

## LAMPIRAN

Lampiran 1: Rencana Jadwal Penelitian

No.	Keterangan	Tahun 2024																				
		Januari				Februari				Maret				April				Mei				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1.	Pengajuan judul dan objek																					
2.	Proses Penyusunan Proposal dan Bimbingan																					
3.	Seminar Proposal Skripsi																					
4.	Pengumpulan data dan Pengelolahan Data																					
5.	Penyusunan BAB IV dan BAB V																					
6.	Ujian Sidang Skripsi																					

Lampiran 2: Populasi Saham IDX80 Tahun 2021-2023

No.	Kode	Nama Perusahaan
1	AALI	Astra Agro Lestari Tbk
2	ACES	Ace Hardware Indonesia Tbk
3	ADHI	Adhi Karya (Persero) Tbk
4	ADMR	Adaro Minerals Indonesia Tbk
5	ADRO	Adaro Energy Tbk
6	AGII	Aneka Gas Industri Tbk
7	AKRA	AKR Corporindo Tbk
8	AMRT	Sumber Alfaria Trijaya Tbk
9	ANTM	Aneka Tambang Tbk
10	APLN	Agung Podomoro Land Tbk
11	ARTO	Bank Jago Tbk
12	ASII	Astra International Tbk
13	ASRI	Alam Sutera Realty Tbk
14	ASSA	Adi Sarana Armada Tbk
15	AVIA	Avia Avian Tbk
16	BACA	Bank Capital Indonesia Tbk
17	BBCA	Bank Central Asia Tbk
18	BBNI	Bank Negara Indonesia (Persero) Tbk
19	BBRI	Bank Rakyat Indonesia (Persero) Tbk
20	BBTN	Bank Tabungan Negara (Persero) Tbk
21	BDMN	Bank Danamon Indonesia Tbk
22	BEST	Bekasi Fajar Industrial Estate Tbk
23	BFIN	BFI Finance Indonesia Tbk
24	BJBR	Bank Pembangunan Daerah Jawa Barat dan Banten Tbk
25	BJTM	Bank Pembangunan Daerah Jawa Timur Tbk
26	BMRI	Bank Mandiri (Persero) Tbk
27	BMTR	Global Mediacom Tbk
28	BNLI	Bank Permata Tbk
29	BRIS	Bank Syariah Indonesia Tbk
30	BRMS	Bumi Resources Minerals Tbk
31	BRPT	Barito Pacific Tbk
32	BSDE	Bumi Serpong Damai Tbk
33	BTPS	Bank Tabungan Pensiunan Nasional Syariah Tbk
34	BULL	Buana Lintas Lautan Tbk

35	CLEO	Sariguna Primatirta Tbk
36	CPIN	Charoen Pokphand Indonesia Tbk
37	CTRA	Ciputra Development Tbk
38	DGNS	Diagnos Laboratorium Utama Tbk
39	DMAS	Puradelta Lestari Tbk
40	DMMX	Digital Mediatama Maxima Tbk
41	DOID	Delta Dunia Makmur Tbk
42	DSNG	Dharma Satya Nusantara Tbk
43	ELSA	Elnusa Tbk
44	EMTK	Elang Mahkota Teknologi Tbk
45	ENRG	Energi Mega Persada Tbk
46	ERAA	Erajaya Swasembada Tbk
47	EXCL	XL Axiata Tbk
48	GGRM	Gudang Garam Tbk
49	HEAL	Medikaloka Hermina Tbk
50	HMSP	Hanjaya Mandala Sampoerna Tbk
51	HOKI	Buyung Poetra Sembada Tbk
52	ICBP	Indofood CBP Sukses Makmur Tbk
53	INCO	Vale Indonesia Tbk
54	INDF	Indofood Sukses Makmur Tbk
55	INDY	Indika Energy Tbk
56	INKP	Indah Kiat Pulp & Paper Tbk
57	INTP	Indocement Tunggul Prakarsa Tbk
58	IPTV	MNC Vision Networks Tbk
59	ISAT	Indosat Ooredoo Hutchison Tbk
60	ITMG	Indo Tambangraya Megah Tbk
61	JKON	Jaya Konstruksi Manggala Pratama Tbk
62	JPFA	Japfa Comfeed Indonesia Tbk
63	JSMR	Jasa Marga (Persero) Tbk
64	KAEF	Kimia Farma Tbk
65	KLBF	Kalbe Farma Tbk
66	LINK	Link Net Tbk
67	LPKR	Lippo Karawaci Tbk
68	LPPF	Matahari Department Store Tbk
69	LSIP	PP London Sumatra Indonesia Tbk
70	MAIN	Malindo Feedmill Tbk
71	MAPI	Mitra Adiperkasa Tbk

72	MDKA	Merdeka Copper Gold Tbk
73	MEDC	Medco Energi Internasional Tbk
74	MIKA	Mitra Keluarga Karyasehat Tbk
75	MNCN	Media Nusantara Citra Tbk
76	MPMX	Mitra Pinasthika Mustika Tbk
77	MTDL	Metrodata Electronics Tbk
78	MTEL	Dayamitra Telekomunikasi Tbk
79	MYOR	Mayora Indah Tbk
80	OMED	Bank Mestika Dharma Tbk
81	PGAS	Perusahaan Gas Negara Tbk
82	PNBN	Bank Pan Indonesia Tbk
83	PNLF	Panin Financial Tbk
84	PPRE	PP Presisi Tbk
85	PSAB	J Resources Asia Pasifik Tbk
86	PTBA	Bukit Asam Tbk
87	PTPP	PP (Persero) Tbk
88	PWON	Pakuwon Jati Tbk
89	RALS	Ramayana Lestari Sentosa Tbk
90	RMKE	RMK Energy Tbk
91	SCMA	Surya Citra Media Tbk
92	SIDO	Industri Jamu dan Farmasi Sido Muncul Tbk
93	SMBR	Semen Baturaja (Persero) Tbk
94	SMDR	Samudera Indonesia Tbk
95	SMGR	Semen Indonesia (Persero) Tbk
96	SMRA	Summarecon Agung Tbk
97	SMSM	Selamat Sempurna Tbk
98	SRIL	Sri Rejeki Isman Tbk
99	SRTG	Saratoga Investama Sedaya Tbk
100	SSIA	Surya Semesta Internusa Tbk
101	SSMS	Sawit Sumbermas Sarana Tbk
102	TAPG	Tunas Alfin Tbk
103	TBIG	Tower Bersama Infrastructure Tbk
104	TINS	Timah Tbk
105	TKIM	Pabrik Kertas Tjiwi Kimia Tbk
106	TLKM	Telekomunikasi Indonesia (Persero) Tbk
107	TOWR	Sarana Menara Nusantara Tbk
108	TPIA	Chandra Asri Petrochemical Tbk

109	UNTR	United Tractors Tbk
110	UNVR	Unilever Indonesia Tbk
111	WEGE	Wijaya Karya Bangunan Gedung Tbk
112	WIIM	Wismilak Inti Makmur Tbk
113	WIKA	Wijaya Karya (Persero) Tbk
114	WMUU	Widodo Makmur Unggas Tbk
115	WOOD	Integra Indocabinet Tbk
116	WSBP	Waskita Beton Precast Tbk
117	WSKT	Waskita Karya (Persero) Tbk
118	WTON	Wijaya Karya Beton Tbk

Lampiran 3: Daftar Saham Pengambilan Sampel

No	Kode	Nama Emiten
1	ACES	Ace Hardware Indonesia Tbk.
2	ADRO	Adaro Energy Tbk.
3	ANTM	Aneka Tambang Tbk.
4	ASII	Astra International Tbk.
5	BBRI	Bank Rakyat Indonesia (Persero) Tbk.
6	BBTN	Bank Tabungan Negara (Persero) Tbk.
7	BSDE	Bumi Serpong Damai Tbk.
8	BTPS	Bank BTPN Syariah Tbk.
9	CPIN	Charoen Pokphand Indonesia Tbk.
10	CTRA	Ciputra Development Tbk.
11	EXCL	XL Axiata Tbk.
12	GGRM	Gudang Garam Tbk.
13	HMSP	H.M. Sampoerna Tbk.
14	ICBP	Indofood CBP Sukses Makmur Tbk.
15	INCO	Vale Indonesia Tbk.
16	INDF	Indofood Sukses Makmur Tbk.
17	INKP	Indah Kiat Pulp & Paper Tbk.
18	INTP	Indocement Tunggul Prakarsa Tbk.
19	ITMG	Indo Tambangraya Megah Tbk.
20	JPFA	Japfa Comfeed Indonesia Tbk.
21	JSMR	Jasa Marga (Persero) Tbk.
22	KLBF	Kalbe Farma Tbk.
23	LINK	Link Net Tbk.
24	MAPI	Mitra Adiperkasa Tbk.
25	MDKA	Merdeka Copper Gold Tbk.
26	MEDC	Medco Energi Internasional Tbk.
27	MIKA	Mitra Keluarga Karyasehat Tbk.
28	MNCN	Media Nusantara Citra Tbk.
29	MYOR	Mayora Indah Tbk.
30	PGAS	Perusahaan Gas Negara Tbk.
31	PTBA	Bukit Asam Tbk.
32	PTPP	PP (Persero) Tbk.
33	PWON	Pakuwon Jati Tbk.
34	SIDO	Industri Jamu dan Farmasi Sido Muncul Tbk.

