

01/11/2020	1390	14300	11700	1505	3230	7100	1145
01/12/2020	1430	14475	12425	1480	3310	6850	1935
01/01/2021	1200	13375	10600	1465	3110	6050	2220
01/02/2021	1180	12500	10200	1470	3490	6050	2840
01/03/2021	1175	12225	10425	1570	3420	6600	2250
01/04/2021	1245	12850	10425	1440	3200	6525	2490
01/05/2021	1190	12100	9700	1450	3440	6350	2450
01/06/2021	1205	10300	9500	1400	3150	6175	2300
01/07/2021	1335	8800	7700	1260	3240	6075	2520
01/08/2021	1260	11250	9250	1345	3400	6175	2390
01/09/2021	1760	10500	8200	1430	3690	6350	2290
01/10/2021	1680	11825	9100	1600	3800	6350	2340
01/11/2021	1700	10575	8000	1600	3990	6300	2300
01/12/2021	2250	12100	7250	1615	4040	6325	2250
01/01/2022	2240	10950	6725	1640	4190	6325	1770
01/02/2022	2450	10950	7200	1645	4340	6200	2220
01/03/2022	2690	10775	6650	1610	4580	5950	2440
01/04/2022	3340	10475	6400	1640	4620	6300	2600
01/05/2022	3270	9725	7300	1675	4310	6600	2510
01/06/2022	2860	9475	7125	1660	4000	7050	1800
01/07/2022	3250	9300	6525	1620	4230	6800	1955
01/08/2022	3540	9450	6600	1680	4560	6225	1990
01/09/2022	3960	9500	7475	1830	4460	6025	1940
01/10/2022	3980	9275	7950	2050	4390	6450	1845
01/11/2022	3870	9950	7600	2070	4040	6450	1985
01/12/2022	3850	9900	6575	2090	3750	6725	1985
01/01/2023	2960	10000	7400	2060	3850	6725	2310
01/02/2023	2990	11125	7225	2110	3880	6475	1990

01/03/2023	2900	10525	6300	2100	4060	6200	2090
01/04/2023	3130	10850	5950	2120	4250	6450	2100
01/05/2023	2040	9900	5800	2030	4040	7100	1895
01/06/2023	2230	9925	6075	2050	4000	7350	1950
01/07/2023	2410	10425	6975	1915	3720	7325	1985
01/08/2023	2670	10700	6800	1815	3730	7100	1990
01/09/2023	2850	9950	6425	1755	3750	6625	1815

Date	BRPT	CPIN	EXCL	ICBP	INCO	INKP	MIKA
01/10/2018	373.4277	5500	2620	8925	2920	12725	1430
01/11/2018	420.2306	5950	2040	9850	3030	10500	1590
01/12/2018	475.9958	7225	1980	10450	3260	11550	1575
01/01/2019	519.8113	7400	2170	10775	3850	13000	1510
01/02/2019	597.4843	7300	2400	10225	3740	11025	1940
01/03/2019	709.0146	6375	2680	9325	3390	8675	1930
01/04/2019	802.6205	5275	2920	9725	3050	7400	2160
01/05/2019	657.2327	4900	2860	9800	2700	7750	1840
01/06/2019	639.3082	4730	2980	10150	3120	9375	1895
01/07/2019	772.7463	5375	3230	10700	3030	7475	2030
01/08/2019	901.2054	5025	3480	12050	3530	6850	2550
01/09/2019	985.8491	5350	3440	12025	3510	6475	2710
01/10/2019	946.0168	6300	3550	11625	3710	7275	2600
01/11/2019	1354.298	6725	3340	11325	3000	6800	2670
01/12/2019	1503.669	6500	3150	11150	3640	7700	2670
01/01/2020	1299.528	6650	2900	11375	3160	6750	2600
01/02/2020	980.87	5700	2590	10275	2450	5625	2480
01/03/2020	721.9601	4940	2000	10225	2160	4010	2150
01/04/2020	1443.92	4600	2540	9875	2570	5550	1945

