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Hasan Mukhibad <hasanmukhibad@mail.unnes.ac.id>

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PROFIT AND LOSS SHARING FINANCING, FIXED INCOME, AND INTEREST-FREE BANKING[d1]

ABSTRACT

Purpose: This study empirically examines whether equity financing (Profit and Loss Sharing-PLS Financing) similar to debt-based financing (non-PLS) generates fixed income. Additionally, it investigates whether Islamic bank financing income has a relationship with interest.

Methodology: We[d2] use monthly data for 2009-2019 and produce 132 units of analysis. The object of study is all the Islamic banks in Indonesia (commercial Islamic banks and Islamic business units). We[d3] use the Granger test as the tool of analysis.

Findings: This study provides evidence for the fact that contrary to non-PLS financing products, PLS financing does not have fixed income. PLS financing in Indonesian Islamic banks has been carried out in line with its epistemology. Conventional bank loan interest income is correlated with the equivalent rate of Islamic bank financing income, and Gross Domestic Product (GDP) is correlated with the equivalent rate of Islamic bank financing. There is a link between interest rates and the equivalent rate of Islamic bank financing income due to the role of the GDP. GDP will improve the business performance of customers and subsequently increase the equivalent rate of Islamic bank financing income. Further, compared to other types of financing, *mudharabah*[d4] financing has the highest risk of income acquisition. The sustainability of bank income from PLS financing is higher when a recession does not occur in macroeconomic conditions.

Research Limitations: We used Islamic bank data in the aggregate. Therefore, this study cannot explain whether research results differ between banks.

Practical Implications: PLS financing for the Indonesian Islamic banks has proceeded in line with its epistemology. However, the significant increase in *musyarakah*[d5] financing should focus on a careful customer business feasibility analysis.

Originality: This is the first study to correlate the equivalent rate of income on PLS financing with the equivalent rate of non-PLS financing. We[d6] also examine the relationship between conventional bank interest and the equivalent rate of Islamic bank financing income by incorporating the role of GDP.

Keywords: PLS financing; non-PLS financing; equivalent rate, fixed income; non-performing loan.
Article classification: Research Paper

INTRODUCTION

Islamic banks promote honesty and fairness and are spiritually passionate about banking transactions. This passion stems from conventional banking transactions that use the interest system. However, the Islamic law forbids the interest system as it is considered unjust, a condition that requires penance and undermines brotherhood. This is also contrary to the values of Islamic spirituality. Therefore, Islamic banks are established to fulfill the demand for interest-free bank services (Šeho et al., 2020).

Islamic bank transactions that promote this passion are Profit and Loss Sharing (PLS) transactions that can be implemented on collection (savings and deposit products) and fund distribution (*mudharabah* and *musyarakah* financing—hereinafter cited as PLS Financing) (AlShattarat and Atmeh, 2016). The fairness in PLS transactions applied to savings and deposits is regarding the size of the profit sharing provided by the bank to customers depending on the bank's performance. This is similar to PLS transactions that are applied by banks in financing products, where the revenue sharing paid by customers to the bank is influenced by the customer's business performance. In other words, there is no guarantee that the bank will obtain a fixed profit share (Warninda et al., 2019). Banks can also receive losses if the business run by customers loses. With these characteristics, PLS financing is considered to be in harmony with the principles of the Islamic law (Rahman *et al.*, 2014). These are also the main differentiators between Islamic and conventional banks (Chong and Liu, 2009; Salman and Nawaz, 2018). Hidayah, Lowe, and Woods (2019) argue that PLS is a spiritual/prophetic based transaction as it facilitates partnerships between capital providers and entrepreneurs; the respective parties share both risk and financial transactions.

Evidently, the global Islamic banks have PLS financing ratios that are less dominant than the non-PLS financing ratios (Anisykurlillah and Mukhibad, 2018; Chong and Liu, 2009; Mills and Presley, 1999; Warninda et al., 2019; Miah and Suzuki, 2020; and Siddiqui, 2008)[d7]. Data on the PLS ratio of the global Islamic banks are as follows:

<<Insert Table 1 Here>>[d8]

Low PLS financing also occurs in the Indonesian Islamic banks. The percentage of PLS financing data in the Indonesian Islamic banks is as follows:

<<Insert Table 2 Here>>[d9]

Table 2 shows that in the observation years, the Indonesian Islamic banks had an average PLS financing of 35.45%. The PLS financing ratio is lower than the non-PLS financing ratio (65.55%). However, as seen from its growth (lines 3 and 4), PLS financing has a greater average growth (26.93%) than the non-PLS financing (22.68%). Although the PLS financing ratio is greater than the non-PLS financing ratio, PLS financing has a greater growth than non-PLS financing. This fact becomes a temporary conjecture that the weaknesses existing in PLS financing such as high risk following the uncertainty of obtaining income on equity financing, is diminishing. We suspect that the certainty about the acquisition of revenue on PLS financing is similar to that on non-PLS financing. We build this proposition based on Hidayah et al.'s (2019) study which states that Islamic banks attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the bank to the entrepreneurs. This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non-interest-free practices (Mahmood and Rahman, 2017; Ergeç and Arslan, 2013; Chong and Liu, 2009).

This study evaluates the implementation of PLS financing and examines whether this financing generates income similar to non-PLS financing and whether the equivalent rate of Islamic bank financing income and conventional bank interest are correlated. Previous studies have tested more on the correlation of interest with Islamic bank profit-sharing. However, the previous studies such as those conducted by Hamza (2016); Chong and Liu (2009) Yusof et al. (2015), and Yuksel (2017)[d10] are limited to savings products. We only found Šeho et al. (2020) and Khalidin and Masbar (2017),[d11] as the only studies that have investigated whether Islamic bank financing has been interest-free. We completed the studies of Šeho et al. (2020) and Khalidin and Masbar (2017)[d12] by comparing Islamic bank financing returns with conventional banks and comparing the returns of PLS financing and non-PLS financing. Additionally, this study considers the fact that the relationship between revenue from PLS financing and conventional bank interest rates has become a real debate (Mahmood and Rahman, 2017; Korkut and Özgür, 2017).

Our focus is, first, whether PLS financing, like non-PLS financing, has a fixed return. Second, we examine whether conventional bank lending rates influence the PLS financing return rate. To answer this, we present the results by describing the equivalent rates of PLS and non-PLS financing, interest income, and return rate of Islamic and conventional bank financing. Next, we conduct a causality test between the equivalent rates of PLS and non-PLS financing. We also examine the causality from the equivalent rate of Islamic bank financing income to bank interest rates to analyze the impact of conventional banks. Furthermore, this study tests the business continuity of PLS financing and non-PLS financing by evaluating the potential risk as measured by Value at Risk (VAR).

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Financing at Islamic Banks

Islamic banks act as intermediaries between customers with excess money and those that need money. Unlike conventional banks, Islamic banks will collect money from third-party funds using profit-sharing agreements (savings and *mudharabah* deposits) or *wadiah* (giro transfer). Funds raised by banks are distributed in the form of financing. Islamic banks have several alternative contracts that they can use to channel funds, such as *mudharabah*, *musyarakah*, *murabahah*, *salam*, *istishna*, and *ijarah* financing.

Mudharabah and *musyarakah* financing transactions use the PLS system. In *mudharabah* transactions, banks lend all capital to customers (debtors). Further, the financial losses of entrepreneurs/debtors are fully borne by banks. However, the debtor is responsible if they incur a loss following an error or negligence (Warninda et al., 2019). If both the bank and the debtor have capital for the debtor's business, then the transaction is known as *musyarakah*, and the business loss is divided between the two parties based on capital ownership.

In contrast with *mudharabah* and *musyarakah*, financing transactions in *murabahah*, *salam*, *istishna*, and *ijarah* do not transfer the risk of loss from the debtor to the bank. *Murabahah*, *salam*, and *istishna* [d13]transactions are sale and purchase transactions. Moreover, banks as sellers are entitled to receiving income on the difference between the selling price and the purchase price. *Ijarah* transactions are leases for certain assets. The bank, as the owner of the assets, is therefore entitled to receiving rental income from this transaction. From this explanation, in *murabahah*, *salam*, and *istishna* transactions, banks are entitled to receive fixed

income. Moreover, there is no risk transfer for business losses brought about by customers (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019; Choudhury, 2011). Therefore, PLS transactions are more risky than other transactions. Abusharbeh (2014) and Mukhibad and Khafid (2018) found a relationship between PLS financing and NPL.

One of the risks of PLS financing arises when the borrower does not allow the bank to track the earned income, so that the bank cannot ensure a fair process for revenue sharing (Warninda et al., 2019; Sapuan et al., 2016). Previous studies have identified PLS problems, such as agency problems (Beck et al., 2013; Dar and Presley, 2000), information asymmetry (Warninda et al., 2019; Muda and Ismail, 2010), moral hazard (Mahmood and Rahman, 2017), and high monitoring costs (Hidayah et al., 2019; Rahman et al., 2014).

Implementation of PLS Transactions

The rapid development of Islamic banks has encouraged researchers to evaluate whether their practice is interest-free. Researchers have examined whether the practice of PLS products is in line with the fundamental concept of interest-free banking under Islamic law. This is because PLS is more in line with the basic principles of Islamic finance where there is no income without risk (Mahmood and Rahman, 2017). "But Allah has permitted trade and has forbidden usury" (Qur'an 2: 275). The quoted verse reflects the legal principle that loss is commensurate with profit and return is commensurate with responsibility (Šeho et al., 2020).

Researchers investigating the implementation of PLS transactions in Islamic banks have produced mixed findings. Chong and Liu (2009), using a sample of Islamic banks in Malaysia, found that PLS financing implementation was very low and that Islamic bank deposits were not interest-free. Islamic banks are more inclined to use non-PLS financing that is permitted by the Islamic law and ignore the passion to avoid interest (Chong and Liu, 2009).

Yusof et al. (2015), using a sample of 18 banks in GCC countries found that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates. In the short term, there is no relationship between PLS equivalent rates and conventional bank interest rates except for those in the Islamic banks in Saudi Arabia.

Hamza (2016), using a sample of 60 Islamic banks around the world, found that the ratio of capital and interest rates positively affects the return on investment deposits (PLS). Conventional bank interest rates determine the returns of Islamic banks. Additionally, large

investment account holders encourage bank managements to put up moral hazards by encouraging excessive risk-taking (Hamza, 2016).

Yuksel (2017), using a sample of Islamic banks and conventional banks in Turkey, found that PLS transactions of Islamic banks are not related to those of conventional banks. This finding indicates that the determination of the PLS equivalent rate in Islamic banks does not use conventional bank interest benchmarks. Similarly, the determination of conventional bank interest also does not use PLS return benchmarks.

Šeho et al. (2020), using a sample of 77 Islamic banks in 13 countries, found that sales and leasing-based financing instruments are negatively correlated with interest rates, while PLS financing is positively correlated with interest rates. Additionally, sales-based contracts and leases that have damaged the essence of interest-free and risk-sharing Islamic banking continue to dominate Islamic bank financing (Šeho et al., 2020).

Hidayah et al. (2019) carried out different research approaches to explore the application of PLS in Islamic banks, that is, with a qualitative approach. Hidayah et al's. (2019) study involved 40 participants consisting of managers, advisors, shariah compliance, shariah board, and regulators from Indonesia, Malaysia, Bahrain, Abu Dhabi, Oman, and the United Kingdom (UK). They found that the spiritual products in PLS were repackaged and codified to replicate the conventional finance product. The implementation of this pseudo-spirituality is due to the demands of market competition and forcing Islamic banks to harmonize various interests and be able to compete. One participant even revealed that there was a bank's attempt to make a fixed return on PLS financing and further transfer the risk of loss from the bank to the entrepreneur (Hidayah et al., 2019; Alaabed and Masih, 2016).[d14]

Hypothesis Development

Previous studies have produced mixed findings in presenting evidence of PLS transactions in Islamic banks; this has become a real debate among researchers (Mahmood and Rahman, 2017). First, there are indications that the practice of PLS financing cannot be performed in line with its epistemology following, the existence of PLS financing products that transfer risk from banks to entrepreneurs and generate fixed income. Hidayah et al. (2019) found that bank management is trying to replicate conventional financial products so that PLS transactions generate fixed income and transfer risk from the bank to the customer. Previous

studies show that PLS financing transactions pose a problem of uncertainty return because of the distribution of profits based on the realization of the customer's business income (Warninda et al, 2019). However, through this codification and similar to non-PLS financing, banks as the lenders obtain fixed income similar to non-PLS financing. In other words, similar to the condition in conventional banks, there is a risk transfer in Islamic banks (Alaabed and Masih, 2016).

The PLS financing products that tend to generate fixed income are *musyarakah mutanaqisah* (Kashi and Mohamad, 2017). *The Musyarakah mutanaqisah* contract is a *musyarakah* agreement combined with buying and selling (*bai*) (Fatwa DSN-MUI/XI/2008). A *musyarakah mutanaqisah* contract can also be a hybrid contract that combines three concepts: *Musharakah* (partnership), *Ijarah* (leasing), and *Wa'ad tuma bay'i* (contract followed by sale) (Ahroum et al., 2020). The operationalization of this *musyarakah mutanaqisah* transaction is a *syirkah* ownership between the customer and the bank for an item which is needed by the customer. During the contract period, there is a periodic transfer of ownership from the bank to the customer. Revenue sharing from the *musyarakah* originates from the rental fee for the *musyarakah* goods. Goods that are jointly owned can be rented by the customer or other people (Fatwa DSN-MUI/XI/2008).

Kashi and Mohamad (2017) state that the *musyarakah mutanaqisah* contract is controversial regarding whether it includes partnership transactions or is more likely to be similar to conventional loans. Kashi and Mohamad (2017) found that *musyarakah mutanaqisah* financing is more inclined to debt contracts than partnerships. For banks, the application of the *musyarakah* m*utanaqisah* scheme must benefit them as much as or more than *murabahah* financing (Hosen, 2009).

H1: There is a causality between the PLS and non-PLS financing return.

In addition to the risk of uncertainty, one of the factors that distinguishes between PLS and non-PLS financing is credit risk. The findings of previous studies state that the factors that cause low PLS financing are high credit risk. Previous studies, such as Abusharbeh (2014) and Grassa (2012) support this hypothesis. Misman (2012) and Abusharbeh (2014) , using a sample of Islamic banks in Malaysia and Indonesia respectively, found that PLS financing, unlike non-PLS financing, tends to increase credit risk. Additionally, Grassa (2012), using a sample of Islamic banks in GCC countries, concluded that greater revenue sharing leads to higher levels of

risk for Islamic banks. Mukhibad and Khafid (2018) found a positive relationship between the PLS financing ratio and NPL. However Warninda et al. (2019) found that the addition of PLS financing can reduce NPL. Therefore, the findings are in line with the concept that PLS financing can reduce risk. The facts presented in Table 1 show that the increase in PLS financing is greater than that in non-PLS financing. We developed the following proposition according to the findings of previous research that led to the practice of PLS financing is not the same as the ontological definition:

H2: There is a causality between the PLS financing risk and non-PLS financing risk.

The findings of previous studies have shown that the practice of PLS financing has not been performed according to rules. It can also be concluded that PLS financing is not free of interest. Chong and Liu (2009), Hamza (2016) and Šeho et al. (2020) prove this hypothesis. Modifying PLS products to fit local preferences and generate fixed income is an indication that PLS practices lead to non-interest-free practices. The modification of PLS financing may be due to (1) low public interest in PLS products (Imronudin and Hussain, 2016); (2) internal bank problems concerning, for example, top management, human resources, and technical aspects; (3) system conditions, which include the dominance of conventional banks, the environment and unfavorable competition, and the problem of externalities that most people do not understand (Ascarya, 2013).

H3: There is a causality between the PLS financing returns rate and the conventional bank interest rate.

The second debate regards the research findings that show that, in practice, an Islamic bank cannot undertake PLS transactions in line with the ideal. Ideally, profit sharing in a PLS contract should be based on real performance rather than interest. However, the tests carried out by Chong and Liu (2009) and Hamza (2016) show that the PLS return rate is related to conventional bank interest. These findings indicate that Islamic banks are similar to conventional banks.

Additionally, Yusof et al. (2015) and Yuksel (2017) found that there is no relationship between the PLS return rate and conventional bank interest rate. Yusof et al. (2015) even rejected the conclusion that Islamic banks are not interest-free simply because of the finding that

the PLS return rate is correlated with conventional bank interest. According to Yusof et al. (2015), profit sharing for a bank provided to PLS account holder customers is derived from PLS financing income, where PLS financing income obtained by banks is influenced by the opportunity cost of capital or the real rate of economic return. This is one of the main determinants of interest rates in the economy. As stated by Yusof et al. (2015), the return on investment of Islamic banks in the form of PLS financing is assumed to be influenced by economic conditions. Further, these economic conditions are indicators of determining interest rates. This assumption is reinforced by Zarrouk et al. (2016), who found that Islamic banks perform better in an environment where gross domestic products and investments are high. Based on this analogy, it is clear that the PLS return rate can be related to interest.

H4: There is a causality between the Islamic bank financing return rate and the conventional bank interest rate.

RESEARCH MODEL

This study uses as objects Islamic banks in Indonesia, including 12 Islamic commercial banks and 10 Islamic business unit banks. We conducted monthly data observations from 2005 to 2019 and produced 132 units of analysis. We used the Islamic banking statistical data in Indonesia issued by the Financial Services Authority (OJK) as the data source.

This study explains whether PLS financing, just as non-PLS financing, produces a fixed return. We conducted a correlation test using time series data, and formulated the interrelationships between variables using the following model:

$$X_t = \sum_{i=1}^{m} a_i X_{t-i} + \sum_{j=1}^{n} b_j Y_{t-j} + u_t$$

$$Y_t = \sum_{i=1}^{r} c_i Y_{t-i} + \sum_{j=1}^{S} d_j X_{t-j} + v_t$$

where u_t and v_y are error terms that are assumed to have no serial correlation and m = n = r = s. The results of this test will allow for the following production of four possibilities:

(1) there is a causality between the variable Y to X if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j = 0$.

(2) There is a causality between variable X to Y if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j \neq 0$.

(3) There is no causality if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j = 0$.

(4) There is causality between the two if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j \neq 0$.

We further performed stationarity, cointegration, and VAR lag order tests to ensure the correlation between the two variables. We used these tests because they can explain 2-way causality. Further, the type of data we used was in the time series. Previous studies, such as Chong and Liu (2009) and Yuksel (2017) also used Granger causality tests to test the causality between instruments in Islamic and conventional banks.

We employed the following methods to measure the variables we used:

<<Insert Table 3 Here>>

In addition to the above variables, we used Gross Domestic Product (GDP) as a control variable. This is because GDP has an influence on the equivalent rate of bank financing income for both Islamic and conventional banks (Šeho et al., 2020; Abou-el-sood, 2019).

We also measured Value at Risk (VAR) to assess the business sustainability of PLS and non-PLS financing using the following formula:

$$VaR = \bar{X} + z(\frac{s}{\sqrt{n}})$$

Where:

$\bar{X}$: Average financing risk

z : Z value normal distribution

s : Standard deviation of financing risk

The data in this study were time series data and were processed using the Granger causality test. We performed stationarity, cointegration, and VAR lag order tests before the Granger causality test. We used these tests because they can explain two-way causality. Further, the type of data used was time series data. Previous studies, such as Chong and Liu (2009), Yusof et al. (2015), and Yuksel (2017), also used Granger causality tests to test the causality between instruments in Islamic and conventional banks.

RESULTS

In this section, we present descriptive data that illustrate the rate of return on PLS and non-PLS financing, the financing rate of return on Islamic banks, and the interest rates on conventional banks. We made observations based on monthly data for 11 years.

<<Insert Table 4 Here)

Table 4 shows that *mudharabah* financing has income with an average equivalent rate of 14.17%, while the equivalent rate of *musyarakah* financing income is 11.81%. The equivalent rate of *murabahah istishna, and ijarah* financing incomes is 13.76%, 13.15%, and 5.51% respectively. The equivalent income of PLS financing is 12.98%, while non-PLS financing has an average equivalent rate of 10.81%. The standard deviation of the equivalent rate of PLS financing income is 2.09, and that of non-PLS financing is 10.81. This standard deviation of PLS financing, which is greater than that of the non-PLS financing leads to rejection of the hypothesis and the finding that PLS financing has greater income volatility than non-PLS financing. Strengthened by Figure 1, our results lead to PLS financing practice, which is in line with its epistemology. This provides greater income uncertainty than PLS financing.

<<Insert Figure 1a, 1b, 2a, 2b Here>>

The highest sequential financing risk was *musyarakah* (4.49%), followed by *murabahah* (4.38%), *mudharabah* (2.99), *ijarah* (2.76%), and *istishna* (2.56%). On average, PLS financing has an NPL of 4.24%, while non-PLS financing has an NPL of 4.19%. In other words, in the Indonesian Islamic banks, PLS financing has a greater credit risk than non-PLS financing. The NPL of PLS financing has a standard deviation of 0.88. The standard deviation of non-PLS financing on the other hand is 0.70. The comparison of the average value, standard deviation, and strengthened by Figure 1b leads to PLS financing being in line with its characteristics, which have a higher credit risk than non-PLS financing.

Comparing the equivalent rate between PLS financing and conventional bank interest income (figure 2a) indicates no relationship between the PLS financing return and interest. The PLS financing equity rate has an average of 12.99%, with a standard deviation of 2.094, while the conventional bank interest has an average of 12.39%, with a standard deviation of 12.39. This result also supports the results of previous tests which state that PLS financing generates greater income uncertainty than conventional bank income. A greater PLS financing equivalent rate indicates that PLS financing has a large income potential, as the risks borne by the bank are also large.

Comparing the equivalent rate of financing income between Islamic and conventional banks shows that Islamic banks have a lower equivalent rate than conventional banks. The equivalent rates of Islamic bank financing income and conventional bank credit are 11.63% and 12.39% respectively. Further, Figure 2b shows that there is a potential link between the two. Moreover, this also leads to the equivalent rate of Islamic bank financing income, which relates to interest.

Granger Causality Test Results

To strengthen the results of this study, we conducted a Granger causality test following previous researchers (see Chong and Liu, 2009; Khalidin and Masbar, 2017; Korkut and Özgür, 2017; Yuksel, 2017). Before performing the Granger test, we conducted stationary, cointegration, and lag order VAR tests. The stationarity test conducted on all the variables shows that stationary data is at the 1st difference. The cointegration test shows that there is no cointegration at the 5% level, and the VAR order lag test shows that the recommended lag is at levels 1 and 3. Table 5 shows the summary of the Granger test results.

<<Insert Table 5 Here>>

The Granger test on whether there is no correlation between the equivalent rate of PLS financing and the equivalent rate of non-PLS financing resulted in an f-statistic of 1.5065 and a probability of 0.2163. However, the equivalent correlation rate of non-PLS financing on PLS financing resulted in an f-statistic of 0.43601 and a probability of 0.7276. These results indicate that there is no correlation between the equivalent rates of PLS and non-PLS financing.

The Granger test to test the causality of NPL from PLS financing to NPL from non-PLS financing produced an f-statistic of 1.18062 and a probability of 0.2814. However, the results of the NPL from the non-PLS financing test against PLS financing resulted in an f-statistic of 0.42961 and a probability of 0.5146. This result also shows that there is no correlation between the NPL from PLS and non-PLS financing. This means that the risks of PLS and non-PLS financing are mutually unrelated.

The results of the causality test between the equivalent rate of PLS financing with conventional bank interest income produced an f-statistic of 0.42172 with a probability of 0.8328. However, conversely, the results of the causality test between interest income and the equivalent rate of PLS financing produced an f-statistic of 0.10597 and a probability of 0.10597.

These results indicate that the equivalent rate of financing income is not related to conventional bank interest income. These results reinforce the conclusion that there is a tendency for PLS financing to be consistent with its epistemology.

Table 5 shows that the Granger test between ERIB and ERBC produced an f-statistic of 0.45330 with a probability of 0.5020. The Granger test between ERBC and ERIB produced a f-statistic of 15.8447 with a probability of 0.0001. The results of this test show that revenue sharing from Islamic bank financing (PLS and non-PLS) is not correlated with conventional bank credit interest income. However, conventional bank interest income is correlated with the equivalent rate of Islamic bank financing income. To clarify these findings, we tested the relationship of GDP to interest income and the equivalent rate of Islamic bank financing income. This test is intended to strengthen the assumption.

We used GDP to measure whether Islamic bank financing based on profit sharing is as previously thought to be influenced by GDP as previously assumed. Our Granger test results of GDP on Islamic bank financing equivalent rates produced a t-statistic score of 2.94859 and a probability of 0.0884. The Islamic bank equivalent rate test results on GDP produced a t-statistic score of 0.00122 and a probability of 0.9722. This shows that GDP has a correlation with the equivalent rate of Islamic bank financing. However, the equivalent rate of Islamic bank financing does not have a correlation with GDP.

Discussion

Islamic banks have two very different types of financing in the process of sharing returns between banks and customers, that is, PLS and non-PLS financing. In PLS financing, the bank obtains income that comes from a certain percentage (or the ratio) of business revenue run by the customer. In non-PLS financing, banks receive income on sales profit margins or rental income of a fixed amount.

Other researchers identified that the high risk of PLS financing is due to the potential for uncertain income compared to non-PLS financing (Warninda et al., 2019). The Granger test results show that PLS and non-PLS financing have different characteristics of revenue acquisition risk. PLS financing has greater income uncertainty (Warninda et al., 2019). The PLS and non-PLS financing incomes are not correlated. Additionally, in line with the findings of Ernawati (2016), we found that PLS financing (especially *mudharabah*) has a lower certainty of

earning income than non-PLS financing. This means that the two financing systems are different and lead to the conclusion that both of them have proceeded in line with the epistemology. This result rejects the conclusion of Hidayah et al. (2019) on pseudo practice in PLS financing because the implementation of PLS transaction tends to be non-PLS. We also reject the argument of Mahmood and Rahman (2017) and the findings of Šeho et al. (2020), Hamza (2016), Chong and Liu (2009), and Ergeç and Arslan (2013), who claimed that PLS Islamic bank products are not interest-free. Hidayah et al. (2019) in their research concluded that banks implemented PLS contracts artificially because the banks modified the PLS contract to make it easier to run and in line with customer preferences by setting fixed income policies such as non-PLS financing. However, our results show that PLS financing generates more volatile income than non-PLS financing. This is in line with the main characteristics of PLS. This study's and Hidayah et al.'s results differ (2019) due to the differences in the two studies. Hidayah et al. (2019) used qualitative methods. Therefore, their conclusions were based on the results of interviews with bank leaders. However, this study uses a quantitative approach and uses empirical data reported by bank management in its financial statements. Further, there is a possibility that what was conveyed by the informants in Hidayah et al.'s (2019) study was not supported by data in the financial statements.

NPL data show that PLS financing has a lower NPL rate than non-PLS financing. When viewed from the type of financing, *musyarakah* financing has a higher NPL than *mudharabah* financing. This finding rejected Ernawati (2016), who states that *mudharabah* had a higher NPL than *musyarakah* due to information asymmetry. *Murabahah* financing has the highest NPL compared with other types of PLS financing. Further, *murabahah* has a higher NPL than *mudharabah*. This is contrary to the concept of *murabahah* financing. There is no information asymmetry as in *mudharabah*. From these findings, we reject the conclusion that PLS has a high risk due to a high NPL and, conversely, non-PLS financing has a lower risk due to a low NPL. We suspect that the type of contract is not the cause of the difference in the NPL.

When viewed from the risk of financing, the results of the study show that the PLS and non-PLS financing NPL are not correlated. Our results indicate that non-PLS financing has a higher NPL than PLS financing. We further assume that the low PLS financing NPL does not mean that PLS financing is not in line with the epistemology. This is because the high NPL is significantly influenced by the ability and character of the customer. We also found that the

products that had the highest NPL were *musyarakah*, *murabahah*, and *mudharabah*. The high amount of *musyarakah* and *murabahah* financing triggered a high bank NPL. Therefore, PLS financing has a higher risk than non-PLS financing (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019).. However, this high risk is due to uncertainty about revenue sharing, rather than a high NPL.

The finding that there is no causality between the equivalent rate of PLS financing income and conventional bank interest income reinforces our finding that PLS financing has been calculated according to rules. In contrast to non-PLS financing income and interest income at conventional banks, the equivalent level of PLS financing income cannot be determined by the bank at the time of the contract. The acquisition of PLS income is based on the results of businesses run by entrepreneurs. This lack of correlation reinforces our finding that Islamic banks run PLS financing in line with the epistemology.

Comparing the equivalent rate of financing of Islamic and conventional banks shows that conventional banks receive an interest income of 12.39%, which is greater than Islamic bank financing with an equivalent rate of 11.63%. The low equivalent rate of Indonesian Islamic bank financing may be due to the low market share of the Indonesian Islamic banks, which is only 5.3% (Mukhibad, Muthmainah and Andraeny, 2020). A low market share allows companies to adopt strategies that can help reduce the selling price of products and consequently attract customer interest.

The results of the correlation test between Islamic bank financing returns and conventional bank interest rates show that we found a correlation between the two. In other words, the conventional bank financing equivalent rate is related to the conventional bank loan interest. This result reinforces the conclusion that Islamic banks in financing policies use interest-based or not yet interest-free. These results support the findings of Šeho et al. (2020), who found that there is a relationship between sales revenue and profit sharing from Islamic bank products to conventional bank interest. Additionally, we reject the conclusion of Yusof et al. (2015) and Yuksel (2017) that Islamic banks are free of conventional interest. Yusof et al. (2015) argue that the correlation between revenue sharing and interest may be caused by GDP; GDP is one of the factors that determine interest. Additionally, GDP will also affect the income of Islamic banks because Islamic banks that use PLS transactions make their income highly dependent on economic growth. Consequently, we present the GDP in this test.

The test results show a correlation of GDP on Islamic bank financing return rates. PLS financing, whose distribution is based on the realization of business revenue run by customers, is very dependent on GDP. An increase in GDP indicates an improved business climate. Business income obtained by customers also increases and will subsequently have an impact on increasing the equivalent rate of Islamic bank financing. Our results support Yusof et al.'s argument (2015) which states that Islamic bank financing return rates and interest are related (as in the findings of this study and the findings of Šeho et al. (2020). This is probably due to the role of GDP. We agree with Yusof et al. (2015) who state that GDP is a fundamental factor in determining interest rates, and that high GDP will increase the equivalent rate of Islamic bank financing. In other words, the correlation between the equivalent rate of Islamic bank financing and interest is due to the existence of GDP, which functions as an intermediary for both.

<<Insert Table 6 Here>>

Discussions related to risks between various types of financing in Islamic banks can also be evaluated from Value at Risk (VAR). Table 6 presents the VAR results of the Islamic bank financing model using an error rate of 1%, 5%, and 10%. Consistent with previous research, PLS financing was shown to have a lower VAR than non-PLS financing except in 2014 and 2015. In 2014, Indonesia had a negative GDP growth due to the impact of the global economy (Indonesia, 2014). In line with this concept, PLS financing has lower potential losses when economic conditions are poor. This economic recession will cause business actors to suffer greater losses. Poor economic conditions will negatively influence PLS financing, which is larger than non-PLS financing.

The year 2015 was a period of recovery in which the government performed economic recovery and generated positive GDP growth, and had an impact on increasing customers' businesses. However, Table 4 shows that in 2015, PLS financing still produced a higher VAR than non-PLS financing. This means that when the economy is still improving, PLS financing creates a greater risk than non-PLS financing. In line with the accounting standard guidelines in Indonesia, losses from PLS transactions (2014) will be amortized against the gains on PLS financing in the following year (2015). This policy caused PLS financing to still have a higher VAR than non-PLS financing in 2015 (despite positive GDP growth). In conditions of positive GDP growth (2017-2019), Table 6 shows that PLS financing produces lower VAR than non-PLS

financing. This finding also strengthens the previous conclusion that the implementation of PLS financing is in line with the epistemology.

