

LAMPIRAN A

**Data Return, Return Pasar, Risiko dan Beta Saham IDX30, Bitcoin,
Emas Antam Periode Tahun 2017-2019**

Data Return Saham IDX30, Bitcoin, Dan Emas Periode 2017-2019

Tahun	Bulan	Saham IDX30		Bitcoin		Emas Antam	
		Harga	Return	Harga	Return	Harga	Return
2019	Desember	553,86	5,78%	100.184.037,32	-6,04%	680.225	2,48%
	November	523,62	-2,46%	106.627.361,67	-17,15%	663.745	-2,51%
	Oktober	536,84	1,41%	128.693.452,20	9,57%	680.816	1,60%
	September	529,39	-2,90%	117.453.697,31	-14,04%	670.114	-3,71%
	Agustus	545,2	-2,59%	136.630.388,90	-3,35%	695.965	8,38%
	Juli	559,72	0,50%	141.367.218,47	-7,27%	642.161	0,22%
	Juni	556,91	2,91%	152.453.091,27	23,43%	640.775	6,21%
	Mei	541,15	-3,60%	123.515.440,62	62,57%	603.330	2,84%
	April	561,36	0,12%	75.977.108,66	30,16%	586.653	-0,86%
	Maret	560,7	1,44%	58.374.279,43	7,99%	591.738	-0,50%
	Februari	552,76	-3,16%	54.055.508,80	10,71%	594.720	-0,49%
	Januari	570,79	5,55%	48.828.355,83	-10,40%	597.627	0,13%
2018	Desember	540,77	1,52%	54.493.982,32	-5,69%	596.853	5,76%
	November	532,67	4,80%	57.784.068,11	-39,91%	564.331	-5,11%
	Oktober	508,28	-1,94%	96.166.659,42	-2,59%	594.722	3,94%
	September	518,34	0,03%	98.720.844,00	-4,48%	572.192	0,81%
	Agustus	518,16	2,05%	103.346.862,30	-7,79%	567.582	-0,14%
	Juli	507,74	2,90%	112.077.238,20	22,17%	568.406	-2,03%
	Juni	493,42	-4,68%	91.737.300,00	-12,47%	580.203	-0,64%
	Mei	517,63	-0,88%	104.805.966,36	-18,32%	583.966	-0,58%
	April	522,2	-4,85%	128.305.034,04	33,71%	587.391	0,20%
	Maret	548,8	-8,66%	95.955.769,84	-32,49%	586.223	0,78%
	Februari	600,81	-0,41%	142.139.298,34	3,55%	581.707	0,54%
	Januari	603,31	1,72%	137.269.367,75	-28,52%	578.592	1,96%
2017	Desember	593,11	9,40%	192.031.571,30	38,98%	567.454	2,27%
	November	542,17	0,12%	138.174.061,93	57,30%	554.833	0,17%
	Oktober	541,52	1,35%	87.840.870,67	50,30%	553.872	-0,16%
	September	534,31	0,39%	58.442.423,17	-6,90%	554.785	-1,84%
	Agustus	532,22	0,12%	62.771.444,76	63,82%	565.161	4,05%
	Juli	531,58	-0,56%	38.316.782,01	13,24%	543.141	2,10%
	Juni	534,58	2,26%	33.836.439,91	11,08%	531.985	-2,05%
	Mei	522,74	2,10%	30.461.839,26	69,58%	543.102	-0,04%
	April	512	2,22%	17.963.330,23	25,89%	543.312	1,60%
	Maret	500,89	3,53%	14.268.740,79	-9,36%	534.746	-0,85%
	Februari	483,8	2,02%	15.741.979,38	21,60%	539.304	3,61%
	Januari	474,24	-0,54%	12.945.176,22	-0,28%	520.490	4,56%

