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The Effect of Palm Oil Production on Foreign Exchange and Employment with Bank Sharia Indonesia Financing as a Moderating Variable

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Abstract:

This research aims to empirically examine the influence of the palm oil industry on the country's foreign exchange and the enhancement of employment opportunities, as well as a comprehensive analysis of the role of Indonesian Sharia Bank financing as a moderating variable. This research uses a quantitative approach which aims to determine the influence of palm oil on the country's foreign exchange and employment opportunities, as well as the role of Indonesian Sharia financing as a moderating variable. The analytical technique used is Moderated Regression Analysis (MRA), or regression analysis with moderating variables. The objective of this analysis is to determine whether financing from Bank Syariah Indonesia strengthens or weakens the relationship between palm oil production and state foreign exchange and employment. Palm oil production has a significant influence on the country's foreign exchange and employment opportunities and BSI financing is able to moderate it by strengthening the variables of palm oil on the country's foreign exchange and employment opportunities.

Keywords: BSI Financing; EmploymentOpportunities; Foreign Exchange; Palm Oil Production.

1. Introduction

The palm oil industry is a leading sector that contributes significantly to Indonesia's national economy.Given its position as one of the principal producers in the global palm oil sector, Indonesia's economy is considerably strengthened by revenues generated from the export of crude palm oil (CPO) and its derivative commodities, which generate significant foreign exchange. Palm oil is a strategic commodity in strengthening the national trade balance, helping to address the current account deficit, and supporting the stability of the rupiah exchange rate. Empirical data from the Central Statistics Agency (BPS) demonstrate that this sector persistently accounts for in excess of ten percent of Indonesia's total annual export earnings. Furthermore, the palm oil industry plays a vital role in job creation, particularly in rural areas and plantation areas. The development of this industry opens up employment opportunities not only in the primary agricultural sector but also in the processing industry and other supporting services (Angga, 2021) .With vast palm oil plantations spread across various provinces, from Sumatra to Kalimantan, this industry has become a regional economic driver and reduced development disparities between regions (Alfarisyi, 2023). Previous studies have shown that the growth of palm oil plantations directly contributes to poverty reduction and improved well-being for communities surrounding plantation areas.

As global demand for palm oil products increases, there is a significant need for financial support, both for land expansion, replanting, supporting infrastructure development, and production processing (Theresa.Y, 2020). Financing is a key factor in maintaining the competitiveness of the Indonesian palm oil industry in the international market (Pratomo, 2022). In this context, Islamic financing offers an alternative financial solution that aligns with the principles of fairness, sustainability, and freedom from usury (Anggraini et al., 2023). Indonesian Sharia Financing, as the largest Islamic financial institution in Indonesia, plays an active role in providing financing for productive sectors, including the palm oil industry. Through Bank Sharia Indonesia financing schemes such as murabahah, musyarakah, and ijarah, Indonesian Sharia Financing supports the development of palm oil businesses, from financing plasma plantations to financing palm oil-based downstream industries. BSI's involvement is expected to strengthen the palm oil industry's ability to adapt to global challenges, such as the demand for sustainability certification and price competition in export markets.

This research aims to empirically examine the impact of the palm oil industry on foreign exchange earnings and employment, and to analyze the role of Indonesia financing as a moderating variable. With this approach, the research is expected to provide scientific contributions and policy recommendations for the sustainable development of the palm oil industry based on Islamic finance principles.Palm oil production exerts a substantial and direct influence on Indonesia's economic performance, particularly through its contribution to foreign exchange earnings and employment generation across the value chain. Data from the Central Statistics Agency indicate that exports of crude palm oil (CPO) and its derivatives consistently account for more than ten percent of the country's total annual export value, thereby strengthening foreign exchange reserves and supporting macroeconomic stability (BPS, 2024). The sector also absorbs a considerable labor force across plantation, processing, and supporting industries, meaning that increases in production are often accompanied by expanded employment opportunities in major palm-oil-producing regions (BPS, 2024). Within this context, financing provided by Bank Syariah Indonesia (BSI) functions as a moderating variable that can reinforce the link between rising production and its economic outcomes. Sharia-compliant financing schemes—including replanting programs, plasma farmer partnerships, and cooperative working-capital facilities—enhance plantation productivity, expand production capacity, and consequently amplify potential foreign exchange earnings while sustaining local employment (BSI, 2023). Nonetheless, the moderating effect is not without limitations, as its effectiveness is shaped by international price volatility, the relatively limited scale of financing, and sustainability requirements that may impose additional compliance burdens on smallholders without adequate technical support. Thus, while BSI's financing mechanisms hold substantive potential to strengthen the relationship between palm oil production, foreign exchange performance, and employment creation, realizing this potential requires broader coverage, deeper institutional support, and stronger integration with sustainability-focused policies.

2. Literature Review

Palm Oil Production

Palm oil production in Indonesia is an integrated economic activity that includes the cultivation process from land clearing, nursery, to harvesting and processing fresh fruit bunches into crude palm oil which is influenced by various production factors such as land, labor, capital, and technology, and supported by ideal tropical agro-climate conditions in Indonesia, government policies, institutional systems, and access to financing so that it makes it one of the strategic sectors that contributes greatly to increasing the country's foreign exchange through exports and

opening up employment opportunities in Indonesia (Apriyanti, 2020). In international trade theory, the comparative advantage that a country has over certain products, such as palm oil, allows the country to obtain trade benefits in the form of increased foreign exchange, economic growth, and national welfare (Anggraini et al., 2023).

