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LAMPIRAN

Bank Umum Konvensional

1. Bank Rakyat Indonesia

1.1 Data Bank Rakyat Indonesia

	Y	X_1	X_2	X_3	X_4
2017	3,340	93,150	8,080	71,730	20,860
	3,310	89,760	8,020	72,330	21,670
	3,340	90,390	8,010	72,070	22,170
	3,690	88,130	7,930	69,140	22,960
2018	3,350	92,260	7,490	70,430	20,740
	3,370	95,270	7,640	70,500	20,130
	3,600	93,150	7,610	69,120	21,020
	3,680	88,960	7,450	68,400	21,210
2019	3,350	91,430	6,890	70,210	21,680
	3,310	93,900	7,020	71,120	20,770
	3,420	93,840	7,020	70,500	21,620
	3,500	88,640	6,980	70,100	22,550
2020	3,190	90,390	6,660	72,970	18,230
	2,410	85,780	5,720	77,490	19,830
	2,070	82,580	5,760	80,640	20,380
	1,980	83,660	6,000	81,220	20,610
2021	2,650	86,770	7,000	76,830	22,390
	2,380	84,520	7,020	78,300	22,970
	2,520	83,050	6,860	76,370	24,370
	2,720	83,670	6,890	74,300	25,280

1.2 Tabel Output SPSS

Uji linearitas

- X_1

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x1	Between Groups	(Combined)	5.521	17	.325	14.417	.067
		Linearity	3.532	1	3.532	156.790	.006
		Deviation from Linearity	1.989	16	.124	5.519	.164
	Within Groups		.045	2	.023		
	Total		5.566	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x1	.797	.635	.996	.992

- X_2

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x2	Between Groups	(Combined)	4.714	16	.295	1.038	.566
		Linearity	3.254	1	3.254	11.467	.043
		Deviation from Linearity	1.460	15	.097	.343	.931
	Within Groups		.851	3	.284		
	Total		5.566	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x2	.765	.585	.920	.847

- X_3

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x3	-.987	.974	1.000	1.000

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x3	Between Groups	(Combined)	5.565	18	.309	247.312	.050
		Linearity	5.423	1	5.423	4338.342	.010
		Deviation from Linearity	.142	17	.008	6.664	.297
	Within Groups		.001	1	.001		
	Total		5.566	19			

- X_4

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.005	.098	1	18	.758
Quadratic	.066	.604	2	17	.558

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	10.593	1.262		8.395	.000		
x1	.007	.007	.052	.938	.362	.384	2.603
x2	.084	.038	.109	2.219	.041	.480	2.085
X3	-.119	.009	-.868	-13.641	.000	.286	3.492

a. Dependent Variable: Y

Uji Heteroskedastisitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	1.072	.683		1.570	.136		
x1	-.007	.004	-.612	-1.655	.117	.384	2.603
x2	.003	.020	.054	.164	.872	.480	2.085
X3	-.006	.005	-.560	-1.306	.210	.286	3.492

a. Dependent Variable: Y

2. Bank Negara Indonesia

2.1 Data Bank Negara Indonesia

	Y	X_1	X_2	X_3	X_4
2017	2,760	89,330	5,620	70,490	19,000
	2,720	89,930	5,550	71,020	18,990
	2,800	87,860	5,520	70,300	19,010
	2,750	85,580	5,500	70,990	15,830
2018	2,730	90,130	5,410	70,540	17,920
	2,730	87,280	5,450	71,190	17,460
	2,760	89,040	5,310	70,300	17,460
	2,780	88,760	5,290	70,150	18,510
2019	2,680	91,260	4,990	70,540	19,180
	2,440	92,300	4,870	72,600	18,680
	2,510	96,570	4,850	71,760	19,330
	2,420	91,540	4,920	73,160	19,730
2020	2,630	92,260	4,880	73,150	16,070
	1,380	87,790	4,470	82,810	16,710
	0,880	83,110	4,320	88,990	16,750
	0,540	87,280	4,500	93,310	16,780
2021	1,460	87,240	4,900	81,570	18,070
	1,480	87,830	4,950	81,210	18,180
	1,510	85,140	4,760	80,470	19,900
	1,430	79,710	4,670	81,180	19,740

2.2 Tabel Output SPSS

Statistik Deskriptif

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Y	20	.54	2.80	2.1695	.73851
X1	20	79.71	96.57	88.4970	3.61554
X2	20	4.32	5.62	5.0315	.39675
X3	20	70.15	93.31	75.7865	6.98408
X4	20	9.80	9.95	18.1650	1.25122
Valid N (listwise)	20				

Uji Linearitas

- X_1

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x1	Between Groups	(Combined)	7.964	18	.442	.185	.968
		Linearity	2.965	1	2.965	1.236	.466
		Deviation from Linearity	5.000	17	.294	.123	.989
	Within Groups		2.398	1	. 2.398		
	Total		10.362	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x1	.535	.286	.877	.769

- X_2

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x2	Between Groups	(Combined)	9.832	18	.546	1.030	.663
		Linearity	7.227	1	7.227	13.624	.168
		Deviation from Linearity	2.605	17	.153	.289	.920
	Within Groups		.530	1	. .530		
	Total		10.362	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x2	.835	.697	.974	.949

