

Data Summarization in SPSS

We will show how to visually summarize data and compute Descriptive Statistics via two examples.

1. In a study of job satisfaction, a series of tests were administered to 60 subjects and the following data was obtained (higher score represents higher job satisfaction) (data file Score.xlsx)

Score					
76	86	66	91	53	79
85	82	80	84	66	66
78	69	77	70	75	72
70	62	56	77	75	69
78	85	69	75	83	58
75	69	70	71	76	53
73	84	72	72	80	71
70	82	55	84	51	68
72	101	86	93	87	65
78	99	90	77	79	78

Compute descriptive statistics and graph the stem-and-leaf diagram for the data.

2. The following table shows economic data for 36 firms in Japan (data file Japan.xlsx)

Short Name	Market_Cap_Yen	Market Cap US \$	Book Equity	Revenues	Net Income	PE
CENTURY21 REAL	14496	\$123.72	1924.79	2452.09	463.24	31.29
BALS CORP	43231.88	\$369.01	3239	18994	464	93.17
MAINICHI COMNET	10723.2	\$91.69	2675	6449	464	23.11
MUTUAL	5990.63	\$51.42	6915	10100	464	12.91
NISSIN SHOJI CO	9728	\$83.18	17129	70529	464	20.97
TOW CO LTD	8030.752	\$68.94	3782	10705	465	17.27
CLEX CO LTD	10105.62	\$86.41	4455	9486	466	21.69
FENWAL						
CONTROLS	6334.975	\$54.37	4357	14930	466	13.59
FUJII SANGYO	8008	\$68.62	11392	46927	466	17.18
MOLITEC STEEL	10760.17	\$92.07	10221	18923	466	23.09
TAKACHIHO						
KOHEKI	19198.13	\$164.18	12108	22318	466	41.2
GMO HOSTING	67081.95	\$571.52	1247	3038	467	143.64
MIURA PRINTING	11011.9	\$94.15	9504	22136	467	23.58
TSUKEN CORP.	9278.147	\$79.65	14182	44581	468	19.83
KING CO LTD	14615.24	\$124.94	16822	22369	469	31.16
NIPPON RESIBON	5926.8	\$50.88	5760	15012	471	12.58
AVAL DATA CORP	10725.84	\$91.76	7682.24	7775.44	471.64	22.74
SOMAR CORP	15885.06	\$135.62	14781	36540	472	33.65
MISUMI CO LTD	8296.68399	\$71.22	10796	48836	473	17.54

Data Summarization in SPSS

NICHIWA SANGYO HARADA INDUS CO	11144.49	\$95.32	15779	42124	473	23.56
IMV CORP MARUFUJI SHEET P	11388.83	\$97.43	6376	20771	474	24.03
DAIDO SIGNAL CO KANESHITA CONSTR	8478.508	\$72.75	2006	5088	476	17.81
KAKAKU.COM INC MR MAX CORP NAGOYA ELECTRIC	16108.48	\$137.51	24738	32758	476	33.84
ZOA CORP CHUO KAGAKU CO L	6954.948	\$59.69	8214	17632	477	14.58
PALTEK CORP RIX CORP ENSHU TOYAMA BANK LTD	17605.8	\$150.57	23205	19760	477	36.91
WAO CORP OIE SANGYO CO	71655.67	\$610.72	2223.01	2138.87	478.05	149.89
	28044.59	\$239.30	28391	86133	480	58.43
	6755.84	\$57.98	15568	15646	480	14.07
	6889.5	\$59.12	1629	17589	481	14.32
	28088.1	\$239.70	30825	82965	483	58.15
	6150.098	\$52.78	8711	19355	483	12.73
	8726.4	\$74.90	4978.53	27043.88	483.76	18.04
	22391.1	\$191.39	6409	35665	484	46.26
	17417.16	\$148.64	22493	7486	484	35.99
	6733.8	\$57.71	3577	15033	484.0665	NA
	11568.75	\$98.92	9021	52180	485	23.85

- a) Graph Book_equity vs. Revenue.
- b) Graph all variables against each other.
- c) Calculate the correlation coefficient matrix.
- d) Calculate descriptive statistics for PE by the following categories:
 - Market_Cap_US\$ 50 to 100
 - 100 to 200
 - 200 to 300
 - > 300
- e) Plot the histogram of Book_Equity.
- f) Construct a crosstabulation for PE and Market_Cap_US using the following ranges:

PE range: 10 – 50, 50 – 100, > 100

Market_Cap_US range: 50 – 100 = 1, 100 – 200 = 2, 200 – 300 = 3, > 300 = 4.

1. Decriptives and Stem-and-leaf Diagram for data of Example 1

- (i) *Analyze/Descriptive Statistics/Explore*
- (ii) Push SCORE in the 'dependent' list.
- (iii) *PLOTS/stem-and-leaf'*

will produce the output shown below:

Explore

[DataSet0]

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Score	60	100.0%	0	.0%	60	100.0%

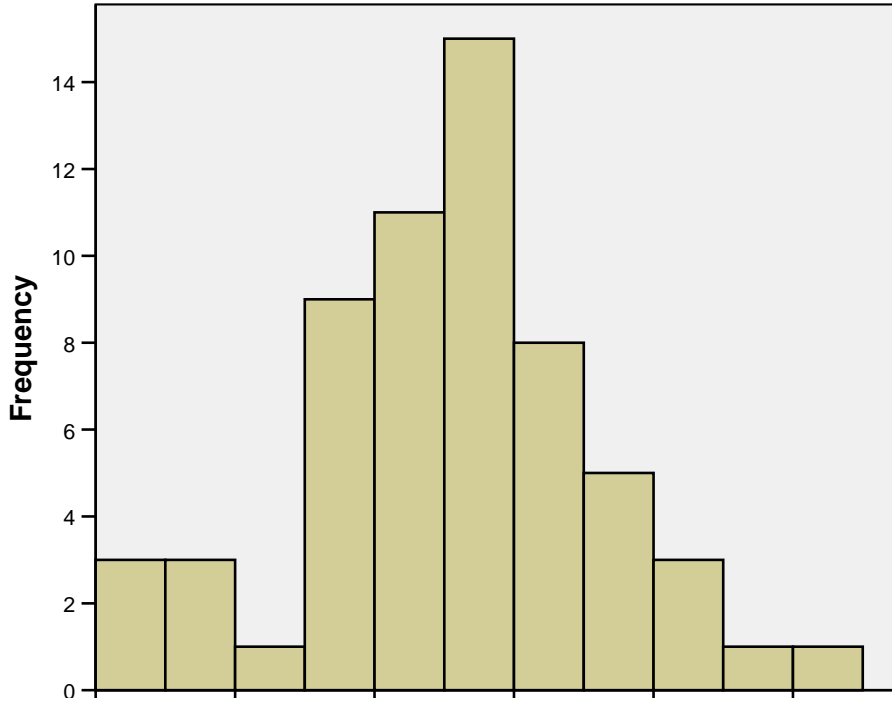
Descriptives

		Statistic	Std. Error
Score	Mean		74.8833
	95% Confidence Interval for Mean	Lower Bound	72.1407
		Upper Bound	77.6259
	5% Trimmed Mean		74.8704
	Median		75.0000
	Variance		112.715
	Std. Deviation		10.61673
	Minimum		51.00
	Maximum		101.00
	Range		50.00
	Interquartile Range		13.00
	Skewness		-.072
			.309
	Kurtosis		.314
			.608

