housing financing on BBA scheme using gold price reference

No.	Month	Monthly payment (gold gram)	Gold Price per gram (Rp)	Monthly payment (Rp)
0	Des-02	–	100,021.62	–
1	Jan-03	4.582	105,030.73	481,286.83
2	Feb-03	4.582	100,021.03	458,330.64
3	Mar-03	4.582	96,131.18	440,506.01
...	...	4.582	...	...
...	...	4.582	...	...
202	Oct-19	4.582	702,378.74	3,218,540.18
203	Nov-19	4.582	684,838.87	3,138,166.50
204	Dec-19	4.582	699,545.20	3,205,555.95
Total		934.8		360,655,587.00

Note: Complete table of monthly installment in Appendix A
Source: Authors' work

Table 4.
Comparison of installments between interest rate and gold prices reference

Description	Loan in conventional bank and BBA in Islamic Bank		BBA scheme in Islamic bank
	Based on fixed interest rate 10(%)	Based on floating interest rate	Based on gold price with profit margin 10(%)
Monthly installments	Rp 868,028.89 [a]	Rp 868,028.89 [b]	4,582 g of gold[c] (Rp 481,286.83)
Total installments for 17 years	Rp 177,077,893.22	Rp 196,124,865.16	Rp 360,655,587.00
Total interest/profit to bank	Rp 92,077,893.22	Rp 111,124,865.16	Rp 275,655,587.00

Notes: [a]The installment value is fixed until the end of the period;[b]Fixed installment value until the 5th year or the 60th month, and then changes according to changes in interest rates;[c]The fixed installment value in gold units and changes in rupiah units, changes in gold prices follow the market price
Source: Authors' work

financing customers, they want low costs on the financing proposed (Mansour *et al.*, 2010). In comparison, the application of the gold price reference and the interest rate indicates that the initial installment value is lower, but the increase in gold price gives rise to higher total installments. This condition allows potential customers to face a dilemma.

From the point of view of the depositor, the use of the reference price of gold is considered very attractive. Depositor customers will benefit from an increase in the value of long-term deposits of assets from rising gold prices and profit sharing on lending. Evidence in a Muslim majority country shows that prospective customers prefer profitable banks because they are familiar with the profit-oriented environment of conventional banks (Erol and El-Bdour, 1989). Thus, the implementation of gold price reference will be easier for Islamic banks to attract depositor customers.

BBA's financing scheme with gold price reference gives banks a higher return than other schemes. This greater profit is derived from the continuous increase in gold prices every year. Profit from increasing gold price is to protect the principal amount of financing and margin at the time of the contract. The gold prince as reference will guarantee the value of installments not eroded by inflation. The profit of BBA financing scheme based gold price will be divided between Islamic bank and depositors' customers by taking into account the principal proportion and the agreed margin. The depositors shall be entitled to a share of appreciation on principal investment.

4.3 Simulation of the calculation of affordability of housing finance

An important component in the calculation of housing finance affordability is DBR established by the bank. Each bank assigns a different DBR value. Banks may set high DBR levels to anticipate financing risks. On the other hand, low DBR levels can facilitate low-income communities accessing housing finance. According to Direktorat Jenderal Pembiayaan Perumahan (2017), DBR value set by banks for housing finance customers is usually around 30%–40%. Meanwhile, Marks and Sedgwick (2008) argue that households will experience pressure if housing costs more than 30% of their gross income. This simulation uses a moderate DBR ratio set by the bank of 30%.

Using the same DBR value, the results of calculations with equation (8) show that BBA financing using gold price reference is more affordable than financing using interest rate reference. The installment of BBA using gold price reference of Rp 481,286.83 can be reached by prospective customers with a minimum net income of Rp 1,604,289.44. Whereas installment of loan and BBA using interest rate reference amounting to Rp 868,028.89 can be reached by prospective customers with a minimum net income of Rp 2,893,429.63. The use of the gold price benchmark will lower the indicative revenue requirement to obtain financing, thereby increasing housing affordability.