- X_3

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x3	-.990	.980	1.000	1.000

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x3	Between Groups	(Combined)	10.360	17	.609	594.574	.002
		Linearity	10.157	1	10.157	9909.333	.000
		Deviation from Linearity	.203	16	.013	12.401	.077
	Within Groups		.002	2	.001		
	Total		10.362	19			

- X_4

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x4	Between Groups	(Combined)	10.362	18	.576	1279.265	.022
		Linearity	.272	1	.272	605.172	.026
		Deviation from Linearity	10.090	17	.594	1318.917	.022
	Within Groups		.000	1	.000	.	
	Total		10.362	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x4	.162	.026	1.000	1.000

Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a.b]	Mean	.0000000
	Std. Deviation	. 07666096
Most Extreme Differences	Absolute	.097
	Positive	.097
	Negative	-.080
Test Statistic		.097
Asymp. Sig. (2-tailed)		.200[c.d]

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	11.361	.390		29.158	.000		
X3	-.107	.003	-1.015	-38.977	.000	.934	1.070
X4	-.058	.015	-.098	-3.778	.001	.934	1.070

a. Dependent Variable: Y

Uji Heteroskedastisitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	-.151	.153		-.990	.336		
X3	.004	.001	.626	3.312	. 040	.934	1.070
X4	-.003	.006	-.097	-.514	.614	.934	1.070

a. Dependent Variable: Y

Uji F

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.251	2	5.125	780.326	.000[b]
	Residual	.112	17	.007		
	Total	10.362	19			

a. Dependent Variable: Y

b. Predictors: (Constant). X3. X2. X1

Uji *R Square*

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.995[a]	.989	.988	.08105

a. Predictors: (Constant). X3. X2. X1

b. Dependent Variable: Y

2.3 Solusi Matriks dan Manual Skor Deviasi

- Matriks

$$\begin{bmatrix}\alpha_0\\ \alpha_3\\ \alpha_4\end{bmatrix} = \begin{bmatrix} \text{n} & \sum X_{3i} & \sum X_{4i} \\ \sum X_{3i} & \sum {X_{3i}}^2 & \sum X_{4i}X_{3i} \\ \sum X_{4i} & \sum X_{3i}X_{4i} & \sum {X_{4i}}^2 \end{bmatrix}^{-1} \begin{bmatrix} \sum Y_i \\ \sum X_{3i}\,Y_i \\ \sum X_{4i}Y_i \end{bmatrix}$$

$$= \begin{bmatrix} 20 & 1.515{,}73 & 363{,}300 \\ 1.515{,}73 & 11.798{,}6 & 27.490{,}09 \\ 363{,}300 & 27.490{,}63 & 6.629{,}09 \end{bmatrix}^{-1} \begin{bmatrix} 43{,}390 \\ 3.191{,}354 \\ 791{,}026 \end{bmatrix}$$

$$= \begin{bmatrix} 23{,}114 & -0{,}118 & -0{,}779 \\ -0{,}118 & 0{,}001 & 0{,}002 \\ -0{,}779 & 0{,}002 & 0{,}036 \end{bmatrix} \begin{bmatrix} 43{,}390 \\ 3.191{,}354 \\ 791{,}026 \end{bmatrix}$$

$$\begin{bmatrix}\alpha_0\\ \alpha_3\\ \alpha_4\end{bmatrix} = \begin{bmatrix} 11{,}361 \\ -0{,}107 \\ -0{,}058 \end{bmatrix}$$

- Manual Skor Deviasi

Dengan menggunakan nilai-nilai yang diketahui

$\sum x_i^2 = \sum X_1^2 - \frac{(\sum X_i)^2}{n}$ dan $\sum x_i y = \sum X_i Y - \frac{(\sum X_i)(\sum Y)}{n}$, n=20

Maka

$\sum x_3^2 = 926{,}771$

$\sum x_4^2 = 29{,}746$

$\sum x_3 y$ = -97,022

$\sum x_4 y$ = 2,846

$\sum x_3 x_4 =$ -42,606

Menentukan nilai konstanta α_0, α_3, dan α_4 dengan memasukkan nilai yang diperoleh dari perhitungan sebelumnnya ke persamaan berikut:

$\sum x_3 y = \alpha_3 \sum x_3^2 + \alpha_4 \sum x_3 x_4$

$\sum x_4 y = \alpha_3 \sum x_3 x_4 + \alpha_4 \sum x_4^2$

Maka persamaan menjadi:

(-97,022) = 926,771 α_3 + (-42,606) α_4

2,846 = (-42,606) α_3 + 29,746 α_4

Persamaan masing-masing dibagi dengan koefisien α_4 menjadi:

2,277 = (-21,752) α_3 + α_4

0,096 = (-1,432) α_3 + α_4

Kemudian persamaan diatas dieliminasi menjadi:

2,277 = (-21,752) α_3 + α_4

0,096 = (-1,432) α_3 + α_4 (-)

2,182 = (-20,320) α_3

α_3 = (-0,107)

Subtitusi nilai α_3 pada persamaan diatas sehingga:

0,096 = (-1,432) α_3 + α_4

α_4 = 0,096 − (-1,432) (-0,107)

α_4 = (-0,058)

Dari nilai $\alpha_1, \alpha_2, \alpha_3$ dan α_3 dapat diperoleh nilai α_0

$$\alpha_0 = \frac{\sum Y}{n} - \alpha_3 \left(\frac{\sum X_3}{n}\right) - \alpha_4 \left(\frac{\sum X_4}{n}\right)$$

α_0 = 2,170 − (-0,107)(75,787)−(0,084)(7,103) − (-0, 119) (73,189)

α_0 = 11,361

3. Bank Mandiri

3.1 Data Bank Mandiri

	Y	X_1	X_2	X_3	X_4
2017	2,380	89,220	5,690	75,980	21,110
	2,610	88,610	5,650	73,170	21,550
	2,720	89,050	5,640	71,850	21,980
	2,720	88,110	5,630	71,170	21,640
2018	3,170	90,670	5,610	66,010	20,940
	3,040	94,170	5,510	67,090	20,640
	2,960	92,480	5,520	67,620	21,380
	3,170	96,740	5,520	66,480	20,960
2019	3,420	93,820	5,550	63,010	22,470
	3,080	97,940	5,490	66,580	21,010
	3,010	92,520	5,490	67,460	22,500
	3,030	96,370	5,460	67,440	21,390
2020	3,550	94,910	5,260	63,010	17,650
	2,230	87,650	4,760	74,180	19,200
	1,950	83,030	4,500	76,350	19,830
	1,640	82,950	4,480	80,030	19,900
2021	2,220	81,150	4,650	71,380	18,510
	2,430	86,000	4,630	69,110	18,940
	2,420	83,290	4,670	68,820	19,400
	2,530	80,040	4,730	67,260	19,600

3.2 Tabel Output SPSS

Statistik Deskriptif

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Y	20	1.64	3.55	2.7140	.49419
X1	20	80.04	97.94	89.4360	5.43427
X2	20	4.48	5.69	5.2220	.45731
X3	20	63.01	80.03	69.7000	4.49361
X4	20	17.65	22.50	20.5290	1.33882
Valid N (listwise)	20				

Uji linearitas

- X_1

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	0.663.	35.427	.996	18	.000

- X_2

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x2	Between Groups	(Combined)	4.616	17	.272	22.165	.044
		Linearity	2.381	1	2.381	194.351	.005
		Deviation from Linearity	2.235	16	.140	11.403	.084
	Within Groups		.025	2	.012		
	Total		4.640	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x2	.716	.513	.997	.995

- X_3

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x3	-.903	.815	.999	.998

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x3	Between Groups	(Combined)	4.632	18	.257	30.453	.142
		Linearity	3.780	1	3.780	447.372	.030
		Deviation from Linearity	.852	17	.050	5.928	.314
	Within Groups		.008	1	.008		
	Total		4.640	19			

- X_4

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.109	2.194	1	18	.156
Quadratic	.351	4.598	2	17	.025

Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a.b]	Mean	.0000000
	Std. Deviation	.07200641
Most Extreme Differences	Absolute	.184
	Positive	.184
	Negative	-.102
Test Statistic		.184
Asymp. Sig. (2-tailed)		.074[c]

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	4.424	.632		6.999	.000		
x1	.019	.006	.211	3.423	.003	.349	2.866
x2	.316	.059	.292	5.333	.000	.442	2.262
x3	-.073	.005	-.662	-14.757	.000	.659	1.517
		.					

a. Dependent Variable: Y

Uji Heteroskedastisitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	.160	.356		.448	.661		
x1	.005	.003	.584	1.677	.113	.349	2.866
x2	-.070	.033	-.651	-2.103	.052	.442	2.262
x3	-.003	.003	-.282	-1.113	.282	.659	1.517
		.					

a. Dependent Variable: Y

Uji F

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.542	3	1.514	245.883	.000[b]
	Residual	.099	16	.006		
	Total	4.640	19			

a. Dependent Variable: Y

Uji *R Square*

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.979	.975	.07847

3.3 Solusi Matriks

- Matriks

$$\begin{bmatrix}\alpha_0\\ \alpha_1\\ \alpha_2\\ \alpha_3\end{bmatrix} = \begin{bmatrix} \text{n} & \sum X_{1i} & \sum X_{2i} & \sum X_{3i} \\ \sum X_{1i} & \sum {X_{1i}}^2 & \sum X_{1i}X_{2i} & \sum X_{1i}X_{3i} \\ \sum X_{2i} & \sum X_{2i}X_{1i} & \sum {X_{2i}}^2 & \sum X_{2i}X_{3i} \\ \sum X_{3i} & \sum X_{3i}X_{1i} & \sum X_{3i}X_{2i} & \sum {X_{3i}}^2 \end{bmatrix}^{-1} \begin{bmatrix} \sum Y_i \\ \sum X_{1i}Y_i \\ \sum X_{2i}Y_i \\ \sum X_{3i}Y_i \end{bmatrix}$$