Additionally, PLS financing generates sustainable business returns than non-PLS financing when the economy is growing effectively. On the other hand, when there is a recession, non-PLS financing provides better income sustainability. These results complement the findings of Ismal (2010), who also used a study on Islamic banks. They found that PLS and non-PLS financing resulted in business continuity, both in favorable and unfavorable economic conditions. This also reinforces the finding that PLS contracts have a greater impact on economic growth than other contracts, non-PLS contracts, and interest (Ibrahim and Ismail, 2015). Therefore, PLS financing is needed for real economic growth and will positively influence the sustainability of economic development (Pratiwi, 2016; Choudhury et al., 2019).

CONCLUSION

This study proves the debate on whether Islamic banks have conducted their normative PLS transactions. This study's results indicate that the equivalent rate of PLS financing income is not related to non-PLS financing income. This result leads to the conclusion that PLS and non-PLS operate in line with the epistemology, that is, PLS financing uses profit sharing with an unfixed amount of income as in non-PLS financing.

The results also provide evidence that the NPL between PLS and non-PLS financing is mutually unrelated. This study further proves the main characteristics of financing that have a different or higher risk than non-PLS financing. These unrelated NPL characteristics between PLS and non-PLS financing lead to the finding that banks have carried out PLS financing in line with the rules of the Islamic law.

We also identified the correlation between the equivalent rate of PLS financing income and Islamic bank income and found that the two are not related. PLS financing income has an uncertain nature and cannot be determined in advance by the bank at the time of the cooperation contract and is different from conventional banks based on interest. The bank can determine interest at the time of the credit agreement. The lack of causality between the equivalent rate of PLS financing and interest leads to the finding that PLS financing has been normatively carried out.

The results also prove that there is a correlation between the equivalent rate of Islamic bank financing income and conventional bank interest. We also find a correlation of GDP to the equivalent rate of Islamic bank financing income. The increasing GDP shows an improvement in the business climate run by customers. The next impact is an increase in the equivalent rate of Islamic bank financing income. The findings of this and previous studies show that the equivalent rate of Islamic bank financing is related to interest rates due to the role of GDP, which is used as an indicator in determining interest. GDP also has an impact on increasing the equivalent rate of Islamic bank financing.

PLS financing will result in greater business sustainability when macroeconomic conditions experience GDP growth. However, when GDP growth is negative, PLS financing has a greater potential risk than non-PLS financing. This result strengthens the finding that the implementation of PLS financing in Islamic banks in Indonesia has been implemented in line with the epistemology and rejects the finding that state that PLS transactions are similar to non-PLS or interest transactions.

The implication of this research is that PLS financing for Islamic banks in Indonesia has proceeded in line with its epistemology. The distribution of PLS financing to Islamic banks has complied with Islamic principles. These findings clarify that Islamic banks have implemented the Islamic law. Additionally, this significant increase in *musyarakah* financing should still pay attention to a careful analysis of the customer's business feasibility considering that this type of financing is a high-risk financing as it has a high NPL.

This study used time series data presented by banking regulators in Indonesia. We however did not use cross-section data. Therefore, we have not been able to explain whether the implementation of PLS financing that is in line with the initial concept occurs in all banks. We suggest that further researchers use cross-sectional data to complement this study's results. Additionally, we used the equivalent rate indicator reported by the regulators. Future researchers can further use another proxy by comparing the costs with the amount of financing reported in the bank's financial statements.

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Profit and loss

by H M

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PROFIT AND LOSS SHARING FINANCING, FIXED INCOME, AND INTEREST-FREE BANKING

ABSTRACT

Purpose: This study empirically examines whether equity financing (Profit and Loss Sharing-PLS Financing) similar to debt-based financing (non-PLS) generates fixed income. Additionally, it investigates whether Islamic bank financing income has a relationship with interest.

Methodology: We use monthly data for 2009-2019 and produce 132 units of analysis. The object of study is all the Islamic banks in Indonesia (commercial Islamic banks and Islamic business units). We use the Granger test as the tool of analysis.

Findings: This study provides evidence for the fact that contrary to non-PLS financing products, PLS financing does not have fixed income. PLS financing in Indonesian Islamic banks has been carried out in line with its epistemology. Conventional bank loan interest income is correlated with the equivalent rate of Islamic bank financing income, and Gross Domestic Product (GDP) is correlated with the equivalent rate of Islamic bank financing. There is a link between interest rates and the equivalent rate of Islamic bank financing income due to the role of the GDP. GDP will improve the business performance of customers and subsequently increase the equivalent rate of Islamic bank financing income. Further, compared to other types of financing, *mudharabah* financing has the highest risk of income acquisition. The sustainability of bank income from PLS financing is higher when a recession does not occur in macroeconomic conditions.

Research Limitations: We used Islamic bank data in the aggregate. Therefore, this study cannot explain whether research results differ between banks.

Practical Implications: PLS financing for the Indonesian Islamic banks has proceeded in line with its epistemology. However, the significant increase in *musyarakah* financing should focus on a careful customer business feasibility analysis.

Originality: This is the first study to correlate the equivalent rate of income on PLS financing with the equivalent rate of non-PLS financing. We also examine the relationship between conventional bank interest and the equivalent rate of Islamic bank financing income by incorporating the role of GDP.

Keywords: PLS financing; non-PLS financing; equivalent rate, fixed income; non-performing loan.

Article classification: Research Paper

INTRODUCTION

Islamic banks promote honesty and fairness and are spiritually passionate about banking transactions. This passion stems from conventional banking transactions that use the interest system. However, the Islamic law forbids the interest system as it is considered unjust, a condition that requires penance and undermines brotherhood. This is also contrary to the values of Islamic spirituality. Therefore, Islamic banks are established to fulfill the demand for interest-free bank services (Šeho et al., 2020).

Islamic bank transactions that promote this passion are Profit and Loss Sharing (PLS) transactions that can be implemented on collection (savings and deposit products) and fund distribution (*mudharabah* and *musyarakah* financing—hereinafter cited as PLS Financing) (AlShattarat and Atmeh, 2016). The fairness in PLS transactions applied to savings and deposits is regarding the size of the profit sharing provided by the bank to customers depending on the bank's performance. This is similar to PLS transactions that are applied by banks in financing products, where the revenue sharing paid by customers to the bank is influenced by the customer's business performance. In other words, there is no guarantee that the bank will obtain a fixed profit share (Warninda et al., 2019). Banks can also receive losses if the business run by customers loses. With these characteristics, PLS financing is considered to be in harmony with the principles of the Islamic law (Rahman *et al*., 2014). These are also the main differentiators between Islamic and conventional banks (Chong and Liu, 2009; Salman and Nawaz, 2018). Hidayah, Lowe, and Woods (2019) argue that PLS is a spiritual/prophetic based transaction as it facilitates partnerships between capital providers and entrepreneurs; the respective parties share both risk and financial transactions.

Evidently, the global Islamic banks have PLS financing ratios that are less dominant than the non-PLS financing ratios (Anisykurlillah and Mukhibad, 2018; Chong and Liu, 2009; Mills and Presley, 1999; Warninda et al., 2019; Miah and Suzuki, 2020; and Siddiqui, 2008). Data on the PLS ratio of the global Islamic banks are as follows:

<<Insert Table 1 Here>>

Low PLS financing also occurs in the Indonesian Islamic banks. The percentage of PLS financing data in the Indonesian Islamic banks is as follows:

<<Insert Table 2 Here>>

Table 2 shows that in the observation years, the Indonesian Islamic banks had an average PLS financing of 35.45%. The PLS financing ratio is lower than the non-PLS financing ratio (65.55%). However, as seen from its growth (lines 3 and 4), PLS financing has a greater average growth (26.93%) than the non-PLS financing (22.68%). Although the PLS financing ratio is greater than the non-PLS financing ratio, PLS financing has a greater growth than non-PLS financing. This fact becomes a temporary conjecture that the weaknesses existing in PLS financing such as high risk following the uncertainty of obtaining income on equity financing, is diminishing. We suspect that the certainty about the acquisition of revenue on PLS financing is similar to that on non-PLS financing. We build this proposition based on Hidayah et al.'s (2019) study which states that Islamic banks attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the bank to the entrepreneurs. This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non-interest-free practices (Mahmood and Rahman, 2017; Ergeç and Arslan, 2013; Chong and Liu, 2009).

This study evaluates the implementation of PLS financing and examines whether this financing generates income similar to non-PLS financing and whether the equivalent rate of Islamic bank financing income and conventional bank interest are correlated. Previous studies have tested more on the correlation of interest with Islamic bank profit-sharing. However, the previous studies such as those conducted by Hamza (2016); Chong and Liu (2009) Yusof et al. (2015), and Yuksel (2017) are limited to savings products. We only found Šeho et al. (2020) and Khalidin and Masbar (2017), as the only studies that have investigated whether Islamic bank financing has been interest-free. We completed the studies of Šeho et al. (2020) and Khalidin and Masbar (2017) by comparing Islamic bank financing returns with conventional banks and comparing the returns of PLS financing and non-PLS financing. Additionally, this study considers the fact that the relationship between revenue from PLS financing and conventional bank interest rates has become a real debate(Mahmood and Rahman, 2017; Korkut and Özgür, 2017).

Our focus is, first, whether PLS financing, like non-PLS financing, has a fixed return. Second, we examine whether conventional bank lending rates influence the PLS financing return rate. To answer this, we present the results by describing the equivalent rates of PLS and non-PLS financing, interest income, and return rate of Islamic and conventional bank financing. Next, we

conduct a causality test between the equivalent rates of PLS and non-PLS financing. We also examine the causality from the equivalent rate of Islamic bank financing income to bank interest rates to analyze the impact of conventional banks. Furthermore, this study tests the business continuity of PLS financing and non-PLS financing by evaluating the potential risk as measured by Value at Risk (VAR).

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Financing at Islamic Banks

Islamic banks act as intermediaries between customers with excess money and those that need money. Unlike conventional banks, Islamic banks will collect money from third-party funds using profit-sharing agreements (savings and *mudharabah* deposits) or *wadiah* (giro transfer). Funds raised by banks are distributed in the form of financing. Islamic banks have several alternative contracts that they can use to channel funds, such as *mudharabah*, *musyarakah*, *murabahah*, *salam*, *istishna*, and *ijarah* financing.

Mudharabah and *musyarakah* financing transactions use the PLS system. In *mudharabah* transactions, banks lend all capital to customers (debtors). Further, the financial losses of entrepreneurs/debtors are fully borne by banks. However, the debtor is responsible if they incur a loss following an error or negligence (Warninda et al., 2019). If both the bank and the debtor have capital for the debtor's business, then the transaction is known as *musyarakah,* and the business loss is divided between the two parties based on capital ownership.

In contrast with *mudharabah* and *musyarakah*, financing transactions in *murabahah*, *salam*, *istishna*, and *ijarah* do not transfer the risk of loss from the debtor to the bank. *Murabahah*, *salam*, and *istishna* transactions are sale and purchase transactions. Moreover, banks as sellers are entitled to receiving income on the difference between the selling price and the purchase price. *Ijarah* transactions are leases for certain assets. The bank, as the owner of the assets, is therefore entitled to receiving rental income from this transaction. From this explanation, in *murabahah*, *salam,* and *istishna* transactions, banks are entitled to receive fixed income. Moreover, there is no risk transfer for business losses brought about by customers (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019; Choudhury, 2011). Therefore, PLS transactions are more risky than other transactions. Abusharbeh (2014) and Mukhibad and Khafid (2018) found a relationship between PLS financing and NPL.

One of the risks of PLS financing arises when the borrower does not allow the bank to track the earned income, so that the bank cannot ensure a fair process for revenue sharing (Warninda et al., 2019; Sapuan et al., 2016). Previous studies have identified PLS problems, such as agency problems (Beck et al., 2013; Dar and Presley, 2000), information asymmetry (Warninda et al., 2019; Muda and Ismail, 2010), moral hazard (Mahmood and Rahman, 2017), and high monitoring costs (Hidayah et al., 2019; Rahman et al., 2014).

Implementation of PLS Transactions

The rapid development of Islamic banks has encouraged researchers to evaluate whether their practice is interest-free. Researchers have examined whether the practice of PLS products is in line with the fundamental concept of interest-free banking under Islamic law. This is because PLS is more in line with the basic principles of Islamic finance where there is no income without risk (Mahmood and Rahman, 2017). "But Allah has permitted trade and has forbidden usury" (Qur'an 2: 275). The quoted verse reflects the legal principle that loss is commensurate with profit and return is commensurate with responsibility (Šeho et al., 2020).

Researchers investigating the implementation of PLS transactions in Islamic banks have produced mixed findings. Chong and Liu (2009), using a sample of Islamic banks in Malaysia, found that PLS financing implementation was very low and that Islamic bank deposits were not interest-free. Islamic banks are more inclined to use non-PLS financing that is permitted by the Islamic law and ignore the passion to avoid interest (Chong and Liu, 2009).

Yusof et al. (2015), using a sample of 18 banks in GCC countries found that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates. In the short term, there is no relationship between PLS equivalent rates and conventional bank interest rates except for those in the Islamic banks in Saudi Arabia.

Hamza (2016), using a sample of 60 Islamic banks around the world, found that the ratio of capital and interest rates positively affects the return on investment deposits (PLS). Conventional bank interest rates determine the returns of Islamic banks. Additionally, large investment account holders encourage bank managements to put up moral hazards by encouraging excessive risk-taking (Hamza, 2016).

Yuksel (2017), using a sample of Islamic banks and conventional banks in Turkey, found that PLS transactions of Islamic banks are not related to those of conventional banks. This finding

indicates that the determination of the PLS equivalent rate in Islamic banks does not use conventional bank interest benchmarks. Similarly, the determination of conventional bank interest also does not use PLS return benchmarks.

Šeho et al. (2020), using a sample of 77 Islamic banks in 13 countries, found that sales and leasing-based financing instruments are negatively correlated with interest rates, while PLS financing is positively correlated with interest rates. Additionally, sales-based contracts and leases that have damaged the essence of interest-free and risk-sharing Islamic banking continue to dominate Islamic bank financing (Šeho et al., 2020).

Hidayah et al. (2019) carried out different research approaches to explore the application of PLS in Islamic banks, that is, with a qualitative approach. Hidayah et al's. (2019) study involved 40 participants consisting of managers, advisors, shariah compliance, shariah board, and regulators from Indonesia, Malaysia, Bahrain, Abu Dhabi, Oman, and the United Kingdom (UK). They found that the spiritual products in PLS were repackaged and codified to replicate the conventional finance product. The implementation of this pseudo-spirituality is due to the demands of market competition and forcing Islamic banks to harmonize various interests and be able to compete. One participant even revealed that there was a bank's attempt to make a fixed return on PLS financing and further transfer the risk of loss from the bank to the entrepreneur (Hidayah et al., 2019; Alaabed and Masih, 2016).

Hypothesis Development

Previous studies have produced mixed findings in presenting evidence of PLS transactions in Islamic banks; this has become a real debate among researchers (Mahmood and Rahman, 2017). First, there are indications that the practice of PLS financing cannot be performed in line with its epistemology following, the existence of PLS financing products that transfer risk from banks to entrepreneurs and generate fixed income. Hidayah et al. (2019) found that bank management is trying to replicate conventional financial products so that PLS transactions generate fixed income and transfer risk from the bank to the customer. Previous studies show that PLS financing transactions pose a problem of uncertainty return because of the distribution of profits based on the realization of the customer's business income (Warninda et al, 2019). However, through this codification and similar to non-PLS financing, banks as the lenders obtain fixed income similar to

non-PLS financing. In other words, similar to the condition in conventional banks, there is a risk transfer in Islamic banks (Alaabed and Masih, 2016).

The PLS financing products that tend to generate fixed income are *musyarakah mutanaqisah* (Kashi and Mohamad, 2017). *The Musyarakah mutanaqisah* contract is a *musyarakah* agreement combined with buying and selling (*bai*) (Fatwa DSN-MUI/XI/2008). A *musyarakah mutanaqisah* contract can also be a hybrid contract that combines three concepts: *Musharakah* (partnership), *Ijarah* (leasing), and *Wa'ad tuma bay'i* (contract followed by sale) (Ahroum et al., 2020). The operationalization of this *musyarakah mutanaqisah* transaction is a *syirkah* ownership between the customer and the bank for an item which is needed by the customer. During the contract period, there is a periodic transfer of ownership from the bank to the customer. Revenue sharing from the *musyarakah* originates from the rental fee for the *musyarakah* goods. Goods that are jointly owned can be rented by the customer or other people (Fatwa DSN-MUI/XI/2008).

Kashi and Mohamad (2017) state that the *musyarakah mutanaqisah* contract is controversial regarding whether it includes partnership transactions or is more likely to be similar to conventional loans. Kashi and Mohamad (2017) found that *musyarakah mutanaqisah* financing is more inclined to debt contracts than partnerships. For banks, the application of the *musyarakah mutanaqisah* scheme must benefit them as much as or more than *murabahah* financing (Hosen, 2009).

H1: There is a causality between the PLS and non-PLS financing return.

In addition to the risk of uncertainty, one of the factors that distinguishes between PLS and non-PLS financing is credit risk. The findings of previous studies state that the factors that cause low PLS financing are high credit risk. Previous studies, such as Abusharbeh (2014) and Grassa (2012) support this hypothesis. Misman (2012) and Abusharbeh (2014) , using a sample of Islamic banks in Malaysia and Indonesia respectively, found that PLS financing, unlike non-PLS financing, tends to increase credit risk. Additionally, Grassa (2012), using a sample of Islamic banks in GCC countries, concluded that greater revenue sharing leads to higher levels of risk for Islamic banks. Mukhibad and Khafid (2018) found a positive relationship between the PLS financing ratio and NPL. However Warninda et al. (2019) found that the addition of PLS financing can reduce NPL. Therefore, the findings are in line with the concept that PLS financing can reduce

risk. The facts presented in Table 1 show that the increase in PLS financing is greater than that in non-PLS financing. We developed the following proposition according to the findings of previous research that led to the practice of PLS financing is not the same as the ontological definition:

H2: There is a causality between the PLS financing risk and non-PLS financing risk.

The findings of previous studies have shown that the practice of PLS financing has not been performed according to rules. It can also be concluded that PLS financing is not free of interest. Chong and Liu (2009), Hamza (2016) and Šeho et al. (2020) prove this hypothesis. Modifying PLS products to fit local preferences and generate fixed income is an indication that PLS practices lead to non-interest-free practices. The modification of PLS financing may be due to (1) low public interest in PLS products (Imronudin and Hussain, 2016); (2) internal bank problems concerning, for example, top management, human resources, and technical aspects; (3) system conditions, which include the dominance of conventional banks, the environment and unfavorable competition, and the problem of externalities that most people do not understand (Ascarya, 2013).

H3: There is a causality between the PLS financing returns rate and the conventional bank interest rate.

The second debate regards the research findings that show that, in practice, an Islamic bank cannot undertake PLS transactions in line with the ideal. Ideally, profit sharing in a PLS contract should be based on real performance rather than interest. However, the tests carried out by Chong and Liu (2009) and Hamza (2016) show that the PLS return rate is related to conventional bank interest. These findings indicate that Islamic banks are similar to conventional banks.

Additionally, Yusof et al. (2015) and Yuksel (2017) found that there is no relationship between the PLS return rate and conventional bank interest rate. Yusof et al. (2015) even rejected the conclusion that Islamic banks are not interest-free simply because of the finding that the PLS return rate is correlated with conventional bank interest. According to Yusof et al. (2015), profit sharing for a bank provided to PLS account holder customers is derived from PLS financing income, where PLS financing income obtained by banks is influenced by the opportunity cost of capital or the real rate of economic return. This is one of the main determinants of interest rates in the economy. As stated by Yusof et al. (2015), the return on investment of Islamic banks in the

form of PLS financing is assumed to be influenced by economic conditions. Further, these economic conditions are indicators of determining interest rates. This assumption is reinforced by Zarrouk et al. (2016), who found that Islamic banks perform better in an environment where gross domestic products and investments are high. Based on this analogy, it is clear that the PLS return rate can be related to interest.

H4: There is a causality between the Islamic bank financing return rate and the conventional bank interest rate.

RESEARCH MODEL

This study uses as objects Islamic banks in Indonesia, including 12 Islamic commercial banks and 10 Islamic business unit banks. We conducted monthly data observations from 2005 to 2019 and produced 132 units of analysis. We used the Islamic banking statistical data in Indonesia issued by the Financial Services Authority (OJK) as the data source.

This study explains whether PLS financing, just as non-PLS financing, produces a fixed return. We conducted a correlation test using time series data, and formulated the interrelationships between variables using the following model:

$$X_t = \sum_{i=1}^{m} a_i X_{t-i} + \sum_{j=1}^{n} b_j Y_{t-j} + u_t$$

$$Y_t = \sum_{i=1}^{r} c_i Y_{t-i} + \sum_{j=1}^{s} d_j X_{t-j} + v_t$$

where u_t and v_y are error terms that are assumed to have no serial correlation and m = n = r = s. The results of this test will allow for the following production of four possibilities:

(1) there is a causality between the variable Y to X if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j = 0.$

(2) There is a causality between variable X to Y if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j \neq 0.$

(3) There is no causality if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j = 0.$

(4) There is causality between the two if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j \neq 0.$

We further performed stationarity, cointegration, and VAR lag order tests to ensure the correlation between the two variables. We used these tests because they can explain 2-way causality. Further, the type of data we used was in the time series. Previous studies, such as Chong and Liu (2009) and Yuksel (2017) also used Granger causality tests to test the causality between instruments in Islamic and conventional banks.

We employed the following methods to measure the variables we used:

<<Insert Table 3 Here>>

In addition to the above variables, we used Gross Domestic Product (GDP) as a control variable. This is because GDP has an influence on the equivalent rate of bank financing income for both Islamic and conventional banks (Šeho et al., 2020; Abou-el-sood, 2019).

We also measured Value at Risk (VAR) to assess the business sustainability of PLS and non-PLS financing using the following formula:

$$VaR = \bar{X} + z(\frac{s}{\sqrt{n}})$$

Where:

$\bar{X}$: Average financing risk

z : Z value normal distribution

s : Standard deviation of financing risk

The data in this study were time series data and were processed using the Granger causality test. We performed stationarity, cointegration, and VAR lag order tests before the Granger causality test. We used these tests because they can explain two-way causality. Further, the type of data used was time series data. Previous studies, such as Chong and Liu (2009), Yusof et al. (2015), and Yuksel (2017), also used Granger causality tests to test the causality between instruments in Islamic and conventional banks.

RESULTS

In this section, we present descriptive data that illustrate the rate of return on PLS and non-PLS financing, the financing rate of return on Islamic banks, and the interest rates on conventional banks. We made observations based on monthly data for 11 years.

<<Insert Table 4 Here)

Table 4 shows that *mudharabah* financing has income with an average equivalent rate of 14.17%, while the equivalent rate of *musyarakah* financing income is 11.81%. The equivalent rate

of *murabahah istishna, and ijarah* financing incomes is 13.76%, 13.15%, and 5.51% respectively. The equivalent income of PLS financing is 12.98%, while non-PLS financing has an average equivalent rate of 10.81%. The standard deviation of the equivalent rate of PLS financing income is 2.09, and that of non-PLS financing is 10.81. This standard deviation of PLS financing, which is greater than that of the non-PLS financing leads to rejection of the hypothesis and the finding that PLS financing has greater income volatility than non-PLS financing. Strengthened by Figure 1, our results lead to PLS financing practice, which is in line with its epistemology. This provides greater income uncertainty than PLS financing.

<<Insert Figure 1a, 1b, 2a, 2b Here>>

The highest sequential financing risk was *musyarakah* (4.49%), followed by *murabahah* (4.38%), *mudharabah* (2.99), *ijarah* (2.76%), and *istishna* (2.56%). On average, PLS financing has an NPL of 4.24%, while non-PLS financing has an NPL of 4.19%. In other words, in the Indonesian Islamic banks, PLS financing has a greater credit risk than non-PLS financing. The NPL of PLS financing has a standard deviation of 0.88. The standard deviation of non-PLS financing on the other hand is 0.70. The comparison of the average value, standard deviation, and strengthened by Figure 1b leads to PLS financing being in line with its characteristics, which have a higher credit risk than non-PLS financing.

Comparing the equivalent rate between PLS financing and conventional bank interest income (figure 2a) indicates no relationship between the PLS financing return and interest. The PLS financing equity rate has an average of 12.99%, with a standard deviation of 2.094, while the conventional bank interest has an average of 12.39%, with a standard deviation of 12.39. This result also supports the results of previous tests which state that PLS financing generates greater income uncertainty than conventional bank income. A greater PLS financing equivalent rate indicates that PLS financing has a large income potential, as the risks borne by the bank are also large.

Comparing the equivalent rate of financing income between Islamic and conventional banks shows that Islamic banks have a lower equivalent rate than conventional banks. The equivalent rates of Islamic bank financing income and conventional bank credit are 11.63% and 12.39% respectively. Further, Figure 2b shows that there is a potential link between the two. Moreover, this also leads to the equivalent rate of Islamic bank financing income, which relates to interest.

Granger Causality Test Results

To strengthen the results of this study, we conducted a Granger causality test following previous researchers (see Chong and Liu, 2009; Khalidin and Masbar, 2017; Korkut and Özgür, 2017; Yuksel, 2017). Before performing the Granger test, we conducted stationary, cointegration, and lag order VAR tests. The stationarity test conducted on all the variables shows that stationary data is at the 1st difference. The cointegration test shows that there is no cointegration at the 5% level, and the VAR order lag test shows that the recommended lag is at levels 1 and 3. Table 5 shows the summary of the Granger test results.

<<Insert Table 5 Here>>

The Granger test on whether there is no correlation between the equivalent rate of PLS financing and the equivalent rate of non-PLS financing resulted in an f-statistic of 1.5065 and a probability of 0.2163. However, the equivalent correlation rate of non-PLS financing on PLS financing resulted in an f-statistic of 0.43601 and a probability of 0.7276. These results indicate that there is no correlation between the equivalent rates of PLS and non-PLS financing.

The Granger test to test the causality of NPL from PLS financing to NPL from non-PLS financing produced an f-statistic of 1.18062 and a probability of 0.2814. However, the results of the NPL from the non-PLS financing test against PLS financing resulted in an f-statistic of 0.42961 and a probability of 0.5146. This result also shows that there is no correlation between the NPL from PLS and non-PLS financing. This means that the risks of PLS and non-PLS financing are mutually unrelated.

The results of the causality test between the equivalent rate of PLS financing with conventional bank interest income produced an f-statistic of 0.42172 with a probability of 0.8328. However, conversely, the results of the causality test between interest income and the equivalent rate of PLS financing produced an f-statistic of 0.10597 and a probability of 0.10597. These results indicate that the equivalent rate of financing income is not related to conventional bank interest income. These results reinforce the conclusion that there is a tendency for PLS financing to be consistent with its epistemology.

Table 5 shows that the Granger test between ERIB and ERBC produced an f-statistic of 0.45330 with a probability of 0.5020. The Granger test between ERBC and ERIB produced a f-statistic of 15.8447 with a probability of 0.0001. The results of this test show that revenue sharing

from Islamic bank financing (PLS and non-PLS) is not correlated with conventional bank credit interest income. However, conventional bank interest income is correlated with the equivalent rate of Islamic bank financing income. To clarify these findings, we tested the relationship of GDP to interest income and the equivalent rate of Islamic bank financing income. This test is intended to strengthen the assumption.

We used GDP to measure whether Islamic bank financing based on profit sharing is as previously thought to be influenced by GDP as previously assumed. Our Granger test results of GDP on Islamic bank financing equivalent rates produced a t-statistic score of 2.94859 and a probability of 0.0884. The Islamic bank equivalent rate test results on GDP produced a t-statistic score of 0.00122 and a probability of 0.9722. This shows that GDP has a correlation with the equivalent rate of Islamic bank financing. However, the equivalent rate of Islamic bank financing does not have a correlation with GDP.

Discussion

Islamic banks have two very different types of financing in the process of sharing returns between banks and customers, that is, PLS and non-PLS financing. In PLS financing, the bank obtains income that comes from a certain percentage (or the ratio) of business revenue run by the customer. In non-PLS financing, banks receive income on sales profit margins or rental income of a fixed amount.

Other researchers identified that the high risk of PLS financing is due to the potential for uncertain income compared to non-PLS financing (Warninda et al., 2019). The Granger test results show that PLS and non-PLS financing have different characteristics of revenue acquisition risk. PLS financing has greater income uncertainty (Warninda et al., 2019). The PLS and non-PLS financing incomes are not correlated. Additionally, in line with the findings of Ernawati (2016), we found that PLS financing (especially *mudharabah*) has a lower certainty of earning income than non-PLS financing. This means that the two financing systems are different and lead to the conclusion that both of them have proceeded in line with the epistemology. This result rejects the conclusion of Hidayah et al. (2019) on pseudo practice in PLS financing because the implementation of PLS transaction tends to be non-PLS. We also reject the argument of Mahmood and Rahman (2017) and the findings of Šeho et al. (2020), Hamza (2016), Chong and Liu (2009), and Ergeç and Arslan (2013), who claimed that PLS Islamic bank products are not interest-free.

Hidayah et al. (2019) in their research concluded that banks implemented PLS contracts artificially because the banks modified the PLS contract to make it easier to run and in line with customer preferences by setting fixed income policies such as non-PLS financing. However, our results show that PLS financing generates more volatile income than non-PLS financing. This is in line with the main characteristics of PLS. This study's and Hidayah et al.'s results differ (2019) due to the differences in the two studies. Hidayah et al. (2019) used qualitative methods. Therefore, their conclusions were based on the results of interviews with bank leaders. However, this study uses a quantitative approach and uses empirical data reported by bank management in its financial statements. Further, there is a possibility that what was conveyed by the informants in Hidayah et al.'s (2019) study was not supported by data in the financial statements.

NPL data show that PLS financing has a lower NPL rate than non-PLS financing. When viewed from the type of financing, *musyarakah* financing has a higher NPL than *mudharabah* financing. This finding rejected Ernawati (2016), who states that *mudharabah* had a higher NPL than *musyarakah* due to information asymmetry. *Murabahah* financing has the highest NPL compared with other types of PLS financing. Further, *murabahah* has a higher NPL than *mudharabah*. This is contrary to the concept of *murabahah* financing. There is no information asymmetry as in *mudharabah*. From these findings, we reject the conclusion that PLS has a high risk due to a high NPL and, conversely, non-PLS financing has a lower risk due to a low NPL. We suspect that the type of contract is not the cause of the difference in the NPL.

When viewed from the risk of financing, the results of the study show that the PLS and non-PLS financing NPL are not correlated. Our results indicate that non-PLS financing has a higher NPL than PLS financing. We further assume that the low PLS financing NPL does not mean that PLS financing is not in line with the epistemology. This is because the high NPL is significantly influenced by the ability and character of the customer. We also found that the products that had the highest NPL were *musyarakah*, *murabahah*, and *mudharabah*. The high amount of *musyarakah* and *murabahah* financing triggered a high bank NPL. Therefore, PLS financing has a higher risk than non-PLS financing (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019).. However, this high risk is due to uncertainty about revenue sharing, rather than a high NPL.

The finding that there is no causality between the equivalent rate of PLS financing income and conventional bank interest income reinforces our finding that PLS financing has been

calculated according to rules. In contrast to non-PLS financing income and interest income at conventional banks, the equivalent level of PLS financing income cannot be determined by the bank at the time of the contract. The acquisition of PLS income is based on the results of businesses run by entrepreneurs. This lack of correlation reinforces our finding that Islamic banks run PLS financing in line with the epistemology.

Comparing the equivalent rate of financing of Islamic and conventional banks shows that conventional banks receive an interest income of 12.39%, which is greater than Islamic bank financing with an equivalent rate of 11.63%. The low equivalent rate of Indonesian Islamic bank financing may be due to the low market share of the Indonesian Islamic banks, which is only 5.3% (Mukhibad, Muthmainah and Andraeny, 2020). A low market share allows companies to adopt strategies that can help reduce the selling price of products and consequently attract customer interest.

