

*

2002 / 62 / 11 /

2001 1998
.2000 1998

(Discriminant Analysis)

.1

(Foster, 1986)

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%10

(Barnes, 1982)

%10

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(Normality)

(1)

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(2)

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.2006/6/5

2005/3/3

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. ()
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.3

(Deakin,

1976)

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(Expected Value)

(T-test)

(Chi-squared)

(F-test)

1114 1955 454

1973

(Chi-square)

- (Infinite Variance Assumption)
- /

(Transformation)

(Frecka and (Deakin, 1976)

Hopwood, 1983)

346

1978

1243 1950

(Chi-square)

.2

(Deakin, 1976)

(Bedingfield, Reckers and Stagliano, 1985)

1977

1974

(U-shaped) U (Skewed) /
 / / /
 / (Regular) / /
 / / /
 (J) (Uniform) / (Risk Assets) /
 / / /
 (J) / /
 (Reverse J-shaped) (J) (J) (Kolmogorov-Smirnov)
 .
 (Lau, Lau and Gribbin, 1995)
 (Deakin, 1976) 11 .0001
 655 (So, 1987)
 1969 (Frecka and Hopwood, 1983)
 1988 (Deakin, 1976)
 490 484
 (Kurtosis Coefficients) 1979 1970
 / (Kolmogorov-D)
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 / (So, 1987) - (McCulloch, 1986)
 / (Fama and Roll, 1968 and -
 1971)
 (Coefficients of Variation)
 / (Kolari, McInish and Saniga, 1989)
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 - 14000 1983 1976
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 (Johnson (Pearson System)
 / System)
 / /
 / (J-shaped) J
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(McLeay, 1997)

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899 867 813
1984

.4

13

1986

(McLeay)

(Bounded Distribution)

(Lognormal)

(Omet,

2000)

1.4

()

(Kurtosis)

(Skewness)

24

2002-1998

1997

1992

73

2003

(Ashton, Dunmore and Tippett, 2004)

(Non-Convergent

Moments)

56 56 62

31

1999 2000 2001 2002

55 56

1998

285

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11

2002-1998

(Summary Measures)

()

(Moments)

-

(Cauchy)

(Generalised Method of

Moments)

(The Method

.2003

(Classical or

of Moments)

Generalised)

2.4

-

-

(Normal Probability

Density Function)

.(Kolmogorov-Smirnov Test)

: = a) μ'_1 (

$$\mu_r = \sum_{i=1}^n (x_i - \mu'_1)^r * f(x_i)$$

$\mu_4 \mu_3 \mu_2 \mu_1$

(Parameters)

: $\mu'_4 \mu'_3 \mu'_2 \mu'_1$

$$\mu_1 = 0$$

$$\mu_2 = \mu'_2 - \mu'^2_1$$

$$\mu_3 = \mu'_3 - 3\mu'_1 \mu'_2 + 2\mu'^3_1$$

$$\mu_4 = \mu'_4 - 4\mu'_1 \mu'_3 + 6\mu'^2_1 \mu'_2 - 3\mu'^4_1$$

$$f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-(1/2)[(x-\mu)/\sigma]^2}$$

$$\mu_r = \sum_{j=0}^r \binom{r}{j} \mu'_{r-j} (-\mu'_1)^j$$

2.71828

(e)

3.14159

(π)

(μ_x)

(σ_x)

(Cumulants)

$$-\infty < x < +\infty$$

(x)

: (κ_r)

$$\kappa_r = r! \sum_{m=0}^r \sum_{\rho_1}^{\pi_1} \left(\frac{\mu'_{\rho_1}}{\rho_1!}\right)^{\pi_1} \dots \left(\frac{\mu'_{\rho_m}}{\rho_m!}\right)^{\pi_m} \frac{(-1)^{\rho-1} (\rho-1)!}{\pi_1! \dots \pi_m!}$$

(Bell-shaped)

... $\kappa_6 \kappa_5 \kappa_4 \kappa_3 \kappa_2$

$$\kappa_2 = \mu_2$$

(Berenson and

$$\kappa_3 = \mu_3$$

.Levine, 1992)

$$\kappa_4 = \mu_4 - 3\mu_2^2$$

$$\kappa_5 = \mu_5 - 10\mu_3\mu_2$$

(Kendall and Stuart, 1969)

$$\kappa_6 = \mu_6 - 15\mu_4\mu_2 - 10\mu_3^2 + 30\mu_2^3$$

(μ_r)

