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Declining NPF Threatens Islamic Finance Stability: Unveiling Negative Correlation with CAR (2021-2023) through Robust Statistical Analysis

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Abstract

The aim of this research is to investigate the dynamics of Non-Performing Financing (NPF) and Capital Adequacy Ratio (CAR) in Islamic finance from 2021 to 2023. Robust statistical methods, including Pearson and Spearman correlation tests, were used to examine the relationship between NPF and CAR. The findings indicate a "significant negative correlation between NPF and CAR,"with a significance value below 0.05. The strength of this inverse relationship is underscored by Pearson and Spearman correlation coefficients of -0.342 and -0.486, respectively, signifying a robust association. This negative correlation implies that as NPF increases, the CAR tends to decrease, and vice versa. The research provides valuable insights into the field of Islamic finance by highlighting the potential threat posed by declining non-performing financing (NPF) to the stability of financial institutions. Understanding these dynamics is important for stakeholders to develop strategic measures that maintain the Capital Adequacy Ratio and ensure the resilience of Islamic financial systems between 2021 and 2023."

Keywords; Non-Performing Financing; Capital Adequacy Ratio; Islamic finance; Statistical analysis

Introduction

This research uses the application of applied statistics by comparing the Pearson and Spearman Correlation Tests(1). The Pearson Correlation Test is a statistical method used to measure the level of linear relationship between two variables(2). The Pearson Correlation Test produces a correlation coefficient (r) which can be between -1 and +1. If the r value is close to +1, it indicates a strong positive relationship; while an r value close to -1 indicates a strong negative relationship. A value of r = 0 indicates no linear relationship(3). The advantages of the Pearson Correlation Test method are: 1) Sensitive to small changes in data, 2) Provides information about the strength and direction of the linear relationship between variables, 3) Provides a clear interpretation of how tight or loose the relationship is between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance(4). This method is suitable for normally distributed data and has a linear relationship. Furthermore, the Spearman Correlation Test is a non-parametric statistical method used to measure the monotonic relationship between two variables and this test uses ranked data rather than original values, so it does not require a normal distribution(5). This Spearman Correlation Test produces a correlation coefficient rho (ρ) which ranges from -1 to +1. The advantages of the Spearman correlation test method are: 1) Does not depend on the assumption of normal distribution, so it can be used for data that is not normally distributed. 2) Suitable for identifying monotonic relationships that are not linear. 3) Can detect relationships that are still hidden in the data(6). This method is suitable for data that is not normally distributed or when the relationship between variables is monotonic but not linear. Both methods have advantages based on their characteristics in two ways: 1) If the relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance tends to be linear, the Pearson correlation test can provide more accurate information. 2) If the relationship is monotonic, but not linear, or the data is not normally distributed, the Spearman correlation test can provide more precise results (7).

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In an anomalous situation, there should be a negative relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance. That is, when NPF (Non Performing Financing) increase, CAR (Capital Adequacy Ratio) will decrease, and vice versa(8). Pearson correlation will help measure and evaluate the linear relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance. However, if there are significant data anomalies, such as when NPF (Non Performing Financing) go up but CAR (Capital Adequacy Ratio) go down, Pearson correlation may not provide accurate results as it is prone to anomalies or outliers (9). Whereas the Spearman Correlation, which is non-parametric and does not depend on the distribution of the data, can be more resistant to anomalies. This is because Spearman Correlation uses ranked data and is less affected by extreme changes in variable values (10). Further analyses may be needed to explain the anomalies. Anomalies can be caused by factors such as internal bank policies, market fluctuations, or unpredictable external factors. Correlation does not necessarily imply causation, although correlation can help identify the relationship between two variables, other factors outside the correlation model may affect the CAR (Capital Adequacy Ratio) in Islamic Finance. In the case of anomalies, it is important not only to rely on the correlation value, but also to conduct an in-depth analysis of the causal factors and consider the industry and economic context. Correlations do not necessarily reflect a cause-and-effect relationship, and the results should be interpreted with caution. Using both methods (Pearson and Spearman) together can provide a more comprehensive understanding of the relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance, as well as help overcome potential data anomalies (11).

