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EVALUATION OF THE FOREIGN EXCHANGE RISK HEDGING IMPLEMENTATION IN PT KKAPE

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ABSTRACT

The COVID-19 pandemic and the Russia-Ukraine War are a new chapter for almost all countries in the world due to the development of an inflation wave. Bank Indonesia, as representation of the Government of Indonesia, is attempting to control the inflation rate at $3\pm 1\%$ and formulate monetary policies to achieve and maintain stability in the Rupiah value. The volatility of movements in the Rupiah exchange rate against the US Dollar has also remained uncontrollable for a long period. This requires the use of financial instruments to mitigate exchange rate risk, such as forward and swap hedging. Therefore, this study aimed to evaluate the level of hedging effectiveness and relationships implemented by PT KKAPE, to prepare the application of hedge accounting. The results showed that the hedging effectiveness level was very competent and efficient, with the documentation of the relationships possessed according to the criteria set by PSAK 71. Although the case studies on single companies had limitations, practical insights were still provided in evaluating the effectiveness and relationship levels of hedging.

Keywords: *Foreign Exchange Ris,; Hedging Effectiveness, Hedging Relationships, PSAK 71, Regression*

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1. INTRODUCTION

The emergence of COVID-19 is responsible for inflation in several countries (Apergis & Apergis, 2021), due to its sudden occurrence and reputation as a pandemic from 2020-2022. The Russia-Ukraine War that occurred on February 24 2022 is also influential to the development of the inflation in the warring and other affected countries (Mbah & Wasum, 2022), such as Indonesia. Based on the Bank Indonesia data (2022), an increase was observed in the inflation rate from 2.18% to 4.69% from January to August 2022 (Appendix 1). In the 2021 Indonesian Economic Report, the data also stated that the direction of its monetary policy in 2022 emphasized the maintenance of stability amid the continuous strive for national commercial recovery. In addition, coordination with the Government is continuously improved in fiscal financing, specifically for controlling inflation at $3\pm 1\%$.

According to Bank Indonesia (2022), a monetary policy was formulated to achieve and maintain stability in the Rupiah value. This stability was observed in the following, (1) the inflation rate, as well as the market price of goods and services, and (2) the Rupiah exchange rate when swapped for and from other countries' currencies. In this case, the stability of the Rupiah exchange rate against other countries' currencies specifically prioritized the market value system adopted by Indonesia, namely the free-floating program. Gultom and Zulverdi (1998) also explained that the monetary authority flexibly controlled the amount of circulated money by using a floating exchange rate system. In this case, the authority was not obligated to maintain an exchange rate in a specific position. Despite the responsibility of monetary authorities in allowing the entire determination of the exchange rate by market mechanisms, Bank Indonesia is still intervening in the elimination of distortions within the foreign industrial sector. Regarding this description, the 2021-2022 period was not exempted due to the occurrence of the COVID-19 pandemic and the Russia-Ukraine War, which caused a weakening of the Rupiah exchange rate against the US Dollar by 8% (Appendix 2).

PT KKAPE is one of the companies highly affected by the instability of the Rupiah exchange rate against other currencies, specifically the US Dollar. The company is engaged in trading with domestic and foreign customers as a subsidiary of PT DEF, one of the state-owned enterprises in Indonesia. To meet market demand, PT KKAPE has also established supply chain cooperation with other domestic and foreign suppliers, as well as PT STU, which is a special relationship because both are subsidiaries of PT DEF. In 2022, the company became a net importer due to having higher import purchase values than export sale estimations. Moreover, the proportion of the total company import purchases is 50%, with buying prices emphasizing the global published costs denominated in USD per unit of a commodity (Appendix 3). For payments in USD, the company need to provide funds in the US Dollar and become exposed to foreign exchange risk. This is because the company's receipt of funds from sales transactions is averagely dominated by Rupiah at 98%, from January 1 to September 30 2022. In this process, almost 50% of the transactions are observed as trade receivables. To overcome the problem of providing USD funds for the purchase of these imported commodities, the company need to mitigate risk by hedging foreign exchange uncertainties in cash flow

management. This should be carried out by using swaps and forwards to prevent exchange rate volatility. It also needs to be conducted as a management tool, to overcome the company's cash flow limitations, due to the borned high trade receivables.

Although PT KKAPE is implementing hedging on foreign exchange risk, hedge accounting is still not adopted with the main challenge. This shows that the company has not conducted an assessment of the requirements for hedge accounting implementation, as stipulated in the Minister of BUMN No. PER-09/MBU/2013 of 2013 and PSAK 71. From this context, the stipulation emphasized the General Policy on Hedging Transactions for State-Owned Enterprises, since PT KKAPE is a subsidiary of PT DEF and has a special assignment from the government to provide public production. Therefore, this study aims to evaluate the hedging effectiveness and relationship levels implemented by PT KKAPE on foreign exchange rate risk, to prepare the application of hedge accounting. Considering the advantages of this implementation, the report is carried out to acquire the best conclusions from the hedging adoption against the company. In this case, the following study questions are prioritized:

1. What is the level of hedging effectiveness?
2. What is the documentation on the correlation between the hedged items and derivatives?

Since this study aims to evaluate the hedging effectiveness and documentation of foreign exchange rate risk, the results obtained are expected to positively contribute to the development of various companies. This prioritizes meeting the required criteria during hedge accounting implementation.