Foreign exchange

Foreign exchange is the country's income from abroad obtained through the export of goods and services, final investment, and other transactions that generate foreign currency (Holifah & Laut, 2022). Foreign exchange is also an economic resource obtained through international transactions, which can be used to finance imports and repay foreign debt (Nurbaiti, 2023). Foreign exchange generated from palm oil exports plays a crucial role in strengthening the country's foreign exchange reserves, stabilizing the exchange rate, and supporting national development financing (Asraaf, 2023). Palm oil plays a significant role in Indonesia's international trade. According to Statistics Indonesia (BPS, 2023), palm oil exports accounted for more than 10% of total national exports. Beyond exports, the palm oil industry also employs millions of workers in cultivation, processing, and distribution.

Jobs

Employment is a job opportunity available in a particular sector or industry, which allows individuals to do work and generate income (BPS, 2020). Employment is also an economic sector or area that provides job opportunities for individuals, both in the form of formal and informal work (Wahyuni & Nasution, 2022). In addition to international trade, the palm oil industry also has a significant impact on job creation. Classical economic growth theory states that the agricultural sector, such as plantations, serves as a labor provider before the structural transformation towards the industrial and service sectors (Hidayah, 2020). In Indonesia, the palm oil industry absorbs a large workforce, both in the on-farm (cultivation) and off-farm (processing and distribution) sectors, thus contributing to reducing unemployment and poverty, especially in rural areas (Theresa.Y, 2020).

Financing in Islam

Financing in Islam is an integral part of the sharia economic system which is built on the values of justice, partnership, and mutual assistance, and upholds the principle of prohibition of riba (interest), gharar (uncertainty), and maisir (speculation), as explained in the Qur'an Surah Al-Baqarah verse 275 that "Allah has permitted buying and selling and forbidden riba". In this context, sharia financing aims to support productive activities and real investments that bring social and economic benefits to the wider community, including the agricultural and oil palm plantation sectors. According to Antonio, sharia financing is the provision of funds to those in need in the form of business cooperation based on sharia principles, without using interest mechanisms, but using appropriate contracts, such as mudharabah, musyarakah, murabahah, ijarah, and qardhul hasan. In the context of the palm oil sector, musyarakah and mudharabah contracts are highly relevant, as they enable collaboration between sharia financial institutions as fund providers and farmers or palm oil business actors as managers, where profits are shared based on an agreed ratio, while losses are shared proportionally (Antonio, 2021).

The palm oil sector is characterized by long-term business requirements with significant capital requirements. Therefore, the presence of Islamic financing can assist farmers and companies in meeting production needs such as the procurement of seeds, fertilizers, production equipment, and land management. According to Islam real sector financing by Islamic financial institutions plays a crucial role in driving national economic growth due to its inclusive and empowering nature. In this regard, Islamic financing for palm oil not only boosts productivity in the plantation sector but also creates jobs, improves farmer welfare, and strengthens the country's contribution to foreign exchange through exports.

Sharia financing is in line with the principles of maqashid sharia (the objectives of sharia), namely protecting religion, life, mind, descendants, and property, which in an economic context means supporting the creation of distributive justice, poverty alleviation, and sustainable development (Mudrikah & Imsar, 2023). Fatwa of the National Sharia Council of the Indonesian Ulema Council No. 08/DSN-MUI/IV/2000 concerning Mudharabah Financing and No. 09/DSN-MUI/IV/2000 concerning Musyarakah Financing also confirms that these contracts are valid for use in productive activities that provide economic benefits to the community. Islamic financing theory for the palm oil sector emphasizes the importance of synergy between Islamic financial institutions, agricultural business actors, and government policies in building a fair, sustainable, and sharia-based financial system that not only pursues financial profits but also brings blessings and broad social benefits (Jannah, 2022).

3. Method

This study uses a quantitative approach to determine the impact of palm oil on foreign exchange and employment, as well as the moderating effect exerted by Bank Shariah Indonesia's financing mechanisms. This approach is employed because it enables an objective assessment of the relationships among variables through numerical measurements and statistical analysis. The population utilized in this study consists of time-series data; therefore, the required observations must be arranged sequentially on an annual basis.

Data Analysis Techniques

The analytical technique used is Moderated Regression Analysis (MRA), Moderated regression analysis is employed to assess whether financing provided by Bank Syariah Indonesia amplifies or attenuates the relationship between palm oil production and the study's dependent variables, namely foreign exchange earnings and employment.

The regression model used in this study is as follows:

Model 1: direct effect

$$Y = \beta_o + \beta_1 X + \varepsilon$$

Model 2 moderation effect:

$$Y = \beta_o + \beta_1 X + \beta_2 Z + \beta_3 (X \times Z) + \varepsilon$$

Description:

Y = State foreign exchange / Employment opportunities

X = Palm oil production

Z = Financing from BSI

X×Z = Palm oil production and BSI financing

ε = Error term

Data processing was carried out using SPSS Statistics 27 software.Prior to hypothesis testing, the data were subjected to a comprehensive set of diagnostic tests, including descriptive statistics, classical assumption tests, multicollinearity, and heteroscedasticity tests, Durbin-Watson auto-correlation tests, hypothesis tests, determination coefficient tests (R2), partial tests (t), simultaneous tests (f), moderated regression analysis (MRA) tests, and multiple linear regression tests.