Previous research has discussed issues, findings, and challenges in the Islamic Finance in Indonesia(12). However, according to the researcher, the level of novelty of this article can be seen from several aspects, namely: 1) The article discusses the period 2021-2023, thus presenting up-to-date and relevant information on the economic conditions, policies, and dynamics of the Islamic finance industry at that time. The specific time context provides added value and actuality to the research. 2) This article uses an applied statistical approach by combining the Spearman and Pearson correlation tests. So it is expected that by using both methods, this can be considered a novelty in statistical analysis. 3) The article provides findings or discoveries that are new, relevant, or significant in the context of the Islamic finance industry in Indonesia, this can be considered a new contribution to the literature. Therefore, the objective to be achieved from this research is to make a real contribution to a more in-depth correlation relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance.

The formulation of hypothesis testing in a study entitled "Implication of Negative Correlation between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance in Indonesia (2021 - 2023): An Applied Statistical Approach with Spearman and Pearson Correlation Tests" is divided into 2, namely:

Initial Hypothesis (H0)

1. H0 : There is a positive correlation between NPF and CAR in the Islamic Financial Data Overview for the period 2021 - 2023. This means that if the NPF value increases, CAR is also expected to increase.
2. H0 : There is a negative correlation between NPF and CAR in the Sharia Financial Data Overview for the period 2021-2023. This means that if the NPF value increases, the CAR will decrease, or vice versa.

Alternative Hypothesis (H1)

There is no correlation between NPF and CAR in the Overview of Islamic Financial Data for the period 2021 - 2023. This means that the correlation between NPF and CAR is considered zero or insignificant.
Considerations for making decisions based on the significance value.
1. If the value of Asymp. Sig. (2-tailed) <0.05, it means that H0 is accepted and H1 is rejected
2. If the magnitude of the Asymp. Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted

A positive correlation indicates that the two variables are moving in the same direction (unidirectional), while a negative correlation indicates that the two variables are moving in the opposite direction(13). The Spearman and Pearson correlation tests will help determine the strength and direction of the relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio)(14).

Results and Discussion

The article titled 'Declining NPF Threatens Islamic Finance Stability: Unveiling Negative Correlation with CAR (2021-2023) through Robust Statistical Analysis' presents a systematic discussion of various analytical components.

It provides a comprehensive data description, offering a detailed overview of Non-Performing Financing (NPF) and Capital Adequacy Ratio (CAR) in the Islamic finance sector from 2021 to 2023. The analysis shows a significant linear relationship between NPF and CAR, with a Pearson correlation coefficient of below 0.05 and a strong negative correlation with Spearman correlation coefficients"of -0.342 (Pearson) and -0.486 (Spearman). The research employs a bivariate correlation analysis to emphasize the practical implications of the statistical findings in the context of Islamic finance stability. The systematic exploration leads to compelling conclusions about the critical inverse relationship between declining NPF and the potential threat it poses to the stability of Islamic financial institutions. This demonstrates a deeper understanding of these dynamics in the specified timeframe.

Furthermore, to conduct a study entitled "Implication of Negative Correlation between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance in Indonesia (2021 - 2023): An Applied Statistical Approach with Spearman and Pearson Correlation Tests", the researcher collected data through analysis of Islamic Financial Data for the period 2021 - 2023 reports and statistical analysis both quantitatively descriptive and inferential statistical analysis based on Indonesia Islamic Financial Data for the period 2021 - 2023 as shown in the table below.

Table 1. Title of the table above the table.