2. LITERATURE REVIEW

2.1. THE BASIC CONCEPT OF HEDGING

According to Christensen *et al* (2019), financial instruments were observed as cash, proof of ownership, or contracts, which provided the following, (1) an obligation for one entity to deliver money or other monetary tools, and (2) rights to the counterparty entity to obtain money or other fiscal equipment. Meanwhile, derivative instruments were interpreted as other forms of contracts having an obtained value from the main financial tool, whose estimation varied over time. This showed that a derivative instrument was qualified as a hedging derivative when it meets two criteria, namely (1) provision of sufficient documentation at the start of the hedge and (2) the hedge should be highly effective. Based on Eiteman *et al* (2016), hedging effectiveness was arguably determined by the rate of change in the spot value of assets correlated with the proportional and opposite direction of hedge transformation. This process is often transformed according to the spot exchange rate. The factors causing the ineffectiveness of hedging transactions according to Tan, Lim & Kuah (2019) are shown below, leading to the requirements of quantitative and qualitative measurements.

- a. Time value inclusion between the hedging derivative and item.
- b. The mismatch of one or more critical terms between the hedging item and derivative, such as different notion values, settlement dates, or underlying basis.
- c. The differences in the locations between commodity suppliers and derivative counterparties often lead to additional transportation costs for commodity hedging.
- d. The observed hedging relationship is only effective for one market risk, leading to the implementation failure in other trading uncertainties contained by the hedged item.
- e. The hedging derivatives having various underlying are ineffective for the risk management of one specific market uncertainty.

Tan, Lim & Kuah (2019) also explained that a derivative instrument was treated through hedge accounting rules when implemented by a company for effective risk management. In this case, the implementation of the accounting rules focused on showcasing the impact of organizational risk-handling activities. Subsequently, these activities used financial instruments to manage the specific risk exposures affecting the company's commercial performance. By using hedge accounting, the impact of offsetting revenue also occurred in the same period as the recognition of profit or loss on the hedging derivative.

2.2. EVALUATION OF HEDGING ACCORDING TO THE REGULATION OF THE MINISTER OF STATE-OWNED ENTERPRISES NUMBER PER-09/MBU/2013 OF 2013

Based on the Minister of BUMN No. PER-09/MBU/2013 of 2013 concerning the General Policy on Hedging Transactions for State-Owned Enterprises (SOEs), SOEs need to consider several principles in carrying out various business, namely (1) good corporate governance, (2) application of risk management, and (3) accounting and tax standards. The Board of Directors was also required to develop hedging policies, such as (a) identification and determination of the market uncertainties encountered with hedging items and risk mitigation, and (b) standard operational procedures for implementing hedging transactions. These policies were guided by the BUMN Ministerial Regulation, regarding the statutory regulations and the company's Articles of Association. Therefore, the hedging policy and standard operating procedures should be evaluated periodically.

2.3. HEDGING EVALUATION ACCORDING TO PSAK 71

According to PSAK 71 par. 6.4.1., the application of hedge accounting between the implemented items and derivatives was only declared eligible when all the following criteria are met:

1. The hedging relationship only occurring between eligible hedged items and derivatives at the transaction outset needs to be preceded by the preparation and determination formally documented by the company.
2. Hedging effectiveness

The following hedging effectiveness requirements should be met by the affected relationship, (a) an economic relationship needs to be observed between the hedged item and the hedging derivative, (b) value changes due to the economic relationship should not be dominated by credit risk effects, and (c) a hedge ratio needs to be observed from the comparison of the hedged item and the hedging derivative quantities.

2.4. FINANCIAL DERIVATIVE INSTRUMENTS

Tan, Lim & Kuah (2019) explained that a derivative was in line with IFRS 9 when the following criteria are met:

1. Its value changes due to the underlying item transformation.
2. Requirements of little or no initial net investment cost.
3. Ability to be implemented in the future

According to IFRS 9, the identified derivative instruments are as follows:

- a. An option contract is a monetary tool providing the holder with the right to sell or buy a commodity or financial/capital instruments at a specified price and period.
- b. A forward contract is an agreement between two parties, where either of them affirms to buy or sell at a specific amount for a fixed price (forward price). This transaction is often carried out on a specific mutually agreed date in the future.
- c. A futures contract is a contract between a buyer and seller in an exchange transaction. Example includes commodity, interest rate, and currency futures contracts.
- d. The swap involves the exchange of a contract between two parties, according to the needs of each transactor.

2.5. PREVIOUS STUDIES

Quantitative hedging effectiveness is widely studied around the world, such as in the following:

1. Buyukkara, *et al* (2021) explained the analysis of hedging ratio optimization and effectiveness on the different future contracts traded on Borsa Istanbul (BIST). In this study, the efficiency of the hedging ratio was estimated by using the ordinary least squares (OLS) and VECH diagonal methods through daily spot and futures data. The results showed that both diagonal methods produced identical positive impacts, with a similarity observed in the high level of hedging effectiveness for the equity futures contract in BIST 30.
2. Mahardika (2020) assessed the effectiveness of gold hedging on the futures market, by using regression, ratio analyses, percentage offset proportion, and volatility risk reduction. Based on the results, the gold futures hedging was effective by using the ratio analysis and the percentage offset proportion. However, the regression analysis and the volatility risk reduction methods emphasized the hedging ineffectiveness of the futures.
3. Floros and Vougas (2006) evaluated the effectiveness of hedging in the Stock Index Futures Market in Greece, by using the OLS approach, Ederington, and the

method suggested by Park and Switzer (1995). The results proved that each implemented method had an almost similar level of effectiveness for FTSE/ASE-20 and FTSE/ASE mid-40.

Based on these previous descriptions, a quantitative method was implemented in this present study, through the OLS regression analysis as well as the limited data and knowledge. This was then supported by qualitative methods, regarding the compliance assessment of Permen BUMN No. PER-09/MBU/2013 of 2013, concerning General Policy on Hedging Transactions for SOEs and PSAK 71.