Histograms

Data Summarization in SPSS

Histogram



Mean =74
Std. Dev. =1
N =6

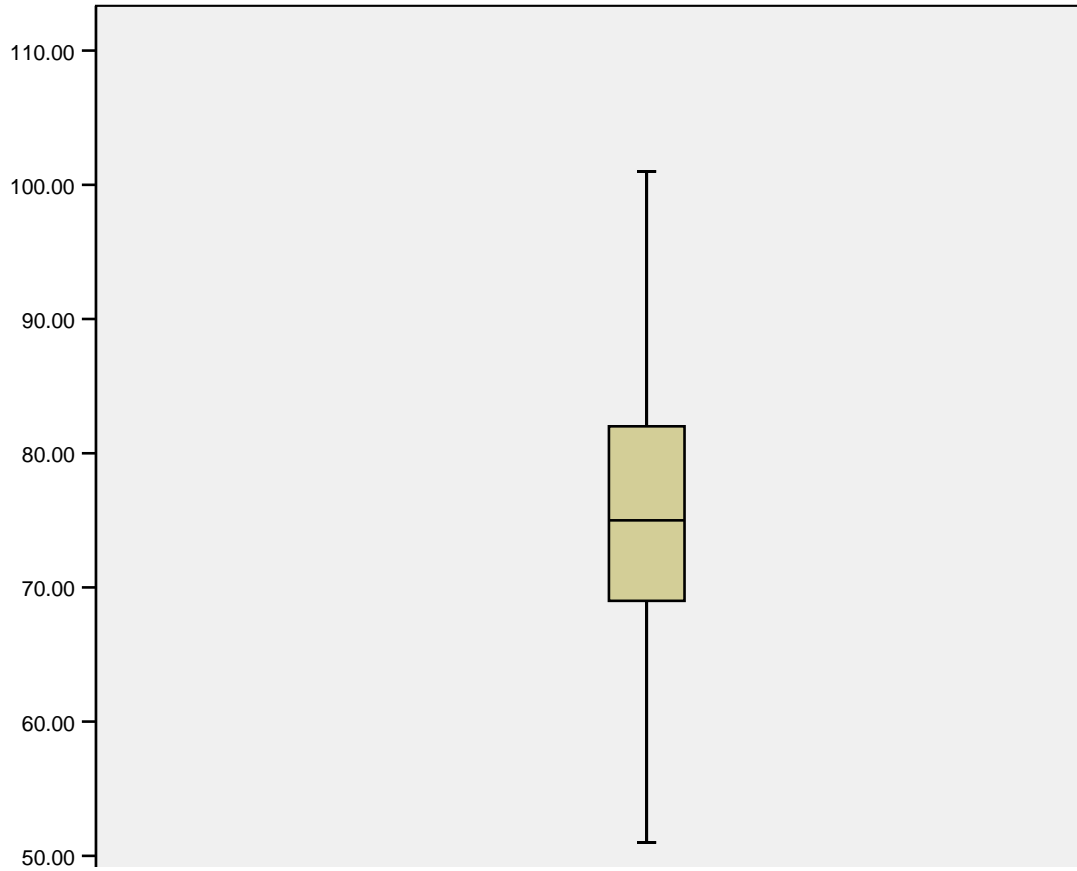
Stem-and-Leaf Plots

Score Stem-and-Leaf Plot

Frequency	Stem & Leaf
6.00	5 . 133568
10.00	6 . 2566689999
26.00	7 . 00001122223555566777888899
13.00	8 . 0022344455667
4.00	9 . 0139
1.00	10 . 1

Stem width: 10.00
Each leaf: 1 case(s)

Data Summarization in SPSS



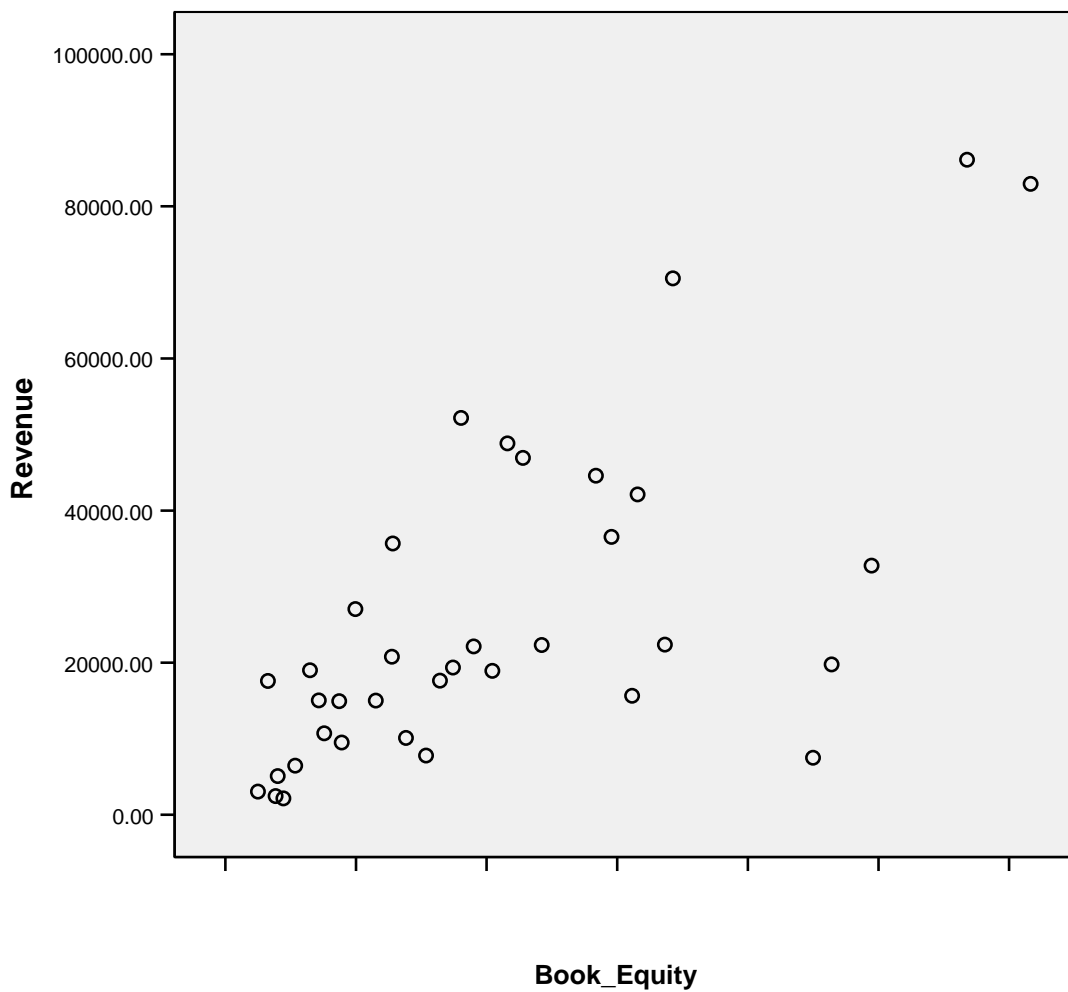
Visual Summarization of Data of Example 2

2(a). Scatter Plot

(i) *Graphs/Scatter/Simple Scatter*

(ii) Push Revenue in y-axis and Book_Equity on x-axis, click on OK.

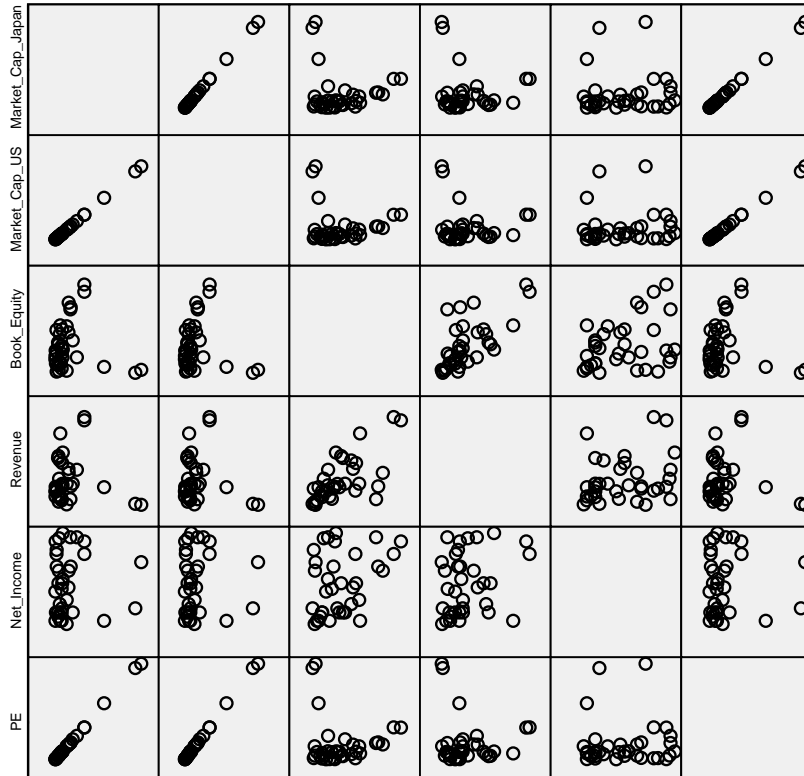
This will produce the following graph.



2(b) Matrix Plot

- (i) *Graphs/Scatter/Matrix Scatter*
- (ii) Select all variables, then click on OK.

This will produce the following graph.



