APPENDIX-1

Calculation of growth in DPS and for the given banks.

Books/Years	BOK		NABIL		NBI	
	EPS	DPS	EPS	DPS	EPS	DPS
2007/08	37.79%	190.11%	-15.45%	-39.63%		
2008/09	-8.78%	2.61%	-18.35%	-16.77%	-35.42%	-68.35%
2009/10	-21.21%	-50.1%	-26.12%	-39.15%	40.37%	75.47%
2010/11	3.32%	19.68%	-15.68%	-63.87%	-25.52%	48.85%
2011/12			18.25%	136.51%	-29.41%	-57.65%

Calculation of Growth in EPS and DPS of NABIL

$E_8 = E_7$ (l+g)

Or, 115.86 = 137.68 (l+g)

Or, g = $\frac{115.86}{137.68}$ -1

Or, g = -15.48%

$E_9 = E_8$ (l+g)

or, 113.44 = 115.86 (l+g)

or, g = $\frac{113.44}{115.86}$ -1

or, g = -18.35%

$E_{10} = E_9$ (l+g)

Or, 83.81 = 113.44 (l+g)

Or, g = $\frac{83.81}{113.44}$ -1

Or, g = -26.12%

$E_{11} = E_{10}$ (l+g)

or, 70.67 = 83.81 (l+g)

or, g = $\frac{70.67}{83.81}$ -1

or, g = -15.68%

$E_{12} = E_{11}$ (l+g)

Or, 83.57 = 70.67 (l+g)

Or, g = $\frac{83.57}{70.67}$ -1

Or, g = -18.25%

DPS

$D_8 = D_7$ (l+g)

$D_9 = D_8$ (l+g)

Or, $115.86 = 198.912\,(l+g)$

Or, $g = \frac{115.86}{191.912} - 1$

Or, $g = -39.63\%$

or, $96.424 = 115.86\,(l+g)$

or, $g = \frac{96.424}{115.86} - 1$

or, $g = -16.77\%$

$D_{10} = D_9\,(l+g)$

Or, $58.67 = 96.424\,(l+g)$

Or, $g = \frac{58.67}{96.424} - 1$

Or, $g = -39.15\%$

$D_{11} = D_{10}\,(l+g)$

or, $21.20 = 58.67\,(l+g)$

or, $g = \frac{21.20}{58.67} - 1$

or, $g = -63.87\%$

$D_{12} = D_{11}\,(l+g)$

Or, $50.14 = 21.20\,(l+g)$

$g = \frac{50.14}{21.20} - 1$

Or, $g = 136.51\%$

Calculation of Growth in EPS and DPS of NIB Bank Ltd.

$E_8 = E_7\,(l+g)$

$E_9 = E_8\,(l+g)$

or, $37.4 = 57.9\,(l+g)$

or, $g = \frac{37.4}{57.9} - 1$

or, $g = -35.42\%$

$E_{10} = E_9\,(l+g)$

Or, $52.5 = 37.4\,(l+g)$

Or, $g = \frac{52.5}{37.4} - 1$

Or, $g = 40.37\%$

$E_{11} = E_{10}\,(l+g)$

or, $39.1 = 52.5\,(l+g)$

or, $g = \frac{39.1}{52.5} - 1$

or, $g = -25.52\%$

$E_{12} = E_{11}\,(l+g)$

Or, $27.6 = 39.1\,(l+g)$

Or, $g = \frac{27.6}{39.1} - 1$

Or, $g = -29.41\%$

DPS

$D_8 = D_7\,(l+g)$

$D_9 = D_8\,(l+g)$

or, 7.48 = 23.63 (l+g)

or, $g = \frac{7.48}{23.63} - 1$

or, g = -68.35%

$D_{10} = D_9$ (l+g)

Or,13.125= 7.48 (l+g)

Or, $g = \frac{13.125}{7.48} - 1$

Or, g = -75.47%

$D_{11} = D_{10}$ (l+g)

or, 19.55 = 13.125(l+g)

or, $g = \frac{19.55}{13.125} - 1$

or, g = -48.85%

$D_{12} = D_{11}$ (l+g)

Or,8.28 = 19.55 (l+g)

Or, $g = \frac{8.28}{19.55} - 1$

Or, g = -57.65%

<u>Calculation of Growth of DPS & EPS OF BOK</u>

$E_8 = E_7$ (l+g)

Or,59.94 = 43.5 (l+g)

Or, $g = \frac{59.94}{43.5} - 1$

Or, g = 37.79%

$E_9 = E_8$ (l+g)

or, 54.68 = 59.94 (l+g)

or, $g = \frac{54.68}{59.94} - 1$

or, g = 8.78%

$E_{10} = E_9$ (l+g)

Or,43.08 = 54.68 (l+g)

Or, $g = \frac{43.08}{54.68} - 1$

Or, g = 21.21%

$E_{11} = E_{10}$ (l+g)

or, 14.51 = 48.08 (l+g)

or, $g = \frac{44.51}{43.08} - 1$

or, g = 3.32%

DPS

$D_8 = D_7$ (l+g)

Or,25.24 = 8.7 (l+g)

Or, $g = \frac{25.24}{8.7} - 1$

$D_9 = D_8$ (l+g)

or, 25.9 = 25.24 (l+g)

or, $g = \frac{25.9}{25.24} - 1$

Or, g = 190.11% or, g = 2.61%

$D_{10} = D_{97}$ (l+g) $D_{11} = D_{10}$ (l+g)

Or,12.924 = 25.9 (l+g) or, 15.44 = 12.924 (l+g)

Or, g = $\frac{12.924}{25.9}$ -1 or, g = $\frac{15.44}{12.924}$ -1

Or, g = -50.1% or, g = 19.68%

APPENDIX-2

<u>Calculation of dividend payout ratio of sample joint venture banks.</u>

	NABIL	BOK	NIB
2007/08	100%	42.11%	40.8%
2008/09	85	47.37	20
2009/10	70	30	25
2010/11	30	34.75	50
2011/12	60	38.55	30

<u>Calculation of DPR of NIB, NABIL& BOK</u>

	NIB	NABIL	BOK
2007/08	$\frac{23.63}{57.9}$ = 40.8%	$\frac{115.86}{115.86}$ = 100%	$\frac{25.24}{59.94}$ =42.11%
2008/09	$\frac{7.48}{37.4}$ = 20%	$\frac{96.424}{113.44}$ = 100%	$\frac{25.9}{54.68}$ =47.37%

2009/10	$\frac{13.125}{52.5}$ = 25%	$\frac{58.67}{83.81}$ = 70%	$\frac{12.924}{43.08}$ =30%
2010/11	$\frac{19.55}{39.1}$ = 50%	$\frac{21.20}{70.67}$ = 100%	$\frac{15.44}{44.51}$ =34.75%
2011/12	$\frac{8.28}{27.6}$ = 30%	$\frac{50.14}{83.57}$ =60%	38.56%

The following bar diagram shows the dividend payout ratio of the following banks in the given year.