Table 5 shows the installment scenario by modifying the commencement of the contract and the number of periods. Each method of calculating the financing installment directs that the installment value is determined by the number of periods. The fewer periods, the higher the installment value. Based on the scenario, the results show the initial value of BBA's monthly installment of gold price reference remains lower than the interest rate reference. While the value of BBA's financing profit is lower, the gold price reference compared to the benchmark interest rate using the five year period shows lower value.

As explained earlier, the value of the installment of BBA financing using gold price reference is fluctuating in units of rupiah. This installment value is lower than the interest rate reference installment until the 54th payment period (in scenario 1), 19th (in scenario 2) and 36th (in scenario 3). Low installments provide opportunities for low-income households to obtain housing finance.

Description	Contract start: end of Dec. 2009 number of periods: 10 years (2010–2019)		Contract start: end of Dec. 2012 number of periods: 5 years (2013–2017)	
	BBA financing using interest rate reference	BBA financing using gold price reference	BBA financing using interest rate reference	BBA financing using gold price reference
Monthly installment	Rp 1,123,281.26	Rp 764,355	Rp 1,805,998.80	Rp 1,652,942.95
Total installment	Rp 134,793,751.62	Rp 146,797,295.45	Rp 108,359,928.03	Rp 103,780,628.33
Total profit to bank	Rp 49,793,751.62	Rp 61,797,295.45	Rp 23,359,928.03	Rp 18,780,628.33

Table 5.
Installment scenarios

Source: Authors' work

Even though there is an increase in the installment value over a certain period of time, this increase will be followed by the income of prospective customers. Based on findings from Bildirici *et al.* (2016), the price of gold has a positive relationship with economic growth as measured by gross domestic product. So that the increase in installments due to rising gold prices will still be affordable to the public.

5. Conclusion

The findings in this study indicate that housing financing of BBA schemes using gold price reference results in lower installment value than loan and BBA schemes using interest rate reference. Low installment value can increase housing affordability in terms of financing. Implementation of this scheme in Islamic banks is believed to expand the role of banks in providing services to low-income communities. However, the bank must be careful in maintaining its liquidity due to the customer's installments which is low at the beginning period.

5.1 Practical implications

Islamic banking in Indonesia must start trying alternative financing models to create competitiveness. This study recommends that Islamic banks (IBs) management use gold prices as an alternative to interest rates. The housing financing model with a gold price reference in BBA contract financing provides several benefits for Islamic banks in Indonesia. Firstly, the price structure formed based on the gold price provides more affordable installments at the beginning of the period. This allows Islamic banks in Indonesia to reach or offer housing financing product to low-income communities. On the other hand, demand for housing financing products at IBs is predicted to increase. Second, the use of a gold price reference in BBA contract housing financing will protect profits against the rate of inflation. Housing financing has a long term, so anticipated depreciation of profits due to inflation must be avoided. The proposed gold price as a reference for financing is a solution to dealing with inflation because, empirically, gold is a save haven (hedge). Lastly, the implementation of gold prices in BBA contract housing financing will show that Islamic banks and conventional banks are really different. The differences shown are the form of the contract, the reference for determining the financing price and the installment value. So it will reduce people's assumptions that Islamic banks and conventional banks are the same.

Implementing gold price references in the Islamic banking industry in Indonesia is certainly not easy, because it requires regulation from the central bank. Therefore, joint studies between Islamic banks and central banks regarding alternatives to the reference interest rate at Islamic banks need to be encouraged. On the other hand, IBs management and academics need to create a prototype for implementing gold price references in housing financing to find an approved model.

5.2 Suggestions for future research

Additional studies are required to explore people's preferences regarding the application of gold price reference in Islamic banks. The further research can explore intention of prospective customer to use housing finance that offers low installments at the beginning of the period but will change following the price of gold in the next period. In addition, it can also explore interest of depositor customers by showing advantages and disadvantages of the implementation of gold prices reference.

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Corresponding author

Ana Toni Roby Candra Yudha can be contacted at: anatoniroby@uinsa.ac.id