3. STUDY METHODS

This study used 1 (one) unit of analysis, namely PT KKAPE, which is a subsidiary of the SOEs operating public services in the commodity commercial trading field. The workspace in this unit was limited to three areas at the head office, namely the departments of financial risk, treasury, and financial accounting. In these departments, the contained archival and documentary data were used as the experimental information from November 01 to October 31, 2022.

According to the objectives of this thesis, the implemented study design was a sequential explanatory model, which used quantitative and qualitative methods (Saunders *et al*, 2019). This model was considered most appropriate to the effectiveness assessment method framework, based on Pricewaterhouse Coopers (2022) in Appendix 4. Regarding this process, the case study analysis assumed that hedging was ineffective, leading to the need for a quantitative test to assess the effectiveness level. Furthermore, a qualitative test was carried out after the quantitative analysis, according to the sequential explanatory design. In this case, the management should evaluate the existing work system, to assess the correlation between the hedged items and the hedging derivative. This process was found to influence the effectiveness level of the correlation between both elements at the start of implementation and on an ongoing basis. The assessment of the correlation effectiveness was also determined by the risk management strategy document, where sustainability was able to ensure the adequacy of the selected method. In this study, the implemented data originated from the following,

1. Primary data owned by the company from November 1 to October 31 2022, such as forward and swap exchange rates, as well as 138 (forward) and 137 (swap) fx transactions. Organizational document data were also used in this study, including the Risk Register Reports and Company Work Procedures regulating foreign currency hedging.
2. Secondary data were observed as the JISDOR and Bank Indonesia exchange rate information accessed on <https://www.bi.go.id/id/statistik/formasi-point-exchange/jisdor/Default.aspx> and <https://www.bi.go.id/id/statistik/formasi-point-exchange/transaksi-bi/Default.aspx> from 01 November to 31 October 2022, respectively.

The quantitative method was carried out by using the OLS regression analysis on the primary and secondary data. This process produced several variables capable of providing a correlation picture between basic and combined determinants, to

measure the effectiveness hedge. Subsequently, the effectiveness level assessment was carried out to meet the hedge accounting requirements set out in PSAK 71. The OLS regression was then used to assess the correlation between the hedged item (the settlement date realized rate) and the hedging derivative (the settlement date forward/swap rate), through the following information $R_s = \alpha + b^* \times R_f + \varepsilon$

Where:

R_s = the dependent variable, namely the hedged item in the form of the market realizable exchange rate on the settlement date.

α = a constant assumed to be zero, where the realized exchange rate complies with the market mechanism when no agreement/deal is observed on a hedging transaction. In this stage, no correlation is observed for the settlement exchange rate.

b^* = the regression slope on the independent variable, where the forward/swap exchange rates of the settlement date reflect the hedging ratio. This ratio shows the correlation between the hedged item (realized settlement date exchange rate) and the hedging derivative (forward/swap exchange rates on the settlement date). From this context, the correlation of the hedge ratio with 1 stated that the company had hedged completely, indicating a strong relationship. Meanwhile, the correlation of this ratio with 0 proved that no hedge was observed in the operation. This demonstrated that a negative value emphasized a hedging mechanism implementation within the company. Irrespective of these results, the movement of the hedged item's profit/loss difference was not offsetting the estimation of the risk management derivative.

R_f = the independent variable, namely the hedging derivative in the form of the forward/swap exchange rates of the settlement date.

ε = the error term.

The *control variables* in the aforementioned equation emphasized the expression, $R_s = \alpha + b \times R_f + \varepsilon$, which was conducted by Buyukkara *et al* (2021), where α and b = regression parameters, ε = the error term, and R_s = the spot market representing the settlement dates of the realized rate, and R_f = the future market prioritizing the settlement date of the forward/swap exchange rates. In this method, higher R^2 values indicated a better hedging effectiveness level.

For the qualitative method, the use of archival and documentary data was considered appropriate for analyzing the compliance with the Minister of SOEs No. PER-09/MBU/2013, concerning General Policy on Hedging Transactions (table 1.) and PSAK 71 par. 6.4.1. (table 2.) as follows:

Table 1. Requirements for BUMN Ministerial Regulation No. PER-09/MBU/2013 concerning General Policy on Hedging Transactions

No	Condition
1.	SOEs are required to identify, measure, monitor and control market risk effectively in order to mitigate market risk
2.	Market risks include: interest rate risk, exchange rate risk, commodity risk and equity risk
3.	The object of the hedging transaction can be: assets, liabilities, income and cash flows
4.	Hedging transactions are not intended for speculation

5.	The Board of Directors is required to develop hedging policies and standard operating procedures for implementing hedging transactions
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Table 2. Requirements for Applying Hedging Accounting According to PSAK 71 par. 6.4.1.

No	Condition
1.	Assessment of hedging relationships that consist only of hedged items that have met the requirements against hedging derivatives that also have met the conditions
2.	At the time of inception to carry out hedging operations there is formal documentation regarding the entity's risk management for the implementation of hedging.
3.	there is an economic relationship between the hedged item and the hedging derivative
4.	the effect of credit risk does not dominate the change in value resulting from the economic relationship
5.	The hedge ratio of the hedging relationship

4. ORGANIZATION PROFILE

PT KKAPE was launched in 2004, as a business entity focusing on the commercial trading of commodities with flexible services and competitive prices, compared to similar competitors. This is 99.9% and 0.01% owned by PT DEF and PT KTP with active share status, respectively. In this case, PT DEF is a limited liability company with most of its capital owned by the state, through direct investment originating from separated assets for profit achievement. Furthermore, PT KKAPE is responsible for the management of existing business and operations, as well as the logistics and warehousing fleet, for the effective operation of the downstream business activity chains. The vision of the company is to become a world-class commercial trading organization, through the following missions:

1. Operating a commodity commercial trading business in the retail and corporate sectors.
2. Supporting and accessing the provision of commodities to support Indonesia's environmentally sound economic growth.
3. Performing aggressive business development in the domestic and international markets.
4. Developing technology and digital media for the production of superior human resources and global standards.
5. Becoming a part of investment development and distribution of commodities.