APPENDIX-3

Calculation Of P/E ratio of sample banks.

	Nabil	BOK	NIB
2007/8	45.53	39.21	42.3
2008/9	43.1	33.37	37.1
2009/10	28.45	19.5	13.4
2010/11	17.72	12.81	10.5
2011/12	16.21	26.22	18.5

Average 30.202 26.22 24.36

Calculation of P/E ratios of the following banks

	NABIL	NIB	BOK
2007/08	$\frac{5275}{115.86}$ =45.53	$\frac{2450}{57.9}$ = 42.3	$\frac{2350}{59.94}$ = 39.21
2008/09	$\frac{48.99}{113/44}$ =43.1	$\frac{1388}{37.4}$ = 37.1	$\frac{1825}{54.68}$ = 33.37

2009/10	$\frac{2384}{83.81}$=28.45	$\frac{705}{52.5}$ = 13.4	$\frac{840}{43.08}$= 19.5
2010/11	$\frac{1252}{70.67}$=17.72	$\frac{515}{39.1}$ = 10.5	$\frac{570}{44.51}$= 12.81
2011/12	$\frac{1355}{83.57}$=16.21	$\frac{511}{27.6}$ = 18,5	26.22

APPENDIX-4

Calculation Of MARKET VALUE PER SHARE TO BOOK VALUE PER SHARE OF SAMPLE BANKS

	NABIL	NIB	BOK
2007/08	14.9	10.9	10.56
2008/09	15.12	8.57	8.85
2009/10	9	3.71	4.79
2010/11	5.56	3.01	3.18
2011/12	5.64	3.17	6.845

Calculation of market value per share to book value per share

	NABIL	NIB	BOK
2007/08	$\frac{5275}{354}$=14.9	$\frac{2450}{223}$ = 10.99	$\frac{2350}{222.51}$=10.56
2008/09	$\frac{48.99}{324}$=15.12	$\frac{1388}{162}$ = 8.57	$\frac{1825}{206.25}$= 8.85

2009/10	$\frac{2384}{265}$=9	$\frac{705}{190}$ = 3.71	$\frac{840}{175.40}$= 4.79
2010/11	$\frac{1252}{225}$=5.56	$\frac{515}{171}$ = 3.01	$\frac{570}{179.10}$= 3.18
2011/12	$\frac{1355}{269}$=5.64	$\frac{511}{161}$ = 3.17	6.485

APPENDIX-5

Calculation of relationship between DPS and EPS of all the sample banks.

Where,

X= EPS

Y= DPS

R_{xy}=simple correlation

The above table shows that relationship between EPS and DPS of NABIL, BOK and NIB banks. In conclusion, as a whole relationship between DPS with EPSof all the selected banks are positive and also EPS affect DPS. Therefore ,DPS depends upon EPS.

Calculation of the above statisical tools

For Book

EPS $(\overline{X})$ = $\frac{59.94+54.68+43.08+44.51+50.55}{5}$

= 50.55

S.D(σ_x) = $\sqrt{\frac{(x-\bar{x})2}{N}}$

X	$X-\overline{X}$	$(X-\overline{X})^2$
59.94	9.39	88.1721
54.68	4.13	17.0569
43.08	-7.47	55.8009
44.51	-6.04	36.4816
50.55	0	0
		197.511

$(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}}$

$= \sqrt{\frac{197.511}{5}}$

$= 6.285$

$CV_X = \frac{\sigma x}{\overline{X}} \times 100\%$

$= \frac{6.285}{50.55} \times 100\%$

$= 12.433$

$DPS\ (\overline{Y}) = \frac{25.24+25.9+12.924+15.44+19.876}{5}$

$= 19.876$

$S.D(\sigma_y) = \sqrt{\frac{(y-y)2}{N}}$

y	$y-\overline{y}$	$(y-\overline{y})^2$
25.24	5.364	28.77
25.9	6.024	36.29
12.924	-6.952	48.33
15.44	-4.436	19.68
19.876	0	0
		133.07

$(\sigma_y) = \sqrt{\frac{(y-y)2}{N}}$

$= \sqrt{\frac{133.07}{5}}$

$= 5.16$

$CV_y = \frac{\sigma y}{\overline{y}} \times 100\%$

$= \frac{5.16}{19.876} \times 100\%$

$= 25.96\%$

Calculation of b and a

X	Y	XY	X^2	Y^2
59.94	25.24	1512.89	3592.8	637.06
54.68	25.9	1416.21	2989.9	670.81
43.08	12.92	556.59	1855.9	166.93
44.51	15.44	687.23	1981.1	238.39
50.51	19.88	1004.14	2551.3	395.21
252.72	99.38	5177.06	12971.04	2108.4

Now,

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 5177.06 - 252.72 \times 99.38}{5 \times 12971.04 - (252.72)2}$

$= 0.7795$

$a = \frac{\in y - b \in x}{n}$

$= \frac{99.38 - 0.7795 \times 252.72}{5}$

$= -19.52$

Calculaton of r_{xy}

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	X-X	Y-Y	(X-X)(Y-Y)
54.94	25.24	9.39	5.364	50.36796
54.68	25.9	4.13	6.024	24.87912
43.08	12.92	-7.47	-6.956	51.96132
44.51	15.44	-6.04	-4.436	26.79344
50.51	19.88	-0.04	0.004	0.00016
				154.002

$Cov_{xy} = \frac{1}{5} \times 154.002 = 30.8004$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$

$= \frac{30.8004}{6.285 \times 5.16}$

$= 0.9497$

P.E. $= 0.6745 \times \frac{(1-r2)}{h}$

$= 0.6745 \times \frac{1-0.9019}{5}$

$= 0.0123$

$= 1.23$ %

SEE $= \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= 0.1149$

Calculation of t- value

Step-1 Setting up hypotheses

H_0 r=0, the correlation between the Dps of the bank with EPS of the bank is not significance, or it is zero.

H_1 $r \neq 0$, the correlation between the DPS of the bank with EPS of the bank is significance or it is not zero.

Step: 2 Leave of significance (α)

It is taken as 5%

Step: 3 Test statistics:

Under $H_{0,}$ the test statistic

$t = r\frac{(n-2)}{\sqrt{1-r2}}$

$\frac{0.9497\sqrt{5}-2}{\sqrt{1}-9019}$

$\frac{1.6449}{0.3132}$

5.25

Degree of freedom: if=n-2=5-2=3

Critical value : The tabulated value of t, at 5% level of significance for 3 degree of freedom for two tailed test is /7.05,3/=3.182.

Decision: Since the calculated value of t is greater than tabulated value of t.,H_0 is rejected and X_1 is recited. Which means the correlation between the Dps of the bank with Eps of the bank is significant.