Data Summarization in SPSS

2(c) Correlation Matrix

- (i) Analyze/Correlate/Bivariate
- (ii) Select all variables, then click on OK.

This will output the following table:

Correlations

		Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue	Net_Income	PE
Market_Cap_Japan	Pearson Correlation	1	1.000(**)	-.045	-.064	.011	1.000(**)
	Sig. (2-tailed)		.000	.795	.713	.951	.000
	N	36	36	36	36	36	36
Market_Cap_US	Pearson Correlation	1.000(**)	1	-.045	-.063	.011	1.000(**)
	Sig. (2-tailed)	.000		.795	.713	.950	.000
	N	36	36	36	36	36	36
Book_Equity	Pearson Correlation	-.045	-.045	1	.676(**)	.276	-.069
	Sig. (2-tailed)	.795	.795		.000	.104	.692
	N	36	36	36	36	36	35
Revenue	Pearson Correlation	-.064	-.063	.676(**)	1	.223	-.080
	Sig. (2-tailed)	.713	.713	.000		.190	.649
	N	36	36	36	36	36	35
Net_Income	Pearson Correlation	.011	.011	.276	.223	1	.022
	Sig. (2-tailed)	.951	.950	.104	.190		.898
	N	36	36	36	36	36	35
PE	Pearson Correlation	1.000(**)	1.000(**)	-.069	-.080	.022	1
	Sig. (2-tailed)	.000	.000	.692	.649	.898	
	N	35	35	35	35	35	

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

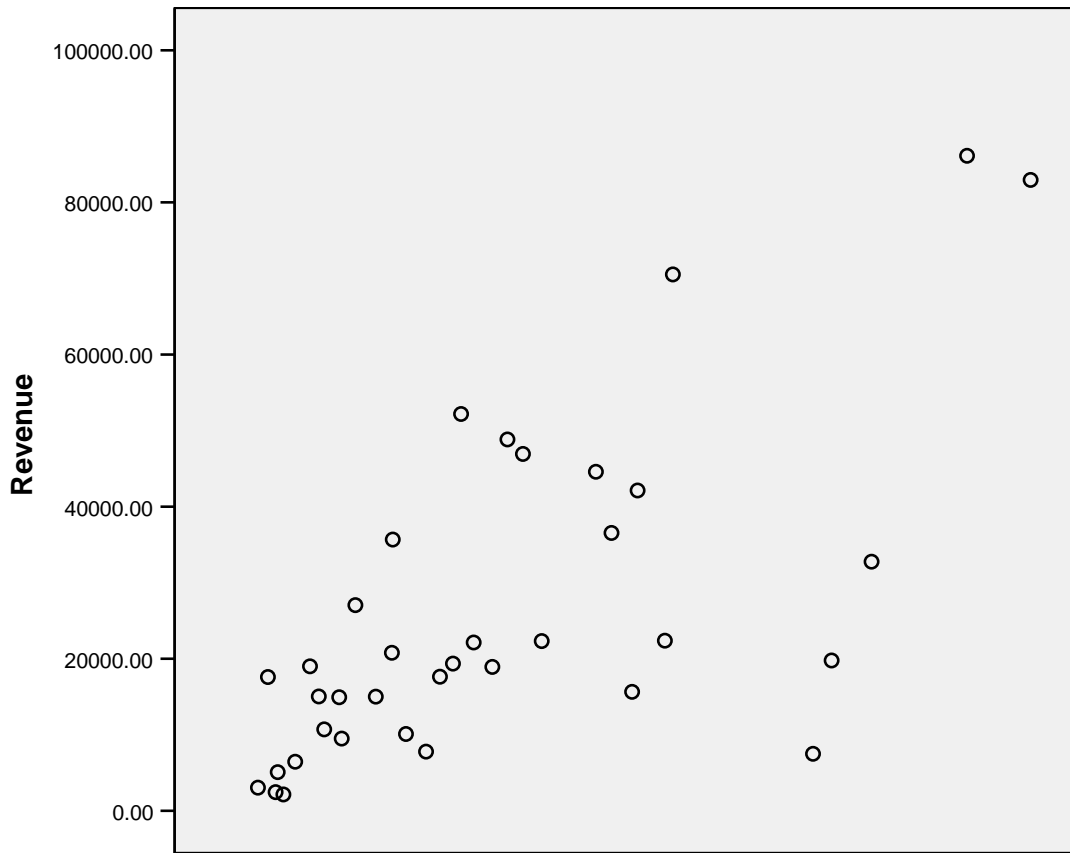
Data Summarization in SPSS

Graph

Notes

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Syntax		GRAPH /SCATTERPLOT(BIVAR)=Book_Equity WITH Revenue /MISSING=LISTWISE .
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[DataSet0]



Correlations

Notes

Data Summarization in SPSS

Output Created	27-MAR-2006 14:16:43	
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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
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[DataSet0]

Correlations

		Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue	Net_Income	PE
Market_Cap_Japan	Pearson Correlation	1	1.000(**)	-.045	-.064	.011	1.000(**)
	Sig. (2-tailed)		.000	.795	.713	.951	.000
	N	36	36	36	36	36	36
Market_Cap_US	Pearson Correlation	1.000(**)	1	-.045	-.063	.011	1.000(**)
	Sig. (2-tailed)	.000		.795	.713	.950	.000
	N	36	36	36	36	36	36
Book_Equity	Pearson Correlation	-.045	-.045	1	.676(**)	.276	-.069
	Sig. (2-tailed)	.795	.795		.000	.104	.692
	N	36	36	36	36	36	35
Revenue	Pearson Correlation	-.064	-.063	.676(**)	1	.223	-.080
	Sig. (2-tailed)	.713	.713	.000		.190	.649
	N	36	36	36	36	36	35
Net_Income	Pearson Correlation	.011	.011	.276	.223	1	.022
	Sig. (2-tailed)	.951	.950	.104	.190		.898
	N	36	36	36	36	36	35
PE	Pearson Correlation	1.000(**)	1.000(**)	-.069	-.080	.022	1
	Sig. (2-tailed)	.000	.000	.692	.649	.898	
	N	35	35	35	35	35	35

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

Data Summarization in SPSS

Nonparametric Correlations

Notes

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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
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a Based on availability of workspace memory

[DataSet0]

Correlations

			Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue
Spearman's rho	Market_Cap_Japan	Correlation Coefficient	1.000	1.000(**)	.219	.147
		Sig. (2-tailed)	.	.	.200	.392
		N	36	36	36	36
	Market_Cap_US	Correlation Coefficient	1.000(**)	1.000	.219	.147
		Sig. (2-tailed)	.	.	.200	.392
		N	36	36	36	36
	Book_Equity	Correlation Coefficient	.219	.219	1.000	.696(**)
		Sig. (2-tailed)	.200	.200	.	.000
		N	36	36	36	36
	Revenue	Correlation Coefficient	.147	.147	.696(**)	1.000

Data Summarization in SPSS

		Sig. (2-tailed)	.392	.392	.000	.
		N	36	36	36	36
	Net_Income	Correlation Coefficient	.077	.077	.210	.234
		Sig. (2-tailed)	.655	.655	.218	.169
		N	36	36	36	36
	PE	Correlation Coefficient	.998(**)	.998(**)	.182	.109
		Sig. (2-tailed)	.000	.000	.296	.534
		N	35	35	35	35

