juga menyarakan untuk melakukan penelitian yang serupa dengan menggunakan model GARCH-M lainnya pada saham Bank BCA Tbk.

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Lampiran **1. Harga Saham**

	BANK BCA TBK					PT. Indofood Sukses Makmur Tbk					PT. Telemunikasi Indonesia Tbk.				
Date	Open	High	Low	Close	Adj Close	Open	High	Low	Close	Adj Close	Open	High	Low	Close	Adj Close
1/2/2017	15500	15500	15500	15500	14907.87	7925	7925	7925	7925	7362.149	3980	3980	3980	3980	3737.333
1/3/2017	15500	15775	15225	15775	15172.36	7975	7975	7725	7725	7176.354	3950	3990	3920	3950	3709.163
1/4/2017	15850	15875	15650	15700	15100.23	7800	7850	7750	7800	7246.027	3880	3980	3880	3950	3709.163
1/5/2017	15700	15775	15625	15675	15076.18	7775	8000	7775	8000	7431.822	3960	4030	3940	3950	3709.163
1/6/2017	15450	15700	15450	15600	15004.05	8000	8075	7950	8025	7455.047	3970	4010	3960	4000	3756.114
1/9/2017	15550	15600	15150	15350	14763.6	8000	8025	7800	7825	7269.251	4000	4030	3990	4020	3774.895
1/10/2017	15450	15500	15325	15400	14811.69	7800	7975	7700	7975	7408.598	4030	4030	3960	4000	3756.114
1/11/2017	15550	15575	15300	15300	14715.51	7950	7950	7850	7950	7385.374	3960	4000	3950	3960	3718.553
1/12/2017	15300	15450	15275	15325	14739.55	7825	7900	7825	7875	7315.7	3920	3970	3920	3960	3718.553
1/13/2017	15200	15575	15200	15275	14691.46	7825	7875	7750	7875	7315.7	3930	3970	3930	3950	3709.163
1/16/2017	15200	15250	15000	15175	14595.29	7900	7900	7800	7800	7246.027	3970	4000	3950	3950	3709.163
1/17/2017	15175	15250	15150	15175	14595.29	7800	7925	7800	7800	7246.027	3980	4000	3960	3970	3727.943
1/18/2017	15275	15300	15150	15300	14715.51	7850	7975	7850	7950	7385.374	3960	4010	3950	3960	3718.553
1/19/2017	15350	15400	15250	15375	14787.64	8000	8050	7950	8025	7455.047	3940	3980	3920	3970	3727.943
1/20/2017	15250	15275	15050	15250	14667.42	8025	8050	7925	8050	7478.271	3920	3940	3820	3830	3596.479
1/23/2017	15200	15300	15050	15050	14475.06	8050	8100	7975	8100	7524.72	3800	3880	3780	3840	3605.869
1/24/2017	15200	15250	15050	15050	14475.06	8125	8150	7975	8000	7431.822	3850	3950	3850	3910	3671.601
1/25/2017	15275	15275	14950	14950	14378.88	8050	8050	7925	8000	7431.822	3940	3940	3890	3900	3662.211
1/26/2017	15000	15425	15000	15300	14715.51	8075	8075	7950	8000	7431.822	3900	3960	3860	3940	3699.772
1/27/2017	15150	15550	15150	15400	14811.69	7950	8050	7925	8000	7431.822	3900	3920	3880	3890	3652.821
1/30/2017	15575	15575	15325	15450	14859.78	7925	8000	7800	7800	7246.027	3860	3910	3860	3860	3624.65
1/31/2017	15300	15550	15250	15300	14715.51	7925	8000	7850	7925	7362.149	3870	3920	3860	3870	3634.04
2/1/2017	15500	15500	15425	15425	14835.73	7975	8025	7925	7925	7362.149	3910	3980	3900	3940	3699.772

2/2/2017	15325	15475	15275	15450	14859.78	7900	8000	7875	7925	7362.149	3940	3980	3900	3950	3709.163
2/3/2017	15450	15500	15425	15475	14883.83	8000	8000	7875	7875	7315.7	3900	3970	3900	3950	3709.163
2/6/2017	15575	15675	15500	15600	15004.05	7875	7975	7875	7950	7385.374	3940	3960	3910	3960	3718.553
2/7/2017	15425	15625	15425	15625	15028.09	7900	7975	7900	7925	7362.149	3930	3960	3920	3920	3680.992
2/8/2017	15625	15650	15525	15600	15004.05	7900	8000	7900	7950	7385.374	3900	3920	3860	3870	3634.04
2/9/2017	15600	15650	15600	15625	15028.09	8050	8050	7900	7950	7385.374	3870	3910	3860	3870	3634.04
2/10/2017	15625	15700	15000	15000	14426.97	7950	8025	7950	8000	7431.822	3870	3910	3860	3890	3652.821
2/13/2017	15500	15650	15350	15525	14931.91	8050	8050	7950	8000	7431.822	3920	3920	3900	3920	3680.992
2/14/2017	15450	15550	15375	15500	14907.87	8000	8025	7950	7975	7408.598	3900	3900	3840	3860	3624.65
2/15/2017	15500	15500	15500	15500	14907.87	7975	7975	7975	7975	7408.598	3860	3860	3860	3860	3624.65
2/16/2017	15600	15600	15375	15500	14907.87	8025	8125	8000	8000	7431.822	3880	3890	3840	3870	3634.04
2/17/2017	15450	15575	15350	15475	14883.83	8000	8075	7950	8000	7431.822	3890	3890	3850	3870	3634.04
2/20/2017	15600	15600	15400	15450	14859.78	7975	8150	7975	8125	7547.945	3860	3880	3850	3870	3634.04
2/21/2017	15400	15525	15400	15500	14907.87	8125	8200	8100	8150	7571.169	3880	3890	3860	3880	3643.43
2/22/2017	15400	15575	15400	15500	14907.87	8150	8200	8075	8125	7547.945	3880	3890	3850	3880	3643.43
2/23/2017	15400	15575	15400	15500	14907.87	8125	8125	8000	8075	7501.496	3860	3870	3830	3840	3605.869
2/24/2017	15525	15600	15500	15500	14907.87	7975	8150	7975	8100	7524.72	3830	3870	3830	3840	3605.869
2/27/2017	15500	15525	15400	15500	14907.87	8100	8100	7975	7975	7408.598	3850	3890	3850	3870	3634.04
2/28/2017	15500	15550	15400	15450	14859.78	7950	8125	7950	8125	7547.945	3860	3900	3850	3850	3615.26
3/1/2017	15400	15525	15400	15500	14907.87	8150	8175	8000	8000	7431.822	3870	3890	3840	3850	3615.26
3/2/2017	15650	15675	15475	15500	14907.87	8100	8150	8025	8025	7455.047	3870	3870	3830	3830	3596.479
3/3/2017	15450	15550	15425	15475	14883.83	8100	8100	8000	8050	7478.271	3820	3870	3810	3850	3615.26
3/6/2017	15400	15475	15350	15475	14883.83	8050	8100	8025	8075	7501.496	3860	3920	3850	3920	3680.992
3/7		00	15400	15450	14859.78	8050	8075	7975	8025	7455.047	3920	3950	3890	3950	3709.163
3/8		25	15450	15500	14907.87	7975	8050	7950	7975	7408.598	3920	3930	3880	3880	3643.43