The results of the correlation test between Islamic bank financing returns and conventional bank interest rates show that we found a correlation between the two. In other words, the conventional bank financing equivalent rate is related to the conventional bank loan interest. This result reinforces the conclusion that Islamic banks in financing policies use interest-based or not yet interest-free. These results support the findings of Šeho et al. (2020), who found that there is a relationship between sales revenue and profit sharing from Islamic bank products to conventional bank interest. Additionally, we reject the conclusion of Yusof et al. (2015) and Yuksel (2017) that Islamic banks are free of conventional interest. Yusof et al. (2015) argue that the correlation between revenue sharing and interest may be caused by GDP; GDP is one of the factors that determine interest. Additionally, GDP will also affect the income of Islamic banks because Islamic banks that use PLS transactions make their income highly dependent on economic growth. Consequently, we present the GDP in this test.

The test results show a correlation of GDP on Islamic bank financing return rates. PLS financing, whose distribution is based on the realization of business revenue run by customers, is very dependent on GDP. An increase in GDP indicates an improved business climate. Business income obtained by customers also increases and will subsequently have an impact on increasing the equivalent rate of Islamic bank financing. Our results support Yusof et al.'s argument (2015) which states that Islamic bank financing return rates and interest are related (as in the findings of this study and the findings of Šeho et al. (2020). This is probably due to the role of GDP. We agree

with Yusof et al. (2015) who state that GDP is a fundamental factor in determining interest rates, and that high GDP will increase the equivalent rate of Islamic bank financing. In other words, the correlation between the equivalent rate of Islamic bank financing and interest is due to the existence of GDP, which functions as an intermediary for both.

<<Insert Table 6 Here>>

Discussions related to risks between various types of financing in Islamic banks can also be evaluated from Value at Risk (VAR). Table 6 presents the VAR results of the Islamic bank financing model using an error rate of 1%, 5%, and 10%. Consistent with previous research, PLS financing was shown to have a lower VAR than non-PLS financing except in 2014 and 2015. In 2014, Indonesia had a negative GDP growth due to the impact of the global economy (Indonesia, 2014). In line with this concept, PLS financing has lower potential losses when economic conditions are poor. This economic recession will cause business actors to suffer greater losses. Poor economic conditions will negatively influence PLS financing, which is larger than non-PLS financing.

The year 2015 was a period of recovery in which the government performed economic recovery and generated positive GDP growth, and had an impact on increasing customers' businesses. However, Table 4 shows that in 2015, PLS financing still produced a higher VAR than non-PLS financing. This means that when the economy is still improving, PLS financing creates a greater risk than non-PLS financing. In line with the accounting standard guidelines in Indonesia, losses from PLS transactions (2014) will be amortized against the gains on PLS financing in the following year (2015). This policy caused PLS financing to still have a higher VAR than non-PLS financing in 2015 (despite positive GDP growth). In conditions of positive GDP growth (2017-2019), Table 6 shows that PLS financing produces lower VAR than non-PLS financing. This finding also strengthens the previous conclusion that the implementation of PLS financing is in line with the epistemology.

Additionally, PLS financing generates sustainable business returns than non-PLS financing when the economy is growing effectively. On the other hand, when there is a recession, non-PLS financing provides better income sustainability. These results complement the findings of Ismal (2010), who also used a study on Islamic banks. They found that PLS and non-PLS financing resulted in business continuity, both in favorable and unfavorable economic conditions. This also reinforces the finding that PLS contracts have a greater impact on economic growth than other

contracts, non-PLS contracts, and interest (Ibrahim and Ismail, 2015). Therefore, PLS financing is needed for real economic growth and will positively influence the sustainability of economic development (Pratiwi, 2016; Choudhury et al., 2019).

CONCLUSION

This study proves the debate on whether Islamic banks have conducted their normative PLS transactions. This study's results indicate that the equivalent rate of PLS financing income is not related to non-PLS financing income. This result leads to the conclusion that PLS and non-PLS operate in line with the epistemology, that is, PLS financing uses profit sharing with an unfixed amount of income as in non-PLS financing.

The results also provide evidence that the NPL between PLS and non-PLS financing is mutually unrelated. This study further proves the main characteristics of financing that have a different or higher risk than non-PLS financing. These unrelated NPL characteristics between PLS and non-PLS financing lead to the finding that banks have carried out PLS financing in line with the rules of the Islamic law.

We also identified the correlation between the equivalent rate of PLS financing income and Islamic bank income and found that the two are not related. PLS financing income has an uncertain nature and cannot be determined in advance by the bank at the time of the cooperation contract and is different from conventional banks based on interest. The bank can determine interest at the time of the credit agreement. The lack of causality between the equivalent rate of PLS financing and interest leads to the finding that PLS financing has been normatively carried out.

The results also prove that there is a correlation between the equivalent rate of Islamic bank financing income and conventional bank interest. We also find a correlation of GDP to the equivalent rate of Islamic bank financing income. The increasing GDP shows an improvement in the business climate run by customers. The next impact is an increase in the equivalent rate of Islamic bank financing income. The findings of this and previous studies show that the equivalent rate of Islamic bank financing is related to interest rates due to the role of GDP, which is used as an indicator in determining interest. GDP also has an impact on increasing the equivalent rate of Islamic bank financing.

PLS financing will result in greater business sustainability when macroeconomic conditions experience GDP growth. However, when GDP growth is negative, PLS financing has

a greater potential risk than non-PLS financing. This result strengthens the finding that the implementation of PLS financing in Islamic banks in Indonesia has been implemented in line with the epistemology and rejects the finding that state that PLS transactions are similar to non-PLS or interest transactions.

The implication of this research is that PLS financing for Islamic banks in Indonesia has proceeded in line with its epistemology. The distribution of PLS financing to Islamic banks has complied with Islamic principles. These findings clarify that Islamic banks have implemented the Islamic law. Additionally, this significant increase in *musyarakah* financing should still pay attention to a careful analysis of the customer's business feasibility considering that this type of financing is a high-risk financing as it has a high NPL.

This study used time series data presented by banking regulators in Indonesia. We however did not use cross-section data. Therefore, we have not been able to explain whether the implementation of PLS financing that is in line with the initial concept occurs in all banks. We suggest that further researchers use cross-sectional data to complement this study's results. Additionally, we used the equivalent rate indicator reported by the regulators. Future researchers can further use another proxy by comparing the costs with the amount of financing reported in the bank's financial statements.

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EQUITY FINANCING, FIXED INCOME, AND INTEREST-FREE BANKING

ABSTRACT

Purpose: This study empirically examines whether equity financing similar to debt-based financing generates fixed income. Additionally, it investigates whether Islamic bank (IB) financing income has a relationship with interest.

Methodology: This paper uses monthly data for 2009-2019 and produce 132 units of analysis. The object of study is all the IB in Indonesia and use the Granger test as the tool of analysis.

Findings: This study provides evidence for the fact that contrary to debt-based financing products, equity financing does not have fixed income. Equity financing in Indonesian IB has been carried out in line with its epistemology. Conventional bank (CB) loan interest income is correlated with the equivalent rate of IB financing income, and Gross Domestic Product (GDP) is correlated with the equivalent rate of IB financing. There is a link between interest rates and the equivalent rate of IB financing income due to the role of the GDP. GDP will improve the business performance of customers and subsequently increase the equivalent rate of IB financing income. Further, compared to other types of financing, mudaraba financing has the highest risk of income acquisition. The sustainability of bank income from equity financing is higher when a recession does not occur in macroeconomic conditions.

Research Limitations: This study used IB data in the aggregate. Therefore, this study cannot explain whether research results differ between banks.

Practical Implications: Equity financing for the Indonesian IB has proceeded in line with its epistemology. However, the significant increase in musharaka financing should focus on a careful customer business feasibility analysis.

Originality: This is the first study to correlate the equivalent rate of income on equity financing with the equivalent rate of debt-based financing. This paper investigates also examine the causality between CB interest and the equivalent rate of IB financing income by incorporating the role of GDP.

Keywords: Equity financing; debt-based financing; equivalent rate, fixed income; non-performing loan.

Article classification: Research Paper

INTRODUCTION

Islamic banks (IB) promote honesty and fairness and are spiritually passionate about banking transactions. This passion stems from conventional banking (CB) transactions that use the interest system. However, the Islamic law forbids the interest system as it is considered unjust, a condition that requires penance and undermines brotherhood. This is also contrary to the values of Islamic spirituality. Therefore, IB are established to fulfill the demand for interest-free bank services (Šeho et al., 2020).

IB transactions that promote this passion are Profit and Loss Sharing (PLS) transactions that can be implemented on collection (savings and deposit products-cited as Investment Account Holders funds - IAH) and fund distribution (mudaraba and musharaka financing—hereinafter cited as equity Financing) (AlShattarat and Atmeh, 2016). The fairness in PLS transactions applied to savings and deposits is regarding the size of the revenue sharing provided by the bank to customer depending on the bank's revenue. This is similar to PLS transactions that are applied by banks in financing products, where the profit sharing paid by customers to the bank is influenced by the customer's business performance. In other words, there is no guarantee that the bank will obtain a fixed profit share (Warninda et al., 2019). Banks can also receive losses if the business run by customers loses. With these characteristics, equity financing is considered to be in harmony with the principles of the Islamic law (Rahman *et al.*, 2014). These are also the main differentiators between IB and CB (Chong and Liu, 2009; Salman and Nawaz, 2018). Hidayah, Lowe, and Woods (2019) argue that PLS is a spiritual/prophetic based transaction as it facilitates partnerships between capital owners and entrepreneurs; the respective parties share both risk and financial transactions.

Evidently, the global IB have equity financing ratios that are less dominant than the debt-based financing ratios (Siddiqui, 2008; Mills and Presley, 1999; Anisykurlillah and Mukhibad, 2018; Warninda et al., 2019; Miah and Suzuki, 2020). Data on the equity financing ratio of the global IB are as follows:

Table 1. Equity financing ratio

Region	Mudaraba (%)	Musharaka (%)	Total (%)
Middle East	3.35	02.94	06.29
South Asia	0.58	34.88	35.46
South East Asia	3.51	11.23	14.74

Source: Warninda et al. (2019)

Low equity financing also occurs in the Indonesian IB. The percentage of equity financing data in the Indonesian IB is as follows:

Table 2. Equity Financing in Indonesia

Financing	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014	2015	2016	2017	2018	2019	Mean
Equity Financing (%)	31.29	35.73	35.65	36.28	34.11	28.43	26.91	29.06	31.98	32.23	35.76	38.04	42.68	45.62	48.22	35.46
Debt-based Financing (%)	68.71	64.27	64.35	63.72	65.89	71.57	73.09	70.94	68.02	67.77	64.24	61.96	57.32	54.38	51.78	64.54
Equity (Δ)	27.37	56.08	36.38	24.91	36.72	25.52	35.97	34.79	19.14	1.23	18.58	23.83	26.33	22.45	16.85	27.08
Debt-based Financing (Δ)	37.59	27.85	36.85	21.56	50.37	63.53	46.76	21.15	3.80	0.05	1.34	12.26	4.17	8.68	5.25	22.75

Source: Islamic banking Statistics, 2019

Table 2 shows that in the observation years, the Indonesian IB had an average equity financing of 35.45%. The equity financing ratio is lower than the debt-based financing ratio (65.55%). However, as seen from its growth (lines 3 and 4), equity financing has a greater average growth (26.93%) than the debt-based financing (22.68%). Although the debt financing ratio is greater than the debt-based financing ratio, equity financing has a greater growth than debt-based financing. This fact becomes a temporary conjecture that the weaknesses existing in equity financing such as high risk following the uncertainty of obtaining income on equity financing, is diminishing. We suspect that the certainty about the acquisition of revenue on equity financing is similar to that on debt-based financing. We build this proposition based on Hidayah et al.'s (2019) study which states that IB attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the bank to the entrepreneurs. This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non-interest-free practices (Ergeç and Arslan, 2013; Mahmood and Rahman, 2017).

This study evaluates the implementation of equity financing and examines whether this financing generates income similar to debt-based financing and whether the equivalent rate of IB financing income and CB interest are correlated. Previous studies have tested more on the correlation of interest with IB profit-sharing. However, the previous studies such as those conducted by Chong and Liu (2009), Yusof et al. (2015), Yuksel (2017), and Hamza (2016) are limited to savings products. We only found Khalidin and Masbar (2017) and Šeho et al. (2020), as

the only studies that have investigated whether IB financing has been interest-free. We completed the studies of Khalidin and Masbar (2017) and Šeho et al. (2020) by comparing IB financing returns with CB and comparing the returns of equity financing and debt-based financing. Additionally, this study considers the fact that the relationship between revenue from equity financing and CB interest rates has become a real debate (Mahmood and Rahman, 2017; Korkut and Özgür, 2017).

Our focus is, first, whether equity financing, like debt-based financing, has a fixed return. Second, we examine whether CB lending rates influence the equity financing return rate. To answer this, we present the results by describing the equivalent rates of equity and debt-based financing, interest income, and return rate of IB and CB financing. Next, we conduct a causality test between the equivalent rates of equity and debt-based financing. We also examine the causality from the equivalent rate of IB financing income to bank interest rates to analyze the impact of CB. Furthermore, this study tests the business continuity of equity financing and debt-based financing by evaluating the potential risk as measured by Value at Risk (VAR).

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Financing at Islamic Banks

IB act as intermediaries between customers with excess money and those that need money. Unlike CB, IB will collect money from third-party funds using profit-sharing agreements (savings and mudaraba deposits) or wadiah (giro transfer). Funds raised by banks are distributed in the form of financing. IB have several alternative contracts that they can use to channel funds, such as mudaraba, musharaka, murabaha, salam, istisna'a, and ijarah financing.

Mudaraba and musharaka financing transactions use the equity system. In mudaraba transactions, banks lend all capital to customers (debtors). Further, the financial losses of entrepreneurs/debtors are fully borne by banks. However, the debtor is responsible if they incur a loss following an error or negligence (Warninda et al., 2019). If both the bank and the debtor have capital for the debtor's business, then the transaction is known as musharaka, and the business loss is divided between the two parties based on capital ownership.

In contrast with mudaraba and musharaka, financing transactions in murabaha, salam, istisna'a, and ijarah do not transfer the risk of loss from the customer to the bank. Murabaha, salam, and istisna'a transactions are sale and purchase transactions. Moreover, banks as sellers are entitled

to receiving income on the difference between the selling price and the purchase price. Ijarah transactions are leases for certain assets. The bank, as the owner of the assets, is therefore entitled to receiving rental income from this transaction. From this explanation, in murabaha, salam, and istisna'a transactions, banks are entitled to receive fixed income. Moreover, there is no risk transfer for business losses brought about by customers (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019). Therefore, equity transactions are more risky than other transactions. Abusharbeh (2014) and Mukhibad and Khafid (2018) found a relationship between equity financing and NPL.

One of the risks of equity financing arises when the borrower does not allow the bank to track the earned income, so that the bank cannot ensure a fair process for revenue sharing (Sapuan et al., 2016; Warninda et al., 2019). Previous studies have identified PLS problems, such as agency problems (Dar and Presley, 2000), information asymmetry (Muda and Ismail, 2010; Warninda et al., 2019), moral hazard (Mahmood and Rahman, 2017), and high monitoring costs (Rahman et al., 2014; Hidayah et al., 2019).

Implementation of PLS Transactions

The rapid development of IB has encouraged researchers to evaluate whether their practice is interest-free. Researchers have examined whether the practice of PLS products is in line with the fundamental concept of interest-free banking under Islamic law. This is because PLS is more in line with the basic principles of Islamic finance where there is no income without risk (Mahmood and Rahman, 2017). "But Allah has permitted trade and has forbidden usury" (Qur'an 2: 275). The quoted verse reflects the legal principle that loss is commensurate with profit and return is commensurate with responsibility (Šeho et al., 2020).

Researchers investigating the implementation of PLS transactions in IB have produced mixed findings. Chong and Liu (2009) found that equity financing implementation was very low and that IB deposits were not interest-free. IB are more inclined to use debt-based financing that is permitted by the Islamic law and ignore the passion to avoid interest (Chong and Liu, 2009). The avoid of IB on interest is strengthened by the findings of Hamza (2016) and Šeho et al. (2020). Hamza (2016) found that the ratio of capital and interest rates positively affects the return on deposits. CB interest rates determine the returns of B. Šeho et al. (2020) found that equity financing income rate is positively correlated with interest rates. Additionally, sales-based contracts and

leases that have damaged the essence of interest-free and risk-sharing IB continue to dominate IB financing (Šeho et al., 2020).

Different findings are presented by Yusof et al. (2015) and Yuksel (2017). Yusof et al. (2015) found that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates. In the short term, there is no relationship between PLS equivalent rates and CB interest rates except for those in the IB in Saudi Arabia. Yuksel (2017) found that PLS transactions of IB are not related to those of CB. This finding indicates that the determination of the PLS equivalent rate in IB does not use CB interest benchmarks. Similarly, the determination of CB interest also does not use PLS return benchmarks.

Hidayah et al. (2019) carried out different research approaches to explore the application of PLS in IB, that is, with a qualitative approach. Hidayah et al's. (2019) study involved 40 participants consisting of managers, advisors, shariah compliance, shariah board, and regulators from Oman, Abu Dhabi, the United Kingdom (UK), Malaysia and Indonesia. They found that the spiritual products in PLS were repackaged and codified to replicate the conventional finance product. The implementation of this pseudo-spirituality is due to the demands of market competition and forcing IB to harmonize various interests and be able to compete. One participant even revealed that there was a bank's attempt to make a fixed return on equity financing and further transfer the risk of loss from the bank to the entrepreneur (Hidayah et al., 2019; Alaabed and Masih, 2016).

Hypothesis Development

Previous studies have produced mixed findings in presenting evidence of PLS transactions in IB; this has become a real debate among researchers (Mahmood and Rahman, 2017). First, there are indications that the practice of equity financing cannot be performed in line with its epistemology following, the existence of equity financing products that transfer risk from banks to entrepreneurs and generate fixed income. Hidayah et al. (2019) found that bank management is trying to replicate conventional financial products so that equity financing generates fixed income and transfer risk from the bank to the customer. Previous studies show that equity financing transactions pose a problem of uncertainty return because of the distribution of profits based on the realization of the customer's business income (Warninda et al, 2019). However, through this codification and similar to debt-based financing, banks as the lenders obtain fixed income similar

to debt-based financing. In other words, similar to the condition in CB, there is a risk transfer in IB (Alaabed and Masih, 2016).

The equity financing products that tend to generate fixed income are musharaka mutanaqisah (Kashi and Mohamad, 2017). The Musharaka mutanaqisah contract is a musharaka agreement combined with buying and selling (Fatwa DSN-MUI/XI/2008). A musharaka mutanaqisah contract can also be a hybrid contract that combines three concepts: Musharaka, Ijarah, and Wa'ad tuma bay'i (Ahroum et al., 2020). The operationalization of this musharaka mutanaqisah transaction is a syirkah ownership between the customer and the bank for an item which is needed by the customer. During the contract period, there is a periodic transfer of ownership from the bank to the customer. Revenue sharing from the musharaka originates from the rental fee for the musharaka goods. Goods that are jointly owned can be rented by the customer or other people (Fatwa DSN-MUI/XI/2008).

Kashi and Mohamad (2017) state that the musharaka mutanaqisah contract is controversial regarding whether it includes partnership transactions or is more likely to be similar to conventional loans. Kashi and Mohamad (2017) found that musharaka mutanaqisah financing is more inclined to debt contracts than partnerships. For banks, the application of the musharaka mutanaqisah scheme must benefit them as much as or more than murabaha financing (Hosen, 2009).

H1: There is a causality between the equity and debt-based financing return.

In addition to the risk of uncertainty, one of the factors that distinguishes between equity and debt-based financing is credit risk. The findings of previous studies state that the factors that cause low equity financing are high credit risk. Previous studies, such as Grassa (2012) and Abusharbeh (2014) support this hypothesis. Misman (2012) and Abusharbeh (2014), using a sample of IB in Malaysia and Indonesia respectively, found that equity financing, unlike debt-based financing, tends to increase credit risk. Additionally, Grassa (2012), using a sample of IB in GCC countries, concluded that greater revenue sharing leads to higher levels of risk for IB. Mukhibad and Khafid (2018) found a positive relationship between the equity financing ratio and NPL. However Warninda et al. (2019) found that the addition of equity financing can reduce NPL. Therefore, the findings are in line with the concept that equity financing can reduce risk. The facts presented in Table 1 show that the increase in equity financing is greater than that in debt-based

financing. We developed the following proposition according to the findings of previous research that led to the practice of equity financing is not the same as the ontological definition:
H2: There is a causality between the equity financing risk and debt-based financing risk.

The findings of previous studies have shown that the practice of equity financing has not been performed according to rules. It can also be concluded that equity financing is not free of interest. Chong and Liu (2009), Hamza (2016) and Šeho et al. (2020) prove this hypothesis. Modifying PLS products to fit local preferences and generate fixed income is an indication that PLS practices lead to non-interest-free practices. The modification of equity financing may be due to (1) low public interest in equity financing product (Imronudin and Hussain, 2016); (2) internal bank problems concerning, for example, top management, human resources, and technical aspects; (3) system conditions, which include the dominance of CB, the environment and unfavorable competition, and the problem of externalities that most people do not understand (Ascarya, 2013).
H3: There is a causality between the equity financing returns rate and the interest rate.

The second debate regards the research findings that show that, in practice, an IB cannot undertake PLS transactions in line with the ideal. Ideally, profit sharing in equity-based financing contract should be based on real performance rather than interest. However, the tests carried out by Chong and Liu (2009) and Hamza (2016) show that the equity financing return rate is related to CB interest. These findings indicate that IB are similar to CB.

Additionally, Yusof et al. (2015) and Yuksel (2017) found that there is no relationship between the equity financing return rate and interest rate. Yusof et al. (2015) even rejected the conclusion that IB are not interest-free simply because of the finding that the deposit return rate (IAH return rate) is correlated with CB interest. According to Yusof et al. (2015), profit sharing for a bank provided to IAH is derived from equity financing income, where equity financing income obtained by banks is influenced by the opportunity cost of capital or the real rate of economic return. This is one of the main determinants of interest rates in the economy. As stated by Yusof et al. (2015), the return on investment of IB in the form of equity financing is assumed to be influenced by economic conditions. Further, these economic conditions are indicators of determining interest rates. This assumption is reinforced by Zarrouk et al. (2016), who found that

IB perform better in an environment where gross domestic products and investments are high. Based on this analogy, it is clear that the equity return rate can be related to interest.

H4: There is a causality between the IB financing return rate and the CB interest rate.

RESEARCH MODEL

This study uses as objects IB in Indonesia, including 12 Islamic commercial banks and 10 Islamic business unit banks. We conducted monthly data observations from 2005 to 2019 and produced 132 units of analysis. We used the Islamic banking statistical data in Indonesia issued by the Financial Services Authority (OJK) as the data source.

This study explains whether equity financing, just as debt-based financing, produces a fixed return. We conducted a correlation test using time series data, and formulated the interrelationships between variables using the following model:

$$X_t = \sum_{i=1}^{m} a_i X_{t-i} + \sum_{j=1}^{n} b_j Y_{t-j} + u_t$$

$$Y_t = \sum_{i=1}^{r} c_i Y_{t-i} + \sum_{j=1}^{S} d_j X_{t-j} + v_t$$

where u_t and v_y are error terms that are assumed to have no serial correlation and m = n = r = s. The results of this test will allow for the following production of four possibilities:

(1) there is a causality between the variable Y to X if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j = 0$.

(2) There is a causality between variable X to Y if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j \neq 0$.

(3) There is no causality if $\sum_{j=1}^{n} b_j = 0$ and $\sum_{j=1}^{s} d_j = 0$.

(4) There is causality between the two if $\sum_{j=1}^{n} b_j \neq 0$ and $\sum_{j=1}^{s} d_j \neq 0$.

We further performed stationarity, cointegration, and VAR lag order tests to ensure the correlation between the two variables. We used these tests because they can explain 2-way causality. Further, the type of data we used was in the time series. Previous studies, such as Chong

and Liu (2009) and Yuksel (2017) also used Granger causality tests to test the causality between instruments in IB and CB.

We employed the following methods to measure the variables we used:

Table 3. Operational Variables

Notation	Variables	Description
ER_PLS	Equivalent Rate Equity Financing	Ratio of revenue sharing from equity financing (mudaraba and musharaka) to the average equity financing.
ER_NPLS	Equivalent Rate debt-based Financing	Ratio of debt-based financing revenue (murabaha, istisna'a, salam, and ijarah) to the average debt-based financing.
ER	Equivalent Rate of equity and debt-based Financing	Ratio of equity and debt-based financing revenue to the average total financing.
NPL_PLS	NPL equity Financing	Ratio of non-performing Equity financing to debt-based financing
NPL_NPLS	NPL debt-based Financing	Ratio of non-performing debt-based financing to debt-based financing
Risk_PLS	Risk of equity Financing Revenue	Standard deviation of equity Financing Equivalent Rate
Risk_Non-PLS	Debt-based Financing Revenue Risk	Standard deviation of debt-based Financing Equivalent Rate
IR	Interest Rate of CB	Loan interest revenue is divided by the outstanding CB credit

In addition to the above variables, we used Gross Domestic Product (GDP) as a control variable. This is because GDP has an influence on the equivalent rate of bank financing income for both IB and CB (Abou-el-sood, 2019; Šeho et al., 2020).

We also measured Value at Risk (VAR) to assess the business sustainability of equity and debt-based financing using the following formula:

$$VaR = \bar{X} + z(\frac{s}{\sqrt{n}})$$

Where:

$\bar{X}$: Average financing risk

z : Z value normal distribution

s : Standard deviation of financing risk

The data in this study were time series data and were processed using the Granger causality test. We performed stationarity, cointegration, and VAR lag order tests before the Granger causality test. We used these tests because they can explain two-way causality. Further, the type of data used was time series data. Previous studies, such as Chong and Liu (2009), Yusof et al. (2015), and Yuksel (2017), also used Granger causality tests to test the causality between instruments in IB and CB.

RESULTS

In this section, we present descriptive data that illustrate the rate of return on equity and debt-based financing, the financing rate of return on IB, and the interest rates on CB. We made observations based on monthly data for 11 years.

Table 4. Descriptive Statistics

Indicator	Mean	St Dev.	Min.	Median	Max	Skew	Kurt.
ER_PLS (Mudaraba)	14.16566	3.104631	9.173565	13.5272732	21.87491	0.258792	-0.72049
ER_PLS (Musharaka)	11.80953	1.546923	8.91471	11.5661846	14.9702	0.004584	-0.81838
ER_Non-PLS (Murabaha)	13.75843	1.440886	11.43633	13.6111811	18.6921	0.507721	0.519568
ER_Non-PLS (Istisna'a)	13.15217	1.177744	10.55546	13.2608576	14.7344	-0.75155	-0.49717
ER_Non-PLS (Ijarah)	5.508967	4.984684	-0.00496	8.73053414	11.15991	-0.03709	-1.99084
ER_PLS	12.98759	2.094058	9.20478	12.9739101	17.67515	-0.21223	-0.95828
ER_Non PLS	10.80652	1.147088	7.633964	10.821646	12.70532	-0.13056	-0.94735
NPL Mudaraba	2.99	1.10	1.52	2.66	6.55	1.71	2.85
NPL Musharaka	4.49	1.09	2.94	4.49	6.84	0.34	(1.00)
NPL Murabaha	4.38	0.72	2.90	4.51	6.09	(0.41)	(0.34)
NPL (Istisna'a)	2.56	1.34	1.19	1.88	6.27	1.23	0.33
NPL (Ijarah)	2.76	1.67	1.43	2.18	7.57	2.15	2.85
NPL (PLS)	4.19	0.88	2.89	4.20	6.18	0.49	(0.65)
NPL (Non-PLS)	4.24	0.70	2.83	4.40	5.88	(0.38)	(0.41)
Interest Rate	12.393	0.980155	10.58235	12.4624409	14.84333	0.074057	0.021766
ER (PLS & Non-PLS)	11.62564	7.25566	14.08914	0.827157	11.81091	-2.05576	6.898406
GDP (Billion IDR)	690,400.04	238,602.29	433.43	745,665.48	939,629.13	(2.19)	4.87

Table 4 shows that mudaraba financing has income with an average equivalent rate of 14.17%, while the equivalent rate of musharaka financing income is 11.81%. The equivalent rate of murabaha, istisna'a, and ijarah financing incomes is 13.76%, 13.15%, and 5.51% respectively. The equivalent income of equity financing is 12.98%, while debt-based financing has an average equivalent rate of 10.81%. The standard deviation of the equivalent rate of equity financing income is 2.09, and that of debt-based financing is 10.81. This standard deviation of equity financing, which is greater than that of the debt-based financing leads to rejection of the hypothesis and the finding that equity financing has greater income volatility than debt-based financing. Strengthened by Figure 1, our results lead to equity financing practice, which is in line with its epistemology. This provides greater income uncertainty than equity financing.

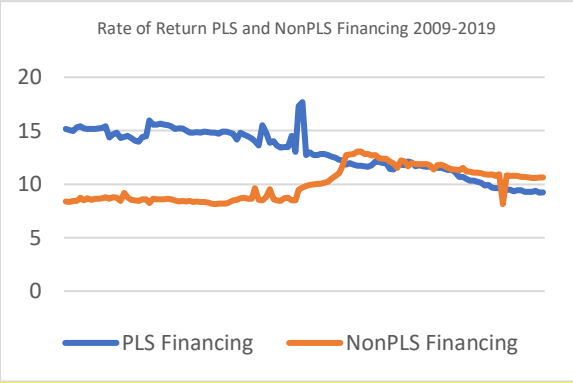

Figure 1a. Equivalent Rate Equity and Debt-Based Financing

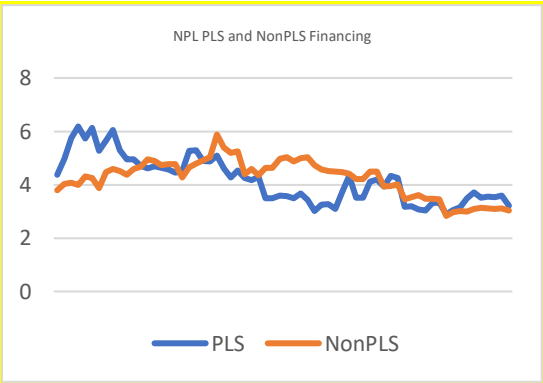

Figure 1b. Equivalent Rate Equity and Debt-Based Financing

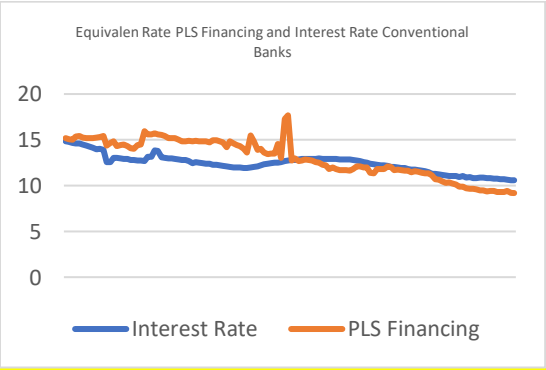

Figure 2a. Equivalent Rate Interest Rate and Equity Financing

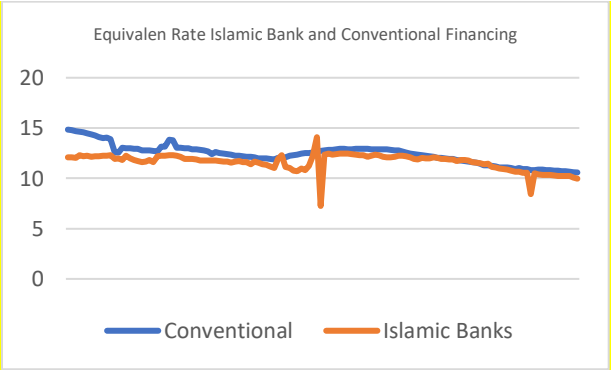

Figure 2b. Equivalent Rate Conventional and Islamic Banks

The highest sequential financing risk was musharaka (4.49%), followed by murabaha (4.38%), mudaraba (2.99), ijarah (2.76%), and istisna'a (2.56%). On average, equity financing has

an NPL of 4.24%, while debt-based financing has an NPL of 4.19%. In other words, in the Indonesian IB, equity financing has a greater credit risk than debt-based financing. The NPL of equity financing has a standard deviation of 0.88. The standard deviation of debt-based financing on the other hand is 0.70. The comparison of the average value, standard deviation, and strengthened by Figure 1b leads to equity financing being in line with its characteristics, which have a higher credit risk than debt-based financing.