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

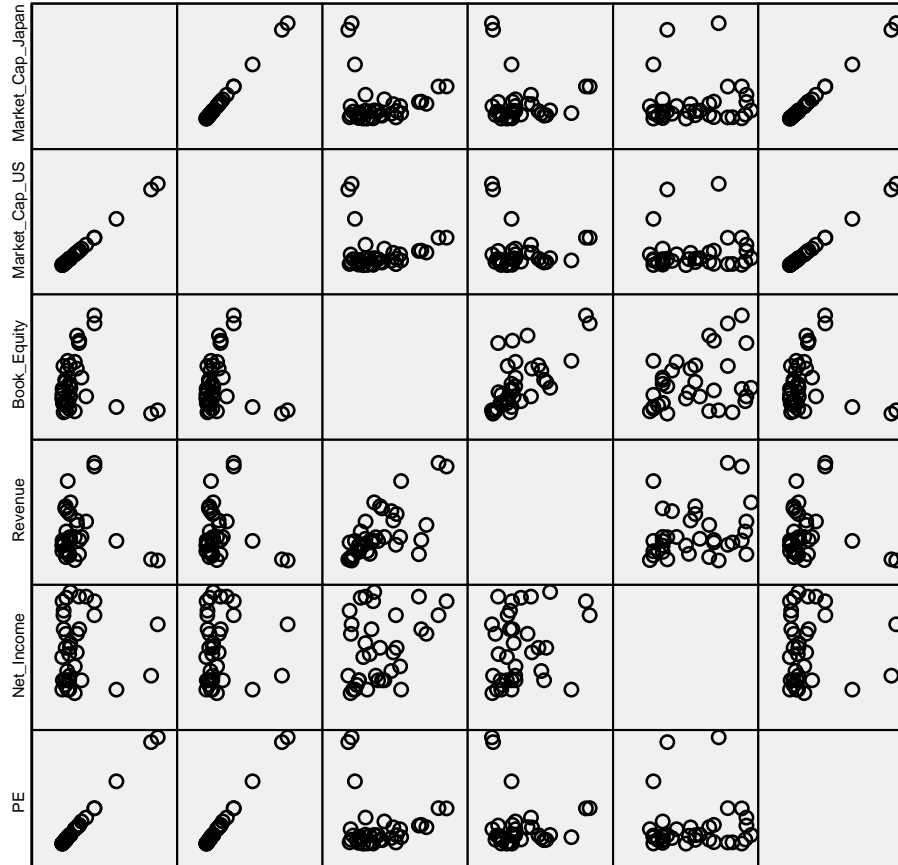
Graph

Notes

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Syntax	GRAPH /SCATTERPLOT(MATRIX)=Market_Cap_Japan Market_Cap_US Book_Equity Revenue Net_Income PE /MISSING=LISTWISE .	
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[DataSet0]

Data Summarization in SPSS



Correlations

Notes

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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax	<pre> CORRELATIONS /VARIABLES=Market_Cap_Japan Market_Cap_US Book_Equity Revenue Net_Income PE /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE . </pre>	

Data Summarization in SPSS

Resources	Elapsed Time	0:00:00.00
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[DataSet0]

Correlations

		Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue	Net_Income	PE
Market_Cap_Japan	Pearson Correlation	1	1.000(**)	-.045	-.064	.011	1.000(**)
	Sig. (2-tailed)		.000	.795	.713	.951	.000
	N	36	36	36	36	36	35
Market_Cap_US	Pearson Correlation	1.000(**)	1	-.045	-.063	.011	1.000(**)
	Sig. (2-tailed)	.000		.795	.713	.950	.000
	N	36	36	36	36	36	35
Book_Equity	Pearson Correlation	-.045	-.045	1	.676(**)	.276	-.069
	Sig. (2-tailed)	.795	.795		.000	.104	.692
	N	36	36	36	36	36	35
Revenue	Pearson Correlation	-.064	-.063	.676(**)	1	.223	-.080
	Sig. (2-tailed)	.713	.713	.000		.190	.649
	N	36	36	36	36	36	35
Net_Income	Pearson Correlation	.011	.011	.276	.223	1	.022
	Sig. (2-tailed)	.951	.950	.104	.190		.898
	N	36	36	36	36	36	35
PE	Pearson Correlation	1.000(**)	1.000(**)	-.069	-.080	.022	1
	Sig. (2-tailed)	.000	.000	.692	.649	.898	
	N	35	35	35	35	35	35

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

Data Summarization in SPSS

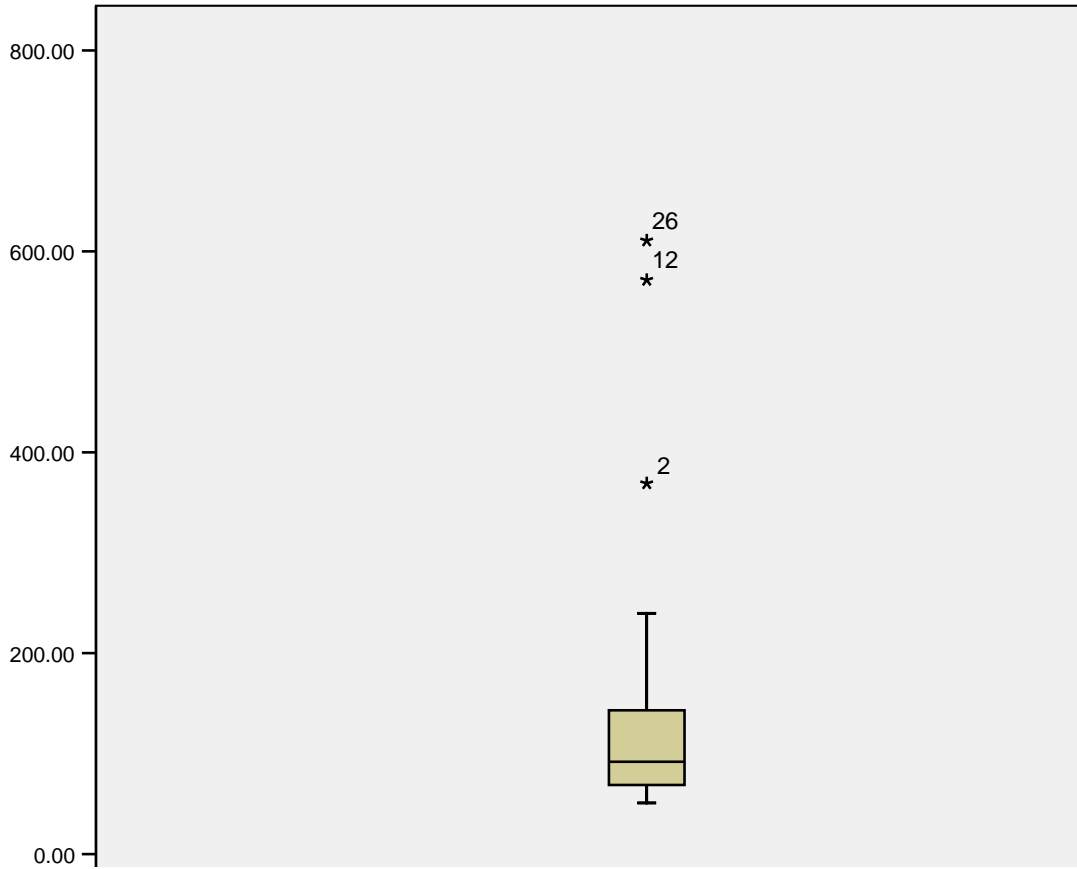
Descriptives by Grouping Variable

Descriptives

		Statistic	Std. Error	
Market_Cap_US	Mean		136.6050	21.61534
	95% Confidence Interval for Mean	Lower Bound	92.7235	
		Upper Bound	180.4865	
	5% Trimmed Mean		115.9823	
	Median		91.9150	
	Variance		16820.029	
	Std. Deviation		129.69205	
	Minimum		50.88	
	Maximum		610.72	
	Range		559.84	
	Interquartile Range		77.16	
	Skewness		2.733	.393
	Kurtosis		7.508	.768

