

Analysis of Measurement and Revenue Recognition in Sharia Business Unit of PT Bank Pembangunan Daerah Jawa Timur Tbk

Rizqi Nur Afriawan1*, Fitri Komariyah2

^{1,2} Sekolah Tinggi Ilmu Ekonomi Mahardhika Surabaya, Indonesia

Email: 1) rizqinurafriawan7@gmail.com, 2) fitri.komariyah@stiemahardhika.ac.id

Article history: Received: Mar 01, 2025 Revised: Apr 10, 2025 Revised: Apr 10, 2025 Accepted: Apr 10, 2025 Accepte

Notes: All manuscripts should not exceed 20 pages and should have a minimum of 5 pages

© 2025 by the authors; licensee Cendekia Putra Jaya, Indonesia

1. Introduction

Income and Profit Sharing Unit Usaha Syariah Bank Jatim

Indonesia is a country with the largest Muslim population in the world, so it has great potential to be at the forefront of the halal industry, especially in the field of Islamic finance. The main factor in the development of the halal industry ecosystem in Indonesia is the awareness of the public of the importance of strong stakeholder support for the halal industry. Islamic banks play an important role in facilitating all economic activities in Indonesia. In the last three decades, the existence of Islamic banking has increased significantly in Indonesia.

Bank Jatim Syariah Surabaya was formed starting from the History of East Java Regional Development Bank, known as Bank JATIM, established on August 17, 1961 in Surabaya. The legal basis for the establishment of Anwar Mahajudin Notary Deed No. 91 dated August 17, 1961 and equipped with an operational basis suart Decree of the Minister of Finance No. BUM.9-4-5 dated August 15, 1961. In order to maintain its existence and keep pace with the banking demands at that time, in accordance with the General Meeting of Shareholders (GMS) for the fiscal year 1997, it was approved to change the legal form of the Regional Development Bank into a limited liability company (PT). Based on Article 2 of the Regulation of the Minister of Home Affairs (PMDN) Number 1 of 1998 concerning the form of legal entity of the Regional Development Bank, then on March 20, 1999 the Regional People's Representative Council (DPRD) of the province of East Java Level I has ratified Regional Regulation Number 1 of 1999 concerning Changes in East Java Region from Regional Company (PD) to Limited Liability Company (PT). East Java Regional Development Bank.

The needs of the community for Islamic banking makes Bank Jatim establish Sharia Business Unit established based on Bank Indonesia Letter No. 9/75/DS/Sb dated April 4, 2007 regarding: approval in principle the establishment of Sharia Business Unit (UUS), the opening of a sharia branch office and members of the Sharia Supervisory Board (DPS) and Bank Indonesia letter No. 9/148/DPIP/Prz/Sb dated July 24, 2007 regarding: permission to open a sharia branch office. Bank Jatim Syariah operations were inaugurated on Tuesday, August 21, 2007 coinciding with the 8th of Shaban 1428 H. In its journey for seven years of operation Bank Jatim Syariah has been present with a lot of development and innovation in order to provide the best financial services according to customer needs through a variety of products with sharia principles. Service is

one of the most important elements in the development of the bank's business. Related to that, Bank Jatim Syariah is committed to providing convenience to the public in transactions through network expansion, both office networks, sharia services, and electronic channels such as ATMs (Automatic Teller Machine, SMS Banking, EDC and Mobile Banking).

Bank Jatim Sharia segment currently consists of Third Party Funds/Savings, Financing and Services. Bank Jatim Syariah is a bank with the principle of profit sharing which is the main foundation in all its operations, both in the collection and distribution of funds. From financing with the principle of profit sharing, a share of profit / profit is obtained according to the initial agreement or profit sharing ratio with each customer. The calculation of profit sharing, of course, is calculated from a certain percentage of the profit earned. This contains an element of uncertainty, there is a possibility of customers making a profit or loss. There is a possibility that profits are obtained differently between one period and another. The element of uncertainty in the business or project is what makes Islamic banks unable to recognize income on an accrual basis. The flow of incoming assets in the form of cash can only be known if the customer has actually deposited it.

In the Indonesian Institute of Accountants (2007: 59) concerning Islamic Banking Accounting, in paragraph 162 it is explained "that the income groups of Islamic banks include main operating income and other operating income." The main operating income is obtained from sale and purchase income, income from rent, and income from profit sharing and other operating income obtained from distribution administration income, fee income for reward-based bank activities, among the cash basic income, researchers are interested in examining profit sharing income because it is in accordance with the basic assumptions in Islamic Banking Accounting is accrual basic, but in this profit sharing income, there is income that is still in recognition or accrual basic and there is real income received or, while income that is still in recognition is not allowed to be distributed to fund owners.