Comparing the equivalent rate between equity financing and CB interest income (figure 2a) indicates no relationship between the equity financing return and interest. The equity financing equity rate has an average of 12.99%, with a standard deviation of 2.094, while the CB interest has an average of 12.39%, with a standard deviation of 12.39. This result also supports the results of previous tests which state that equity financing generates greater income uncertainty than CB income. A greater equity financing equivalent rate indicates that equity financing has a large income potential, as the risks borne by the bank are also large.

Comparing the equivalent rate of financing income between IB and CB shows that IB have a lower equivalent rate than CBs. The equivalent rates of IB financing income and CB credit are 11.63% and 12.39% respectively. Further, Figure 2b shows that there is a potential link between the two. Moreover, this also leads to the equivalent rate of IB financing income, which relates to interest.

Granger Causality Test Results

To strengthen the results of this study, we conducted a Granger causality test following previous researchers (see Chong and Liu, 2009; Khalidin and Masbar, 2017; Korkut and Özgür, 2017; Yuksel, 2017). Before performing the Granger test, we conducted stationary, cointegration, and lag order VAR tests. The stationarity test conducted on all the variables shows that stationary data is at the 1st difference. The cointegration test shows that there is no cointegration at the 5% level, and the VAR order lag test shows that the recommended lag is at levels 1 and 3. Table 5 shows the summary of the Granger test results.

Table 5. Granger Test

Null Hypothesis:	**F-Statistic**	**Prob.**
ER_Non-PLS does not Granger Cause ER_PLS	0.43601	0.7276
ER_PLS does not Granger Cause ER_Non-PLS	1.50647	0.2163

NPL_PLS does not Granger Cause NPL_Non-PLS	1.18062	0.2814
NPL_Non-PLS does not Granger Cause NPL_PLS	0.42961	0.5146
ER_PLS does not Granger Cause IR_CB	0.42172	0.8328
IR_CB does not Granger Cause ER_PLS	0.10597	0.9908
ER_IB does not Granger Cause IR_CB	0.45330	0.5020
IR_CB does not Granger Cause ER_IB	15.8447	0.0001***
GDP does not Granger Cause ER_IB	2.94859	0.0884*
ER_IB does not Granger Cause GDP	0.00122	0.9722

*** Sig. at 1%; **sig. 5%; * Sig. 10%

The Granger test on whether there is no correlation between the equivalent rate of equity financing and the equivalent rate of debt-based financing resulted in an f-statistic of 1.5065 and a probability of 0.2163. However, the equivalent correlation rate of debt-based financing on equity financing resulted in an f-statistic of 0.43601 and a probability of 0.7276. These results indicate that there is no correlation between the equivalent rates of equity and debt-based financing.

The Granger test to test the causality of NPL from equity financing to NPL from debt-based financing produced an f-statistic of 1.18062 and a probability of 0.2814. However, the results of the NPL from the debt-based financing test against equity financing resulted in an f-statistic of 0.42961 and a probability of 0.5146. This result also shows that there is no correlation between the NPL from equity and debt-based financing. This means that the risks of equity and debt-based financing are mutually unrelated.

The results of the causality test between the equivalent rate of equity financing with CB interest income produced an f-statistic of 0.42172 with a probability of 0.8328. However, conversely, the results of the causality test between interest income and the equivalent rate of equity financing produced an f-statistic of 0.10597 and a probability of 0.10597. These results indicate that the equivalent rate of financing income is not related to CB interest income. These results reinforce the conclusion that there is a tendency for equity financing to be consistent with its epistemology.

Table 5 shows that the Granger test between ERIB and ERBC produced an f-statistic of 0.45330 with a probability of 0.5020. The Granger test between ERBC and ERIB produced a f-statistic of 15.8447 with a probability of 0.0001. The results of this test show that revenue sharing

from IB financing (equity and debt-based financing) is not correlated with CB credit interest income. However, CB interest income is correlated with the equivalent rate of IB financing income. To clarify these findings, we tested the relationship of GDP to interest income and the equivalent rate of IB financing income. This test is intended to strengthen the assumption.

We used GDP to measure whether IB financing based on profit sharing is as previously thought to be influenced by GDP as previously assumed. Our Granger test results of GDP on IB financing equivalent rates produced a t-statistic score of 2.94859 and a probability of 0.0884. The IB equivalent rate test results on GDP produced a t-statistic score of 0.00122 and a probability of 0.9722. This shows that GDP has a correlation with the equivalent rate of IB financing. However, the equivalent rate of IB financing does not have a correlation with GDP.

Discussion

IB have two very different types of financing in the process of sharing returns between banks and customers, that is, equity and debt-based financing. In equity financing, the bank obtains income that comes from a certain percentage (or the ratio) of business revenue run by the customer. In debt-based financing, banks receive income on sales profit margins or rental income of a fixed amount.

Other researchers identified that the high risk of equity financing is due to the potential for uncertain income compared to debt-based financing (Warninda et al., 2019). The Granger test results show that equity and debt-based financing have different characteristics of revenue acquisition risk. Equity financing has greater income uncertainty (Warninda et al., 2019). The equity and debt-based financing incomes are not correlated. Additionally, in line with the findings of Ernawati (2016), we found that equity financing (especially mudaraba) has a lower certainty of earning income than debt-based financing. This means that the two financing systems are different and lead to the conclusion that both of them have proceeded in line with the epistemology. This result rejects the conclusion of Hidayah et al. (2019) on pseudo practice in equity financing because the implementation of equity transaction tends to be debt-based financing. We also reject the argument of Mahmood and Rahman (2017) and the findings of Chong and Liu (2009), Ergeç and Arslan (2013), Hamza (2016), and Šeho et al. (2020), who claimed that PLS IB products are not interest-free. Hidayah et al. (2019) in their research concluded that banks implemented PLS contracts artificially because the banks modified the PLS contract to make it easier to run and in

line with customer preferences by setting fixed income policies such as debt-based financing. However, our results show that equity financing generates more volatile income than debt-based financing. This is in line with the main characteristics of PLS. This study's and Hidayah et al.'s results differ (2019) due to the differences in the two studies. Hidayah et al. (2019) used qualitative methods. Therefore, their conclusions were based on the results of interviews with bank leaders. However, this study uses a quantitative approach and uses empirical data reported by bank management in its financial statements. Further, there is a possibility that what was conveyed by the informants in Hidayah et al.'s (2019) study was not supported by data in the financial statements.

NPL data show that equity financing has a lower NPL rate than debt-based financing. When viewed from the type of financing, musharaka financing has a higher NPL than mudaraba financing. This finding rejected Ernawati (2016), who states that mudaraba had a higher NPL than musharaka due to information asymmetry. Murabaha financing has the highest NPL compared with other types of equity financing. Further, murabaha has a higher NPL than mudaraba. This is contrary to the concept of murabaha financing. There is no information asymmetry as in mudaraba. From these findings, we reject the conclusion that equity financing has a high risk due to a high NPL and, conversely, debt-based financing has a lower risk due to a low NPL. We suspect that the type of contract is not the cause of the difference in the NPL.

When viewed from the risk of financing, the results of the study show that the equity and debt-based financing NPL are not correlated. Our results indicate that debt-based financing has a higher NPL than equity financing. We further assume that the low equity financing NPL does not mean that equity financing is not in line with the epistemology. This is because the high NPL is significantly influenced by the ability and character of the customer. We also found that the products that had the highest NPL were musharaka, murabaha, and mudaraba. The high amount of musharaka and murabaha financing triggered a high bank NPL. Therefore, equity financing has a higher risk than debt-based financing (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019). However, this high risk is due to uncertainty about revenue sharing, rather than a high NPL.

The finding that there is no causality between the equivalent rate of equity financing income and CB interest income reinforces our finding that equity financing has been calculated according to rules. In contrast to debt-based financing income and interest income at CB, the

equivalent level of equity financing income cannot be determined by the bank at the time of the contract. The acquisition of equity financing income is based on the results of businesses run by entrepreneurs. This lack of correlation reinforces our finding that IB run equity financing in line with the epistemology.

Comparing the equivalent rate of financing of IB and CB shows that CB receive an interest income of 12.39%, which is greater than IB financing with an equivalent rate of 11.63%. The low equivalent rate of Indonesian IB financing may be due to the low market share of the Indonesian IB, which is only 5.3% (Mukhibad, Muthmainah and Andraeny, 2020). A low market share allows companies to adopt strategies that can help reduce the selling price of products and consequently attract customer interest.

The results of the correlation test between IB financing returns and CB interest rates show that we found a correlation between the two. In other words, the CB financing equivalent rate is related to the CB loan interest. This result reinforces the conclusion that IB in financing policies use interest-based or not yet interest-free. These results support the findings of Šeho et al. (2020), who found that there is a relationship between sales revenue and profit sharing from IB products to CB interest. Additionally, we reject the conclusion of Yusof et al. (2015) and Yuksel (2017) that IB are free of CB interest. Yusof et al. (2015) argue that the correlation between revenue sharing and interest may be caused by GDP; GDP is one of the factors that determine interest. Additionally, GDP will also affect the income of IB because IB that use PLS transactions make their income highly dependent on economic growth. Consequently, we present the GDP in this test.

The test results show a correlation of GDP on IB financing return rates. Equity financing, whose distribution is based on the realization of business revenue run by customers, is very dependent on GDP. An increase in GDP indicates an improved business climate. Business income obtained by customers also increases and will subsequently have an impact on increasing the equivalent rate of IB financing. Our results support Yusof et al.'s argument (2015) which states that IB financing return rates and interest are related (as in the findings of this study and the findings of Šeho et al. (2020). This is probably due to the role of GDP. We agree with Yusof et al. (2015) who state that GDP is a fundamental factor in determining interest rates, and that high GDP will increase the equivalent rate of IB financing. In other words, the correlation between the

equivalent rate of IB financing and interest is due to the existence of GDP, which functions as an intermediary for both.

Table: 6. Value at Risk

Financing	2014			2015			2016			2017			2018			
	σ 1%	σ 5%	σ 10%	σ 1%	σ 5%	σ 10%	σ 1%	σ 5%	σ 10%	σ 1%	σ 5%	σ 10%	σ 1%	σ 5%	σ 10%	σ 1%
Equity Financing	6.07	5.90	5.82	5.27	5.17	5.12	4.94	4.84	4.78	3.73	3.66	3.63	3.94	3.83	3.77	3.53
a. Mudaraba	4.31	4.18	4.11	3.30	3.18	3.12	2.65	2.59	2.56	2.94	3.00	2.75	2.62	2.54	2.50	5.94
b. Musharaka	6.62	6.43	6.33	5.81	5.71	5.66	5.51	5.38	5.31	3.98	4.15	3.84	4.14	4.03	3.97	3.40
Debt-based Financing	4.39	4.33	4.30	5.10	5.06	5.03	5.32	5.22	5.17	4.70	4.81	4.65	4.03	3.94	3.89	3.11
a. Murabaha	4.42	4.36	4.34	5.05	5.01	4.99	5.41	5.31	5.26	4.82	4.97	4.77	4.16	4.07	4.02	3.23
b. Ijarah	2.45	2.35	2.30	1.90	1.86	1.84	4.23	3.94	3.79	6.30	9.36	5.57	2.55	2.50	2.47	2.45
c. Istisna’a	4.85	4.70	4.62	5.29	5.06	4.94	2.48	2.42	2.39	1.69	2.02	1.63	1.65	1.62	1.61	1.81

Discussions related to risks between various types of financing in IB can also be evaluated from Value at Risk (VAR). Table 6 presents the VAR results of the IB financing model using an error rate of 1%, 5%, and 10%. Consistent with previous research, equity financing was shown to have a lower VAR than debt-based financing except in 2014 and 2015. In 2014, Indonesia had a negative GDP growth due to the impact of the global economy (Indonesia, 2014). In line with this concept, equity financing has lower potential losses when economic conditions are poor. This economic recession will cause business actors to suffer greater losses. Poor economic conditions will negatively influence equity financing, which is larger than debt-based financing.

The year 2015 was a period of recovery in which the government performed economic recovery and generated positive GDP growth, and had an impact on increasing customers' businesses. However, Table 4 shows that in 2015, equity financing still produced a higher VAR than debt-based financing. This means that when the economy is still improving, equity financing creates a greater risk than debt-based financing. In line with the accounting standard guidelines in Indonesia, losses from equity transactions (2014) will be amortized against the gains on equity financing in the following year (2015). This policy caused equity financing to still have a higher VAR than debt-based financing in 2015 (despite positive GDP growth). In conditions of positive GDP growth (2017-2019), Table 6 shows that equity financing produces lower VAR than debt-based financing. This finding also strengthens the previous conclusion that the implementation of equity financing is in line with the epistemology.

Additionally, equity financing generates sustainable business returns than debt-based financing when the economy is growing effectively. On the other hand, when there is a recession, debt-based financing provides better income sustainability. These results complement the findings of Ismal (2010), who also used a study on IB. They found that equity and debt-based financing resulted in business continuity, both in favorable and unfavorable economic conditions. This also reinforces the finding that equity contracts have a greater impact on economic growth than other contracts, debt-based contracts, and interest (Ibrahim and Ismail, 2015). Therefore, equity financing is needed for real economic growth and will positively influence the sustainability of economic development (Pratiwi, 2016; Choudhury et al., 2019).

CONCLUSION

This study proves the debate on whether IB have conducted their normative PLS transactions. This study's results indicate that the equivalent rate of equity financing income is not related to debt-based financing income. This result leads to the conclusion that equity and debt-based operate in line with the epistemology, that is, equity financing uses profit sharing with an unfixed amount of income as in debt-based financing.

The results also provide evidence that the NPL between equity and debt-based financing is mutually unrelated. This study further proves the main characteristics of financing that have a different or higher risk than debt-based financing. These unrelated NPL characteristics between equity and debt-based financing leads to the finding that banks have carried out equity financing in line with the rules of the Islamic law.

We also identified the correlation between the equivalent rate of equity financing income and IB income and found that the two are not related. Equity financing income has an uncertain nature and cannot be determined in advance by the bank at the time of the cooperation contract and is different from CB based on interest. The bank can determine interest at the time of the credit agreement. The lack of causality between the equivalent rate of equity financing and interest leads to the finding that equity financing has been normatively carried out.

The results also prove that there is a correlation between the equivalent rate of IB financing income and CB interest. We also find a correlation of GDP to the equivalent rate of IB financing income. The increasing GDP shows an improvement in the business climate run by customers. The next impact is an increase in the equivalent rate of IB financing income. The findings of this and previous studies show that the equivalent rate of IB financing is related to interest rates due to the role of GDP, which is used as an indicator in determining interest. GDP also has an impact on increasing the equivalent rate of IB financing.

Equity financing will result in greater business sustainability when macroeconomic conditions experience GDP growth. However, when GDP growth is negative, equity financing has a greater potential risk than debt-based financing. This result strengthens the finding that the implementation of equity financing in IB in Indonesia has been implemented in line with the epistemology and rejects the finding that state that PLS transactions are similar to non-PLS or interest transactions.

The implication of this research is that equity financing for IB in Indonesia has proceeded in line with its epistemology. The distribution of equity financing to IB has complied with Islamic

principles. These findings clarify that IB have implemented the Islamic law. Additionally, this significant increase in musharaka financing should still pay attention to a careful analysis of the customer's business feasibility considering that this type of financing is a high-risk financing as it has a high NPL.

This study used time series data presented by banking regulators in Indonesia. We however did not use cross-section data. Therefore, we have not been able to explain whether the implementation of equity financing that is in line with the initial concept occurs in all banks. We suggest that further researchers use cross-sectional data to complement this study's results. Additionally, we used the equivalent rate indicator reported by the regulators. Future researchers can further use another proxy by comparing the costs with the amount of financing reported in the bank's financial statements.

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4. Bukti konfirmasi review dan hasil review yang kedua (16 Juni 2021)

UNNES
UNIVERSITAS NEGERI SEMARANG

Hasan Mukhibad <hasanmukhibad@mail.unnes.ac.id>

ISRA International Journal of Islamic Finance - Decision on Manuscript ID IJIF-02-2021-0032.R1

2 messages

ISRA International Journal of Islamic Finance <onbehalfof@manuscriptcentral.com> Wed, Jun 16, 2021 at 3:16 PM

Reply-To: journal-editor@isra.my
To: hasanmukhibad@mail.unnes.ac.id, doddy.setiawan@staff.uns.ac.id

16-Jun-2021

Dear Mr. Mukhibad,

Manuscript ID IJIF-02-2021-0032.R1 entitled "EQUITY FINANCING, FIXED INCOME, AND INTEREST-FREE BANKING" which you submitted to the ISRA International Journal of Islamic Finance, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended publication, but also suggest some revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into https://mc.manuscriptcentral.com/ijif and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

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Once again, thank you for submitting your manuscript to the ISRA International Journal of Islamic Finance and I look forward to receiving your revision.

Yours sincerely,
Dr. Beebee Salma Sairally
Editor, ISRA International Journal of Islamic Finance
journal-editor@isra.my

Reviewer(s)' Comments to Author:
Referee: 1

Recommendation: Major Revision

Comments:
Yes, it is an interesting paper to compare the different rates in both conventional and Islamic banks. However, I have some observations in the paper.

Based on the hypotheses 3 and 4, the authors have to test the granger-causality test between the conventional and

Islamic banks. However, the sample size is only Islamic banks, I wonder how the authors compare between these two without sample of conventional banks. This is my main concern of the paper.
No,, the title is misleading,,, initially I thought how these authors combine equity, sukuk and Islamic banks.. However, the authors focus on different financing types in the Islamic banks. therefore, the authors should revise the title,.

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication?: Yes, it is an interesting paper to compare the different rates in both conventional and Islamic banks. However, I have some observations in the paper.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Yes, it is well presented and the hypotheses developments are satisfactory.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Based on the hypotheses 3 and 4, the authors have to test the granger-causality test between the conventional and Islamic banks. However, the sample size is only Islamic banks, I wonder how the authors compare between these two without sample of conventional banks. This is my main concern of the paper.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: As I mentioned in my previous section, how the authors get the granger-causality test without sample of conventional banks. Please explain it.

5. Practicality and/or Research implications: Does the paper identify clearly any implications for practice and/or further research? Are these implications consistent with the findings and conclusions of the paper?: yes, it is provided,

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: All Arabic words must be italic.

The paper must be proofread by professional language editor if the paper is considered.

Do the title and abstract clearly indicate the content of the paper? Are all the tables and illustrations necessary? Are there ways in which the article could be shortened without losing value?: No,, the title is misleading,,, initially I thought how these authors combine equity, sukuk and Islamic banks.. However, the authors focus on different financing types in the Islamic banks. therefore, the authors should revise the title,.

Referee: 2

Recommendation: Major Revision

Comments:
The paper addresses the question of whether the relative levels of income or returns on Islamic financing products are governed by interest rates. The important issue is examined using Granger-causality tests only. As noted in this reviewer report, Granger-causality tests provide some evidence about the direction of causality, but this evidence cannot be conclusive. Stable rates of return on Islamic financing products may behave like interest rates, which are fixed and predetermined a priori. Stability may not be indicative of predetermined rates as reflective of the nature of stable income generated by the underlying assets.

This review report raises some concerns about a number of issues. The most serious of concerns is about the methodology. Granger-causality tests may provide some evidence about the direction of causality from interest rates to the rates of return or income on Islamic financing products. They cannot shed light on whether the rates of return are predetermined. There are also issues with measurement problems as with the reported figures of GDP, and the reliance on GDP levels rather than GDP growth rates. Given these methodological issues and in the absence of conclusive and compelling evidence, it is difficult to make practical or policy recommendations.

Some suggestions are made to improve the quality of the paper in terms of including other analytical models such as VAR and Impulse response functions. But these potential improvements cannot provide remedies for the measurement problems and poor communication.

There are signs of excellent work in collecting data by the author(s), and attempts are providing a good account of the

empirical evidence. But there are still concerns about measurement errors, methodological issues, and quality of communication. This long review report explains some of these issues. And it is hoped that the author(s) will take the humble recommendations included in this review to improve the quality of the paper.

Thus on aggregate, though this reviewer has opted for "Major Revision" based on the willingness to review a more decent version, the serious issues justify "Rejection".

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication?: 1- The paper addresses the issues of whether equity financing is associated with fixed income, and whether the returns on the financing instruments by Islamic banks are related to interest rates. This is an important issue given the limited evidence and the usual focus placed on sukuk as “fixed income” instruments rather than the “fixed income” on musharakah and mudharabah financing. As noted by the author(s), previous studies such as Khalidin and Masbar (2017) and Šeho et al. (2020) examine the issue of whether Islamic banking products are genuinely interest-free. Whereas similar studies such Chong and Liu (2009) and Yuksel (2017) focus on savings products, this paper provides new evidence about the relation between the returns on equity-based and debt-based financing. It also considers the relation of returns on equity-based financing with interest rates and GDP.

2- The paper is an attempt to provide new evidence about the proposition that equity-based financing generates fixed income through the replication of conventional financial products. The empirical evidence is based on time-series observations from Indonesian Islamic banks and Granger-causality tests. These tests provide only some indication about the cause-effect relationship and direction of causality between two variables. Thus, evidence from Granger causality that interest rates lead the returns on equity financing may be indicative of deviations from the principal purposes and optimal modus operandi of equity financing. In addition, the paper provides further evidence based on Value-at-Risk analysis about the risks to business continuity associated with equity financing. It is not clear how these additional tests shed light on the empirical question about the direction of causation between income from Islamic financing and interest rates.

3- It should be noted that evidence of a significant relationship between income on Islamic banking products and interest rates does not necessarily imply the predetermination of profit rates or benchmarking on interest rates. Furthermore, the income smoothing practices where profit payouts to investment account holders are based on profit equalization reserves may be the source of additional confusion. The objective of income smoothing practices may be to secure a “stable” rather than “predetermined and fixed” rate of return on investment account. These practices may not necessarily mean the predetermination of income on the underlying asset itself. Given the various theoretical interpretations, practical and regulatory issues (see the related Guidance Note from the Islamic Financial Services Board, December 2010), the empirical results should be interpreted with caution. Evidence of co-movement or convergence of the relative income or return on Islamic financing toward deposit rates from conventional banks does not necessarily indicate the predetermination of the rate of return on Islamic financing instruments.

4- Thus, on aggregate, the paper does contain some new insights about the important issue, but the evidence is rather limited both in time, geographical scope, and methodology. In the absence of robustness tests, the evidence may be regarded as sample dependent. The methodological approach is based on a single test of Granger causality, which may capture the direction of causality but does not offer insights about the nature of this relationship.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: 1- The paper is well written insofar that the relationship with literature is concerned. There is a serious attempt to provide a concise account of relevant studies, both at the level of the introduction, literature review and discussion of results.

2- It is argued by the author(s) in page 5 that the Quranic verse 2:275 implies “the legal principle that loss is commensurate with profit and return is commensurate with responsibility (Šeho et al., 2020).” It is not clear how losses can be “commensurate” with profits and returns with responsibilities when losses and profits are mutually exclusive. Profits cannot be proportional to losses and vice versa, as they are mutually exclusive. Returns are also function of the realization of profits or losses. The verse simply states the difference between the permissibility of trade and prohibition of usury. It implies that whereas permissibility can be justified by the notion of profit-loss sharing in the former, impermissibility can be based on the notion of risk transfer in the latter.

3- It is stated by the author(s) in page 17 that “Yusof et al. (2015) argue that the correlation between revenue sharing and interest may be caused by GDP; GDP is one of the factors that determine interest. Additionally, GDP will also affect the income of IB because IB that use PLS transactions make their income highly dependent on economic growth.” It is difficult however to find clear reference to this argument about the GDP in in the study by Yusof et al. (2015). A close argument is made therein in pages 79-80 to the effect that “interest rates fluctuate mainly based on forecasts of future economic activity,” and that it is legitimate for Islamic banks to set “profit rates in accordance to what they expect as a profit on economically sound projects funded by the bank which is also linked to the real rates of interest”. It is further argued that “the real rate of interest is impacted by factors such as industrial production, unemployment, opportunity cost of capital, etc. which represent factors linked to the real economy.”

4- Thus, it may be argued that GDP growth rate can be taken as proxy for return on the real economy. But it is important to avoid misconceptions leading to potential confusion and misunderstanding in this respect. Yusof et al. (2015) argue that profit rates in Islamic banking may be based on the expected profits generated from projects, and that the expected level of profits is linked to the real rates of interest. It seems that the “rate of return on the real economy” is confounded with the “real rate of interest”. It is important however to make a clear distinction between the “rate of return on the real economy”, which reflects the growth rate of the real economy and the “real rate of interest”, which is defined as the difference between the nominal interest rate and inflation rate. Both the rate of return on real investment and real rate of interest are driven by expectations and can be determined ex ante. But the issue is whether the realized returns are considered to be fixed and independent of possible states of the world (real rate of interest) or allow to vary depending on the observed performance of the investment projects (return on the real economy).

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: 1- The empirical analysis is concerned with four null hypotheses about Granger-causality between (1) returns on equity-based and debt-based financing, (2) equity-based financing and debt-based financing risks, (3) return on equity-based financing and interest rates, and (4) return on Islamic financing products and interest rate on conventional banking.

2- With respect to the second null hypothesis, it is stated in page 7 that “[i]n addition to the risk of uncertainty, one of the factors that distinguishes between equity and debt-based financing is credit risk.” It is noted that risk should be distinguished from uncertainty, and that uncertainty is not a risk factor. Uncertainty may be understood as the possible existence of two or more states of the world. Obviously, there is no uncertainty in the presence of a single state. There is no risk in case of certainty. In a world of uncertainty, risk can be measured with deviations from the expected value, which is in turn estimated on the basis of probability distribution covering all possible states of the world.

3- Also in relation to the second null hypothesis, it is stated in page 7 that “[t]he findings of previous studies state that the factors that cause low equity financing are high credit risk.” It is further argued that “equity financing unlike debt-based financing, tends to increase credit risk” and that “equity financing can reduce risk.” Given the above distinction between risk and uncertainty, it is difficult to understand these statements because equity financing does not increase or reduce investment risk. With respect to credit risk, it is debt-based financing that is associated with credit risk not equity financing since the risk of default on scheduled payments can only be related to debt not equity.

4- There are however concerns about the power of Granger-causality tests in providing evidence about the pre-determination of the rate of return on Islamic financing instruments. Generally, Granger-causality tests are part of a battery of preliminary tests that examine the distributional properties of time-series including stationarity and cointegration tests as well as the correlation structure between variables. provide preliminary evidence on the relation between two variables. However, they represent the only tests reported in this paper. For instance, Chong (2009) and Yuksel (2017) used Granger-causality tests, but it is possible as in Yuksel (2017) to include the vector autoregression (VAR) analysis to examine the correlation structure between conventional deposit rates and the profit–loss sharing ratio of Islamic Banks. It is possible to draw on this VAR methodological approach to also consider the impulse response functions, which may provide further evidence on the shape and duration or decay of the response of variables to shocks in another.

5- Granger-causality tests are based on bivariate regressions, according to the equations described in the paper (should be numbered). F-statistics represent the Wald statistics for the null hypothesis that Y does not Granger-cause X, or $b_1=b_2=\cdots=b_n=0$ for the first equation. Similarly, the null hypothesis that X does not Granger-cause Y is represented by $d_1=d_2=\cdots=d_S=0$ for the second equation. It is stated in page 9 that

(1) “there is a causality between the variable X to Y if …” should read “the direction of causality runs from X to Y if …”
(2) similar to explanation above
(3) there is no causality (no relationship) between the variables if …”
(4) “there is causality between the two if …” should read “the direction of causality between the two variables is not clear if …”

6- The paper refers to the “equivalent rate” of income on equity-based or debt-based financing, or income on Islamic bank or conventional bank financing. In conventional finance, the notion of annual equivalent rate refers to the effective or actual rate of interest after taking compounding into consideration. This may be the source of confusion, in particular when the linkage between the “equivalent rate” on equity financing and interest rates is examined. Judging from the definitions included in Table 3, it appears that the “equivalent rate” is measured as the ratio of revenue to average amount of financing. As such, this ratio does not measure the rate of return on investment, and it cannot be construed as “equivalent” to the rate of return. Revenue should be distinguished from return, because profits and losses are measured after accounting for related expenses and costs. It is important tot make this distinction as in Figure 1 where the issue of “income uncertainty” and “income volatility” rather than “return volatility” is rightly addressed by the author(s). Thus, although the “equivalent rate indicator” is used by regulators, it is better to avoid the use of the term “equivalent rate” in the empirical analysis and discussion of results.

7- Reference is made in page 5 to NPL, which should be explained as non-performing loans. The definition of the variables NPL_PLS as the ratio of “non-performing loans” to equity-based financing (need to correct debt-based financing in Table 3) may be also misleading because in equity financing, there are strictly no “loans” and no issues of “non-performing loans”.

8- It is stated in page 9 that “We further performed stationarity, cointegration, and VAR lag order tests to ensure the correlation between the two variables. We used these tests because they can explain 2-way causality. Further, the type of data we used was in the time series.” Similar statements are also made in page 11 where it is stated that “We performed stationarity, cointegration, and VAR lag order tests before the Granger causality test. We used these tests because they can explain two-way causality. Further, the type of data used was time series data.” It is important to avoid redundant statements.

9- The theoretical justification for the use of GDP as control variable is not clear. It is tautological that return on investment, whether equity-based or debt-based financing, is intrinsically related to the rate of growth in the real economy. It is stated in page 11 with respect to Table 4 that monthly data are used for 11 years, but there may be measurement problems with different data frequencies. It is understood that returns observations for equity and debt-based financing have monthly frequency whereas GDP growth rates are quarterly or annual. Also, it appears from Table 4 that the minimum GDP figure (billion IDR) is 433.33, which casts doubt about the possibility of measurement errors.

10- As with the GDP, it is not clear why the notion of Value-at-Risk is used in the present analysis. In particular, it is argued in page 19 that “equity financing has lower potential losses when economic conditions are poor. This economic recession will cause business actors to suffer greater losses. Poor economic conditions will negatively influence equity financing, which is larger than debt-based financing.” This is the essence of equity financing as equity returns are intrinsically related to the performance of the real economy, and thus the growth rate in real GDP.

11- It seems from tables 4 and 5 that it is the levels of GDP figures that are used in this empirical analysis. Growth rates have a stronger tendency to be stationary, and it is important to compare the results of stationarity tests, cointegration tests and Granger-causality tests based on the GDP levels and differences (growth rates). For the sake of consistency in the methodological approach, it is not the level of GDP but the growth rate of GDP that should be used in the analysis of returns on Islamic financing products.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: 1- It should be stated at this level that it is difficult to draw strong conclusions from weak premises or evidence that is not compelling. The only evidence available is based on Granger-causality tests, but these shed light on the direction of causality that does not allow to state with some level of confidence that the income or rate of return on Islamic financing products is predetermined on the basis of interest rates.

2- It is argued by the author(s) in the abstract that “[t]here is a link between interest rates and the equivalent rate of IB financing income due to the role of the GDP. GDP will improve the business performance of customers and subsequently increase the equivalent rate of IB financing income.” It is however noted that GDP itself does not improve the business performance of customers, it is just a measure of economic activities. It is expectations of positive GDP growth rates that lead to expectations about good business performance. However, the realized rate of return on Islamic financing products will depend on the rate of return in the real economy, and thus the realized profits or losses from real investment projects.