Market_Cap_US

Data Summarization in SPSS



Explore
Explore

Descriptives

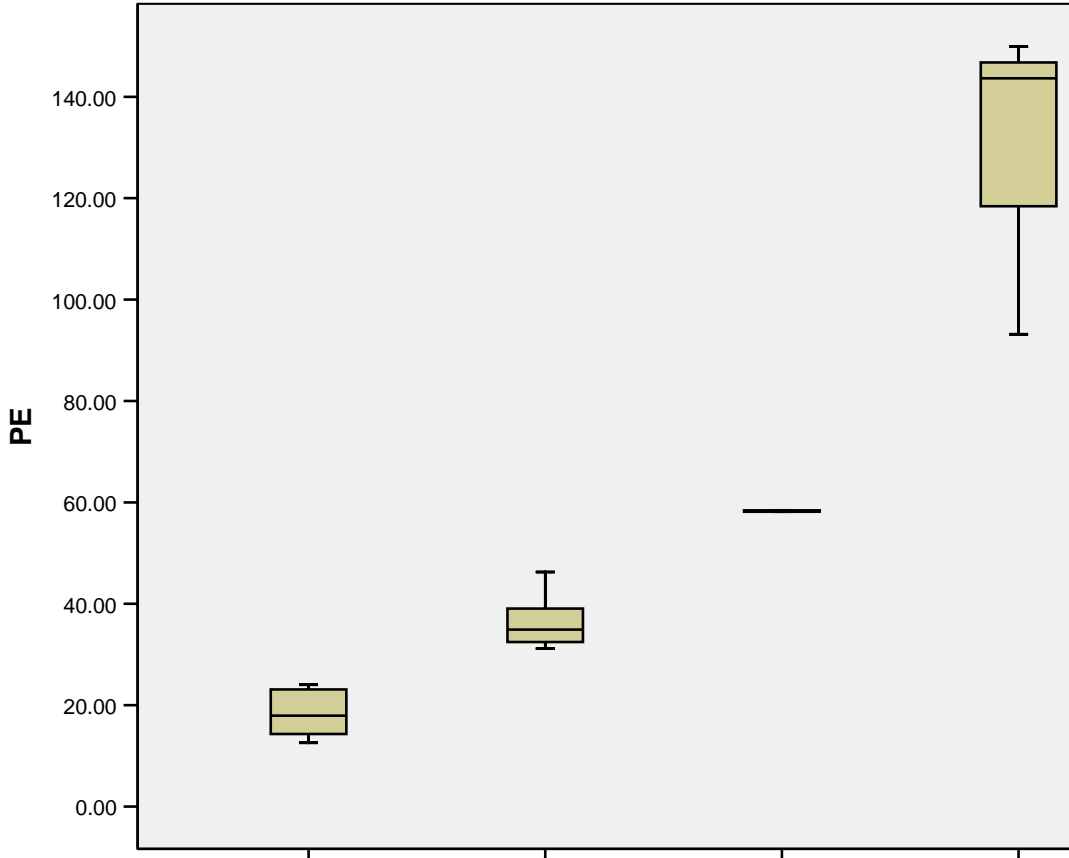
	MC_Group		Statistic	Std. Error
PE	1	Mean	18.5941	.89465
		95% Confidence Interval for Mean		
		Lower Bound	16.7336	
		Upper Bound	20.4546	
		5% Trimmed Mean	18.6264	
		Median	17.9250	
		Variance	17.609	
		Std. Deviation	4.19629	
		Minimum	12.58	
		Maximum	24.03	
		Range	11.45	
		Interquartile Range	8.84	
		Skewness	-.084	.491
		Kurtosis	-1.582	.953
2	2	Mean	36.2875	1.83358
		95% Confidence Interval for Mean		
		Lower Bound	31.9518	

Data Summarization in SPSS

	Interval for Mean	Upper Bound	40.6232	
	5% Trimmed Mean		36.0183	
	Median		34.9150	
	Variance		26.896	
	Std. Deviation		5.18614	
	Minimum		31.16	
	Maximum		46.26	
	Range		15.10	
	Interquartile Range		8.25	
	Skewness		1.117	.752
	Kurtosis		.727	1.481
3	Mean		58.2900	.14000
	95% Confidence Interval for Mean	Lower Bound	56.5111	
		Upper Bound	60.0689	
	5% Trimmed Mean		.	
	Median		58.2900	
	Variance		.039	
	Std. Deviation		.19799	
	Minimum		58.15	
	Maximum		58.43	
	Range		.28	
	Interquartile Range		.	
	Skewness		.	.
	Kurtosis		.	.
4	Mean		128.9000	17.95587
	95% Confidence Interval for Mean	Lower Bound	51.6421	
		Upper Bound	206.1579	
	5% Trimmed Mean		.	
	Median		143.6400	
	Variance		967.240	
	Std. Deviation		31.10049	
	Minimum		93.17	
	Maximum		149.89	
	Range		56.72	
	Interquartile Range		.	
	Skewness		-1.654	1.225
	Kurtosis		.	.

PE

Data Summarization in SPSS



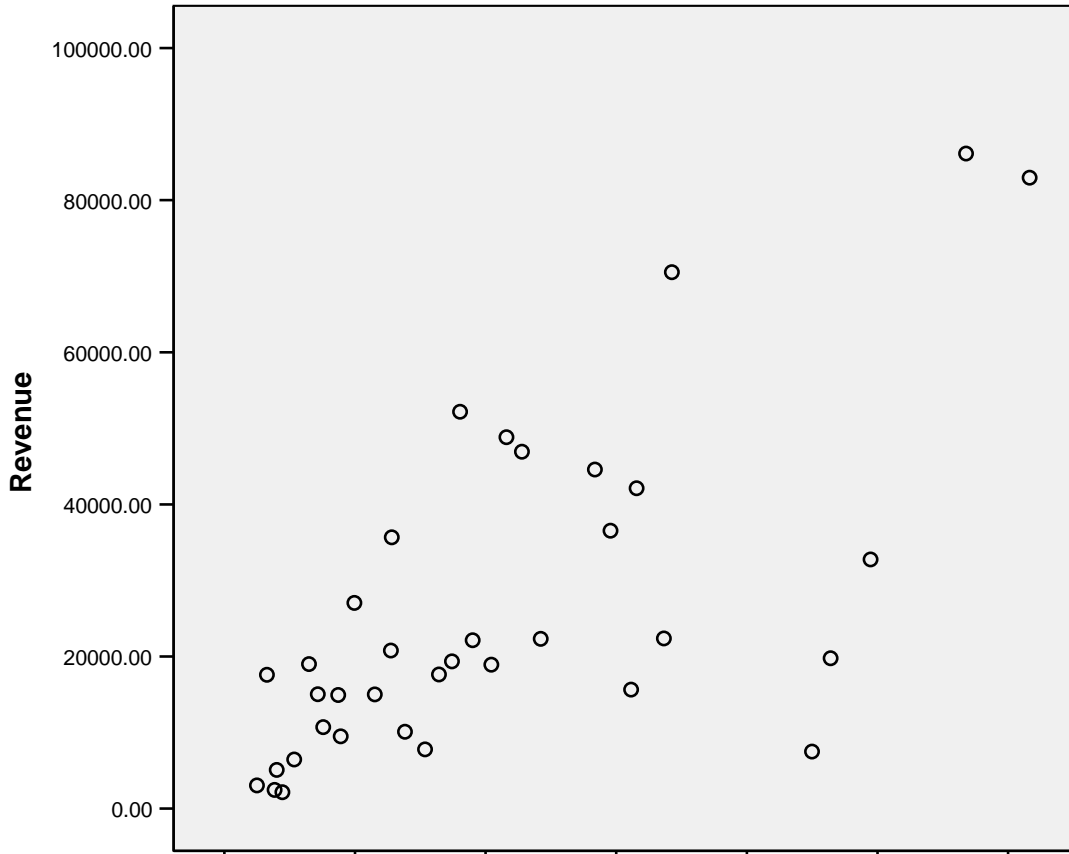
Graph

Notes

Output Created	27-MAR-2006 13:59:48		
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Syntax	GRAPH /SCATTERPLOT(BIVAR)=Book_Equity WITH Revenue /MISSING=LISTWISE .		
Resources	Elapsed Time	0:00:00.48	

[DataSet0]

Data Summarization in SPSS



Correlations

Notes

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Comments		
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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax	<pre> CORRELATIONS /VARIABLES=Market_Cap_Japan Market_Cap_US Book_Equity Revenue Net_Income PE /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE . </pre>	

Data Summarization in SPSS

Resources	Elapsed Time	0:00:00.00
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[DataSet0]

Correlations

		Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue	Net_Income	PE
Market_Cap_Japan	Pearson Correlation	1	1.000(**)	-.045	-.064	.011	1.000(**)
	Sig. (2-tailed)		.000	.795	.713	.951	.000
	N	36	36	36	36	36	36
Market_Cap_US	Pearson Correlation	1.000(**)	1	-.045	-.063	.011	1.000(**)
	Sig. (2-tailed)	.000		.795	.713	.950	.000
	N	36	36	36	36	36	36
Book_Equity	Pearson Correlation	-.045	-.045	1	.676(**)	.276	-.069
	Sig. (2-tailed)	.795	.795		.000	.104	.692
	N	36	36	36	36	36	35
Revenue	Pearson Correlation	-.064	-.063	.676(**)	1	.223	-.080
	Sig. (2-tailed)	.713	.713	.000		.190	.649
	N	36	36	36	36	36	35
Net_Income	Pearson Correlation	.011	.011	.276	.223	1	.022
	Sig. (2-tailed)	.951	.950	.104	.190		.898
	N	36	36	36	36	36	35
PE	Pearson Correlation	1.000(**)	1.000(**)	-.069	-.080	.022	1
	Sig. (2-tailed)	.000	.000	.692	.649	.898	
	N	35	35	35	35	35	35

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

Nonparametric Correlations

Notes

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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.