On September 30, 2022, the income statement figures of PT KKAPE posted a loss of USD146.76 million, with domestic and export revenues reflecting USD29.08 billion and USD1.27 billion, respectively. This was accompanied by the cost of goods sold/other direct expenses and sales volume of USD 32.04 billion and 66.71 million units, respectively. During this period, the estimation of exchange differences also reached a loss of USD 43.63 million, smaller than 2021 at USD

106.70 million (Appendix 5). For the achievement of loss on foreign exchange in 2022, the company then implemented a hedging mechanism for international currencies in cash flow management, to reduce exposure to market value risk.

Although foreign exchange risk was hedged in managing cash flows, PT KKAPE still did not implement hedge accounting. This was due to the company's inability to conduct an assessment of hedging documentation and effectiveness on the foreign market uncertainties implemented since November 2021. From November 2021 to October 2022, PT KKAPE then carried out a foreign exchange rate risk of 138 and 137 transactions for forward contracts and swaps, respectively.

The standard operating procedures for managing foreign exchange hedging transactions are described as follows:

A. Preparatory Stages

1. Risk Register Report

The Treasury Department is responsible for identifying the foreign exchange risks affecting the actualization of international market needs. It also mitigated these uncertainties through hedging and documented them in the Risk Register Report.

2. Analysis of Foreign Currency Cash Flow Projections

The Treasury Department performs an analysis of cash flow projections for future periods. This focuses on the summarization of foreign currency needs and the receipt of funds up to the end of the fiscal year.

3. Projection of Foreign Currency Hedging Needs

The Financial Risk Department is responsible for calculating the need for foreign currency hedging per period. This is based on assessing the total international monetary needs of the projected receipts and expenditures. It also emphasizes the cooperation with the Treasury Department, to review the tenor and maximum allocation limit for each foreign currency hedging derivative. This derivative is most optimal for the company according to risk appetite, by considering the following:

- Trends and movements of foreign exchange rates (technical analysis)
- Indonesian and global macroeconomic conditions (fundamental analysis)

These features should be considered with several scenarios implementing hedging derivatives and notional values. In addition, the draft recommendation letter is then submitted to the Department of Foreign Currency Hedging Decision-Making, which is chaired by the Director of Finance.

4. Approval of Implementation of Foreign Exchange Hedging

The Foreign Currency Hedging Decision-Making Department is accountable for the acquisition of a draft recommendation letter from the Financial Risk and Treasury Units. This is mostly performed toward deciding to approve, reject, or request revisions of the proposed foreign currency hedging transaction.

B. Implementation Stages

Based on the approval letter from the Foreign Currency Hedging Decision-Making Department, the Treasury Unit often ensures the availability of funds to carry out the settlement process. This emphasizes the projected hedging transactions submitted, negotiates with partners/banks, and records business values according to the negotiation and premiums incurred.

C. Monitoring Stages

The Treasury Department is responsible for monitoring the availability of limits on foreign currency. Meanwhile, the Financial Risk Department monitors various international activities, such as the maximum tenor, the hedging derivatives, and the Mark to Market Reports. In this case, the Risk Department then notifies the Treasury Unit when the implementation does not comply with the recommendation.

D. Stages of Completion

Based on this completion stage, the Financial Risk and Treasury Departments then submit the Hedging Progress Report to the Foreign Currency Decision-Making Unit, with the proposed settlement date indicated. After obtaining approval from the Department of Foreign Exchange Hedging Decision-Making, the Treasury Unit subsequently conducts settlements. This emphasizes the evaluation of the Mark to Market Report and/or the company's cash flow conditions from the Financial Risk Department. In this case, the Treasury Department also prepares the transfer instructions to be authoritatively signed by Officials, according to the recapitulated foreign currency hedging transactions.

E. Reporting and Evaluation Stages

In this stage, the Department of Treasury then submits a report on the transaction implementation to the Financial Risk and the Foreign Currency Hedging Decision-Making Units. This is carried out with the submission of a Mark to Market Report on foreign currency hedging transaction contracts, which are not due at the reporting date. A report is also submitted on the excessive or small difference in the matured hedging transaction contracts that have matured.

5. RESULT AND DISCUSSION

Tabel 3. Results of OLS Regression Statistics on Fx Forward and Fx Swap

Description	N	R ²	Std. Error	Coefficient	t Stat	95% Confidence Interval	
						Lower Bound	Upper Bound
Fx Forward	138	0,9998	224,25	1,0170	775,98	1,014	1,020
Fx Swap	137	0,9998	224,37	1,0155	772,80	1,013	1,018

Table 3. above shows the OLS regression statistics on the implemented variables. This included the fx forward and fx swap exchange rates, which were the hedging derivatives used in determining the realized market value on the settlement date from November 2021 to October 2022. Based on the results, the R² values for the forward and swap hedges were both 99.98%, with the coefficients being 1.017 and 1.0155, respectively. This implied that both hedges had very good effectiveness levels, due to the complete implementation of hedging through a strong relationship. This emphasized the approach of the hedge ratio at 1 on the coefficient slope, with a maximum risk reduction potential of 99.98% observed according to the R² data.