3/9/2017	15625	15700	15500	15625	15028.09	8000	8000	7925	8000	7431.822	3960	3960	3880	3960	3718.553
3/10/2017	15700	15700	15475	15625	15028.09	8050	8050	7875	7925	7362.149	3970	3990	3910	3950	3709.163
3/13/2017	15600	15650	15475	15550	14955.96	7925	8000	7875	7950	7385.374	3940	3970	3920	3950	3709.163
3/14/2017	15700	15900	15650	15675	15076.18	7875	8000	7875	7925	7362.149	3950	4070	3950	4050	3803.065
3/15/2017	15775	15775	15525	15650	15052.14	7925	8075	7925	7975	7408.598	4030	4080	4010	4040	3793.675
3/16/2017	15900	16000	15800	15875	15268.54	8050	8375	8050	8300	7710.516	4060	4150	4060	4140	3887.578
3/17/2017	16000	16200	15875	15950	15340.68	8375	8525	8275	8325	7733.74	4140	4140	4030	4110	3859.407
3/20/2017	16100	16225	15950	16075	15460.9	8325	8325	8100	8175	7594.394	4100	4110	4050	4100	3850.017
3/21/2017	16225	16275	16150	16250	15629.22	8225	8225	8000	8125	7547.945	4060	4120	4060	4090	3840.626
3/22/2017	16050	16350	16050	16325	15701.35	8075	8100	7975	8100	7524.72	4060	4080	4010	4070	3821.846
3/23/2017	16400	16750	16375	16600	15965.85	8100	8150	8025	8075	7501.496	4070	4100	4050	4090	3840.626
3/24/2017	16800	16800	16450	16550	15917.76	8200	8300	8025	8050	7478.271	4080	4110	4050	4080	3831.236
3/27/2017	16550	16625	16500	16550	15917.76	7950	8125	7950	7950	7385.374	4080	4090	4070	4080	3831.236
3/29/2017	16675	16825	16625	16700	16062.03	8050	8150	7950	8000	7431.822	4080	4150	4080	4150	3896.968
3/30/2017	16825	16875	16700	16825	16182.25	8000	8050	7950	8000	7431.822	4140	4170	4110	4140	3887.578
3/31/2017	16825	17000	16550	16550	15917.76	8025	8025	7950	8000	7431.822	4180	4190	4130	4130	3878.188
4/3/2017	16575	16950	16575	16575	15941.8	7950	8075	7950	8000	7431.822	4130	4200	4130	4170	3915.749
4/4/2017	16750	16900	16650	16750	16110.12	8050	8100	7975	8075	7501.496	4170	4290	4170	4250	3990.871
4/5/2017	17025	17275	16825	17025	16374.61	7975	8100	7925	7975	7408.598	4250	4320	4200	4250	3990.871
4/6/2017	17200	17375	17200	17325	16663.15	8025	8025	7950	8000	7431.822	4180	4200	4130	4170	3915.749
4/7/2017	17475	17475	17200	17350	16687.2	7950	8000	7925	7975	7408.598	4130	4140	4110	4130	3878.188
4/10/2017	17625	17750	17250	17350	16687.2	7975	8000	7925	7975	7408.598	4110	4140	4090	4100	3850.017
4/11/2017	17500	17600	17250	17450	16783.38	7950	8000	7950	7975	7408.598	4110	4180	4110	4150	3896.968
4/1		00	17425	17650	16975.74	7975	8075	7925	7975	7408.598	4170	4170	4110	4150	3896.968
4/1		00	17200	17350	16687.2	8000	8000	7925	7975	7408.598	4150	4170	4090	4090	3840.626

4/17/2017	17350	17350	16700	16925	16401.32	7950	8000	7925	7975	7408.598	4090	4090	4010	4010	3765.504
4/18/2017	16975	17050	16850	16925	16528.28	7975	8000	7950	7950	7385.374	4060	4120	4050	4070	3821.846
4/19/2017	16925	16925	16925	16925	16528.28	7950	7950	7950	7950	7385.374	4070	4070	4070	4070	3821.846
4/20/2017	17200	17650	17125	17325	16918.9	7925	8000	7925	7950	7385.374	4030	4150	4030	4110	3859.407
4/21/2017	17075	17500	17025	17475	17065.38	7925	8100	7925	8025	7455.047	4180	4420	4170	4420	4150.506
4/25/2017	17650	17650	17300	17400	16992.14	8100	8125	8025	8100	7524.72	4500	4520	4330	4420	4150.506
4/26/2017	17650	18000	17300	18000	17578.08	8125	8175	8075	8125	7547.945	4380	4410	4360	4400	4131.725
4/27/2017	17400	17625	17400	17525	17114.21	8225	8500	8200	8450	7849.862	4380	4400	4360	4370	4103.554
4/28/2017	17525	17775	17525	17750	17333.94	8525	8525	8350	8375	7780.189	4400	4410	4370	4370	4103.554
5/2/2017	17750	17950	17750	17900	17480.42	8325	8500	8300	8425	7826.638	4410	4450	4380	4410	4141.115
5/3/2017	17800	17850	17750	17750	17333.94	8500	8550	8400	8475	7873.087	4400	4400	4330	4340	4186.812
5/4/2017	17800	18000	17775	17825	17407.18	8475	8525	8425	8475	7873.087	4360	4390	4340	4370	4215.753
5/5/2017	17750	17825	17575	17775	17358.35	8500	8500	8400	8475	7873.087	4350	4360	4330	4340	4186.812
5/8/2017	17875	18150	17825	17950	17529.25	8500	8575	8425	8450	7849.862	4370	4380	4310	4340	4186.812
5/9/2017	18300	18350	17850	18000	17578.08	8525	8525	8450	8475	7873.087	4390	4450	4330	4340	4186.812
5/10/2017	17750	18075	17750	17925	17504.83	8500	8525	8325	8400	7803.414	4340	4410	4330	4370	4215.753
5/12/2017	18525	18550	17850	18000	17578.08	8300	8500	8300	8475	7873.087	4410	4440	4380	4400	4244.694
5/15/2017	18000	18250	18000	18250	17822.22	8475	8500	8400	8475	7873.087	4420	4420	4320	4360	4206.105
5/16/2017	17900	17950	17225	17400	16992.14	8525	8525	8375	8375	7780.189	4390	4390	4340	4340	4186.812
5/17/2017	17400	17425	16925	16950	16552.69	8350	8500	8325	8475	7873.087	4380	4380	4300	4340	4186.812
5/18/2017	16800	17450	16800	17400	16992.14	8350	8500	8325	8450	7849.862	4300	4340	4270	4310	4157.871
5/19/2017	17400	18075	17100	17900	17480.42	8450	9000	8400	8650	8035.658	4300	4650	4300	4530	4370.105
5/22/2017	18150	18250	17425	17650	17236.28	8775	8800	8575	8700	8082.107	4590	4670	4440	4470	4312.223
5/2		50	17325	17700	17285.11	8725	8800	8650	8800	8175.004	4500	4520	4370	4400	4244.694
5/2		75	17375	17475	17065.38	8600	8800	8600	8800	8175.004	4360	4410	4330	4360	4206.105

5/26/2017	17500	17725	17450	17575	17163.04	8725	8800	8650	8750	8128.556	4430	4490	4430	4470	4312.223
5/29/2017	17675	17950	17525	17775	17358.35	8800	8850	8700	8850	8221.454	4470	4470	4360	4390	4235.047
5/30/2017	17700	17800	17600	17600	17187.45	8900	8925	8750	8775	8151.78	4350	4380	4330	4330	4177.165
5/31/2017	17600	17650	17150	17150	16748	8775	8775	8650	8750	8128.556	4350	4370	4300	4350	4196.458
6/1/2017	17150	17150	17150	17150	16748	8750	8750	8750	8750	8128.556	4350	4350	4350	4350	4196.458
6/2/2017	17425	17650	17325	17550	17138.63	8850	8850	8700	8825	8198.229	4400	4450	4340	4380	4225.4
6/5/2017	17800	17825	17475	17725	17309.53	8875	8900	8800	8875	8244.678	4340	4380	4300	4340	4186.812
6/6/2017	17500	17675	17500	17550	17138.63	8925	8950	8875	8875	8244.678	4350	4350	4300	4310	4157.871
6/7/2017	17650	17850	17600	17800	17382.77	8875	8950	8875	8925	8291.127	4350	4350	4290	4320	4167.518
6/8/2017	17850	18050	17850	17925	17504.83	8925	8950	8550	8600	7989.209	4320	4320	4300	4300	4148.224
6/9/2017	18100	18100	17525	17700	17285.11	8600	8600	8450	8500	7896.312	4370	4380	4320	4330	4177.165
6/12/2017	17700	17900	17600	17750	17333.94	8400	8500	8325	8475	8096.944	4320	4340	4310	4330	4177.165
6/13/2017	17750	17950	17725	17875	17456.01	8475	8550	8450	8475	8096.944	4340	4360	4330	4360	4206.105
6/14/2017	17700	17975	17700	17975	17553.66	8500	8550	8425	8550	8168.598	4380	4380	4330	4360	4206.105
6/15/2017	18000	18100	17875	18050	17626.91	8550	8550	8475	8500	8120.828	4350	4370	4330	4360	4206.105
6/16/2017	18150	18150	17800	17800	17382.77	8500	8525	8325	8325	7953.635	4330	4440	4330	4370	4215.753
6/19/2017	18000	18050	17875	17925	17504.83	8400	8425	8300	8325	7953.635	4400	4420	4390	4400	4244.694
6/20/2017	17925	18175	17925	18100	17675.73	8375	8525	8350	8500	8120.828	4420	4510	4400	4490	4331.517
6/21/2017	18100	18225	18050	18200	17773.39	8450	8550	8400	8500	8120.828	4480	4530	4460	4520	4360.458
6/22/2017	18250	18325	17975	18150	17724.56	8450	8625	8450	8600	8216.367	4540	4540	4500	4520	4360.458
6/23/2017	18150	18150	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458
6/26/2017	18150	18150	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458
6/27/2017	18150	18150	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458
6/2		50	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458
6/2		50	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458