01/05/2020	1344.34	5775	2590	8150	2780	5250	2370
01/06/2020	1155.136	5575	2770	9350	2800	5975	2270
01/07/2020	946.0168	6225	2500	9200	3420	7800	2400
01/08/2020	836.478	6300	2440	10225	3790	9300	2370
01/09/2020	786.6876	5675	2030	10075	3560	8975	2450
01/10/2020	896.2264	5850	2030	9650	4050	9125	2630
01/11/2020	1045.598	6075	2410	9900	4610	8675	2700
01/12/2020	1095.388	6525	2730	9575	5100	10425	2730
01/01/2021	881.2893	5750	2220	9100	5500	12900	2900
01/02/2021	1095.388	6150	2200	8575	6075	13175	2970
01/03/2021	955.9749	7000	2090	9200	4380	10450	2630
01/04/2021	995.8071	7050	2090	8700	4610	9100	2620
01/05/2021	896.2264	6750	2460	8200	4730	8500	2580
01/06/2021	851.4151	6250	2670	8150	4610	7450	2800
01/07/2021	965.9329	6125	2690	8125	5500	6800	2590
01/08/2021	1060.535	6400	2670	8425	5075	7900	2330
01/09/2021	960.9539	6425	3040	8350	4590	8575	2300
01/10/2021	931.0797	6200	3080	8800	4850	8475	2280
01/11/2021	916.1426	6075	3070	8450	4790	7550	2380
01/12/2021	851.4151	5950	3170	8700	4680	7825	2260
01/01/2022	886.2684	6300	3320	8725	4710	7600	2520
01/02/2022	886.2684	5800	2860	8500	5400	8075	2220
01/03/2022	901.2054	5650	2650	7350	6700	7900	2170
01/04/2022	846.436	5150	3190	7625	7300	7575	2530
01/05/2022	831.499	5400	2640	8575	8225	8250	2610
01/06/2022	751.8344	6000	2600	9550	5650	7600	2750
01/07/2022	896.2264	5600	2370	8825	6100	7600	2490
01/08/2022	816.5618	5875	2630	8300	6100	8325	2660

01/09/2022	791.6667	5650	2460	8650	6400	9050	2900
01/10/2022	821.5409	5575	2520	9725	6500	9600	2760
01/11/2022	786.6876	5700	2170	10100	7375	10000	2840
01/12/2022	755	5650	2140	10000	7100	8725	3190
01/01/2023	825	5825	2300	10100	7425	8325	2990
01/02/2023	935	5375	2090	10125	6825	7925	2990
01/03/2023	825	4990	1980	9975	6650	7500	2930
01/04/2023	835	4590	1750	10575	6975	7775	2890
01/05/2023	760	4950	1985	11700	6300	6900	2710
01/06/2023	745	5275	1955	11325	6300	8500	2690
01/07/2023	775	5175	2270	11200	6875	9150	2910
01/08/2023	1070	5175	2500	11200	5900	9100	2830
01/09/2023	1300	5425	2380	11075	5650	11100	2700

Date	PGAS	SCMA	PTBA	TPIA	UNTR	UNVR	JII
01/10/2018	2220	314	4250	1202.5	33500	8645	651.27
01/11/2018	1955	383	4020	1331.25	27500	8450	662.59
01/12/2018	2120	374	4300	1481.25	27350	9080	685.22
01/01/2019	2570	377	4310	1468.75	25725	10000	727.01
01/02/2019	2540	350	3980	1425	26500	9735	698.32
01/03/2019	2360	330	4210	1387.5	27000	9840	704.69
01/04/2019	2320	372	3960	1275	27175	9100	691.91
01/05/2019	2060	330	3060	1275	25350	8900	661.04
01/06/2019	2110	322	2960	1242.5	28200	9000	682.65
01/07/2019	2050	310	2740	1568.75	24925	8720	687.8
01/08/2019	1920	247	2470	2206.25	20925	9770	702.59
01/09/2019	2100	232	2260	2050	20575	9300	685.92
01/10/2019	2110	244	2250	2375	21675	8745	686.92

01/11/2019	1920	240	2420	2337.5	20925	8360	667.44
01/12/2019	2170	282	2660	2593.75	21525	8400	698.09
01/01/2020	1705	288	2210	2193.75	19200	7950	642.8
01/02/2020	1280	224	2240	2000	16600	6825	565.01
01/03/2020	775	155	2180	1312.5	16900	7250	476.39
01/04/2020	855	176	1875	2243.75	16300	8275	542.5
01/05/2020	860	200	1945	1831.25	15700	7750	528.97
01/06/2020	1135	233	2020	1643.75	16550	7900	533.8
01/07/2020	1265	257	2030	1831.25	21350	8400	555.63
01/08/2020	1255	248	2040	1781.25	23000	8225	556.67
01/09/2020	925	243	1970	1800	22800	8100	518.9
01/10/2020	1075	299	1960	2000	21125	7825	545.66
01/11/2020	1390	329	2360	2325	23000	7725	597.8
01/12/2020	1655	458	2810	2268.75	26600	7350	630.42
01/01/2021	1345	436	2580	2543.75	22850	6925	601.75
01/02/2021	1440	396	2710	2437.5	22550	7000	631.45
01/03/2021	1315	340	2620	2781.25	22125	6575	605.69
01/04/2021	1225	315	2370	2518.75	21175	6000	585.43
01/05/2021	1115	337	2210	1981.25	22550	5850	567.62
01/06/2021	1005	362	2000	2456.25	20250	4950	544.3
01/07/2021	975	460	2230	2350	19550	4220	532.79
01/08/2021	1035	406	2110	1962.5	20075	4050	540.67
01/09/2021	1190	402	2760	1800	26000	3950	552.53
01/10/2021	1510	420	2680	1900	23550	4420	567.93
01/11/2021	1500	342	2600	1768.75	21350	4480	558.15
01/12/2021	1375	326	2710	1831.25	22150	4110	562.02
01/01/2022	1380	292	2850	2206.25	23125	4030	556.83
01/02/2022	1440	258	3140	2256.25	24900	3680	571.41