To find out the recognition and measurement of profit sharing income applied by Islamic banks in Indonesia, researchers took a case study on the Sharia Business Unit Division to make it easier and more accurate in the data collection and observation process later. In this case, the researcher chose a case study on the Islamic Business Unit of Bank Jatim, as a leading commercial bank that has opened an Islamic Business Division. To clarify the scope of the problem in this case, researchers limit the recognition and measurement of revenue from profit-sharing operations only, namely mudharabah and musyarakah. Based on the background description stated above, the problem can be formulated, namely How is the recognition and measurement of profit sharing income in the Islamic Business Unit of Bank Jatim? The purpose of this study is to determine how the recognition and measurement of profit sharing income in the Islamic Business Unit of Bank Jatim.

2. Literature Review

2.1. Revenue Recognition and Measurement

In Sharia banks, revenue measurement cannot be done at the time the transaction is signed because revenue will only be known after the distribution of results. Revenue recognition is the most difficult thing to do because it includes the process of revenue generation and realization. Paton and Littleton in Suwardjono (1989) explain that the concept of realization is very different from the formation of income. Realization is a technical accounting concept that can be used as a basis for marking revenue recognition.

The time of revenue recognition is also very important in revenue measurement. According to Suwardjono (1989) there are 5 moments of revenue recognition, namely: revenue is recognized when a sales contract occurs with a definite contract value but the company does not yet have the goods or services to be delivered, revenue is recognized gradually in the stage of production activities proportional to the progress of production, revenue is recognized when production is complete, revenue recognition at the time of sale of goods or delivery of services, and revenue recognition when cash is received.

Every income statement starts with total revenue, therefore a recognition and measurement of revenue is required, because there is revenue that can be realized and there is revenue that is still in process. In order to be reported in the financial statements, it is necessary to recognize and measure revenue. For this reason, there are two types of revenue recognition that are commonly known, the first is recognition using the accrual basis method, namely opinions that are recorded or recognized when revenue is generated regardless of when the

revenue is received, the second is recognition using the cash basis method, namely revenue that is recorded or recognized when received and expenses are recognized when paid. In relation to revenue recognition, the Indonesian Institute of Accountants (2007: No. 23) explains that:

"A key issue in accounting is determining when to recognize revenue. Revenue is recognized when it is probable that future economic benefits will flow to the company and these benefits can be measured reliably, revenue is recognized when: it is realized or realizable and the process of earning the revenue is complete (earned)."

The basic principle for revenue recognition is that recognition should be recognized when earned. In Harahap (2005) it is said that revenue acquisition occurs if the following conditions are met, including: the bank must have the right to receive the revenue, there must be an obligation on the other side to send a certain or determinable amount to the bank, and if not yet collectible, the amount of revenue must be known and must be collectible with a sufficient degree of certainty. Accounting measurement concept defines broad principles for determining the amount by which the elements are recognized. In Islamic banking, revenue recognition and measurement are a problem that must be considered because there are slight differences at the time of recording and profit sharing, especially in profit sharing income.

In Harahap (2005), the National Sharia Council Fatwa number 14/DSNMU/IX/2000 dated September 1, 2000, explained that:

"The principle of profit sharing using the accrual basic or cash basic system in financial administration, in terms of benefit, in recording should be used cash basic system but in the distribution of business results should be determined on the basis of receipts that actually occur (cash basic), and the determination of the system must be selected and agreed upon in the contract."

According to Rosjidi (1999) there are two methods of recognizing and measuring revenue, namely: (1) Cash Basis, (2) Accrual Basis.

2.2. Profit Sharing Income

The customer of an Islamic bank repays the loan by handing over a portion of the profit of the business or project in proportion to the profit sharing to the bank. By the bank, this profit sharing is income. The income is obtained from the results of financing, buying and selling and renting. Thus it can be said that the concept of profit sharing is the concept of financing by mutual agreement, as Veithzal (2008) say "profit sharing is a fair financing concept and has a very strong partnership feel, and the results obtained are based on the agreed ratio or ratio and not as interest in conventional banks".