35	SMGR	Semen Indonesia (Persero) Tbk.
36	SMRA	Summarecon Agung Tbk.
37	TBIG	Tower Bersama Infrastructure Tbk.
38	TINS	Timah Tbk.
39	TKIM	Pabrik Kertas Tjiwi Kimia Tbk.
40	TLKM	Telkom Indonesia (Persero) Tbk.
41	TOWR	Sarana Menara Nusantara Tbk.
42	UNTR	United Tractors Tbk.
43	UNVR	Unilever Indonesia Tbk.
44	WIKA	Wijaya Karya (Persero) Tbk.

Lampiran 4: Harga Saham Perusahaan yang dijadikan Sampel dan IHSG

No.	Kode	2020	2021	2022	2023
1	IHSG	5979.07	6581.48	6850.62	7272.80
2	ACES	1715	1280	496	720
3	ADRO	1430	2250	3850	2380
4	ANTM	1935	2250	1985	1705
5	ASII	6025	5700	5700	5650
6	BBRI	3790	4110	4940	5725
7	BBTN	1500	1520	1350	1250
8	BSDE	1225	1010	920	1080
9	BTPS	3750	3580	2790	1690
10	CPIN	6525	5950	5650	5025
11	CTRA	985	970	940	1170
12	EXCL	2730	3170	2140	2000
13	GGRM	41000	30600	18000	20325
14	HMSP	1505	965	840	895
15	ICBP	9575	8700	10000	10575
16	INCO	5100	4680	7100	4310
17	INDF	6850	6325	6725	6450
18	INKP	10425	7825	8725	8325
19	INTP	14475	12100	9900	9400
20	ITMG	13850	20400	39025	25650
21	JPFA	1465	1720	1295	1180
22	JSMR	4630	3890	2980	4870
23	KLBF	1480	1615	2090	1610
24	LINK	2410	4000	2620	1325
25	MAPI	790	710	1445	1790
26	MDKA	2370	3800	4120	2700
27	MEDC	590	466	1015	1155
28	MIKA	2730	2260	3190	2850
29	MNCN	1140	900	740	386
30	MYOR	2710	2040	2500	2490
31	PGAS	1655	1375	1760	1130
32	PTBA	2810	2710	3690	2440
33	PTPP	1865	990	715	428
34	PWON	510	464	456	454

35	SIDO	800	865	755	525
36	SMGR	12400	7230	6575	6400
37	SMRA	780	835	605	575
38	TBIG	1630	2950	2300	2090
39	TINS	1485	1455	1170	645
40	TKIM	9850	7525	7050	7300
41	TLKM	3310	4040	3750	3950
42	TOWR	960	1125	1100	990
43	UNTR	26600	22150	26075	22625
44	UNVR	7350	4110	4700	3530
45	WIKA	1985	1105	800	240

Lampiran 5: Suku Bunga Bank Indonesia

<b>No.</b>	<b>Tanggal</b>	<b>BI-7Day-RR</b>
1	21-Dec-23	6.00%
2	23-Nov-23	6.00%
3	19-Oct-23	6.00%
4	21-Sep-23	5.75%
5	24-Aug-23	5.75%
6	25-Jul-23	5.75%
7	22-Jun-23	5.75%
8	25-May-23	5.75%
9	18-Apr-23	5.75%
10	16-Mar-23	5.75%
11	16-Feb-23	5.75%
12	19-Jan-23	5.75%
13	22-Dec-22	5.50%
14	17-Nov-22	5.25%
15	20-Oct-22	4.75%
16	22-Sep-22	4.25%
17	23-Aug-22	3.75%
18	21-Jul-22	3.50%
19	23-Jun-22	3.50%
20	24-May-22	3.50%
21	19-Apr-22	3.50%
22	17-Mar-22	3.50%
23	10-Feb-22	3.50%
24	20-Jan-22	3.50%
25	16-Dec-21	3.50%
26	18-Nov-21	3.50%
27	19-Oct-21	3.50%
28	21-Sep-21	3.50%
29	19-Aug-21	3.50%
30	22-Jul-21	3.50%
31	17-Jun-21	3.50%
32	25-May-21	3.50%
33	20-Apr-21	3.50%
34	18-Mar-21	3.50%

35	18-Feb-21	3.50%
36	21-Jan-21	3.75%

Lampiran 6: *Return*, Standar Deviasi, Beta, dan BI Rate Tahunan

<b>Nomor</b>	<b>Kode Saham</b>	<b>Tahun</b>	<b>Return Saham</b>	<b>Return IHSB</b>	<b>Std Bulanan</b>	<b>Annual Std</b>	<b>BI Rate</b>	<b>Beta</b>
1	ACES	2021	-25.36%	10.08%	0.07536	0.26106	0.03521	0.75732
		2022	-61.25%	4.09%	0.06759	0.23414	0.04000	1.15273
		2023	45.16%	6.16%	0.12459	0.43160	0.05818	-3.1036
2	ADRO	2021	57.34%	10.08%	0.16025	0.55511	0.03521	0.84754
		2022	71.11%	4.09%	0.09747	0.33764	0.04000	2.41024
		2023	-38.18%	6.16%	0.14238	0.49323	0.05818	3.24622
3	ANTM	2021	16.28%	10.08%	0.12376	0.42873	0.03521	2.53684
		2022	-11.78%	4.09%	0.14206	0.49212	0.04000	3.5888
		2023	-14.11%	6.16%	0.07997	0.27704	0.05818	1.00556
4	ASII	2021	-5.39%	10.08%	0.06630	0.22967	0.03521	0.05025
		2022	0.00%	4.09%	0.08696	0.30123	0.04000	2.89022
		2023	-0.88%	6.16%	0.06014	0.20832	0.05818	0.6169
5	BBRI	2021	8.42%	10.08%	0.07339	0.25423	0.03521	1.8041
		2022	20.19%	4.09%	0.05759	0.19951	0.04000	1.43691
		2023	15.89%	6.16%	0.05908	0.20465	0.05818	0.70572
6	BBTN	2021	0.29%	10.08%	0.14836	0.51395	0.03521	4.54078
		2022	-12.16%	4.09%	0.05919	0.20504	0.04000	1.6123
		2023	-7.41%	6.16%	0.03743	0.12967	0.05818	0.20909
7	BSDE	2021	-17.55%	10.08%	0.06816	0.23610	0.03521	1.33695
		2022	-8.91%	4.09%	0.05199	0.18011	0.04000	0.57518
		2023	17.39%	6.16%	0.05487	0.19006	0.05818	1.15622
8	BTPS	2021	-4.53%	10.08%	0.14310	0.49570	0.03521	3.6257
		2022	-22.07%	4.09%	0.07669	0.26565	0.04000	1.90761
		2023	-39.43%	6.16%	0.07989	0.27675	0.05818	2.32968
9	CPIN	2021	-8.81%	10.08%	0.06709	0.23239	0.03521	0.03626
		2022	-5.04%	4.09%	0.06176	0.21395	0.04000	-1.1376
		2023	-11.06%	6.16%	0.06574	0.22772	0.05818	-1.6971
10	CTRA	2021	-1.52%	10.08%	0.11747	0.40693	0.03521	3.26734
		2022	-3.09%	4.09%	0.07836	0.27144	0.04000	2.12102
		2023	24.47%	6.16%	0.04906	0.16995	0.05818	-0.3669
11	EXCL	2021	16.12%	10.08%	0.09215	0.31922	0.03521	0.74151
		2022	-32.49%	4.09%	0.11032	0.38217	0.04000	1.00296
		2023	-6.54%	6.16%	0.09374	0.32472	0.05818	-0.5299
12	GGRM	2021	-25.37%	10.08%	0.13293	0.46049	0.03521	0.24178