(r)

(Moment)

(a = x)

(h)

(Shepard)

$$\mu_r = \sum_{i=1}^n (x_i - a)^r * f(x_i)$$

:

($\bar{\kappa}_r$)

(i)

(i)

X_i

$$\kappa_r = \bar{\kappa}_r - \beta_r \frac{h^r}{r}$$

β_1

1<r

β_r

(Relative Frequency)

μ'_1

.(i)

$$\kappa_2 = \bar{\kappa}_2 - \frac{h^2}{12}$$

:

:(μ'_r)

$$\mu'_r = \sum_{i=1}^n (x_i)^r * f(x_i)$$

(Parameters)

$$\kappa_4 = \kappa_4 - \frac{h^4}{120}$$

$$\kappa_6 = \kappa_6 - \frac{h^6}{252}$$

.(κ)

3.4

%0.05

(Kolmogorov-Smirnov Test)

(μ_1') (Mean)

: (μ_2) (Variance)

(β_1) (Skewness)

.5

$$\beta_1 = \frac{\mu_3^2}{\mu_2^3}$$

(β_2) (Kurtosis)

$$\beta_2 = \frac{\mu_4}{\mu_2^2}$$

(γ_2) (γ_1)

$$\frac{\kappa_3}{\kappa_2^{\frac{3}{2}}} = \frac{\mu_3}{\mu_2^{\frac{3}{2}}} = \sqrt{\beta_1} = \gamma_1$$

(1)

$$\frac{\kappa_4}{\kappa_2^2} = 3 - \frac{\mu_4}{\mu_2^2} = 3 - \beta_2 = \gamma_2$$

(1)

$$0 = \gamma_2 \quad 3 = \beta_2$$

(Normal Distribution)

()

$$0 < \gamma_1 \quad 0 > \gamma_1$$

$$\mu_3 \quad \gamma_1 \quad 0 = \gamma_1$$

$$0 = \gamma_2$$

$$0 > \gamma_2 \quad 0 < \gamma_2$$

(1)

/

/

/

(κ) (Criterion)

: (Elderton and Johnson, 1969)

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/

$$\kappa = \frac{\beta_1(\beta_2 + 3)^2}{4(4\beta_2 - 3\beta_1)(2\beta_2 - 3\beta_1 - 6)}$$

(11 62) / /
%4

(1)
(2)

(Kolmogorov-Smirnov)

(2)

1:6.3

%0.05

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(4)

(4)

(1)

(Outliers)

(4)

(Studentized

Residuals)

(3)

(4)

(3)

(Kolmogorov-Smirnov)

(3)

682

28

(5)
0.05

(Kolmogorov-Smirnov)

%5

5

11

2001 1998

2001 1998

(6)

-2002

%5

2000 1998

(Frecka

(Deakin, 1976)

(So, 1987)

and Hopwood, 1983)

(Frecka and Hopwood, 1983)

(Cannon, 2002)

(Cannon)

.6

11

62

2002

6

0.05

(Kolmogorov-

Smirnov)

(1)

6	5	4	3	2	1	
0.47	2.17	3.26	0.16	0.77	1.29	
0.46	1.17	2.06	0.44	0.53	0.85	
0.28	0.91	1.00	0.00	-0.23	0.67	
0.03	-0.83	0.16	-19.50	-0.23	0.17	
0.88	13.02	15.00	7.03	7.37	11.99	
0.86	13.85	14.84	26.52	7.60	11.83	
0.21	2.64	3.18	2.98	1.07	1.80	
0.05	6.98	10.11	8.87	1.15	3.25	
-0.05	2.33	1.95	-5.05	4.56	4.51	
-0.87	5.78	3.75	32.96	25.06	22.86	
	11	10	9	8	7	
	0.31	0.04	0.55	0.24	0.29	
	0.26	0.03	0.39	0.23	0.26	
	0.53	-0.06	0.01	0.00	0.20	
	0.02	-0.14	-0.88	-0.50	-0.12	
	0.77	0.23	5.96	0.78	0.69	
	0.75	0.38	6.84	1.28	0.82	
	0.21	0.08	0.92	0.27	0.18	
	0.04	0.01	0.84	0.07	0.03	
	0.42	-0.102	3.67	-0.05	0.45	
	-1.03	-0.34	19.61	0.00	-0.22	