4. Findings and discussion

Results of Dependent Variable 1: State Foreign Exchange (Y1)

Descriptive Analysis

Table .1 Descriptive Statistics of State Foreign Exchange (Y1)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Palm Oil	60	3345689	6364349	4550023.83	597125.326
Foreign Exchange	60	284644	4091918	2038379.33	694859.417
BSI Financing	60	11949761	117124297	63097648.47	43087678.071
Valid N (listwise)	60				

Source: Author's Data Processing (2025)

Based on Table 1, it is known that N or the number of each variable is 60. With the maximum value as the highest value and the minimum value as the lowest value, and the mean of each variable. Based on the results of the descriptive statistical test, it can be seen that, from 60 research data from 2020 to 2024, the minimum value of the palm oil variable (X) was 3,345,689, the maximum value was 6,364,349, and the mean value was 4,550,023 with

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

a standard deviation of 597,125. This indicates good results because the standard deviation value is smaller than the mean value.From 60 research data from 2020 to 2024, the minimum value of the country's foreign exchange variable was 284,644, the maximum value was 4,091,918, and the mean value was 2,038,379, with a standard deviation of 694,859. This indicates good results because the standard deviation is smaller than the mean.From 60 research data from 2020 to 2024, it is known that the minimum value of the BSI Financing variable is 11,949,761, the maximum value is 117,124,297, and the mean value is 63,097,648 with a standard deviation value of 43,087,678. This shows good results because the standard deviation value is smaller than the mean value.

Classical Assumption Test

Normality Test

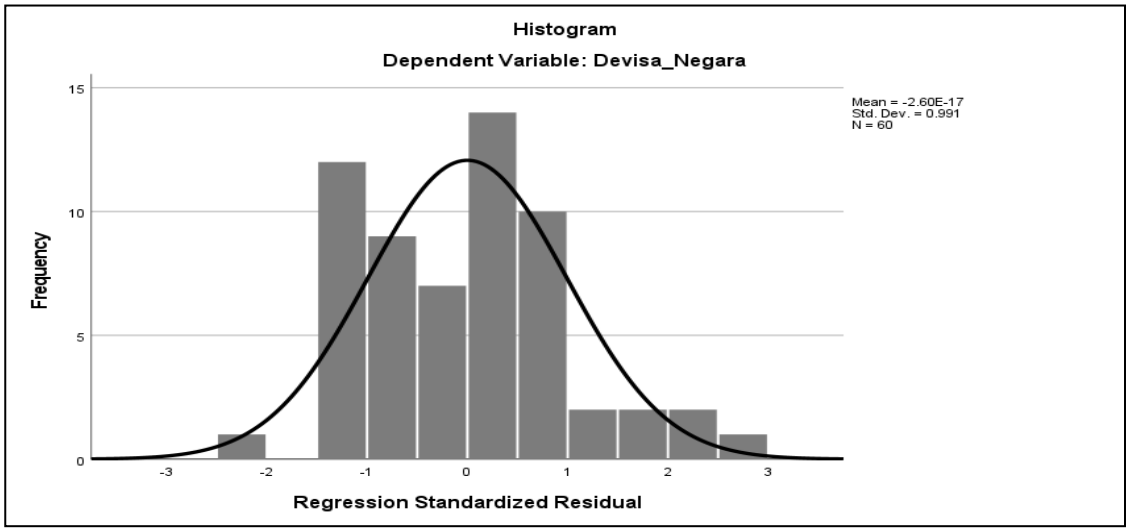
Table.2 K-S Test

One-Sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			60
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		644635.34201708
Most Extreme Differences	Absolute		.067
	Positive		.067
	Negative		-.059
Test Statistic			.067
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.727
	99% Confidence Interval	Lower Bound	.715
		Upper Bound	.738
a. Test distribution is Normal.			

Source: Author's Data Processing (2025)

Based on Table 2, the Kolmogorov–Smirnov statistic is 0.727, with an Asymp. Sig. (2-tailed) value of 0.200, which exceeds the 0.05 significance threshold. These results indicate that the residuals are normally distributed and therefore meet the assumptions of normality. In addition to the Kolmogorov–Smirnov test, normality in this study was also assessed using the P–P plot and histogram analyses to further validate the distribution of the residuals.

Figure.2 Foreign Exchange Histogram



Source: Author's (2025)

The histogram depicted above demonstrates a well-balanced and symmetrical curve, indicating that the residuals follow a normal distribution. This visual confirmation supports the statistical results, thereby suggesting that the regression model satisfies the normality assumption and is appropriate for further analysis

Multicollinearity Test

Table.3 Multicollinearity of State Foreign Exchange

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X	0.986	1.014
	Z	0.986	1.014
a. Dependent Variable: Devisa_Negara			