3- With respect to the statistics of equity financing in Indonesia, it is argued in page 3 that “the debt financing ratio is greater than the debt-based financing ratio, equity financing has a greater growth than debt-based financing… This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non interest-free practices.” It should be noted that higher risk associated with income from equity financing is not a weakness. Theoretically at least, higher systematic risk is associated with higher expected return. Also, suspicions about the certainty of income from equity financing should be founded on the notion of fixed income and risk transfer from banks to investors rather than the notion of steady and stable income. The important distinction should be made between steady and fixed income, which reflect the properties of the income-generating asset. Thus, the finding that the growth rate of equity financing is higher than that of debt-based financing cannot be understood as systematic evidence of deviations from the principle of profit-loss sharing.

4- In relation to Table 4, it is stated in page 12 that “[t]he standard deviation of the equivalent rate of equity financing income is 2.09, and that of debt-based financing is 10.81.” The standard deviation for the latter is 1.15 not 10.81.

5- The results reported in Table 5 indicate that it is not possible to reject the null hypothesis that the interest rate on conventional banking does not Granger-cause the ratio of income from equity-based and debt-based financing to total financing. It is not possible either to reject the hypothesis that GDP does not Granger-cause the latter ratio. On aggregate, the evidence suggests that the direction of causality runs from both GDP and interest rates toward income from Islamic financial products.

6- It is stated in page 14 that “we tested the relationship of GDP to interest income and the equivalent rate of IB financing income. This test is intended to strengthen the assumption.” It should read “the relationship of GDP to income on IB financing” because the GDP-based test is not related to interest rates from conventional banking. Also, it is not clear which assumption this test is meant to strengthen. If this is to better understand the evidence about interest rates Granger-causing income from Islamic financing products, then it is about an empirical result not about an assumption.

5. Practicality and/or Research implications: Does the paper identify clearly any implications for practice and/or further research? Are these implications consistent with the findings and conclusions of the paper?: 1- The paper provides some new evidence about the relationship between income from Islamic financing products and interest rates. There are some concerns about measurement problems and methodological issues. The evidence is neither conclusive, nor compelling because Granger-causality tests may provide some insights on the direction of causality but cannot capture the nature of the relationship. The results suggest that the null hypothesis that interest rates from conventional bank deposits does not Granger-cause the “equivalent rate” from Islamic financing cannot be rejected. However, evidence that interest rates lead income or returns on Islamic financing products does not necessarily imply that the latter is predetermined by the former.

2- From the perspective of policy recommendations, it is difficult to provide make strong suggestions in the absence of conclusive evidence. The important question remains as to whether the returns on Islamic financing products are predetermined and fixed or are intrinsically stable because of the stable cash-flows generated by the underlying assets. It is difficult to settle this important issue on the basis of Granger-causality tests alone, which are suggestive about the direction of causality. Statistical and econometric models can provide useful evidence, which cannot be simply dismissed. As argued by the author(s), further evidence based on retail bank data may strengthen the statistical results. But fundamentally, this is a regulatory and supervisory issue, which is best addressed on the basis of information about the determination of return on Islamic financing products.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: 1- Judging from the typo, grammatical mistakes, and inconsistencies between statements made by the author(s) with statistics reported in tables, it appears that the quality of writing needs to be improved.

2- It is argued in page 3 that “Table 2 shows that in the observation years, the Indonesian IB had an average equity financing of 35.45%. The equity financing ratio is lower than the debt-based financing ratio (65.55%). The equity financing ratio is lower than the debt-based financing ratio (65.55%). However, as seen from its growth (lines 3 and 4), equity financing has a greater average growth (26.93%) than the debt-based financing (22.68%).” It is however noted from Table 2 that the average equity financing ratio of 35.46% (not 35.45%) is obviously lower than the debt-based financing ratio of 64.54% (not 65.55%), and that the average growth rates are 27.08% (not 26.93%) and 22.75% (not 22.68%) for equity- and debt-based financing. For the sake of easier reading and to avoid any confusion, it is important that information stated in the text is consistent with figures appearing in tables.

3- With reference to page 4, it seems that Wadiah is defined (or understood as inclusive of) giro transfer. Generally, wadiah accounts are based on trust with deposits made for custody and safekeeping purposes. Thus, giro transfer is merely part of the type of transactions associated with wadiah accounts.

4- It is stated in page 6 that “Yusof et al. (2015) found that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates.” Perhaps what is meant is “… no relationship between profit-loss sharing (PLS) and interest rates.”

5- There is a need to provide further explanation and correct typo or grammatical errors in the following statements.
- page 4- “However, the debtor is responsible if they incur a loss following an error or negligence (Warninda et al., 2019)”, (using “they” when the debtor is singular)
- page 5- It is stated that “This is because PLS is more in line with the basic principles of Islamic finance where there is no income without risk”. It should read “… without risk bearing”.
- page 5- It is stated that “CB interest rates determine the returns of B”, which should read “IB”.
- page 10- Table 3, “debt-based financing” should be perhaps replaced by “equity-based financing” in the description of NPL-PLS.
- page 13, “Granger test” and “stationary” should read “Granger causality test” and “stationarity”.

6- The statement in page 11 that “Further, the type of data we used was in the time series” needs to be rephrased.

7- VAR is invariably used to indicate vector autoregression (page 9, 11, 13) and value-at-risk (pages 4, 10, 19). It is the former that is usually referred to as VAR whereas the value-at-risk is referred to as VaR.

8- It is not clear what is meant by “sequential” financing risk in page 12.

9- The statement in page 19 that “However, Table 4 shows that in 2015, equity financing still produced a higher VAR than

debt-based financing" is made perhaps with reference to Table 6 not Table 4.

10- In page 20, the statement that "This study proves the debate on whether IB have conducted their normative PLS transactions" should read "This study contributes to the debate …"

Do the title and abstract clearly indicate the content of the paper? Are all the tables and illustrations necessary? Are there ways in which the article could be shortened without losing value?: There are no major issues with the abstract, which reflects the contents of the paper. The title seems to be too general however, and it is better to focus on the main question of the extent to which the return from Islamic financing instruments may be determined by interest rates.

Hasan Mukhibad <hasanmukhibad@mail.unnes.ac.id> Wed, Jun 16, 2021 at 4:04 PM
To: Doddy Setiawan <doddy.setiawan@gmail.com>

[Quoted text hidden]

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Hasan Mukhibad
Accounting Department, Economics Faculty
Universitas Negeri Semarang
Indonesia

5. Bukti konfirmasi submit revisi kedua, respon kepada reviewer, dan artikel yang diresubmit

(19 Juli 2021)

Referee 1

Indicators	Comments from Referee	Our Comments/revisions
Comments	Yes, it is an interesting paper to compare the different rates in both conventional and Islamic banks. However, I have some observations in the paper.	Thank you very much
	Based on the hypotheses 3 and 4, the authors have to test the granger-causality test between the conventional and Islamic banks. However, the sample size is only Islamic banks, I wonder how the authors compare between these two without sample of conventional banks. This is my main concern of the paper.	I apologize for our mistake. We use conventional bank lending interest rate (CBLIR) as one of the research data. We have added conventional bank (CB) as the research sample. See abstract-with yellow highlight-page 1) and method part (see page 8, with yellow highlight).
	No,, the title is misleading,,, initially I thought how these authors combine equity, sukuk and Islamic banks.. However, the authors focus on different financing types in the Islamic banks. therefore, the authors should revise the title,.	We have changed it to: "Equity-Based Financing, Debt-Based Financing, Fixed Income, and Interest-Free Evidence from Islamic Bank in Indonesia". Thank you very much for your recommendation. See the title-with yellow highlight-page 1)
Originality: Does the paper contain new and significant information adequate to justify publication?:	Yes, it is an interesting paper to compare the different rates in both conventional and Islamic banks. However, I have some observations in the paper.	Thank you very much

Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?:	Yes, it is well presented and the hypotheses developments are satisfactory	Thank you very much
Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?:	Based on the hypotheses 3 and 4, the authors have to test the granger-causality test between the conventional and Islamic banks. However, the sample size is only Islamic banks, I wonder how the authors compare between these two without sample of conventional banks. This is my main concern of the paper.	Thank you for your correction. We have revised it to: "This study uses as objects islamic bank and conventional banks in Indonesia". See page 8 – with yellow highlight.
Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?:	As i mentioned in my previous section, how the authors get the granger-causality test without sample of conventional banks. Please explain it.	We apologize for this error. In the method section, we use conventional bank lending interest rates (CBLIR), so we have added conventional banks as research samples. Thank you for your correction. See abstract-with yellow highlight-page 1) and method part (see page 8, with yellow highlight).
Practicality and/or Research implications: Does the paper identify clearly any implications for practice	yes, it is provided,	Thank you very much

and/or further research? Are these implications consistent with the findings and conclusions of the paper?:		
Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership?	Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: All Arabic words must be italic. The paper must be proofread by professional language editor if the paper is considered. Do the title and abstract clearly indicate the content of the paper? Are all the tables and illustrations necessary? Are there ways in which the article could be shortened without losing value?: No,, the title is misleading,,, initially I thought how these authors combine equity, sukuk and Islamic banks.. However, the authors focus on different financing types in the Islamic banks. therefore, the authors should revise the title,.	We have revised the title of the paper and this manuscript has been proofread by a professional proofreader – editage).

Referee 2

Indicators	Comments from Referee	Our Comments/revisions
Comments	The paper addresses the question of whether the relative levels of income or returns on Islamic financing products are governed by interest rates. The important issue is examined using Granger-causality tests only. As noted in this reviewer report, Granger-causality tests provide some evidence about the direction of causality, but this evidence cannot be conclusive. Stable rates of return on Islamic financing products may behave like interest rates, which are fixed and predetermined a priori. Stability may not be indicative of predetermined rates as reflective of the nature of stable income generated by the underlying assets.	Thank you for. In this revised paper, we have replaced the data analysis method using Vector Error Correction Model (VECM). We use VECM because the VAR Stability test result in the value of modulus less than 1 and indicates that VAR satisfies the stability condition. See our abstract (page 1) and method (page 9) with yellow highlight.
	This review report raises some concerns about a number of issues. The most serious of concerns is about the methodology. Granger-causality tests may provide some evidence about the direction of causality from interest rates to the rates of return or income on Islamic financing products. They cannot shed light on whether the rates of return are predetermined. There are also issues with measurement problems as with the reported figures of GDP, and the reliance	In this revised paper, we have changed the research method. We use VECM and data analysis with the following steps: 1. Data stationary test, the study used the Augmented Dickey-Fuller test (ADF) and Phillip-Perron (PP) 2. Select the optimal lag base on Akaike Information Criteria (AIC).

	on GDP levels rather than GDP growth rates. Given these methodological issues and in the absence of conclusive and compelling evidence, it is difficult to make practical or policy recommendations.	3. VAR stability test using the AR Root table. 4. Cointegration test based on maximum eigenvalue and trace statistics. 5. Granger causality test. 6. Impulse Response Function. See page 8-9 with yellow highlight. In this revised paper, we do not use GDP as a variable because the VECM test results show that there is no causality between the IB return rate (IBRR) and the CB Lending Interest Rate (CBLIR). In a previous paper (before revision), we found a correlation between IBRR and CBLIR and we used GDP to explain the correlation between IBRR and CBLIR. Thank you for the review.
	Some suggestions are made to improve the quality of the paper in terms of including other analytical models such as VAR and Impulse response functions. But these potential improvements cannot provide	We have improved this article according to reviewers' suggestions. We use VECM. Thank you very much.

	remedies for the measurement problems and poor communication.	
	There are signs of excellent work in collecting data by the author(s), and attempts are providing a good account of the empirical evidence. But there are still concerns about measurement errors, methodological issues, and quality of communication. This long review report explains some of these issues. And it is hoped that the author(s) will take the humble recommendations included in this review to improve the quality of the paper.	Thank you for your suggestions to improve the quality of our paper. We have revised this paper according to reviewers' suggestions. We hope that this revision meets the expectations of reviewers.
	Thus on aggregate, though this reviewer has opted for "Major Revision" based on the willingness to review a more decent version, the serious issues justify "Rejection".	We have revised this paper according to reviewers' suggestions. We hope that this revision meets the expectations of reviewers.
Originality: Does the paper contain new and significant information adequate to justify publication?:	1- The paper addresses the issues of whether equity financing is associated with fixed income, and whether the returns on the financing instruments by Islamic banks are related to interest rates. This is an important issue given the limited evidence and the usual focus placed on sukuk as “fixed income” instruments rather than the “fixed income” on musharakah and mudharabah financing. As noted by the author(s), previous studies such as Khalidin and Masbar (2017) and Šeho et al. (2020) examine the issue of whether Islamic	Thank you very much.

	banking products are genuinely interest-free. Whereas similar studies such Chong and Liu (2009) and Yuksel (2017) focus on savings products, this paper provides new evidence about the relation between the returns on equity-based and debt-based financing. It also considers the relation of returns on equity-based financing with interest rates and GDP.	
	2- The paper is an attempt to provide new evidence about the proposition that equity-based financing generates fixed income through the replication of conventional financial products. The empirical evidence is based on time-series observations from Indonesian Islamic banks and Granger-causality tests. These tests provide only some indication about the cause-effect relationship and direction of causality between two variables. Thus, evidence from Granger causality that interest rates lead the returns on equity financing may be indicative of deviations from the principal purposes and optimal modus operandi of equity financing. In addition, the paper provides further evidence based on Value-at-Risk analysis about the risks to business continuity associated with equity financing. It is not clear how these additional tests shed light on the empirical question about	Thank you very much. We have deleted the Value at Risk (VaR) analysis because this analysis is not related to the hypothesis. Our additional test is the impulse response according to the reviewer's suggestion.

	the direction of causation between income from Islamic financing and interest rates.	
	3- It should be noted that evidence of a significant relationship between income on Islamic banking products and interest rates does not necessarily imply the predetermination of profit rates or benchmarking on interest rates. Furthermore, the income smoothing practices where profit payouts to investment account holders are based on profit equalization reserves may be the source of additional confusion. The objective of income smoothing practices may be to secure a "stable" rather than "predetermined and fixed" rate of return on investment account. These practices may not necessarily mean the predetermination of income on the underlying asset itself. Given the various theoretical interpretations, practical and regulatory issues (see the related Guidance Note from the Islamic Financial Services Board, December 2010), the empirical results should be interpreted with caution. Evidence of co-movement or convergence of the relative income or return on Islamic financing toward deposit rates from conventional banks does not necessarily indicate the predetermination of the rate of return on Islamic financing instruments.	Thank you very much. This study uses IB Financing Return Rate (IBFRR) and CB lending Interest Rate (CBLIR). This study shows that IBFRR and CBLIR are not correlated with each other. These results indicate that Islamic bank financing is interest-free.

	4- Thus, on aggregate, the paper does contain some new insights about the important issue, but the evidence is rather limited both in time, geographical scope, and methodology. In the absence of robustness tests, the evidence may be regarded as sample dependent. The methodological approach is based on a single test of Granger causality, which may capture the direction of causality but does not offer insights about the nature of this relationship.	Thank you very much. Our study uses the latest data and a long-time span from 2009 to 2019. We started in 2009 because, in 2009, many Islamic banks in Indonesia did spin-offs from sharia business units to become sharia commercial banks. Thus, the results of this study reduce time constraints and the results of this study can be used in other countries. In this revised paper, we change the method to VECM with the following stages of analysis: 1. Data stationary test, the study used the Augmented Dickey-Fuller test (ADF) and Phillip-Perron (PP) 2. Select the optimal lag base on Akaike Information Criteria (AIC). 3. VAR stability test using the AR Root table. 4. Cointegration test based on maximum eigenvalue and trace statistics. 5. Granger causality test. 6. Impulse Response Function.

		We believe that this method can improve the quality of the paper. Thank you very much.
2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?:	1- The paper is well written insofar that the relationship with literature is concerned. There is a serious attempt to provide a concise account of relevant studies, both at the level of the introduction, literature review and discussion of results.	Thank you very much.
	2- It is argued by the author(s) in page 5 that the Quranic verse 2:275 implies "the legal principle that loss is commensurate with profit and return is commensurate with responsibility (Šeho et al., 2020)." It is not clear how losses can be "commensurate" with profits and returns with responsibilities when losses and profits are mutually exclusive. Profits cannot be proportional to losses and vice versa, as they are mutually exclusive. Returns are also function of the realization of profits or losses. The verse simply states the difference between the permissibility of trade and prohibition of usury. It implies that whereas permissibility can be justified by the	We adopt this statement from (Šeho, Bacha, & Smolo's (2020) statement. However, we have revised it into the sentence "Interest is an unfair transaction because the profits are realized from load without sharing risk or risk-free (Rosly & Abu Bakar, 2003; Belal, Abdelsalam, & Nizamee, 2015). The argument reflects the legal principle that loss is commensurate with return and earning is commensurate with liability (Šeho et al., 2020)". (See page 5 with yellow highlight).

	notion of profit-loss sharing in the former, impermissibility can be based on the notion of risk transfer in the latter.	
	3- It is stated by the author(s) in page 17 that "Yusof et al. (2015) argue that the correlation between revenue sharing and interest may be caused by GDP; GDP is one of the factors that determine interest. Additionally, GDP will also affect the income of IB because IB that use PLS transactions make their income highly dependent on economic growth." It is difficult however to find clear reference to this argument about the GDP in in the study by Yusof et al. (2015). A close argument is made therein in pages 79-80 to the effect that "interest rates fluctuate mainly based on forecasts of future economic activity," and that it is legitimate for Islamic banks to set "profit rates in accordance to what they expect as a profit on economically sound projects funded by the bank which is also linked to the real rates of interest". It is further argued that "the real rate of interest is impacted by factors such as industrial production, unemployment, opportunity cost of capital, etc. which represent factors linked to the real economy."	As suggested by the reviewer, we replaced the data analysis method with VECM. The results of the study found that IBFRR did not correlated with CBLIR. So, in this paper, we do not use the GDP variable anymore and our focus is on answering the hypothesis. Thank you very much.
	4- Thus, it may be argued that GDP growth rate can be taken as proxy for	Thank you for the advice. We have revised it by not testing the

	return on the real economy. But it is important to avoid misconceptions leading to potential confusion and misunderstanding in this respect. Yusof et al. (2015) argue that profit rates in Islamic banking may be based on the expected profits generated from projects, and that the expected level of profits is linked to the real rates of interest. It seems that the "rate of return on the real economy" is confounded with the "real rate of interest". It is important however to make a clear distinction between the "rate of return on the real economy", which reflects the growth rate of the real economy and the "real rate of interest", which is defined as the difference between the nominal interest rate and inflation rate. Both the rate of return on real investment and real rate of interest are driven by expectations and can be determined ex ante. But the issue is whether the realized returns are considered to be fixed and independent of possible states of the world (real rate of interest) or allow to vary depending on the observed performance of the investment projects (return on the real economy).	correlation between CBLIR, GDP and IBLRR because the results of VECM analysis found that IBLRR does not correlate with CBLIR.
3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or	1- The empirical analysis is concerned with four null hypotheses about Granger-causality between (1) returns on equity-based and debt-based financing, (2) equity-	Thank you very much

other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?:	based financing and debt-based financing risks, (3) return on equity-based financing and interest rates, and (4) return on Islamic financing products and interest rate on conventional banking.	
	2- With respect to the second null hypothesis, it is stated in page 7 that "[i]n addition to the risk of uncertainty, one of the factors that distinguishes between equity and debt-based financing is credit risk." It is noted that risk should be distinguished from uncertainty, and that uncertainty is not a risk factor. Uncertainty may be understood as the possible existence of two or more states of the world. Obviously, there is no uncertainty in the presence of a single state. There is no risk in case of certainty. In a world of uncertainty, risk can be measured with deviations from the expected value, which is in turn estimated on the basis of probability distribution covering all possible states of the world.	We mean the uncertainty in obtaining returns. In mudharaba and musyaraka financing, banks as *shohibul maal* have uncertainty in getting returns than debt-based financing. However, we have revised this sentence to "The other factors that distinguish between EBF and DBF is credit risk". See page 7 with yellow highlights.
	3- Also in relation to the second null hypothesis, it is stated in page 7 that "[t]he findings of previous studies state that the factors that cause low equity financing are high credit risk." It is further argued that	Thank you for the review. The hypothesis is that EBF has a greater risk than DBF is based on the findings (Abusharbeh, 2014)

	"equity financing unlike debt-based financing, tends to increase credit risk" and that "equity financing can reduce risk." Given the above distinction between risk and uncertainty, it is difficult to understand these statements because equity financing does not increase or reduce investment risk. With respect to credit risk, it is debt-based financing that is associated with credit risk not equity financing since the risk of default on scheduled payments can only be related to debt not equity.	(Mukhibad and Khafid, 2018) Grassa (2012) (Misman *et al.*, 2020). Every year, the Financial Services Authority (OJK) publishes performance reports of Islamic banks in the form of Islamic banking statistics. In this report, OJK presents NPF or NPL data for each type of financing. The annual report of all Islamic banks in Indonesia also presents information on NPF/NPL for all types of financing. So that NPF/NPL can occur in DBF and EBF. In EBF transactions in IB in Indonesia, entrepreneurs will return the financing principal and profit-sharing (according to the results of the entrepreneur's performance reported by the entrepreneur) to the bank every month. The late payment results in an NPF. However, we add the reviewer's suggestion by writing the following sentence: "The other factor that distinguishes between EBF and DBF is credit risk. (Abusharbeh, 2014) and (Mukhibad and Khafid, 2018), using a sample of IB in Indonesia

		found a positive relationship between the EBF ratio and NPF. IB in Indonesia prefer to use DBF to control bank risk (Abusharbeh, 2014). Grassa (2012), using a sample of IB in GCC countries, concluded that greater revenue sharing leads to higher levels of risk for IB. Thus, IBs with high EBF tend high credit risk (Misman *et al.*, 2020) (Ariffin, Archer and Karim, 2009) (Khan and Ahmed, 2001). The high credit risk on EBF is due to the high income from EBF (Grassa, 2012). In addition, the high credit risk in EBF due to agency problems (Dar & Presley, 2000; Beck, Demirgüç-Kunt, & Merrouche, 2013); information asymmetry (Warninda, Ekaputra and Rokhim, 2019) (Muda and Ismail, 2010); and moral hazard (Mahmood and Rahman, 2017). On the contrary, other literatures argue that EBF can reduce credit risk (Chong and Liu, 2009) (Zeineb and Mensi, 2014). EBF promote IB to perform due diligence and strict supervision of their financing. In order to avoid moral hazard and adverse selection, IB

		evaluate entrepreneur eligibility strictly, so that credit risk can be reduced (Warninda, Ekaputra and Rokhim, 2019). (Warninda, Ekaputra and Rokhim, 2019) support this hypothesis and found that the addition of EBF can reduce NPF. The difference in the results of this study provides evidence that there is weak evidence that EBF has a greater credit risk than DBF. However, descriptive findings (table 4) show that EBF has a lower credit risk (4.19%) than DBF (4.24%). This fact is difficult to support the hypothesis that EBF has greater credit risk than DBF. However, we argue that this fact indicates that there is a risk difference between EBF and DBF. In accordance with the purpose of this study is to empirically examines whether EBF similar to DBF, then we develop the following hypothesis: See page 7-8 with yellow highlight.
	4- There are however concerns about the power of Granger-causality tests in providing evidence about the pre-determination of the rate of return on Islamic financing instruments. Generally,	Thank you for the advice. We have replaced the method with VECM. In the method section, we have listed the following steps in VECM:

	Granger-causality tests are part of a battery of preliminary tests that examine the distributional properties of time-series including stationarity and cointegration tests as well as the correlation structure between variables. provide preliminary evidence on the relation between two variables. However, they represent the only tests reported in this paper. For instance, Chong (2009) and Yuksel (2017) used Granger-causality tests, but it is possible as in Yuksel (2017) to include the vector autoregression (VAR) analysis to examine the correlation structure between conventional deposit rates and the profit–loss sharing ratio of Islamic Banks. It is possible to draw on this VAR methodological approach to also consider the impulse response functions, which may provide further evidence on the shape and duration or decay of the response of variables to shocks in another.	1. Data stationary test, the study used the Augmented Dickey-Fuller test (ADF) and Phillip-Perron (PP) 2. Select the optimal lag base on Akaike Information Criteria (AIC). 3. VAR stability test using the AR Root table. 4. Cointegration test based on maximum eigenvalue and trace statistics. 5. Granger causality test. 6. Impulse Response Function. See page 9 with yellow highlight.
	5- Granger-causality tests are based on bivariate regressions, according to the equations described in the paper (should be numbered). F-statistics represent the Wald statistics for the null hypothesis that Y does not Granger-cause X, or b_1=b_2=⋯=b_n=0 for the first equation. Similarly, the null hypothesis that X does not Granger-cause Y is represented	We have replaced the method using VECM, so the equation model has also changed. These changes are presented on page 8 with yellow highlights.

	by d_1=d_2=⋯=d_S=0 for the second equation. It is stated in page 9 that: (1) "there is a causality between the variable X to Y if …" should read "the direction of causality runs from X to Y if …" (2) similar to explanation above. (3) there is no causality (no relationship) between the variables if …". (4) "there is causality between the two if …" should read "the direction of causality between the two variables is not clear if …".	
	6- The paper refers to the "equivalent rate" of income on equity-based or debt-based financing, or income on Islamic bank or conventional bank financing. In conventional finance, the notion of annual equivalent rate refers to the effective or actual rate of interest after taking compounding into consideration. This may be the source of confusion, in particular when the linkage between the "equivalent rate" on equity financing and interest rates is examined. Judging from the definitions included in Table 3, it appears that the "equivalent rate" is measured as the ratio of revenue to average amount of financing. As such, this ratio does not measure the rate of return on investment,	Thank you for the advice. Based on the literature, we use the following variables: 1. Equity-Based Financing Return Rate (EBFRR) 2. Debt-Based Financing Return Rate (DBFRR) 3. Islamic Bank Financing Return Rate (IBFRR) 4. Equity-Based Financing Risk (EBFRRISK) that measure by Non-Performance Financing (NPF); 5. Debt-Based Financing Risk (DBFRRISK) that measure by Non-Performance Loan (NPL);

	and it cannot be construed as "equivalent" to the rate of return. Revenue should be distinguished from return, because profits and losses are measured after accounting for related expenses and costs. It is important tot make this distinction as in Figure 1 where the issue of "income uncertainty" and "income volatility" rather than "return volatility" is rightly addressed by the author(s). Thus, although the "equivalent rate indicator" is used by regulators, it is better to avoid the use of the term "equivalent rate" in the empirical analysis and discussion of results.	6. Conventional Bank Lending Interest Rate (CBLIR) We have used this variable consistently throughout the body of the paper. All data are sourced from Islamic banking statistical and Indonesian banking statistical issued by the Financial Services Authority (OJK). OJK has published the NPL for each type of financing as shown in table 4. See page 9 with yellow highlights.
	7- Reference is made in page 5 to NPL, which should be explained as non-performing loans. The definition of the variables NPL_PLS as the ratio of "non-performing loans" to equity-based financing (need to correct debt-based financing in Table 3) may be also misleading because in equity financing, there are strictly no "loans" and no issues of "non-performing loans".	Thank you for the advice. We use Non-Performing Financing (NPF) for Equity-Based Financing and Non-Performing Loans (NPL) for Debt-Based Financing (DBF).
	8- It is stated in page 9 that "We further performed stationarity, cointegration, and VAR lag order tests to ensure the correlation between the two variables. We	Thank you. We have revised it.

	used these tests because they can explain 2-way causality. Further, the type of data we used was in the time series." Similar statements are also made in page 11 where it is stated that "We performed stationarity, cointegration, and VAR lag order tests before the Granger causality test. We used these tests because they can explain two-way causality. Further, the type of data used was time series data." It is important to avoid redundant statements.	
	9- The theoretical justification for the use of GDP as control variable is not clear. It is tautological that return on investment, whether equity-based or debt-based financing, is intrinsically related to the rate of growth in the real economy. It is stated in page 11 with respect to Table 4 that monthly data are used for 11 years, but there may be measurement problems with different data frequencies. It is understood that returns observations for equity and debt-based financing have monthly frequency whereas GDP growth rates are quarterly or annual. Also, it appears from Table 4 that the minimum GDP figure (billion IDR) is 433.33, which casts doubt about the possibility of measurement errors.	Thank you for the advice. GDP data is measured monthly. Data sourced from the Indonesia Statistics Agency (Badan Pusat Statistik – BPS). However, in this revised paper, we no longer use GDP.

	10- As with the GDP, it is not clear why the notion of Value-at-Risk is used in the present analysis. In particular, it is argued in page 19 that "equity financing has lower potential losses when economic conditions are poor. This economic recession will cause business actors to suffer greater losses. Poor economic conditions will negatively influence equity financing, which is larger than debt-based financing." This is the essence of equity financing as equity returns are intrinsically related to the performance of the real economy, and thus the growth rate in real GDP.	Thank you very much. We have revised it. In this paper, our focus is to answer the hypothesis. We have deleted the Value at Risk (VaR) analysis because this analysis is not related to the hypothesis.
	11- It seems from tables 4 and 5 that it is the levels of GDP figures that are used in this empirical analysis. Growth rates have a stronger tendency to be stationary, and it is important to compare the results of stationarity tests, cointegration tests and Granger-causality tests based on the GDP levels and differences (growth rates). For the sake of consistency in the methodological approach, it is not the level of GDP but the growth rate of GDP that should be used in the analysis of returns on Islamic financing products.	Thank you very much for your suggestion. In this revised paper, we no longer use GDP.
4. Results: Are results presented clearly and	1- It should be stated at this level that it is difficult to draw strong conclusions from	We have supplemented the research method with VECM. VECM

analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?:	weak premises or evidence that is not compelling. The only evidence available is based on Granger-causality tests, but these shed light on the direction of causality that does not allow to state with some level of confidence that the income or rate of return on Islamic financing products is predetermined on the basis of interest rates.	analysis uses stages as used by previous studies, including: 1. Data stationary test, the study used the Augmented Dickey-Fuller test (ADF) and Phillip-Perron (PP) 2. Select the optimal lag base on Akaike Information Criteria (AIC). 3. VAR stability test using the AR Root table. 4. Cointegration test based on maximum eigenvalue and trace statistics. 5. Granger causality test. 6. Impulse Response Function.
	2- It is argued by the author(s) in the abstract that "[t]here is a link between interest rates and the equivalent rate of IB financing income due to the role of the GDP. GDP will improve the business performance of customers and subsequently increase the equivalent rate of IB financing income." It is however noted that GDP itself does not improve the business performance of customers, it is just a measure of economic activities. It is expectations of positive GDP growth rates that lead to expectations about good business performance. However, the	Since we have revised the research method (from granger to VECM), the research results have also changed. In the abstract, we revise the results of the study as follows: "This study provides evidence for the fact that contrary to DBF products, EBF does not have fixed income. EBF in Indonesian IB has been carried out in line with its epistemology. CB Lending Interest Rate (CBLIR) is correlated with the equivalent rate of IB Financing Return Rate (IBFRR). Further, our

	realized rate of return on Islamic financing products will depend on the rate of return in the real economy, and thus the realized profits or losses from real investment projects.	result shows that EBF and IB financing line with the epistemology and have implemented the Islamic law". See page 1 with yellow highlight.
	3- With respect to the statistics of equity financing in Indonesia, it is argued in page 3 that "the debt financing ratio is greater than the debt-based financing ratio, equity financing has a greater growth than debt-based financing… This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non interest-free practices." It should be noted that higher risk associated with income from equity financing is not a weakness. Theoretically at least, higher systematic risk is associated with higher expected return. Also, suspicions about the certainty of income from equity financing should be founded on the notion of fixed income and risk transfer from banks to investors rather than the notion of steady and stable income. The important distinction should be made between steady and fixed income, which reflect the properties of the income-generating asset. Thus, the finding that the growth rate of equity financing is higher than that of debt-based financing cannot be understood as	Thank you for the recommendations. Table 2 presents the growth of EBF and DBF which shows that Indonesia has a higher EBF growth than DBF. Our proposition that EBF growth leads to EBF practices similar to DBF is based on a study from (Hidayah, Lowe, & Woods, (2019). (Hidayah, Lowe, & Woods's, (2019) study states that IB attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the bank to the entrepreneurs. (Hidayah et al., 2019) using a qualitative approach and using 11 managers of Islamic banks in Indonesia as part of respondents. We revised the sentence as follows: "This fact becomes a temporary conjecture that the existing weaknesses in EBF such as asymmetric information that results in adverse selection problem and moral hazard, is diminishing

	systematic evidence of deviations from the principle of profit-loss sharing.	(Azmat, Skully and Brown, 2015). Also, sharing risk among banks and entrepreneurs in EBF contracts is reduced. We suspect that the certainty about the acquisition of return on EBF is similar to that on DBF". See page 3 with yellow highlights.
	4- In relation to Table 4, it is stated in page 12 that "[t]he standard deviation of the equivalent rate of equity financing income is 2.09, and that of debt-based financing is 10.81." The standard deviation for the latter is 1.15 not 10.81.	Thanks for the correction. We have revised it. See page 10 with yellow highlights.
	5- The results reported in Table 5 indicate that it is not possible to reject the null hypothesis that the interest rate on conventional banking does not Granger-cause the ratio of income from equity-based and debt-based financing to total financing. It is not possible either to reject the hypothesis that GDP does not Granger-cause the latter ratio. On aggregate, the evidence suggests that the direction of causality runs from both GDP and interest rates toward income from Islamic financial products.	Thank you very much. This revised paper does not use GDP.
	6- It is stated in page 14 that "we tested the relationship of GDP to interest income and the equivalent rate of IB financing income.	Thank you very much. This revised paper does not use GDP.