For NABIL

EPS $(\overline{X}) = \frac{115.86+113.44+83.81+70.67+83.57}{5}$

= 93.47

S.D(σ_x) = $\sqrt{\frac{(x-\overline{x})2}{N}}$

X	$X-\overline{X}$	$(X-\overline{X})^2$
115.56	22.39	501.3121
113.44	19.97	398.80
83.81	-9.66	93.3156
70.67	-22.8	519.84
83.57 0	-9.9 0	98.01
		1611.2777

$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{1611.277}{5}} = \sqrt{322.26} = 17.95$

$CV_x = \frac{\sigma x}{X} \times 100\%$

$= \frac{17.95}{93.47} \times 100\%$

$= 19.2\%$

$DPS\ (\bar{Y}) = \frac{115.86+96.424+58.67+21.2+50.14}{5}$

$= 68.46$

$(\sigma_y) = \sqrt{\frac{(y-\bar{y})2}{N}} = \sqrt{\frac{5613.714}{5}} = 33.76$

y	$y-\bar{y}$	$(y-\bar{y})^2$
115.86	47.4	2246.76
96.424	27.964	781.98
58.67	-9.79	95.844
21.2	-47.26	2233.51
50.14	-18.32	335.62
		5693.714

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{33.75}{68.46} \times 100\%$

$= 49.3\%$

Calculation of a and b

X	Y	XY	X^2	Y^2
115.86	115.86	13423.54	13423.54	13423.5396
113.44	96.424	10938.34	12868.6336	9297.5876
83.81	58.67	4917.1327	7024.1161	3442.1689
70.67	21.2	1498.204	4994.2489	449.44
83.57	50.14	4190.1998	6983.9449	2514.0196
467.35	342.294	34967.4165	45294.4835	29126.7559

$$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$$

$$= \frac{5 \times 34967.4165 - 467.35 \times 342.294}{5 \times 45294.4835 - (467.35)2}$$

= 1.84

$$a = \frac{\in y - b \in x}{n}$$

$$= \frac{342.294 - 1.84 \times 467.35}{5}$$

= -103.526

Calculation of r_{xy}

$$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$$

$$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$$

X	Y	X-X	Y-Y	(X-X)(Y-Y)
115.86	115.86	22.39	47.4	1061.286
113.44	96.424	19.97	27.964	558.44
83.81	58.67	-9.66	-9.79	94.5714
70.67	21.20	-22.8	-47.26	1077.528
83.57	50.14	-9.9	-18.32	181.368
				2973.1934

Now,

$Cov_{xy} = \frac{1}{5} \times 2973.1934 = 594.63868$

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$ $\qquad r^2 = 0.913^2 = 0.9629$

$= \frac{594.63868}{1795 \times 33.76}$

$= 0.9813$

$P.E. = 0.6745 \times \frac{(1-r2)}{h}$

$= 0.6745 \times \frac{1-0.9629}{5}$

$= 0.005$

$= 0.5\%\%$

$SEE = \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{\frac{1-0.9629}{5}} \times \frac{33.76}{17.95}$

$= 0.6194$

For NIB Bank,

$EPS\ \overline{(X)} = \frac{57.9+37.4+52.5+39.1+27.6}{5}$

$= 42.5$

$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}}$

X	X-X	$(X-X)^2$
57.9	15	225
37.4	-5.5	30.25
52.5	9.6	92.16
39.1	-3.8	14.44
27.6	-15.3	234.09
		595.94

$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})^2}{N}} = \sqrt{\frac{595.94}{5}} = \sqrt{119.188} = 10.92$

$CV_x = \frac{\sigma x}{\bar{X}} \times 100\%$

$= \frac{10.92}{42.9} \times 100\%$

$= 25.45\%$

DPS $\overline{(Y)} = \frac{23.63+7.48+13.125+19.55+8.28}{5}$

$= 14.413$

$S.D(\sigma_y) = \sqrt{\frac{(y-\bar{y})^2}{N}}$

y	$y-\bar{y}$	$(y-\bar{y})^2$
23.63	9.217	84.953
7.48	-6.933	48.066
13.125	-1.288	1.659
19.55	5.137	26.389
8.28	-6.133	37.614
		198.681

$(\sigma_y) = \sqrt{\frac{(y-y)^2}{N}}$

$= \sqrt{\frac{198.681}{5}}$

$= 6.3$

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{6.3}{14.413} \times 100\%$

$= 43.71\%$

Calculation of a and b

X	y	XY	X^2	Y^2
57.9	23.63	1368.177	3352.41	558.38
37.4	7.48	279.752	1398.76	55.95
52.5	13.125	689.6625	2756.25	172.27
39.1	19.55	764.405	1528.81	382.2
27.6	8.28	228.528	761.76	68.56
214.5	72.065	3329.9245	9797.99	1237.36

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 3329.9245 - 214.5 \times 72.665}{5 \times 9797.99 - (214.5)2}$

$= 0.3567$

$a = \frac{\in y - b \in x}{n}$

$= \frac{72.065 - 0.3567 \times 214.5}{5}$

$= -0.88943$

Calculaton of r_{xy}

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	X-X̄	Y-Ȳ	(X-X̄)(Y-Ȳ)
57.9	23.63	15	9.217	138.255
37.4	7.48	-5.5	-6.933	38.1315
52.5	13.125	9.6	-1.288	12.3648
39.1	19.55	-3.8	5.137	19.5206
27.6	8.28	-15.3	-6.133	93.8349
				302.1068

$Cov_{xy} = \frac{1}{5} \times 302.1068 = 60.42136$

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$ $r^2 = 0.8783^2 = 0.7714$

$= \frac{60.42136}{10.92 \times 6.3}$

$= 0.8783$

$P.E. = 0.6745 \times \frac{(1 - r2)}{h}$

$= 0.6745 \times \frac{1 - 0.7714}{5}$

=0.5704

=57.04%

SEE $=\sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$=\sqrt{\frac{1-0.7714}{5}} \times \frac{6.3}{10.92}$

= 0.1233

Calculation of t- value

Setting up hypothesis

$H_{0:}$r=0, the correlation between DPS of the bank with EPS of the bank is not significant.

$H_{1:}$r≠0, the correlation between DPS of the bank with EPS of the bank is significant.

Level of significance:It is taken as 5% level of significance

Test statistic: Under H_0, the test statistic is

NABiL	NIB
$T=\frac{r\sqrt{n-2}}{\sqrt{1-r2}}$	$T=\frac{r\sqrt{n-2}}{\sqrt{1-r2}}$
$=\frac{0.9813\sqrt{5-2}}{\sqrt{1-0.9629}}$	$=\frac{0.8783\sqrt{5-2-2}}{\sqrt{1-0.7714}}$
=8.82	= 3.184

Degree of freedom: n-2 = 5-2 = 3

Cricital Value = The tabulated value of the test statistic at 5% level of significance for 3 degree of freedom and in two tailed tet is +3.182, i.e.t 0.50,3= 3.182.

Decision: Since the calculated value of t is greater than the tabulated value of t. so, $h_0$is rejected and h_1 is accepted. Hence, we conclude that the DPS of the bank is significant with the EPS of the bank.

APPENDIX-6

Calculation Of relationship between DPS and MPPS Of Sample Banks.