Data Return Pasar Saham IDX30, Bitcoin, Dan Emas Periode 2017-2019

Tahun	Bulan	Saham IHSG		CRIX		S&P TSX	
		Harga	Return	Harga	Return	Harga	Return
2019	Desember	6.299,54	4,79%	15.755,09	-7,68%	17.063,43	0,14%
	November	6.011,83	-3,48%	17.065,11	-15,48%	17.040,20	3,38%
	Oktober	6.228,32	0,96%	20.191,25	14,32%	16.483,16	-1,05%
	September	6.169,10	-2,52%	17.661,44	-13,83%	16.658,63	1,32%
	Agustus	6.328,47	-0,97%	20.495,62	-3,79%	16.442,07	0,22%
	Juli	6.390,50	0,50%	21.304,01	-22,58%	16.406,56	0,15%
	Juni	6.358,63	2,41%	27.518,50	34,82%	16.382,20	2,15%
	Mei	6.209,12	-3,81%	20.411,04	60,75%	16.037,49	-3,28%
	April	6.455,35	-0,21%	12.697,67	17,01%	16.580,73	2,97%
	Maret	6.468,75	0,39%	10.851,86	9,07%	16.102,09	0,64%
	Februari	6.443,35	-1,37%	9.949,72	14,73%	15.999,01	2,95%
	Januari	6.532,97	5,46%	8.672,28	-10,15%	15.540,60	8,50%
2018	Desember	6.194,50	2,28%	9.651,91	-6,75%	14.322,86	-5,76%
	November	6.056,12	3,85%	10.350,60	-33,06%	15.197,82	1,13%
	Oktober	5.831,65	-2,42%	15.461,71	-9,12%	15.027,28	-6,51%
	September	5.976,55	-0,70%	17.014,02	-1,68%	16.073,14	-1,17%
	Agustus	6.018,46	1,38%	17.305,07	-21,44%	16.262,88	-1,04%
	Juli	5.936,44	2,37%	22.028,87	19,18%	16.434,01	0,96%
	Juni	5.799,24	-3,08%	18.483,01	-21,33%	16.277,73	1,35%
	Mei	5.983,59	-0,18%	23.494,87	-25,01%	16.061,50	2,91%
	April	5.994,60	-3,14%	31.331,36	59,35%	15.607,88	1,57%
	Maret	6.188,99	-6,19%	19.662,32	-42,75%	15.367,29	-0,49%
	Februari	6.597,22	-0,13%	34.345,64	-6,61%	15.442,68	-3,19%
	Januari	6.605,63	3,93%	36.777,12	-23,96%	15.951,67	-1,59%
2017	Desember	6.355,65	6,78%	48.365,44	99,43%	16.209,13	0,88%
	November	5.952,14	-0,89%	24.251,75	67,83%	16.067,48	0,26%
	Oktober	6.005,78	1,78%	14.449,91	27,30%	16.025,59	2,50%
	September	5.900,85	0,63%	11.351,11	-15,48%	15.634,94	2,78%
	Agustus	5.864,06	0,40%	13.429,87	72,87%	15.211,87	0,45%
	Juli	5.840,94	0,19%	7.768,84	-8,30%	15.143,87	-0,25%
	Juni	5.829,71	1,60%	8.471,91	15,84%	15.182,19	-1,09%
	Mei	5.738,15	0,93%	7.313,22	123,00%	15.349,91	-1,52%
	April	5.685,30	2,10%	3.279,40	38,17%	15.586,13	0,25%
	Maret	5.568,11	3,37%	2.373,52	11,20%	15.547,75	0,96%
	Februari	5.386,69	1,75%	2.134,48	23,63%	15.399,24	0,09%
	Januari	5.294,10	-0,05%	1.726,51	2,24%	15.385,96	0,64%

Data Risiko dan Beta IDX30 Dan IHSG Periode 2017-2019

Komponen	2017		2018		2019	
	IDX30	IHSG	IDX30	IHSG	IDX30	IHSG
Rata-rata Return Geometrik	1,8353%	1,5304%	-0,7669%	-0,2138%	0,1995%	0,1402%
Annualized Return	24,3887%	19,9924%	-8,8247%	-2,5355%	2,4206%	1,6957%
Standar Deviasi (Bulanan)	2,6976%	1,9997%	3,8149%	3,1149%	3,3079%	2,9440%
Annualized Risk	9,3449%	6,9273%	13,2151%	10,7905%	11,4588%	10,1983%
Beta	1,29963541		1,17200318		1,080771	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,00481205		0,02830032		0,015491	

Data Risiko dan Beta Bitcoin Dan Crix Periode 2017-2019

Komponen	2017		2018		2019	
	Bitcoin	Crix	Bitcoin	Crix	Bitcoin	Crix
Rata-rata Return Geometrik	25,1710%	32,2565%	-8,0557%	- 12,5674%	5,2053%	4,1679%
Annualized Return	1379,257 6%	2764,203 6%	- 63,4994%	- 80,0438%	83,8442%	63,2329%
Standar Deviasi(Bulanan)	27,7179%	43,6071%	21,3104%	27,0232%	22,8115%	23,9643%
Annualized Risk	96,0178%	151,0595 %	73,8214%	93,6110%	79,0215%	83,0147%
Beta	0,53170165		0,7319424		0,907198	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,10937121		0,14746279		0,061571	