(2)

(Kolmogorov-Smirnov)

Asymp. Sig. (2-tailed)	Kolmogorov-Smirnov Z	
0.000	2.419	1
0.001	1.921	2
0.000	2.937	3
0.007	1.685	4
0.005	1.735	5

0.788	0.653	6
0.413	0.885	7
0.999	0.384	8
0.035	1.423	9
0.986	0.454	10
0.238	1.031	11

(3)

.(Studentized Residuals)

11	10	9	8	7	6	5	4	3	2	1	
-	-	2	1	-	-	5	7	5	4	4	

(4)

6	5	4	3	2	1	
0.47	1.51	2.32	0.45	0.56	0.89	
0.46	1.06	1.84	0.44	0.51	0.81	
0.28	0.91	1.00	0.00	-0.23	0.67	
0.03	-0.83	0.16	-0.81	-0.23	0.17	
0.88	5.18	7.27	1.78	1.49	1.92	
0.85	6.01	7.11	2.59	1.73	1.76	
0.21	1.35	1.62	0.54	0.38	0.46	
0.05	1.82	2.61	0.30	0.14	0.22	
-0.05	1.25	1.20	0.34	0.69	0.49	
-0.87	1.08	0.96	0.31	0.06	-0.61	
	11	10	9	8	7	
	0.31	0.04	0.43	0.25	0.29	
	0.26	0.03	0.38	0.25	0.26	
	0.53	-0.06	0.01	0.00	0.20	
	0.02	-0.14	-0.88	-0.28	-0.12	
	0.77	0.23	1.72	0.78	0.69	
	0.75	0.38	2.59	1.06	0.82	
	0.21	0.08	0.53	0.25	0.18	
	0.04	0.01	0.28	0.06	0.03	
	0.42	-0.10	0.61	0.23	0.45	
	-1.03	-0.34	0.29	-0.54	-0.22	

(5)

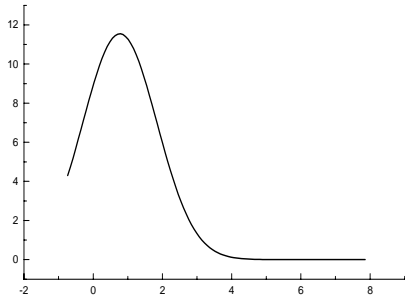
(Kolmogorov-Smirnov)

Asymp. Sig. (2-tailed)	Kolmogorov-Smirnov Z	
0.463	0.852	1
0.461	0.853	2
0.599	0.767	3
0.111	1.203	4
0.035	1.422	5
0.788	0.653	6
0.413	0.885	7
0.991	0.436	8
0.542	0.801	9
0.986	0.454	10
0.238	1.031	11

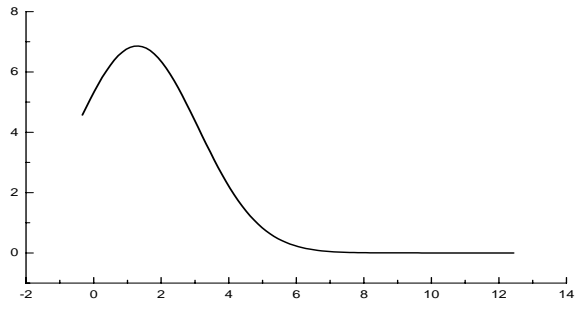
(6)

(Kolmogorov-Smirnov)