From this understanding it can be concluded that the calculation of profit sharing income needs to be determined from the beginning and known to both parties, thus meaning that the principle of calculating profit sharing must be determined, whether using net revenue, gross profit, or net profit. The principle of revenue sharing is applied based on the fact that the mudharib may not use mudharabah property as an expense either in a state of residence or traveling because the mudharib has received a share of the profit so he is not entitled to get something from that property which in the end he will get more than the share of shahibul mal. As for profit sharing, the mudharib can spend mudharabah assets only when the trade is on the road.

According to Yaya et al (2017) islamic banks may use the principle of revenue sharing and profit sharing as the basis for profit sharing, revenue sharing is the sales value of an item, namely the cost price plus a revenue margin, in the basis of profit sharing for Islamic banks, namely revenue minus the cost of goods sold and in accounting is usually called gross profit. Ideally, the principle of profit sharing is more reflective of actual profit because it results from the calculation of all revenues minus all costs, but technically in the field the principle of profit sharing opens up great opportunities for information imbalances between sahibul maal and mudharib, which can cause losses for sahibul maal.

In Veithzal (2008) The sharia basis for the principle of profit sharing is as follows: QS Al-Baqarah, (2: 282) "O believers, if you enter into debt and credit transactions for a specified period of time, write it down."; Hadith narrated by Tirmidzi and Amr bin Auf, "peace can be made by Muslims except for peace that prohibits the

halal or legalizes the haram."; and Ushul Fikih Rules: Asjmuni, A Rahman, Qoidah-qoidah Fiqh (1976:75).

If there is a matter that appears to have a benefit or benefit, but there is also a disadvantage or damage if it is carried out, then leaving it is better to achieve greater benefit. The income of Islamic banks is not only from profit-sharing income, but there are other revenues that are the full right of Islamic banks where other revenues are the full right of Islamic banks where these revenues are shared between the owners and managers of funds.

2.3. Definition of Mudharabah

Mudharabah comes from the Arabic darbh which means walking on or traveling on the earth. Meanwhile, according to Zulkifli (2003) in terms of Mudharabah is a partnership contract based on the principle of profit sharing by means of someone giving his capital to another person to do business and both parties share profits or bear the burden of loss based on the contents of a joint agreement. According to Muhammad (2007: 47) "mudharabah is a cooperation contract between the bank as the owner (shahibul mal) and the customer as mudharib who has the expertise or skills to manage a productive and halal business." The results of the profit are shared based on the agreed ratio and the risk of loss will be borne together according to the agreement."

2.4. Definition of Musyarakah

Income derived from profit sharing is also known as musyarakah, according to Veithzal (2008) "Musyarakah is a cooperation contract between two or more parties for a certain business where each party contributes funds with the agreement that the profits and risks (losses) will be borne together according to the agreement." The sharia basis for musyarakah, in Nurhayati & Wasilah (2009) are: Al-Qur'an Surah An-Nisa: 21 "If the brothers are more than one person, then they are partners in the third."

3. Methodology

3.1. Research Design

Based on the type of data, the data sources obtained from this research are: Primary data, namely the main data obtained from the parties concerned in the company which is the object of research. Secondary data, namely the second data source which functions as complementary data for primary data sources.

3.2. Data collection techniques were carried out by:

- a. Observation Technique: Through this technique, the research was conducted by collecting data by direct observation. This observation is carried out during working hours.
- b. Interview Technique: This technique is carried out by face-to-face and direct question and answer with authorized officials and those related to the research data.
- c. Documentation: Data collection techniques carried out by recording every archive and document related to Islamic banking disputes. Documentation data is accurate data and can be analyzed repeatedly without changing.

3.3. Data Analysis Method

In analyzing the data, using a qualitative descriptive method, namely the method by compiling the data obtained and then interpreted and analyzed so as to provide complete information for solving the problem at hand.

3.4. Object of Research

The research object in this study is a company engaged in banking management, namely the Bank Jatim Sharia Business Unit located on Jl. Dr. Soetomo No. 37, Surabaya, East Java.

4. Results and Discussion

4.1. General History of Bank Jatim Sharia Business Unit

Bank Jatim Syariah was formed starting from the History of East Java Regional Development Bank, known as Bank JATIM, established on August 17, 1961 in Surabaya. The legal basis for the establishment of Anwar Mahajudin Notary Deed No. 91 dated August 17, 1961 and equipped with an operational basis suart Decree of the Minister of Finance No. BUM.9-4-5 dated August 15, 1961. In order to maintain its existence and keep pace with the banking demands at that time, in accordance with the General Meeting of Shareholders (GMS) for the fiscal year 1997, it was approved to change the legal form of the Regional Development Bank into a limited liability company (PT). Based on Article 2 of the Regulation of the Minister of Home Affairs (PMDN) Number 1 of 1998 concerning the form of legal entity of the Regional Development Bank, then on March 20, 1999 the Regional People's Representative Council (DPRD) of the province of East Java Level I has ratified Regional Regulation Number 1 of 1999 concerning Changes in East Java Region from Regional Company (PD) to Limited Liability Company (PT). East Java Regional Development Bank.