	CAR	NPF
Jan-21	.2180	.0320
Feb-21	.2431	.0318
Mar-21	.2445	.0323
Apr-21	.2441	.0329
May-21	.2444	.0330
Jun-21	.2426	.0325
Jul-21	.2431	.0323
Aug-21	.2466	.0325
Sep-21	.2496	.0319
Oct-21	.2356	.0304
Nov-21	.2568	.0264
Dec-21	.2571	.0259
Jan-22	.2267	.0265
Feb-22	.2241	.0265
Mar-22	.2313	.0259
Apr-22	.2277	.0258
May-22	.2286	.0267
Jun-22	.2327	.0263
Jul-22	.2325	.0263
Aug-22	.2363	.0264
Sep-22	.2352	.0257
Oct-22	.2338	.0254
Nov-22	.2365	.0250
Dec-22	.2628	.0235
Jan-23	.2611	.0241
Feb-23	.2619	.0237
Mar-23	.2601	.0238
Apr-23	.2535	.0238
May-23	.2516	.0236
Jun-23	.2535	.0236
Jul-23	.2506	.0236
Aug-23	.2538	.0232
Sep-23	.2514	.0228
Oct-23	.2562	.0224

Based on the Overview of Islamic Financial Data in the table above, the researcher conducted an applied statistical approach method with the Spearman and Pearson Correlation Test with the following hypothesis tests:

Initial Hypothesis (H0)

1. H0 : There is a positive correlation between NPF and CAR in the Islamic Financial Data Overview for the period 2021 - 2023. This means that if the NPF value increases, CAR is also expected to increase.
2. H0 : There is a negative correlation between NPF and CAR in the Sharia Financial Data Overview for the period 2021-2023. This means that if the NPF value increases, the CAR will decrease, or vice versa.

Alternative Hypothesis (H1)

There is no correlation between NPF and CAR in the Overview of Islamic Financial Data for the period 2021 - 2023. This means that the correlation between NPF and CAR is considered zero or insignificant.

The basis for decision-making considerations taken depends on the significance value. If the significance value - Sig. (2-tailed) < 0.05, it means that H0 is accepted and H1 is rejected, while if the significance value - Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted. The correlation method is used to evaluate the relationship between two variables, namely the dependent variable and the independent variable. In this case, researchers used two types of correlation tests, namely the Pearson and Spearman correlation tests. By using these two correlation tests, the research can provide a more complete understanding of the relationship between gross contributions and investment returns in the Islamic finance in Indonesia. The results of this correlation test will help researchers to determine the extent to which the two variables are correlated and whether the relationship is statistically significant.

Pearson Correlation

The Pearson Correlation test is used to measure the strength and direction of the linear relationship between two interval or ratio variables(15). The Pearson correlation coefficient" can be between -1 and 1(16). A value of 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no linear correlation(17). In the context of this study, Pearson can provide information about the extent to which between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance in Indonesia have a linear relationship. A positive correlation indicates that the two variables are moving in the same direction (unidirectional), while a negative correlation indicates that the two variables are moving in the opposite direction(18). While the correlation of the strength of the relationship between the independent variable (variable x) and the dependent variable (variable y) can pay attention to the correlation category table below(19).

Table 2. Title of the table above the table.

CORRELATION CATEGORIES	
0,00 – 0,199	Very Low
0,20 – 0,399	Low
0,40 – 0,599	Medium
0,60 – 0,799	Strong
0,80 – 1,00	Very Strong

The Pearson Correlation Coefficient can be calculated using the following mathematical formula(20):

$$r = \frac{\sum(X_i - \bar{X})\,(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 . \sum(Y_i - \bar{Y})^2}}$$

Drescription :

- r = Pearson correlation coefficient
- X_i = Individual values of the independent variable
- Y_i = Individual values of the dependent variable
- $\bar{X}$ = Average of independent variables
- $\bar{Y}$ = Average of dependent variables

The steps to calculate the Pearson correlation coefficient (r) are as follows (21):

1. Calculate the individual means of the independent and dependent variables using the following formula:

$$\bar{X} = \frac{\sum X_i}{n} ; \bar{Y} = \frac{\sum Y_i}{n}$$

2. Calculate the Pearson coefficient (r) from the known formula
3. Interpret the result:
   - The value of (r) will be in the range of -1 to 1.
   - A positive value indicates a positive correlation, while a negative value indicates a negative correlation.
   - The closer to 1 (positive or negative), the stronger the correlation. The closer to 0, the weaker or no linear correlation.