6/30/2017	18150	18150	18150	18150	17724.56	8600	8600	8600	8600	8216.367	4520	4520	4520	4520	4360.458
7/3/2017	18400	18500	18075	18500	18066.36	8650	8775	8600	8775	8383.562	4530	4790	4520	4790	4620.928
7/4/2017	18500	18725	18425	18550	18115.18	8700	8750	8675	8750	8359.677	4710	4730	4590	4590	4427.987
7/5/2017	18550	18675	18300	18350	17919.88	8750	8750	8550	8750	8359.677	4550	4590	4530	4580	4418.34
7/6/2017	18200	18350	18100	18225	17797.8	8750	8750	8650	8750	8359.677	4570	4680	4570	4650	4485.87
7/7/2017	18350	18550	18325	18500	18066.36	8750	8750	8625	8750	8359.677	4640	4690	4630	4630	4466.576
7/10/2017	18500	18650	18250	18300	17871.04	8750	8750	8575	8600	8216.367	4670	4670	4560	4570	4408.693
7/11/2017	18325	18450	18250	18325	17895.46	8675	8675	8550	8675	8288.022	4590	4640	4560	4600	4437.634
7/12/2017	18200	18475	18100	18425	17993.12	8650	8700	8550	8700	8311.907	4580	4640	4580	4620	4456.929
7/13/2017	18500	18525	18275	18500	18066.36	8750	8800	8700	8750	8359.677	4660	4680	4580	4600	4437.634
7/14/2017	18550	18550	18300	18400	17968.7	8750	8800	8650	8775	8383.562	4580	4620	4570	4600	4437.634
7/17/2017	18250	18400	18250	18300	17871.04	8800	8800	8650	8775	8383.562	4570	4650	4570	4650	4485.87
7/18/2017	18200	18350	18175	18350	17919.88	8775	8775	8675	8775	8383.562	4660	4660	4590	4630	4466.576
7/19/2017	18350	18475	18300	18475	18041.94	8750	8750	8625	8675	8288.022	4630	4630	4570	4600	4437.634
7/20/2017	18475	18500	18350	18450	18017.53	8675	8775	8675	8775	8383.562	4620	4650	4600	4630	4466.576
7/21/2017	18450	18475	18225	18225	17797.8	8800	8800	8500	8575	8192.482	4600	4620	4530	4560	4399.046
7/24/2017	18350	18625	18200	18575	18139.6	8500	8725	8475	8725	8335.792	4500	4650	4500	4650	4485.87
7/25/2017	18650	18675	18400	18575	18139.6	8725	8725	8575	8725	8335.792	4680	4740	4640	4720	4553.399
7/26/2017	18650	18900	18550	18775	18334.91	8625	8725	8550	8625	8240.253	4700	4740	4650	4700	4534.105
7/27/2017	18775	18850	18700	18800	18359.33	8675	8675	8525	8600	8216.367	4700	4720	4650	4650	4485.87
7/28/2017	19000	19000	18700	18800	18359.33	8500	8625	8450	8600	8216.367	4670	4720	4660	4700	4534.105
7/31/2017	18600	18825	18575	18700	18261.67	8500	8600	8250	8375	8001.405	4680	4750	4670	4690	4524.458
8/1/2017	18875	18975	18725	18925	18481.39	8400	8450	8225	8300	7929.75	4700	4820	4690	4770	4601.634
8/2		75	18825	18925	18481.39	8300	8350	8250	8300	7929.75	4800	4840	4780	4800	4630.575
8/3		50	18550	18750	18310.5	8300	8350	8225	8250	7881.98	4760	4790	4670	4700	4534.105

8/4/2017	18750	18750	18550	18575	18139.6	8225	8325	8175	8225	7858.096	4700	4710	4660	4670	4505.164
8/7/2017	18750	18750	18575	18625	18188.43	8250	8350	8150	8200	7834.211	4670	4730	4660	4670	4505.164
8/8/2017	18700	19050	18700	19000	18554.64	8200	8400	8200	8400	8025.29	4650	4690	4650	4690	4524.458
8/9/2017	19025	19025	18750	18975	18530.22	8325	8400	8200	8400	8025.29	4670	4720	4670	4710	4543.752
8/10/2017	19050	19050	18725	18825	18383.74	8450	8475	8275	8450	8073.059	4720	4730	4700	4710	4543.752
8/11/2017	18725	18825	18575	18675	18237.26	8425	8425	8225	8250	7881.98	4690	4700	4660	4680	4514.811
8/14/2017	18675	18825	18650	18750	18310.5	8325	8350	8250	8250	7881.98	4720	4730	4700	4710	4543.752
8/15/2017	18700	18800	18500	18675	18237.26	8300	8350	8225	8325	7953.635	4750	4750	4710	4730	4563.046
8/16/2017	18725	18925	18650	18900	18456.98	8275	8375	8275	8375	8001.405	4750	4780	4730	4770	4601.634
8/17/2017	18900	18900	18900	18900	18456.98	8375	8375	8375	8375	8001.405	4770	4770	4770	4770	4601.634
8/18/2017	18750	18900	18625	18700	18261.67	8300	8450	8300	8400	8025.29	4770	4820	4770	4780	4611.281
8/21/2017	18800	18825	18700	18800	18359.33	8300	8375	8275	8300	7929.75	4800	4800	4730	4770	4601.634
8/22/2017	18800	18875	18800	18800	18359.33	8400	8400	8300	8325	7953.635	4800	4810	4770	4790	4620.928
8/23/2017	18900	19150	18850	19150	18701.12	8375	8375	8275	8350	7977.52	4800	4810	4750	4800	4630.575
8/24/2017	19150	19150	18875	18950	18505.81	8275	8425	8275	8400	8025.29	4800	4800	4760	4780	4611.281
8/25/2017	19100	19200	18975	19100	18652.29	8400	8600	8400	8600	8216.367	4800	4810	4770	4770	4601.634
8/28/2017	18900	19100	18875	19075	18627.88	8600	8625	8500	8625	8240.253	4740	4770	4720	4750	4582.34
8/29/2017	19050	19075	18900	19075	18627.88	8625	8700	8525	8675	8288.022	4740	4760	4710	4730	4563.046
8/30/2017	19200	19200	18925	19100	18652.29	8675	8700	8550	8675	8288.022	4720	4760	4720	4740	4572.693
8/31/2017	18950	19200	18950	18950	18505.81	8650	8650	8375	8375	8001.405	4740	4750	4690	4690	4524.458
9/1/2017	18950	18950	18950	18950	18505.81	8375	8375	8375	8375	8001.405	4690	4690	4690	4690	4524.458
9/4/2017	18975	19000	18700	18875	18432.57	8400	8450	8350	8375	8001.405	4710	4710	4660	4680	4514.811
9/5/2017	19000	19000	18675	19000	18554.64	8375	8400	8275	8375	8001.405	4670	4680	4620	4650	4485.87
9/6		25	18800	18900	18456.98	8375	8400	8300	8375	8001.405	4650	4730	4650	4710	4543.752
9/7		00	18750	18950	18505.81	8350	8550	8325	8525	8144.713	4700	4730	4690	4700	4534.105

9/8/2017	18725	19025	18700	18850	18408.15	8550	8675	8525	8650	8264.138	4670	4720	4670	4720	4553.399
9/11/2017	18975	19025	18900	18900	18456.98	8650	8700	8575	8600	8216.367	4710	4720	4700	4710	4543.752
9/12/2017	18950	19100	18925	19025	18579.05	8650	8700	8575	8700	8311.907	4720	4730	4700	4720	4553.399
9/13/2017	18850	19125	18850	19050	18603.47	8700	8700	8575	8575	8192.482	4650	4730	4650	4690	4524.458
9/14/2017	19125	19150	19050	19100	18652.29	8550	8575	8500	8525	8144.713	4690	4700	4660	4670	4505.164
9/15/2017	19000	19025	18825	18875	18432.57	8525	8575	8425	8500	8120.828	4650	4700	4650	4690	4524.458
9/18/2017	19000	19000	18825	18975	18530.22	8500	8600	8450	8475	8096.944	4680	4720	4660	4710	4543.752
9/19/2017	18850	19175	18825	19075	18627.88	8475	8600	8400	8575	8192.482	4690	4720	4680	4710	4543.752
9/20/2017	19100	19100	18975	19050	18603.47	8550	8725	8500	8725	8335.792	4690	4710	4680	4690	4524.458
9/21/2017	19050	19050	19050	19050	18603.47	8725	8725	8725	8725	8335.792	4690	4690	4690	4690	4524.458
9/22/2017	19100	19975	19025	19875	19409.13	8750	8750	8525	8525	8144.713	4690	4690	4610	4640	4476.223
9/25/2017	19750	19800	19625	19675	19213.82	8525	8625	8525	8625	8240.253	4620	4670	4610	4650	4485.87
9/26/2017	19675	19775	19600	19650	19189.4	8600	8600	8475	8525	8144.713	4640	4710	4640	4690	4524.458
9/27/2017	19800	19800	19650	19750	19287.06	8550	8550	8450	8550	8168.598	4690	4710	4680	4700	4534.105
9/28/2017	19825	19850	19650	19825	19360.3	8575	8575	8400	8400	8025.29	4720	4740	4710	4710	4543.752
9/29/2017	19975	20375	19825	20300	19824.17	8425	8575	8425	8425	8049.174	4700	4750	4670	4680	4514.811
10/2/2017	20550	20600	20225	20325	19848.58	8450	8550	8450	8550	8168.598	4690	4690	4660	4680	4514.811
10/3/2017	20325	20500	20200	20350	19872.99	8550	8675	8500	8600	8216.367	4650	4700	4640	4690	4524.458
10/4/2017	20550	20550	20275	20325	19848.58	8675	8675	8525	8600	8216.367	4660	4710	4660	4690	4524.458
10/5/2017	20325	20325	20075	20275	19799.75	8600	8625	8425	8425	8049.174	4680	4690	4640	4660	4495.517
10/6/2017	20250	20525	20100	20450	19970.65	8425	8500	8400	8400	8025.29	4680	4680	4630	4660	4495.517
10/9/2017	20300	20400	20250	20350	19872.99	8400	8425	8325	8400	8025.29	4640	4660	4610	4620	4456.929
10/10/2017	20200	20400	20200	20375	19897.41	8400	8425	8350	8425	8049.174	4650	4650	4510	4530	4370.105
10/		25	20200	20375	19897.41	8400	8425	8275	8375	8001.405	4540	4550	4310	4400	4244.694
10/		25	20375	20800	20312.45	8350	8450	8350	8400	8025.29	4380	4490	4370	4440	4283.282