The needs of the community for Islamic banking makes Bank Jatim establish Sharia Business Unit established based on Bank Indonesia Letter No. 9/75/DS/Sb dated April 4, 2007 regarding: approval in principle the establishment of Sharia Business Unit (UUS), the opening of a sharia branch office and members of the Sharia Supervisory Board (DPS) and Bank Indonesia letter No. 9/148/DPIP/Prz/Sb dated July 24, 2007 regarding: permission to open a sharia branch office. Bank Jatim Syariah operations were inaugurated on Tuesday, August 21, 2007 coinciding with the 8th of Shaban 1428 H. In its journey for seven years of operation Bank Jatim Syariah has been present with a lot of development and innovation in order to provide the best financial services according to customer needs through a variety of products with sharia principles. Service is one of the most important elements in the development of the bank's business. Related to that, Bank Jatim Syariah is committed to providing convenience to the public in transactions through network expansion, both office networks, sharia services, and electronic channels such as ATMs (Automatic Teller Machine, SMS Banking, EDC and Mobile Banking).

Bank Jatim's Sharia segment currently consists of Third Party Funds/Savings, Financing and Services. Network expansion is a supporting factor for the development of the Bank Jatim Sharia Business Unit (UUS). Customers can conduct banking transactions easily through the UUS network which includes 7 (seven) Sharia Branch Offices, 10 (ten) Sharia Sub-Branch Offices, 9 (nine) Sharia Payment Points, 195 Sharia Service Offices (KLS), 24 ATM Machines, 2 CRM ATM Machines and 6 Mobile Cash Cars.

4.2. Organizational Structure of Sharia Business Unit of Bank Jatim Sharia

Organizational structure is the arrangement of parts or organizational relationships, either by position or task in achieving common goals. The following is the structure of the Sharia Business Unit of Bank Jatim Syariah:

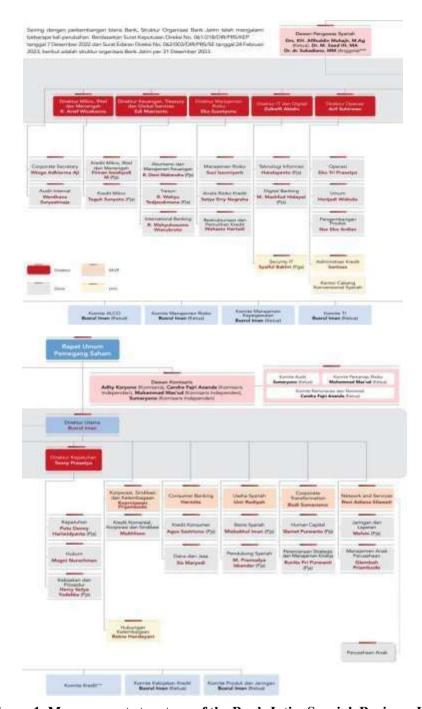


Figure 1. Management structure of the Bank Jatim Syariah Business Unit

4.3. Profit Sharing Income at Bank Jatim Sharia Business Unit

According to the results of interviews conducted by researchers with the Bank Jatim Islamic Business Unit, namely the accounting staff. The income of the Bank Jatim Islamic Business Unit is obtained in the same way as other Islamic banks, namely operating income obtained from the margin of murabahah transactions, profit sharing from mudharabah and musyarakah transactions, bonuses received from other Islamic banks, income from the placement of securities and other operating income obtained for the reporting bank's services in channeling third party funds in mudharabah financing where the bank is only channeling funds. While non-operating income is obtained outside the Bank's main business which is incidental, obtained from interest

income from non-bank companies and commission income for non-commissioned companies.