		2022	-41.18%	4.09%	0.07309	0.25319	0.04000	0.24256
		2023	12.92%	6.16%	0.10801	0.37417	0.05818	-0.279
13	HMSP	2021	-35.88%	10.08%	0.05487	0.19006	0.03521	0.50586
		2022	-12.95%	4.09%	0.08206	0.28427	0.04000	1.20173
		2023	6.55%	6.16%	0.09423	0.32641	0.05818	-0.427
14	ICBP	2021	-9.14%	10.08%	0.04634	0.16054	0.03521	-0.1475
		2022	14.94%	4.09%	0.08220	0.28474	0.04000	-1.7823
		2023	5.75%	6.16%	0.06098	0.21125	0.05818	0.11984
15	INCO	2021	-8.24%	10.08%	0.11881	0.41157	0.03521	2.10899
		2022	51.71%	4.09%	0.13681	0.47393	0.04000	3.36958
		2023	-39.30%	6.16%	0.07333	0.25402	0.05818	1.16377
16	INDF	2021	-7.66%	10.08%	0.04724	0.16366	0.03521	-0.0175
		2022	6.32%	4.09%	0.05059	0.17524	0.04000	-1.0488
		2023	-4.09%	6.16%	0.04546	0.15748	0.05818	-0.6565
17	INKP	2021	-24.94%	10.08%	0.13049	0.45203	0.03521	1.10838
		2022	11.50%	4.09%	0.07249	0.25113	0.04000	1.21829
		2023	-4.58%	6.16%	0.11964	0.41446	0.05818	0.9998
18	INTP	2021	-16.41%	10.08%	0.13111	0.45418	0.03521	0.75885
		2022	-18.18%	4.09%	0.04198	0.14541	0.04000	0.10486
		2023	-5.05%	6.16%	0.06947	0.24065	0.05818	1.59622
19	ITMG	2021	47.29%	10.08%	0.11815	0.40929	0.03521	1.22428
		2022	91.30%	4.09%	0.13124	0.45462	0.04000	2.08578
		2023	-34.27%	6.16%	0.12840	0.44481	0.05818	2.55859
20	JPFA	2021	17.41%	10.08%	0.12796	0.44326	0.03521	-0.5714
		2022	-24.71%	4.09%	0.06583	0.22803	0.04000	-0.2244
		2023	-8.88%	6.16%	0.08312	0.28794	0.05818	-0.9147
21	JSMR	2021	-15.98%	10.08%	0.06329	0.21923	0.03521	0.74389
		2022	-23.39%	4.09%	0.08081	0.27994	0.04000	1.77304
		2023	63.42%	6.16%	0.04904	0.16986	0.05818	0.66486
22	KLBF	2021	9.12%	10.08%	0.06367	0.22057	0.03521	0.33805
		2022	29.41%	4.09%	0.04271	0.14796	0.04000	-0.127
		2023	-22.97%	6.16%	0.02854	0.09885	0.05818	-0.094
23	LINK	2021	65.98%	10.08%	0.11527	0.39931	0.03521	-0.1734
		2022	-34.50%	4.09%	0.13106	0.45402	0.04000	1.2393
		2023	-49.43%	6.16%	0.08866	0.30713	0.05818	1.52058
24	MAPI	2021	-10.13%	10.08%	0.10727	0.37161	0.03521	2.09007
		2022	103.52%	4.09%	0.08144	0.28211	0.04000	0.41468

		2023	23.88%	6.16%	0.12202	0.42270	0.05818	-0.8186
25	MDKA	2021	60.08%	10.08%	0.13732	0.47567	0.03521	2.28799
		2022	8.56%	4.09%	0.12382	0.42892	0.04000	3.40565
		2023	-34.47%	6.16%	0.13481	0.46701	0.05818	4.38223
26	MEDC	2021	-21.02%	10.08%	0.13216	0.45780	0.03521	1.5064
		2022	117.81%	4.09%	0.14830	0.51374	0.04000	1.77149
		2023	13.79%	6.16%	0.22715	0.78685	0.05818	1.8177
27	MIKA	2021	-17.22%	10.08%	0.06268	0.21712	0.03521	0.36727
		2022	41.15%	4.09%	0.08871	0.30732	0.04000	-1.3549
		2023	-10.66%	6.16%	0.04061	0.14067	0.05818	1.05292
28	MNCN	2021	-21.05%	10.08%	0.09279	0.32144	0.03521	1.9935
		2022	-17.78%	4.09%	0.08168	0.28294	0.04000	1.10253
		2023	-47.84%	6.16%	0.07988	0.27671	0.05818	-1.7023
29	MYOR	2021	-24.72%	10.08%	0.05360	0.18568	0.03521	0.14661
		2022	22.55%	4.09%	0.12438	0.43087	0.04000	-1.3329
		2023	-0.40%	6.16%	0.07181	0.24876	0.05818	-1.7275
30	PGAS	2021	-16.92%	10.08%	0.12637	0.43776	0.03521	3.25033
		2022	28.00%	4.09%	0.09746	0.33760	0.04000	1.46993
		2023	-35.80%	6.16%	0.06493	0.22492	0.05818	0.34051
31	PTBA	2021	-3.56%	10.08%	0.11580	0.40113	0.03521	1.42955
		2022	36.16%	4.09%	0.10042	0.34787	0.04000	1.89666
		2023	-33.88%	6.16%	0.10317	0.35739	0.05818	2.27117
32	PTPP	2021	-46.92%	10.08%	0.11686	0.40482	0.03521	2.36106
		2022	-27.78%	4.09%	0.08023	0.27792	0.04000	2.03691
		2023	-40.14%	6.16%	0.16793	0.58172	0.05818	1.81485
33	PWON	2021	-9.02%	10.08%	0.08422	0.29176	0.03521	1.61371
		2022	-1.72%	4.09%	0.07945	0.27523	0.04000	2.21199
		2023	-0.44%	6.16%	0.05514	0.19101	0.05818	1.21711
34	SIDO	2021	8.27%	10.08%	0.07481	0.25915	0.03521	1.31505
		2022	-12.72%	4.09%	0.08823	0.30565	0.04000	-0.6517
		2023	-30.46%	6.16%	0.08202	0.28413	0.05818	0.39702
35	SMGR	2021	-41.65%	10.08%	0.11116	0.38507	0.03521	0.78442
		2022	-9.06%	4.09%	0.08838	0.30617	0.04000	0.16296
		2023	-2.66%	6.16%	0.08055	0.27904	0.05818	1.53407
36	SMRA	2021	7.05%	10.08%	0.10026	0.34730	0.03521	1.41899
		2022	-27.54%	4.09%	0.09214	0.31920	0.04000	1.4603
		2023	-4.96%	6.16%	0.09263	0.32089	0.05818	0.51005

37	TBIG	2021	80.98%	10.08%	0.16153	0.55955	0.03521	-1.4837
		2022	-22.03%	4.09%	0.05126	0.17757	0.04000	-0.1378
		2023	-9.13%	6.16%	0.04908	0.17002	0.05818	-0.5415
38	TINS	2021	-2.02%	10.08%	0.14660	0.50782	0.03521	3.45728
		2022	-19.59%	4.09%	0.10679	0.36992	0.04000	3.51413
		2023	-44.87%	6.16%	0.07362	0.25502	0.05818	1.22538
39	TKIM	2021	-23.60%	10.08%	0.16120	0.55843	0.03521	1.98283
		2022	-6.31%	4.09%	0.08284	0.28698	0.04000	1.09534
		2023	3.55%	6.16%	0.12151	0.42094	0.05818	1.84208
40	TLKM	2021	22.05%	10.08%	0.06450	0.22343	0.03521	1.2229
		2022	-7.18%	4.09%	0.05787	0.20047	0.04000	1.92185
		2023	5.33%	6.16%	0.04823	0.16706	0.05818	0.87922
41	TOWR	2021	17.19%	10.08%	0.12621	0.43722	0.03521	2.14575
		2022	-2.22%	4.09%	0.05679	0.19672	0.04000	-0.1823
		2023	-10.00%	6.16%	0.07513	0.26024	0.05818	1.51111
42	UNTR	2021	-16.73%	10.08%	0.11433	0.39605	0.03521	0.60379
		2022	17.72%	4.09%	0.09377	0.32482	0.04000	2.79139
		2023	-13.23%	6.16%	0.11790	0.40842	0.05818	2.02979
43	UNVR	2021	-44.08%	10.08%	0.07401	0.25637	0.03521	1.10316
		2022	14.36%	4.09%	0.07717	0.26734	0.04000	-0.9304
		2023	-24.89%	6.16%	0.04749	0.16452	0.05818	-0.5352
44	WIKA	2021	-44.33%	10.08%	0.12192	0.42235	0.03521	1.76054
		2022	-27.60%	4.09%	0.07449	0.25803	0.04000	1.45402
		2023	-70.00%	6.16%	0.22210	0.76939	0.05818	1.97164