Data Risiko dan Beta Emas Dan S&P TSX Periode 2017-2019

Komponen	2017		2018		2019	
	LM	S&P TSX	LM	S&P TSX	LM	S&P TSX
Rata-rata Return Geometrik	1,0979%	0,4890%	0,4218%	-1,0257%	1,0956%	1,4697%
Annualized Return	13,9997%	6,0280%	5,1809%	-11,6371%	13,9686%	19,1342%
Standar Deviasi(Bulanan)	2,2510%	1,2446%	2,7417%	2,9254%	3,4517%	2,9027%
Annualized Risk	7,7977%	4,3115%	9,4976%	10,1339%	11,9570%	10,0554%
Beta	-0,2184175		-0,7374039		-0,354146	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,00765582		0,01516563		0,012212	

LAMPIRAN B

Hasil Analisis Uji Statistik

1. Uji Normalitas

a) Uji Normalitas Saham IDX30 dan Bitcoin

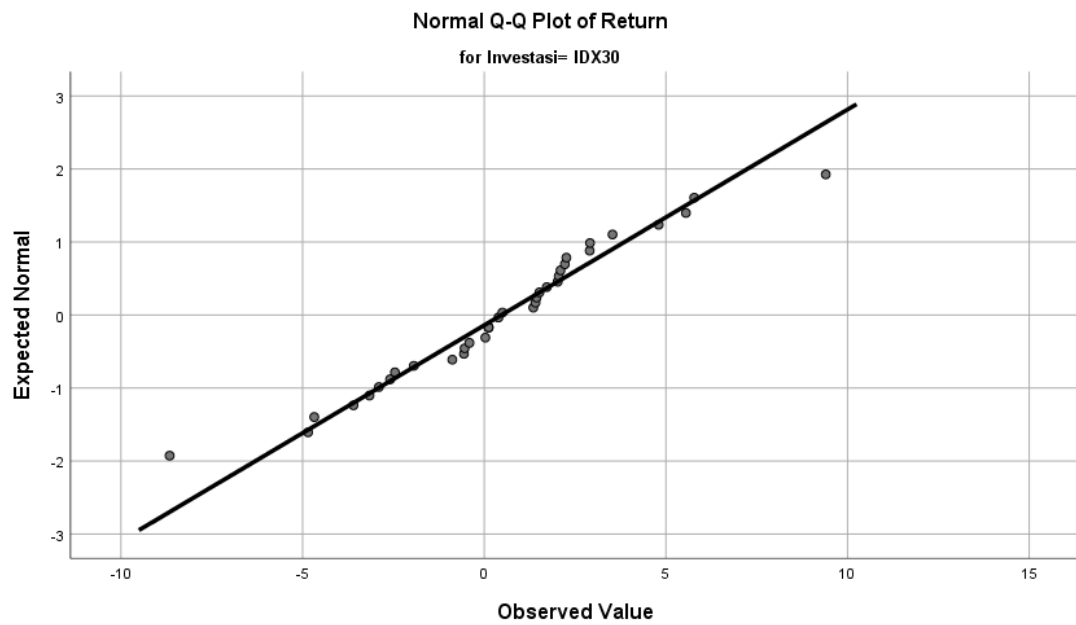
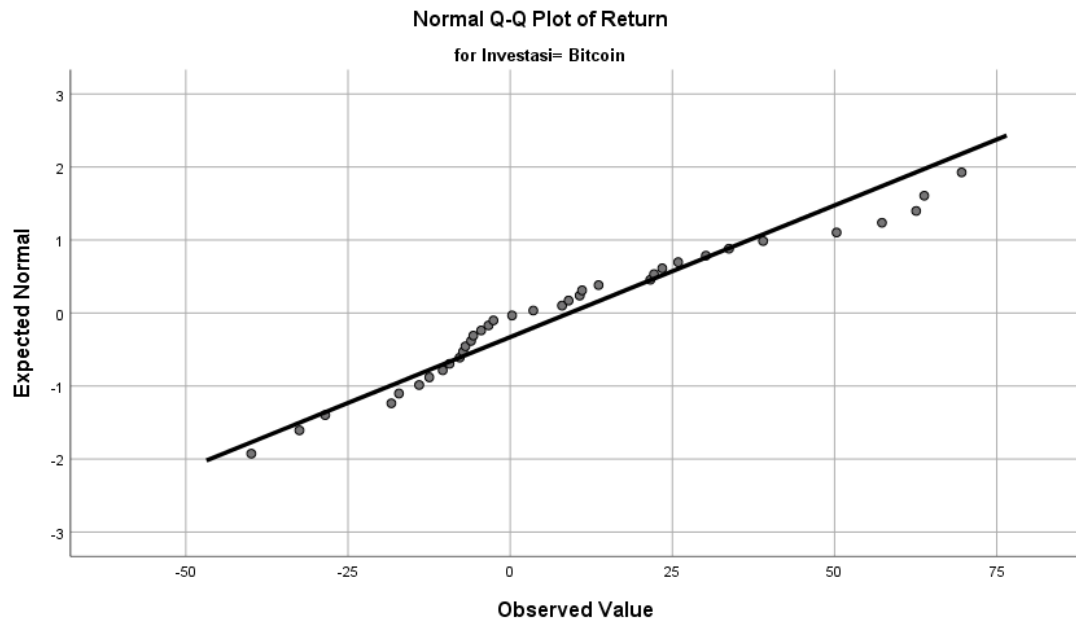
Tests of Normality							
	Investasi	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Return	IDX30	.103	36	.200*	.976	36	.625
	Bitcoin	.136	36	.089	.947	36	.083
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