Islamic banks do not recognize interest, but customers get profit sharing based on the ratio agreed upon at the beginning of the account opening. What is meant by profit sharing or sharing in this case is that the Islamic Bank will invest or channel funds collected at the Islamic Bank in economic activities that are not contrary to sharia principles, both product and consumptive. The results or income from these activities are then returned to the customer in accordance with the ratio that has been agreed upon at the beginning proportionally depending on the amount and length of fund deposition. The income obtained from profit-sharing operations at the Bank Jatim Islamic Business Unit is obtained from mudharabah and musyarakah financing, where mudharabah is financing with the principle of profit sharing between banks and financing customers where the owner of the capital or bank provides part of the capital in an agreed business, or in the case of funds / savings products, the saver acts as an investor or shahibul maal while the bank acts as a mudharib financial manager who will invest funds in sharia-compliant real sectors.

Between the investor and the bank previously made a contract on the profit ratio that will be shared. So savers do not get interest but will get profit sharing according to the agreed ratio. Musyarakah is financing carried out through business cooperation between banks and customers where business capital comes from both parties. In this musyarakah financing, profits and losses will be borne together according to their respective portions.

4.4. Recognition of Mudharabah Income at Bank Jatim Sharia Business Unit

The researcher presented a case example of mudharabah financing at the Bank Jatim Islamic Business Unit, which was obtained from interviews with the Bank Jatim Islamic Business Unit itself. The example of the case is: Bank Jatim Sharia Business Unit channeled financing to CV. "ABC" in the amount of Rp.1,000,000,000, with mudharabah (revenue sharing) scheme. And the Bank Jatim Sharia Business Unit wants the profit sharing rate from the distribution of such financing is 15% per year, and CV. "ABC" is again channeling financing to traders in the area "X" and surrounding areas with murabahah (sale - purchase) scheme with a sales margin rate of 40%.

Then, the ideal profit sharing rate (mutually beneficial) between the Bank Jatim Islamic Business Unit and CV, "ABC" is: The calculation of the profit sharing rate is $15/40 \times 100\% = 37.5$ for CV. "ABC" and 62.5 for the Bank Jatim Islamic Business Unit. In the first year the financial statements of CV "ABC" are as follows:

a. Sales : Rp.1.400.000.000,b. Cost of Goods Sold : Rp 1.000.000.000,c. Gross Profit on Sales : Rp. 400.000.000,- (a-b)
d. Adm and Sales Expenses : Rp. 100.00.000,e. Net Profit on Sales : Rp. 300.000.000,- (c-d)

Because what is used is the mudharabah scheme (revenue sharing), the profit sharing received by the Bank Jatim Sharia Business Unit is 37.5% x Gross sales profit (Rp.400,000,000,-) = Rp150,000,000,- and for CV. "ABC" is Rp.250,000,000,- Different if what is used is the mudharabah scheme (profit & loss sharing), the profit sharing received by the Bank Jatim Sharia Business Unit is 37.5% x Net sales profit (Rp.300,000,000,-) = Rp.112,500,000,- and for CV. "ABC" is Rp.187,500,000,- In regulating the recognition and measurement of mudharabah income, the Bank Jatim Sharia Business Unit has already recognized and measured mudharabah income..000.000,-) = Rp.112.500.000,- and for CV. "ABC" is Rp.187.500.000,- In regulating the recognition and measurement of mudharabah income, the Bank Jatim Islamic Business Unit has implemented PSAK No. 105 concerning mudharabah accounting, because it is more specific than PSAK No. 59.

4.5. Recognition and Measurement of Musyarakah Income at Bank Jatim Sharia Business Unit

In recognizing and measuring musyarakah income, the Bank Jatim Islamic Business Unit has implemented PSAK 106 of 2007, for example in recognizing musyarakah income is recognized at the time of cash payment, in this case the Bank Jatim Islamic Business Unit receives payment in cash only, for that the value of the asset

is valued at the amount paid. Business income of musyarakah investment in Bank Jatim Sharia Business Unit can be known based on the profit sharing report on the realization of business income from the accounting records of the business manager, as stated in PSAK 106 paragraph 34 "that the business income of musyarakah investment is recognized at the partner's share according to the agreement.