Lampiran 7: Hasil Perhitungan Metode Sharpe

Nomor	Kode Saham	Tahun	Return Saham	Return IHSG	Std Bulanan	Annual Std	BI Rate	Sharpe
1	ACES	2021	-25.36%	10.08%	0.07536	0.26106	0.03521	-1.10645
		2022	-61.25%	4.09%	0.06759	0.23414	0.04000	-2.78674
		2023	45.16%	6.16%	0.12459	0.43160	0.05818	0.911572
2	ADRO	2021	57.34%	10.08%	0.16025	0.55511	0.03521	0.969562
		2022	71.11%	4.09%	0.09747	0.33764	0.04000	1.98768
		2023	-38.18%	6.16%	0.14238	0.49323	0.05818	-0.89209
3	ANTM	2021	16.28%	10.08%	0.12376	0.42873	0.03521	0.297579
		2022	-11.78%	4.09%	0.14206	0.49212	0.04000	-0.32061
		2023	-14.11%	6.16%	0.07997	0.27704	0.05818	-0.71917
4	ASII	2021	-5.39%	10.08%	0.06630	0.22967	0.03521	-0.38817
		2022	0.00%	4.09%	0.08696	0.30123	0.04000	-0.13279
		2023	-0.88%	6.16%	0.06014	0.20832	0.05818	-0.3214
5	BBRI	2021	8.42%	10.08%	0.07339	0.25423	0.03521	0.192674
		2022	20.19%	4.09%	0.05759	0.19951	0.04000	0.811728
		2023	15.89%	6.16%	0.05908	0.20465	0.05818	0.492193
6	BBTN	2021	0.29%	10.08%	0.14836	0.51395	0.03521	-0.06287
		2022	-12.16%	4.09%	0.05919	0.20504	0.04000	-0.78829
		2023	-7.41%	6.16%	0.03743	0.12967	0.05818	-1.0199
7	BSDE	2021	-17.55%	10.08%	0.06816	0.23610	0.03521	-0.89249
		2022	-8.91%	4.09%	0.05199	0.18011	0.04000	-0.71682
		2023	17.39%	6.16%	0.05487	0.19006	0.05818	0.608925
8	BTPS	2021	-4.53%	10.08%	0.14310	0.49570	0.03521	-0.16248
		2022	-22.07%	4.09%	0.07669	0.26565	0.04000	-0.98127
		2023	-39.43%	6.16%	0.07989	0.27675	0.05818	-1.63484
9	CPIN	2021	-8.81%	10.08%	0.06709	0.23239	0.03521	-0.5307
		2022	-5.04%	4.09%	0.06176	0.21395	0.04000	-0.42262
		2023	-11.06%	6.16%	0.06574	0.22772	0.05818	-0.74125
10	CTRA	2021	-1.52%	10.08%	0.11747	0.40693	0.03521	-0.12394
		2022	-3.09%	4.09%	0.07836	0.27144	0.04000	-0.2613
		2023	24.47%	6.16%	0.04906	0.16995	0.05818	1.097346
11	EXCL	2021	16.12%	10.08%	0.09215	0.31922	0.03521	0.394595
		2022	-32.49%	4.09%	0.11032	0.38217	0.04000	-0.95488
		2023	-6.54%	6.16%	0.09374	0.32472	0.05818	-0.38065

12	GGRM	2021	-25.37%	10.08%	0.13293	0.46049	0.03521	-0.62731
		2022	-41.18%	4.09%	0.07309	0.25319	0.04000	-1.78428
		2023	12.92%	6.16%	0.10801	0.37417	0.05818	0.189711
13	HMSP	2021	-35.88%	10.08%	0.05487	0.19006	0.03521	-2.07307
		2022	-12.95%	4.09%	0.08206	0.28427	0.04000	-0.59638
		2023	6.55%	6.16%	0.09423	0.32641	0.05818	0.022347
14	ICBP	2021	-9.14%	10.08%	0.04634	0.16054	0.03521	-0.78853
		2022	14.94%	4.09%	0.08220	0.28474	0.04000	0.384294
		2023	5.75%	6.16%	0.06098	0.21125	0.05818	-0.00323
15	INCO	2021	-8.24%	10.08%	0.11881	0.41157	0.03521	-0.28564
		2022	51.71%	4.09%	0.13681	0.47393	0.04000	1.006684
		2023	-39.30%	6.16%	0.07333	0.25402	0.05818	-1.77597
16	INDF	2021	-7.66%	10.08%	0.04724	0.16366	0.03521	-0.68343
		2022	6.32%	4.09%	0.05059	0.17524	0.04000	0.132623
		2023	-4.09%	6.16%	0.04546	0.15748	0.05818	-0.6291
17	INKP	2021	-24.94%	10.08%	0.13049	0.45203	0.03521	-0.62962
		2022	11.50%	4.09%	0.07249	0.25113	0.04000	0.298714
		2023	-4.58%	6.16%	0.11964	0.41446	0.05818	-0.25099
18	INTP	2021	-16.41%	10.08%	0.13111	0.45418	0.03521	-0.43877
		2022	-18.18%	4.09%	0.04198	0.14541	0.04000	-1.52551
		2023	-5.05%	6.16%	0.06947	0.24065	0.05818	-0.45164
19	ITMG	2021	47.29%	10.08%	0.11815	0.40929	0.03521	1.069456
		2022	91.30%	4.09%	0.13124	0.45462	0.04000	1.92027
		2023	-34.27%	6.16%	0.12840	0.44481	0.05818	-0.90131
20	JPFA	2021	17.41%	10.08%	0.12796	0.44326	0.03521	0.313253
		2022	-24.71%	4.09%	0.06583	0.22803	0.04000	-1.25902
		2023	-8.88%	6.16%	0.08312	0.28794	0.05818	-0.51048
21	JSMR	2021	-15.98%	10.08%	0.06329	0.21923	0.03521	-0.88964
		2022	-23.39%	4.09%	0.08081	0.27994	0.04000	-0.97855
		2023	63.42%	6.16%	0.04904	0.16986	0.05818	3.391252
22	KLBF	2021	9.12%	10.08%	0.06367	0.22057	0.03521	0.253929
		2022	29.41%	4.09%	0.04271	0.14796	0.04000	1.717434
		2023	-22.97%	6.16%	0.02854	0.09885	0.05818	-2.91182
23	LINK	2021	65.98%	10.08%	0.11527	0.39931	0.03521	1.564073
		2022	-34.50%	4.09%	0.13106	0.45402	0.04000	-0.84798
		2023	-49.43%	6.16%	0.08866	0.30713	0.05818	-1.79878
24	MAPI	2021	-10.13%	10.08%	0.10727	0.37161	0.03521	-0.36725