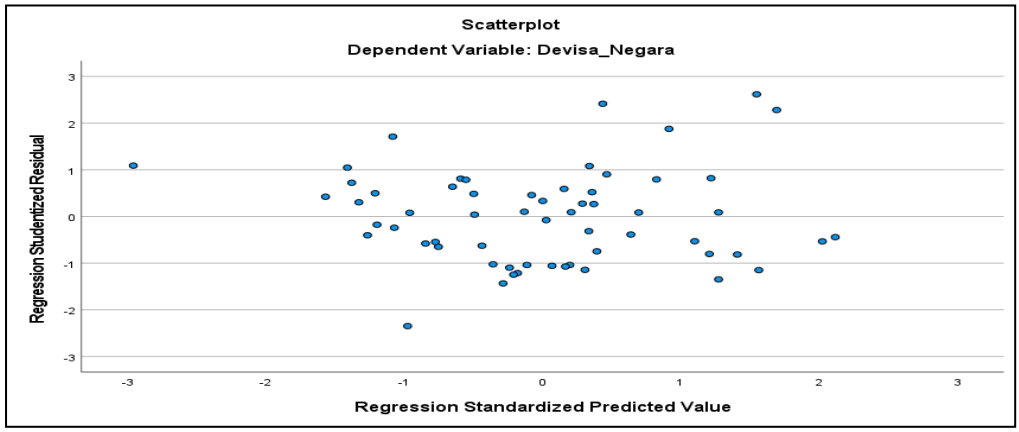
Source: Author's Data Processing (2025)

Based on Table 3, the tolerance values for both the palm oil variable (X) and the BSI financing variable (Z) are 0.986, which fall below the threshold of 1. The corresponding VIF values for these variables are 1.014, well below the commonly accepted maximum limit of 10. These results indicate that no multicollinearity exists among the independent variables, thereby confirming that the multicollinearity assumption has been satisfied.

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

Heteroscedasticity Test

Figure.3 State Foreign Exchange Scatterplot



Source: Author's (2025)

Based on the figure above, the scatterplot shows that the residual points are dispersed randomly and evenly, without forming any discernible pattern or clustering. The points are also distributed around the value of zero (0) on the Y-axis. These characteristics indicate the absence of heteroscedasticity, thereby confirming that the regression model satisfies the homoscedasticity assumption.

Durbin Watson Autocorrelation Test

Table.4 Autocorrelation of State Foreign Exchange

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.842[a]	.812	.812	618980.427	1.210

a. Predictors: (Constant), Z, X
b. Dependent Variable: Devisa_Negara

Source: Author's Data Processing (2025)

Based on Table 4, the Durbin–Watson (DW) statistic falls within the region indicating autocorrelation. The comparison between the DW value and the Durbin–Watson critical values shows that d < dL (where d = 1.210, dL = 1.514, dU = 1.651, 4 – dU = 1.647, and 4 – dL = 1.510). Since the obtained DW value is lower than the lower bound (d < dL), the model is concluded to exhibit positive autocorrelation. The Durbin–Watson test is commonly used to detect autocorrelation by comparing the DW statistic against the upper and lower critical bounds (dU and dL) in the Durbin–Watson table, which are determined based on the number of observations (n) and the number of predictors (k) (Sarjono, 2017):

1. If d<dL, then positive autocorrelation occurs
2. If d>4 – dU, then negative autocorrelation occurs
3. If dU<d<4-dU then there is no autocorrelation
4. If dL<d<dU then the test cannot be concluded

Determination Hypothesis Test (R2)

Table.5 Determination (R2) of State Foreign Exchange (Y1)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842[a]	.812	.812	542107.100

a. Predictors: (Constant), Z, X

Source: Author's Data Processing (2025)

Based on Table 5, the Adjusted R² value is 0.812. This coefficient of determination indicates that palm oil production (X) and BSI financing (Z) collectively explain 81% of the variation in state foreign exchange (Y_1). The remaining 19% (100% – 81%) is attributed to other factors not examined in this study.

Partial Test (T-Test)

Table.6 Partial State Foreign Exchange Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4229013.322	684812.675		6.175	.000
	X	595	.149	446	3.997	.000
	Z	.008	.003	.363	3.259	.002

a. Dependent Variable: Devisa_Negara

Source: Author's Data Processing (2025)

Based on Table 6, the research variables examined are palm oil production (X) and BSI financing (Z) as predictors of state foreign exchange (Y_1). With two independent variables (k = 2) and a total sample size of 60 observations (N = 60), the degrees of freedom for the t-test are N – k = 58. Referring to the t-distribution table at the 5% significance level, the critical t-value obtained is 1.671. The results of the t-test are presented as follows:

1. The significance value for the palm oil variable (X) is 0.000, which is below the 0.05 threshold, indicating that palm oil production significantly affects state foreign exchange (Y_1). Furthermore, the calculated t-value of 3.997 exceeds the critical t-table value of 1.671, confirming the significance of this effect for the period 2020–2024. Therefore, it can be concluded that palm oil production (X) has a positive and significant influence on state foreign exchange (Y_1). Accordingly, H_1 is accepted and H_0 is rejected

2. The significance value for the BSI financing variable (Z) is 0.002, which is below the 0.05 threshold, indicating that BSI financing has a significant effect on state foreign exchange (Y_1). In addition, the calculated t-value of 3.259 exceeds the critical t-table value of 1.671, confirming the statistical significance of this influence during the 2020–2024 period. Thus, it can be concluded that BSI financing (Z) has a positive and significant impact on state foreign exchange (Y_1). Accordingly, H_1 is accepted and H_0 is rejected

Simultaneous Test (F Test)

Table.7 Simultaneous State Foreign Exchange Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1173010944658.376	2	586505472329.188	4.161	.001[b]
	Residual	4147357347180.337	57	72760655213.690		