Spearman Rank Correlation

The Spearman correlation test is used to measure the strength and direction of a monotonic (not necessarily linear) relationship between two variables. This test is more robust to data that is not normally distributed or when there is an assumption of linearity that is not met(22). The Spearman correlation coefficient can also take values between -1 and 1, with interpretations similar to Pearson (23). The Spearman Rank Correlation (Spearman correlation coefficient) can be calculated using the following mathematical formula (5):

$$\rho = 1 - \frac{\sum(d_i)^2}{n\,(n^2 - 1)}$$

Description :

- ρ = Spearman correlation coefficient
- d_i = The difference between the ranks of two variables at the i-th observation
- n = Number of observations

The steps to calculate the Spearman correlation coefficient (ρ) are as follows(24):

1. Rank the data. Rank the values of each variable from lowest to highest. If there are equal ranks, give the average rank for those ranks.
2. Calculate the difference in rank (d_i)
3. Calculate the Spearman coefficient (ρ) from the known formula
4. Interpretation of results:
   a. The value of (ρ) will fall within the range of -1 to 1.
   b. A positive value indicates a positive monotonic relationship, while a negative value indicates a negative monotonic relationship.
   c. The closer to 1 (positive or negative), the stronger the correlation. The closer to 0, the weaker or no monotonic correlation.

Data Description

Descriptive statistics refers to statistical methods designed to provide a short and simple description of the basic properties of a data set(25). Descriptive analysis aims to summarise, organise and describe patterns or key characteristics of the data without drawing conclusions or generalisations to a larger population(26).

Table 3. Title of the table above the table.

		Statistic	Std. Error
Non Performing Financing	Mean	.027015	.0004322
	Std. Deviation	.0035637	
	Minimum	.0224	
	Maximum	.0330	
Capital Adequacy Ratio	Mean	.243747	.0014584
	Std. Deviation	.0120264	
	Minimum	.2180	
	Maximum	.2628	

The table above is obtained from the Overview of Islamic Financial Data for the period 2021 - 2023 and after processing the data using the SPSS application, it is concluded that:

1. For the independent variable (Non Performing Financing) the data distribution is: Minimum value 0.0224; Maximum value 0.0330; Mean 0.027015; Standard deviation 0.0035637

2. For the dependent variable (Capital Adequacy Ratio) the data distribution is: Minimum value 0.2180; Maximum value 0.2628; Mean 0.243747; Standard deviation 0.0120264

In analysing Non Performing Financing as an independent variable, in addition to the data presented in the form of descriptive statistics, the data can also be displayed in the form of a histogram that looks like the picture below(27).

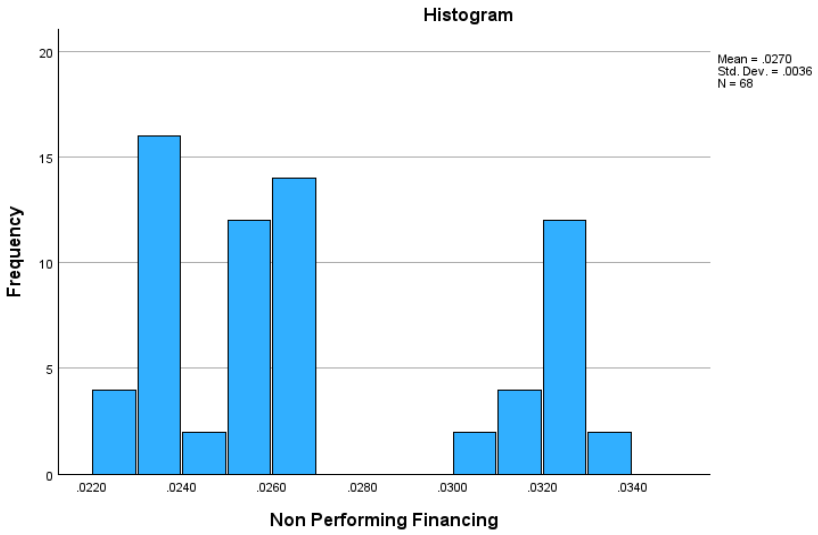

Figure 1. Histogram Non Performing Financing

This histogram is divided into several classes or intervals of Non Performing Financing values. The horizontal axis (X-axis) shows the range of Non Performing Financing values, while the vertical axis (Y-axis) shows the frequency or number of observations that fall within each class.