The documentation assessment of the correlation between hedged items and derivatives was also conducted, according to Minister of BUMN No. PER-09/MBU/2013 of 2013 concerning General Policy on Hedging Transactions for SOEs. This is subsequently explained as follows:

1. The obligation of SOEs to effectively identify, measure, monitor, control, and mitigate market risk

As a subsidiary of SOEs PT DEF, PT KKAPE complied with the Minister of BUMN No. PER-09/MBU/2013 of 2013, regarding identifying, measuring, monitoring, controlling, and mitigating market risk. This aligned with the company's official document, namely the Risk Register Report of the Ministry of Treasury (Appendix 6).

2. Market risk and the object of hedging transactions

In this study, the emphasized market risk was the foreign exchange rate uncertainties, with the transaction objects being the cash flow (hedge item), as well as the FX forward and swap (hedge derivative). This process aimed to prevent exchange rate volatility and overcome the company's cash flow limitations, due to the high trade receivables borne by the company.

3. Hedging transactions are not intended for speculation

The hedging operation for the foreign exchange risk was carried out from November 1, 2021, to October 31, 2022, according to the set experimental period. During this period, relationship documentation was conducted between the hedged items and derivatives. In this process, the hedging transactions carried out focused on operational activities and not speculation.

4. The Board of Directors' obligation to develop hedging policies and standard operating procedures

At PT KKAPE, the operations on foreign exchange risk were also regulated by a hedging policy. This included the identification and determination of market risk on the encountered exchange rate uncertainties. In this case, the protected hedging object/item and the risk mitigation were regulated in the Treasury Register (Appendix 6) and the company's standard operational procedures (Appendix 7).

Based on these results, the assessment of the correlation documentation between hedging items and derivatives met the criteria set in Minister of BUMN No. PER-09/MBU/2013 of 2013 and shows positively the hedged relationship. According to PSAK 71, this documentation assessment was analyzed with the following description:

1. The hedging relationship assessment consists of only eligible hedged items against qualifying derivatives

This analysis showed that PT KKAPE conducted hedging operations on foreign currency exchange risk, with FX forwards and swaps being the implemented derivatives. From the results, these derivatives and the cash flows met the set requirements as hedging derivatives and items, respectively.

2. Observation of formal documentation on the establishment of hedging relationships, objectives and strategies, based on the entity's risk management

At the beginning of the hedging operations on foreign exchange risk, PT KKAPE prepared formal documentation on objectives, strategies, as well as the correlation between hedged items and derivatives. This development was related to the entity risk management stated in the Treasury Register Report (Appendix 6). The documentation also included the identification of the hedging item and derivative, as well as the nature of the risk being hedged. However, it did not describe the

mechanism that should be regulated by the entity when assessing the correlation between the hedged items and derivatives implemented to meet the requirements for effectiveness. These requirements included the analysis of hedge ineffectiveness sources and ratio determination mechanisms. In addition, the documentation needs to be refined by including an assessment mechanism for the hedging relationships.

3. Existence of an economic relationship between the hedged item and the hedging derivative

The economic relationship between the hedged item and the hedging derivative was observed by evaluating the effectiveness of hedging for foreign exchange risk, through the OLS regression analysis. From the results, the R^2 value on both FX forward and swap exchange rates was quite high, reaching more than 99.8%. In measuring the hedging effectiveness on foreign exchange rate risk, the slope between the future and spot market values on the settlement date ranged from 1.0155 to 1.0170. This proved that the hedging ratio was effective in completely offsetting the movement of the hedged item profit/loss difference against the derivative.

4. The effect of credit risk did not dominate the change in the value of the economic relationship

At PT KKAPE, the credit risk in hedging operations did not affect the changes in the value of the economic relationships. This was because the dominant factor influencing cash flow management was exchange rate risk, which is capable of intervening in value changes. Regarding the regression equation used in the quantitative evaluation, only the fx forward and swap exchange rates were used as the independent variables, according to the control determinants developed by Buyukkara *et al* (2021).

5. The hedge ratio of the hedging relationship

Based on the results, the hedge ratio of the hedging relationships was analyzed by using a quantitative method, through the OLS regression analysis. In this case, the slope between the future and spot exchange rates on the settlement date ranged from 1.0155 -1.0170. This proved that the hedging ratio was effective in completely offsetting the movement of the hedged item profit/loss difference against the derivative. Therefore, the difference with point 1 (perfectly hedged) was not material.

From these results, PT KKAPE achieved a very good level of hedging effectiveness and complied with the relationship documentation between the hedged items and derivatives. This was in line with PSAK 71, where adjustments were performed to the determination of formal documents, to implement improvements to the mechanism requiring regulation by the entity. The analysis also emphasized the assessment of the correlation between the hedged items and derivatives implemented in meeting the requirements for hedging effectiveness. These requirements included the analysis of hedge ineffectiveness sources and the mechanisms for ratio determination.

6. CONCLUSION AND RECOMMENDATION

6.1. CONCLUSION

Based on the results, the implementation of foreign exchange hedging risk was evaluated at PT KKAPE. This provided an initial description to the company, regarding the criteria required to be met when implementing hedge accounting. The analysis also emphasized the hedging transactions conducted by the Treasury Department, through the coordination of the Financial Risk Department and Accounting Units. Furthermore, the results showed that the evaluation of foreign exchange hedging risk provided the following conclusions at PT KKAPE:

1. Good level of hedging effectiveness

The quantitative approach was carried out by OLS analysis, with an R^2 of 99.98% observed for both FX forward and FX swap. This high value confirmed that the level of hedging effectiveness was very good, indicating its efficiency in reducing the variance in exchange rate changes for hedged items. The observed hedged ratio also ranged from 1.0155-1.0170, proving that the transaction completely used hedging, regarding the existence of a strong relationship. These results were in line with the test expectations, where the level of hedging effectiveness for PT KKAPE's foreign exchange risk was very good.