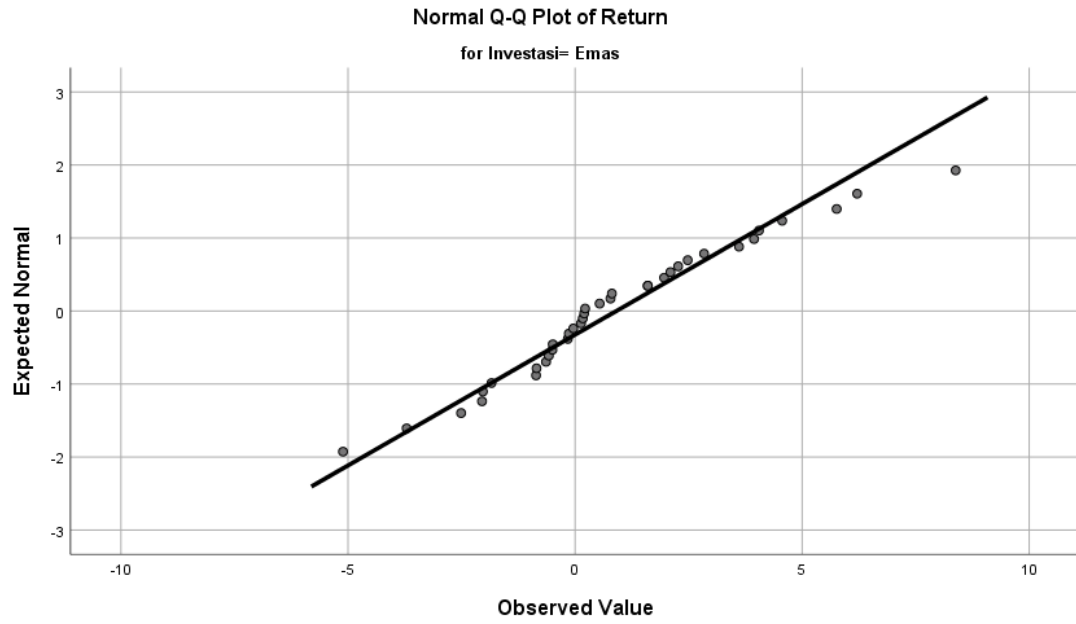
b) Uji Normalitas Saham IDX30 dan Emas

Tests of Normality							
	Investasi	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Return	IDX30	.104	36	.200*	.976	36	.608
	Emas	.125	36	.168	.972	36	.492
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

c) Uji Normalitas Bitcoin dan Emas

Tests of Normality							
	Investasi	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Return	Bitcoin	.136	36	.089	.947	36	.083
	Emas	.125	36	.168	.972	36	.492
a. Lilliefors Significance Correction							

d) Normal QQ Plot Return Saham IDX30**e) Normal QQ Plot Return Bitcoin**

f) Normal QQ Plot Return Emas

2. Uji Beda (t-test)

a) Uji Beda Saham IDX30 dan Bitcoin

Group Statistics					
	Investasi	N	Mean	Std. Deviation	Std. Error Mean
Return	IDX30	36	.4658	3.38260	.56377
	Bitcoin	36	9.1381	27.70652	4.61775