In addition to analysing Non Performing Financing as the independent variable, researchers also analysed Capital Adequacy Ratio as the dependent variable, which can be displayed in the form of a histogram as shown below(28).

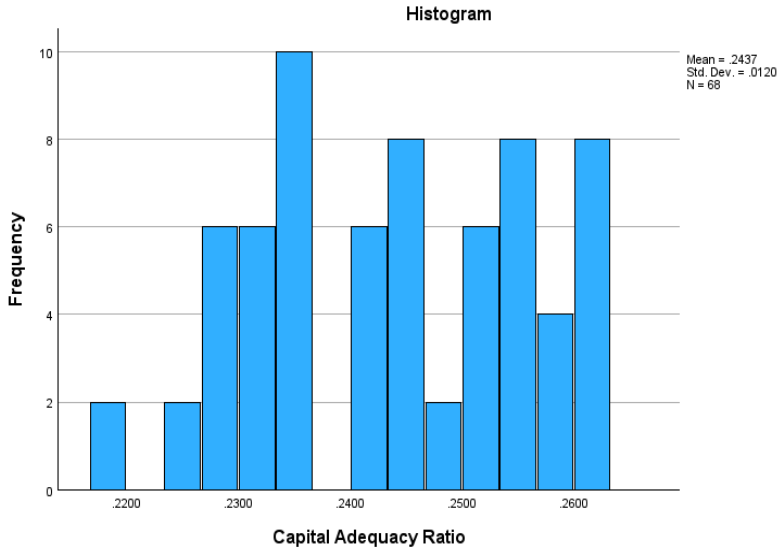

Figure 2. Capital Adequacy Ratio

This histogram is divided into several classes or intervals of investment return values. The horizontal axis (X-axis) shows the range of investment return values, while the vertical axis (Y-axis) shows the frequency or number of observations included in each class(29).

Application of Applied Statistical

The correlation method is used to evaluate the relationship between two variables, namely the dependent variable and the independent variable(30). In this case, the researcher used two types of correlation tests, namely the Pearson and Spearman

correlation tests(31). By using these two correlation tests, the research can provide a more complete understanding of the relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance in Indonesia (32). The results of this correlation test will help researchers to determine the extent to which the two variables are correlated and whether the relationship is statistically significant. Before conducting the correlation test, the data that has been collected must first be tested for normality to determine that the data is reliable and valid (true)(33).

Normality Test of Data on NPF and Car

The correlation method is used to evaluate the relationship between two variables, namely the dependent variable and the independent variable (30). In this case, the researcher used two types of correlation tests, namely the Pearson and Spearman correlation tests (31). By using these two correlation tests, the research can provide a more complete understanding of the relationship between NPF (Non Performing Financing) and CAR (Capital Adequacy Ratio) in Islamic Finance in Indonesia (32). The results of this correlation test will help researchers to determine the extent to which the two variables are correlated and whether the relationship is statistically significant. Before conducting the correlation test, the data that has been collected must first be tested for normality to determine that the data is reliable and valid (true) (33).Normality test is a statistical technique used in quantitative research to evaluate whether the data obtained from a sample or population is normally distributed(34). This test is carried out as a prerequisite before conducting a correlation test. The following data normality test was conducted on Non Performing Financing and Capital Adequacy Ratio (35).