Disclosure of income in musyarakah transactions of Bank Jatim Sharia Business Unit is based on PSAK 106 paragraph 37 and PAPSI 2006, some of these matters are as follows: the content of the main agreement of the musyarakah business, such as the portion of funds, the distribution of business results, the activities of the community business, and others (PSAK 106 paragraph 37a); the business manager, if there is no, active partner (PSAK 106 paragraph 37a); details of the total musyarakah investment by cash/non-cash, type of use, and economic sector (PAPSI, 2006); the amount of musyarakah investment provided to related parties (PAPSI, 2006); the amount of musyarakah investment policy in the implementation of musyarakah investment portfolio risk control (PAPSI, 2006); management policy in the implementation of musyarakah investment portfolio risk control (PAPSI, 2006); the amount of non-performing musyarakah investments and the allowance for each economic sector (PAPSI, 2006); policies and methods of accounting for allowances, write-offs, and handling of non-performing musyarakah investments (PAPSI, 2006); policies and methods used in handling non-performing musyarakah (PAPSI, 2006); a summary of written-off musyarakah investments showing the opening balance, write-offs during the year, receipts from written-off musyarakah investments and written-off musyarakah investments, and the ending balance of written-off musyarakah investments (PAPSI, 2006); and losses on impairment of musyarakah investments (if any) (PAPSI, 2006).

The example of a musyarakah case is Mr. Harianto applying for working capital of Rp. 50,000,000 at the Bank Jatim Sharia Business Unit with a period of 1 year. The agreed ratio is 70%: 30%.

Principal installment per month = Rp. 50.000.000/12 = Rp. 4.166.666,67

Calculation:

Profits of Mr. Hariyanto's business = Rp. 2.000.000

Profit sharing for the Bank = 30% x Rp. 2.000.000 = Rp. 600.000So the monthly installment = Rp. 4.166.666,67 + Rp. 600.000

= Rp. 4.766.666.67

As in the example above, it is called a declining musyarakah, meaning that one partner's share of capital decreases gradually until at a specified time (in the example above 1 year), one partner will own the business. In the example above, the Bank Jatim's share of the Sharia Business Unit's capital continues to decrease month by month, as it has been returned by Mr. Budi. Until later in the 12th month when Mr. Harianto's musyarakah financing is paid off, the Bank Jatim Islamic Business Unit no longer has capital (ownership/participation) in Mr. Harianto's business. So that only Mr. Harianto owns the business.

Regarding profit sharing, there are two methods that can be used, namely profit sharing and revenue sharing. If the Bank Jatim Sharia Business Unit uses the revenue sharing method, it means that the profit shared between the Bank Jatim Sharia Business Unit and the financing customer is revenue without deducting costs. Meanwhile, if using the profit sharing method, the profit shared between the Bank Jatim Islamic Business Unit and financing customers is revenue after deducting costs (profit). One of these two methods is used for all products that are based on the principle of profit sharing.

5. Conclusion

Based on the description and discussion that has been described in the analysis of the results of the study can be concluded that the recognition and measurement of profit sharing income derived from mudharabah and musyarakah investments in Sharia Business Unit Bank Jatim has been applied based on the new PSAK namely PSAK No. 105 and 106 Year 2007 on Accounting mudharabah and musyarakah.

Based on the above conclusions, the author as a researcher provides advice that accuracy and prudence are

needed in recording transactions until the preparation of financial statements. This needs to be done so that the income recorded is the real income received by the bank, Bank Jatim Islamic Business Unit as a financial institution that relies on public trust must have maximum ability in order to compete in the banking world, dissemination of information about Islamic banks by publishing or informing the public about the concept of sharia in line with banking principles that have proven advantages to survive in the global crisis, based on the principle of profit sharing, transparency of information from both parties is needed so that fraud does not occur. So the researcher suggests that there are regulations that contain legal instruments in the form of criminal sanctions in the event of fraud committed by the customer.

6. References

Harahap. (2005). Teori Akuntansi. Jakarta: PT. Raja Grafindo Persada.

Nurhayati, S., & Wasilah. (2009). Akuntansi Syariah di Indonesia. Jakarta: Salemba Empat.

Rosjidi. (1999). Teori Akuntansi: Tinjauan, Konsep dan Struktur. Edisi Kesatu, Jakarta: Penerbit FE-UI. Suwardjono. (1989). Teori Akuntansi-Perekayasaan Akuntansi Keuangan. Edisi Kedua, Yogyakarta: BPFE.

Veithzal, R. H., & Veithzal, A. P. (2008). Islamic Financial Management: Teori, Konsep, dan Aplikasi Panduan Praktis untuk Lembaga Keuangan, Nasabah, Praktisi, dan Mahasiswa. PT RajaGrafindo Persada.

Yaya, R., Abdurahim, A., & Martawireja, A. E. (2017). Akuntansi Perbankan Syariah: teori dan praktik kontemporer (Edisi 2).

Zulkifli, S. (2003). Panduan praktis transaksi perbankan syariah. Zikrul Hakim.



© 2025 by the authors; Cendekia Putra Jaya, Indonesia. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).