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Return	Equal variances assumed	51.248	.000	-1.864	70	.066	-8.67222	4.65204	-17.95043	.60598
	Equal variances not assumed			-1.864	36.043	.070	-8.67222	4.65204	-18.10661	.76216

b) Uji Beda Saham IDX30 dan Emas

Group Statistics					
	Investasi	N	Mean	Std. Deviation	Std. Error Mean
Return	IDX30	36	.4725	3.38521	.56420
	Emas	36	.9083	2.79324	.46554

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Return	Equal variances assumed	.546	.462	-.596	70	.553	-.43583	.73147	-1.89471	1.02304
	Equal variances not assumed			-.596	67.564	.553	-.43583	.73147	-1.89563	1.02397

c) Uji Beda Bitcoin dan Emas

Group Statistics					
	Investasi	N	Mean	Std. Deviation	Std. Error Mean
Return	Bitcoin	36	9.1381	27.70652	4.61775
	Emas	36	.9083	2.79324	.46554

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Return	Equal variances assumed	53.450	.000	1.773	70	.081	8.22972	4.64116	-1.02678	17.48623
	Equal variances not assumed			1.773	35.711	.085	8.22972	4.64116	-1.18563	17.64508

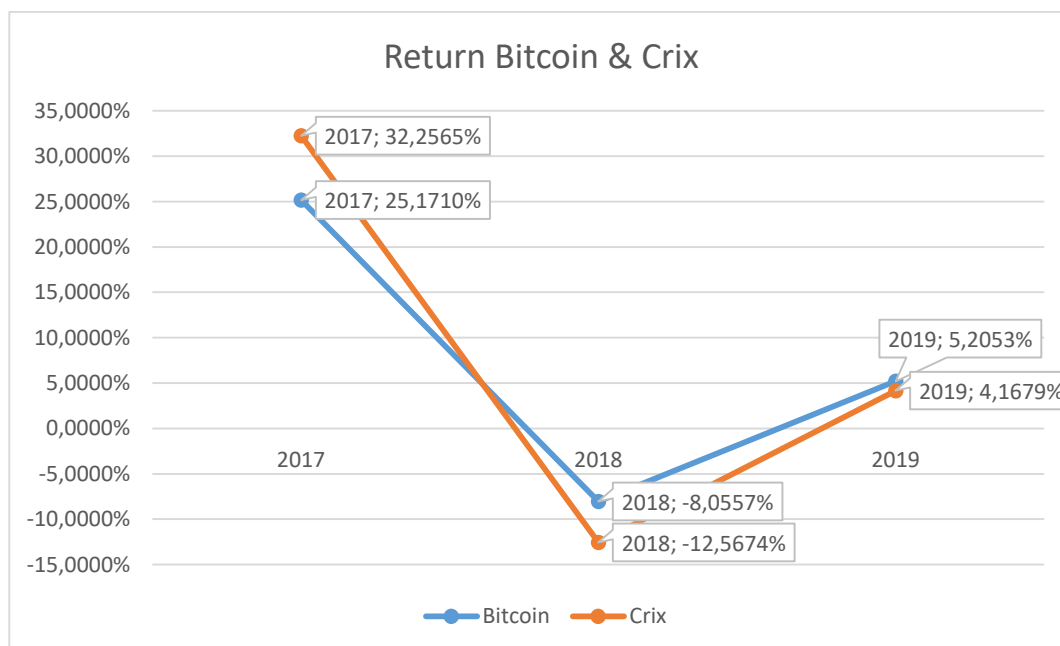
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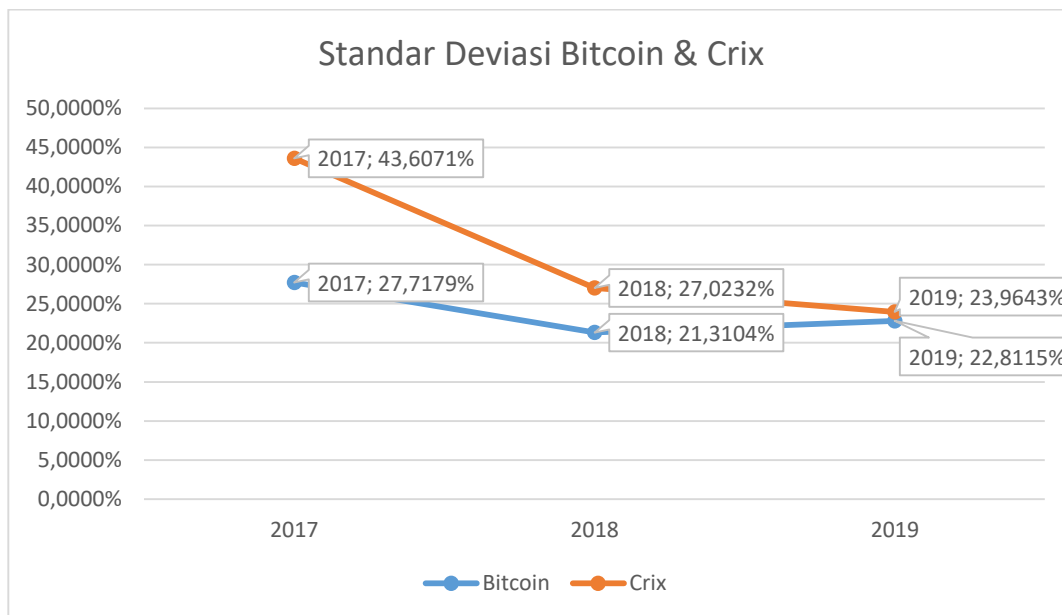
**Hasil Analisis Sharpe Ratio, Treynor Ratio, Jensen Ratio dan
Sortino Ratio**