	This test is intended to strengthen the assumption." It should read "the relationship of GDP to income on IB financing" because the GDP-based test is not related to interest rates from conventional banking. Also, it is not clear which assumption this test is meant to strengthen. If this is to better understand the evidence about interest rates Granger-causing income from Islamic financing products, then it is about an empirical result not about an assumption.	
5. Practicality and/or Research implications: Does the paper identify clearly any implications for practice and/or further research? Are these implications consistent with the findings and conclusions of the paper?:	1- The paper provides some new evidence about the relationship between income from Islamic financing products and interest rates. There are some concerns about measurement problems and methodological issues. The evidence is neither conclusive, nor compelling because Granger-causality tests may provide some insights on the direction of causality but cannot capture the nature of the relationship. The results suggest that the null hypothesis that interest rates from conventional bank deposits does not Granger-cause the "equivalent rate" from Islamic financing cannot be rejected. However, evidence that interest rates lead income or returns on Islamic financing	Thank you for the review. In this revised paper, we have used VECM and found that IBFRR and CBLIR are not correlated. All variables are measured by percentage and we obtain this data from the Islamic banking statistical and Indonesia banking statistical issued by the Financial Services Authority (Otoritas Jasa Keuangan - OJK). OJK is the bank regulator in Indonesia.

	products does not necessarily imply that the latter is predetermined by the former.	
	2- From the perspective of policy recommendations, it is difficult to provide make strong suggestions in the absence of conclusive evidence. The important question remains as to whether the returns on Islamic financing products are predetermined and fixed or are intrinsically stable because of the stable cash-flows generated by the underlying assets. It is difficult to settle this important issue on the basis of Granger-causality tests alone, which are suggestive about the direction of causality. Statistical and econometric models can provide useful evidence, which cannot be simply dismissed. As argued by the author(s), further evidence based on retail bank data may strengthen the statistical results. But fundamentally, this is a regulatory and supervisory issue, which is best addressed on the basis of information about the determination of return on Islamic financing products.	Thank you for the review. In this revised paper, we have used VECM and found that IBFRR and CBLIR are not correlated. We have carried out the VECM step, so our results are more valid than the previous paper.
6. Quality of Communication: Does the paper clearly express its case, measured against the	1- Judging from the typo, grammatical mistakes, and inconsistencies between statements made by the author(s) with statistics reported in tables, it appears that	Thank you. In this revised paper, we have used the term variable consistently. The variable are: 1. Equity-Based Financing Return Rate (EBFRR)

technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.:	the quality of writing needs to be improved	2. Debt-Based Financing Return Rate (DBFRR) 3. Islamic Bank Financing Return Rate (IBFRR) 4. Equity-Based Financing Risk (EBFRRISK) that measure by Non-Performance Financing (NPF) 5. Debt-Based Financing Risk (DBFRRISK) that measure by Non-Performance Loan (NPL) 6. Conventional Bank Lending Interest Rate (CBLIR) This paper has also been proofread by a professional (Editage).
	2- It is argued in page 3 that "Table 2 shows that in the observation years, the Indonesian IB had an average equity financing of 35.45%. The equity financing ratio is lower than the debt-based financing ratio (65.55%). The equity financing ratio is lower than the debt-based financing ratio (65.55%). However, as seen from its growth (lines 3 and 4), equity financing has a greater average growth (26.93%) than the debt-based financing (22.68%)." It is however noted from Table 2 that the average equity financing ratio of 35.46% (not 35.45%) is obviously lower than the debt-based	Thanks for the correction. We have revised it. This error is due to data rounding. See page 3 with yellow highlights.

	financing ratio of 64.54% (not 65.55%), and that the average growth rates are 27.08% (not 26.93%) and 22.75% (not 22.68%) for equity- and debt-based financing. For the sake of easier reading and to avoid any confusion, it is important that information stated in the text is consistent with figures appearing in tables.	
	3- With reference to page 4, it seems that Wadiah is defined (or understood as inclusive of) giro transfer. Generally, wadiah accounts are based on trust with deposits made for custody and safekeeping purposes. Thus, giro transfer is merely part of the type of transactions associated with wadiah accounts.	Thanks for the correction. We have replaced them with "demand deposits". We use this term based on the Islamic banking statistical issued by the Financial Services Authority (OJK).
	4- It is stated in page 6 that "Yusof et al. (2015) found that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates." Perhaps what is meant is "… no relationship between profit-loss sharing (PLS) and interest rates."	Yusof et al. (2015) found that in the short term, there is a relationship between them Profit Loss Sharing (PLS) rates and Interest rates. However, that in the long run, there was no relationship between them Profit Loss Sharing (PLS) rates and Interest rates.
	5- There is a need to provide further explanation and correct typo or grammatical errors in the following statements. - page 4- "However, the debtor is responsible if they incur a loss following an error or negligence (Warninda et al.,	Page 4- We have replaced it with "debtor". See page 4 with yellow highlights. Page 5 – We have added the word "bearing". See page 5 with yellow highlights.

	2019)", (using "they" when the debtor is singular). - page 5- It is stated that "This is because PLS is more in line with the basic principles of Islamic finance where there is no income without risk". It should read "… without risk bearing". - page 5- It is stated that "CB interest rates determine the returns of B", which should read "IB". - page 10- Table 3, "debt-based financing" should be perhaps replaced by "equity-based financing" in the description of NPL-PLS. - page 13, "Granger test" and "stationary" should read "Granger causality test" and "stationarity".	Page 5 – We have added the word "IB". See page 5 with yellow highlights. Page 10 – We have revised this variable. Page 13 – We have revised it with the term Granger Causality Test (GCT). See page 12 with yellow highlight.
	6- The statement in page 11 that "Further, the type of data we used was in the time series" needs to be rephrased.	Thanks for the correction. We have revised it to "This study empirically examines causality between variables using time series data". See page 8 with yellow highlights.
	7- VAR is invariably used to indicate vector autoregression (page 9, 11, 13) and value-at-risk (pages 4, 10, 19). It is the former that is usually referred to as VAR whereas the value-at-risk is referred to as VaR.	Thanks for the correction. In this revised paper, we do not use VaR (Value at Risk) because this paper focuses on answering the hypothesis.
	8- It is not clear what is meant by "sequential" financing risk in page 12.	The paper that we have revised does not use figures that explain the

		development of Equivalent rate equity and debt-based financing. We replace it with an impulse response function. See page 14 with yellow highlight.
	9- The statement in page 19 that "However, Table 4 shows that in 2015, equity financing still produced a higher VAR than debt-based financing" is made perhaps with reference to Table 6 not Table 4.	Thanks for the correction. In this revised paper, we do not use VaR (Value at Risk) because this paper focuses on answering the hypothesis.
	10- In page 20, the statement that "This study proves the debate on whether IB have conducted their normative PLS transactions" should read "This study contributes to the debate …" Do the title and abstract clearly indicate the content of the paper? Are all the tables and illustrations necessary? Are there ways in which the article could be shortened without losing value?: There are no major issues with the abstract, which reflects the contents of the paper. The title seems to be too general however, and it is better to focus on the main question of the extent to which the return from Islamic financing instruments may be determined by interest rates.	Thanks for the correction. We have revised it to "This study contributes to the debate on whether IBs have conducted their normative PLS transactions". See page 20 with yellow highlights. The title of our paper is: "EQUITY-BASED FINANCING, DEBT-BASED FINANCING, FIXED INCOME, AND INTEREST-FREE EVIDENCE FROM ISLAMIC BANK IN INDONESIA". See page 1 with yellow highlights.
Note:		

We really appreciate and thanks for the constructive comments forwarded by the referee of the paper. We have revised thoroughly the paper based on the referee's suggestion. We believe that by incorporating the referee's comments, it has totally improved the quality of the paper.

EQUITY-BASED FINANCING, DEBT-BASED FINANCING, FIXED INCOME, AND INTEREST-FREE EVIDENCE FROM ISLAMIC BANK IN INDONESIA

ABSTRACT

Purpose: This study empirically examines whether Equity-Based Financing (EBF) similar to Debt-Based Financing (DBF) generates fixed income. Additionally, it investigates whether Islamic bank (IB) Financing Return Rate (IBFRR) has a relationship with Conventional Bank Lending Interest Rate (CBLIR).

Methodology: This paper uses monthly data for 2009-2019 and produces 132 units of analysis. The object of study is IB and conventional bank (CB) in Indonesia and uses the Vector Error Correction Model (VECM) as the tool of analysis.

Findings: This study provides evidence that contrary to DBF products, EBF does not have fixed income. EBF in Indonesian IB has been carried out in line with its epistemology. CB Lending Interest Rate (CBLIR) is correlated with the IB Financing Return Rate (IBFRR). Further, our result shows that EBF and IB financing line with the epistemology and have implemented the Islamic law.

Research Limitations: This study used IB data in the aggregate. Therefore, this study cannot explain whether research results differ between banks.

Practical Implications: EBF for the Indonesian IB has proceeded in line with its epistemology. However, the significant increase in *musharaka* financing should focus on a careful customer business feasibility analysis.

Originality: This is the first study to correlate the Equity-Based Financing Return Rate (EBFRR) with the Debt-Based Financing Return Rate (DBFRR). This paper investigates also examines the no causality between CBLIR and the IBFRR.

Keywords: Equity-Based Financing; Debt-Based Financing; Fixed Income; Interest Rate; Non-Performing Loan.

Article classification: Research Paper

INTRODUCTION

Islamic banks (IB) promote honesty and fairness and are spiritually passionate about banking transactions. This passion stems from conventional banking (CB) transactions that use the

interest. However, the Islamic law forbids the interest as it is considered unjust, a condition that requires penance and undermines brotherhood. This is also contrary to the values of Islamic spirituality. Therefore, IB are established to fulfill the demand for interest-free bank services (Šeho et al., 2020).

IB transactions that promote this passion are Profit and Loss Sharing (PLS) transactions that can be implemented on collection (savings and deposit products-cited as Investment Account Holders funds - IAH) and fund distribution (*mudaraba* and *musharaka* financing—hereinafter cited as equity-based Financing) (AlShattarat and Atmeh, 2016). The fairness in PLS transactions applied to savings and deposits is regarding the size of the revenue sharing provided by the bank to customers depending on the bank's revenue. This is similar to PLS transactions that banks apply in financing products, where the customer's business performance influences the profit-sharing paid by customers to the bank. In other words, there is no guarantee that the bank will obtain a fixed income (Warninda et al., 2019). Banks can also receive losses if the business run by customers loses. With these characteristics, Equity-Based Financing (EBF) is considered to be in harmony with the principles of the Islamic law (Rahman *et al.*, 2014). These are also the main differentiators between IB and CB (Chong and Liu, 2009; Salman and Nawaz, 2018). Hidayah, Lowe, and Woods (2019) argue that PLS is a spiritual/prophetic-based transaction. It facilitates partnerships between capital owners and entrepreneurs; the respective parties share both risk and financial transactions.

Evidently, the global IB has EBF ratios less dominant than the Debt-Based Financing (DBF) ratios (Siddiqui, 2008; Mills and Presley, 1999; Anisykurlillah and Mukhibad, 2018; Warninda et al., 2019; Miah and Suzuki, 2020). Data on the EBF ratio of the global IB are as follows:

Table 1. EBF ratio

Region	***Mudaraba* (%)**	***Musharaka* (%)**	**Total (%)**
Middle East	3.35	02.94	06.29
South Asia	0.58	34.88	35.46
Southeast Asia	3.51	11.23	14.74

Source: Warninda et al. (2019)

Low equity-based financing also occurs in the Indonesian IB. The percentage of EBF data in the Indonesian IB is as follows:

Table 2. EBF in Indonesia

Financing	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014	2015	2016	2017	2018	2019	Mean
EBF Ratio (%)	31.29	35.73	35.65	36.28	34.11	28.43	26.91	29.06	31.98	32.23	35.76	38.04	42.68	45.62	48.22	35.46
DBF Ratio (%)	68.71	64.27	64.35	63.72	65.89	71.57	73.09	70.94	68.02	67.77	64.24	61.96	57.32	54.38	51.78	64.54
Increase of EBF Ratio (Δ)	27.37	56.08	36.38	24.91	36.72	25.52	35.97	34.79	19.14	1.23	18.58	23.83	26.33	22.45	16.85	27.08
Increase of DBF Ratio (Δ)	37.59	27.85	36.85	21.56	50.37	63.53	46.76	21.15	3.80	0.05	1.34	12.26	4.17	8.68	5.25	22.75

Source: Islamic banking Statistics, 2019

Table 2 shows that the Indonesian IB had an average EBF of 35.46% in the observation years. The EBF ratio is lower than the DBF ratio (65.54%). However, as seen from its growth (lines 3 and 4), EBF has a more significant average growth (27.08%) than the DBF (22.75%). Although the DBF ratio is greater than the EBF ratio, EBF has a greater growth than DBF. This fact becomes a temporary conjecture that the weaknesses were existing in EBF, such as asymmetric information resulting in adverse selection problems and moral hazards, are diminishing (Azmat, Skully and Brown, 2015). Also, sharing risk among banks and entrepreneurs in EBF contracts is reduced. We suspect that the certainty about the acquisition of return on EBF is similar to that on DBF. We build this proposition based on Hidayah et al.'s (2019) study, which states that IB attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the bank to the entrepreneurs. This finding leads to the epistemology that PLS practices are not in line with PLS ontology and leads to PLS non-interest-free practices (Ergeç and Arslan, 2013; Mahmood and Rahman, 2017).

This study evaluates the implementation of EBF and examines whether this financing generates income similar to DBF and whether the equivalent rate of IB Financing Return Rate (IBFRR) and CB Lending Interest Rate (CBLIR) are correlated. Previous studies have tested more on the correlation of interest rate with IB return rate. However, the previous studies, such as those conducted by Chong and Liu (2009), Yusof et al. (2015), Yuksel (2017), and Hamza (2016) are limited to Investment Account Holders (IAH) products. We only found Khalidin and Masbar (2017) and Šeho et al. (2020), as the only studies investigating whether IBFR has been interest-free. We completed the studies of Khalidin and Masbar (2017) and Šeho et al. (2020) by comparing IBFR with interest rate and comparing the Equity-Based Financing Return Rate (EBFRR) and the Debt-Based Financing Return Rate (DBFRR). Additionally, this study considers that the

relationship between the return from EBFRR and CB Lending Interest Rate (CBLIR) has become a real debate (Mahmood and Rahman, 2017; Korkut and Özgür, 2017).

Our focus is, first, whether EBF, like DBF, has a fixed return. Second, we examine whether CBLIR influences the EBFRR. We present the results by describing the EBFRR, DBFRR, IBFRR and CBLIR. Next, we conduct a causality test between the EBFRR and DBFRR. We also examine the causality from the IBFRR to CBLIR.

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

Financing at Islamic Banks

IB act as intermediaries between customers with excess money and those that need money. Unlike CB, IB will collect money from third-party funds using a profit-sharing contract (savings and deposits) or *wadiah* (demand deposits). Funds raised by banks are distributed in the kind of financing. IB has several alternative contracts to use *mudaraba, musharaka, murabaha, salam, istisna'a*, and *ijarah* financing.

Mudaraba and *musharaka* financing uses the EBF system. In *mudaraba* transactions, banks lend all capital to customers (debtors). Further, the financial losses of entrepreneurs/debtors are fully borne by banks. However, the debtor is responsible if the debtor incurs a loss following an error or negligence (Warninda et al., 2019). If both the bank and the debtor have capital for the debtor's business. In that case, the transaction is known as *musharaka*, and the business loss is divided between the two parties based on capital ownership.

In contrast with *mudaraba* and *musharaka*, financing transactions in *murabaha, salam, istisna'a*, and *ijarah* do not transfer the risk of loss from the customer to the bank. *Murabaha, salam*, and *istisna'a* transactions are sale and purchase transactions. Moreover, banks as sellers are entitled to receiving income on the difference between the selling price and the purchase price. Ijarah transactions are leases for certain assets. As the owner of the assets, the bank is therefore entitled to receiving rental income from this transaction. From this explanation, in *murabaha, salam*, and *istisna'a* transactions, banks are entitled to receive fixed income. Moreover, there is no risk transfer for business losses brought about by customers (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019). Therefore, EBF transactions are more risky than other transactions. Abusharbeh (2014) and Mukhibad and Khafid (2018) found a relationship between EBF and NPF.

One of the risks of EBF arises when the borrower does not allow the bank to track the earned income, so that the bank cannot ensure a fair process for revenue sharing (Sapuan et al., 2016; Warninda et al., 2019). Previous studies have identified PLS problems, such as agency problems (Dar and Presley, 2000), information asymmetry (Muda and Ismail, 2010; Warninda et al., 2019), moral hazard (Mahmood and Rahman, 2017), and high monitoring costs (Rahman et al., 2014; Hidayah et al., 2019).

Implementation of PLS Transactions

The rapid development of IB has encouraged researchers to evaluate whether their approach is interest-free. Researchers have examined whether the practice of PLS products is in line with the fundamental concept of interest-free banking under Islamic law. PLS is more in line with the basic principles of Islamic finance, where there is no income without risk-bearing (Mahmood and Rahman, 2017). Interest is an unfair transaction because the profits are realized from load without sharing risk or risk-free (Rosly and Bakar, 2003; Belal, Abdelsalam and Nizamee, 2015). The argument reflects the legal principle that loss is commensurate with return and earning is commensurate with liability (Šeho et al., 2020).

Researchers investigating the implementation of PLS transactions in IB have produced mixed findings. Chong and Liu (2009) found that EBF implementation was deficient and that IB deposits were not interest-free. IB are more inclined to use DBF permitted by the Islamic law and ignore the passion for avoiding interest (Chong and Liu, 2009). The avoid of IB on interest is strengthened by the findings of Hamza (2016) and Šeho et al. (2020). Hamza (2016) found that the ratio of capital and interest rates positively affects the return on deposits of IB. Interest rates determine the returns on deposits of IB. Šeho et al. (2020) found that EBFRR is positively correlated with interest rates. Additionally, sales-based contracts and leases that have damaged the essence of interest-free and risk-sharing IB continue to dominate IB financing (Šeho et al., 2020).

Different findings are presented by Yusof et al. (2015) and Yuksel (2017). Yusof et al. (2015) found that no relationship between them PLS rates and interest rates in the long run. In the short term, there is a relationship between PLS equivalent rates and CB interest rates except for those in the IB in Saudi Arabia. Yuksel (2017) found that PLS transactions of IB are not related to CB. This finding indicates that the determination of the PLS equivalent rate in IB does not use

interest rate benchmarks. Similarly, the determination of interest rate also does not use PLS return benchmarks.

Hidayah et al. (2019) carried out different research approaches to explore the application of PLS in IB, that is, with a qualitative approach. Hidayah et al's. (2019) study involved 40 participants consisting of managers, advisors, shariah compliance, shariah board, and regulators from Oman, Abu Dhabi, the United Kingdom (UK), Malaysia and Indonesia. They found that the spiritual products in PLS were repackaged and codified to replicate the conventional finance product. The implementation of this pseudo-spirituality is due to the demands of market competition and forcing IB to harmonize various interests and be able to compete. One participant even revealed that there was a bank's attempt to make a fixed return on EBF and further transfer the risk of loss from the bank to the entrepreneur (Hidayah et al., 2019; Alaabed and Masih, 2016).

Hypothesis Development

Previous studies have produced mixed findings in presenting evidence of PLS transactions in IB; this has become a real debate among researchers (Mahmood and Rahman, 2017). First, there are indications that the practice of EBF cannot be performed in line with its epistemology following the existence of EBF products that transfer risk from banks to entrepreneurs and generate fixed income. Hidayah et al. (2019) found that bank management is trying to replicate conventional financial products so that EBF generates fixed income and transfer risk from the bank to the customer. Previous studies show that EBF transactions pose a problem of uncertainty return because of the distribution of return based on realizing the customer's business profit (Warninda et al, 2019). However, through this codification and identical to DBF, banks as the lenders obtain fixed income similar to DBF. In other words, similar to the condition in CB, there is a risk transfer in IB (Alaabed and Masih, 2016).

The EDF products that tend to generate fixed income are *musharaka mutanaqisa*h (Kashi and Mohamad, 2017). The *Musharaka mutanaqisah* contract is a *musharaka* agreement combined with buying and selling (Fatwa DSN-MUI/XI/2008). A *musharaka mutanaqisah* contract can also be a hybrid contract that combines three concepts: *Musharaka*, *ijarah*, and *wa'ad tuma bay'i* (Ahroum et al., 2020). The operationalization of this *musharaka mutanaqisah* transaction is a *syirkah* ownership between the customer and the bank for an item that the customer needs. During the contract period, there is a periodic transfer of ownership from the bank to the customer.

Revenue sharing from the *musharaka* originates from the rental fee for the *musharaka* goods. Goods jointly owned can be rented by customer or other people (Fatwa DSN-MUI/XI/2008).

Kashi and Mohamad (2017) state that the *musharaka mutanaqisah* contract is controversial regarding whether it includes partnership transactions or is more likely to be similar to conventional loans. Kashi and Mohamad (2017) found that *musharaka mutanaqisah* financing is more inclined to debt contracts than partnerships. For banks, the application of the *musharaka mutanaqisah* scheme must benefit them as much as or more than *murabaha* financing (Hosen, 2009).

H1: There is a causality between the equity- and debt-based financing return rate.

The other factor that distinguishes between EBF and DBF are credit risk. Abusharbeh (2014) and Mukhibad and Khafid (2018), using a sample of IB in Indonesia, found a positive relationship between the EBF ratio and NPF. IB in Indonesia prefers to use DBF to control bank risk (Abusharbeh, 2014). Grassa (2012), using a sample of IB in GCC countries, concluded that greater revenue sharing leads to higher levels of risk for IB. Thus, IB with high EBF tends high credit risk (Misman *et al.*, 2020; Ariffin, Archer and Karim, 2009; Khan and Ahmed, 2001). The high credit risk on EBF is due to the high income from EBF (Grassa, 2012). In addition, the high credit risk in EBF is due to agency problems (Dar & Presley, 2000; Beck, Demirgüç-Kunt, & Merrouche, 2013); information asymmetry (Warninda, Ekaputra and Rokhim, 2019; Muda and Ismail, 2010); and moral hazard (Mahmood and Rahman, 2017).

On the contrary, other literature argues that EBF can reduce credit risk (Chong and Liu, 2009; Zeineb and Mensi, 2014). EBF promotes IB to perform due diligence and strict supervision of their financing. To avoid moral hazard and adverse selection, IB evaluates entrepreneur eligibility strictly so that credit risk can be reduced (Warninda, Ekaputra and Rokhim, 2019). Warninda, Ekaputra and Rokhim (2019) support this hypothesis and found that the addition of EBF can reduce NPF. The difference in the results of this study provides evidence that there is weak evidence that EBF has a greater credit risk than DBF.

However, descriptive findings (table 4) show that EBF has a lower credit risk (4.19%) than DBF (4.24%). This fact is difficult to support the hypothesis that EBF has greater credit risk than DBF. However, we argue that this fact indicates that there is a risk difference between EBF and

DBF. In accordance with the purpose of this study is to examine whether EBF is similar to DBF empirically, then we develop the following hypothesis:

H2: There is a causality between the equity- and debt-based financing risk.

The findings of previous studies have shown that the practice of EBF has not been performed according to rules. It can also be concluded that EBF is not free of interest. Chong and Liu (2009), Hamza (2016) and Šeho et al. (2020) prove this hypothesis. Modifying PLS products to fit local preferences and generating fixed income indicated that PLS practices lead to non-interest-free practices. The modification of EBF may be due to (1) low public interest in EBF product (Imronudin and Hussain, 2016); (2) internal bank problems concerning, for example, top management, human resources, and technical aspects; (3) system conditions, which include the dominance of CB, the environment and unfavorable competition, and the problem of externalities that most people do not understand (Ascarya, 2013).

H3: There is a causality between the equity-based financing returns rate and the CB lending interest rate.

The second debate regards the research findings that show that, in practice, an IB cannot undertake PLS transactions in line with the ideal. Ideally, profit-sharing in EBF contract should be based on real performance rather than interest. However, the tests carried out by Chong and Liu (2009) and Hamza (2016) show that the EBFRR is related to interest. These findings indicate that IBFRR are related to CBLIR.

Additionally, Yusof et al. (2015) and Yuksel (2017) found no relationship between the IBFRR and CBLIR. Yusof et al. (2015) even rejected the conclusion that IB is not interest-free simply because of the finding that the deposit return rate (IAH return rate) is correlated with interest rate. According to Yusof et al. (2015), profit-sharing for a bank provided to IAH is derived from EBFRR, where EBFRR obtained by banks is influenced by the opportunity cost of capital or the real rate of economic growth. This is one of the main determinants of interest rates in the economy. Yusof et al. (2015) stated, the return on investment of IB in the form of EBF is assumed to be influenced by economic conditions. Further, these economic conditions are indicators of determining interest rates. This assumption is reinforced by Zarrouk et al. (2016), who found that

IB performs better in an environment where gross domestic products and investments are high. Based on this analogy, we are clear that the EBFRR can be related to CBLIR.

H4: There is a causality between the IB financing return rate and the CB lending interest rate.

RESEARCH MODEL

This study empirically examines causality between variables using time series data. The causality variables are (1) EBFRR and DBFRR; (2) EBF and DBF risk; (3) EBFRR and the CBLIR; (4) IBFRR and the CBLIR. We used IB and CB in Indonesia and conducted monthly data observations from 2005 to 2019 and produced 132 units of analysis. We used the Islamic banking statistical and Indonesia banking statistical issued by the Financial Services Authority (OJK) as the data source.

The data in this study were time-series data and were processed using the Vector Error Correction Model (VECM), which can be written as follows:

$$\Delta EBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta DBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (1)$$

$$\Delta DBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta DBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (2)$$

$$\Delta EBFRISK_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRISK_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta DBFRISK_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (3)$$

$$\Delta DBFRISK_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta DBFRISK_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRISK_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (4)$$

$$\Delta EBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta CBLIR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (5)$$

$$\Delta CBLIR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta CBLIR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (6)$$

$$\Delta IBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta IBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta CBLIR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (7)$$

$$\Delta CBLIR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta CBLIR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta IBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (8)$$

Where (1) EBFRR is Equity-Based Financing Return Rate; (2) DBFRR is Debt-Based Financing Return Rate; (3) IBFRR is IB Financing Return Rate (EBFRR and DBFRR); (4) EBFRRISK is Equity-Based Financing Risk that measure by Non-Performance Financing (NPF); (5) DBFRRISK is Debt-Based Financing Risk that measure by Non-Performance Loan (NPL); (6) CBLIR is CB Lending Interest Rate; (7) Δ is the first-different operator; (8) k_i is various lag on the regressors; and (9) γ_{t-1} is error correction term.

The first step in the VECM test is the stationarity test (Haron and Azmi, 2008). The VECM model requires that all variables have stationary data. This study used the Augmented Dickey-Fuller test (ADF) and Phillip-Perron (PP) to perform the stationary test. The next step is the VAR

order selection procedure. This step selects the optimal lag base on Akaike Information Criteria (AIC), which is commonly used to select the optimal lag in VAR model. This test produces the optimal lag on second. After determining the optimum lag, we conducted a VAR stability test using the AR Root table. If the value of the modulus less than 1 and indicates that the VAR satisfies the stability condition.

The next step is cointegration test. We used the cointegration test based on maximum eigenvalue and trace statistics. This study will reject H_o if the probability value is less than 0.05 and vice versa. The cointegration vector represents the long-run equilibrium. Granger causality test (GCT) is used to examine the causality and direction of the influence of one variable on another variable. We used bivariate GCT based (Granger, 1969). The Impulse Response Function (IRF) is used to see the variable response to shock at overtime.

RESULTS

This section presents descriptive data that illustrate the rate of return on equity-based and debt-based financing, the financing rate of return on IB, and the interest rates on CB. We made observations based on monthly data for 11 years.

Table 4. Descriptive Statistics

Indicators	Mean	St Dev.	Min.	Median	Max	Skew	Kurt.
EBFRR (*Mudaraba*)	14.17	3.10	9.17	13.53	21.87	0.26	-0.72
EBFRR (*Musharaka*)	11.81	1.55	8.91	11.57	14.97	0.005	-0.82
DBFRR (*Murabaha*)	13.76	1.44	11.44	13.61	18.69	0.51	0.52
DBFRR (*Istisna'a*)	13.15	1.17	10.56	13.26	14.73	-0.75	-0.50
DBFRR (*Ijarah*)	5.51	4.98	-0.005	8.73	11.16	-0.04	-1.99
EBFRR	12.99	2.09	9.205	12.97	17.68	-0.21	-0.96
DBFRR	10.81	1.15	7.63	10.82	12.71	-0.13	-0.95
EBFRISK-*Mudaraba*	2.99	1.10	1.52	2.66	6.55	1.71	2.85
EBFRISK -*Musharaka*	4.49	1.09	2.94	4.49	6.84	0.34	(1.00)
DBFRISK -*Murabaha*	4.38	0.72	2.90	4.51	6.09	(0.41)	(0.34)
DBFRISK -*Istisna'a*	2.56	1.34	1.19	1.88	6.27	1.23	0.33
DBFRISK -*Ijarah*	2.76	1.67	1.43	2.18	7.57	2.15	2.85
EBFRISK	4.19	0.88	2.89	4.20	6.18	0.49	(0.65)
DBFRISK	4.24	0.70	2.83	4.40	5.88	(0.38)	(0.41)
CBLIR	12.39	0.98	10.58	12.46	14.84	0.07	0.02
IBFRR (EBFRR and DBFRR)	11.63	7.26	14.09	0.83	11.81	-2.06	6.90

Table 4 shows that *mudaraba* financing has a return with an average equivalent rate of 14.17%, while the equivalent rate of *musharaka* financing return is 11.81%. The equivalent return rate of *murabaha, istisna'a*, and *ijarah* financing is 13.76%, 13.15%, and 5.51% respectively. The EBFRR is 12.99%, while average of DBFRR of 10.81%. The standard deviation of the EBFRR is 2.09, and that of DBFRR is 1.15. This standard deviation of EBFRR, which is greater than that of the DBFRR leads to receive of the hypothesis and the finding that EBF has greater income volatility than DBF. Strengthened by Figure 1, our results show to EBF practice, which is in line with its epistemology. This provides EBF greater has income uncertainty.

Test Model

This study uses time-series data to assumes that the underlying time series is stationary (Gujarati and Porter, 2009). Stationary data is data that does not vary due to seasonal patterns or data has not a non-stable seasonal pattern. We utilize two-unit root tests: the Augmented Dickey-Fuller (ADF) test and Phillip-Perron (PP) test, which usually have been used for time series data. The using ADF and PP test are presented in table 3. The ADF and PP test at the level, the probability is more than 0.05 and indicates that the data is not stationary at the level. The ADF and PP tests result on the first different produce a probability less than 0.05 and indicate that the data is stationary in the first different.