$$= \begin{bmatrix} 20 & 1.788{,}72 & 104{,}44 & 1.394 \\ 1.788{,}72 & 160.537{,}056 & 9.375{,}919 & 124.403{,}801 \\ 104{,}44 & 9.375{,}919 & 549{,}359 & 7.263{,}744 \\ 1.394 & 124.403{,}801 & 7.263{,}744 & 97.545{,}458 \end{bmatrix}^{-1} \begin{bmatrix} 54{,}280 \\ 4.896{,}137 \\ 286{,}526 \\ 3.745{,}233 \end{bmatrix}$$

$$= \begin{bmatrix} 64{,}889 & -0{,}408 & 0{,}533 & -0{,}447 \\ -0{,}408 & 0{,}005 & -0{,}037 & 0{,}002 \\ 0{,}533 & -0{,}037 & 0{,}569 & -0{,}003 \\ -0{,}447 & 0{,}002 & -0{,}003 & 0{,}004 \end{bmatrix} \begin{bmatrix} 54{,}280 \\ 4.896{,}137 \\ 286{,}526 \\ 3.745{,}233 \end{bmatrix}$$

$$\begin{bmatrix}\alpha_0\\ \alpha_1\\ \alpha_2\\ \alpha_3\end{bmatrix} = \begin{bmatrix} 4{,}424 \\ 0{,}019 \\ 0{,}316 \\ -0{,}073 \end{bmatrix}$$

- Manual Skor Deviasi

Dengan menggunakan nilai-nilai yang diketahui

$\sum x_i^2 = \sum X_1^2 - \frac{(\sum X_i)^2}{n}$ dan $\sum x_i y = \sum X_i Y - \frac{(\sum X_i)(\sum Y)}{n}$, n=20

Maka

$\sum x_1^2 = 561{,}094$

$\sum x_2^2 = 3{,}974$

$\sum x_3^2 = 383{,}658$

$\sum x_1 y$ = 41,551

$\sum x_2 y$ = 3,076

$\sum x_3 y$ = -38,083

$\sum x_1 x_2 = 35{,}223$

$\sum x_1 x_3$ = -269, 983

$\sum x_2 x_3$ = -15,724

Menentukan nilai konstanta α_0, α_1, $\alpha_2$dan α_3 dengan memasukkan nilai yang diperoleh dari perhitungan sebelumnnya ke persamaan berikut:

$\sum x_1 y = \alpha_1 \sum x_1^2 + \alpha_2 \sum x_1 x_2 + \alpha_3 \sum x_1 x_3$

$\sum x_2 y = \alpha_1 \sum x_2 x_1 + \alpha_2 \sum x_2^2 + \alpha_3 \sum x_2 x_3$

$\sum x_3 y = \alpha_1 \sum x_3 x_1 + \alpha_2 \sum x_3 x_2 + \alpha_3 \sum x_3^2$

Maka persamaan menjadi:

41,551 = 561,094 α_1 + 35,223α_2 + (-269, 983) α_3

3,076 = 35,223 α_1 + 3,974 α_2 + (-15,724) α_3

(-38,083) = (-269, 983) α_1 + (-15,724) α_2 + 383,658 α_3

Persamaan masing-masing dibagi dengan koefisien α_3 menjadi:

(i) (-0,154) = (-2,078) α_1 + (-0,130) α_2 + α_3

(ii) (-0,196) = (-2,240) α_1 + (-0,253) α_2 + α_3

(iii) (-0,099) = (-0,704) α_1 + (-0,041) α_2 + α_3

Persamaan disederhanakan

Persamaan (i) dan (ii)

(-0,154) = (-2,078) α_1 + (-0,130) α_2 + α_3

(-0,196) = (-2,240) α_1 + (-0,253) α_2 + α_3 (-)

0,042 = 0,162 α_1 + 0,122 α_2

Persamaan (ii) dan (iii)

(-0,196) = (-2,240) α_1 + (-0,253) α_2 + α_3

(-0,099) = (-0,704) α_1 + (-0,041) α_2 + α_3 (-)

(-0,096) = (-1,536) α_1 + (-0,212) α_2

Maka persamaan diatas menjadi:

0,042 = 0,162 α_1 + 0,122 α_2

(-0,096) = (-1,536) α_1 + (-0,212) α_2

Persamaan masing-masing dibagi dengan koefisien α_2 menjadi:

0,341 = 1,323 α_1 + α_2

0,455 = 7,257 α_1 + α_2

Kemudian persamaan diatas dieliminasi menjadi:

0,341 = 1,323 α_1 + α_2

0,455 = 7,257 α_1 + α_2 (-)

(-0,114) = (-5, 933) α_1

α_1 = 0,019

Dari persamaan

0,455 = 7,257 α_1 + α_2

Subtitusi nilai α_1 pada persamaan diatas sehingga:

0,455 = 7,257 α_1 + α_2

α_2 = 0,455 − 7,257 (0,019)

α_2 = 0,316

Subtitusi nilai α_1 dan α_2 sehingga:

(-0,099) = (-0,704) α_1 + (-0,041) α_2 + α_3

α_3 = (-0,099) − (-0,704)(0,019) − (-0,041) (0,316)

α_3 = (-0,073)