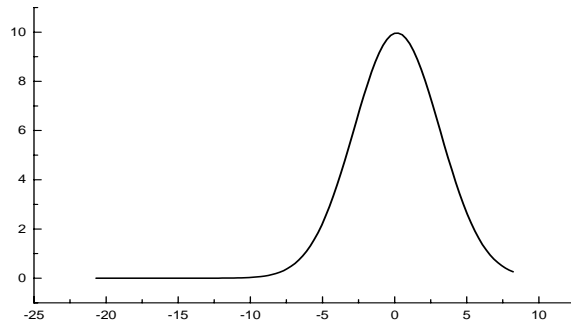
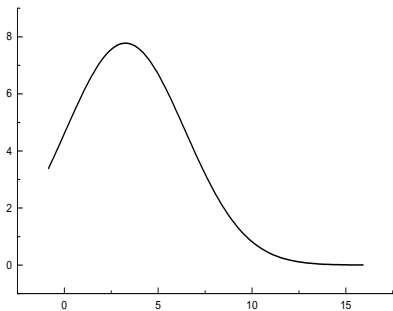
Asymp. Sig. (2-tailed)				Kolmogorov-Smirnov Z				
2001	2000	1999	1998	2001	2000	1999	1998	
0.428	0.173	0.303	0.706	0.875	1.107	0.971	0.703	1
0.217	0.163	0.836	0.290	1.053	1.119	0.620	0.982	2
0.410	0.212	0.348	0.317	0.888	1.059	0.933	0.959	3
0.134	0.024	0.171	0.029	1.162	1.486	1.109	1.452	4
0.267	0.003	0.032	0.110	1.002	1.783	1.439	1.204	5
0.789	0.497	0.788	0.975	0.652	0.829	0.652	0.481	6
0.110	0.080	0.169	0.908	1.205	1.268	1.111	0.564	7
0.759	0.331	0.389	0.320	0.671	0.947	0.903	0.956	8
0.431	0.672	0.447	0.737	0.873	0.723	0.862	0.685	9
0.383	0.745	0.813	0.659	0.907	0.679	0.636	0.731	10
0.522	0.175	0.626	0.614	0.383	1.104	0.750	0.758	11



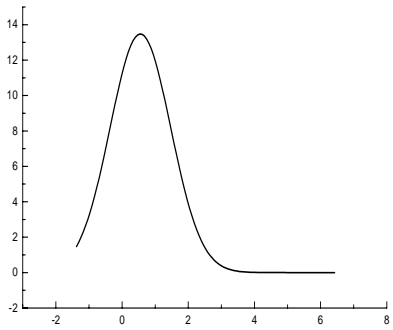
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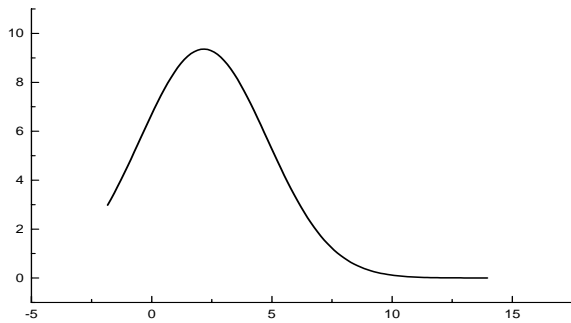
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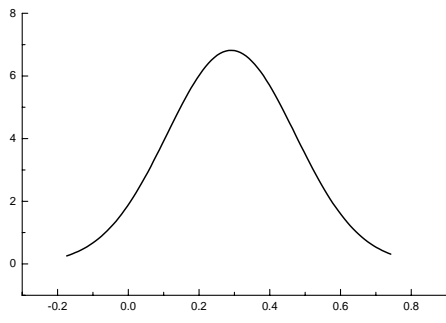
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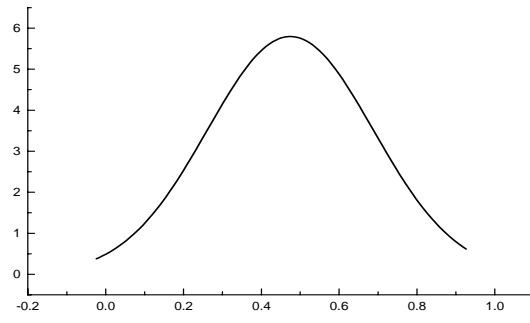
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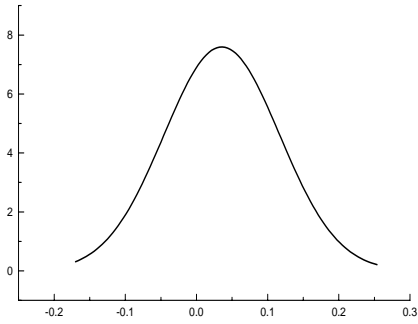
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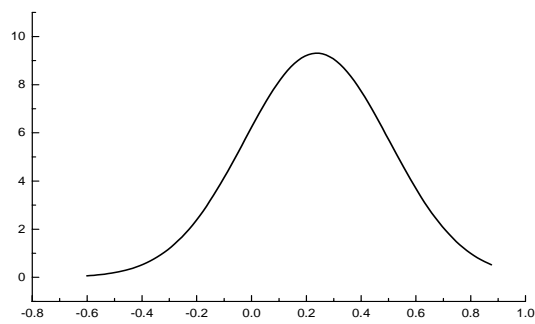
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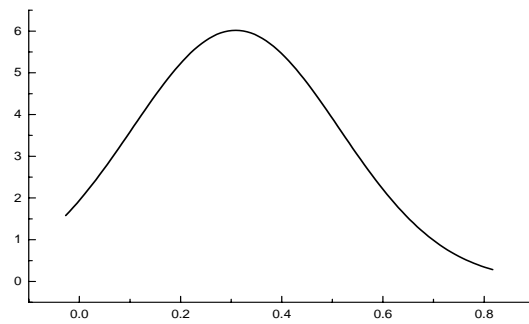
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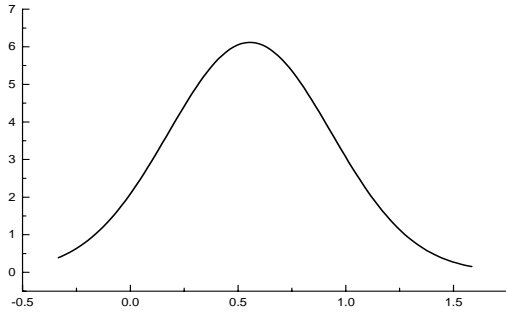