01/03/2022	1405	292	3290	2525	25550	3660	590.17
01/04/2022	1450	254	3820	2512.5	30275	3890	619.2
01/05/2022	1800	224	4530	2556.25	31300	4730	614.3
01/06/2022	1590	220	3820	2250	28400	4770	574.56
01/07/2022	1680	220	4300	2375	32300	4510	597.99
01/08/2022	1840	226	4250	2440	33850	4590	616.73
01/09/2022	1755	206	4170	2400	32825	4830	611.04
01/10/2022	1975	234	3910	2440	32300	4640	618.35
01/11/2022	1880	250	3800	2390	30800	4800	608.48
01/12/2022	1760	206	3690	2570	26075	4700	588.04
01/01/2023	1545	226	3400	2310	24550	4660	577.58
01/02/2023	1565	216	3860	2310	27900	4180	577.99
01/03/2023	1380	188	3990	2340	29100	4350	571.71
01/04/2023	1430	165	4140	2360	28900	4400	577.28
01/05/2023	1430	138	3060	2140	22225	4530	530.52
01/06/2023	1305	162	2680	2100	23275	4260	542.46
01/07/2023	1365	156	2770	2120	27525	3850	556.05
01/08/2023	1375	148	2860	2180	26000	3670	556.17
01/09/2023	1375	158	2800	2530	28250	3740	563.45

**Lampiran 3. Hasil Perhitungan Return Masing-Masing Saham**

Date	ADRO	INTP	SMGR	KLBF	TLKM	INDF	ANTM
01/10/2018							
01/11/2018	-0.22121	0.104046	0.336111	0.113139	-0.04416	0.104603	-0.09559
01/12/2018	-0.05447	-0.03403	-0.04366	-0.00328	0.019022	0.128788	0.243902
01/01/2019	0.144033	0.042005	0.102174	0.052632	0.04	0.040268	0.261438
01/02/2019	-0.05755	0	-0.00197	-0.06563	-0.01026	-0.0871	0.051813
01/03/2019	0.022901	0.110533	0.096838	0.016722	0.025907	-0.09187	-0.12315
01/04/2019	-0.02612	0.030445	-0.02703	0.016447	-0.04293	0.081712	-0.02809
01/05/2019	-0.00766	-0.03636	-0.14444	-0.09061	0.029024	-0.05036	-0.16185
01/06/2019	0.050193	-0.0566	0.002165	0.039146	0.061538	0.064394	0.165517
01/07/2019	-0.06618	0.12375	0.112311	0.006849	0.038647	0.007117	0.106509
01/08/2019	-0.11417	-0.03337	0.029126	0.14966	0.034884	0.120141	0.144385
01/09/2019	0.146667	-0.13809	-0.1283	-0.00888	-0.03146	-0.02839	-0.08879
01/10/2019	0.015504	0.068091	0.095238	-0.04776	-0.0464	0	-0.08718
01/11/2019	-0.06107	-0.03	-0.09486	-0.04389	-0.0438	0.032468	-0.1573
01/12/2019	0.264228	-0.01933	0.048035	0.062295	0.010178	-0.00314	0.12
01/01/2020	-0.21222	-0.13403	-0.00417	-0.11728	-0.04282	-0.01262	-0.14286
01/02/2020	-0.05714	-0.09408	-0.12343	-0.14685	-0.08158	-0.16933	-0.20139
01/03/2020	-0.14286	-0.16248	-0.27208	-0.01639	-0.09456	-0.02308	-0.21739
01/04/2020	-0.07071	-0.068	0.042623	0.2	0.107595	0.027559	0.133333
01/05/2020	0.195652	0.038627	0.232704	-0.01736	-0.1	-0.11877	0.04902
01/06/2020	-0.09545	-0.02479	-0.01786	0.031802	-0.03175	0.134783	0.130841
01/07/2020	0.090452	0.048729	-0.04156	0.071918	0	-0.01149	0.206612
01/08/2020	0	-0.0404	0.143631	0.009585	-0.0623	0.182171	0.123288
01/09/2020	0.046083	-0.12421	-0.13033	-0.01899	-0.1049	-0.0623	-0.14024
01/10/2020	-0.00881	0.175481	0.043597	-0.01613	0.023438	-0.02098	0.496454
01/11/2020	0.235556	0.169734	0.221932	-0.01311	0.232824	0.014286	0.085308
01/12/2020	0.028777	0.012238	0.061966	-0.01661	0.024768	-0.03521	0.689956
01/01/2021	-0.16084	-0.07599	-0.14688	-0.01014	-0.06042	-0.11679	0.147287
01/02/2021	-0.01667	-0.06542	-0.03774	0.003413	0.122186	0	0.279279
01/03/2021	-0.00424	-0.022	0.022059	0.068027	-0.02006	0.090909	-0.20775
01/04/2021	0.059574	0.051125	0	-0.0828	-0.06433	-0.01136	0.106667
01/05/2021	-0.04418	-0.05837	-0.06954	0.006944	0.075	-0.02682	-0.01606
01/06/2021	0.012605	-0.14876	-0.02062	-0.03448	-0.0843	-0.02756	-0.06122
01/07/2021	0.107884	-0.14563	-0.18947	-0.1	0.028571	-0.01619	0.095652
01/08/2021	-0.05618	0.278409	0.201299	0.06746	0.049383	0.016461	-0.05159
01/09/2021	0.396825	-0.06667	-0.11351	0.063197	0.085294	0.02834	-0.04184
01/10/2021	-0.04545	0.12619	0.109756	0.118881	0.02981	0	0.021834
01/11/2021	0.011905	-0.10571	-0.12088	0	0.05	-0.00787	-0.01709
01/12/2021	0.323529	0.144208	-0.09375	0.009375	0.012531	0.003968	-0.02174
01/01/2022	-0.00444	-0.09504	-0.07241	0.01548	0.037129	0	-0.21333
01/02/2022	0.09375	0	0.070632	0.003049	0.0358	-0.01976	0.254237
01/03/2022	0.097959	-0.01598	-0.07639	-0.02128	0.0553	-0.04032	0.099099