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

Total	5320368291838.713	59			

a. Dependent Variable: Y
b. Predictors: (Constant), X, Z

Source: Author's Data Processing (2025)

Based on Table 7, the simultaneous F-test shows a significance value of 0.001, which is below the 0.05 threshold, indicating that the model is statistically significant. The calculated F-value is 4.161, with degrees of freedom $df_1 = k - 1 = 2 - 1 = 1$ and $df_2 = n - k = 60 - 2 = 58$. Since the calculated F-value exceeds the critical F-table value (4.161 > 4.01), H_1 is accepted and H_0 is rejected. These results indicate that palm oil production (X) and BSI financing (Z) jointly have a significant effect on state foreign exchange during the 2020–2024 period

Moderated Regression Analysis (MRA) Test

Table.8 State Foreign Exchange MRA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	8738437.224	593749.967		14.717	.000
	X	1.536	.125	-1.560	-12.300	.000
	Z	1.779	.008	-3.545	-10.163	.000
	KS_PBSI	1.834E-8	.000	3.971	11.247	.000

a. Dependent Variable: Devisa_Negara

Source: Author's Data Processing (2025)

Based on table 8, palm oil provides a parameter coefficient value of 1.536 with a significance level of 0.000 < 0.05. BSI financing provides a parameter coefficient value of 1.779 with a significance level of 0.000 < 0.05. Moderation on the palm oil variable and BSI financing provides a parameter coefficient value of 1.834 with a significance level of 0.000 < 0.05. Based on the results, it can be concluded that BSI financing (Z) can moderate the relationship between palm oil (X) and state foreign exchange (Y1).

Multiple Linear Regression Analysis

Table.9 Multiple Linear RegressionofForeign Exchange

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	312350.468	572351.341		5.438	.000
	X	2378.332	524.115	-.337	2.885	.003
	Z	1512.697	642.753	.309	2.644	.002

a. Dependent Variable: Devisa_Negara

Source: Author's Data Processing (2025)

Based on Table 9, it can be seen that the palm oil (X) and BSI financing (Z) variables influence the country's foreign exchange (Y1). The regression equation formula in this research analysis is as follows:

$$Y = \propto + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

$$Y = 312.350 + 2.378X_1 + 1.512X_2$$

The regression equation above can be interpreted as follows:

a. α = 312.350

The constant value of α is 312,350. This indicates that if the palm oil and BSI financing variables are 0, then the country's foreign exchange will have a positive value of 312,350% of the other variables.

b. $B_1X_1 = 2.378$

The coefficient value of 2.378 indicates that the palm oil variable (X1) has a positive effect on the country's foreign exchange. If palm oil (X1) increases by 1%, the country's foreign exchange (Y) will experience growth of 2.378%, assuming other variables remain constant.

c. $B_2X_2 = 1.512$

The coefficient value of 1.512 indicates that the BSI financing variable (Y) has a positive effect on the country's foreign exchange. If BSI financing (Z) increases by 1%, the country's foreign exchange (Y) will experience growth of 1.512%, assuming other variables remain constant.

Results of Dependent Variable 2 Employment Fields (Y2)

Descriptive Analysis

Table.10 Descriptive Statistics of Employment Field

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Kelapa_Sawit	60	3345689	6364349	4550023.83	597125.326
Lapangan_Pekerjaan	60	1050000	1965214	1443333.33	187810.437
Pembiayaan_BSI	60	11949761	117124297	63097648.47	43087638.071
Valid N (listwise)	60				

Source: Author's Data Processing (2025)

Based on Table 1, it is known that N or the number of each variable is 60. With the maximum value as the highest value and the minimum value as the lowest value, and the mean of each variable. Based on the results of the descriptive statistical test, it can be seen that:

1. From 60 research data from 2020 to 2024, the minimum value of the palm oil variable (X) was 3,345,689, the maximum value was 6,364,349, and the mean value was 4,550,023 with a standard deviation of 597,125. This indicates good results because the standard deviation value is smaller than the mean value.
2. From 60 research data from 2020 to 2024, the minimum value of the employment variable is 1,050,000, the maximum value is 1,965,214, and the mean value is 1,443,333, with a standard deviation of 187,810. This indicates good results because the standard deviation is smaller than the mean.
3. From 60 research data from 2020 to 2024, the minimum value of the BSI Financing variable is 11,949,761, the maximum value is 117,124,297, and the mean value is 63,097,648 with a standard deviation value of 43,087,678. This indicates good results because the standard deviation value is smaller than the mean value.