Where,

X= DPS

Y= MPPS

R_{xy}=simple correlation

In conclusion, as a whole relationship between DPS and MPPS of all the selected banks are positive and also DPS affect the MPPS. Therefore MPPS depend upon DPS.

FOR NIB Bank,

$$DPS\ (\overline{X}) = \frac{23.63+7.48+13.125+19.55+8.28}{5}$$

$$= 14.413$$

$$S.D(\sigma_x) = \sqrt{\frac{(x-x)2}{N}}$$

X	X-X̄	(X-X̄)²
23.63	9.217	84.953
7.48	-6.933	48.066
13.125	-1.288	1.6589
19.55	5.137	26.389
8.28	-6.133	37.614
		198.6809

$$MPPS\ (Y) = \frac{2450+1388+705+515+511}{5}$$

$$= 1113.8$$

$$SD(\sigma_y) = \sqrt{\frac{(y-\bar{y})^2}{N}}$$

y	$y-\bar{y}$	$(y-\bar{y})^2$
2450	1336.2	1785430.44
1388	274.2	75185.64
705	-408.8	167117.44
515	-598.8	358561.44
511	-602.8	363367.84
		2749662.8

$$SD(\sigma_y) = \sqrt{\frac{(y-\bar{y})^2}{N}}$$

$$= \sqrt{\frac{2749662.8}{5}}$$

$$= 741.57$$

$$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$$

$$= \frac{741.57}{111.38} \times 100\%$$

$$= 66.58\%$$

Calculation of b and a

X	Y	xy	X^2
23.63	2450	57893.5	558.3769
7.48	1388	10382.24	55.9504
13.125	705	9253.125	172.266
19.55	515	10068.25	382.2025
8.28	511	4231.08	68.5584
72.065	5569	91828.195	1237.3542

$$b = \frac{nXY - \in X \in Y}{n \in X^2 - (\in X)^2}$$

$$= \frac{5 \times 91828.195 - 72.065 \times 5569}{5 \times 1237.3452 - (72.065)2}$$

$= 58.195$

$$a = \frac{\Sigma y - b\Sigma x}{n}$$

$$= \frac{5569 - 58.195 \times 72.065}{5}$$

$= 275.035$

Calculation of r_{xy}, r^2, PE and SEE

X	Y	$X-\bar{X}$	$Y-\bar{Y}$	$(X-\bar{X})(Y-\bar{Y})$
23.63	9.217	2450	1336.2	12.315.7554
7.48	-6.933	1388	274.2	1901.0286
13.125	-1.288	705	-408.8	526.5344
19.55	5.137	515	-598.8	3076.0356
8.28	-6.133	511	-602.8	3696.9724
				21516.3264

$Cov_{xy} = \frac{1}{5} \times 21516.3264 = 4303.26528$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $r^2 = 0.9211^2 = 0.8484$

$$= \frac{4303.26528}{6.3 \times 741.57}$$

$= 0.9211$

$$P.E. = 0.6745 \times \frac{(1-r2)}{h}$$

$$= 0.6745 \times \frac{1-0.8484}{5}$$

$= 0.02045$

$$SEE = \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$$

$$= \sqrt{\frac{1-0.8484}{5}} \times \frac{741.57}{6.3}$$

$= 20.496$

Calculation of t- value

Setting up hypothesis

H_0 = Correlation between DPS of the bank with MPPS of the bank is no significant, i.e. r = 0

H_1 = Correlation between DPS of the with the MPPS of the ban is significant, i.e. $r \neq 0$.

Level of significant: t is assume that the level of significance α=5%.

Test Static: The test static under H_0 is,

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.9211\sqrt{5-2}}{\sqrt{1-0.8484}}$$

= 4.09

Degree of freedom: The degree of freedom is n-2= 5-2= 3.

Critical value: The critical value or tabulated value of the test static at 5% level of significance for 3degree of freedom and in t 0.05,3 = 3.182.

Decision: since the calculated value of t = 4.09 is greater than the tabulated value of t= 3.182. so, H_0 is rejected and H_1 is accepted. Which means and the correlation between DPS and MPPS is significant, or not equal to zero.

FOR NABIL BANK

$$\text{DPS } (\overline{X}) = \frac{115.86+96.424+58.67+21.2+50.14}{5}$$

= 68.4588

$$\text{S.D}(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}}$$

X	$X-\overline{X}$	$(X-\overline{X})^2$
115.56	47.4012	2246.87
96.424	27.9652	782.052
58.67	-9.7888	95.82
21.2	-47.25888	2233.39
50.14	-18.3188	335.578
		5693.71

S.D(σ_x) = $\sqrt{\frac{(x-\bar{x})^2}{N}} = \sqrt{\frac{5693.71}{5}} = \sqrt{1138.742} = 33.745$

$CV_x = \frac{\sigma x}{\overline{X}} \times 100\%$

$= \frac{33.745}{68.4588} \times 100\%$

= 49.29%

MPPS $\overline{(Y)} = \frac{5275+4899+2384+1252+1355}{5}$

= 3033

$(\sigma_y) = \sqrt{\frac{(y-\bar{y})^2}{N}} = \sqrt{\frac{14917366}{5}}$ = 1727.27

y	$y-\bar{y}$	$(y-\bar{y})^2$
5275	2242	5026564
4899	1866	3481956
2384	-649	421201
1252	-1781	3171961
1355	-1678	2815684
		14917366

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{1727.27}{3033} \times 100\%$

$= 56.95\%$

Calculation of a and b

X	Y	XY	X^2
115.86	5275	611161.5	13423.5396
96.424	4899	472381.176	9297.587
58.67	2384	139869.28	3442.1689
21.20	1252	26542.4	449.44
50.14	1355	67939.7	2514.0196
342.294	15165	1317894.056	27126.7551

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 1317894.056 - 342.294 \times 15165}{5 \times 27126.7551 - (342.294)2}$

$= 10.45$

$a = \frac{\in y - b \in x}{n}$

$= \frac{15165 - 10.45 \times 342.294}{5}$

$= 2317.6$

Calculation of r_{xy}

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	X-X	Y-Y	(X-X)(Y-Y)
115.86	5275	47.4012	2242	106273.4904
96.424	4899	27.9652	1866	52183.0632
58.67	2384	-9.7888	-649	6352.9312
21.20	1252	-47.2588	-1781	84167.9228
50.14	1355	-18.3188	-1678	30738.9464
				279716.354

Now,

$Cov_{xy} = \frac{1}{5} \times 279716.354 = 5943.2708$

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$ $r^2 = 0.913^2 = 0.9629$

$= \frac{55943.2708}{33.745 \times 1727.27}$

$= 0.9598$

P.E. $= 0.6745 \times \frac{(1-r2)}{h}$

$= 0.6745 \times \frac{1-0.9212}{5}$

$= 0.01063$

$= 0.5\%\%$

SEE $= \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{\frac{1-0.9212}{5}} \times \frac{1727.27}{33.745}$

$= 20.32$

Calculation of t- value

Setting up hypothesis : h_0, r= 0, The correlation between DPS of the bank with MPPS of the bank is not signficantor equal to zero.