01/04/2022	0.241636	-0.02784	-0.03759	0.018634	0.008734	0.058824	0.065574
01/05/2022	-0.02096	-0.0716	0.140625	0.021341	-0.0671	0.047619	-0.03462
01/06/2022	-0.12538	-0.02571	-0.02397	-0.00896	-0.07193	0.068182	-0.28287
01/07/2022	0.136364	-0.01847	-0.08421	-0.0241	0.0575	-0.03546	0.086111
01/08/2022	0.089231	0.016129	0.011494	0.037037	0.078014	-0.08456	0.017903
01/09/2022	0.118644	0.005291	0.132576	0.089286	-0.02193	-0.03213	-0.02513
01/10/2022	0.005051	-0.02368	0.063545	0.120219	-0.0157	0.070539	-0.04897
01/11/2022	-0.02764	0.072776	-0.04403	0.009756	-0.07973	0	0.075881
01/12/2022	-0.00517	-0.00503	-0.13487	0.009662	-0.07178	0.042636	0
01/01/2023	-0.23117	0.010101	0.125475	-0.01435	0.026667	0	0.163728
01/02/2023	0.010135	0.1125	-0.02365	0.024272	0.007792	-0.03717	-0.13853
01/03/2023	-0.0301	-0.05393	-0.12803	-0.00474	0.046392	-0.04247	0.050251
01/04/2023	0.07931	0.030879	-0.05556	0.009524	0.046798	0.040323	0.004785
01/05/2023	-0.34824	-0.08756	-0.02521	-0.04245	-0.04941	0.100775	-0.09762
01/06/2023	0.093137	0.002525	0.047414	0.009852	-0.0099	0.035211	0.029024
01/07/2023	0.080717	0.050378	0.148148	-0.06585	-0.07	-0.0034	0.017949
01/08/2023	0.107884	0.026379	-0.02509	-0.05222	0.002688	-0.03072	0.002519
01/09/2023	0.067416	-0.07009	-0.05515	-0.03306	0.005362	-0.0669	-0.08794