		2022	103.52%	4.09%	0.08144	0.28211	0.04000	3.527755
		2023	23.88%	6.16%	0.12202	0.42270	0.05818	0.427188
25	MDKA	2021	60.08%	10.08%	0.13732	0.47567	0.03521	1.189079
		2022	8.56%	4.09%	0.12382	0.42892	0.04000	0.106347
		2023	-34.47%	6.16%	0.13481	0.46701	0.05818	-0.8626
26	MEDC	2021	-21.02%	10.08%	0.13216	0.45780	0.03521	-0.53599
		2022	117.81%	4.09%	0.14830	0.51374	0.04000	2.215352
		2023	13.79%	6.16%	0.22715	0.78685	0.05818	0.101352
27	MIKA	2021	-17.22%	10.08%	0.06268	0.21712	0.03521	-0.95507
		2022	41.15%	4.09%	0.08871	0.30732	0.04000	1.208865
		2023	-10.66%	6.16%	0.04061	0.14067	0.05818	-1.17128
28	MNCN	2021	-21.05%	10.08%	0.09279	0.32144	0.03521	-0.76449
		2022	-17.78%	4.09%	0.08168	0.28294	0.04000	-0.76968
		2023	-47.84%	6.16%	0.07988	0.27671	0.05818	-1.93904
29	MYOR	2021	-24.72%	10.08%	0.05360	0.18568	0.03521	-1.52115
		2022	22.55%	4.09%	0.12438	0.43087	0.04000	0.430502
		2023	-0.40%	6.16%	0.07181	0.24876	0.05818	-0.24997
30	PGAS	2021	-16.92%	10.08%	0.12637	0.43776	0.03521	-0.46691
		2022	28.00%	4.09%	0.09746	0.33760	0.04000	0.710906
		2023	-35.80%	6.16%	0.06493	0.22492	0.05818	-1.85016
31	PTBA	2021	-3.56%	10.08%	0.11580	0.40113	0.03521	-0.17649
		2022	36.16%	4.09%	0.10042	0.34787	0.04000	0.92456
		2023	-33.88%	6.16%	0.10317	0.35739	0.05818	-1.11065
32	PTPP	2021	-46.92%	10.08%	0.11686	0.40482	0.03521	-1.24594
		2022	-27.78%	4.09%	0.08023	0.27792	0.04000	-1.14342
		2023	-40.14%	6.16%	0.16793	0.58172	0.05818	-0.79003
33	PWON	2021	-9.02%	10.08%	0.08422	0.29176	0.03521	-0.42981
		2022	-1.72%	4.09%	0.07945	0.27523	0.04000	-0.20798
		2023	-0.44%	6.16%	0.05514	0.19101	0.05818	-0.32757
34	SIDO	2021	8.27%	10.08%	0.07481	0.25915	0.03521	0.183404
		2022	-12.72%	4.09%	0.08823	0.30565	0.04000	-0.54693
		2023	-30.46%	6.16%	0.08202	0.28413	0.05818	-1.27696
35	SMGR	2021	-41.65%	10.08%	0.11116	0.38507	0.03521	-1.17305
		2022	-9.06%	4.09%	0.08838	0.30617	0.04000	-0.4265
		2023	-2.66%	6.16%	0.08055	0.27904	0.05818	-0.30389
36	SMRA	2021	7.05%	10.08%	0.10026	0.34730	0.03521	0.101572
		2022	-27.54%	4.09%	0.09214	0.31920	0.04000	-0.98826

		2023	-4.96%	6.16%	0.09263	0.32089	0.05818	-0.33585
37	TBIG	2021	80.98%	10.08%	0.16153	0.55955	0.03521	1.384338
		2022	-22.03%	4.09%	0.05126	0.17757	0.04000	-1.46611
		2023	-9.13%	6.16%	0.04908	0.17002	0.05818	-0.87924
38	TINS	2021	-2.02%	10.08%	0.14660	0.50782	0.03521	-0.10911
		2022	-19.59%	4.09%	0.10679	0.36992	0.04000	-0.63765
		2023	-44.87%	6.16%	0.07362	0.25502	0.05818	-1.98769
39	TKIM	2021	-23.60%	10.08%	0.16120	0.55843	0.03521	-0.48574
		2022	-6.31%	4.09%	0.08284	0.28698	0.04000	-0.35934
		2023	3.55%	6.16%	0.12151	0.42094	0.05818	-0.05398
40	TLKM	2021	22.05%	10.08%	0.06450	0.22343	0.03521	0.829513
		2022	-7.18%	4.09%	0.05787	0.20047	0.04000	-0.55759
		2023	5.33%	6.16%	0.04823	0.16706	0.05818	-0.02902
41	TOWR	2021	17.19%	10.08%	0.12621	0.43722	0.03521	0.312583
		2022	-2.22%	4.09%	0.05679	0.19672	0.04000	-0.31629
		2023	-10.00%	6.16%	0.07513	0.26024	0.05818	-0.60783
42	UNTR	2021	-16.73%	10.08%	0.11433	0.39605	0.03521	-0.5113
		2022	17.72%	4.09%	0.09377	0.32482	0.04000	0.422397
		2023	-13.23%	6.16%	0.11790	0.40842	0.05818	-0.46641
43	UNVR	2021	-44.08%	10.08%	0.07401	0.25637	0.03521	-1.85679
		2022	14.36%	4.09%	0.07717	0.26734	0.04000	0.387346
		2023	-24.89%	6.16%	0.04749	0.16452	0.05818	-1.86679
44	WIKA	2021	-44.33%	10.08%	0.12192	0.42235	0.03521	-1.13304
		2022	-27.60%	4.09%	0.07449	0.25803	0.04000	-1.22472
		2023	-70.00%	6.16%	0.22210	0.76939	0.05818	-0.98543

Lampiran 8: Hasil Perhitungan Metode Treynor

Nomor	Kode Saham	Tahun	Return Saham	Return IHSG	Beta	BI Rate	Treynor
1	ACES	2021	-25.36%	10.08%	0.757318791	0.03521	-0.381415
		2022	-61.25%	4.09%	1.152732089	0.04000	-0.566047
		2023	45.16%	6.16%	-3.10358653	0.05818	-0.126767
2	ADRO	2021	57.34%	10.08%	0.847536714	0.03521	0.635038
		2022	71.11%	4.09%	2.410241893	0.04000	0.278441
		2023	-38.18%	6.16%	3.246223212	0.05818	-0.135542
3	ANTM	2021	16.28%	10.08%	2.53684361	0.03521	0.050292
		2022	-11.78%	4.09%	3.588804327	0.04000	-0.043964
		2023	-14.11%	6.16%	1.005561287	0.05818	-0.198138
4	ASII	2021	-5.39%	10.08%	0.050251837	0.03521	-1.774069
		2022	0.00%	4.09%	2.890218295	0.04000	-0.01384
		2023	-0.88%	6.16%	0.616903359	0.05818	-0.108532
5	BBRI	2021	8.42%	10.08%	1.804098822	0.03521	0.027151
		2022	20.19%	4.09%	1.436911551	0.04000	0.112705
		2023	15.89%	6.16%	0.705716862	0.05818	0.142727
6	BBTN	2021	0.29%	10.08%	4.540782494	0.03521	-0.007115
		2022	-12.16%	4.09%	1.612303081	0.04000	-0.100248
		2023	-7.41%	6.16%	0.209090827	0.05818	-0.632528
7	BSDE	2021	-17.55%	10.08%	1.336951456	0.03521	-0.157611
		2022	-8.91%	4.09%	0.575175279	0.04000	-0.224469
		2023	17.39%	6.16%	1.156216155	0.05818	0.100095
8	BTPS	2021	-4.53%	10.08%	3.625699815	0.03521	-0.022214
		2022	-22.07%	4.09%	1.907605995	0.04000	-0.136648
		2023	-39.43%	6.16%	2.329675407	0.05818	-0.19421
9	CPIN	2021	-8.81%	10.08%	0.036256499	0.03521	-3.401623
		2022	-5.04%	4.09%	-1.1376194	0.04000	0.079482
		2023	-11.06%	6.16%	-1.69705606	0.05818	0.099467
10	CTRA	2021	-1.52%	10.08%	3.267344188	0.03521	-0.015437
		2022	-3.09%	4.09%	2.121023064	0.04000	-0.03344
		2023	24.47%	6.16%	-0.36694248	0.05818	-0.508251
11	EXCL	2021	16.12%	10.08%	0.741511686	0.03521	0.169874
		2022	-32.49%	4.09%	1.002959661	0.04000	-0.363844
		2023	-6.54%	6.16%	-0.52989113	0.05818	0.23326