10/13/2017	20800	20950	20550	20675	20190.38	8400	8400	8325	8325	7953.635	4440	4450	4400	4430	4273.635
10/16/2017	20800	21050	20675	20725	20239.2	8325	8375	8250	8325	7953.635	4380	4480	4380	4450	4292.929
10/17/2017	20750	20750	20050	20500	20019.48	8325	8350	8200	8250	7881.98	4400	4410	4320	4400	4244.694
10/18/2017	20700	20700	20075	20200	19726.51	8250	8325	8175	8325	7953.635	4400	4400	4190	4300	4148.224
10/19/2017	20200	20350	20150	20325	19848.58	8325	8325	8150	8150	7786.441	4230	4250	4180	4210	4061.4
10/20/2017	20500	20950	20350	20350	19872.99	8225	8300	8175	8225	7858.096	4250	4290	4200	4270	4119.282
10/23/2017	20650	21375	20650	21000	20507.76	8250	8400	8250	8350	7977.52	4270	4320	4240	4250	4099.988
10/24/2017	21000	21250	20600	20600	20117.13	8400	8450	8325	8400	8025.29	4270	4270	4230	4230	4080.694
10/25/2017	20600	21050	20400	21050	20556.58	8350	8475	8350	8475	8096.944	4210	4230	4060	4090	3945.636
10/26/2017	20800	21000	20600	20775	20288.03	8450	8500	8225	8475	8096.944	4010	4260	4010	4160	4013.165
10/27/2017	20750	20750	20200	20300	19824.17	8475	8475	8250	8250	7881.98	4190	4200	4080	4150	4003.518
10/30/2017	20325	20475	20300	20425	19946.23	8325	8325	8150	8150	7786.441	4150	4180	4080	4080	3935.989
10/31/2017	20825	20925	20525	20900	20410.1	8300	8300	8200	8200	7834.211	4150	4150	4030	4030	3887.754
11/1/2017	21000	21375	21000	21325	20825.14	8275	8300	8200	8200	7834.211	4070	4080	3910	3950	3810.577
11/2/2017	21500	21625	21400	21475	20971.63	8175	8325	8100	8100	7738.672	3980	4110	3970	4030	3887.754
11/3/2017	21500	21500	20700	21025	20532.17	8150	8250	8100	8225	7858.096	4050	4100	4010	4090	3945.636
11/6/2017	21200	21200	21000	21000	20507.76	8250	8250	8175	8200	7834.211	4100	4210	4070	4190	4042.106
11/7/2017	20850	21075	20750	21050	20556.58	8225	8225	8025	8125	7762.557	4180	4210	4160	4190	4042.106
11/8/2017	20900	21125	20800	20800	20312.45	8125	8150	8050	8075	7714.787	4160	4160	4100	4100	3955.283
11/9/2017	20950	21050	20775	20800	20312.45	8100	8100	7950	7950	7595.363	4100	4180	4100	4160	4013.165
11/10/2017	20800	20900	20600	20650	20165.96	8050	8100	8000	8025	7667.018	4130	4160	4120	4120	3974.577
11/13/2017	20525	20700	20400	20475	19995.06	8025	8075	7950	7950	7595.363	4130	4160	4100	4100	3955.283
11/14/2017	20500	20550	20425	20475	19995.06	8000	8050	7950	7950	7595.363	4100	4110	4070	4080	3935.989
11/		50	20500	21025	20532.17	8000	8025	7875	7875	7523.709	4090	4180	4080	4130	3984.224
11/		00	20950	21025	20532.17	7850	7900	7750	7750	7404.285	4150	4230	4150	4200	4051.753

11/17/2017	21150	21200	20825	21175	20678.65	7775	7925	7750	7800	7452.055	4200	4230	4200	4200	4051.753
11/20/2017	21175	21275	21025	21025	20532.17	7875	7975	7800	7800	7452.055	4220	4220	4150	4150	4003.518
11/21/2017	21225	21225	20875	21125	20629.83	7775	7825	7700	7725	7380.4	4170	4200	4150	4200	4051.753
11/22/2017	21000	21225	21000	21175	20678.65	7675	7800	7675	7725	7380.4	4220	4220	4190	4200	4051.753
11/23/2017	21250	21250	20850	21000	20507.76	7775	7900	7725	7800	7452.055	4200	4270	4200	4250	4099.988
11/24/2017	20875	21050	20775	21000	20507.76	7750	7775	7675	7700	7356.515	4220	4320	4220	4320	4167.518
11/27/2017	20825	21300	20825	21300	20800.73	7750	7825	7700	7825	7475.939	4320	4350	4280	4300	4148.224
11/28/2017	21300	21300	21050	21300	20800.73	7850	7850	7650	7700	7356.515	4270	4290	4230	4240	4090.341
11/29/2017	21300	21325	20925	21175	20756.61	7700	7750	7600	7600	7260.976	4220	4240	4180	4200	4051.753
11/30/2017	21300	21300	20350	20350	19947.91	7550	7675	7325	7325	6998.244	4200	4220	4150	4150	4003.518
12/1/2017	20350	20350	20350	20350	19947.91	7325	7325	7325	7325	6998.244	4150	4150	4150	4150	4003.518
12/4/2017	20825	21150	20650	20800	20389.02	7500	7525	7300	7300	6974.359	4180	4230	4160	4200	4051.753
12/5/2017	21050	21125	20900	21000	20585.07	7400	7400	7275	7300	6974.359	4210	4220	4180	4200	4051.753
12/6/2017	21150	21375	21000	21300	20879.15	7350	7400	7300	7325	6998.244	4160	4210	4160	4200	4051.753
12/7/2017	21300	21300	20875	20975	20560.57	7300	7400	7300	7325	6998.244	4200	4210	4160	4200	4051.753
12/8/2017	21100	21225	21025	21125	20707.6	7400	7425	7300	7375	7046.013	4150	4200	4120	4140	3993.871
12/11/2017	21250	21250	21000	21075	20658.59	7400	7425	7350	7375	7046.013	4110	4150	4110	4140	3993.871
12/12/2017	21175	21250	20850	21250	20830.13	7350	7400	7275	7350	7022.128	4150	4190	4150	4170	4022.812
12/13/2017	21175	21175	20925	20925	20511.55	7350	7475	7325	7475	7141.552	4150	4200	4150	4200	4051.753
12/14/2017	20925	21150	20875	21100	20683.1	7475	7675	7475	7525	7189.322	4220	4250	4200	4250	4099.988
12/15/2017	20900	21100	20900	21100	20683.1	7525	7525	7400	7450	7117.667	4200	4240	4180	4230	4080.694
12/18/2017	20900	21100	20850	21100	20683.1	7400	7500	7375	7500	7165.437	4250	4250	4170	4240	4090.341
12/19/2017	20950	21250	20950	21100	20683.1	7500	7700	7475	7650	7308.746	4200	4200	4170	4190	4042.106
12/		50	20875	20925	20511.55	7650	7700	7425	7550	7213.207	4190	4200	4160	4160	4013.165
12/		50	20950	21100	20683.1	7525	7600	7475	7600	7260.976	4190	4250	4170	4250	4099.988

12/22/2017	21175	21675	20975	21500	21075.19	7600	7625	7575	7625	7284.861	4250	4300	4210	4300	4148.224
12/25/2017	21500	21500	21500	21500	21075.19	7625	7625	7625	7625	7284.861	4300	4300	4300	4300	4148.224
12/26/2017	21500	21500	21500	21500	21075.19	7625	7625	7625	7625	7284.861	4300	4300	4300	4300	4148.224
12/27/2017	21500	21700	21400	21525	21099.7	7625	7625	7575	7625	7284.861	4270	4310	4270	4300	4148.224
12/28/2017	21500	22000	21475	21925	21491.8	7650	7700	7600	7700	7356.515	4300	4390	4270	4390	4235.047
12/29/2017	22050	22750	21650	21900	21467.29	7700	7775	7600	7625	7284.861	4390	4460	4390	4440	4283.282