2. Relationship Documentation Between Hedging Items and Derivatives

The qualitative approach was evidenced by the completeness of the risk register and standard operating procedures, which accommodated hedging transactions with several improvements. In this case, the improvements were implemented based on the inclusion of an assessment mechanism. This performance emphasized the relationship documentation between the hedged item and the hedging derivative, to meet the requirements for hedging effectiveness. These requirements included the hedge ineffectiveness source and the mechanism for ratio determination.

From these results, PT KKAPE used the standard operating procedures implemented for preparation, adoption, supervision, report, and evaluation. This showed a tiered review and approval up to the Director of Finance, for hedging proposals to be approved for implementation. Strict monitoring was also carried out to ensure the non-occurrence of deviations. By using these procedures, the effectiveness level of hedging transactions is still expected to be futuristically and efficiently controlled and monitored at PT KKAPE.

6.2. LIMITATIONS AND SUGGESTIONS

Based on the limitations, only PT KKAPE was used as the unit of analysis. The emphasized hedging transactions were also limited to the businesses carried out by the departments of financial risk, treasury, and financial accounting. Moreover, the details of the transactions obtained were comprehensively undisclosed according to the company's consent. From the main business of PT KKAPE, the relationship documentation between the hedged items and derivatives met the set requirements, with the measurement of hedging effectiveness being efficiently carried out. Regarding these results, PT KKAPE is responsible for the following activities:

1. Application of hedge accounting to the transactions occurring with the counterparties/partners of external reporting parties (PSAK 71 Par 6.3.5).
2. Implementation of hedge accounting in sole financial statements, regarding the hedging transactions between the entities within a similar business group (PSAK 71 Par 6.3.5).

According to Lewis & Pendrill (2004), the application of hedge accounting led to the recognition of hedged item profit/loss difference in the same period and classification as that of the derivative. This indicates that the accounting process periodically exhibits the net effect of a hedging operation. It also prevents the management from making wrong decisions, due to the biased information encountered when reporting the hedged items and derivatives profit/loss analyses through different periods and methods.

When the PT KKAPE management decides to apply hedge accounting, several main elements subsequently need to be emphasized, namely (1) the hedge accounting policy related to the mechanism that should be regulated to assess the correlation between the hedged items and derivatives, (2) the methods of measuring hedge effectiveness, (3) the forms of relationship documentation between hedged items and derivatives, and (4) a detailed governance system for each stage of hedge accounting implementation. Therefore, hedge accounting should be adequately implemented to meet set requirements and indicators, as well as provide benefits to the financial statements.

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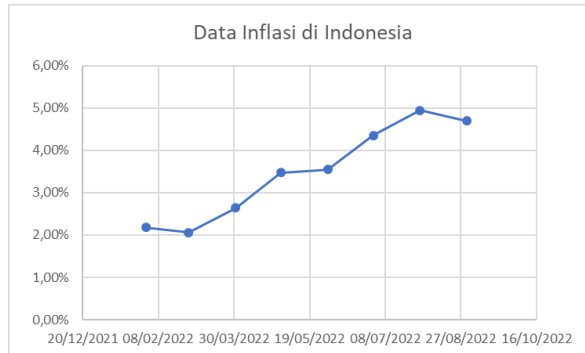
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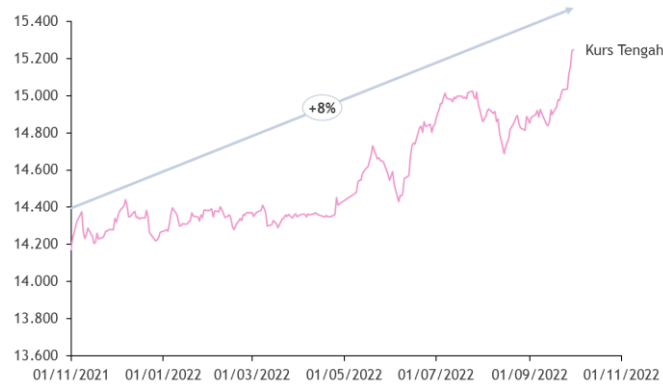
APPENDIX

Appendix 1. Indonesia's Inflation Trend January 2022 – September 2022



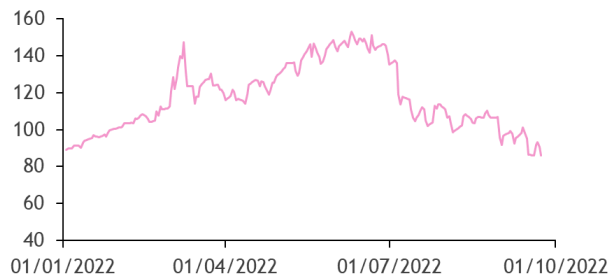
Source: Bank Indonesia

Appendix 2. Movement of the Rupiah Exchange Rate against the United States Dollar for the Period Nov 01, 2021 – Sep 30, 2022