1. Bitcoin

Komponen	2017		2018		2019	
	Bitcoin	Crix	Bitcoin	Crix	Bitcoin	Crix
Rata-rata Geometrik	25,1710%	32,2565%	-8,0557%	12,5674%	5,2053%	4,1679%
Annualized Return	1379,2576%	2764,2036%	-63,4994%	80,0438%	83,8442%	63,2329%
Standar Deviasi	27,7179%	43,6071%	21,3104%	27,0232%	22,8115%	23,9643%
Annualized Risk	96,0178%	151,0595%	73,8214%	93,6110%	79,0215%	83,0147%
Beta	0,53170165		0,7319424		0,907198	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,10937121		0,14746279		0,061571	

Metode	2017	2018	2019	Rata-rata
Sharpe	14,320347	-0,941453	0,99775709	4,792217035
Treynor	25,8605104	-0,9495202	0,86909562	8,59336195
Jensen	-0,9246427	-0,0652031	0,2601541	-0,2432305
Sortino	125,719334	-4,7130131	12,8054414	44,60392084

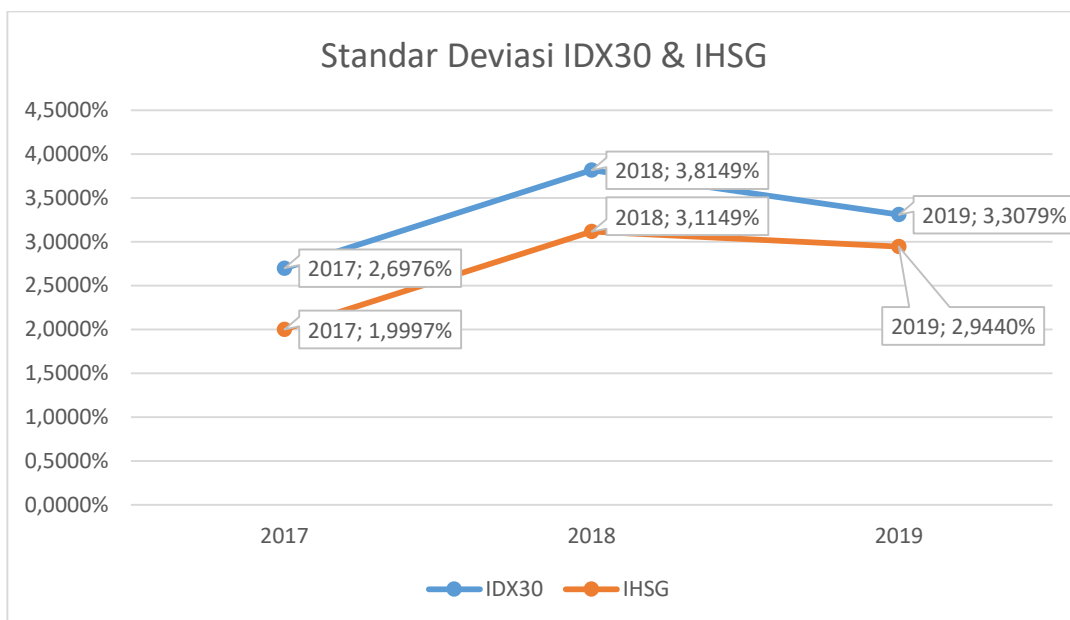