Lampiran 2. Uji Stasioner

a. Bank BCA Tbk

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-12.99859	0.0000
Test critical values:	1% level	-3.456408	
	5% level	-2.872904	
	10% level	-2.572900	

*MacKinnon (1996) one-sided p-values.

b. PT. Indofood Sukses Makmur Tbk

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-17.49376	0.0000
Test critical values:	1% level	-3.456197	
	5% level	-2.872811	
	10% level	-2.572851	

*MacKinnon (1996) one-sided p-values.

c. PT. Telekomunikasi Indonesia Tbk

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-16.74098	0.0000
Test critical values:	1% level	-3.456197	
	5% level	-2.872811	
	10% level	-2.572851	

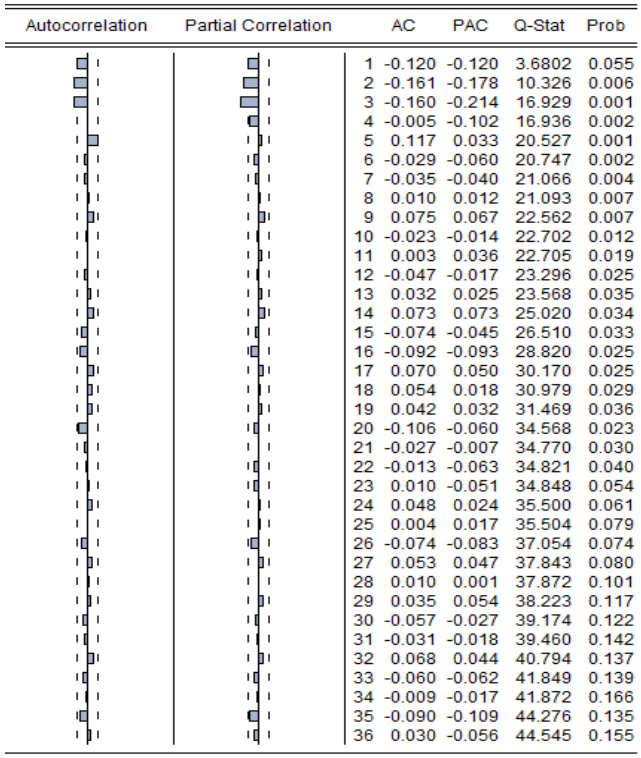
*MacKinnon (1996) one-sided p-values.

Lampiran 3. Uji ACF dan PACF

a. BANK BCA TBK

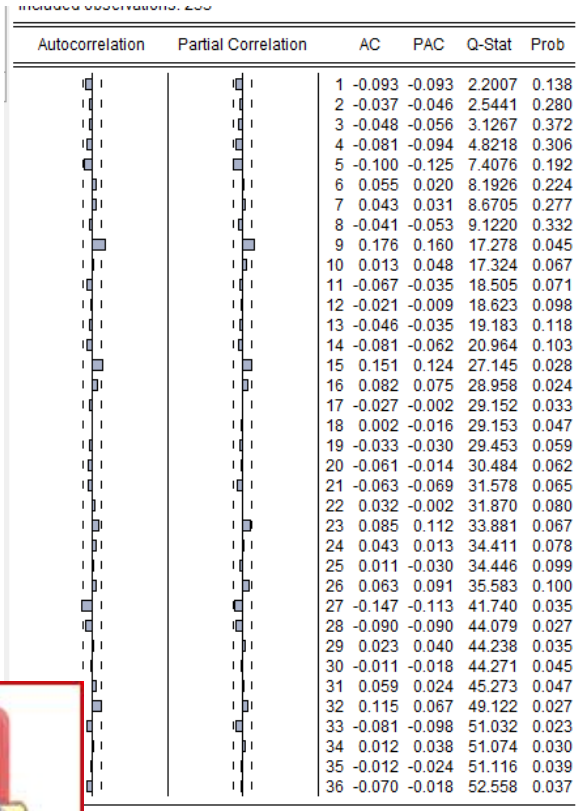
Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.058	-0.058	0.8555	0.355
		2	-0.143	-0.147	6.1185	0.047
		3	-0.049	-0.069	6.7484	0.080
		4	-0.028	-0.059	6.9466	0.139
		5	0.085	0.063	8.8128	0.117
		6	0.104	0.102	11.618	0.071
		7	0.061	0.100	12.601	0.082
		8	-0.054	-0.003	13.375	0.100
		9	-0.019	0.017	13.466	0.143
		10	-0.008	-0.011	13.484	0.198
		11	-0.039	-0.061	13.880	0.240
		12	0.068	0.031	15.115	0.235
		13	0.072	0.056	16.507	0.223
		14	-0.008	0.016	16.524	0.282
		15	0.002	0.035	16.525	0.348
		16	-0.003	0.022	16.528	0.417
		17	0.037	0.053	16.908	0.461
		18	-0.051	-0.060	17.628	0.480
		19	-0.019	-0.045	17.729	0.541
		20	-0.041	-0.078	18.186	0.575
		21	0.055	0.032	19.042	0.582
		22	-0.049	-0.079	19.718	0.601
		23	-0.066	-0.064	20.937	0.585
		24	0.056	0.050	21.836	0.589
		25	-0.042	-0.034	22.328	0.617
		26	0.100	0.112	25.164	0.510
		27	-0.092	-0.087	27.560	0.434
		28	0.028	0.062	27.781	0.476
		29	0.094	0.091	30.310	0.399
		30	0.113	0.153	34.037	0.279
		31	-0.111	-0.088	37.608	0.192
		32	0.037	0.100	38.007	0.215
		33	0.067	0.064	39.309	0.208
		34	-0.038	-0.023	39.729	0.230
		35	0.016	0.001	39.803	0.265
		36	0.055	0.037	40.716	0.271

b. PT. INDOFOOD SUKSES MAKMUR TBK



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.120	-0.120	3.6802	0.055
		2	-0.161	-0.178	10.326	0.006
		3	-0.160	-0.214	16.929	0.001
		4	-0.005	-0.102	16.936	0.002
		5	0.117	0.033	20.527	0.001
		6	-0.029	-0.060	20.747	0.002
		7	-0.035	-0.040	21.066	0.004
		8	0.010	0.012	21.093	0.007
		9	0.075	0.067	22.562	0.007
		10	-0.023	-0.014	22.702	0.012
		11	0.003	0.036	22.705	0.019
		12	-0.047	-0.017	23.296	0.025
		13	0.032	0.025	23.568	0.035
		14	0.073	0.073	25.020	0.034
		15	-0.074	-0.045	26.510	0.033
		16	-0.092	-0.093	28.820	0.025
		17	0.070	0.050	30.170	0.025
		18	0.054	0.018	30.979	0.029
		19	0.042	0.032	31.469	0.036
		20	-0.106	-0.060	34.568	0.023
		21	-0.027	-0.007	34.770	0.030
		22	-0.013	-0.063	34.821	0.040
		23	0.010	-0.051	34.848	0.054
		24	0.048	0.024	35.500	0.061
		25	0.004	0.017	35.504	0.079
		26	-0.074	-0.083	37.054	0.074
		27	0.053	0.047	37.843	0.080
		28	0.010	0.001	37.872	0.101
		29	0.035	0.054	38.223	0.117
		30	-0.057	-0.027	39.174	0.122
		31	-0.031	-0.018	39.460	0.142
		32	0.068	0.044	40.794	0.137
		33	-0.060	-0.062	41.849	0.139
		34	-0.009	-0.017	41.872	0.166
		35	-0.090	-0.109	44.276	0.135
		36	0.030	-0.056	44.545	0.155

c. PT.TELEKOMUNIKASI INDONESIA TBK



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.093	-0.093	2.2007	0.138
		2	-0.037	-0.046	2.5441	0.280
		3	-0.048	-0.056	3.1267	0.372
		4	-0.081	-0.094	4.8218	0.306
		5	-0.100	-0.125	7.4076	0.192
		6	0.055	0.020	8.1926	0.224
		7	0.043	0.031	8.6705	0.277
		8	-0.041	-0.053	9.1220	0.332
		9	0.176	0.160	17.278	0.045
		10	0.013	0.048	17.324	0.067
		11	-0.067	-0.035	18.505	0.071
		12	-0.021	-0.009	18.623	0.098
		13	-0.046	-0.035	19.183	0.118
		14	-0.081	-0.062	20.964	0.103
		15	0.151	0.124	27.145	0.028
		16	0.082	0.075	28.958	0.024
		17	-0.027	-0.002	29.152	0.033
		18	0.002	-0.016	29.153	0.047
		19	-0.033	-0.030	29.453	0.059
		20	-0.061	-0.014	30.484	0.062
		21	-0.063	-0.069	31.578	0.065
		22	0.032	-0.002	31.870	0.080
		23	0.085	0.112	33.881	0.067
		24	0.043	0.013	34.411	0.078
		25	0.011	-0.030	34.446	0.099
		26	0.063	0.091	35.583	0.100
		27	-0.147	-0.113	41.740	0.035
		28	-0.090	-0.090	44.079	0.027
		29	0.023	0.040	44.238	0.035
		30	-0.011	-0.018	44.271	0.045
		31	0.059	0.024	45.273	0.047
		32	0.115	0.067	49.122	0.027
		33	-0.081	-0.098	51.032	0.023
		34	0.012	0.038	51.074	0.030
		35	-0.012	-0.024	51.116	0.039
		36	-0.070	-0.018	52.558	0.037