Date	BRPT	CPIN	EXCL	ICBP	INCO	INKP	MIKA
01/10/2018							
01/11/2018	0.125333	0.081818	-0.22137	0.103641	0.037671	-0.17485	0.111888
01/12/2018	0.132701	0.214286	-0.02941	0.060914	0.075908	0.1	-0.00943
01/01/2019	0.09205	0.024221	0.09596	0.0311	0.180982	0.125541	-0.04127
01/02/2019	0.149425	-0.01351	0.105991	-0.05104	-0.02857	-0.15192	0.284768
01/03/2019	0.186667	-0.12671	0.116667	-0.08802	-0.09358	-0.21315	-0.00515
01/04/2019	0.132023	-0.17255	0.089552	0.042895	-0.10029	-0.14697	0.119171
01/05/2019	-0.18114	-0.07109	-0.02055	0.007712	-0.11475	0.047297	-0.14815
01/06/2019	-0.02727	-0.03469	0.041958	0.035714	0.155556	0.209677	0.029891
01/07/2019	0.208723	0.136364	0.083893	0.054187	-0.02885	-0.20267	0.07124
01/08/2019	0.166237	-0.06512	0.077399	0.126168	0.165017	-0.08361	0.256158
01/09/2019	0.093923	0.064677	-0.01149	-0.00207	-0.00567	-0.05474	0.062745
01/10/2019	-0.0404	0.17757	0.031977	-0.03326	0.05698	0.123552	-0.04059
01/11/2019	0.431579	0.06746	-0.05915	-0.02581	-0.19137	-0.06529	0.026923
01/12/2019	0.110294	-0.03346	-0.05689	-0.01545	0.213333	0.132353	0
01/01/2020	-0.13576	0.023077	-0.07937	0.020179	-0.13187	-0.12338	-0.02622



01/02/2020	-0.24521	-0.14286	-0.1069	-0.0967	-0.22468	-0.16667	-0.04615
01/03/2020	-0.26396	-0.13333	-0.2278	-0.00487	-0.11837	-0.28711	-0.13306
01/04/2020	1	-0.06883	0.27	-0.03423	0.189815	0.38404	-0.09535
01/05/2020	-0.06897	0.255435	0.019685	-0.17468	0.081712	-0.05405	0.218509
01/06/2020	-0.14074	-0.03463	0.069498	0.147239	0.007194	0.138095	-0.04219
01/07/2020	-0.18103	0.116592	-0.09747	-0.01604	0.221429	0.305439	0.057269
01/08/2020	-0.11579	0.012048	-0.024	0.111413	0.108187	0.192308	-0.0125
01/09/2020	-0.05952	-0.09921	-0.16803	-0.01467	-0.06069	-0.03495	0.033755
01/10/2020	0.139241	0.030837	0	-0.04218	0.13764	0.016713	0.073469
01/11/2020	0.166667	0.038462	0.187192	0.025907	0.138272	-0.04932	0.026616
01/12/2020	0.047619	0.074074	0.13278	-0.03283	0.106291	0.201729	0.011111
01/01/2021	-0.19545	-0.11877	-0.18681	-0.04961	0.078431	0.23741	0.062271
01/02/2021	0.242938	0.069565	-0.00901	-0.05769	0.104545	0.021318	0.024138
01/03/2021	-0.12727	0.138211	-0.05	0.072886	-0.27901	-0.20683	-0.11448
01/04/2021	0.041667	0.007143	0	-0.05435	0.052511	-0.12919	-0.0038
01/05/2021	-0.1	-0.04255	0.177033	-0.05747	0.02603	-0.06593	-0.01527
01/06/2021	-0.05	-0.07407	0.085366	-0.0061	-0.02537	-0.12353	0.085271
01/07/2021	0.134503	-0.02	0.007491	-0.00307	0.193059	-0.08725	-0.075
01/08/2021	0.097938	0.044898	-0.00743	0.036923	-0.07727	0.161765	-0.10039
01/09/2021	-0.0939	0.003906	0.138577	-0.0089	-0.09557	0.085443	-0.01288
01/10/2021	-0.03109	-0.03502	0.013158	0.053892	0.056645	-0.01166	-0.0087
01/11/2021	-0.01604	-0.02016	-0.00325	-0.03977	-0.01237	-0.10914	0.04386
01/12/2021	-0.07065	-0.02058	0.032573	0.029586	-0.02296	0.036424	-0.05042
01/01/2022	0.040936	0.058824	0.047319	0.002874	0.00641	-0.02875	0.115044
01/02/2022	0	-0.07937	-0.13855	-0.02579	0.146497	0.0625	-0.11905
01/03/2022	0.016854	-0.02586	-0.07343	-0.13529	0.240741	-0.02167	-0.02252
01/04/2022	-0.06077	-0.0885	0.203774	0.037415	0.089552	-0.04114	0.165899
01/05/2022	-0.01765	0.048544	-0.17241	0.12459	0.126712	0.089109	0.031621
01/06/2022	-0.09581	0.111111	-0.01515	0.113703	-0.31307	-0.07879	0.05364
01/07/2022	0.192053	-0.06667	-0.08846	-0.07592	0.079646	0	-0.09455