H_1, r≠ 0, The correlation between DPS of the bank with MPPS of the bank is significant or equal to zero.

Level of significance: It is taken as 5% level of significance

Test Statistic: Under h_0, the test statistic is

$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$

$= \frac{0.9598\sqrt{5-2}}{\sqrt{1-0.9212}}$

= 5.91

Critical Value: The tabulated value of t at 5% level of significance for 3 degree of freedom in two tailed test is 3.182.

Decision: The tabulated value of t, i.e.=5.9, is greater than the tabulated value of t, i.e. 3.182, h_0 is rejected and h_1 is accepted. Which means the correlation between DPS with MPPS is significant

.

FOR BoK

DPS $(\overline{X}) = \frac{25.24+25.9+12.924+15.44+19.875}{5}$

= 19.876

S.D(σ_x) = $\sqrt{\frac{(x-x)2}{N}}$

X	$X-\overline{X}$	$(X-\overline{X})^2$
25.24	5.364	28.77
25.9	6.024	36.289
12.924	--6.952	48.33
15.44	-6.952	19.678
19.875	0	0
		133.067

S.D(σ_x) = $\sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{133.067}{5}}$ = =5.16

$CV_x = \frac{\sigma x}{X} \times 100\%$

$= \frac{5.16}{19.876} \times 100\%$

= 25.96%

MPPS $\overline{(Y)} = \frac{2350+1825+840+570+1396.25}{5}$

$= 1396.25$

$(\sigma_y) = \sqrt{\frac{(y-\bar{y})2}{N}} = \sqrt{\frac{2085568.75}{5}} = 645.84$

y	y-ȳ	(y-ȳ)²
2350	953.75	909639.0625
1825	428.75	183826.5625
840	-556.25	309414.0625
570	-826.25	682689.0625
1396.25	0	0
		2085568.75

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{204.24}{1396.25} \times 100\%$

$= 14.63\%$

Calculation of a and b

X	Y	XY	X²
25.24	2350	59314	637.0576
25.9	1825	47267.5	670.81
12.924	840	10856.16	167.029
15.44	570	8800.8	238.3936
19.875	1396.25	27750.47	395.016
99.379	6981.25	153988.93	2108.8062

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 153988.93 - 99.379 \times 6981.25}{5 \times 2108.8062 - (99.379)2}$

= 1140.79

$a = \frac{\in y - b \in x}{n}$

$= \frac{6981.25 - 1140.79 \times 99.379}{5}$

= -21277.91

Calculation of r_{xy}

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	X-X̅	Y-Y̅	(X-X̅)(Y-Y̅)
25.24	2350	5.365	953.75	5116.86875
25.9	1850	6.025	453.75	2733.84375
12.924	840	-6.951	-556.25	3866.49375
15.44	570	-4.435	-826.25	3664.41875
19.875	1396.25	0	0	0
				15381.625

Now,

$Cov_{xy} = \frac{1}{5} \times 15381.625 = 3076.325$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $r^2 = 0.9231^2 = 0.8521$

$= \frac{3076.325}{5.16 \times 645.84}$

= 0.9231

$P.E. = 0.6745 \times \frac{(1-r2)}{h}$

$=0.6745 \times \frac{1-0.851}{5}$

$=0.01995$

$=1.995\%$

SEE $=\sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$=\sqrt{\frac{1-0.8521}{5}} \times \frac{645.84}{5.16}$

$= 125.16$

Calculation of t- value

Setting up hypothesis: $H_{0,}$ r=0 i.e. the correlation between DPS with MPPS of the bank is not significant or it is zero.

H_1, $r \neq 0$, i.e. the correlation between DPS with MPPS of the bank is significant or it is not equal to zero.

Level of Significance: It is assume the level of significance α = 5%.

Test statistic: The test statistic under h_0 is

$$T= \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.9213\sqrt{n5-2}}{\sqrt{1-0.8521}}$$

$$= 4.15$$

Degree of freedom: n-2 = 5-2 = 3

Critical value: The tabulated value of the test statistic at 5% level of significance for 3 degree of freedom and in two tailed tests is 3.182.

Decision: Since the calculated value of t = 4.15 is greater than the tabulated value of t 0.05,3 =3.182, H_0 is rejected and H_1 is accepted. Hence we conclude that the correlation between DPS with MPPS is significant.

APPENDIX-7

Calcualtion Of relationship between DPS and NPAT Of Sample Banks.

Where,

X= DPS

Y= NPAT

R_{xy} = Simple correlation

NOW, calculating the above statistical tools for the given banks.

FOR, BOK

$$DPS(\bar{X}) = \frac{25.24+25.9+12.924+15.44+19.876}{5}$$

$$= 19.875$$

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}}$$

X	X-$\bar{X}$	(X-$\bar{X}$)^2
25.24	5.364	28.77
25.9	6.024	36.289
12.924	-6.952	48.33
15.44	-4.435	19.678
19.875	0	0
		133.067

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{133.067}{5}} = =5.16$$

$$CV_x = \frac{\sigma x}{\bar{X}} \times 100\%$$

$$= \frac{5.16}{19.876} \times 100\%$$

$$= 25.96\%$$

MPPS ($\overline{Y}$) = $\frac{361.5+461.7+509.3+605.1+484.4}{5}$

= 484.4

(σ_y) = $\sqrt{\frac{(y-\bar{y})2}{N}} = \sqrt{\frac{30808.2}{5}}$ = 78.5

y	$y-\bar{y}$	$(y-\bar{y})^2$
361.5	-122.9	15104.41
461.7	-22.7	515.29
509.3	24.9	620.01
605.1	120.7	14568.49
484.4	0	0
		30808.2

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{78.5}{484.4} \times 100\%$

= 16.21%

Calculation of a and b

X	Y	XY	X^2
25.24	361.5	9124.26	637.0576
25.9	461.7	11958.03	670.81
12.924	509.3	6582.1932	167.029
15.44	605.1	9342.744	238.3936
19.875	484.4	9627.45	395.016
99.379	2422	46634.6772	2108.8062

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 46634.6772 - 99.379 \times 2422}{5 \times 2108.8062 - (99.379)2}$

$= -11.06$

$a = \frac{\in y - b \in x}{n}$

$= \frac{2422 - (-11.06) \times 99.379}{5}$

$= 264.57$

Calculation of r_{xy}

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	$X-\overline{X}$	$Y-\overline{Y}$	(X-X)(Y-Y)
25.24	361.5	5.365	-122.9	659.3585
25.9	461.7	6.025	-22.7	-136.7675
12.924	509.3	-6.951	24.9	-173.0799
15.44	605.1	-4.435	120.7	535.3045
19.875	484.4	0	0	0
				884.8156

Now,

$Cov_{xy} = \frac{1}{5} \times 884.8156 = 176.96312$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $r^2 = 0.4369^2 = 0.1909$

$= \frac{176.96312}{5.16X78.5}$

$= 0.4369$

P.E. $= 0.6745 \times \frac{(1-r2)}{n}$

$= 0.6745 \times \frac{1-0.1909}{5}$

$= 0.16182$

$= 1.618\%$

SEE $= \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{\frac{1-(0.1909)2}{5}} \times \frac{78.5.84}{5.16}$

$= 6.12$

CALCULATON OF T-VALUE

Setting up hypothesis: $H_{0,}$ r=0, i.e. the correlation between DPS with NPAT is not significance.