12	GGRM	2021	-25.37%	10.08%	0.241783186	0.03521	-1.194735
		2022	-41.18%	4.09%	0.242560923	0.04000	-1.862479
		2023	12.92%	6.16%	-0.27904069	0.05818	-0.254389
13	HMSP	2021	-35.88%	10.08%	0.505861171	0.03521	-0.778894
		2022	-12.95%	4.09%	1.201732152	0.04000	-0.141074
		2023	6.55%	6.16%	-0.42697517	0.05818	-0.017084
14	ICBP	2021	-9.14%	10.08%	-0.14748166	0.03521	0.858359
		2022	14.94%	4.09%	-1.78233411	0.04000	-0.061394
		2023	5.75%	6.16%	0.119838831	0.05818	-0.005689
15	INCO	2021	-8.24%	10.08%	2.10898815	0.03521	-0.055743
		2022	51.71%	4.09%	3.36957824	0.04000	0.141589
		2023	-39.30%	6.16%	1.1637684	0.05818	-0.387654
16	INDF	2021	-7.66%	10.08%	-0.0174669	0.03521	6.40358
		2022	6.32%	4.09%	-1.0487713	0.04000	-0.02216
		2023	-4.09%	6.16%	-0.65651777	0.05818	0.150908
17	INKP	2021	-24.94%	10.08%	1.10837562	0.03521	-0.25678
		2022	11.50%	4.09%	1.218290277	0.04000	0.061575
		2023	-4.58%	6.16%	0.999803014	0.05818	-0.104048
18	INTP	2021	-16.41%	10.08%	0.758848346	0.03521	-0.262614
		2022	-18.18%	4.09%	0.104856038	0.04000	-2.115455
		2023	-5.05%	6.16%	1.59621554	0.05818	-0.06809
19	ITMG	2021	47.29%	10.08%	1.224281204	0.03521	0.357529
		2022	91.30%	4.09%	2.085783534	0.04000	0.418543
		2023	-34.27%	6.16%	2.558593808	0.05818	-0.156692
20	JPFA	2021	17.41%	10.08%	-0.5714023	0.03521	-0.243004
		2022	-24.71%	4.09%	-0.22443909	0.04000	1.279158
		2023	-8.88%	6.16%	-0.9146518	0.05818	0.1607
21	JSMR	2021	-15.98%	10.08%	0.743885515	0.03521	-0.262185
		2022	-23.39%	4.09%	1.773042127	0.04000	-0.154499
		2023	63.42%	6.16%	0.664857719	0.05818	0.866421
22	KLBF	2021	9.12%	10.08%	0.338052715	0.03521	0.165678
		2022	29.41%	4.09%	-0.12699252	0.04000	-2.001044
		2023	-22.97%	6.16%	-0.0940184	0.05818	3.061602
23	LINK	2021	65.98%	10.08%	-0.17338782	0.03521	-3.601999
		2022	-34.50%	4.09%	1.239296004	0.04000	-0.31066
		2023	-49.43%	6.16%	1.520583662	0.05818	-0.363319
24	MAPI	2021	-10.13%	10.08%	2.090069192	0.03521	-0.065296

		2022	103.52%	4.09%	0.414681214	0.04000	2.399943
		2023	23.88%	6.16%	-0.81859087	0.05818	-0.220589
25	MDKA	2021	60.08%	10.08%	2.287990542	0.03521	0.24721
		2022	8.56%	4.09%	3.405647152	0.04000	0.013394
		2023	-34.47%	6.16%	4.382227876	0.05818	-0.091926
26	MEDC	2021	-21.02%	10.08%	1.506404307	0.03521	-0.16289
		2022	117.81%	4.09%	1.771487468	0.04000	0.642461
		2023	13.79%	6.16%	1.817697872	0.05818	0.043874
27	MIKA	2021	-17.22%	10.08%	0.367273783	0.03521	-0.564618
		2022	41.15%	4.09%	-1.35487319	0.04000	-0.274199
		2023	-10.66%	6.16%	1.052919706	0.05818	-0.156484
28	MNCN	2021	-21.05%	10.08%	1.993495264	0.03521	-0.123268
		2022	-17.78%	4.09%	1.10252775	0.04000	-0.197526
		2023	-47.84%	6.16%	-1.70227206	0.05818	0.315202
29	MYOR	2021	-24.72%	10.08%	0.146611247	0.03521	-1.926461
		2022	22.55%	4.09%	-1.33290416	0.04000	-0.139162
		2023	-0.40%	6.16%	-1.72751708	0.05818	0.035995
30	PGAS	2021	-16.92%	10.08%	3.250331659	0.03521	-0.062884
		2022	28.00%	4.09%	1.469929795	0.04000	0.163273
		2023	-35.80%	6.16%	0.340514088	0.05818	-1.222083
31	PTBA	2021	-3.56%	10.08%	1.429554441	0.03521	-0.049523
		2022	36.16%	4.09%	1.896660996	0.04000	0.169574
		2023	-33.88%	6.16%	2.271165965	0.05818	-0.174772
32	PTPP	2021	-46.92%	10.08%	2.361060898	0.03521	-0.213623
		2022	-27.78%	4.09%	2.036912911	0.04000	-0.15601
		2023	-40.14%	6.16%	1.814845025	0.05818	-0.253234
33	PWON	2021	-9.02%	10.08%	1.613706383	0.03521	-0.077712
		2022	-1.72%	4.09%	2.211994362	0.04000	-0.025878
		2023	-0.44%	6.16%	1.217113095	0.05818	-0.051407
34	SIDO	2021	8.27%	10.08%	1.31505137	0.03521	0.036142
		2022	-12.72%	4.09%	-0.65172631	0.04000	0.2565
		2023	-30.46%	6.16%	0.397015782	0.05818	-0.913862
35	SMGR	2021	-41.65%	10.08%	0.784424691	0.03521	-0.575845
		2022	-9.06%	4.09%	0.162955467	0.04000	-0.801325
		2023	-2.66%	6.16%	1.534072035	0.05818	-0.055276
36	SMRA	2021	7.05%	10.08%	1.418991945	0.03521	0.02486
		2022	-27.54%	4.09%	1.460303355	0.04000	-0.216016

		2023	-4.96%	6.16%	0.510045129	0.05818	-0.211292
37	TBIG	2021	80.98%	10.08%	-1.483677	0.03521	-0.522086
		2022	-22.03%	4.09%	-0.13779257	0.04000	1.889354
		2023	-9.13%	6.16%	-0.5414711	0.05818	0.276074
38	TINS	2021	-2.02%	10.08%	3.457284682	0.03521	-0.016027
		2022	-19.59%	4.09%	3.514127284	0.04000	-0.067122
		2023	-44.87%	6.16%	1.22538223	0.05818	-0.413667
39	TKIM	2021	-23.60%	10.08%	1.982826242	0.03521	-0.136799
		2022	-6.31%	4.09%	1.095344349	0.04000	-0.094147
		2023	3.55%	6.16%	1.842083156	0.05818	-0.012334
40	TLKM	2021	22.05%	10.08%	1.222897723	0.03521	0.151554
		2022	-7.18%	4.09%	1.921847466	0.04000	-0.058164
		2023	5.33%	6.16%	0.879215394	0.05818	-0.005515
41	TOWR	2021	17.19%	10.08%	2.145747454	0.03521	0.063692
		2022	-2.22%	4.09%	-0.18228275	0.04000	0.34135
		2023	-10.00%	6.16%	1.511107511	0.05818	-0.104679
42	UNTR	2021	-16.73%	10.08%	0.603790348	0.03521	-0.335384
		2022	17.72%	4.09%	2.791390303	0.04000	0.049151
		2023	-13.23%	6.16%	2.029793381	0.05818	-0.093848
43	UNVR	2021	-44.08%	10.08%	1.103156291	0.03521	-0.431512
		2022	14.36%	4.09%	-0.93042053	0.04000	-0.111296
		2023	-24.89%	6.16%	-0.53520414	0.05818	0.573833
44	WIKA	2021	-44.33%	10.08%	1.760544875	0.03521	-0.27181
		2022	-27.60%	4.09%	1.454016126	0.04000	-0.217342
		2023	-70.00%	6.16%	1.97164327	0.05818	-0.384543

Lampiran 9: Hasil Perhitungan Metode Jensen

Nomor	Kode Saham	Tahun	Return Saham	Return IHSG	Beta	BI Rate	Jensen
1	ACES	2021	-25.36%	10.08%	0.757318791	0.03521	-0.338491
		2022	-61.25%	4.09%	1.152732089	0.04000	-0.65353
		2023	45.16%	6.16%	-3.10358653	0.05818	0.404121
2	ADRO	2021	57.34%	10.08%	0.847536714	0.03521	0.482667
		2022	71.11%	4.09%	2.410241893	0.04000	0.668959
		2023	-38.18%	6.16%	3.246223212	0.05818	-0.451181
3	ANTM	2021	16.28%	10.08%	2.53684361	0.03521	-0.038694
		2022	-11.78%	4.09%	3.588804327	0.04000	-0.160983
		2023	-14.11%	6.16%	1.005561287	0.05818	-0.202703
4	ASII	2021	-5.39%	10.08%	0.050251837	0.03521	-0.092444
		2022	0.00%	4.09%	2.890218295	0.04000	-0.042581
		2023	-0.88%	6.16%	0.616903359	0.05818	-0.069079
5	BBRI	2021	8.42%	10.08%	1.804098822	0.03521	-0.069266
		2022	20.19%	4.09%	1.436911551	0.04000	0.160663
		2023	15.89%	6.16%	0.705716862	0.05818	0.098294
6	BBTN	2021	0.29%	10.08%	4.540782494	0.03521	-0.329933
		2022	-12.16%	4.09%	1.612303081	0.04000	-0.16307
		2023	-7.41%	6.16%	0.209090827	0.05818	-0.132976
7	BSDE	2021	-17.55%	10.08%	1.336951456	0.03521	-0.298348
		2022	-8.91%	4.09%	0.575175279	0.04000	-0.129623
		2023	17.39%	6.16%	1.156216155	0.05818	0.111749
8	BTPS	2021	-4.53%	10.08%	3.625699815	0.03521	-0.318186
		2022	-22.07%	4.09%	1.907605995	0.04000	-0.262374
		2023	-39.43%	6.16%	2.329675407	0.05818	-0.460471
9	CPIN	2021	-8.81%	10.08%	0.036256499	0.03521	-0.125707
		2022	-5.04%	4.09%	-1.1376194	0.04000	-0.089404
		2023	-11.06%	6.16%	-1.69705606	0.05818	-0.162956
10	CTRA	2021	-1.52%	10.08%	3.267344188	0.03521	-0.264593
		2022	-3.09%	4.09%	2.121023064	0.04000	-0.072822
		2023	24.47%	6.16%	-0.36694248	0.05818	0.187763
11	EXCL	2021	16.12%	10.08%	0.741511686	0.03521	0.077362
		2022	-32.49%	4.09%	1.002959661	0.04000	-0.365817
		2023	-6.54%	6.16%	-0.52989113	0.05818	-0.121777