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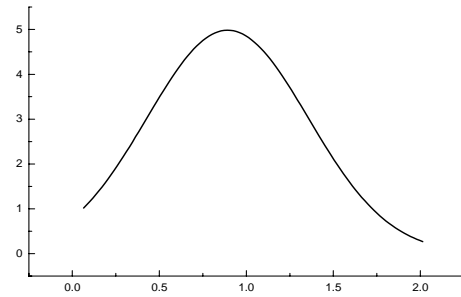


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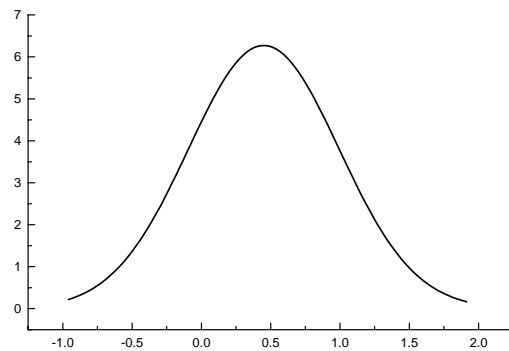
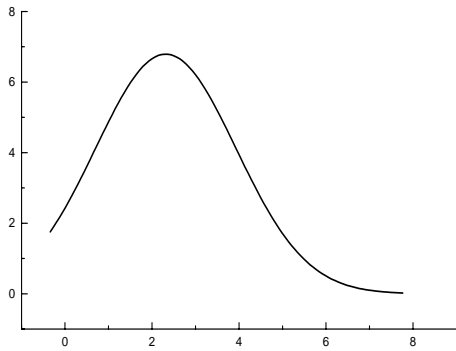
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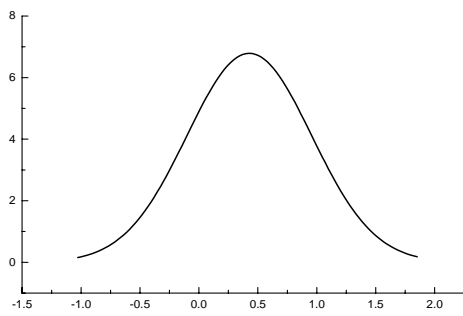
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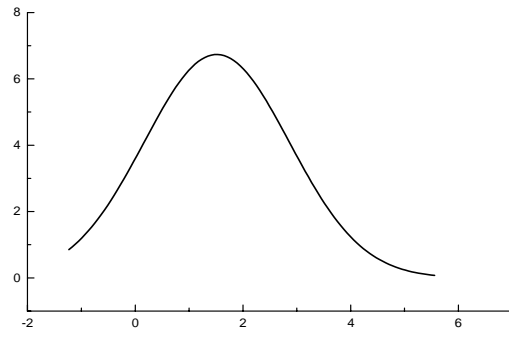
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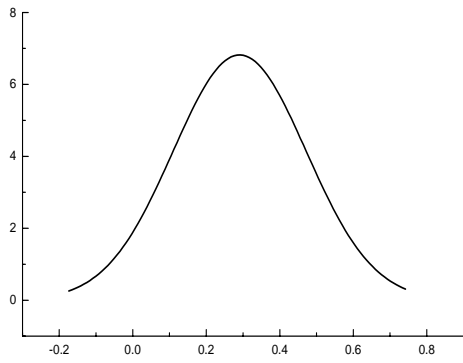