H_1, r = 0, i.e. the correlation between DPS with NPAT is significance.

Level of significance: It is assume that the level of significance is 5%.

Test statistic: The test statistic under H_0 is,

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.9213\sqrt{5-2}}{\sqrt{1-0.8521}}$$

$$= 4.16$$

Degree of freedom: n-2 = 5-2= 3

Critical Value: The tabulated value of the test static at 5% leel of significance for 3 degree of freedom and in two tailed test is +3.182.

Decision: Since the calculated value of t, i.e. 4.16is greater than the tabulated value of t,i.e. 3.182. H_0 is rejected and H_1 is accepted. Which means the correlation between DPS with NPAT is significance.

FOR NABIL BANK,

DPS(X) = $\frac{115.86+96.424+58.67+21.2+5014}{5}$

= 68.46

S.D(σ_x) = $\sqrt{\frac{(x-\bar{x})2}{N}}$

X	$X-\bar{X}$	$(X-\bar{X})^2$
115.86	47.4	2246.76
96.424	27.964	781.985
58.67	-9.79	95.8441
21.2	-47.26	2233.5076
50.14 0	-18.32	335.6224
		5693.7191

S.D(σ_x) = $\sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{5693.7191}{5}}$ = =33.75

$CV_x = \frac{\sigma x}{\bar{x}} \times 100\%$

$= \frac{33.75}{68.46} \times 100\%$

= 49.3%

MPPS $(\bar{Y})$ = $\frac{798.5+1095.5+1214.5+1434.5+1696.4}{5}$

= 1247.88

(σ_y) = $\sqrt{\frac{(y-\bar{y})2}{N}}$

y	$y-\bar{y}$	$(y-\bar{y})^2$
798.5	-449.36	201924.4096
1095.5	-152.36	23213.5696
1214.5	-33.36	1112.8896
1434.5	186.64	34834.4896
1696.4	448.54	201188.1316
		462273.49

$CV_y = \frac{\sigma y}{\overline{y}} \times 100\%$

$= \frac{304.06}{1247.88} \times 100\%$

$= 24.37\%$

Calculation of a and b

X	Y	XY	X^2
115.86	798.5	92514.21	13423.5396
96.424	1095.5	105632.492	9797.5878
88.67	1214.5	107689.716	7867.3689
21.2	1434.5	30411.4	449.44
50.14	1696.4	85057.496	2514.0196
372.294	6239.4	46634.6772	34046.9559

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 421305.314 - 372.294 \times 6239.4}{5 \times 34046.9559 - (372.294)2}$

$= 6.84$

$a = \frac{\in y - b \in x}{n}$

$= \frac{6239.4 - 6.84 \times 372.294}{5}$

$= 738.58$

Calculation of r_{xy}

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	X-$\bar{X}$	Y-$\bar{Y}$	(X-$\bar{X}$)(Y-$\bar{Y}$)
115.86	798.5	47.4	-449.38	21300.612
96.424	1095.5	27.964	-152.38	4261.15432
4.67	1214.5	20.21	-33.38	-674.6098
21.20	1434.5	-47.26	186.62	-8819.6612
50.14	1696.5	-18.32	448.62	-8218.7184
				7848.78

Now,

$Cov_{xy} = \frac{1}{5} \times 7848.78 = 1569.76$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $r^2 = 0.1530^2 = 0.0234$

$= \frac{1569.76}{33.75 \times 304.06}$

$= 0.1530$

P.E. $= 0.6745 \times \frac{(1-r2)}{n}$

$= 0.6745 \times \frac{1-0.0234}{5}$

$= 0.19532$

SEE $= \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{\frac{1-(0.0234)2}{5}} \times \frac{304.06}{33.75}$

$= 3.9816$

Calculation of T- value

Setting up hypo thesis,$H_{0,}$ r= 0, i.e. the correlation between DPS with NPAT of the bank is not significance, or zero.

$H_{1,}$r = 0, the correlation between DPS with NPAT of the bank is significance or not equal to zero.

Level of significance: It is assume that the level of significance $\alpha = 5\%$.

Test Statistic: Under $H_{0,}$ the test statistic is,

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.153\sqrt{5-2}}{\sqrt{1-0.0234}}$$

$$= 0.353$$

Degree of freedom= n-2= 5-2= 3

Critical value; The tabulated value of the test statistic t at 5% level of significance for 3 degree of freedom and in the two tailed test $T_{0.05,3}$ = is3.182.

Decision= Since the calculated value of t= 0.353 is less than the tabulated value of $t_{0.05,2}$ = 3.182. H_1 is rejected and H_0 is accepted. Hence we conclude that the correlation between the DPS of the bank IS not significant with the NPAT of the bank.

For NIB,

$$DPS(X) = \frac{23.63+7.48+13.125+19.55+8.28}{5}$$

$$= 14.413$$

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}}$$

X	X-$\bar{X}$	(X-$\bar{X}$)^2
23.63	9.217	84.953
7.48	-6.933	48.07
13.125	-1.288	1.6589
19.55	5.137	26.3888
8.28	-6.133	37.614
		198.6847

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{198.6847}{5}} = =6.3$$

$$CV_x = \frac{\sigma x}{\bar{x}} \times 100\%$$

$$= \frac{6.3}{14.413} \times 100\%$$

$$= 43.71\%$$

$MPPS\overline{(Y)} = \frac{697.07+900.2+1264.8+1177.5+1039.5}{5}$

$= 1015.814$

$(\sigma_y) = \sqrt{\frac{(y-\bar{y})2}{N}}$

y	$y-\bar{y}$	$(y-\bar{y})^2$
697.07	-318.744	101597.7375
900.2	-115.614	13366.597
1264.8	248.986	61994.0282
1177.5	161.686	26142.3626
1039.5	23.686	561.03
		203661.7553

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{63.81}{1015.814} \times 100\%$

$= 62.82\%$

Calculation of a and b

X	Y	XY	X^2
23.63	697.07	16471.7641	558.3769
7.48	900.2	6733.496	55.9504
13.125	1264.8	16600.5	172.27
19.55	1177.5	23020.125	382.2025
8.28	1039.5	8607.06	68.5584
372.294	6239.4	71432.9451	1237.3582

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5X71432.9451 - 72.065X5079.07}{5 \times 1237.3582 - (72.065)2}$