Dari nilai α_1, α_2, dan α_3 dapat diperoleh nilai α_0

$$\alpha_0 = \frac{\sum Y}{n} - \alpha_1 \left(\frac{\sum X_1}{n}\right) - \alpha_2 \left(\frac{\sum X_2}{n}\right) - \alpha_3 \left(\frac{\sum X_3}{n}\right)$$

α_0 = 2,174 − (-0,007)(88,965)−(0,316)(1.649) − (-0,073) (69, 700)

α_0 = 4.424

Bank Umum Syariah

1. Bank Rakyat Indonesia Syariah

1.1 Data Bank Rakyat Indonesia

	Y	X_1	X_2	X_3	X_4
2016	0,990	93,150	8,080	90,470	20,860
	1,030	89,760	8,020	90,410	21,670
	0,980	90,390	8,010	90,990	22,170
	0,950	88,130	7,930	91,330	22,960
2017	0,650	68,700	0,200	90,750	20,740
	0,710	76,790	0,250	92,780	20,130
	0,820	73,120	0,280	92,190	21,020
	0,510	71,870	0,120	95,240	21,210
2018	0,860	68,700	0,340	90,750	21,680
	0,920	77,780	0,420	89,920	20,770
	0,770	76,400	0,100	91,490	21,620
	0,430	75,490	0,270	95,320	22,550
2019	0,430	79,550	0,970	95,670	18,230
	0,320	85,250	0,560	96,740	19,830
	0,320	90,400	0,450	96,780	20,380
	0,310	80,120	0,590	96,800	20,610
2020	1,000	92,100	0,240	90,180	22,390
	0,900	91,010	0,440	89,930	22,970
	0,840	82,650	0,020	90,390	24,370
	0,810	80,990	0,080	91,010	25,280

1.2 Tabel Output SPSS

Statistik Deskriptif

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Y	20	.31	1.03	.7275	.25123
X1	20	68.70	92.10	80.7950	6.41727
X2	20	.02	.97	.3570	.21868
X3	20	89.92	96.80	92.5950	2.54764
X4	20	14.06	30.07	22.2675	5.02633
Valid N (listwise)	20				

Uji linearitas

- X_1

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.020	.374	1	18	.548
Quadratic	.031	.275	2	17	.763

- X_2

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x2	Between Groups	(Combined)	.977	17	.057	.518	.824
		Linearity	.094	1	.094	.846	.455
		Deviation from Linearity	.884	16	.055	.498	.833
	Within Groups		.222	2	.111	.222	
	Total		1.199	19	1.199		

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x2	-.280	.078	.903	.815

- X_3

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.941	288.495	1	18	.000
Quadratic	.942	293.326	1	18	.000

- X_4

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.109	2.194	1	18	.156
Quadratic	.351	4.598	2	17	.025

Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.06088200
Most Extreme Differences	Absolute	.100
	Positive	.100
	Negative	-.088
Test Statistic		.100
Asymp. Sig. (2-tailed)		.200

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	9.586	.522		18.373	.000		
X3	-.096	.006	-.970	-16.985	.000	1.000	1.000

Uji Heteroskedastisitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	.977	.189		5.173	.100		
X3	-.010	.002	-.757	-4.913	.100	1.000	1.000

Uji F

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.129	1	1.129	288.495	.000[b]
	Residual	.070	18	.004		
	Total	1.199	19			

Uji *R Square*

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.970[a]	.941	.938	.06255

a. Predictors: (Constant). X3. X2. X1

b. Dependent Variable: Y

1.3 Solusi Matriks dan Manual Skor Deviasi

- Matriks

$$\begin{bmatrix}\alpha_0\\ \alpha_3\end{bmatrix} = \begin{bmatrix}\mathbf{n} & \sum \boldsymbol{X_{3i}}\\ \sum \boldsymbol{X_{3i}} & \sum \boldsymbol{X_{3i}}^{\mathbf{2}}\end{bmatrix}^{-1}\begin{bmatrix}\sum Y_i\\ \sum X_{3i}Y_i\end{bmatrix}$$

$$= \begin{bmatrix}20 & 1.849{,}140\\ 1.849{,}140 & 171.090{,}968\end{bmatrix}^{-1}\begin{bmatrix}14.550\\ 1.333{,}692\end{bmatrix}$$

$$= \begin{bmatrix}68{,}419 & -0{,}739\\ -0{,}739 & 0{,}008\end{bmatrix}\begin{bmatrix}14.550\\ 1.333{,}692\end{bmatrix}$$

$$\begin{bmatrix}\alpha_0\\ \alpha_3\end{bmatrix} = \begin{bmatrix}9{,}274\\ -0{,}092\end{bmatrix}$$

- Manual Skor Deviasi

$\sum x_3^2$ =125.031
$\sum x_3 y$ = -11.557

Menentukan nilai konstanta α_0, α_3, dan α_4 dengan memasukkan nilai yang diperoleh dari perhitungan sebelumnnya ke persamaan berikut:

$\sum x_3 y$ = $\alpha_3 \sum x_3^2$
-11.557 = 125.031 α_3
α_3 = (-0.092)