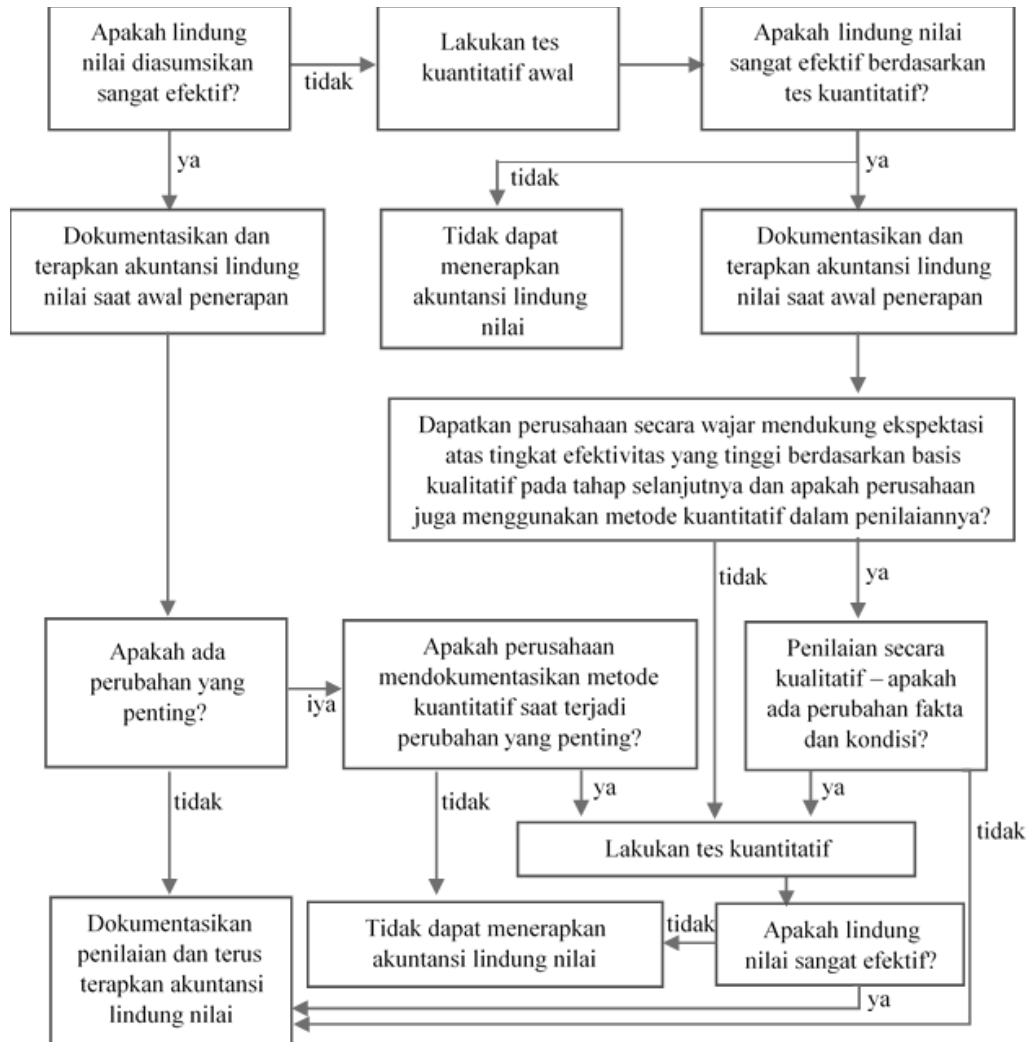
Source: Bank Indonesia

Appendix 3. Movement of Commodity Purchase Prices per Unit for the January 2022 – September 30 2022 period



Source: Commodity Published Data

Appendix 4. Framework for assessing the effectiveness of hedging



Source: Pricewaterhouse Coopers (2022)

Appendix 5. Income Statement per Sep 30, 2022 and Dec 31, 2021

PT KKAPE
LAPORAN LABA RUGI DAN PENGHASILAN KOMPREHENSIF LAIN

Tanggal 30 September 2022 dan tanggal 31 Desember 2021
 (Dinyatakan dalam Ribuan Dollar AS, kecuali dinyatakan lain)

	Untuk Periode yang Berakhir pada tanggal	
	30 September 2022	31 Desember 2021
PENJUALAN DAN PENDAPATAN USAHA LAINNYA		
Penjualan dalam negeri	29.080.202,40	30.654.257,78
Penjualan ekspor	1.267.490,40	328.537,50
Pendapatan usaha dari aktivitas operasi lainnya	3.123.012,00	9.403.247,53
JUMLAH PENJUALAN DAN PENDAPATAN USAHA LAINNYA	<u>33.470.704,80</u>	<u>40.386.042,81</u>
BEBAN POKOK PENJUALAN	<u>(32.043.763,20)</u>	<u>(40.499.502,09)</u>
LABA BRUTO	<u>1.426.941,60</u>	<u>(113.459,28)</u>
Beban penjualan dan pemasaran	(1.356.115,20)	(1.128.027,94)
Beban umum dan administrasi	<u>(259.153,60)</u>	<u>(435.168,65)</u>
LABA USAHA	(188.327,20)	(1.676.655,87)
Pendapatan keuangan, neto	110.730,40	374.357,59
Penyisihan (pemulihan) nilai piutang	27.368,00	(4.712,45)
Rugi selisih kurs, neto	(43.626,40)	(106.695,97)
Beban Keuangan	(25.100,00)	(140.091,23)
Pendapatan (beban) lain-lain, neto	<u>(2.087,20)</u>	<u>(32.245,35)</u>
LABA (RUGI) SEBELUM PAJAK PENGHASILAN	<u>(121.042,40)</u>	<u>(1.586.043,27)</u>
Manfaat (beban) - pajak penghasilan, neto	<u>23.738,40</u>	<u>62.885,62</u>
LABA TAHUN BERJALAN SEBELUM EFEK PENYESUAIAN		
LABA MERGING ENTITIES	<u>(97.304,00)</u>	<u>(1.523.157,65)</u>
Penyesuaian laba tahun berjalan merging entities	<u>(49.457,60)</u>	<u>-</u>
LABA (RUGI) TAHUN BERJALAN SETELAH EFEK		
PENYESUAIAN LABA MERGING ENTITIES	<u>(146.761,60)</u>	<u>(1.523.157,65)</u>
PENGHASILAN (RUGI) KOMPREHENSIF LAIN		
Pos-pos yang tidak direklasifikasi ke laba rugi dalam periode berikutnya (neto setelah pajak)		
Pengkuran kembali atas liabilitas imbalan pasti, neto	750,40	-
Pos-pos yang akan direklasifikasi ke laba rugi dalam periode berikutnya		
Investasi	<u>(36,00)</u>	<u>-</u>
JUMLAH PENGHASILAN (RUGI) KOMPREHENSIF LAINNYA		
TAHUN BERJALAN	<u>(146.047,20)</u>	<u>(1.523.157,65)</u>