Classical Assumption Test Results

Normality Test

Table.11 One K-S JobField

One-Sample Kolmogorov-Smirnov Test

	Unstandardized Residual
N	60

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		6207.21420873
Most Extreme Differences	Absolute		.062
	Positive		.062
	Negative		-.057
Test Statistic			.062
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.822
	99% Confidence Interval	Lower Bound	.812
		Upper Bound	.832

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

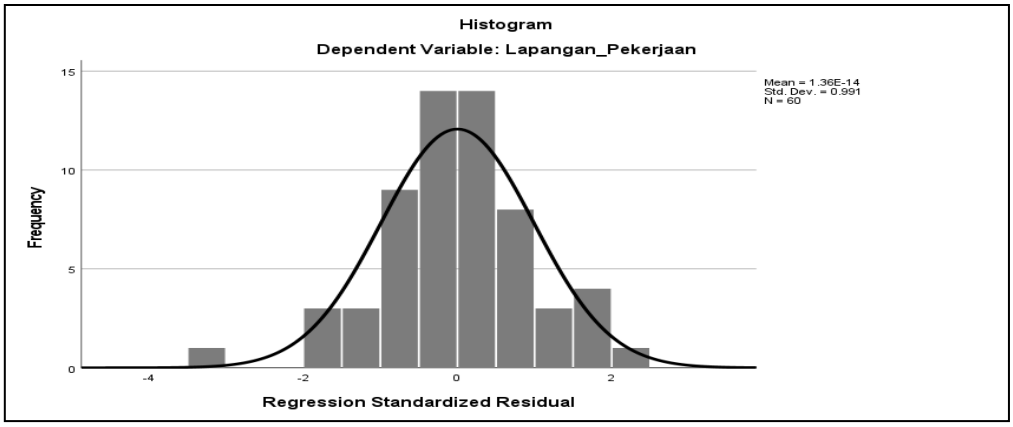
d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Source: Author's Data Processing (2025)

Based on Table 11, the Kolgomorov-Smirnov value is 0.822 and the Assympy.Sig (2-tailed) value is 0.2, which is greater than 0.05. This means that the residual data is normally distributed or meets the requirements for normality. In addition to the Kolgomorov-Smirnov test, normality can also be tested using the p-plot and histogram normality tests.

Figure.4 Employment Histogram



Source: Author's (2025)

Based on Figure 4, the histogram has a perfectly balanced and curved pattern, thus concluding that the data is normally distributed. The graph indicates that the regression model is suitable for use.

Multicollinearity Test

Table.12 Multicollinearity of Employment Fields

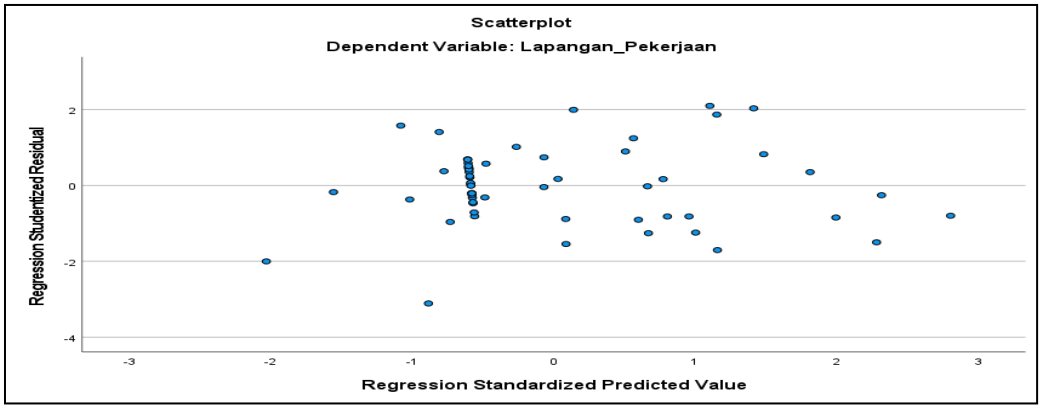
Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X	0.701	1.427
	Z	0.701	1.427
a. Dependent Variable: Lapangan_Pekerjaan			

Source: Author's Data Processing (2025)

Based on table 12, it is known that the tolerance value for the palm oil variable (X) is 0.701 and the tolerance value for BSI financing (Z) is 0.701. The tolerance value for all independent variables is less than 1. Meanwhile, the VIF value for the palm oil variable (X) is 1.427 and the VIF value for the BSI financing variable (Z) is 1.427. The values of all independent variables are <10. Therefore, it can be concluded that the regression is free from multicollinearity, thus the multicollinearity test has been fulfilled.

Heteroscedasticity Test

Figure.5 Job Field Scatterplot



Based on the image above, it can be seen that the points are randomly distributed and well-spaced without overlapping one another. The points are also located around the number zero (0) and the Y-axis. Thus, it can be seen that this regression does not experience heteroscedasticity.

Durbin Watson Autocorrelation Test

Table.13 Autocorrelation of Employment Fields

:

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.999	.999	6305.137	1.193

a. Predictors: (Constant), Z, X

b. Dependent Variable: Lapangan_Pekerjaan

Source: Author's Data Processing (2025)

It can be seen that Durbin-Watson is in the non-autocorrelation region (dU<d<4-dU) but (1.651> 1.193 <1.514) with dU = 1.651, dL = 1.514, 4-dU = 1.647, and 4-dL = 1.510 so it can be concluded that the data used in this study has autocorrelation. With d, dL (1.193 <1.514) which means this study is affected by positive autocorrelation. The autocorrelation test is often carried out with the Durbin-Watson test which can be done by comparing the Durbin-Watshon test value with the Durbin-Watshon table. The table has two values, namely the upper limit value (du) and the lower limit value (dl) to share the n and k values with the following provisions (Sarjono, 2017):

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

1. If d<dL, then positive autocorrelation occurs
2. If d>4 – dU, then negative autocorrelation occurs
3. If dU<d<4-dU then there is no autocorrelation
4. If dL<d<dU then the test cannot be concluded

Hypothesis Testing

Determination Hypothesis Test (R2)

Table.14 Determination (R2) of Employment Field

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999[a]	.999	.999	6305.137

a. Predictors: (Constant), Z, X

Source: Author's Data Processing (2025)

Based on Table 14, it can be seen that the Adjusted R square value is 0.999. This coefficient of determination value indicates that palm oil (X) and BSI financing (Z) have a 99% effect on employment (Y2), while the remainder (100% - 99% = 1%) is explained by other variables not included in this study.