Table 3. Unit Root Tests Result

Variables	**ADF Test**				**Phillip Perron Test**			
	Level		**First Different**		**Level**		**First Different**	
	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
EBFRR	-0.4791	0.8905	-12.7528	0.0000 ***	-0.9771	0.7601	-25.5422	0.0000 ***
DBFRR	-1.2969	0.6298	-16.8003	0.0000 ***	-1.4268	0.5673	-17.1043	0.0000 ***
EBFRISK	-2.11199	0.2408	-5.53099	0.0000 ***	-1.4886	0.5331	-8.5463	0.0000 ***
DBFRISK	-1.12638	0.7005	-9.79921	0.0000 ***	-0.9716	0.7585	-9.8293	0.0000 ***

IBFRR	-1.64317	0.4577	-11.9363	0.0000 ***	-2.8519	0.0540	-21.0779	0.0000 ***
CBLIR	-1.73734	0.4102	-9.28375	0.0000 ***	-1.7454	0.4061	-10.5601	0.0000 ***

***; **, * significant at 1%, 5%, 10%.

Table 4 shows the results of the VAR stability test using the AR Root table. If the VAR estimation result is unstable, then the Impulse Response Function and Variance Decomposition will be invalid. Table 4 shows the value of modulus less than 1 and indicates that VAR satisfies the stability condition.

Table 4. VAR Stability Test

Root	**Modulus**
-0.379873 - 0.510677i	0.636470
-0.379873 + 0.510677i	0.636470
-0.000775 - 0.491089i	0.491089
-0.000775 + 0.491089i	0.491089
0.090515 - 0.411987i	0.421813
0.090515 + 0.411987i	0.421813
-0.089001	0.089001
-0.027045	0.027045

Cointegration Test

Table 5 shows the cointegration test using the maximum eigenvalue and trace statistics. The cointegration test results in table 5 show a probability value of less than 0.05 and decide to reject the null hypothesis. In other words, there are 6 cointegration vectors for a set of variables in the system. The existence of a cointegration vector indicates that all variables in the system have long-run equilibrium.

Table 5. Cointegration Test

Hypothesized	**Trace**	**0.05**

No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.540490	139.5766	95.75366	0.0000
At most 1 *	0.408151	91.36577	69.81889	0.0004
At most 2 *	0.296348	58.84650	47.85613	0.0033
At most 3 *	0.247858	37.05525	29.79707	0.0061
At most 4 *	0.191932	19.39579	15.49471	0.0123
At most 5 *	0.094915	6.183060	3.841466	0.0129

Granger Causality Test Results

Granger causality test (GCT) is used to test the causality and direction of the influence of one variable on another variable. The GCT is used to answer the research hypotheses as presented in table 6. The GCT on whether there is no correlation between the EBFRR and DBFRR produced an f-statistic of 0.73015 and a probability of 0.4839. However, the correlation DBFRR to EBFRR, in an f-statistic of 1.06075 and a probability of 0.3493. These results indicate that there is no correlation between EBFRR and DBFRR and vice versa.

Table 6. Granger Causality Test.

Null Hypothesis:	F-Statistic	Prob.
Hypothesis 1st		
D(EBFRR) does not Granger Cause D(DBFRR)	0.73015	0.4839
D(DBFRR) does not Granger Cause D(EBFRR)	1.06075	0.3493
Hypothesis 2nd		
D(EBFRISK) does not Granger Cause D(DBFRISK)	1.11514	0.3347
D(DBFRISK) does not Granger Cause D(EBFRISK)	0.14343	0.8667
Hypothesis 3rd		
D(EBFRR) does not Granger Cause D(CBLIR)	0.03641	0.9643
D(CBLIR) does not Granger Cause D(EBFRR)	0.08380	0.9197
Hypothesis 4th		
D(IBFRR) does not Granger Cause D(CBLIR)	0.03764	0.9631
D(CBLIR) does not Granger Cause D(IBFRR)	0.11441	0.8920

The GCT to test the causality of EBFRISK to DBFRISK produced an f-statistic of 1.11514 and a probability of 0.3347. However, the results of the DBFRISK test against EBFRISK resulted in an f-statistic of 0.14343 and a probability of 0.8667. This result also shows that there is no correlation between the NPF from EBF and DBF. This means that the risks of EBF and DBF are mutually unrelated.

The results of the GCT between the CBLIR with EBFRR produced an f-statistic of 0.08380 with a probability of 0.9197. However, conversely, the results of the causality test between EBFRR and the CBLIR produced an f-statistic of 0.03641 and a probability of 0.9643. These results indicate that the EBFRR is not related to CBLIR. These results reinforce the conclusion that there is a tendency for EBF to be consistent with its epistemology.

Table 6 shows that the GCT between IBFRR and the CBLIR produced an f-statistic of 0.03764 with a probability of 0.9631. The GCT between CBLIR and IBFRR produced an f-statistic of 0.11441 with a probability of 0.8920. The test shows that IBFRR (EBFRR and DBFRR) is not correlated with CBLIR and vice versa.

Impulse Response Function (IRF)

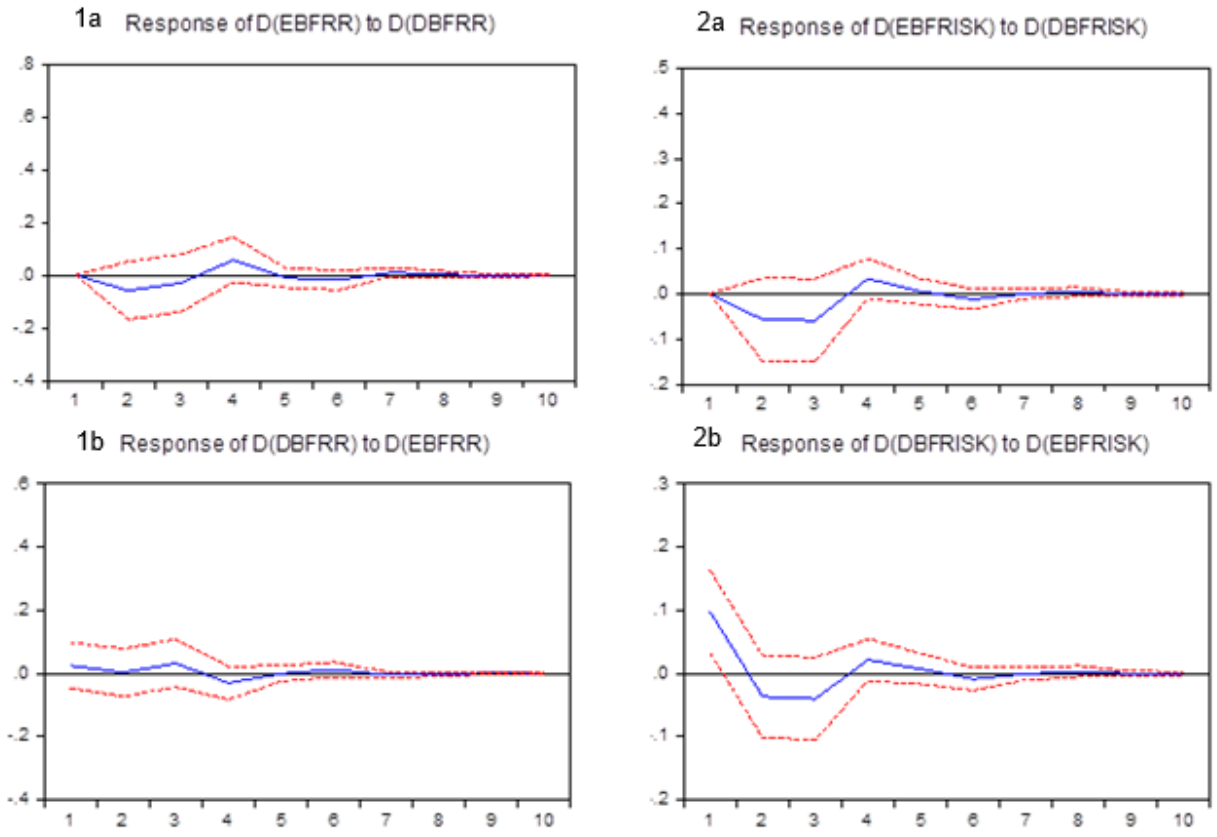
The IFR describes the reaction of the variable as a function of time and parameterizes the dynamic behavior of the variable. This study uses eight variables, and we present the results of the IRF in figure 1. Response of EBFRR to DBFRR (1a) indicates EBFRR fluctuates and has a positive or negative response. This response for approximately 6 months. The same response is also shown in 1b, showing that DBFRR has a fluctuating response (negative and positive response) to EBFRR.

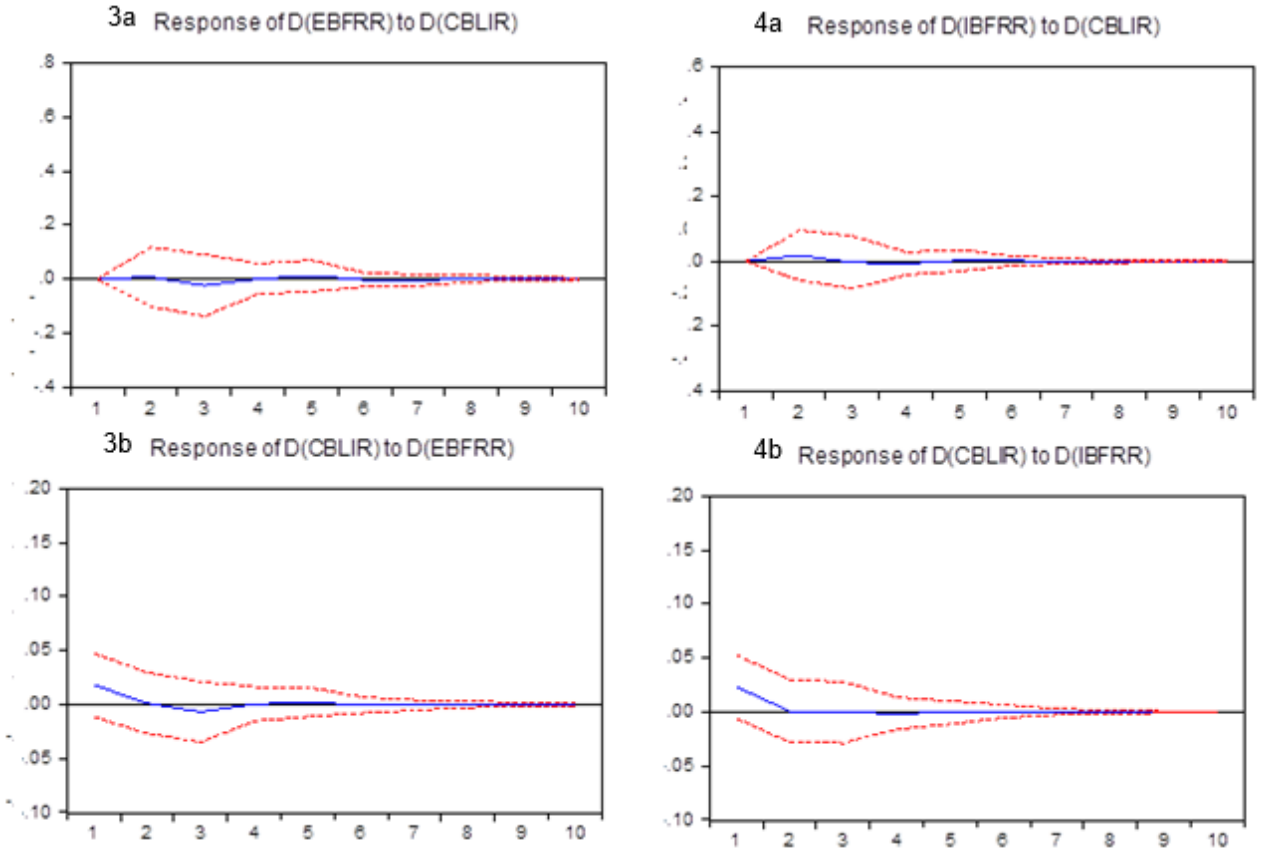
Response of EBFRISK to DBNFRISK (2a) showed a fluctuating response for approximately 6 months and had more negative responses. The same response also occurs in DBFRISK to EBFRISK. This fluctuating response confirms the GCT results that there is no correlation between DBFRISK and EBFRISK.

Response EBFRR to CBLIR (3a) showed less response. The negative response only occurred in the 3rd month. On the other hand, the CBLIR to EBFRR (3b) response was more volatile than the EBFRR to CBLIR response. The CBLIR to EBFRR response for approximately 4 months. Response Interest lending has a high response to EBF returns. This fluctuating response confirmed the absence of a correlation between EBFRR and CBLIR.

Response IBFRR to CBLIR (4a) showed a less fluctuating response. A positive response occurred in the 2nd month. On the other hand, CBLIR has a fluctuating response to IBFRR (4b). Figure 1 shows that CBLIR had a positive response to IBFRR in the 2nd month.

Figure 1. The Result of IRF





Discussion

IBs have two very different types of financing in the process of sharing returns between banks and customers, that is, EBF and DBF. In EBF, the bank obtains income that comes from a certain percentage (or the ratio) of business revenue run by the customer. In DBF, banks receive income on sales profit margins or rental income of a fixed amount.

Other researchers identified that the high risk of EBF is due to the potential for uncertain income compared to DBF (Warninda et al., 2019). The GCT results show that EBF and DBF have different characteristics of revenue acquisition risk. EBF has greater income uncertainty (Warninda et al., 2019). The EBFRR and DBFRR are not correlated. Additionally, in line with the findings of Ernawati (2016), we found that EBF (especially *mudaraba*) has a lower certainty of return than DBF. This means that the two financing systems are different and conclude that both of EBF and DBF have proceeded in line with the epistemology. This result rejects the conclusion of Hidayah et al. (2019) on pseudo practice in EBF because the implementation of EBF transaction tends to be DBF. We also reject the argument of Mahmood and Rahman (2017) and the findings of Chong and Liu (2009), Ergeç and Arslan (2013), Hamza (2016), and Šeho et al. (2020), who

claimed that PLS IB products are not interest-free. Hidayah et al. (2019) in their research concluded that banks implemented PLS contracts artificially because the banks modified the PLS contract to make it easier to run and in line with customer preferences by setting fixed income policies such as DBF. However, our results show that EBF generates more volatile returns than DBF. This is in line with the main characteristics of PLS. This study's and Hidayah et al.'s results differ (2019) due to the differences in the two studies. Hidayah et al. (2019) used qualitative methods. Therefore, their conclusions were based on the results of interviews with bank leaders. However, this study uses a quantitative approach and uses empirical data reported by bank management in its financial statements. Further, there is a possibility that what was conveyed by the informants in Hidayah et al.'s (2019) study was not supported by data in the financial statements.

Risk data show that EBF has a lower risk than DBF. When viewed from the type of financing, *musharaka* financing has a higher risk than *mudaraba* financing. This finding rejected Ernawati (2016), who states that *mudaraba* had a higher risk than *musharaka* due to information asymmetry. *Murabaha* financing has the highest risk compared with other types of EBF. Further, *murabaha* has a higher risk than *mudaraba*. This is contrary to the concept of *murabaha* financing. There is no information asymmetry as in *mudaraba*. From these findings, we reject the conclusion that EBF has a high risk due to a high risk and, conversely, DBF has a lower risk due to a low NPL. We suspect that the type of contract is not the cause of the difference in the risk.

When viewed from the risk of financing, the results of the study show that the EBFRISK and DBFRISK are not correlated. Our results indicate that DBF has a higher risk than EBF. We further assume that the low EBFRISK does not mean that EBF is not in line with the epistemology. This is because the high risk is significantly influenced by the ability and character of the customer. We also found that the products that had the highest risk were *musharaka*, *murabaha*, and *mudaraba*. The high of *musharaka* and *murabaha* financing triggered a high bank risk. Therefore, EBF has a higher risk than DBF (Alam and Parinduri, 2017; Suzuki et al., 2019; Warninda et al., 2019). However, this high risk is due to uncertainty about return, rather than a high NPL.

The finding that there is no causality between the EBFRR and CBLIR. This finding reinforces our finding that EBF has been calculated according to rules. In contrast to CBLIR and CBLIR, the equivalent of EBF return rate cannot be determined by the bank at the time of the contract. The acquisition of EBFRR is based on the results of businesses run by entrepreneurs.

This lack of correlation reinforces our finding that IB implements EBF in line with the epistemology.

Comparing the EBFRR and CBLIR shows that CB receives an interest rate of 12.39%, which is greater than IBFRR with an equivalent rate of 11.63%. The low equivalent rate of Indonesian IB financing may be due to the low market share of the Indonesian IB, which is only 5.3% (Mukhibad, Muthmainah and Andraeny, 2020). A low market share allows companies to adopt strategies that can help reduce the selling price of products and consequently attract customer interest.

The results of the correlation test between IBFRR and CBLIR show that we found no causality between the two. In other words, the IBFRR is unrelated to the CBLIR and vice versa. This result reinforces the conclusion that IB in financing policies does not use interest-based or interest-free. These results reject the findings of Šeho et al. (2020), who found a relationship between *murabaha* and EBF return rate from IB products to interest rate. Additionally, we support the conclusion of Yusof et al. (2015) and Yuksel (2017) that IBs are free of interest rate. This result supporst our finding that IB financing had proceeded in line with the epistemology. IBs do not use CBLIR as a standard in determining the return rate on the financing they provide to customers.

CONCLUSION

This study contributes to the debate on whether IB has conducted their normative PLS transactions. This study's results indicate that the EBFRR is not related to DBFRR. This result leads to the conclusion that EBF and DBF operate in line with the epistemology. The EBF uses profit-sharing with an unfixed amount of income as in DBF.

The results also provide evidence that the risk between EBF- and DBF is mutually unrelated. This study further proves the main characteristics of EBF that have a different or higher risk than DBF. These unrelated risk characteristics between EBF and DBF lead to the finding that banks have carried out EBF in line with the rules of the Islamic law.

We also identified the correlation between the EBFRR and CBLIR and found that the two are not related. EBFRR has an uncertain nature and cannot be determined in advance by the bank at the time of the cooperation contract and is different from CB based on interest. The bank can determine interest at the time of the credit agreement. The lack of causality between the EBFRR and CBLIR leads to the finding that EBF has been normatively carried out.

The results also prove that there is no correlation between the IBFRR and CBLIR. The findings of this study and previous studies show that the IBFRR is not related to interest rates or interest-free. IBs do not use the interest rate as a standard in determining the return rate on the financing they provide to customers. IBFRR is based on the results of businesses run by customers.

The implication of this research is that EBF for IB in Indonesia has proceeded in line with its epistemology. The distribution of EBF has complied with Islamic principles. These findings clarify that IB has implemented the Islamic law. Additionally, this significant increase in *musharaka* financing should still pay attention to a careful analysis of the customer's business feasibility considering that this type of financing is high-risk financing as it has a high NPF.

This study used time series data presented by banking regulators in Indonesia. We however did not use cross-section data. Therefore, we have not been able to explain whether the implementation of EBF in line with the initial concept occurs in all banks. We suggest that further researchers use cross-sectional data to complement this study's results. Additionally, we used the equivalent return rate indicator reported by the regulators. Future researchers can further use another proxy by comparing the costs with the amount of financing reported in the bank's financial statements.

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6. Bukti konfirmasi review dan hasil review yang ketiga (16 Desember 2023)

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Hasan Mukhibad <hasanmukhibad@mail.unnes.ac.id>

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3 messages

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Hasan Mukhibad
Accounting Department,
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INVESTIGATING EQUITY-BASED FINANCING AND DEBT-BASED FINANCING IN ISLAMIC BANKS IN INDONESIA

Hasan Mukhibad
Department of Accounting, Faculty of Economics and Business, Universitas Negeri ~~Semarang~~Semarang, ~~Semarang~~Semarang, Central Java, Indonesia
Doddy Setiawan
Department of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, West Java, Indonesia

ABSTRACT

Purpose — This study empirically examines whether equity-based financing (EBF) generates fixed income similar to debt-based financing (DBF). It also investigates whether the Islamic bank financing return rate (IBFRR) has a relationship with conventional bank lending interest rate (CBLIR).

Design/Methodology/Approach — This paper uses monthly data for the period 2009-2019 and produces 132 units of analysis. The object of the study is Islamic banks (IBs) and conventional banks (CBs) in Indonesia. The study uses the Vector Error Correction Model (VECM) as the tool of analysis.

Findings — This study provides evidence that, contrary to DBF products, EBF does not have fixed income. EBF in Indonesian IBs has been executed according to the requirements of Islamic law. The study also finds that CBLIR is correlated with IBFRR.

Originality/Value — This is the first study to correlate equity-based financing return rate (EBFRR) with debt-based financing return rate (DBFRR). This paper also examines the no-causality relationship between CBLIR and IBFRR.

Research Limitations — This study uses Islamic banking data in the aggregate. Therefore, it cannot explain whether research results differ between banks.

Practical Implications — EBF in Indonesian IBs has been applied according to its epistemology. However, the significant increase in *mushārakah* financing should be based on a careful customer business feasibility analysis.

Keywords — Conventional bank lending interest rate (CBLIR); Debt-based financing (DBF); Debt-based financing return rate (DBFRR); Equity-based financing (EBF); Equity-based financing return rate (EBFRR); Fixed income; Interest rate; Islamic bank financing return rate (IBFRR); Non-performing loan (NPL)

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INTRODUCTION

Islamic law forbids interest as it is considered unjust, a condition that requires penance and undermines brotherhood. It is also contrary to the values of Islamic spirituality. Therefore, Islamic banks (IBs) have been established to fulfill the demand for interest-free banking services (Šeho *et al.*, 2020).

IBs promote profit-and-loss sharing (PLS) transactions that can be implemented on savings and deposit products, known as Investment Account Holders funds (IAHs), and through financing products such as *muḍārabah* and *mushārakah* financing, hereinafter called equity-based financing (EBF) (AlShattarat & Atmeh, 2016). Under savings and deposits accounts, structured using PLS modes, the bank will share its revenue to customers depending on the revenue earned. Similarly, when banks apply PLS in financing products, the customers' business performance will influence the profit-sharing paid by customers to the bank. In other words, there is no guarantee that the bank will obtain a fixed income (Warninda *et al.*, 2019). Banks can also receive losses if the business run by customers face loss. With these characteristics, equity-based financing (EBF) is considered to be in harmony with the principles of Islamic law (Abdul-Rahman *et al.*, 2014). These are also the main differentiators between IBs and conventional banks (CBs) (Chong & Liu, 2009; Salman & Nawaz, 2018).

Past literature highlighted that the global IB industry has EBF ratios which are less dominant than debt-based financing (DBF) ratios (Mills & Presley, 1999; Siddiqui, 2008; Anisykurlillah *et al.*, 2018; Warninda *et al.*, 2019; Miah & Suzuki, 2020). Data on the EBF ratio of the global IB industry are depicted in **Table 1**. Low EBF ratios also occur in the Indonesian IB industry, as indicated in **Table 2**.

Table 1: EBF

Region	*Muḍārabah* (%)	*Mushārakah* (%)	Total (%)
Middle East	3.35	2.94	6.29
South Asia	0.58	34.88	35.46
Southeast Asia	3.51	11.23	14.74

Source: Warninda *et al.* (2019)

Table 2: EBF in Indonesia

Financing	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014	2015	2016	2017	2018	2019	Mean
EBF ratio (%)	31.29	35.73	35.65	36.28	34.11	28.43	26.91	29.06	31.98	32.23	35.76	38.04	42.68	45.62	48.22	35.46
DBF ratio (%)	68.71	64.27	64.35	63.72	65.89	71.57	73.09	70.94	68.02	67.77	64.24	61.96	57.32	54.38	51.78	64.54
Increase in EBF ratio (Δ)	27.37	56.08	36.38	24.91	36.72	25.52	35.97	34.79	19.14	1.23	18.58	23.83	26.33	22.45	16.85	27.08
Increase in DBF ratio (Δ)	37.59	27.85	36.85	21.56	50.37	63.53	46.76	21.15	3.80	0.05	1.34	12.26	4.17	8.68	5.25	22.75

Source: Islamic Banking Statistics (2019)

Table 2 shows that the Indonesian IB industry had an average EBF ratio of 35.46 per cent during the observation years. Therefore, the DBF ratio of 64.54 per cent is greater than the EBF ratio. Although this is the case, EBF has a more significant average growth (27.08 per cent) than DBF (22.75 per cent), as seen from rows 3 and 4 in **Table 2**. This may indicate that the weaknesses that exist under EBF—such as asymmetric information resulting in adverse selection problems and moral hazards—are diminishing (Azmat *et al.*, 2015). It may also show that the sharing of risk

among banks and entrepreneurs in EBF contracts is reducing. It is suspected that the certainty about the acquisition of return on EBF is similar to that on DBF. This proposition is built based on Hidayah *et al.*'s (2019) study, which states that IBs attempted to translate PLS transactions according to local market preferences by trying to provide a steady income and transfer risk from the banks to the entrepreneurs. This finding leads to the suspicion that PLS practices are not in line with PLS ontology that may result in non-interest-free practices (Ergeç & Arslan, 2013; Mahmood & Rahman, 2017).

This study evaluates the implementation of EBF in Indonesia and examines whether EBF generates income similar to DBF and whether the equivalent rate of IB financing return rate (IBFRR) and CB lending interest rate (CBLIR) are correlated. Previous studies have tested more on the correlation of interest rate with IB return rate. However, previous studies, such as those conducted by Chong and Liu (2009), Yusof *et al.* (2015), Hamza (2016) and Yuksel (2017) are limited to investment account holders (IAH) products. We only found Khalidin and Masbar (2017) and Šeho *et al.* (2020), as the only studies investigating whether IBFRR is interest-free. This study extends the studies of Khalidin and Masbar (2017) and Šeho *et al.* (2020) by comparing IBFRR with interest rate and comparing the equity-based financing return rate (EBFRR) and the debt-based financing return rate (DBFRR). Additionally, this study also examines the relationship between the return from EBFRR and CBLIR as it has been debated by researchers such as Mahmood and Rahman (2017) and Korkut and Özgür (2017).

This paper first focuses on whether EBF, like DBF, has a fixed return. Second, it examines whether CBLIR influences the EBFRR. The results are presented by describing the EBFRR, DBFRR, IBFRR and CBLIR. Next, a causality test is conducted between the EBFRR and DBFRR. This study also examines the causality from the IBFRR to CBLIR.

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

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Financing at Islamic Banks

IBs act as intermediaries between customers with excess money and those who need money. Unlike CBs, IBs will collect money from third-party funds using a profit-sharing contract (savings and deposits) or *wadīʿah* (demand deposits). Funds raised by banks are distributed among different modes of financing, such as *muḍārabah*, *mushārakah*, *murābaḥah*, *salam*, *istiṣnāʿ* and *ijārah* financing.

Muḍārabah and *mushārakah* financing uses the EBF system. Under *muḍārabah* transactions, banks provide capital to customers (entrepreneurs/debtors). Further, the financial losses of the customers are fully borne by banks. However, the customer is responsible if he incurs a loss following any error or negligence (Warninda *et al.*, 2019). If both the bank and the customer contribute capital in a business, in that case, the transaction is known as *mushārakah*, and the business loss is divided between the two parties based on the share of capital ownership.

In contrast with *muḍārabah* and *mushārakah*, financing transactions under *murābaḥah*, *salam*, *istiṣnāʿ* and *ijārah* do not transfer the risk of loss from the customer to the bank. *Murābaḥah*, *salam* and *istiṣnāʿ* transactions are sale and purchase transactions. Moreover, banks as sellers are entitled to receiving income on the difference between the selling price and the purchase price. *Ijārah* transactions are leases for certain assets. As the owner of the assets, the bank is therefore entitled to receiving rental income from this transaction. Therefore, under *murābaḥah*, *salam* and *istiṣnāʿ* transactions, banks are entitled to receive fixed incomes and there is no risk transfer for business losses faced by customers (Alam & Parinduri, 2017; Suzuki *et al.*, 2019; Warninda *et al.*, 2019).

As such EBF transactions are riskier than other transactions. Abusharbeh (2014) and Mukhibad and Khafid (2018) found a relationship between EBF and non-performing financing (NPF). (Mukhibad *et al.*, (2023), using data from 54 banks from 19 countries, found that EBF has a positive effect on NPF. Thus, (Belkhaoui *et al.*, Alsagr and van Hemmen, (2020) reports that a higher level of participation in *muḍārabah* and *mushārakah* financing will generate high credit risk for banks in the GCC. One of the risks of EBF arises when the borrower does not allow the bank to track the earned income, so that the bank cannot ensure a fair process for revenue sharing (Sapuan *et al.*, 2016; Warninda *et al.*, 2019). Previous studies have identified problems arising under PLS, such as agency problems (Dar & Presley, 2000), information asymmetry (Muda & Ismail, 2010; Warninda *et al.*, 2019), moral hazard (Mahmood & Rahman, 2017), and high monitoring costs (Abdul-Rahman *et al.*, 2014; Hidayah *et al.*, 2019).

Commented [SS12]: What is NPF?

Commented [U13R12]: NPF is Non-Performing Financing (page 7).

Bank regulators in Indonesia divide credit risk into two: non-performing loans (NPL) for conventional bank credit risk and non-performing financing (NPF) for Islamic bank credit risk.

Field Code Changed

Implementation of PLS Transactions

The rapid development of IBs has encouraged researchers to evaluate whether their approach is interest-free. Researchers have examined whether the practice of PLS products is in line with the fundamental concept of interest-free banking under Islamic law. PLS aligns with the basic principle of Islamic finance which states that there is no income without risk-bearing (Mahmood & Rahman, 2017). Interest is deemed an unfair transaction because the profits are realised without sharing risk (Rosly & Bakar, 2003; Belal *et al.*, 2015). The argument reflects the Islamic legal principle that loss is commensurate with return and earning is commensurate with liability (Šeho *et al.*, 2020).

Researchers investigating the implementation of PLS transactions in IBs have produced mixed findings. Chong and Liu (2009) found that EBF implementation was deficient and that IBs' deposits were not interest-free. IBs are more inclined to use DBF which is another acceptable mode of financing in Islamic law and ignore other modes of financing for avoiding interest (Chong & Liu, 2009). This finding is strengthened by the research of Hamza (2016) and Šeho *et al.* (2020). Hamza (2016) found that the ratio of capital and interest rates are two factors that positively affect the return on deposits of IBs. Interest rates determine the returns on deposits of IBs. Šeho *et al.* (2020) found that equity-based financing return rate (EBFRR) is positively correlated with interest rates. Additionally, sales-based contracts and leases continue to dominate IB financing (Šeho *et al.*, 2020).

Different findings are presented by Yusof *et al.* (2015) and Yuksel (2017). Yusof *et al.* (2015) found no relationship that prevails between PLS rates and interest rates in the long run. In the short term, the study found that there is a relationship between PLS equivalent rates and CB interest rates, except in the case of IBs located in Saudi Arabia. Yuksel (2017) found that PLS transactions of IBs are not related to CBs. This finding indicates that the determination of the PLS equivalent rate in IBs does not use interest rate benchmarks. Similarly, the determination of interest rate also does not use PLS return benchmarks.

Hidayah *et al.* (2019) carried out a different research approach to explore the application of PLS in IBs, notably using a qualitative approach. The study by Hidayah *et al.* (2019) involved 40 participants consisting of managers, advisors, Sharīʿah compliance officers, Sharīʿah board members and regulators from Oman, Abu Dhabi, the United Kingdom (UK), Malaysia and Indonesia. They found that the products structured using PLS were repackaged to replicate conventional finance products. The offering of PLS products aimed at meeting the spiritual needs of customers who sought to comply with Sharīʿah requirements. Nonetheless, the practice of PLS faced constraints such as market competition which forced IBs to harmonise the interests of

various stakeholders to be able to compete. One participant even revealed a bank's attempt to make a fixed return on EBF and further transfer the risk of loss from the bank to the entrepreneur (Alaabed & Masih, 2016; Hidayah *et al.*, 2019).