01/08/2022	-0.08889	0.049107	0.109705	-0.05949	0	0.095395	0.068273
01/09/2022	-0.03049	-0.0383	-0.06464	0.042169	0.04918	0.087087	0.090226
01/10/2022	0.037736	-0.01327	0.02439	0.124277	0.015625	0.060773	-0.04828
01/11/2022	-0.04242	0.022422	-0.13889	0.03856	0.134615	0.041667	0.028986
01/12/2022	-0.04028	-0.00877	-0.01382	-0.0099	-0.03729	-0.1275	0.123239
01/01/2023	0.092715	0.030973	0.074766	0.01	0.045775	-0.04585	-0.0627
01/02/2023	0.133333	-0.07725	-0.0913	0.002475	-0.08081	-0.04805	0
01/03/2023	-0.11765	-0.07163	-0.05263	-0.01481	-0.02564	-0.05363	-0.02007
01/04/2023	0.012121	-0.08016	-0.11616	0.06015	0.048872	0.036667	-0.01365
01/05/2023	-0.08982	0.078431	0.134286	0.106383	-0.09677	-0.11254	-0.06228
01/06/2023	-0.01974	0.065657	-0.01511	-0.03205	0	0.231884	-0.00738
01/07/2023	0.040268	-0.01896	0.161125	-0.01104	0.09127	0.076471	0.081784
01/08/2023	0.380645	0	0.101322	0	-0.14182	-0.00546	-0.02749
01/09/2023	0.214953	0.048309	-0.048	-0.01116	-0.04237	0.21978	-0.04594

Date	PGAS	SCMA	PTBA	TPIA	UNTR	UNVR	JII
01/10/2018							
01/11/2018	-0.11937	0.219745	-0.05412	0.107069	-0.1791	-0.02256	0.017381
01/12/2018	0.084399	-0.0235	0.069652	0.112676	-0.00545	0.074556	0.034154
01/01/2019	0.212264	0.008021	0.002326	-0.00844	-0.05941	0.101322	0.060988
01/02/2019	-0.01167	-0.07162	-0.07657	-0.02979	0.030126	-0.0265	-0.03946
01/03/2019	-0.07087	-0.05714	0.057789	-0.02632	0.018868	0.010786	0.009122
01/04/2019	-0.01695	0.127273	-0.05938	-0.08108	0.006481	-0.0752	-0.01814
01/05/2019	-0.11207	-0.1129	-0.22727	0	-0.06716	-0.02198	-0.04462
01/06/2019	0.024272	-0.02424	-0.03268	-0.02549	0.112426	0.011236	0.032691
01/07/2019	-0.02844	-0.03727	-0.07432	0.262575	-0.11613	-0.03111	0.007544
01/08/2019	-0.06341	-0.20323	-0.09854	0.406375	-0.16048	0.120413	0.021503
01/09/2019	0.09375	-0.06073	-0.08502	-0.07082	-0.01673	-0.04811	-0.02373
01/10/2019	0.004762	0.051724	-0.00442	0.158537	0.053463	-0.05968	0.001458
01/11/2019	-0.09005	-0.01639	0.075556	-0.01579	-0.0346	-0.04403	-0.02836

01/12/2019	0.130208	0.175	0.099174	0.109626	0.028674	0.004785	0.045922
01/01/2020	-0.21429	0.021277	-0.16917	-0.15422	-0.10801	-0.05357	-0.0792
01/02/2020	-0.24927	-0.22222	0.013575	-0.08832	-0.13542	-0.14151	-0.12102
01/03/2020	-0.39453	-0.30804	-0.02679	-0.34375	0.018072	0.062271	-0.15685
01/04/2020	0.103226	0.135484	-0.13991	0.709524	-0.0355	0.141379	0.138773
01/05/2020	0.005848	0.136364	0.037333	-0.18384	-0.03681	-0.06344	-0.02494
01/06/2020	0.319767	0.165	0.03856	-0.10239	0.05414	0.019355	0.009131
01/07/2020	0.114537	0.103004	0.00495	0.114068	0.29003	0.063291	0.040895
01/08/2020	-0.00791	-0.03502	0.004926	-0.0273	0.077283	-0.02083	0.001872
01/09/2020	-0.26295	-0.02016	-0.03431	0.010526	-0.0087	-0.0152	-0.06785
01/10/2020	0.162162	0.230453	-0.00508	0.111111	-0.07346	-0.03395	0.051571
01/11/2020	0.293023	0.100334	0.204082	0.1625	0.088757	-0.01278	0.095554
01/12/2020	0.190647	0.392097	0.190678	-0.02419	0.156522	-0.04854	0.054567
01/01/2021	-0.18731	-0.04803	-0.08185	0.121212	-0.14098	-0.05782	-0.04548
01/02/2021	0.070632	-0.09174	0.050388	-0.04177	-0.01313	0.01083	0.049356
01/03/2021	-0.08681	-0.14141	-0.03321	0.141026	-0.01885	-0.06071	-0.0408
01/04/2021	-0.06844	-0.07353	-0.09542	-0.09438	-0.04294	-0.08745	-0.03345
01/05/2021	-0.0898	0.069841	-0.06751	-0.2134	0.064935	-0.025	-0.03042
01/06/2021	-0.09865	0.074184	-0.09502	0.239748	-0.102	-0.15385	-0.04108
01/07/2021	-0.02985	0.270718	0.115	-0.04326	-0.03457	-0.14747	-0.02115
01/08/2021	0.061538	-0.11739	-0.05381	-0.16489	0.026854	-0.04028	0.01479
01/09/2021	0.149758	-0.00985	0.308057	-0.0828	0.295143	-0.02469	0.021936
01/10/2021	0.268908	0.044776	-0.02899	0.055556	-0.09423	0.118987	0.027872
01/11/2021	-0.00662	-0.18571	-0.02985	-0.06908	-0.09342	0.013575	-0.01722
01/12/2021	-0.08333	-0.04678	0.042308	0.035336	0.037471	-0.08259	0.006934
01/01/2022	0.003636	-0.10429	0.051661	0.204778	0.044018	-0.01946	-0.00923
01/02/2022	0.043478	-0.11644	0.101754	0.022663	0.076757	-0.08685	0.026184
01/03/2022	-0.02431	0.131783	0.047771	0.119114	0.026104	-0.00543	0.032831
01/04/2022	0.032028	-0.13014	0.161094	-0.00495	0.184932	0.062842	0.049189
01/05/2022	0.241379	-0.11811	0.185864	0.017413	0.033856	0.215938	-0.00791