Table 4. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Non Performing Financing	.241	68	<,001	.840	68	<,001
Capital Adequacy Ratio	.109	68	.044	.960	68	.027

a. Lilliefors Significance Correction

From the normality test results, the Shapiro-Wilk significance value for NPF (Non Performing Financing) data is 0,001. Meanwhile, the CAR (Capital Adequacy Ratio) data is 0,027. The Shapiro-Wilk value is lower than the significance level of 5% (0,05) or sig. < 0,05. This illustrates that both data are normally distributed.

Bivariate Correlation Analysis

Bivariate analysis is an analysis conducted to determine the relationship between two variables. In this analysis, two measurements are taken for each observation. In bivariate analysis, the samples used can be paired or each used independently with its own treatment. In general, in bivariate analysis, the variables used can be related or independent(36). Contiguous means that the same sample is subjected to two different measurements, while independent means that measurements are made on two different sample groups. In conducting this study, researchers used two types of statistical methods, namely the Pearson correlation test and the Spearman correlation test(37). This study aims to determine whether there is a relationship or correlation between Non Performing Financing as the independent variable (X) and Capital Adequacy Ratio as the dependent variable (Y)(38).

Pearson Correlation Test of NPF and Car

The Pearson Correlation test is used to measure the strength and direction of the linear relationship between two interval or ratio variables(39). The Pearson correlation coefficient can be between -1 and 1. A value of 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no linear correlation (40).

Table 5. Pearson Correlation Test

		Non Performing Financing	Capital Adequacy Ratio
Non Performing Financing	Pearson Correlation	1	-.342**
	Sig. (2-tailed)		.004
	N	68	68
Capital Adequacy Ratio	Pearson Correlation	-.342**	1

	Sig. (2-tailed)	.004	
	N	68	68

**. Correlation is significant at the 0.01 level (2-tailed).

Before interpreting the output table above, it is first necessary to formulate the hypothesis in this study and see the basis for decision making in the Pearson Test."

Initial Hypothesis (H0)

1. H0 : There is a positive correlation between NPF and CAR in the Islamic Financial Data Overview for the period 2021 - 2023. This means that if the NPF value increases, CAR is also expected to increase.
2. H0 : There is a negative correlation between NPF and CAR in the Sharia Financial Data Overview for the period 2021-2023. This means that if the NPF value increases, the CAR will decrease, or vice versa.

Alternative Hypothesis (H1)

There is no correlation between NPF and CAR in the Overview of Islamic Financial Data for the period 2021 - 2023. This means that the correlation between NPF and CAR is considered zero or insignificant.
Considerations for making decisions based on the significance value.
1. If the value of Asymp. Sig. (2-tailed) < 0.05, it means that H0 is accepted and H1 is rejected
2. If the magnitude of the Asymp. Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted

From the table, it is known that in the significance column (2-tailed), the value is 0.004. This value is smaller than 0.05. This means that H0 is accepted and H1 is rejected so that there is a significant correlation between the NPF and CAR variables. While the Pearson correlation value (r) of - 0.342 is negative which indicates an opposite direction relationship and the value of 0.342 is in the strong relationship category. From these two things it can be concluded that between the NPF and CAR variables there is a strong negative relationship or correlation, meaning that the more NPF increases, the more CAR will decrease or vice versa, the more NPF decreases, the more CAR will increase (41).

Spearman Correlation Test of NPF and Car

The Spearman correlation test is used to measure the strength and direction of a monotonic (not necessarily linear) relationship between two variables(42). The Spearman correlation coefficient can also take values between -1 and 1, with interpretations similar to Pearson's (43).

Table 6. Spearman Correlation Test

			Non Performing Financing	Capital Adequacy Ratio
Spearman's rho	Non Performing Financing	Correlation Coefficient"	1.000	-.486**
		Sig. (2-tailed)	.	<,001
		N	68	68
	Capital Adequacy Ratio	Correlation Coefficient	-.486**	1.000
		Sig. (2-tailed)	<,001	.
		N	68	68

**. Correlation is significant at the 0.01 level (2-tailed).

Before interpreting the output table above, it is first necessary to formulate the hypothesis in this study and see the basis for decision making in the Spearman Test.