Lampiran 4. Pendugaan Model Arima Sementara

a. Bank BCA Tbk

AR(1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 09:53
Sample: 2 254
Included observations: 253
Convergence achieved after 304 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.005669	0.013992	-0.405189	0.6857
D(HIGH)	0.001147	0.010966	0.104596	0.9168
D(LOW)	-0.000889	0.010621	-0.083738	0.9333
D(CLOSE)	0.982174	0.009150	107.3468	0.0000
C	1.441593	5.792068	0.248891	0.8037
AR(1)	0.408973	0.038651	10.58120	0.0000
SIGMASQ	126.5449	9.523905	13.28708	0.0000

R-squared	0.997178	Mean dependent var	26.16357
Adjusted R-squared	0.997109	S.D. dependent var	212.1739
S.E. of regression	11.40815	Akaike info criterion	7.734534
Sum squared resid	32015.86	Schwarz criterion	7.832295
Log likelihood	-971.4185	Hannan-Quinn criter.	7.773867
F-statistic	14486.91	Durbin-Watson stat	1.819725
Prob(F-statistic)	0.000000		

Inverted AR Roots	.41

MA(1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 09:55
Sample: 2 254
Included observations: 253
Convergence achieved after 156 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.005530	0.011369	-0.486383	0.6271
D(HIGH)	0.000674	0.009345	0.072126	0.9426
D(LOW)	-0.000557	0.011938	-0.046627	0.9628
D(CLOSE)	0.983382	0.010752	91.46277	0.0000
C	1.413082	2.769579	0.510216	0.6104
MA(1)	0.530976	0.033116	16.03362	0.0000
SIGMASQ	118.9123	5.813263	20.45535	0.0000

R-squared	0.997348	Mean dependent var	26.16357
Adjusted R-squared	0.997283	S.D. dependent var	212.1739
S.E. of regression	11.05875	Akaike info criterion	7.672909
Sum squared resid	30084.82	Schwarz criterion	7.770671
Log likelihood	-963.6230	Hannan-Quinn criter.	7.712242
F-statistic	15419.40	Durbin-Watson stat	1.995941
Prob(F-statistic)	0.000000		

Inverted MA Roots	-.53

ARIMA (1,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 09:56
Sample: 2 254
Included observations: 253
Convergence achieved after 239 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.005531	0.011716	-0.472048	0.6373
D(HIGH)	0.000676	0.009986	0.067743	0.9460
D(LOW)	-0.000555	0.011962	-0.046433	0.9630
D(CLOSE)	0.983383	0.010955	89.76875	0.0000
C	1.412990	3.650691	0.387047	0.6991
AR(1)	0.000489	0.072294	0.006764	0.9946
MA(1)	0.530624	0.070205	7.558214	0.0000
SIGMASQ	118.9123	6.116351	19.44171	0.0000

R-squared	0.997348	Mean dependent var	26.16357
Adjusted R-squared	0.997272	S.D. dependent var	212.1739
S.E. of regression	11.08130	Akaike info criterion	7.680814
Sum squared resid	30084.82	Schwarz criterion	7.792542
Log likelihood	-963.6229	Hannan-Quinn criter.	7.725766
F-statistic	13162.91	Durbin-Watson stat	1.996194
Prob(F-statistic)	0.000000		

Inverted AR Roots
Inverted MA Roots

AR(2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 09:57
Sample: 2 254
Included observations: 253
Convergence achieved after 2 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.006315	0.021661	-0.291551	0.7709
D(HIGH)	0.000622	0.024044	0.025884	0.9794
D(LOW)	-0.001754	0.011362	-0.154345	0.8775
D(CLOSE)	0.978810	0.018503	52.89915	0.0000
C	1.591372	3.864208	0.411824	0.6808
AR(2)	-0.012920	0.216251	-0.059746	0.9524
SIGMASQ	151.2738	14.02636	10.78497	0.0000

R-squared	0.996626	Mean dependent var	26.16357
Adjusted R-squared	0.996544	S.D. dependent var	212.1739
S.E. of regression	12.47311	Akaike info criterion	7.912306
Sum squared resid	38272.28	Schwarz criterion	8.010068
Log likelihood	-993.9067	Hannan-Quinn criter.	7.951639
F-statistic	12112.01	Durbin-Watson stat	1.196401
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.00+.11i	-.00-.11i

ARIMA (3,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 09:58
Sample: 2 254
Included observations: 253
Convergence achieved after 177 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.005632	0.011363	-0.495629	0.6206
D(HIGH)	0.000837	0.009473	0.088340	0.9297
D(LOW)	-0.000503	0.012351	-0.040691	0.9676
D(CLOSE)	0.983425	0.011105	88.55712	0.0000
C	1.408846	2.858552	0.492853	0.6226
AR(3)	-0.019471	0.052478	-0.371028	0.7109
MA(1)	0.534835	0.034399	15.54790	0.0000
SIGMASQ	118.8708	5.873993	20.23680	0.0000

R-squared	0.997349	Mean dependent var	26.16357
Adjusted R-squared	0.997273	S.D. dependent var	212.1739
S.E. of regression	11.07937	Akaike info criterion	7.680468
Sum squared resid	30074.32	Schwarz criterion	7.792196
Log likelihood	-963.5792	Hannan-Quinn criter.	7.725420
F-statistic	13167.51	Durbin-Watson stat	2.002684
Prob(F-statistic)	0.000000		

Inverted AR Roots	.13-.23i	.13+.23i	-.27
Inverted MA Roots	-.53		

ARIMA (3,1,3)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:00
Sample: 2 254
Included observations: 253
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.006239	0.022142	-0.281759	0.7784
D(HIGH)	0.000583	0.024644	0.023673	0.9811
D(LOW)	-0.001795	0.011555	-0.155361	0.8767
D(CLOSE)	0.979031	0.018610	52.60729	0.0000
C	1.587616	3.692727	0.429930	0.6676
AR(3)	0.515616	5.874621	0.087770	0.9301
MA(3)	-0.539837	5.821692	-0.092729	0.9262
SIGMASQ	151.2166	14.83094	10.19603	0.0000

R-squared	0.996628	Mean dependent var	26.16357
Adjusted R-squared	0.996531	S.D. dependent var	212.1739
S.E. of regression	12.49617	Akaike info criterion	7.919845
Sum squared resid	38257.81	Schwarz criterion	8.031573
Log likelihood	-993.8604	Hannan-Quinn criter.	7.964797
F-statistic	10343.45	Durbin-Watson stat	1.205399
Prob(F-statistic)	0.000000		

Inverted AR Roots	.80	-.40+.69i	-.40-.69i
Inverted MA Roots	.81	-.41+.71i	-.41-.71i

b. PT. Indofood Sukses Makmur Tbk.

AR(1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:04
Sample: 2 254
Included observations: 253
Convergence achieved after 14 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009463	0.078965	-0.119840	0.9047
D(HIGH)	-0.005774	0.077620	-0.074391	0.9408
D(LOW)	-0.014644	0.097920	-0.149549	0.8812
D(CLOSE)	0.951679	0.078002	12.20065	0.0000
C	0.792261	5.467423	0.144906	0.8849
AR(1)	-0.013149	0.186536	-0.070492	0.9439
SIGMASQ	195.8587	16.53910	11.84217	0.0000

R-squared	0.974060	Mean dependent var	-0.305488
Adjusted R-squared	0.973427	S.D. dependent var	87.06518
S.E. of regression	14.19267	Akaike info criterion	8.170607
Sum squared resid	49552.26	Schwarz criterion	8.268369
Log likelihood	-1026.582	Hannan-Quinn criter.	8.209940
F-statistic	1539.556	Durbin-Watson stat	1.999804
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.01

MA(1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:05
Sample: 2 254
Included observations: 253
Convergence achieved after 17 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009449	0.078949	-0.119689	0.9048
D(HIGH)	-0.005769	0.077617	-0.074322	0.9408
D(LOW)	-0.014669	0.097894	-0.149844	0.8810
D(CLOSE)	0.951682	0.077987	12.20302	0.0000
C	0.792252	5.467611	0.144899	0.8849
MA(1)	-0.012880	0.188666	-0.068268	0.9456
SIGMASQ	195.8593	16.54024	11.84138	0.0000

R-squared	0.974060	Mean dependent var	-0.305488
Adjusted R-squared	0.973427	S.D. dependent var	87.06518
S.E. of regression	14.19269	Akaike info criterion	8.170610
Sum squared resid	49552.42	Schwarz criterion	8.268372
Log likelihood	-1026.582	Hannan-Quinn criter.	8.209943
F-statistic	1539.551	Durbin-Watson stat	2.000293
Prob(F-statistic)	0.000000		