Dari nilai α_1, α_2, α_3 dan α_3 dapat diperoleh nilai α_0

$$\alpha_0 = \frac{\sum Y}{n} - \alpha_3 \left(\frac{\sum X_3}{n}\right)$$

α_0 = 0.728− (-0.092)(92.457)
α_0 = 9.274

2. Bank Negara Indonesia Syariah

2.1 Data Bank Negara Indonesia Syariah

	Y	X_1	X_2	X_3	X_4
2016	1,650	86,260	1,300	85,370	15,850
	1,590	86,920	1,180	85,880	15,560
	1,530	85,790	1,030	86,280	15,820
	1,440	84,570	1,010	87,620	14,920
2017	1,400	82,320	0,730	87,290	14,440
	1,480	84,440	0,770	86,500	14,330
	1,440	81,400	0,690	87,620	14,900
	1,310	80,210	0,760	86,880	20,140
2018	1,350	71,980	0,540	86,530	19,420
	1,420	77,420	0,780	85,430	19,240
	1,420	80,030	0,080	85,490	19,220
	1,420	79,620	0,810	85,370	19,310
2019	1,660	76,420	0,910	82,960	18,230
	1,970	87,070	1,370	79,850	18,380
	1,910	84,740	1,240	80,670	18,730
	1,820	74,310	1,000	81,260	18,880
2020	2,240	71,930	1,470	76,530	19,290
	1,450	71,670	1,840	82,880	20,660
	2,070	82,580	5,760	80,640	20,600
	1,330	68,790	0,620	84,060	21,360

2.2 Tabel Output SPSS

Statistik Deskriptif

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Y	20	1.31	2.24	. 1.5950	. .26826
X1	20	68.79	87.07	79.9235	5.73111
X2	20	.08	5.76	1.1945	1.14063
X3	20	76.53	87.62	84.2555	3.06657
X4	20	14.33	21.36	17.9640	2.29615
Valid N (listwise)	20				

Uji linearitas

- X_1

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.013	.232	1	18	.636
Quadratic	.035	.309	2	17	.738

- X_2

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.323	8.592	1	18	.009
Quadratic	.453	.7.040	2	17	.006

- X_3

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x3	Between Groups	(Combined)	1.341	17	.079	5.964	.153
		Linearity	1.079	1	1.079	81.553	.012
		Deviation from Linearity	.262	16	.016	1.240	.536
	Within Groups		026	2	.013		
	Total		1.367	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x3	-.903	.815	.999	.998

- X_4

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.025	.471	1	18	.501
Quadratic	.166	1.693	2	17	.214

Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a.b]	Mean	.0000000
	Std. Deviation	.12328038
Most Extreme Differences	Absolute	.155
	Positive	.079
	Negative	-.155
Test Statistic		.100
Asymp. Sig. (2-tailed)		.200

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	8.141	.799		10.191	.000		
X3	-.078	.009	-.888	-8.199	.000	1.000	1.000

a. Dependent Variable: Y

Uji Heteroskedastisitas

Coefficients[a][[[

Model	Unst[[[andardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	-.084	.464		-.180	.859		
X3	.002	.006	-.970	.391	.701	1.000	1.000

a. Dependent Variable: Y

Uji F

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.079	1	1.079	67.230	.000[b]
	Residual	.289	18	.016		
	Total	1.367	19			

a. Dependent Variable: Y

b. Predictors: (Constant). X3. X2. X1

Uji *R Square*

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.888[a]	789	.777	.12666

a. Predictors: (Constant). X3. X2. X1

b. Dependent Variable: Y

2.3 Solusi Matriks

- Matriks

$$\begin{bmatrix}\alpha_0\\ \alpha_3\end{bmatrix} = \begin{bmatrix}\mathbf{n} & \sum \boldsymbol{X_{3i}}\\ \sum \boldsymbol{X_{3i}} & \sum \boldsymbol{X_{3i}}^2\end{bmatrix}^{-1}\begin{bmatrix}\sum Y_i\\ \sum X_{3i}Y_i\end{bmatrix}$$

$$= \begin{bmatrix}20 & 1.685{,}110\\ 1.849{,}140 & 142.158{,}459\end{bmatrix}^{-1}\begin{bmatrix}31{,}900\\ 2.673{,}869\end{bmatrix}$$

$$= \begin{bmatrix}39{,}782 & -0{,}472\\ -0{,}472 & 0{,}008\end{bmatrix}\begin{bmatrix}31{,}900\\ 2.673{,}869\end{bmatrix}$$

$$\begin{bmatrix}\alpha_0\\ \alpha_3\end{bmatrix} = \begin{bmatrix}8{,}141\\ -0{,}078\end{bmatrix}$$

- Manual Skor Deviasi

$\sum x_3^2$ =178.673
$\sum x_3 y$ = -13.882

Menentukan nilai konstanta α_0, α_3, dan α_4 dengan memasukkan nilai yang diperoleh dari perhitungan sebelumnnya ke persamaan berikut:

$\sum x_3 y$ = $\alpha_3 \sum x_3^2$
-13.882 = $178.673\alpha_3$
α_3 = (-0.078)