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Considerations for making decisions based on the significance value.
1. If the value of Asymp. Sig. (2-tailed) < 0.05, it means that H0 is accepted and H1 is rejected
2. If the magnitude of the Asymp. Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted

From the table, it is known that in the significance column (2-tailed), the value is 0.001. This value is smaller than 0.05. This means that H0 is accepted and H1 is rejected so that there is a significant correlation between the NPF and CAR variables (44). While the Spearman correlation value (ρ) of - 0.486 is negative which indicates an opposite relationship and the value of 0.486 is in the strong relationship category. From these two things it can be concluded that between the NPF and CAR variables there is a strong negative relationship or correlation, meaning that the more NPF increases, the more CAR will decrease or vice versa, the more NPF decreases, the more CAR will increase (45).

Normality Test of Data on NPF and Car

Normality test is a statistical technique used in quantitative research to evaluate whether the data obtained from a sample or population is normally distributed(34). This test is carried out as a prerequisite before conducting a correlation test. The following data normality test was conducted on Non Performing Financing and Capital Adequacy Ratio (35).

Table 7. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
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From the normality test results, the Shapiro-Wilk significance value for NPF (Non Performing Financing) data is 0,001. Meanwhile, the CAR (Capital Adequacy Ratio) data is 0,027. The Shapiro-Wilk value is lower than the significance level of 5% (0,05) or sig. < 0,05. This illustrates that both data are normally distributed.

Bivariate Correlation Analysis

Bivariate analysis is an analysis conducted to determine the relationship between two variables. In this analysis, two measurements are taken for each observation. In bivariate analysis, the samples used can be paired or each used independently with its own treatment. In general, in bivariate analysis, the variables used can be related or independent(36). Contiguous means that the same sample is subjected to two different measurements, while independent means that measurements are made on two different sample groups. In conducting this study, researchers used two types of statistical methods, namely the Pearson correlation test and the Spearman correlation test(37). This study aims to determine whether there is a relationship or correlation between Non Performing Financing as the independent variable (X) and Capital Adequacy Ratio as the dependent variable (Y)(38).

Pearson Correlation Test of NPF and Car

The Pearson Correlation test is used to measure the strength and direction of the linear relationship between two interval or ratio variables(39). The Pearson correlation coefficient can be between -1 and 1. A value of 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no linear correlation (40).

Table 7. Pearson Correlation Test

		Non Performing Financing	Capital Adequacy Ratio
Non Performing Financing	Pearson Correlation	1	-.342**
	Sig. (2-tailed)		.004
	N	68	68
Capital Adequacy Ratio	Pearson Correlation	-.342**	1
	Sig. (2-tailed)	.004	

	N	68	68

**. Correlation is significant at the 0.01 level (2-tailed).

Before interpreting the output table above, it is first necessary to formulate the hypothesis in this study and see the basis for decision making in the Pearson Test.

Initial Hypothesis (H0)

1. H0 : There is a positive correlation between NPF and CAR in the Islamic Financial Data Overview for the period 2021 - 2023. This means that if the NPF value increases, CAR is also expected to increase.
2. H0 : There is a negative correlation between NPF and CAR in the Sharia Financial Data Overview for the period 2021-2023. This means that if the NPF value increases, the CAR will decrease, or vice versa.

Alternative Hypothesis (H1)

There is no correlation between NPF and CAR in the Overview of Islamic Financial Data for the period 2021 - 2023. This means that the correlation between NPF and CAR is considered zero or insignificant.
Considerations for making decisions based on the significance value.
1. If the value of Asymp. Sig. (2-tailed) < 0.05, it means that H0 is accepted and H1 is rejected
2. If the magnitude of the Asymp. Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted

From the table, it is known that in the significance column (2-tailed), the value is 0.004. This value is smaller than 0.05. This means that H0 is accepted and H1 is rejected so that there is a significant correlation between the NPF and CAR variables. While the Pearson correlation value (r) of - 0.342 is negative which indicates an opposite direction relationship and the value of 0.342 is in the strong relationship category. From these two things it can be concluded that between the NPF and CAR variables there is a strong negative relationship or correlation, meaning that the more NPF increases, the more CAR will decrease or vice versa, the more NPF decreases, the more CAR will increase (41).