Data Summarization in SPSS

Syntax		NONPAR CORR /VARIABLES=Market_Cap_Japan Market_Cap_US Book_Equity Revenue Net_Income PE /PRINT=SPEARMAN TWOTAIL NOSIG /MISSING=PAIRWISE .
Resources	Elapsed Time	0:00:00.00
	Number of Cases Allowed	92581 cases(a)

a Based on availability of workspace memory

[DataSet0]

Correlations

			Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue
Spearman's rho	Market_Cap_Japan	Correlation Coefficient	1.000	1.000(**)	.219	.147
		Sig. (2-tailed)	.	.	.200	.392
		N	36	36	36	36
	Market_Cap_US	Correlation Coefficient	1.000(**)	1.000	.219	.147
		Sig. (2-tailed)	.	.	.200	.392
		N	36	36	36	36
	Book_Equity	Correlation Coefficient	.219	.219	1.000	.696(**)
		Sig. (2-tailed)	.200	.200	.	.000
		N	36	36	36	36
	Revenue	Correlation Coefficient	.147	.147	.696(**)	1.000
		Sig. (2-tailed)	.392	.392	.000	.
		N	36	36	36	36
	Net_Income	Correlation Coefficient	.077	.077	.210	.234
		Sig. (2-tailed)	.655	.655	.218	.169
		N	36	36	36	36
	PE	Correlation Coefficient	.998(**)	.998(**)	.182	.109
		Sig. (2-tailed)	.000	.000	.296	.534
		N	35	35	35	35

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

Graph

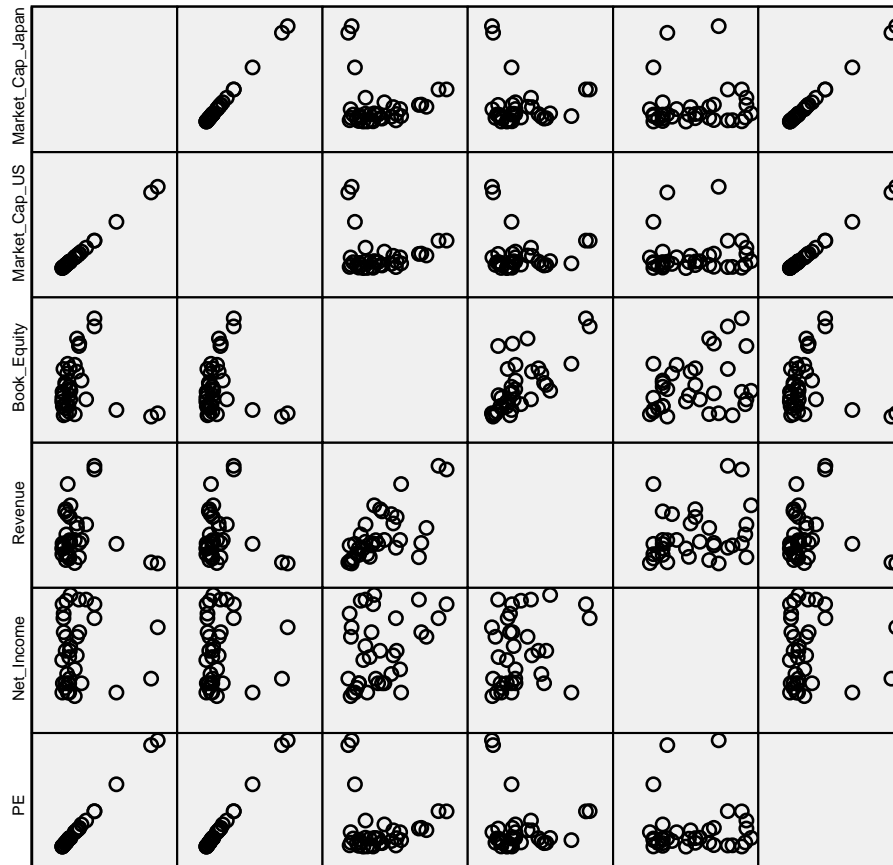
Notes

Output Created	27-MAR-2006 14:19:50
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Data Summarization in SPSS

Comments		
Input	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	36
Syntax	GRAPH /SCATTERPLOT(MATRIX)=Market_Cap_Japan Market_Cap_US Book_Equity Revenue Net_Income PE /MISSING=LISTWISE .	
Resources	Elapsed Time	0:00:00.41

[DataSet0]



Correlations

		Market_Cap_Japan	Market_Cap_US	Book_Equity	Revenue	Net_Income	PE
Market_Cap_Japan	Pearson Correlation	1	1.000(**)	-.045	-.064	.011	1.000
	Sig. (2-tailed)		.000	.795	.713	.951	.000
	N	36	36	36	36	36	36
Market_Cap_US	Pearson Correlation	1.000(**)	1	-.045	-.063	.011	1.000

Data Summarization in SPSS

	Sig. (2-tailed)	.000		.795	.713	.950
	N	36	36	36	36	36
Book_Equity	Pearson Correlation	-.045	-.045	1	.676(**)	.276
	Sig. (2-tailed)	.795	.795		.000	.104
	N	36	36	36	36	36
Revenue	Pearson Correlation	-.064	-.063	.676(**)	1	.223
	Sig. (2-tailed)	.713	.713	.000		.190
	N	36	36	36	36	36
Net_Income	Pearson Correlation	.011	.011	.276	.223	1
	Sig. (2-tailed)	.951	.950	.104	.190	
	N	36	36	36	36	36
PE	Pearson Correlation	1.000(**)	1.000(**)	-.069	-.080	.022
	Sig. (2-tailed)	.000	.000	.692	.649	.898
	N	35	35	35	35	35

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

Descriptives

MC_Group

Case Processing Summary

	MC_Group	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
PE	1	22	95.7%	1	4.3%	23	100.0%
	2	8	100.0%	0	.0%	8	100.0%
	3	2	100.0%	0	.0%	2	100.0%
	4	3	100.0%	0	.0%	3	100.0%

Descriptives

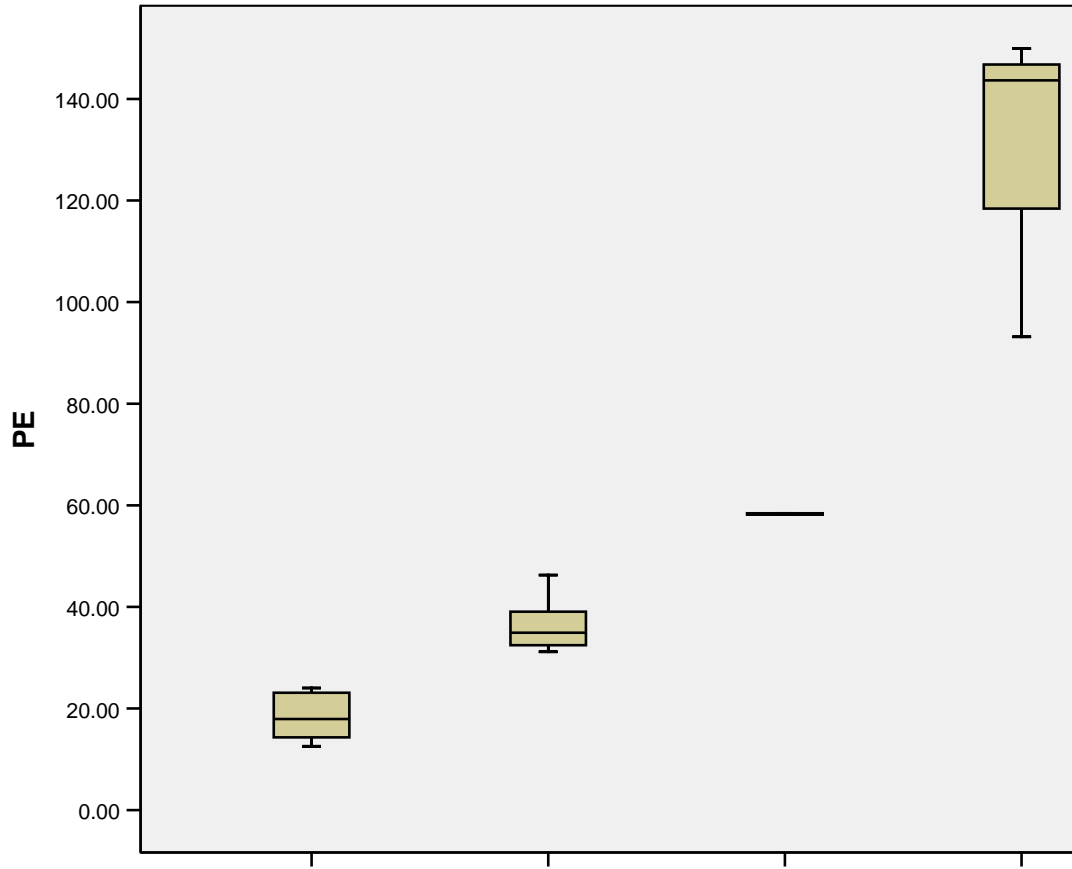
	MC_Group			Statistic	Std. Error
PE	1	Mean		18.5941	.89465
		95% Confidence Interval for Mean	Lower Bound	16.7336	
			Upper Bound	20.4546	
		5% Trimmed Mean		18.6264	
		Median		17.9250	
		Variance		17.609	
		Std. Deviation		4.19629	
		Minimum		12.58	
		Maximum		24.03	
		Range		11.45	
		Interquartile Range		8.84	
		Skewness		-.084	.491