01/06/2022	-0.11667	-0.01786	-0.15673	-0.1198	-0.09265	0.008457	-0.06469
01/07/2022	0.056604	0	0.125654	0.055556	0.137324	-0.05451	0.040779
01/08/2022	0.095238	0.027273	-0.01163	0.027368	0.047988	0.017738	0.031338
01/09/2022	-0.0462	-0.0885	-0.01882	-0.01639	-0.03028	0.052288	-0.00923
01/10/2022	0.125356	0.135922	-0.06235	0.016667	-0.01599	-0.03934	0.011963
01/11/2022	-0.0481	0.068376	-0.02813	-0.02049	-0.04644	0.034483	-0.01596
01/12/2022	-0.06383	-0.176	-0.02895	0.075314	-0.15341	-0.02083	-0.03359
01/01/2023	-0.12216	0.097087	-0.07859	-0.10117	-0.05849	-0.00851	-0.01779
01/02/2023	0.012945	-0.04425	0.135294	0	0.136456	-0.103	0.00071
01/03/2023	-0.11821	-0.12963	0.033679	0.012987	0.043011	0.04067	-0.01087
01/04/2023	0.036232	-0.12234	0.037594	0.008547	-0.00687	0.011494	0.009743
01/05/2023	0	-0.16364	-0.26087	-0.09322	-0.23097	0.029545	-0.081
01/06/2023	-0.08741	0.173913	-0.12418	-0.01869	0.047244	-0.0596	0.022506
01/07/2023	0.045977	-0.03704	0.033582	0.009524	0.182599	-0.09624	0.025052
01/08/2023	0.007326	-0.05128	0.032491	0.028302	-0.0554	-0.04675	0.000216
01/09/2023	0	0.067568	-0.02098	0.16055	0.086538	0.019074	0.01309

**Lampiran 4. Output Uji Normalitas Shapiro Wilk Menggunakan Software Rstudio**

a) ADRO

```
> shapiro.test(SAHAM_TERPILIH$ADRO)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$ADRO
W = 0.97467, p-value = 0.2547
```

b) INTP

```
> shapiro.test(SAHAM_TERPILIH$INTP)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$INTP
W = 0.9658, p-value = 0.09574
```

c) SMGR

```
> shapiro.test(SAHAM_TERPILIH$SMGR)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$SMGR
W = 0.98121, p-value = 0.4934
```

d) KLBF

```
> shapiro.test(SAHAM_TERPILIH$KLBF)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$KLBF
W = 0.96219, p-value = 0.06398
```

e) TLKM

```
> shapiro.test(SAHAM_TERPILIH$TLKM)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$TLKM
W = 0.94976, p-value = 0.0164
```

f) INDF

```
> shapiro.test(SAHAM_TERPILIH$INDF)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$INDF
W = 0.9809, p-value = 0.4791
```

g) ANTM

```
> shapiro.test(SAHAM_TERPILIH$ANTM)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$ANTM
W = 0.92862, p-value = 0.001922
```

h) BRPT

```
> shapiro.test(SAHAM_TERPILIH$BRPT)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$BRPT
W = 0.8263, p-value = 7.712e-07
```