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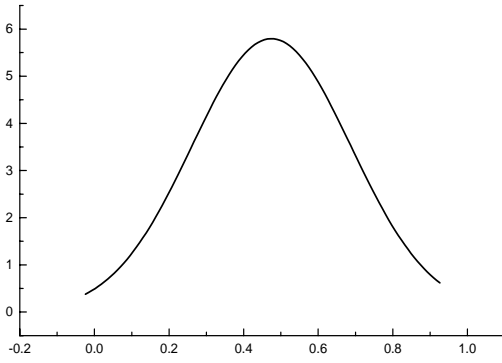


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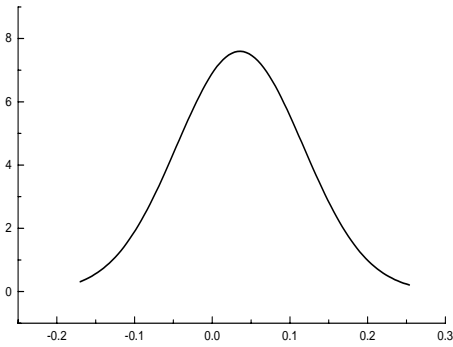
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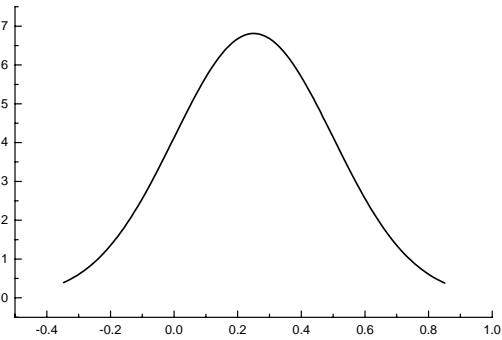
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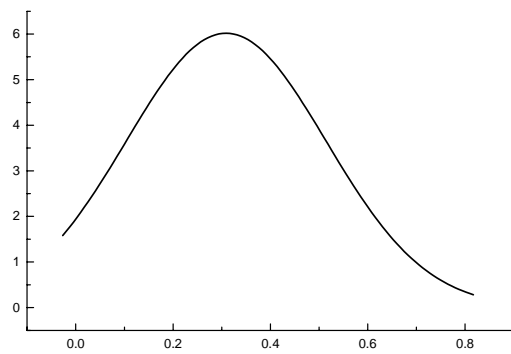
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/(+)	-9
/	-10
/	11

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The Distributional Properties of Financial Ratios of Jordanian Industrial Corporations

*Basheer A. Khamees and Ali M. Quaqazeh**

ABSTRACT

This study aims to discover the distributional properties of financial ratios of the Jordanian industrial corporations during the year 2002. To achieve this aim, 11 ratios for a sample of 62 industrial corporations were calculated. Then, the normality of these ratios was examined. The results revealed that the current assets/ sales ratio, the quick asset/ sales ratio, the working capital/ sales ratio, the current ratio, the quick ratio and the net income plus depreciation expense/ total liabilities are not normally distributed. After that, the outliers were identified and deleted and the normality of the ratios was retested. The only ratio for which the normality was rejected is the quick ratio. Thus, the findings of the study showed that financial ratios are approximately normally distributed after deleting the outliers. In addition, the results showed that the distributions of the ratios were stable during the period 1998-2001 except for the current ratio distribution which was not stable. The non-normality of the current and quick ratios distributions can be explained by the fact that these ratios are exposed to window-dressing.

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