Spearman Correlation Test of NPF and Car

The Spearman correlation test is used to measure the strength and direction of a monotonic (not necessarily linear) relationship between two variables(42). The Spearman correlation coefficient can also take values between -1 and 1, with interpretations similar to Pearson's (43).

Table 8. Spearman Correlation Test

			Non Performing Financing	Capital Adequacy Ratio
Spearman's rho	Non Performing Financing	Correlation Coefficient”	1.000	-.486**
		Sig. (2-tailed)	.	<,001
		N	68	68
	Capital Adequacy Ratio	Correlation Coefficient	-.486**	1.000
		Sig. (2-tailed)	<,001	.
		N	68	68

**. Correlation is significant at the 0.01 level (2-tailed).

Before interpreting the output table above, it is first necessary to formulate the hypothesis in this study and see the basis for decision making in the Spearman Test.”

Initial Hypothesis (H0)

1. H0 : There is a positive correlation between NPF and CAR in the Islamic Financial Data Overview for the period 2021 - 2023. This means that if the NPF value increases, CAR is also expected to increase.
2. H0 : There is a negative correlation between NPF and CAR in the Sharia Financial Data Overview for the period 2021-2023. This means that if the NPF value increases, the CAR will decrease, or vice versa.

Alternative Hypothesis (H1)

There is no correlation between NPF and CAR in the Overview of Islamic Financial Data for the period 2021 - 2023. This means that the correlation between NPF and CAR is considered zero or insignificant.

Considerations for making decisions based on the significance value.
1. If the value of Asymp. Sig. (2-tailed) < 0.05, it means that H0 is accepted and H1 is rejected
2. If the magnitude of the Asymp. Sig. (2-tailed) > 0.05, it means that H0 is rejected and H1 is accepted

From the table, it is known that in the significance column (2-tailed), the value is 0.001. This value is smaller than 0.05. This means that H0 is accepted and H1 is rejected so that there is a significant correlation between the NPF and CAR variables (44). While the Spearman correlation value (ρ) of - 0.486 is negative which indicates an opposite relationship and the value of 0.486 is in the strong relationship category. From these two things it can be concluded that between the NPF and CAR variables there is a strong negative relationship or correlation, meaning that the more NPF increases, the more CAR will decrease or vice versa, the more NPF decreases, the more CAR will increase (45).

Conclusion

From the results of bivariate analysis using Pearson correlation and Spearman correlation in this study, the following conclusions can be drawn: First, based on the significance value or Sig. (2-tailed) obtained a significance value for the Non Performing Financing variable with a Capital Adequacy Ratio of 0.004 with the Pearson correlation test. While the significance value for the Non Performing Financing variable with the Capital Adequacy Ratio is 0.001 with the Spearman correlation test. This value is smaller than 0.05, meaning that H0 is accepted and H1 is rejected so that there is a significant correlation between the Non Performing Financing variable and the Capital Adequacy Ratio of Islamic "Financial Data for the period 2021 - 2023; Second, based on the Pearson Correlation coefficient value (r) obtained - 0.342 and the Spearman Correlation coefficient value (ρ) of - 0. 486, the criterion for the strength of the relationship between the Non Performing Financing variable and the Capital Adequacy Ratio of Islamic Financial Data for the period 2021 - 2023 is negative, which indicates an opposite relationship and the correlation coefficient value is included in the strong relationship criteria; and Third, the Pearson Correlation coefficient value (r) and the Spearman Correlation coefficient value (ρ) in this analysis are negative, this means that the relationship between the Non Performing Financing variable and the Capital Adequacy Ratio is in the opposite direction or in other words, the more the Non Performing Financing variable increases, the Capital Adequacy Ratio will decrease. Or vice versa if Non Performing Financing decreases, the Capital Adequacy Ratio will increase.

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