i) CPIN

```
> shapiro.test(SAHAM_TERPILIH$CPIN)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$CPIN
W = 0.97822, p-value = 0.369
```

j) EXCL

```
> shapiro.test(SAHAM_TERPILIH$EXCL)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$EXCL
W = 0.99284, p-value = 0.9804
```

k) ICBP

```
> shapiro.test(SAHAM_TERPILIH$ICBP)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$ICBP
W = 0.97513, p-value = 0.2675
```

l) INCO

```
> shapiro.test(SAHAM_TERPILIH$INCO)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$INCO
W = 0.97867, p-value = 0.3862
```

m) INKP

```
> shapiro.test(SAHAM_TERPILIH$INKP)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$INKP
W = 0.98555, p-value = 0.7084
```

n) MIKA

```
> shapiro.test(SAHAM_TERPILIH$MIKA)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$MIKA
W = 0.95275, p-value = 0.02263
```

o) PGAS

```
> shapiro.test(SAHAM_TERPILIH$PGAS)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$PGAS
W = 0.97987, p-value = 0.4345
```

p) SCMA

```
> shapiro.test(SAHAM_TERPILIH$SCMA)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$SCMA
W = 0.98301, p-value = 0.5792
```

q) PTBA

```
> shapiro.test(SAHAM_TERPILIH$PTBA)

      Shapiro-Wilk normality test

data:  SAHAM_TERPILIH$PTBA
W = 0.98146, p-value = 0.5051
```

r) TPIA

```
> shapiro.test(SAHAM_TERPILIH$TPIA)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$TPIA
W = 0.87864, p-value = 2.747e-05
```

s) UNTR

```
> shapiro.test(SAHAM_TERPILIH$UNTR)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$UNTR
W = 0.97568, p-value = 0.2835
```

t) UNVR

```
> shapiro.test(SAHAM_TERPILIH$UNVR)

      Shapiro-wilk normality test

data:  SAHAM_TERPILIH$UNVR
W = 0.96391, p-value = 0.07748
```



**Lampiran 5. Data Laporan Keuangan untuk Analisis Fundamental**

Analisis Fundamental	ADRO	SMGR	EXCL
Total Utang/Liabilitas	46,112,541,532,000	30,819,327,000,000	57,818,934,000,000
Total Ekuitas	104,813,447,844,000	43,257,718,000,000	25,875,773,000,000
Laba Bersih	18,836,849,692,000	561,616,000,000	650,680,000,000
Jumlah Saham Beredar	31,985,962,000	6,751,540,089	13,071,942,865
Harga Saham	2,570	6,300	2,110
Total Aset	160,636,015,748,000	80,964,111,000,000	83,694,707,000,000
Total Penjualan	76,977,857,584,000	8,935,094,000,000	15,764,527,000,000

Analisis Fundamental	INCO	INKP	PGAS
Total Utang/Liabilitas	5,362,182,558,000	60,190,990,330,000	50,410,972,328,106
Total Ekuitas	38,877,009,640,000	86,431,163,258,000	40,494,262,692,551
Laba Bersih	3,416,663,044,000	2,006,875,942,000	3,074,093,365,908
Jumlah Saham Beredar	9,936,338,720	5,470,982,941	24,241,508,196
Harga Saham	4,310	8,350	1,110
Total Aset	44,239,192,198,000	146,629,323,100,000	103,574,718,407,707
Total Penjualan	14,494,244,784,000	15,908,815,764,000	41,670,374,324,832

Analisis Fundamental	SCMA
Total Utang/Liabilitas	2,291,863,395,000
Total Ekuitas	7,201,091,261,000
Laba Bersih	65,611,870,000
Jumlah Saham Beredar	63,207,375,385
Harga Saham	153
Total Aset	10,555,453,649,000
Total Penjualan	3,032,392,988,000

**Lampiran 6. Output DEA Menggunakan Software Add-Ins Microsoft Excel**

Inputs		Outputs							
Standar Deviasi		expected return							
DER		BV							
PER		PBV							
		ROA							
		ROE							
		EPS							
		NPM							

  

Input-Oriented CRS			Sum of Optimal Lambdas			
DMU No.	DMU Name	Efficiency	lambdas	RTS	with Benchmarks	
1	ADRO	1.00000	1.000	Constant	1.000	ADRO
2	SMGR	1.00000	1.000	Constant	1.000	SMGR
3	EXCL	1.00000	1.000	Constant	1.000	EXCL
4	INCO	1.00000	1.000	Constant	1.000	INCO
5	INKP	1.00000	1.000	Constant	1.000	INKP
6	PGAS	0.88363	0.953	Increasing	0.803	ADRO
7	SCMA	1.00000	1.000	Constant	1.000	SCMA
						0.150 EXCL