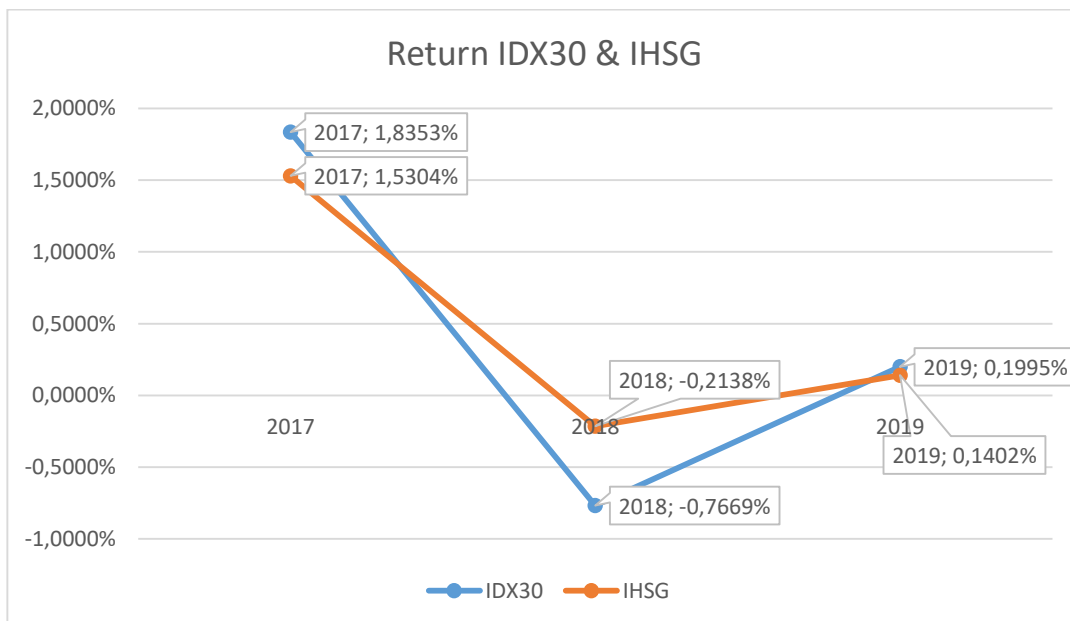




2. IDX30

Komponen	2017		2018		2019	
	IDX30	IHSG	IDX30	IHSG	IDX30	IHSG
Rata-rata Geometrik	1,8353%	1,5304%	-0,7669%	-0,2138%	0,1995%	0,1402%
Annualized Return	24,3887%	19,9924%	-8,8247%	-2,5355%	2,4206%	1,6957%
Standar Deviasi	2,6976%	1,9997%	3,8149%	3,1149%	3,3079%	2,9440%
Annualized Risk	9,3449%	6,9273%	13,2151%	10,7905%	11,4588%	10,1983%
Beta	1,29963541		1,17200318		1,080771	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,00481205		0,02830032		0,015491	

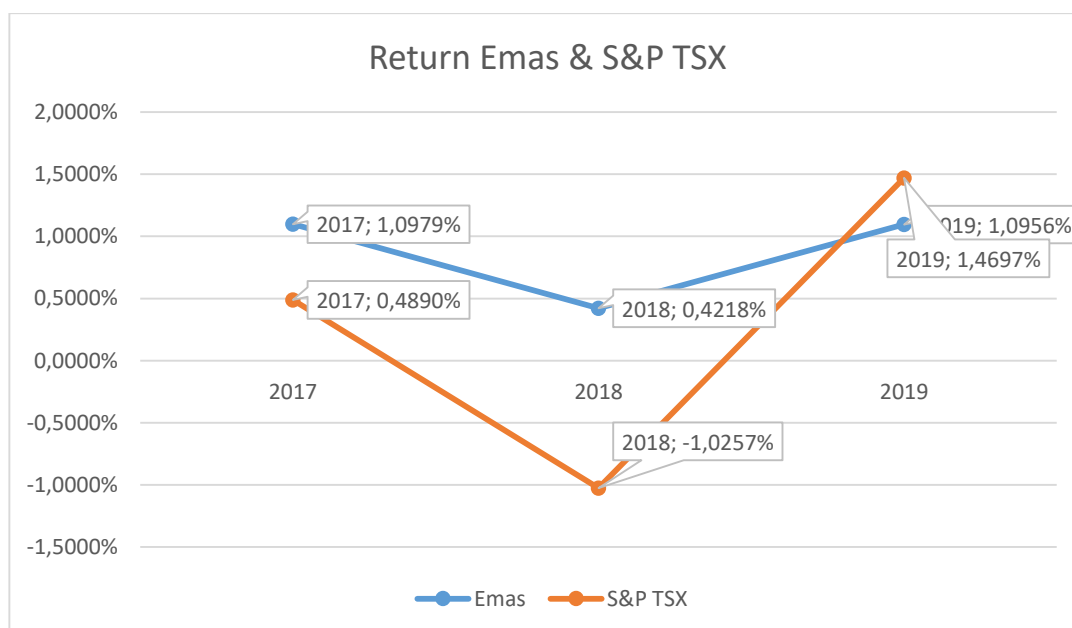
Metode	2017	2018	2019	Rata-rata
Sharpe	2,15505244	-1,1217995	-0,2251007	0,269384056
Treynor	0,15495621	-0,12649	-0,0238661	0,001533372
Jensen	-0,0032074	-0,0482099	0,009918	-0,0138330
Sortino	41,8505045	-5,2383394	-1,6650432	11,64904063