Partial Test (T-Test)

Table.15 Job field T test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1505965.345	159525.771		9.440	.000
	X	.059	.633	.193	3.785	.003
	Z	.009	.006	.534	4.931	.000

a. Dependent Variable: Lapangan_Pekerjaan

Source: Author's Data Processing (2025)

Based on Table 15, it can be seen that the research variables are palm oil (X) and BSI financing (Z) on employment (Y2). The K value is -2, while the number of samples or N – 60, so N-K (60-2 = 58). This value can be seen from the distribution of the T table value, which obtained a T table value of 1.671. The following are the results of the t test:

1. The influence of palm oil (X) is 0.03 < 0.05, meaning that palm oil (X) and employment (Y2) have a significant influence. And the T-value is 3.785 > 1.671 (T-table), so palm oil (X) has a significant influence on employment (Y2) in 2020-2024. So it can be concluded that palm oil (X) on employment (Y2) is positive and significant. Which means H1 is accepted and H0 is rejected.

2. The effect of BSI financing (Z) is 0.000 < 0.05, meaning that BSI financing (Z) and state foreign exchange (Y) have a significant influence. And the T-value is 4.931 > 1.671 (T-table), so BSI financing (Z) has a significant influence on employment (Y) in 2020-2024. Therefore, it can be concluded that BSI financing (Z) on employment (Y) is positive and significant. Which means H1 is accepted and H0 is rejected.

Simultaneous Test (F Test)

Table.16 F-Test of Employment Field (Y2)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	619528674013.946	2	309764337006.973	4.781	.000[b]
	Residual	1461564186047.388	57	25641476948.200		
	Total	2081092860061.333	59			

a. Dependent Variable: Lapangan_Pekerjaan

b. Predictors: (Constant), X, Z

Source: Author's Data Processing (2025)

Based on table 16 simultaneous test (F Test) obtained a significance value of 0.000 <0.05 and F count of 4.781 and it is known that dfl = k-1 = 2-1 = 1 and df2 = n-k = 60 – 2 = 58. So F count > F table (4.781 > 4.01) means H1 is accepted and H0 is rejected. With a significance value of 0.000 <0.05 which means significant. So it can be concluded that the variables of palm oil and BSI financing simultaneously have a significant effect on employment in 2020-2024.

Moderated Regression Analysis (MRA) Test

Table.17 Employment MRA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1368651.520	588.898		2324.091	.000
	X	2.317	.000	1.001	650.308	.000
	Z	.086	.000	.080	21.651	.000
	KS_PBSI	1.105E-10	.000	-.088	-24.491	.000

a. Dependent Variable: Lapangan_Pekerjaan

Source: Author's Data Processing (2025)

Based on table 17, palm oil provides a parameter coefficient value of 2.317 with a significance level of 0.000 <0.05. BSI financing provides a parameter coefficient value of 0.086 with a significance level of 0.000 <0.05. Moderation on the palm oil variable and BSI financing provides a parameter coefficient value of 1.105 with a significance level of 0.000 <0.05. Based on the results, it can be concluded that BSI financing can moderate the relationship between palm oil and state foreign exchange.

Multiple Linear Regression Analysis

Table.18 Multiple Linear Regression of Employment Fields

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	155965.345	159525.771		5.440	.000
	X	419.758	8.633	-.193	2.785	.002
	Z	735.669	6.006	.534	3.931	.000

a. Dependent Variable: Lapangan_Pekerjaan

Source: Author's Data Processing (2025)

Table 18 shows that the palm oil and BSI financing variables influence the country's foreign exchange. The regression equation formula in this research analysis is as follows:

Jurnal Bisnis dan Manajemen
http://jurnal.unmer.ac.id/index.php/jbm
Volume 12 No 2
2025
Hlm. 153 - 170

$$Y = \propto + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

$$Y = 155.965 + 419X_1 + 735X_2$$

The regression equation above can be interpreted as follows:

a. α= 155.965

The constant value a is 155.965. This indicates that if the palm oil and BSI financing variables are 0, then employment has a positive value of 155.965% of the other variables.

b. B_1X_1 = 419

The coefficient value of 419 indicates that the palm oil variable (X1) has a positive effect on the country's foreign exchange. If palm oil (X1) increases by 1%, employment (Y2) will experience growth of 419%, assuming other variables remain constant.

c. B_2X_2 = 735

The coefficient value of 735 indicates that the BSI financing variable (Y) has a positive effect on employment. If BSI financing (Z) increases by 1%, employment (Y2) will experience growth of 735%, assuming other variables remain constant.