Inverted MA Roots	.01

ARIMA(1,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:06
Sample: 2 254
Included observations: 253
Convergence achieved after 28 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009771	0.079495	-0.122919	0.9023
D(HIGH)	-0.005800	0.077877	-0.074476	0.9407
D(LOW)	-0.013934	0.098996	-0.140757	0.8882
D(CLOSE)	0.951551	0.078321	12.14941	0.0000
C	0.792716	5.503413	0.144041	0.8856
AR(1)	-0.428803	19.14987	-0.022392	0.9822
MA(1)	0.413894	19.18112	0.021578	0.9828
SIGMASQ	195.8436	16.57122	11.81829	0.0000

R-squared	0.974062	Mean dependent var	-0.305488
Adjusted R-squared	0.973321	S.D. dependent var	87.06518
S.E. of regression	14.22106	Akaike info criterion	8.178436
Sum squared resid	49548.43	Schwarz criterion	8.290164
Log likelihood	-1026.572	Hannan-Quinn criter.	8.223388
F-statistic	1314.359	Durbin-Watson stat	1.997325
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.43
Inverted MA Roots	-.41

AR(2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:07
Sample: 2 254
Included observations: 253
Convergence achieved after 10 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009460	0.079308	-0.119276	0.9052
D(HIGH)	-0.005445	0.078121	-0.069699	0.9445
D(LOW)	-0.014238	0.098713	-0.144232	0.8854
D(CLOSE)	0.951573	0.078658	12.09764	0.0000
C	0.792825	5.652673	0.140257	0.8886
AR(2)	0.010136	0.315186	0.032159	0.9744
SIGMASQ	195.8728	16.48518	11.88175	0.0000

R-squared	0.974058	Mean dependent var	-0.305488
Adjusted R-squared	0.973425	S.D. dependent var	87.06518
S.E. of regression	14.19318	Akaike info criterion	8.170680
Sum squared resid	49555.83	Schwarz criterion	8.268441
Log likelihood	-1026.591	Hannan-Quinn criter.	8.210012
F-statistic	1539.442	Durbin-Watson stat	2.025377
Prob(F-statistic)	0.000000		

Inverted AR Roots	.10	-.10

MA(2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:09
Sample: 2 254
Included observations: 253
Convergence achieved after 8 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009471	0.079327	-0.119390	0.9051
D(HIGH)	-0.005442	0.078146	-0.069639	0.9445
D(LOW)	-0.014212	0.098723	-0.143958	0.8857
D(CLOSE)	0.951565	0.078704	12.09049	0.0000
C	0.792841	5.654462	0.140215	0.8886
MA(2)	0.010422	0.308771	0.033754	0.9731
SIGMASQ	195.8723	16.48149	11.88438	0.0000

R-squared	0.974058	Mean dependent var	-0.305488
Adjusted R-squared	0.973425	S.D. dependent var	87.06518
S.E. of regression	14.19317	Akaike info criterion	8.170677
Sum squared resid	49555.70	Schwarz criterion	8.268439
Log likelihood	-1026.591	Hannan-Quinn criter.	8.210010
F-statistic	1539.446	Durbin-Watson stat	2.025400
Prob(F-statistic)	0.000000		

Inverted MA Roots	-.00+.10i	-.00-.10i

ARIMA(2,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:10
Sample: 2 254
Included observations: 253
Convergence achieved after 29 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OPEN)	-0.009872	0.079804	-0.123708	0.9016
D(HIGH)	-0.005749	0.078122	-0.073591	0.9414
D(LOW)	-0.013661	0.099100	-0.137853	0.8905
D(CLOSE)	0.951511	0.078856	12.06647	0.0000
C	0.792852	5.547649	0.142917	0.8865
AR(2)	0.010980	0.306175	0.035863	0.9714
MA(1)	-0.013635	0.184277	-0.073992	0.9411
SIGMASQ	195.8387	16.52939	11.84791	0.0000

R-squared	0.974062	Mean dependent var	-0.305488
Adjusted R-squared	0.973321	S.D. dependent var	87.06518
S.E. of regression	14.22088	Akaike info criterion	8.178411
Sum squared resid	49547.20	Schwarz criterion	8.290139
Log likelihood	-1026.569	Hannan-Quinn criter.	8.223363
F-statistic	1314.393	Durbin-Watson stat	2.000041
Prob(F-statistic)	0.000000		

Inverted AR Roots	.10	-.10
Inverted MA Roots	.01	

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AR(1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:12
Sample: 2 254
Included observations: 253
Failure to improve objective (non-zero gradients) after 1 iteration
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443159	4.201913	0.105466	0.9161
D(OPEN)	0.002683	0.076709	0.034977	0.9721
D(HIGH)	-6.43E-05	0.086261	-0.000746	0.9994
D(LOW)	-0.009002	0.074573	-0.120714	0.9040
D(CLOSE)	0.948805	0.085495	11.09774	0.0000
AR(1)	-0.001350	1.115193	-0.001210	0.9990
SIGMASQ	49.95629	3.786238	13.19417	0.0000

R-squared	0.980793	Mean dependent var	2.157899
Adjusted R-squared	0.980325	S.D. dependent var	51.10074
S.E. of regression	7.167831	Akaike info criterion	6.804361
Sum squared resid	12638.94	Schwarz criterion	6.902123
Log likelihood	-853.7517	Hannan-Quinn criter.	6.843694
F-statistic	2093.657	Durbin-Watson stat	1.999899
Prob(F-statistic)			

Inverted AR

AR(2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:14
Sample: 2 254
Included observations: 253
Failure to improve objective (non-zero gradients) after 4 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443331	4.177064	0.106135	0.9156
D(OPEN)	0.002704	0.075822	0.035666	0.9716
D(HIGH)	-6.79E-05	0.086076	-0.000789	0.9994
D(LOW)	-0.009040	0.074155	-0.121904	0.9031
D(CLOSE)	0.948708	0.084760	11.19289	0.0000
AR(2)	-0.011452	1.405999	-0.008145	0.9935
SIGMASQ	49.94975	3.751337	13.31519	0.0000

R-squared	0.980796	Mean dependent var	2.157899
Adjusted R-squared	0.980327	S.D. dependent var	51.10074
S.E. of regression	7.167363	Akaike info criterion	6.804232
Sum squared resid	12637.29	Schwarz criterion	6.901993
Log likelihood	-853.7353	Hannan-Quinn criter.	6.843564
F-statistic	2093.936	Durbin-Watson stat	2.002573
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.00+.11i	-.00-.11i

ARIMA(1,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:15
Sample: 2 254
Included observations: 253
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443162	4.205985	0.105365	0.9162
D(OPEN)	0.002683	0.076804	0.034931	0.9722
D(HIGH)	-6.31E-05	0.086311	-0.000731	0.9994
D(LOW)	-0.009002	0.074605	-0.120666	0.9041
D(CLOSE)	0.948802	0.085566	11.08849	0.0000
AR(1)	-0.019711	387.5426	-5.09E-05	1.0000
MA(1)	0.018553	387.5646	4.79E-05	1.0000
SIGMASQ	49.95631	3.791008	13.17758	0.0000

R-squared	0.980793	Mean dependent var	2.157899
Adjusted R-squared	0.980244	S.D. dependent var	51.10074
S.E. of regression	7.182447	Akaike info criterion	6.812267
Sum squared resid	12638.95	Schwarz criterion	6.923995
Log likelihood	-853.7518	Hannan-Quinn criter.	6.857219
F-statistic	1787.267	Durbin-Watson stat	2.000275
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.02	
Inverted MA Roots	-.02	

ARIMA(2,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:16
Sample: 2 254
Included observations: 253
Convergence achieved after 21 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443306	4.177096	0.106128	0.9156
D(OPEN)	0.002706	0.076658	0.035296	0.9719
D(HIGH)	-7.65E-05	0.086192	-0.000888	0.9993
D(LOW)	-0.009038	0.074590	-0.121167	0.9037
D(CLOSE)	0.948726	0.085325	11.11900	0.0000
AR(2)	-0.011451	1.403799	-0.008157	0.9935
MA(1)	-0.001361	1.126402	-0.001208	0.9990
SIGMASQ	49.94966	3.784909	13.19706	0.0000

R-squared	0.980796	Mean dependent var	2.157899
Adjusted R-squared	0.980247	S.D. dependent var	51.10074
S.E. of regression	7.181968	Akaike info criterion	6.812135
Sum squared resid	12637.26	Schwarz criterion	6.923863
Log likelihood	-853.7351	Hannan-Quinn criter.	6.857087
F-statistic	1787.510	Durbin-Watson stat	1.999867
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.00+.11i	-.00-.11i
Inverted MA Roots	.00	