Dari nilai $\alpha_1, \alpha_2, \alpha_3$ dan α_3 dapat diperoleh nilai α_0

$$\alpha_0 = \frac{\sum Y}{n} - \alpha_3 \left(\frac{\sum X_3}{n}\right)$$

α_0 = 1.595− (−0.078)(84.256)
α_0 = 8.141

3. Bank Muamalat Indonesia

3.1 Data Muamalat Indonesia

	Y	X_1	X_2	X_3	X_4
2016	0.120	90.930	0.160	98.190	12.100
	0.150	99.110	0.090	99.000	12.940
	0.130	96.470	0.100	98.890	12.750
	0.220	95.130	0.200	97.760	12.740
2017	0.150	88.410	0.170	98.030	12.830
	0.150	89.000	0.230	97.400	12.940
	0.110	86.140	0.170	98.100	11.580
	0.110	84.410	0.210	97.680	13.620
2018	0.150	88.410	0.170	98.030	10.160
	0.490	84.370	0.660	92.780	15.920
	0.350	79.030	0.490	94.380	12.120
	0.080	73.180	0.150	98.240	12.340
2019	0.020	71.170	0.080	99.130	12.580
	0.020	68.050	0.080	99.040	12.010
	0.020	68.510	0.010	98.830	12.420
	0.050	73.510	0.040	99.500	12.420
2020	0.030	69.840	0.040	99.450	15.210
	0.030	74.810	0.130	98.190	12.130
	0.030	73.800	0.120	98.360	12.480
	0.030	69.840	0.040	99.450	15.210

3.2 Tabel Output SPSS

Statistik Deskriptif

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Y	20	.02	.49	.1220	.11976
X1	20	68.05	99.11	81.2060	10.17903
X2	20	.01	.66	.1670	.15506
X3	20	92.78	99.50	98.0215	1.66115
X4	20	10.16	15.92	12.8250	1.32171
Valid N (listwise)	20				

Uji linearitas

- X_1

Model Summary

Equation	R Square	F	df1	df2	Sig.
Linear	.229	5.333	1	18	.033
Quadratic	.377	5.135	2	17	.018

- X_2

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x2	Between Groups	(Combined)	.271	14	.019	72.639	.000
		Linearity	.241	1	.241	903.295	.000
		Deviation from Linearity	.030	13	.002	8.743	.013
	Within Groups		.001	5	.000		
	Total		.273	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x2	.940	.884	.998	.995

- X_3

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x3	Between Groups	(Combined)	.268	16	.017	12.429	.030
		Linearity	.232	1	.232	171.992	.001
		Deviation from Linearity	.036	15	.002	1.792	.349
	Within Groups		.004	3	.001		
	Total		.273	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x3	-.923	.852	.993	.985

- X_4

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y * x4	Between Groups	(Combined)	.272	16	.017	113.362	.001
		Linearity	.018	1	.018	117.208	.002
		Deviation from Linearity	.254	15	.017	113.106	.001
	Within Groups		.000	3	.000		
	Total		.273	19			

Measures of Association

	R	R Squared	Eta	Eta Squared
Y * x4	.254	.065	.999	.998

Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.04023089
Most Extreme Differences	Absolute	.095
	Positive	.079
	Negative	-.074
Test Statistic		.095
Asymp. Sig. (2-tailed)		.200[c,d]

Uji Multikolinearitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	-2.806	4.328		-.648	.526		
x2	1.021	.468	1.321	2.181	.044	.019	52.028
X3	.028	.043	.388	.644	.529	.019	51.548
X4	.001	.008	.013	.145	.887	.925	1.081

a. Dependent Variable: Y

Uji Heteroskedastisitas

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1 (Constant)	-.237	2.361		-.101	.921		
x2	-.005	.255	-.035	-.021	.984	.019	52.028
X3	.003	.024	.226	.134	.895	.019	51.548
X4	-.003	.004	-.186	-.767	.454	.925	1.081

Uji F

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.242	3	.081	41.930	.000[b]
	Residual	.031	16	.002		
	Total	.273	19			

Uji *R Square*

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.942[a]	.887	.866	.04384

a. Predictors: (Constant). X3. X2. X1

- Matriks

$$\begin{bmatrix}\alpha_0\\ \alpha_2\\ \alpha_3\\ \alpha_4\end{bmatrix} = \begin{bmatrix} \text{n} & \sum X_{2i} & \sum X_{3i} & \sum X_{4i} \\ \sum X_{2i} & \sum {X_{2i}}^2 & \sum X_{2i}X_{3i} & \sum X_{2i}X_{4i} \\ \sum X_{3i} & \sum X_{3i}X_{2i} & \sum {X_{3i}}^2 & \sum X_{3i}X_{4i} \\ \sum X_{4i} & \sum X_{4i}X_{2i} & \sum X_{4i}X_{3i} & \sum {X_{4i}}^2 \end{bmatrix}^{-1} \begin{bmatrix} \sum Y_i \\ \sum X_{2i}Y_i \\ \sum X_{3i}Y_i \\ \sum X_{4i}Y_i \end{bmatrix}$$

$$= \begin{bmatrix} 20 & 3{,}340 & 1.960{,}430 & 256{,}500 \\ 3{,}340 & 1.015 & 322{,}546 & 43{,}813 \\ 1.960{,}430 & 9.375{,}919 & 192.216{,}719 & 25132{,}790 \\ 256{,}500 & 43{,}813 & 25132{,}790 & 3.322{,}804 \end{bmatrix}^{-1} \begin{bmatrix} 2{,}440 \\ 0{,}739 \\ 235{,}683 \\ 32{,}057 \end{bmatrix}$$