Appendix 6. Illustration of Treasury Function Risk Register Documents

Form Risk Treatment

Dit./Fungsi Leher/SH: Keuangan
Unit/Divisi/Region: Departemen Perbendaharaan
Risk Owner: Departemen Perbendaharaan

MENU
Form RR

Total Risk Treatment Cost (000 USD)							Total Activity			
							3,034,00			
No Risk Event	Kejadian Risiko (Risk Event)	Penyebab Risiko (Risk Cause)	Risk Cause yang akan di-treatment	Risk Treatment Option	Aktivitas Risk Treatment (Risk Treatment Activity)	Risk Treatment Cost (000 USD)	Cost Center	Cost Element	Contact	
2	3	5	6	7	8	10	11	12		
23	Risiko Fluktuasi Nilai Tukar IDR Terhadap Kemampuan Perusahaan Dalam Memenuhi Kewajiban Valas dari Pengadaan Valas Harian	1. Pelemahan Kurs IDR Terhadap USD secara signifikan; 2. Meningkatnya pengadaan mata uang USD akibat PBI no 17/3 th 2015 karena penurunan penerimaan USD; 3. Kondisi ekonomi global yang tidak stabil; 4. Meningkatnya pengadaan mata uang USD akibat PBI no 16/21/PBI th 2014 tentang penerapan prinsip kehati-hatian dalam pengelolaan hutang luar negeri korporasi nonbank.	1. Pelemahan Kurs IDR Terhadap USD secara signifikan	Reduce/Mitigate	Melaksanakan Hedging Valas Bulanan	3,034	AP0302001	Biaya Finansial-Lindung Nilai	Manager Perbendaharaan	

Appendix 7. Illustration of Standard Operating Procedures for Hedging Foreign Exchange Risk

PROSEDUR OPERASIONAL STANDAR

DEPARTEMEN : FINANCING & TREASURY - DIREKTORAT KEUANGAN	NOMOR : BX003/ XYYYYZ/ YYYY
JUDUL : PENGELOLAAN TRANSAKSI LINDUNG NILAI VALUTA ASING	REVISI KE : <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
BERLAKU TMT	HALAMAN : 1 dari 17

I. TUJUAN

Tujuan dari prosedur operasional standar ini adalah untuk:

1. Mengatur prosedur transaksi lindung nilai valuta asing (valas).
2. Mengatur kewenangan, tugas dan tanggung jawab dari setiap Pejabat atau fungsi yang terlibat dalam kegiatan transaksi lindung nilai valuta asing.

Tujuan Pelaksanaan Transaksi Lindung Nilai adalah:

1. Untuk memenuhi Peraturan Bank Indonesia Nomor 16/ 21/ PBI/ 2014 tentang Penerapan Prinsip Kehati-hatian dalam Pengelolaan Utang Luar Negeri Korporasi Nonbank.
2. Untuk memitigasi risiko nilai tukar yang disebabkan ketidaksesuaian antara penerimaan dalam rupiah dan pengeluaran dalam valuta asing berdasarkan keputusan Fungsi Pengambil Keputusan Lindung Nilai Valuta Asing.

II. RUANG LINGKUP

1. Prosedur operasional standar ini mengatur tahapan persiapan, pelaksanaan, *monitoring* dan penyelesaian/ *settlement*, dokumentasi dan pelaporan & evaluasi transaksi lindung nilai valuta asing yang meliputi:
 - a. Identifikasi Risiko Valuta Asing;
 - b. Analisis Proyeksi Arus Kas Valuta Asing;
 - c. Kajian Kebutuhan Transaksi Lindung Nilai Valuta Asing;
 - d. Pelaksanaan Triwulanan Transaksi Lindung Nilai Valuta Asing;
 - e. Pelaksanaan Bulanan Transaksi Lindung Nilai Valuta Asing;
 - f. Pembayaran Premi *Fx Option* dan *Fx Call Spread Option* Pada *Deal Date*;
 - g. Penyelesaian/ *Settlement* Transaksi Lindung Nilai Valuta Asing Pada *Delivery/ Settlement Date*;
 - h. Pelaporan dan Evaluasi.
2. Risiko yang akan dilakukan lindung nilai berupa risiko nilai tukar.
3. Instrumen Lindung Nilai Valuta Asing mengacu kepada SOP Transaksi Lindung Nilai (*Hedging*) Kementerian BUMN yang meliputi namun tidak terbatas pada *Fx Forward*, *Fx Swap*, *Fx Cross Currency Swap*, *Fx Option*, *Fx Domestic Non Deliverable Forward* (DNDF) dan *Fx Structured Product* berupa *Fx Call Spread Option*.
4. TKO ini berlaku di lingkungan PT KKAPE ("Perusahaan") dan Anak Perusahaan.