

ภาคผนวก

ผลการประมวลผลทางสถิติตามโปรแกรม SPSS

ผลการวิเคราะห์สมการถดถอยตามตัวแบบที่ 1

$$Y \text{ (QOE Index)}_{it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_2 \text{D/E}_{it} + \beta_3 \text{SD1}_{it} + \beta_4 \text{SD2}_{it} + \beta_5 \text{SD3}_{it} + \varepsilon_{it} \quad (1)$$

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	SD3, D/E, Size, SD1, SD2	.	Enter

a All requested variables entered. b Dependent Variable: QOE

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	F	df1	df2	Sig. F Change	Durbin-Watson
.197	.039	.026	1.322994	.039	2.969	5	366	.012	2.002

a Predictors: (Constant), SD3, D/E, Size, SD1, SD2 b Dependent Variable: QOE

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.983	5	5.197	2.969	.012
Residual	640.615	366	1.750		
Total	666.597	371			

a Predictors: (Constant), SD3, D/E, Size, SD1, SD2 b Dependent Variable: QOE Index

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.186	.240		4.944	.000
Size	-.114	.063	-.128	-1.799	.073
D/E	-9.286E-02	.081	-.059	-1.153	.250
SD1	-1.536E-02	.232	-.006	-.066	.947
SD2	-.158	.308	-.048	-.512	.609
SD3	-.441	.231	-.142	-1.909	.057

a Dependent Variable: QOE

	Correlations		Co linearity Statistics		
	Zero-order	Partial	Part	Tolerance	VIF
(Constant)					
Size	-.136	-.094	-.092	.518	1.931
D/E	-.067	.060	-.059	.987	1.013
SD1	.087	-.003	-.003	.370	2.700
SD2	.071	-.027	-.026	.297	3.369
SD3	-.152	-.099	-.098	.478	2.093

$$Y \text{ (QOE Index)}_{it} = \beta_0 + \beta_3 \text{SD1} + \beta_4 \text{SD2} + \beta_5 \text{SD3} + \varepsilon_{it} \quad (2)$$

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	SD3, SD2, SD1		Enter

a All requested variables entered.

b Dependent Variable: QOE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.162	.026	.018	1.328065	1.988

a Predictors: (Constant), SD3, SD2, SD1

b Dependent Variable: QOE

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.535	3	5.845	3.314	.020
	Residual	649.063	368	1.764		
	Total	666.597	371			

a Predictors: (Constant), SD3, SD2, SD1 b Dependent Variable: QOE Index

ทดสอบสมมติฐานของตัวแปรหุ่น (Dummy Variable – SD1, SD2, และ SD3)

สมมติฐานทางสถิติ

$$H_0: \beta_3 = \beta_4 = \beta_5$$

$$H_1: \text{มี } \beta \text{ อย่างน้อย 1 ค่าที่ไม่เท่ากับ 0}$$

วิธีการทดสอบตามวิธี Partial F ดังนี้

$$\text{Partial F} = \frac{SSE_R - SSE_F}{3} \\ SSE_F / 366$$

$$\text{Partial F} = 1.609 < F_{0.1, (3, 366)}$$

โดยที่

$$F_{0.1, (3, 366)} = 2.14$$

ยอมรับ H_0 มี β อย่างน้อย 1 ค่าที่เท่ากับ 0

$$Y (\text{QOE Index})_{it} = \beta_0 + \beta_1 \text{Size}_{it} \quad (3)$$

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Size		Enter

a. All requested variables entered. b. Dependent Variable: QOE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.136	.018	.016	1.329789	1.964

a. Predictors: (Constant), Size b. Dependent Variable: QOE

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.312	1	12.312	6.962	.009
	Residual	654.286	370	1.768		
	Total	666.597	371			

a. Predictors: (Constant), Size b. Dependent Variable: QOE

Coefficients

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Beta		
1	(Constant)	.959		12.565	.000
	Size	-.121	-.136	-2.639	.009

a. Dependent Variable: QOE

ผลการวิเคราะห์สมการถดถอยตามตัวแบบที่ 2

$$Y (DIFF)_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 D/E_{it} + \beta_3 SD1 + \beta_4 SD2 - \beta_5 SD3 + \epsilon_{it} \quad (4)$$

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	SD2, D/E, Size, SD3, SD1	.	Enter

a. All requested variables entered. b. Dependent Variable: QOE2

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change in R Square	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
.317	.101	.086	1.1411	.101	6.922	5	309	.000	1.846	

a. Predictors: (Constant), SD3, D/E, Size, SD2, SD1 b. Dependent Variable: DIFF

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.067	5	9.013	6.922	.000
	Residual	402.379	309	1.302		
	Total	447.446	314			

a. Predictors: (Constant), SD3, D/E, Size, SD2, SD1 b. Dependent Variable: DIFF

a Dependent Variable: DIFF

	Correlations		Co linearity Statistics		
	Zero-order	Partial	Part	Tolerance	VIF
(Constant)					
Size	-.225	-.243	-.238	.766	1.305
D/E	-.050	.009	-.009	.953	1.050
SD1	-.134	-.176	-.170	.470	2.128
SD2	.190	-.013	-.012	.486	2.057
SD3	-.070	-.109	-.104	.628	1.591

$$Y(\text{DIFF})_{it} = \beta_0 + \beta_3 \text{SD1} + \beta_4 \text{SD2} + \beta_5 \text{SD3} + \varepsilon_{it} \quad (5)$$

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.793	3	6.264	4.545	.004
	Residual	428.653	311	1.378		
	Total	447.446	314			

a Predictors: (Constant), SD3, SD2, SD1 b Dependent Variable: DIFF

ทดสอบสมมติฐานของตัวแปรหุ่น (Dummy Variable = SD1, SD2, และ SD3)

สมมติฐานทางสถิติ

$$H_0: \beta_3 = \beta_4 = \beta_5$$

$$H_1: \text{มี } \beta \text{ อย่างน้อย 1 ค่าที่ไม่เท่ากับ 0}$$

วิธีการทดสอบตามวิธี Partial F ดังนี้

$$\text{Partial F} = \frac{SSE_R - SSE_F}{3} \\ SSE_F / 309$$

Partial F 6.726 > F_{α,05, (3,309)}

โดยที่

F_{α,05, (3,309)} = 2.635

ปฏิเสธ H₀ มี ... อย่างน้อย 1 ค่าที่ไม่เท่ากับ 0

$$Y(\text{DIFF})_{it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_3 \text{SD1} + \beta_4 \text{SD2} + \beta_5 \text{SD3} + \varepsilon_{it} \quad (6)$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.317	.101	.089	1.1393	1.847

a Predictors: (Constant), Size, SD3, SD2, SD1 b Dependent Variable: DIFF

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.033	4	11.258	8.673	.000
	Residual	402.413	310	1.298		
	Total	447.446	314			

a Predictors: (Constant), Size, SD3, SD2, SD1 b Dependent Variable: DIFF

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	-1.725	.182		-9.492	.000
	SD1	-.621	.197	-.247	-3.146	.002
	SD2	-4.490E-02	.204	-.017	-.220	.826
	SD3	-.416	.215	-.132	-1.938	.053
	Size	-.223	.049	-.273	-4.496	.000

a Dependent Variable: DIFF