Discussion

The Impact of Palm Oil on Foreign Exchange

Based on the research results, the sig value of palm oil is 0.000 <0.05, which means that palm oil and the country's foreign exchange have a significant influence. The Tcount value is 3.997> 1.671 (Ttable), so palm oil has a significant influence on the country's foreign exchange in 2020-2024. So it can be concluded that palm oil (X) on the country's foreign exchange (Y1) is positive and significant, which means H1 is accepted and H0 is rejected. The coefficient value of 2.378 indicates that palm oil (X) has a positive effect on the country's foreign exchange (Y1). If palm oil (X) increases by 1%, the country's foreign exchange (Y1) will increase by 2.378%, assuming the value of other variables remains constant. Palm oil (X) greatly influences the country's foreign exchange (Y1) because if palm oil (X) increases, the country's foreign exchange (Y1) also increases.

The Impact of Palm Oil on Foreign Exchange Moderated by BSI Financing

Based on the results of the study, it shows that the palm oil variable (X) provides a coefficient value of 1.536 with a significance level of 0.000 <0.05. BSI Financing (Z) provides a parameter coefficient value of 1.779 with a significance level of 0.000 <0.05. Moderation in the palm oil variable (X) and BSI financing (Z) provides a parameter coefficient value of 1.834 with a significance level of 0.000 <0.05. So it can be concluded that BSI Financing (Z) can moderate palm oil (X) on state foreign exchange (Y1). Palm oil (X) greatly influences state foreign exchange (Y1) because if palm oil (X) increases, state foreign exchange (Y1) also increases. Therefore, BSI Financing (Z) shows its ability to moderate by strengthening the influence of palm oil (X) on state foreign exchange (Y1).

The Impact of Palm Oil on Employment

Based on the research results, the sig value of palm oil (X) is 0.000 <0.05, which means that palm oil (X) and employment (Y2) have a significant influence. The Tcount value is 3.785> 1.671 (Ttable), so palm oil (X) has a significant influence on employment (Y2) in 2020-2024. So it can be concluded that palm oil (X) on employment (Y2) is positive and significant, which means H1 is accepted and H0 is rejected. The coefficient value of 419 indicates that palm oil (X) has a positive effect on employment (Y2). If palm oil (X) increases by 1%, employment (Y2) will increase by 419%, assuming the value of other variables remains constant. Therefore, it can be concluded that the value of palm oil (X) greatly influences the number of jobs (Y2) because if the value of palm oil (X) increases, the number of jobs (Y2) also increases.

The Impact of Palm Oil on Employment Moderated by BSI Financing

Based on the results of the study, it shows that the palm oil variable (X) provides a coefficient value of 2,317 with a significance level of 0.000 <0.05. BSI Financing (Z) provides a parameter coefficient value of 0.86 with a significance level of 0.000 <0.05. Moderation in the palm oil variable (X) and BSI financing (Z) provides a parameter

coefficient value of 1.105 with a significance level of 0.000 <0.05. So it can be concluded that BSI Financing (Z) can moderate palm oil (X) on employment (Y2). The value of palm oil (X) greatly influences the number of jobs (Y2) because if the value of palm oil (X) increases, the number of jobs (Y2) also increases. Therefore, BSI Financing (Z) shows its ability to moderate by strengthening the influence of palm oil (X) on employment (Y2).

5. Conclusion

This study concludes that palm oil production has a positive and significant impact on Indonesia's foreign exchange reserves during the 2020–2024 period. In addition, palm oil production positively and significantly contributes to employment generation, indicating its dual macroeconomic importance both as a source of foreign earnings and as a labor-intensive sector. The results further show that financing provided by Bank Syariah Indonesia (BSI) strengthens the effect of palm oil production on foreign exchange reserves as well as on employment. This confirms that Sharia-compliant financing functions as an effective moderating mechanism that enhances the economic contribution of the palm oil industry. Overall, the findings underscore the strategic role of palm oil as a key economic sector and highlight the potential of Islamic financial instruments to support national economic performance. Despite its contributions, this study has several limitations.

First, the analysis is based on a relatively short five-year time series (2020–2024), which may not fully capture long-term structural or cyclical patterns within the palm oil industry. Second, the study includes only two independent variables—palm oil production and BSI financing—while other important determinants such as global price volatility, export regulations, international trade tensions, production costs, technological improvements, and environmental policies were not incorporated into the model. Third, the moderating effect of BSI financing is assessed exclusively through quantitative analysis; the absence of qualitative insights limits a deeper understanding of the mechanisms through which financing influences sectoral outcomes. Finally, the study does not account for potential external shocks, including geopolitical events or global market disruptions, which may affect foreign exchange performance and employment trends. Future research is encouraged to extend the study period and incorporate a broader range of macroeconomic, industrial, and policy-related variables to improve the robustness of the analysis. Incorporating global factors—such as international palm oil prices, exchange rate dynamics, and trade policies—would provide a more comprehensive understanding of the sector's performance. Researchers may also adopt mixed-method or qualitative approaches to explore how Sharia-based financing directly influences business expansion, production capacity, and labor absorption within the palm oil value chain.

For policymakers, efforts to strengthen financial access through Sharia-compliant instruments are recommended, particularly for small and medium-scale producers involved in the palm oil supply chain. Enhancing financial literacy, improving credit distribution mechanisms, and expanding financing programs tailored to agribusiness needs can further stimulate sectoral growth. Additionally, integrating sustainability criteria into financing schemes may help ensure that increased production aligns with environmental and social governance (ESG) standards. Strengthening collaboration between government, financial institutions, and industry stakeholders is essential to maximize the sector's contribution to foreign exchange earnings and employment creation.

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