12	GGRM	2021	-25.37%	10.08%	0.241783186	0.03521	-0.304714
		2022	-41.18%	4.09%	0.242560923	0.04000	-0.451981
		2023	12.92%	6.16%	-0.27904069	0.05818	0.071946
13	HMSP	2021	-35.88%	10.08%	0.505861171	0.03521	-0.427169
		2022	-12.95%	4.09%	1.201732152	0.04000	-0.170607
		2023	6.55%	6.16%	-0.42697517	0.05818	0.008765
14	ICBP	2021	-9.14%	10.08%	-0.14748166	0.03521	-0.116926
		2022	14.94%	4.09%	-1.78233411	0.04000	0.111017
		2023	5.75%	6.16%	0.119838831	0.05818	-0.001095
15	INCO	2021	-8.24%	10.08%	2.10898815	0.03521	-0.255794
		2022	51.71%	4.09%	3.36957824	0.04000	0.474085
		2023	-39.30%	6.16%	1.1637684	0.05818	-0.455148
16	INDF	2021	-7.66%	10.08%	-0.0174669	0.03521	-0.110706
		2022	6.32%	4.09%	-1.0487713	0.04000	0.024178
		2023	-4.09%	6.16%	-0.65651777	0.05818	-0.096813
17	INKP	2021	-24.94%	10.08%	1.10837562	0.03521	-0.357257
		2022	11.50%	4.09%	1.218290277	0.04000	0.073928
		2023	-4.58%	6.16%	0.999803014	0.05818	-0.107471
18	INTP	2021	-16.41%	10.08%	0.758848346	0.03521	-0.249023
		2022	-18.18%	4.09%	0.104856038	0.04000	-0.221912
		2023	-5.05%	6.16%	1.59621554	0.05818	-0.114185
19	ITMG	2021	47.29%	10.08%	1.224281204	0.03521	0.357471
		2022	91.30%	4.09%	2.085783534	0.04000	0.871127
		2023	-34.27%	6.16%	2.558593808	0.05818	-0.409724
20	JPFA	2021	17.41%	10.08%	-0.5714023	0.03521	0.176305
		2022	-24.71%	4.09%	-0.22443909	0.04000	-0.286893
		2023	-8.88%	6.16%	-0.9146518	0.05818	-0.143834
21	JSMR	2021	-15.98%	10.08%	0.743885515	0.03521	-0.243793
		2022	-23.39%	4.09%	1.773042127	0.04000	-0.275517
		2023	63.42%	6.16%	0.664857719	0.05818	0.573756
22	KLBF	2021	9.12%	10.08%	0.338052715	0.03521	0.03385
		2022	29.41%	4.09%	-0.12699252	0.04000	0.254231
		2023	-22.97%	6.16%	-0.0940184	0.05818	-0.287523
23	LINK	2021	65.98%	10.08%	-0.17338782	0.03521	0.635907
		2022	-34.50%	4.09%	1.239296004	0.04000	-0.386107
		2023	-49.43%	6.16%	1.520583662	0.05818	-0.557694
24	MAPI	2021	-10.13%	10.08%	2.090069192	0.03521	-0.273467

		2022	103.52%	4.09%	0.414681214	0.04000	0.994841
		2023	23.88%	6.16%	-0.81859087	0.05818	0.183392
25	MDKA	2021	60.08%	10.08%	2.287990542	0.03521	0.415649
		2022	8.56%	4.09%	3.405647152	0.04000	0.042572
		2023	-34.47%	6.16%	4.382227876	0.05818	-0.417936
26	MEDC	2021	-21.02%	10.08%	1.506404307	0.03521	-0.344114
		2022	117.81%	4.09%	1.771487468	0.04000	1.136529
		2023	13.79%	6.16%	1.817697872	0.05818	0.073488
27	MIKA	2021	-17.22%	10.08%	0.367273783	0.03521	-0.231442
		2022	41.15%	4.09%	-1.35487319	0.04000	0.372714
		2023	-10.66%	6.16%	1.052919706	0.05818	-0.168392
28	MNCN	2021	-21.05%	10.08%	1.993495264	0.03521	-0.376397
		2022	-17.78%	4.09%	1.10252775	0.04000	-0.218762
		2023	-47.84%	6.16%	-1.70227206	0.05818	-0.530697
29	MYOR	2021	-24.72%	10.08%	0.146611247	0.03521	-0.29205
		2022	22.55%	4.09%	-1.33290416	0.04000	0.186681
		2023	-0.40%	6.16%	-1.72751708	0.05818	-0.056232
30	PGAS	2021	-16.92%	10.08%	3.250331659	0.03521	-0.417434
		2022	28.00%	4.09%	1.469929795	0.04000	0.238687
		2023	-35.80%	6.16%	0.340514088	0.05818	-0.417309
31	PTBA	2021	-3.56%	10.08%	1.429554441	0.03521	-0.164495
		2022	36.16%	4.09%	1.896660996	0.04000	0.31993
		2023	-33.88%	6.16%	2.271165965	0.05818	-0.404758
32	PTPP	2021	-46.92%	10.08%	2.361060898	0.03521	-0.659132
		2022	-27.78%	4.09%	2.036912911	0.04000	-0.319597
		2023	-40.14%	6.16%	1.814845025	0.05818	-0.465831
33	PWON	2021	-9.02%	10.08%	1.613706383	0.03521	-0.231174
		2022	-1.72%	4.09%	2.211994362	0.04000	-0.059217
		2023	-0.44%	6.16%	1.217113095	0.05818	-0.06676
34	SIDO	2021	8.27%	10.08%	1.31505137	0.03521	-0.038666
		2022	-12.72%	4.09%	-0.65172631	0.04000	-0.166586
		2023	-30.46%	6.16%	0.397015782	0.05818	-0.364185
35	SMGR	2021	-41.65%	10.08%	0.784424691	0.03521	-0.503122
		2022	-9.06%	4.09%	0.162955467	0.04000	-0.130726
		2023	-2.66%	6.16%	1.534072035	0.05818	-0.090082
36	SMRA	2021	7.05%	10.08%	1.418991945	0.03521	-0.057731
		2022	-27.54%	4.09%	1.460303355	0.04000	-0.316753

		2023	-4.96%	6.16%	0.510045129	0.05818	-0.109525
37	TBIG	2021	80.98%	10.08%	-1.483677	0.03521	0.871855
		2022	-22.03%	4.09%	-0.13779257	0.04000	-0.260216
		2023	-9.13%	6.16%	-0.5414711	0.05818	-0.147621
38	TINS	2021	-2.02%	10.08%	3.457284682	0.03521	-0.282016
		2022	-19.59%	4.09%	3.514127284	0.04000	-0.239015
		2023	-44.87%	6.16%	1.22538223	0.05818	-0.51112
39	TKIM	2021	-23.60%	10.08%	1.982826242	0.03521	-0.401212
		2022	-6.31%	4.09%	1.095344349	0.04000	-0.104101
		2023	3.55%	6.16%	1.842083156	0.05818	-0.029066
40	TLKM	2021	22.05%	10.08%	1.222897723	0.03521	0.105181
		2022	-7.18%	4.09%	1.921847466	0.04000	-0.113499
		2023	5.33%	6.16%	0.879215394	0.05818	-0.007877
41	TOWR	2021	17.19%	10.08%	2.145747454	0.03521	-0.003975
		2022	-2.22%	4.09%	-0.18228275	0.04000	-0.062059
		2023	-10.00%	6.16%	1.511107511	0.05818	-0.163387
42	UNTR	2021	-16.73%	10.08%	0.603790348	0.03521	-0.242077
		2022	17.72%	4.09%	2.791390303	0.04000	0.134708
		2023	-13.23%	6.16%	2.029793381	0.05818	-0.197484
43	UNVR	2021	-44.08%	10.08%	1.103156291	0.03521	-0.548331
		2022	14.36%	4.09%	-0.93042053	0.04000	0.104383
		2023	-24.89%	6.16%	-0.53520414	0.05818	-0.305275
44	WIKA	2021	-44.33%	10.08%	1.760544875	0.03521	-0.593927
		2022	-27.60%	4.09%	1.454016126	0.04000	-0.317317
		2023	-70.00%	6.16%	1.97164327	0.05818	-0.764973