$= 353.79$

$a = \frac{\in y - b\in x}{n}$

$= \frac{5079.07 - 353.79 \times 72.065}{5}$

= -4083.38

Calculation of r_{xy}

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$

X	Y	$X-\overline{X}$	$Y-\overline{Y}$	$(X-\overline{X})(Y-\overline{Y})$
23.63	697.07	9.217	-318.744	-2937.86
7.48	900.2	-6.933	-115.614	801.552
13.125	1264.8	-1.288	248.986	320.69
19.55	1177.5	5.137	161.686	830.58
8.28	1039.5	-6.133	23.686	-145.266
				-1771.684

Now,

$Cov_{xy} = \frac{1}{5} \times 5035.948 = -354.34$

$R_{xy} = \frac{cov xy}{\sigma x \sigma y}$ $r^2 = 0.928^2 = 0.7971$

$= \frac{-354.34}{6.3 \times 63.81}$

= -0.8928

P.E. $= 0.6745 \times \frac{(1 - r2)}{n}$

$= 0.6745 \times \frac{1 - 0.7971}{5}$

=0.04058

SEE $= \sqrt{\frac{1 - r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{0.04058} \times \frac{63.81}{6.3}$

= 2.04

Setting up hypothesis: $H_{0,}$ r=0, i.e. the correlation between DPS and NPAT is not significant.

H_1, $r \neq 0$, i.e. the correlation between DPS and NPAT is significant.

Level of significance: It is taken as 5% level of significance.

Test statistic: The test statistic under H_0 is

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{-0.8928\sqrt{5-2}}{\sqrt{1-0.4504}}$$

$$= -3.43$$

$|T| = 3.43$

Degree of freedom: n-2=5-2=3

Critical value : The tabulated value of test statistic at 5% level of significance for 3 df and in two tailed test is 3.182

Decision: Since the calculated value of t i.e.3.182, H_0 is rejected and $H_1$is accepted. Hence we calculated that the correlation between DPS and NPAT is significant.

APPENDIX-8

Calculation OF Relationship Between EPS with MPPS

Where,

X= EPS

Y= MPPS

R_{xy} = Simple correlation

Calculation of above statistical tools

For BOK,

$$EPS(\overline{X}) = \frac{59.94+54.68+43.08+44.51+50.55}{5}$$

$$= 50.55$$

$$S.D(\sigma_x) = \sqrt{\frac{(x-x)2}{N}}$$

X	$X-\overline{X}$	$(X-\overline{X})^2$
59.94	9.39	88.1721
54.68	4.13	17.0569
43.08	-7.4	55.8009
44.51	-6.04	30.4816
50.55	0	0
		197.511

S.D(σ_x) $=\sqrt{\frac{(x-x)2}{N}} = \sqrt{\frac{197.511}{5}}$ = =6.285

$CV_x = \frac{\sigma x}{x} \times 100\%$

$= \frac{6.285}{50.55} \times 100\%$

= 12.433%

MPPS $(\overline{Y}) = \frac{2350+1825+840+570+1396.25}{5}$

= 1396.25

$(\sigma_y) = \sqrt{\frac{(y-y)2}{N}}$

y	$y-\overline{y}$	$(y-\overline{y})^2$
2350	953.75	909639.0625
1825	428.75	183826.5625
840	-556.25	309414.0625
570	826.25	682689.0625
1396.25	0	0
		2085568.75

$CV_y = \frac{\sigma y}{\overline{y}} \times 100\%$

$= \frac{204.24}{1396.25} \times 100\%$

= 14.63%

Calculation of a and b

X	Y	XY	X^2
59.94	2350	140859	3592.8036
54.68	1825	99791	3330625
43.08	840	36187.2	705600
44.51	570	25370.7	324900
50.55	1396.25	70580.44	1949514.063
372.294	6239.4	309258.34	6314231.866

$$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$$

$$= \frac{5 \times 309258.34 - 252.76 \times 6981.25}{5 \times 6314231.866 - (252.76)2}$$

$$= \frac{-218289.05}{31507271.71}$$

$$= -0.00693$$

$$a = \frac{\in y - b \in x}{n}$$

$$= \frac{6981.25 - (-0.00693) \times 252.76}{5}$$

$$= 1396.6$$

Calculation of r_{xy}

$$R_{xy} = \frac{covxy}{\sigma x \sigma y}$$

$$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$$

X	Y	X-$\bar{X}$	Y-$\bar{Y}$	(X-$\bar{X}$)(Y-$\bar{Y}$)
59.94	2350	9.69	953.75	9241.8375
54.68	1825	4.13	428.75	1770.7375
43.08	840	-7.47	-556.25	4155.1875
44.51	570	-6.04	-826.25	4990.55
50.55	1396.25	0	0	0
				20158.3125

Now,

$Cov_{xy} = \frac{1}{5} \times 20158.3125 = 4031.6625$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $\qquad r^2 = 0.9932^2 = 0.9864$

$= \frac{4031.6625}{6.285 \times 645.84}$

$= 0.9932$

$P.E. = 0.6745 \times \frac{(1-r2)}{h}$

$= 0.6745 \times \frac{1-0.9864}{5}$

$= 0.0018$

$SEE = \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{0.00272} \times \frac{645.84}{6..285}$

$= 53.592$

CALCULATION OF T – VALUE

Setting up hypothesis: H_0, r=0, The correlation between EPS with MPPS of the bank is not significant.

$H_{1,}$r=0, i.e. The correlation between EPS with MPPS of the bank is significant.

Level of significance: It taken as 5% level of significance.

Test statistic: Under $H_{0,}$ the test statistic is

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.9932\sqrt{5-2}}{\sqrt{1-0.9864}}$$

$$= 14.75$$

Degree of freedom: n-2=5-2= 3

Critical value: The tabulated value of t at 5% level of significance for3df is +3.182, for two tailed test.

Decision: Since the calculated value of t i.e. 14.75 is greater than the tabulated value of t i.e.3.182. H_0 is rejected and H_1 is accepted. Which means the correlation between EPS and MPPS is significant.