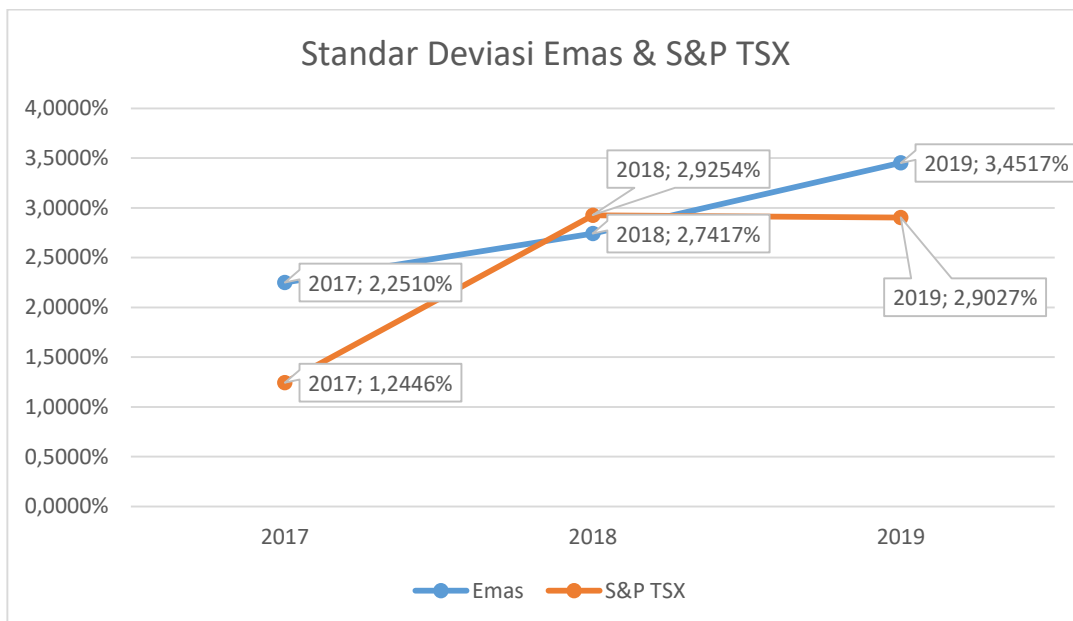


3. Emas

Komponen	2017		2018		2019	
	LM	S&P TSX	LM	S&P TSX	LM	S&P TSX
Rata-rata Geometrik	1,0979%	0,4890%	0,4218%	-1,0257%	1,0956%	1,4697%
Annualized Return	13,9997%	6,0280%	5,1809%	11,6371%	13,9686%	19,1342%
Standar Deviasi	2,2510%	1,2446%	2,7417%	2,9254%	3,4517%	2,9027%
Annualized Risk	7,7977%	4,3115%	9,4976%	10,1339%	11,9570%	10,0554%
Beta	-0,2184175		-0,7374039		-0,354146	
Risk Free (rf)	4,25%		6,00%		5,00%	
Downside Deviation	0,00765582		0,01516563		0,012212	

Metode	2017	2018	2019	Rata-rata
Sharpe	1,25033033	-0,0862473	0,7500705	0,638051162
Treynor	-0,4463788	0,01110842	-0,2532457	-0,229505363
Jensen	0,1013805	-0,1382479	0,1397418	0,0342915
Sortino	12,7350094	-0,540129	7,34429149	6,513057304





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