Lampiran 10: Hasil Sharpe, Treynor, dan Jensen Sesudah Transformasi Z-score

Nomor	Kode Saham	Tahun	Z_Sharpe	Z_Treynor	Z_Jensen
1	ACES	2021	-0.7639	-0.30329	-0.71885
		2022	-2.39166	-0.4988	-1.68056
		2023	1.19104	-0.03364	1.54811
2	ADRO	2021	1.24721	0.77304	1.78788
		2022	2.2335	0.39544	2.35657
		2023	-0.55624	-0.04293	-1.06286
3	ANTM	2021	0.59624	0.15385	0.19634
		2022	-0.00262	0.05404	-0.17697
		2023	-0.38872	-0.10922	-0.30433
4	ASII	2021	-0.06807	-1.77798	0.03225
		2022	0.17932	0.08594	0.18447
		2023	-0.00339	-0.01433	0.10358
5	BBRI	2021	0.49461	0.12934	0.10301
		2022	1.09431	0.21994	0.80491
		2023	0.78477	0.25173	0.61452
6	BBTN	2021	0.24706	0.09306	-0.69273
		2022	-0.45568	-0.00556	-0.18334
		2023	-0.68006	-0.5692	-0.09148
7	BSDE	2021	-0.55663	-0.0663	-0.59631
		2022	-0.38645	-0.1371	-0.08124
		2023	0.89785	0.20658	0.65559
8	BTPS	2021	0.15056	0.07707	-0.65687
		2022	-0.64263	-0.04411	-0.48649
		2023	-1.27577	-0.10506	-1.09122
9	CPIN	2021	-0.20615	-3.50141	-0.06929
		2022	-0.10144	0.18476	0.04153
		2023	-0.41012	0.20592	-0.183
10	CTRA	2021	0.18789	0.08425	-0.49326
		2022	0.05483	0.06518	0.09215
		2023	1.371	-0.4376	0.88764
11	EXCL	2021	0.69022	0.28047	0.55062
		2022	-0.61706	-0.28469	-0.80227
		2023	-0.06079	0.34759	-0.05729
12	GGRM	2021	-0.29973	-1.16452	-0.61574

		2022	-1.42054	-1.8716	-1.0653
		2023	0.49174	-0.16878	0.53408
13	HMSP	2021	-1.7003	-0.72419	-0.98955
		2022	-0.26977	-0.04879	-0.20635
		2023	0.32961	0.0825	0.34121
14	ICBP	2021	-0.45592	1.00951	-0.04248
		2022	0.68024	0.03558	0.65336
		2023	0.30483	0.09457	0.31111
15	INCO	2021	0.03125	0.04157	-0.4664
		2022	1.28317	0.25052	1.76168
		2023	-1.41248	-0.3099	-1.07497
16	INDF	2021	-0.3541	6.88139	-0.02349
		2022	0.43644	0.07713	0.38826
		2023	-0.30147	0.26039	0.01892
17	INKP	2021	-0.30198	-0.17131	-0.77614
		2022	0.59734	0.16579	0.54013
		2023	0.06481	-0.00958	-0.01362
18	INTP	2021	-0.1171	-0.17749	-0.44573
		2022	-1.16986	-2.13948	-0.36297
		2023	-0.12956	0.02849	-0.03411
19	ITMG	2021	1.34398	0.47918	1.4057
		2022	2.1682	0.54379	2.97373
		2023	-0.56517	-0.06533	-0.9363
20	JPFA	2021	0.61142	-0.15673	0.85266
		2022	-0.9117	1.4551	-0.56134
		2023	-0.18656	0.27076	-0.12463
21	JSMR	2021	-0.55386	-0.17704	-0.42977
		2022	-0.64	-0.06301	-0.52661
		2023	3.59319	1.01805	2.06595
22	KLBF	2021	0.55395	0.27603	0.41779
		2022	1.9717	-2.01833	1.09054
		2023	-2.51282	3.34255	-0.56326
23	LINK	2021	1.82314	-3.71359	2.25568
		2022	-0.51351	-0.22837	-0.86421
		2023	-1.43458	-0.28413	-1.38801
24	MAPI	2021	-0.04781	0.03145	-0.52035
		2022	3.72543	2.64191	3.35139

		2023	0.72179	-0.13299	0.87429
25	MDKA	2021	1.45987	0.36236	1.5833
		2022	0.41098	0.11477	0.44441
		2023	-0.52767	0.00325	-0.96137
26	MEDC	2021	-0.21128	-0.07189	-0.73602
		2022	2.45406	0.7809	3.78392
		2023	0.40614	0.14705	0.53879
27	MIKA	2021	-0.61725	-0.49729	-0.39206
		2022	1.47903	-0.18976	1.45223
		2023	-0.8267	-0.06511	-0.19959
28	MNCN	2021	-0.43262	-0.02994	-0.83457
		2022	-0.43766	-0.10857	-0.35336
		2023	-1.57046	0.43436	-1.30559
29	MYOR	2021	-1.16564	-1.93935	-0.57708
		2022	0.725	-0.04677	0.88433
		2023	0.06581	0.13871	0.1428
30	PGAS	2021	-0.14435	0.034	-0.95984
		2022	0.99664	0.27348	1.04309
		2023	-1.48436	-1.19348	-0.95946
31	PTBA	2021	0.13699	0.04815	-0.1877
		2022	1.20362	0.28015	1.2911
		2023	-0.76797	-0.08448	-0.92114
32	PTPP	2021	-0.89902	-0.12562	-1.69766
		2022	-0.79971	-0.06461	-0.66117
		2023	-0.45737	-0.16756	-1.10758
33	PWON	2021	-0.10842	0.0183	-0.39125
		2022	0.10649	0.07319	0.13368
		2023	-0.00937	0.04616	0.11066
34	SIDO	2021	0.48563	0.13886	0.19642
		2022	-0.22187	0.3722	-0.19408
		2023	-0.92908	-0.8671	-0.79729
35	SMGR	2021	-0.82842	-0.50918	-1.22142
		2022	-0.10521	-0.74794	-0.08461
		2023	0.01357	0.04206	0.03946
36	SMRA	2021	0.40636	0.12692	0.13822
		2022	-0.64941	-0.12815	-0.65249
		2023	-0.01739	-0.12315	-0.01989

37	TBIG	2021	1.64902	-0.45225	2.97595
		2022	-1.11231	2.10124	-0.4799
		2023	-0.54379	0.39293	-0.13619
38	TINS	2021	0.20226	0.08362	-0.54645
		2022	-0.30975	0.02952	-0.41518
		2023	-1.61759	-0.33744	-1.24583
39	TKIM	2021	-0.16259	-0.04427	-0.91032
		2022	-0.04014	0.0009	-0.00333
		2023	0.25567	0.08753	0.22573
40	TLKM	2021	1.11154	0.26107	0.63554
		2022	-0.2322	0.039	-0.03202
		2023	0.27985	0.09475	0.29041
41	TOWR	2021	0.61077	0.16804	0.30232
		2022	0.00156	0.46205	0.12501
		2023	-0.28086	-0.01025	-0.18431
42	UNTR	2021	-0.18735	-0.25455	-0.42453
		2022	0.71715	0.15264	0.72568
		2023	-0.14387	0.00122	-0.2884
43	UNVR	2021	-1.49077	-0.35634	-1.35942
		2022	0.6832	-0.01726	0.6331
		2023	-1.50047	0.70823	-0.61745
44	WIKA	2021	-0.78965	-0.18723	-1.49862
		2022	-0.87847	-0.12955	-0.65421
		2023	-0.64666	-0.3066	-2.02076