FOR NABIL,

$$\overline{EPS}(X) = \frac{115.86+113.44+83.81+70.67+83.57}{5}$$

$$= 93.47$$

$$S.D(\sigma_x) = \sqrt{\frac{(x-x)2}{N}}$$

X	$X-\overline{X}$	$(X-\overline{X})^2$
115.86	22.39	501.3121
113.44	19.97	398.8009
83.81	-9.66	93.3156
70.67	-22.8	519.84
83.57	-9.9	98.01
		1611.2786

$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})2}{N}} = \sqrt{\frac{1611.2786}{5}} = 17.95$

$CV_x = \frac{\sigma x}{\bar{x}} \times 100\%$

$= \frac{17.95}{93.47} \times 100\%$

$= 19.20\%$

MPPS $(\bar{Y}) = \frac{5275+4899+2384+1252+1355}{5}$

$= 3033$

$(\sigma_y) = \sqrt{\frac{(y-\bar{y})2}{N}}$

y	y-y	$(y-y)^2$
5275	2242	5026.564
4899	1866	3481956
2384	-649	421201
1252	-1781	3171961
1355	-1678	2815684
		14917366

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{1727.27}{3033} \times 100\%$

$= 56.95\%$

Calculation of a and b

X	Y	XY	X^2
115.86	5275	611161.5	13423.5396
113.44	4899	555742.56	12868.6336
83.81	2384	199803.04	70241161
70.67	1252	88478.84	4994.2489
83.57	1355	113237.35	6983.9449
467.35	15165	1568423.29	45294.4831

$$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$$

$$= \frac{5 \times 1568423.22 - 467.35 \times 15165}{5 \times 45294.4831 - (467.35)2}$$

$= 93.68$

$$a = \frac{\in y - b \in x}{n}$$

$$= \frac{15165 - 93.68 \times 467.35}{5}$$

$= -5723.2696$

Calculation of r_{xy}

$$R_{xy} = \frac{covxy}{\sigma x \sigma y}$$

$$Cov_{xy} = \frac{1}{n} \in (X - \overline{X})(Y - \overline{Y})$$

X	Y	$X-\overline{X}$	$Y-\overline{Y}$	$(X-\overline{X})(Y-\overline{Y})$
115.86	5275	22.39	2242	50198.38
113.44	4899	19.97	1866	37264.02
83.81	2384	-9.66	-649	6269.34
70.67	1252	-22.8	-1781	40606.8
83.57	1355	-9.9	-1678	16612.2
				114410.74

Now,

$$Cov_{xy} = \frac{1}{5} \times 11410.74 = 22882.148$$

$$R_{xy} = \frac{covxy}{\sigma x \sigma y}$$

$r^2 = 0.738^2 = 0.5446$

$$= \frac{22882.148}{17.95 \times 1727.27}$$

$= 0.738$

P.E. = $0.6745 \times \frac{(1-r2)}{h}$

$= 0.6745 \times \frac{1-0.5446}{5}$

$= 0.09108$

SEE $= \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{0.09108} \times \frac{1727.27}{17.95}$

= 29.04

CALCULATION OF T – VALUE

Setting up hypothesis: H_0, r=0, The correlation between EPS with MPPS of the bank is not significant.

$H_{1,}$r=0, i.e. The correlation between EPS with MPPS of the bank is significant.

Level of significance: It taken as 5% level of significance.

Test statistic: Under $H_{0,}$ the test statistic is

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.738\sqrt{5-2}}{\sqrt{1-0.5446}}$$

$$= 1.89$$

Degree of freedom: n-2=5-2= 3

Critical value: The tabulated value of t at 5% level of significance for3df is +3.182, for two tailed test.

Decision: Since the calculated value of t i.e. 1.89 is smaller than the tabulated value of t i.e.3.182. H_1 is rejected and H_0 is accepted. Which means the correlation between EPS and MPPS is not significant.

FOR NIB,

$$EPS(\overline{X}) = \frac{57.9+37.4+52.5+39.1+27.6}{5}$$

$= 42.9$

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})^2}{N}}$$

X	$X-\overline{X}$	$(X-\overline{X})^2$
57.9	15	225
37.4	-5.5	30.25
52.5	9.6	92.16
39.1	-3.8	14.44
27.6	-15.3	234.09
		595.94

$$S.D(\sigma_x) = \sqrt{\frac{(x-\bar{x})^2}{N}} = \sqrt{\frac{595.94}{5}} = =10.92$$

$$CV_x = \frac{\sigma x}{x} \times 100\%$$

$$= \frac{10.92}{42.9} \times 100\%$$

$= 25.45\%$

$$MPPS(\overline{Y}) = \frac{2450+1388+705+515+511}{5}$$

$= 1113.8$

$$(\sigma_y) = \sqrt{\frac{(y-y)^2}{N}}$$

y	$y-\bar{y}$	$(y-\bar{y})^2$
2450	1336.2	178543.44
1388	274.2	75185.64
705	-408.8	167117.44
515	-598.8	358561.44
511	-602.8	36367.84
		2749662.8

$CV_y = \frac{\sigma y}{\bar{y}} \times 100\%$

$= \frac{741.57}{1113.8} \times 100\%$

$= 66.58\%$

Calculation of a and b

X	Y	XY	X^2
57.9	2450	141855	3352.41
37.4	1388	51911.2	1398.76
52.5	705	37012.5	2756.25
39.1	515	20136.5	1528.81
27.6	511	14103.6	761.76
214.5	5569	265018.8	9797.99

$b = \frac{nXY - \in X \in Y}{n \in X2 - (\in X)2}$

$= \frac{5 \times 265018.8 - 214.5 \times 5569}{5 \times 9797.99 - (214.5)2}$

$= \frac{130543.5}{2979.7}$

$= 43.81$

$a = \frac{\in y - b \in x}{n}$

$= \frac{5569 - 43.81 \times 214.5}{5}$

$= -765.649$

Calculation of r_{xy}

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$

$Cov_{xy} = \frac{1}{n} \sum (X-\overline{X})(Y-\overline{Y})$

X	Y	X-X̄	Y-Ȳ	(X-X̄)(Y-Ȳ)
57.9	2450	15	1336.2	20043
37.4	1388	-5.5	274.2	1508.1
52.5	705	9.6	-408.8	3924.48
39.1	515	-3.8	-598.8	2275.44
27.6	511	-15.3	-602.8	9222.84
				31973.86

Now,

$Cov_{xy} = \frac{1}{5} \times 31973.86 = 6394.772$

$R_{xy} = \frac{covxy}{\sigma x \sigma y}$ $r^2 = 0.7897^2 = 0.6236$

$= \frac{6394.772}{10.92 \times 741.57}$

$= 0.7897$

$P.E. = 0.6745 \times \frac{(1-r2)}{n}$

$= 0.6745 \times \frac{1-0.6236}{5}$

$= 0.7528$

$SEE = \sqrt{\frac{1-r2}{N}} \times \frac{\sigma y}{\sigma x}$

$= \sqrt{0.07528} \times \frac{741.57}{10.92}$

$= 18.63$

CALCULATION OF T – VALUE

Setting up hypothesis: H_0, r=0, The correlation between EPS with MPPS of the bank is not significant.

H_1, r=0, i.e. The correlation between EPS with MPPS of the bank is significant.

Level of significance: It taken as 5% level of significance.

Test statistic: Under $H_{0,}$ the test statistic is

$$T= \frac{r\sqrt{n-2}}{\sqrt{1-r2}}$$

$$= \frac{0.7897\sqrt{5-2}}{\sqrt{1-0.6236}}$$

$$= 2.13$$

Degree of freedom: n-2=5-2= 3

Critical value: The tabulated value of t at 5% level of significance for3df is +3.182, for two tailed test.

Decision: Since the calculated value of t i.e. 2.13 is leaa than the tabulated value of t i.e.3.182. H_1 is rejected and H_0 is accepted. Which means the correlation between EPS and MPPS is not significant.