Hypothesis Development

Previous studies have produced mixed findings in presenting evidence of PLS transactions in IBs leading to debates among researchers (Mahmood & Rahman, 2017). First, there are indications that it is difficult to practise EBF according to its epistemology (i.e., sharing of profit and loss between partners). The actual practice of EBF transactions in fact is the result of the bank management trying to replicate conventional financial products so that EBF generates fixed income and transfers risks from the bank to customers. Warninda *et al.* (2019) also show that EBF transactions pose a problem of uncertain return as the distribution of return is based on the realisation of the customer's business profit. Thus, the structuring of EBF similar to DBF results in fixed income and in the transfer of risk similar to the case of DBF (Alaabed & Masih, 2016; Warninda *et al.*, 2019).

EBF products that tend to generate fixed incomes are structured as *mushārakah mutanāqiṣah* (diminishing partnership) (Kashi & Mohamad, 2017). The *mushārakah mutanāqiṣah* contract is a *mushārakah* agreement combined with buying and selling (Fatwa DSN-MUI/XI/2008). A *mushārakah mutanāqiṣah* contract can also be a hybrid contract that combines three concepts: *mushārakah*, *ijārah* (lease) and *Wa'ad tuma bay'i* (promise followed by a sale)~~sale~~ (Ahroum *et al.*, 2020). The lease contract used under *mushārakah mutanāqiṣah* generates the fixed rental fee which is shared between the customer and the bank based on their respective share of ownership in the underlying asset.

Kashi and Mohamad (2017) state that the *mushārakah mutanāqiṣah* contract is controversial due to the question regarding whether it includes a partnership transaction or is more likely to resemble conventional loans. Kashi and Mohamad (2017) found that *mushārakah mutanāqiṣah* financing is more inclined towards debt contracts than partnerships. According to Hosen (2009), the application of the *mushārakah mutanāqiṣah* scheme is beneficial to banks just as much as or more than *murābaḥah* financing. Based on the above discussion, the following hypothesis is formulated:

H1: There is a causality between equity-based financing return rate (EBFRR) and debt-based financing return rate (DBFRR).

The other factor that distinguishes EBF from DBF is credit risk. Abusharbeh (2014) and Mukhibad and Khafid (2018), using a sample of IBs in Indonesia, found a positive relationship between the EBF ratio and non-performing financing (NPF), where an increase in EBF causes an increase in NPF. IBs in Indonesia prefer to use DBF to better control bank risks (Abusharbeh, 2014). Grassa (2012), using a sample of IBs in the Gulf Cooperation Council (GCC) countries, concluded that greater revenue sharing leads to higher levels of risk for IBs. Thus, IBs with high EBF tend to have higher credit risks (Khan & Ahmed, 2001; Ariffin *et al.*, 2009; Misman *et al.*, 2020). In addition, the high credit risk in EBF may be due to agency problems (Dar & Presley, 2000; Beck *et al.*, 2013); information asymmetry (Muda & Ismail, 2010; Warninda *et al.*, 2019); and moral hazard (Mahmood & Rahman, 2017).

On the contrary, other literature argues that EBF can reduce credit risk (Chong & Liu, 2009; Zeineb & Mensi, 2014). EBF requires IBs to perform stricter due diligence and supervision of their

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The literature review should support the hypothesis i.e. the hypothesis should be developed based on the discussion of existing literature.

Don't understand how this hypothesis is developed.

Commented [U17R16]: Based on the references we cited in this section, we explain that the implementation of EBF is similar to DBF, because (1) there are indications that it is challenging to practice EBF according to its ideal (i.e., sharing of profit and loss between partners), (2) the actual practice of EBF transactions in fact is the result of the bank management trying to replicate conventional financial products so that EBF generates fixed income and transfers risks from the bank to customers.

Based on this argument, we develop the hypothesis that there is a causality between equity-based financing return rate (EBFRR) and debt-based financing return rate (DBFRR)

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financing. To avoid moral hazard and adverse selection issues, IBs would evaluate entrepreneurs' eligibility strictly so that credit risk can be reduced (Warninda *et al.*, 2019). Warninda *et al.* (2019) also support the hypothesis that EBF can reduce NPF.

In accordance with the purpose of this study to empirically examine whether EBF is similar to DBF, the following hypothesis is proposed:

H2: There is a causality between the equity-based financing risk (EBFRISK) and debt-based financing risk (DBFRISK).

The findings of previous studies have shown that EBF has not been practised according to its rules. They also concluded that EBF is not free from interest. Ideally, profit-sharing in EBF contracts should be based on real performance rather than interest. However, the tests carried out by Chong and Liu (2009), Hamza (2016) and Šeho *et al.* (2020) show that the EBFRR is related to CBLIR.

Additionally, Yusof *et al.* (2015) and Yuksel (2017) found no relationship between the IBFRR and CBLIR. Yusof *et al.* (2015) even rejected the conclusion that IBs are not interest-free simply because of the finding that the deposit return rate (IAH return rate) is correlated with interest rate. According to Yusof *et al.* (2015), the profit shared by a bank to IAHs is derived from EBFRR, where EBFRR is influenced by the opportunity cost of capital or the real rate of economic growth. This is one of the main determinants of interest rates in the economy. Yusof *et al.* (2015) stated that the return on investment of IBs in the form of EBF is assumed to be influenced by economic conditions. Further, these economic conditions are indicators of determining interest rates. This assumption is reinforced by Zarrouk *et al.* (2016), who found that IBs perform better in an environment where gross domestic product (GDP) and investments are high. Based on this analogy, it is clear that the EBFRR can be related to CBLIR. Therefore, the next hypotheses proposed in this study are:

H3: There is a causality between the equity-based financing return rate (EBFRR) and conventional bank lending interest rate (CBLIR).

H4: There is a causality between the Islamic bank financing return rate (IBFRR) and conventional bank lending interest rate (CBLIR).

RESEARCH MODEL

This study empirically examines causality between variables using time series data. The causality variables are:

1. Equity-based financing return rate (EBFRR) and debt-based financing return rate (DBFRR)
2. Equity-based financing risk (EBFRISK) and debt-based financing risk (DBFRISK)
3. Equity-based financing return rate (EBFRR) and conventional bank lending interest rate (CBLIR)
4. Islamic bank financing return rate (IBFRR) and conventional bank lending interest rate (CBLIR).

It uses IBs and CBs in Indonesia and conducted monthly data observations from 2005 to 2019, producing 132 units of analysis. The study uses the Islamic banking statistics and Indonesia banking statistics issued by the Financial Services Authority (OJK) as the data source.

The data in this study were time-series data and were processed using the Vector Error Correction Model (VECM), which can be written as follows:

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$$\Delta EBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta DBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (1)$$

$$\Delta DBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta DBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (2)$$

$$\Delta EBFRISK_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRISK_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta DBFRISK_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (3)$$

$$\Delta DBFRISK_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta DBFRISK_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRISK_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (4)$$

$$\Delta EBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta EBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta CBLIR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (5)$$

$$\Delta CBLIR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta CBLIR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta EBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (6)$$

$$\Delta IBFRR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta IBFRR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta CBLIR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (7)$$

$$\Delta CBLIR_t = a_1 \sum_{i=1}^{k} \beta_{1i} \Delta CBLIR_{t-i} + \sum_{i=1}^{k} \theta_{1i} \Delta IBFRR_{t-i} + \delta_1 \gamma_{t-1} + \varepsilon_1 \quad (8)$$

Where:

- EBFRR is equity-based financing return rate
- DBFRR is debt-based financing return rate
- IBFRR is Islamic bank financing return rate (EBFRR and DBFRR)
- EBFRISK is equity-based financing risk that is measured by non-performance financing (NPF)
- DBFRRISK is debt-based financing risk that is measured by non-performance loans (NPLs)
- CBLIR is conventional bank lending interest rate
- Δ is the first-difference operator
- k_i is various lag on the regressors
- γ_{t-1} is the error correction term

The first step in the VECM test is the stationarity test (Haron & Azmi, 2008). The VECM model requires that all variables have stationary data. This study used the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests as the stationary test. The next step is the VAR order selection procedure. This step selects the optimal lag base on Akaike Information Criteria (AIC), which is commonly used to select the optimal lag in VAR models. This test produces the optimal lag in the second order~~on second~~. After determining the optimum lag, a VAR stability test is conducted using the autoregressive ~~(~~AR) Root table. If the value of the modulus is less than 1, it would indicate that the VAR satisfies the stability condition.

The next step is the cointegration test. The cointegration test was used based on maximum eigenvalue and trace statistics. This study will reject H_o if the probability value is less than 0.05 and vice versa. The cointegration vector represents the long-run equilibrium. Granger causality test (GCT) is used to examine the causality and direction of the influence of one variable on another variable. This study uses bivariate GCT based on ~~(~~Granger~~,~~ (1969)~~Granger (1969)~~. The Impulse Response Function (IRF) is the response to a single impulse, measured at a series of times after the input.~~used to see the variable response to shock at overtime~~.

RESULTS

This section presents the descriptive data in **Table 3**. Observations made were based on monthly data for 11 years. **Table 3** shows that *muḍārabah* financing has a return with an average equivalent rate of 14.17 per cent, while the equivalent rate of *mushārakah* financing return is 11.81 per cent. The equivalent return rate of *murābaḥah*, *istiṣnāʿ* and *ijārah* financing is 13.76 per cent, 13.15 per cent and 5.51 per cent, respectively. The average EBFRR is 12.99 per cent, while the average DBFRR is 10.81 per cent. The standard deviation of EBFRR is 2.09 and that of DBFRR is 1.15. This standard deviation of EBFRR, which is greater than that of the DBFRR, leads to the

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hypothesis and the finding that EBF has greater income volatility than DBF. Strengthened by **Figure 1**, the results show that the EBF practice is in line with its epistemology.

Table 3: Descriptive Statistics

Indicators	Mean	St Dev.	Min.	Median	Max	Skew	Kurt.
EBFRR (*Muḍārabah*)	14.17	3.10	9.17	13.53	21.87	0.26	-0.72
EBFRR (*Mushārakah*)	11.81	1.55	8.91	11.57	14.97	0.005	-0.82
DBFRR (*Murābaḥah*)	13.76	1.44	11.44	13.61	18.69	0.51	0.52
DBFRR (*Istiṣnā`*)	13.15	1.17	10.56	13.26	14.73	-0.75	-0.50
DBFRR (*Ijārah*)	5.51	4.98	-0.005	8.73	11.16	-0.04	-1.99
EBFRR	12.99	2.09	9.205	12.97	17.68	-0.21	-0.96
DBFRR	10.81	1.15	7.63	10.82	12.71	-0.13	-0.95
EBFRISK-*Muḍārabah*	2.99	1.10	1.52	2.66	6.55	1.71	2.85
EBFRISK-*Mushārakah*	4.49	1.09	2.94	4.49	6.84	0.34	-1.00
DBFRISK-*Murābaḥah*	4.38	0.72	2.90	4.51	6.09	-0.41	-0.34
DBFRISK-*Istiṣnā`*	2.56	1.34	1.19	1.88	6.27	1.23	0.33
DBFRISK-*Ijārah*	2.76	1.67	1.43	2.18	7.57	2.15	2.85
EBFRISK	4.19	0.88	2.89	4.20	6.18	0.49	-0.65
DBFRISK	4.24	0.70	2.83	4.40	5.88	-0.38	-0.41
CBLIR	12.39	0.98	10.58	12.46	14.84	0.07	0.02
IBFRR (EBFRR and DBFRR)	11.63	7.26	14.09	0.83	11.81	-2.06	6.90

Source: Authors' own

Test Model

This study uses time-series data and assumes that the underlying time series is stationary (Gujarati & Porter, 2009). Stationary data is data that does not vary due to seasonal patterns. Two-unit root tests are utilised in this study, namely the Augmented Dickey-Fuller (ADF) test and Phillip-Perron (PP) test, which are usually used for time series data. The results of the ADF and PP tests are presented in **Table 4**. With the ADF and PP tests at the level, the probability is more than 0.05, which indicates that the data is not stationary at the level. The ADF and PP tests results on the first difference produce a probability of less than 0.05, which indicates that the data is stationary at the first difference.

Table 4: Unit Root Tests Results

Variables	ADF Test				Phillip Perron Test			
	Level		First Difference		Level		First Difference	
	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
EBFRR	-0.4791	0.8905	-12.7528	0.0000 ***	-0.9771	0.7601	-25.5422	0.0000 ***
DBFRR	-1.2969	0.6298	-16.8003	0.0000 ***	-1.4268	0.5673	-17.1043	0.0000 ***
EBFRISK	-2.11199	0.2408	-5.53099	0.0000 ***	-1.4886	0.5331	-8.5463	0.0000 ***
DBFRISK	-1.12638	0.7005	-9.79921	0.0000 ***	-0.9716	0.7585	-9.8293	0.0000 ***
IBFRR	-1.64317	0.4577	-11.9363	0.0000 ***	-2.8519	0.0540	-21.0779	0.0000 ***
CBLIR	-1.73734	0.4102	-9.28375	0.0000 ***	-1.7454	0.4061	-10.5601	0.0000 ***

Note: ***, **, * indicate significance at 1%, 5%, 10%, respectively.
Source: Authors' own

Table 5 shows the results of the VAR stability test using the AR Root table. If the VAR estimation result is unstable, then the Impulse Response Function and Variance Decomposition will be

invalid. **Table 5** shows the value of modulus less than 1 and indicates that VAR satisfies the stability condition.

Table 5: VAR Stability Test

Root	Modulus
-0.379873 - 0.510677i	0.636470
-0.379873 + 0.510677i	0.636470
-0.000775 - 0.491089i	0.491089
-0.000775 + 0.491089i	0.491089
0.090515 - 0.411987i	0.421813
0.090515 + 0.411987i	0.421813
-0.089001	0.089001
-0.027045	0.027045

Source: Authors' own

Cointegration Test

Table 6 shows the cointegration test using the maximum eigenvalue and trace statistics. The cointegration test results show a probability value of less than 0.05 and thus, the decision is to reject the null hypothesis and shows that there is cointegration between the variables tested. In other words, there are 6 cointegration vectors for a set of variables in the system. The existence of a cointegration vector indicates that all variables in the system have long-run equilibrium.

Commented [SS30]: What is the null hypothesis in this case?

Commented [U31R30]: We have revised it.

Table 6: Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**
None *	0.540490	139.5766	95.75366	0.0000
At most 1 *	0.408151	91.36577	69.81889	0.0004
At most 2 *	0.296348	58.84650	47.85613	0.0033
At most 3 *	0.247858	37.05525	29.79707	0.0061
At most 4 *	0.191932	19.39579	15.49471	0.0123
At most 5 *	0.094915	6.183060	3.841466	0.0129

Source: Authors' own

Commented [SS32]: What is CE?

Commented [U33R32]: The "Hypothesized No. of CE(s)" refers to the number of cointegrating equations that are assumed or hypothesized in a particular analysis or model.

Granger Causality Test

Granger causality test (GCT) is used to test the causality and direction of the influence of one variable on another variable. GCT is used to answer the research hypotheses as presented in **Table 7**. The GCT on whether there is correlation between the EBFRR and DBFRR produced an f-statistic of 0.73015 and a probability of 0.4839. However, the correlation DBFRR to EBFRR produces an f-statistic of 1.06075 and a probability of 0.3493. These results indicate that there is no correlation between EBFRR and DBFRR and vice versa.

The GCT to test the causality of EBFRISK to DBFRISK produced an f-statistic of 1.11514 and a probability of 0.3347. However, the results of the DBFRISK test against EBFRISK resulted in an f-statistic of 0.14343 and a probability of 0.8667. This result also shows that there is no correlation between the NPF from EBF and DBF. This means that the risks of EBF and DBF are mutually unrelated.

The results of the GCT between the CBLIR with EBFRR produced an f-statistic of 0.08380 with a probability of 0.9197. However, conversely, the results of the causality test between EBFRR

and CBLIR produced an f-statistic of 0.03641 and a probability of 0.9643. These results indicate that EBFRR is not related to CBLIR. These results reinforce the conclusion that there is a tendency for EBF to be consistent with its epistemology.

Table 7 further shows that the GCT between IBFRR and CBLIR produced an f-statistic of 0.03764 with a probability of 0.9631. The GCT between CBLIR and IBFRR produced an f-statistic of 0.11441 with a probability of 0.8920. The test shows that IBFRR (EBFRR and DBFRR) is not correlated with CBLIR and vice versa.

Table 7: Granger Causality Test

Null Hypothesis:	F-Statistic	Prob.
Hypothesis 1		
D(EBFRR) does not Granger Cause D(DBFRR)	0.73015	0.4839
D(DBFRR) does not Granger Cause D(EBFRR)	1.06075	0.3493
Hypothesis 2		
D(EBFRISK) does not Granger Cause D(DBFRISK)	1.11514	0.3347
D(DBFRISK) does not Granger Cause D(EBFRISK)	0.14343	0.8667
Hypothesis 3		
D(EBFRR) does not Granger Cause D(CBLIR)	0.03641	0.9643
D(CBLIR) does not Granger Cause D(EBFRR)	0.08380	0.9197
Hypothesis 4		
D(IBFRR) does not Granger Cause D(CBLIR)	0.03764	0.9631
D(CBLIR) does not Granger Cause D(IBFRR)	0.11441	0.8920

Source: Authors' own

Impulse Response Function

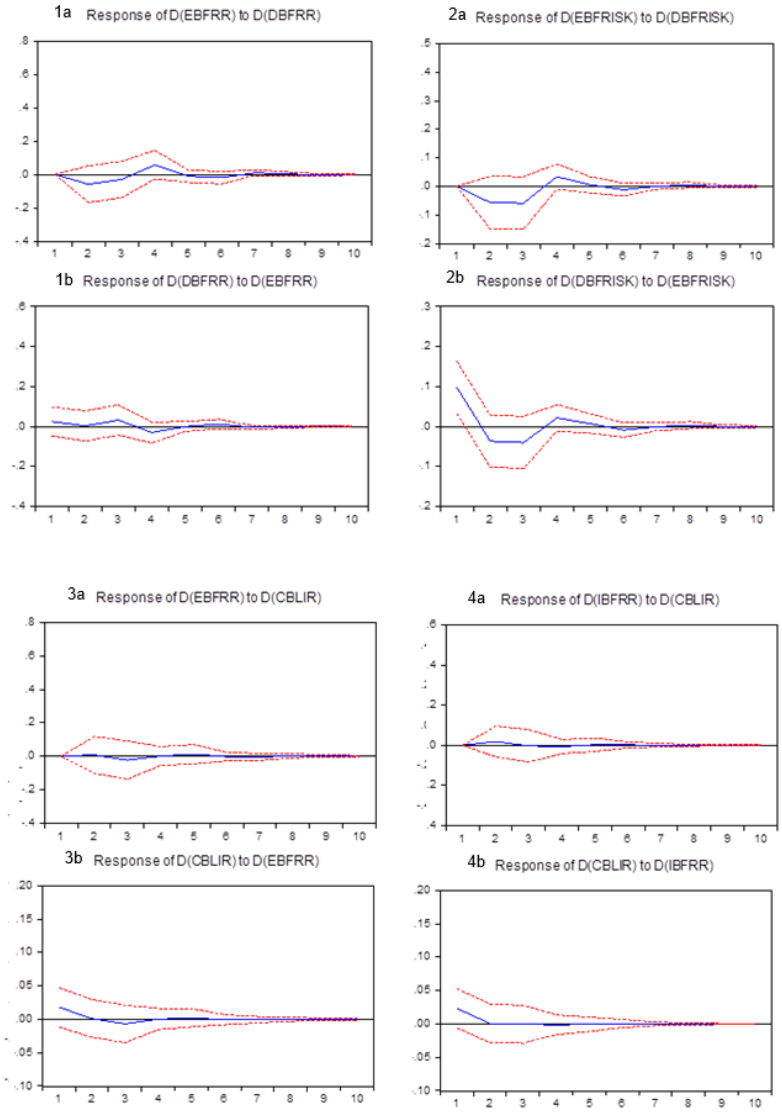
The impulse response function (IFR) describes the reaction of the variable as a function of time and parameterizes the dynamic behaviour of the variable. This study uses eight variables, and the results of the IRF are presented in **Figure 1**. The response of EBFRR to DBFRR (1a) indicates that EBFRR fluctuates and has a positive or negative response. This response is for approximately six months. The same response is also shown in (1b), showing that DBFRR has a fluctuating response (negative and positive response) to EBFRR.

The response of EBFRISK to DBNFRISK (2a) showed a fluctuating response for approximately six months and had more negative responses. The same response also occurs in DBFRISK to EBFRISK. This fluctuating response confirms the GCT results that there is no correlation between DBFRISK and EBFRISK.

The response of EBFRR to CBLIR (3a) showed less response. The negative response only occurred in the third month. On the other hand, the response of CBLIR to EBFRR (3b) was more volatile than the response of EBFRR to CBLIR. The response of CBLIR to EBFRR is for approximately four months. The response 'interest lending' has a high response to EBF returns. This fluctuating response confirmed the absence of a correlation between EBFRR and CBLIR.

The response of IBFRR to CBLIR (4a) showed a less fluctuating response. A positive response occurred in the second month. On the other hand, CBLIR has a fluctuating response to IBFRR (4b). **Figure 1** shows that CBLIR had a positive response to IBFRR in the second month.

Figure 1: Impulse Response Function Results



Source: Authors' own

DISCUSSION

IBs have two different types of financing in the process of sharing returns between banks and customers, notably, EBF and DBF. In EBF, the bank obtains income that comes from a certain percentage (or the ratio) of business revenue run by the customer. In DBF, banks receive income on sales profit margins or rental income of a fixed amount.

Other researchers identified that the high risk of EBF is due to the potential for uncertain income compared to DBF (Warninda *et al.*, 2019). The GCT results in **Table 7** show that EBF and DBF have different characteristics of revenue acquisition risk. EBF has greater income uncertainty (Warninda *et al.*, 2019). The EBFRR and DBFRR are not correlated. Additionally, in line with the findings of Ernawati (2016), it is found that EBF (especially *muḍārabah*) has a lower certainty of return than DBF. This means that the two financing modes are different and it can be concluded that both EBF and DBF are functioning in line with their epistemology. This result rejects the conclusion of Hidayah *et al.* (2019) on the pseudo practice of EBF which seemingly operates similar to DBF. This study also rejects the argument of Mahmood and Rahman (2017) and the findings of Chong and Liu (2009), Ergeç and Arslan (2013), Hamza (2016) and Šeho *et al.* (2020), who claimed that PLS products offered by IBs are not interest-free. Hidayah *et al.* (2019) concluded that banks implemented PLS contracts artificially because the banks modified the PLS contract to make it easier to operate in line with customer preferences by setting fixed income policies, similar to the case of DBF. However, the results in this study show that EBF generates more volatile returns than DBF. This is in line with the main characteristics of PLS. This study's and Hidayah *et al.*'s (2019) results differ due to the differences in the two studies. Hidayah *et al.* (2019) used qualitative methods. Therefore, their conclusions were based on the results of interviews with bank leaders. However, this study employed a quantitative approach and used empirical data reported by bank managements in their financial statements. Further, there is a possibility that what was conveyed by the informants in Hidayah *et al.*'s (2019) study was not supported by data in the financial statements.

~~Risk data~~Table 3 show that EBF has a lower risk than DBF. When viewed from the type of financing, *mushārakah* financing was found to have a higher risk than *muḍārabah* financing. This finding rejected the results of Ernawati (2016), who stated that *muḍārabah* had a higher risk than *mushārakah* due to information asymmetry. Also, this research differs from the findings of Mukhibad *et al.* (2023) and ~~(~~Belkhaoui, Alsagr and van Hemmen~~,~~ (2020) who reported that EBF has a positive influence on NPF. ~~This study also~~We found that *murābaḥah* financing has higher risk compared with other types of EBF. Furthermore, *murābaḥah* has a higher risk than *muḍārabah*. This is contrary to the concept of *murābaḥah* financing. The difference between this research's results and previous literature is that this research processes aggregate data for all banks, whereas they process data for each bank. The characteristics of EBF financing cause banks to be stricter in channelling their financing; banks analyse the feasibility and projected profits of businesses run by customers to determine the proportion of profit sharing between the bank and customers. However, in DBF, which generates fixed income for the bank, the customer eligibility analysis differs from it in EBF. Moreover, Hendrik *et al.* (2018) show that DBF financing is for consumer financing and contributes most significantly to the increase of NPF. This condition caused DBF to have a greater risk in aggregate than EBF. ~~-~~There is no information asymmetry as in *muḍārabah*. From these findings, therefore, the conclusion that EBF has a high risk is rejected

Commented [SS34]: This does not make sense. How can murabahah have more risk than Mudarabah (EBF)?

Commented [U35R34]: We have added several sentences to explain why DBF is riskier than EBF. Thank you very much for your correction.

Commented [SS36]: Is this the findings of this study? Or is it from Ernawati (2016)??

Commented [U37R36]: This is our study funding.

and, conversely, DBF has a lower risk due to a low NPL. We suspect that the type of contract is not the cause of the difference in risks.

When viewed from the risk of financing, the results of the study show that the EBFRISK and DBFRISK are not correlated. The results indicate that DBF has a higher risk than EBF. We further assume that the low EBFRISK does not mean that EBF is not in line with its epistemology. This is because high risk is significantly influenced by the ability and character of the customer. We also found that the products that had the highest risk were *mushārakah, murābaḥah* and *muḍārabah*. The high risk of *mushārakah* and *murābaḥah* financing triggered a high bank risk. Therefore, EBF has a higher risk than DBF (Alam & Parinduri, 2017; Suzuki *et al.*, 2019; Warninda *et al.*, 2019). However, this high risk is due to uncertainty about return, rather than a high NPL.

The finding showed that there is no causality between EBFRR and CBLIR. This finding reinforces the study's other finding that EBF conform with its epistemology. In contrast to CBLIR, the equivalent of EBF return rate cannot be determined by the bank at the time of the contract. Rather, the determination of EBFRR is based on the business results run by entrepreneurs.

Comparing the EBFRR and CBLIR shows that CBs receive an interest rate of 12.39 per cent, which is greater than IBFRR with an equivalent rate of 11.63 per cent. The low equivalent rate of Indonesian IB financing may be due to the low market share of the Indonesian IBs, which is only 5.3 per cent (Mukhibad *et al.*, 2020). A low market share allows companies to adopt strategies that can help reduce the selling price of products and consequently attract customer interest.

The results of the correlation test between IBFRR and CBLIR show that the study found no causality between the two. In other words, IBFRR is unrelated to CBLIR and vice versa. This result reinforces the conclusion that IBs financing policies are not based on interest rates. These results reject the findings of Šeho *et al.* (2020) who found a positive correlation between equity-based financing return rate (EBFRR) and interest rates. Additionally, the study supports the conclusion of Yusof *et al.* (2015) and Yuksel (2017) that IBs are free from interest rate. Thus, IBs do not use CBLIR as a standard in determining the return rate on the financing they provide to customers.

CONCLUSION

This study contributes to the debate on whether IBs offer PLS transactions according to its epistemological rulings as per Islamic law. This study's results indicate that EBFRR is not related to DBFRR, leading to the conclusion that both EBF and DBF in Indonesian IBs operate in line with the Sharīʿah principles.

The results also provide evidence that the risk between EBF and DBF is mutually unrelated. This study further proves the main characteristics of EBF that have a different or higher risk than DBF.

The study also identified the correlation between EBFRR and CBLIR and found that the two are not related. EBFRR has an uncertain nature and cannot be determined in advance by the bank at the time of the contract. EBFRR is different from CB's interest rate where the bank can determine interest at the time of the credit agreement.

The results also prove that there is no correlation between IBFRR and CBLIR. The findings of this study and previous studies show that IBFRR is not related to interest rates. IBs do not use the interest rate as a standard in determining the return rate on the financing they provide to customers. IBFRR is based on the outcomes of businesses run by customers.

Commented [SS38]: Is this accepted or rejected?

Commented [U39R38]: Yes, this is right. We reject that EBF is riskier than DBF.

This study used time series data presented by banking regulators in Indonesia and not cross-sectional data. Therefore, it cannot explain whether the implementation of EBF in line with its initial concept occurs in all banks. Future research can make use of cross-sectional data to complement this study's results. Additionally, the equivalent return rate indicator reported by the regulators has been used. Future research can use another proxy by comparing the costs with the amount of financing reported in the banks' financial statements.

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ABOUT THE AUTHORS

Dr. Hasan Mukhibad is an Associate Professor at the Department of Accounting, Faculty of Economics and Business, Universitas Negeri Semarang, Indonesia. His research interests and subjects include Islamic Accounting, Finance, and corporate governance.~~Hasan Mukhibad~~
~~*Universitas Negeri Semerang, Semerang, Central Java, Indonesia*~~

Prof Doddy Setiawan is a Professor in Financial Accounting at the Department of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Indonesia. His current research is concerned with Financial Accounting and Corporate Governance.~~Doddy Setiawan~~
~~*Universitas Sebelas Maret, Surakarta, West Java, Indonesia*~~

DECLARATION

Credit Authorship Contribution Statement

- Hasan Mukhibad: conceptualization, investigation resources, methodology, data curation, validation formal, analysis, writing, and visualization.
- Doddy Setiawan: conceptualization, analysis, review, and editing.

Declaration of Competing Interest

The author/s states that no known competing financial interests or personal relationships could have influenced the research work. ~~The authors declare that they have no known competing financial interest or personal relationships that could have influenced the research work.~~

Acknowledgement

Data Availability

Data will be made available on request.

Appendix

None

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Please indicate who is the corresponding author and provide his/her email address.

Commented [U41R40]: We have added it.

Commented [SS42]: Please indicate here the specific works carried out by each of the authors, i.e. who did what in the paper? It should be provided in brief form (e.g. conceptualization, write up, methodology, interviews, project overview, presentation of findings, analysis, review and editing, etc etc….)

Commented [U43R42]: We have added it.

Commented [SS44]: The authors have to declare that they have no conflict of interest. You can write this statement in your own words if you prefer so.

Commented [U45R44]: We have added it.

Commented [SS46]: Please add acknowledgement (if any). For instance, about financial grant, note of thanks, etc.

If the study draws from a Phd dissertation or from a conference paper, same should be notified and included within this section. However, the conference paper should not have been published before, which would justify publication of this article.

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Commented [U49R48]: Thank You. We will send our data.

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Dear Dr Hasan Mukhibad (corresponding author) and Co-authors

Assalamu Alaikum

I refer to your manuscript submitted to ISRA International Journal of Islamic Finance titled:

INVESTIGATING EQUITY-BASED FINANCING AND DEBT-BASED FINANCING IN ISLAMIC BANKS IN INDONESIA

It is a pleasure to accept this manuscript in its current form for publication in ISRA International Journal of Islamic Finance.

The final version of the accepted manuscript is as attached.

We now await:
- the copyright form of the co-author (Dr Doddy Setiawan) and
- a summary of the data used in the study to be submitted to us.

Please submit the above to be able to proceed with publication.

Thank you for your contribution to ISRA International Journal of Islamic Finance.

On behalf of the Editors of ISRA International Journal of Islamic Finance, we look forward to your continued contributions to the Journal.

Yours sincerely
Dr Salma Sairally
Editor

Salma Sairally (PhD, CSAA)
Editor, ISRA International Journal of Islamic Finance (IJIF)
ISRA Research Management Centre
INCEIF University
Email: israjournal-editor@inceif.edu.my

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Thank you very much for your email. I apologize for my mistake because yesterday, I only sent the copyright form from the first author.
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Thank You

Kind regard

Hasan Mukhibad
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--
Hasan Mukhibad
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Dear Dr Hasan

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Regards
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Prof. Doddy Setiawan, SE, M.Si, IMRI, PhD, Akt, CA
Fakultas Ekonomi dan Bisnis
Universitas Sebelas Maret
Surakarta, Indonesia

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