Data Summarization in SPSS

2	Kurtosis		-1.582	.953
	Mean		36.2875	1.83358
	95% Confidence Interval for Mean	Lower Bound	31.9518	
		Upper Bound	40.6232	
	5% Trimmed Mean		36.0183	
	Median		34.9150	
	Variance		26.896	
	Std. Deviation		5.18614	
	Minimum		31.16	
	Maximum		46.26	
	Range		15.10	
	Interquartile Range		8.25	
	Skewness		1.117	.752
	Kurtosis		.727	1.481
3	Mean		58.2900	.14000
	95% Confidence Interval for Mean	Lower Bound	56.5111	
		Upper Bound	60.0689	
	5% Trimmed Mean		.	
	Median		58.2900	
	Variance		.039	
	Std. Deviation		.19799	
	Minimum		58.15	
	Maximum		58.43	
	Range		.28	
	Interquartile Range		.	
	Skewness		.	.
	Kurtosis		.	.
	4	Mean		128.9000
95% Confidence Interval for Mean		Lower Bound	51.6421	
		Upper Bound	206.1579	
5% Trimmed Mean			.	
Median			143.6400	
Variance			967.240	
Std. Deviation			31.10049	
Minimum			93.17	
Maximum			149.89	
Range			56.72	
Interquartile Range			.	
Skewness			-1.654	1.225
Kurtosis			.	.

Data Summarization in SPSS

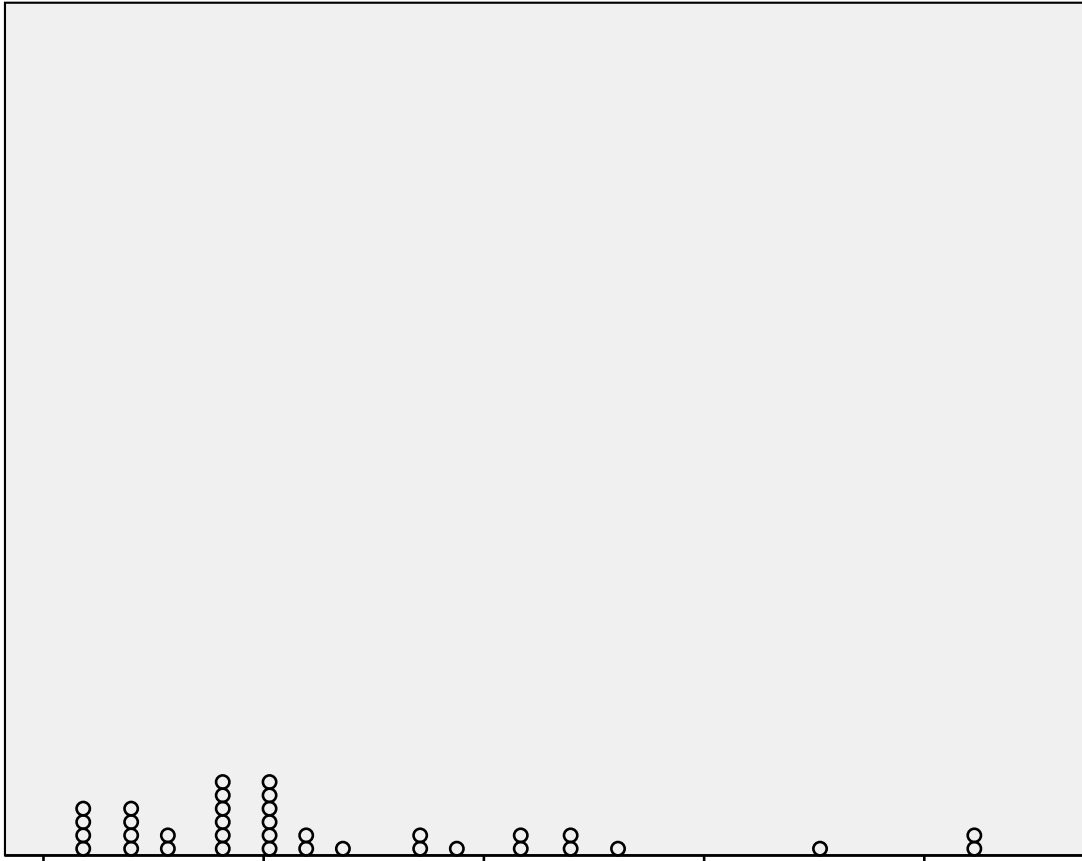
PE



Simple Dot Diagram of REVENUE is obtained as follows:

- (i) **Graph/Scatter-Dot.../Simple Dot**
- (ii) **Push REVENUE into x-axis variable, then click on OK.**

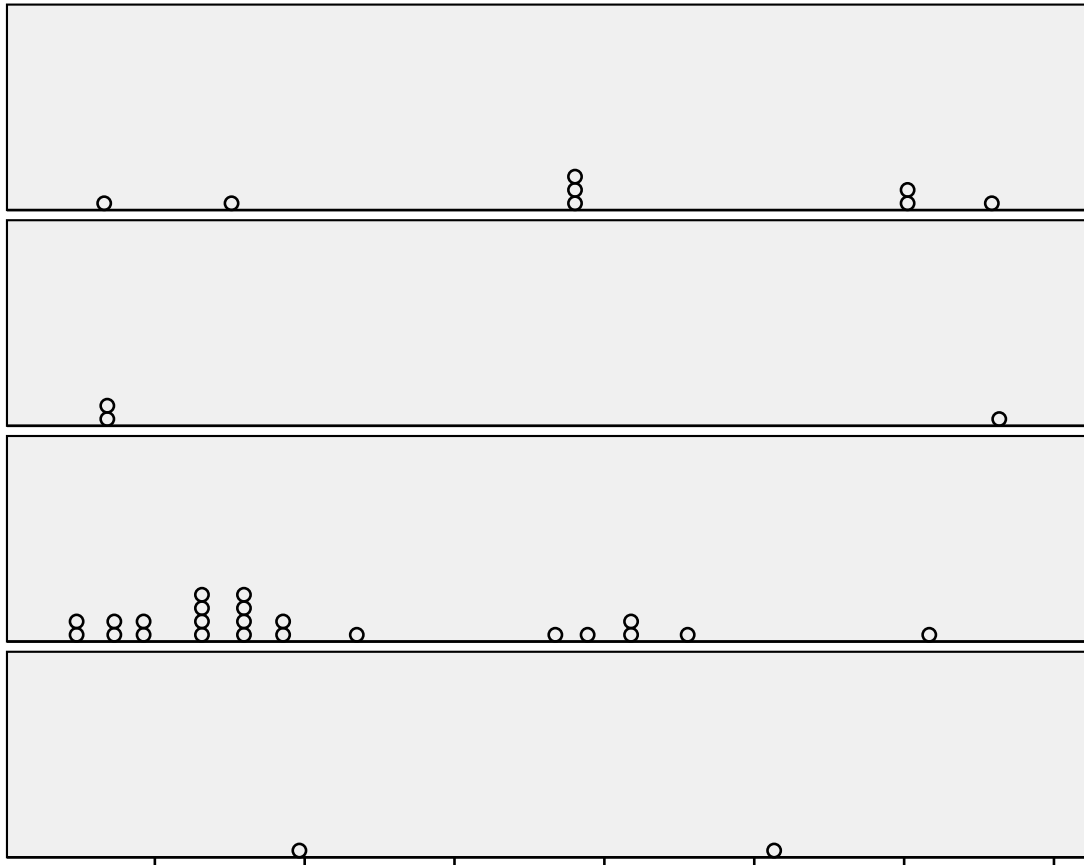
This will produce the following dot diagram.