$$= \begin{bmatrix} 9.745{,}472 & -1041{,}905 & -97{,}861 & 1.638 \\ -1041{,}905 & 0{,}005 & -0{,}037 & 0{,}002 \\ -97{,}861 & -0{,}037 & 0{,}569 & -0{,}003 \\ 1.638 & 0{,}002 & -0{,}003 & 0{,}004 \end{bmatrix} \begin{bmatrix} 2{,}440 \\ 0{,}739 \\ 235{,}683 \\ 32{,}057 \end{bmatrix}$$

$$\begin{bmatrix}\alpha_0\\ \alpha_2\\ \alpha_3\\ \alpha_4\end{bmatrix} = \begin{bmatrix} -2{,}806 \\ 1{,}021 \\ 0{,}028 \\ 0{,}001 \end{bmatrix}$$

- Manual Skor Deviasi

Dengan menggunakan nilai-nilai yang diketahui

Maka

$\sum x_2^2 = 0,457$

$\sum x_3^2 = 52,429$

$\sum x_4^2 = 294,068$

$\sum x_2 y =$ 0, 332

$\sum x_3 y =$ -3,489

$\sum x_4 y =$ 0, 764

$\sum x_2 x_3 =$ -4, 846

$\sum x_2 x_4 =$ 0, 978

$\sum x_3 x_4 =$ -9, 725

Menentukan nilai konstanta α_0, α_2, α_3, dan α_4 dengan memasukkan niai yang diperoleh dari perhitungan sebelumnnya ke persamaan berikut:

$\sum x_2 y = \alpha_2 \sum x_2^2 + \alpha_3 \sum x_2 x_3 + \alpha_4 \sum x_2 x_4$

$\sum x_3 y = \alpha_2 \sum x_3 x_2 + \alpha_3 \sum x_3^2 + \alpha_4 \sum x_3 x_4$

$\sum x_4 y = \alpha_2 \sum x_4 x_2 + \alpha_3 \sum x_4 x_3 + \alpha_4 \sum x_4^2$

Maka persamaan menjadi:

0, 332 = 0, 457 α_2 + (-4, 846) α_3 + 0, 978 α_3

(-3,489) = (-4, 846) α_2 + 52,429 α_3 + (-9, 725) α_3

0, 764 = 0, 978 α_2 + (-9, 725) α_3 + 33,191 α_3

Persamaan masing-masing dibagi dengan koefisien α_4 menjadi:

(i) -0,339 = 0,467 α_2 + (-4, 955) α_3 + α_4

(ii) 0.359 = 0.498 α_2 + (-5.391) α_3 + α_4

(iii) 0.023 = 0.029 α_2 + (-0.293) α_3 + α_4

Persamaan disederhanakan

Persamaan (i) dan (ii)

0,339 = 0,467 α_2 + (-4, 955) α_3 + α_4

<u>0,359 = 0,498 α_2 + (-5,391) α_3 + α_4 (-)</u>

(-0,020) = (-0,031) α_2 + 0,436 α_2

Persamaan (ii) dan (iii)

0,359 = 0,498 α_2 + (-5,391) α_3 + α_4

<u>0,023 = 0,029 α_2 + (-0,293) α_3 + α_4 (-)</u>

0,336 = 0,469 α_2 + (-5,098) α_3

Maka persamaan diatas menjadi:

(-0,020) = (-0,031) α_2 + 0,436 α_3

0,.336 = 0,469 α_2 + -5,098 α_3

Persamaan masing-masing dibagi dengan koefisien α_3 menjadi:

(-0,045) = (-0,071) α_2 + α_3

(-0,066) = (-0,092) α_2 + α_3

Kemudian persamaan diatas dieliminasi menjadi:

(-0,045) = (-0,071) α_2 + α_3

(-0,066) = (-0,092) α_2 + α_3(-)

0,021 = 0,021 α_2

α_2 = 1,021

Subtitusi nilai α_2 pada persamaan diatas sehingga:

(-0,066) = (-0,092) α_2 + α_3

α_3 = $(-0{,}066)$ − (-0,092) (1,021)

α_3 = 0,028

Subtitusi nilai α_2 dan α_3 pada persamaan diatas sehingga:

0,023 = 0,029 α_2 + (-0,293) α_3 + α_4

α_4 = 0,023 − 0,029 (1,021) − (-0,293) (0,028)

α_4 = 0,001

Dari nilai α_2, α_3 dan α_4 dapat diperoleh nilai α_0

$\alpha_0 = \frac{\sum Y}{n} - \alpha_2 \left(\frac{\sum X_2}{n}\right) - \alpha_3 \left(\frac{\sum X_3}{n}\right) - \alpha_4 \left(\frac{\sum X_4}{n}\right)$

$\alpha_0 = 0{,}122 - (-0{,}007)(0{,}167) - (0{,}084)(98{,}022) - (0{,}001)\ (12,\ 825)$

$\alpha_0 = -2{,}806$