Data Summarization in SPSS

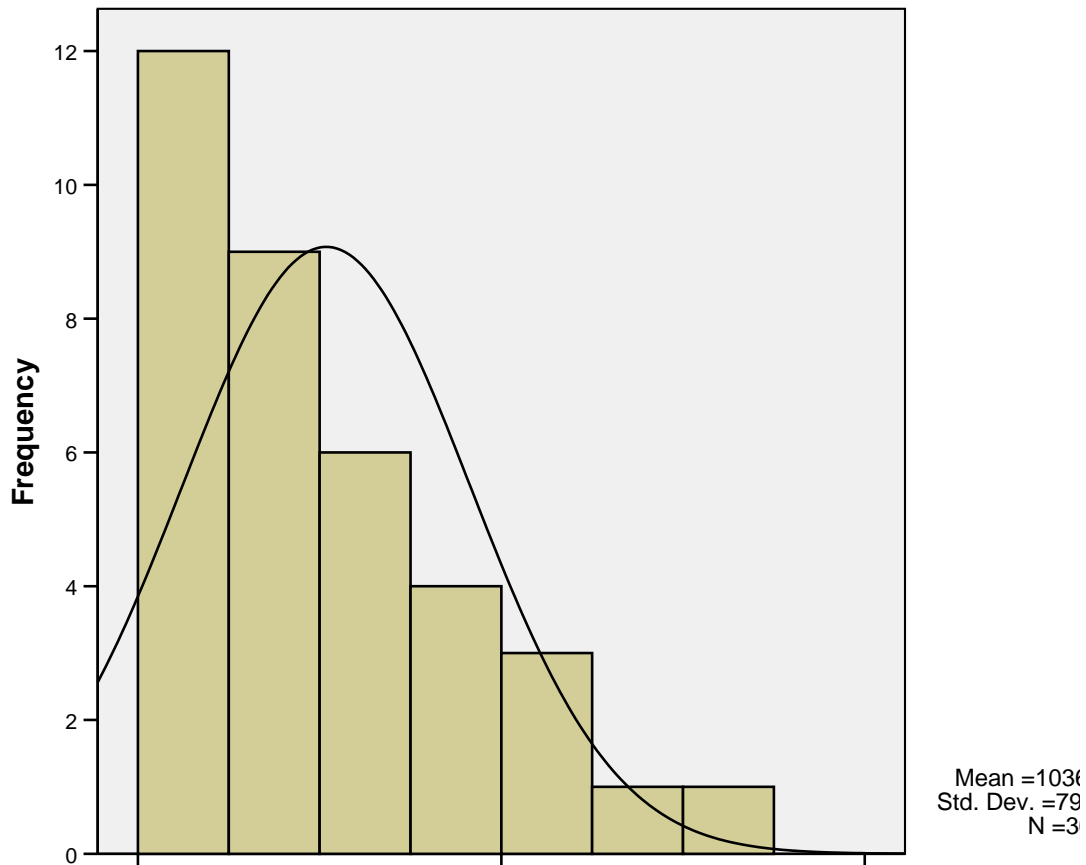
To obtain a dot diagram (of REVENUE) by a categorical Variable (MC_GROUP), do the following:

- (i) **Graph/Scatter-Dot.../Simple Dot**
- (ii) **Push REVENUE into x-axis variable, MC_GROUP into Rows, and then click on OK.**



A histogram of BOOK_EQUITY is plotted as follows:

- (i) **Graph/Histogram**
- (ii) **Push BOOK_EQUITY into Variable box, then click on OK.**



Crosstabulation:

In this example, we create a crosstabulation of Market_CapUS and PE using the following Coding for Market_CapUS and PE:

PE range: 10 – 50, 50 – 100, > 100

Market_Cap_US range: 50 – 100 = 1, 100 – 200 = 2, 200 – 300 = 3, > 300 = 4.

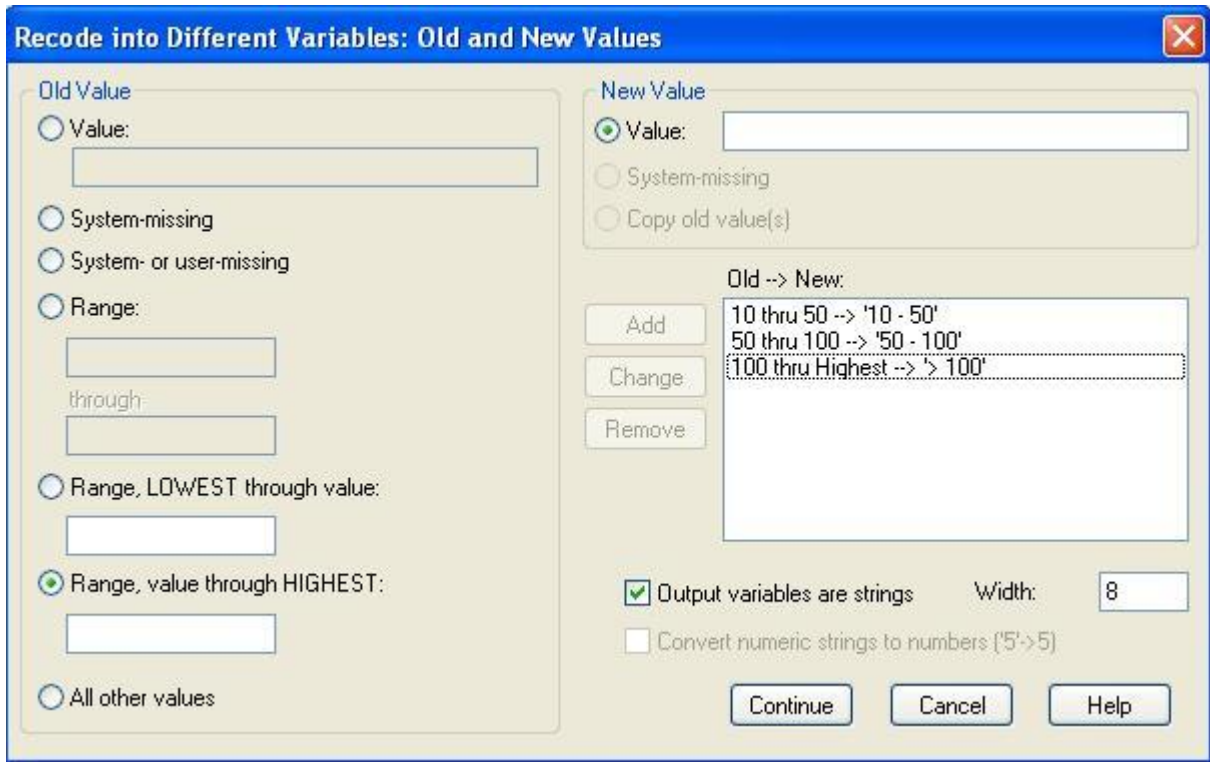
As the Market_CapUS variable has already been recoded into the new categorical variable MC_GROUP, we first will recode PE and call the new variable PE_GROUP, as follows:

Data Summarization in SPSS

- (i) ***Transform/Recode/Into Different Variables*** will produce the following input table: click on **RANGE**, specify range, check the **OUTPUT VARIABLES ARE STRINGS** box, then type “10 – 50” in the **New value Box**, and click on **ADD**. Specify all range values until you reach the last group (“ > 100”).

The screenshot shows the 'Recode into Different Variables: Old and New Values' dialog box. The 'Old Value' section has 'Range:' selected, with '10' in the first box and '50' in the second box. The 'New Value' section has 'Value:' selected, with '10 - 50' in the text box. The 'Output variables are strings' checkbox is checked, and the width is set to 8. The 'Add' button is highlighted.

- (ii) For “ > 100” group, click on RANGE, VALUE THROUGH HIGHEST, type 100 in the box, then Click on ADD. This will produce the following table.



Once you click on CONTINUE, SPSS will produce a new column PE_GROUP in the data sheet. We are now ready to crosstabulate.

- (i) Analyze/Descriptives/Crosstabs
- (ii) Push PE_GROUP in to ROWS and MC_GROUP into COLUMNS, then click on OK to obtain the following table.

PE_Group * MC_Group Crosstabulation

Count		MC_Group				Total
		1	2	3	4	
PE_Group	> 100	1	0	0	0	1
	10 - 50	0	0	0	2	2
	50 - 100	22	8	0	0	30
		0	0	2	1	3
Total		23	8	2	3	36