MA(2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:18
Sample: 2 254
Included observations: 253
Convergence achieved after 5 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443330	4.180901	0.106037	0.9156
D(OPEN)	0.002699	0.075831	0.035589	0.9716
D(HIGH)	-6.50E-05	0.086089	-0.000755	0.9994
D(LOW)	-0.009032	0.074162	-0.121793	0.9032
D(CLOSE)	0.948705	0.084768	11.19171	0.0000
MA(2)	-0.011356	1.449491	-0.007835	0.9938
SIGMASQ	49.94981	3.750283	13.31895	0.0000

R-squared	0.980796	Mean dependent var	2.157899
Adjusted R-squared	0.980327	S.D. dependent var	51.10074
S.E. of regression	7.167367	Akaike info criterion	6.804233
Sum squared resid	12637.30	Schwarz criterion	6.901995
Log likelihood	-853.7354	Hannan-Quinn criter.	6.843566
F-statistic	2093.934	Durbin-Watson stat	2.002572
Prob(F-statistic)	0.000000		

Inverted MA Roots	.11	-.11

ARIMA(2,1,2)

Dependent Variable: D(ADJ_CLOSE)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/29/19 Time: 10:19
Sample: 2 254
Included observations: 253
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.443158	4.166375	0.106365	0.9154
D(OPEN)	0.002920	0.075634	0.038608	0.9692
D(HIGH)	-0.000163	0.086055	-0.001894	0.9985
D(LOW)	-0.009306	0.074122	-0.125549	0.9002
D(CLOSE)	0.948938	0.084813	11.18863	0.0000
AR(2)	-0.352657	43.59874	-0.008089	0.9936
MA(2)	0.339876	44.08016	0.007710	0.9939
SIGMASQ	49.94707	3.860711	12.93727	0.0000

R-squared	0.980797	Mean dependent var	2.157899
Adjusted R-squared	0.980248	S.D. dependent var	51.10074
S.E. of regression	7.181782	Akaike info criterion	6.812084
Sum squared resid	12636.61	Schwarz criterion	6.923811
Log likelihood	-853.7286	Hannan-Quinn criter.	6.857036
F-statistic	1787.604	Durbin-Watson stat	2.002697
Prob(F-statistic)	0.000000		

Inverted AR Roots	-.00+.59i	-.00-.59i
Inverted MA Roots	-.00+.58i	-.00-.58i

Lampiran 5. Pendugaan Model GARCH-M

a. Bank BCA Tbk

GARCH(1,1,0)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:28
Sample (adjusted): 2 254
Included observations: 253 after adjustments
Failure to improve likelihood (non-zero gradients) after 213 iterations
Coefficient covariance computed using outer product of gradients
MA Backcast: 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.898021	3.332714	0.269456	0.7876
D(OPEN)	-0.005493	0.014726	-0.372985	0.7092
D(HIGH)	0.005762	0.011164	0.516171	0.6057
D(LOW)	-0.003824	0.015824	-0.241679	0.8090
D(CLOSE)	0.980625	0.015825	61.96692	0.0000
MA(1)	0.038405	0.214336	0.179180	0.8578
Variance Equation				
C	98.13096	9.937973	9.874343	0.0000
RESID(-1)^2	0.323405	0.307730	1.050937	0.2933
RESID(-1)^2*(RESID(-1)<0)	-0.907120	0.001326	-683.9914	0.0000

R-squared	0.996681	Mean dependent var	26.16357
Adjusted R-squared	0.996614	S.D. dependent var	212.1739
S.E. of regression	12.34712	Akaike info criterion	7.389734
Sum squared resid	37655.51	Schwarz criterion	7.515427
Log likelihood	-925.8013	Hannan-Quinn criter.	7.440304
Durbin-Watson stat	1.236010		

Inverted MA Roots	-.04

GARCH(0,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:31
Sample (adjusted): 2 254
Included observations: 253 after adjustments
Failure to improve likelihood (non-zero gradients) after 214 iterations
Coefficient covariance computed using outer product of gradients
MA Backcast: 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2*(RESID(-1)<0) + C(9)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	2.429784	0.000326	7451.263	0.0000
D(OPEN)	-0.009300	0.001354	-6.866787	0.0000
D(HIGH)	6.63E-05	0.002593	0.025583	0.9796
D(LOW)	0.000603	0.001971	0.305830	0.7597
D(CLOSE)	0.975380	0.000896	1089.021	0.0000
MA(1)	-0.032380	0.015280	-2.119107	0.0341
Variance Equation				
C	6.549657	0.686291	9.543558	0.0000
RESID(-1)^2*(RESID(-1)<0)	-0.656175	0.064915	-10.10824	0.0000
GARCH(-1)	1.016865	0.000347	2932.842	0.0000

R-squared	0.996505	Mean dependent var	26.16357
Adjusted R-squared	0.996434	S.D. dependent var	212.1739
S.E. of regression	12.67063	Akaike info criterion	7.117452
Sum squared resid	39654.58	Schwarz criterion	7.243146
Log likelihood	-891.3577	Hannan-Quinn criter.	7.168023
Durbin-Watson stat	1.188463		

Inverted MA Roots	.03

GARCH (1,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:34
Sample (adjusted): 2 254
Included observations: 253 after adjustments
Failure to improve likelihood (non-zero gradients) after 133 iterations
Coefficient covariance computed using outer product of gradients
MA Backcast: 1
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0) + C(10)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	2.581903	2.341558	1.102643	0.2702
D(OPEN)	-0.005823	0.013686	-0.425430	0.6705
D(HIGH)	0.003839	0.016769	0.228913	0.8189
D(LOW)	-0.004914	0.009187	-0.534844	0.5928
D(CLOSE)	0.977994	0.011625	84.13062	0.0000
MA(1)	0.158719	0.095923	1.654654	0.0980
Variance Equation				
C	62.49560	25.26687	2.473421	0.0134
RESID(-1)^2	0.137894	0.063530	2.170525	0.0300
RESID(-1)^2*(RESID(-1)<0)	-0.966276	0.002118	-456.1392	0.0000
GARCH(-1)	0.568621	0.199146	2.855295	0.0043

R-squared	0.996943	Mean dependent var	26.16357
Adjusted R-squared	0.996881	S.D. dependent var	212.1739
S.E. of regression	11.84945	Akaike info criterion	7.481243
Sum squared resid	34681.14	Schwarz criterion	7.620903
Log likelihood	-936.3772	Hannan-Quinn criter.	7.537433
Durbin-Watson stat	1.431749		

Inverted MA Roots	-.16

b. PT. Indofood Sukses Makmur Tbk

GARCH(1,1,0)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:40
Sample (adjusted): 3 254
Included observations: 252 after adjustments
Failure to improve likelihood (non-zero gradients) after 318 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.008708	0.018091	-0.481344	0.6303
D(OPEN)	5.01E-05	5.81E-05	0.862910	0.3882
D(HIGH)	-0.003435	6.25E-05	-54.94108	0.0000
D(LOW)	-0.000277	9.85E-05	-2.813081	0.0049
D(CLOSE)	0.955277	9.68E-05	9870.385	0.0000
AR(1)	0.642799	0.012138	52.95855	0.0000
Variance Equation				
C	0.034908	0.006889	5.067434	0.0000
RESID(-1)^2	3.585862	0.315681	11.35914	0.0000
RESID(-1)^2*(RESID(-1)<0)	53.57662	4.057483	13.20440	0.0000

R-squared	0.961937	Mean dependent var	0.430585
Adjusted R-squared	0.961163	S.D. dependent var	86.44607
S.E. of regression	17.03598	Akaike info criterion	3.873057
Sum squared resid	71395.25	Schwarz criterion	3.999108
Log likelihood	-479.0052	Hannan-Quinn criter.	3.923778
Durbin-Watson stat	2.936235		

Inverted AR Roots	.64

GARCH(0,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:43
Sample (adjusted): 3 254
Included observations: 252 after adjustments
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2*(RESID(-1)<0) + C(9)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.551114	0.092913	-5.931506	0.0000
D(OPEN)	-0.005813	0.001179	-4.932087	0.0000
D(HIGH)	-0.013597	0.001151	-11.81029	0.0000
D(LOW)	0.005604	0.001811	3.094564	0.0020
D(CLOSE)	0.947596	0.001174	807.4544	0.0000
AR(1)	0.005060	0.006199	0.816168	0.4144
Variance Equation				
C	2.546031	0.317864	8.009813	0.0000
RESID(-1)^2*(RESID(-1)<0)	36.85244	7.513804	4.904632	0.0000
GARCH(-1)	-0.000844	0.002441	-0.345522	0.7297

R-squared	0.973050	Mean dependent var	0.430585
Adjusted R-squared	0.972502	S.D. dependent var	86.44607
S.E. of regression	14.33481	Akaike info criterion	4.881466
Sum squared resid	50549.76	Schwarz criterion	5.007517
Log likelihood	-606.0648	Hannan-Quinn criter.	4.932187
Durbin-Watson stat	2.037306		

Inverted AR Roots	.01

GARCH(1,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:46
Sample (adjusted): 3 254
Included observations: 252 after adjustments
Failure to improve likelihood (non-zero gradients) after 143 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0) + C(10)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.172460	4.046747	0.289729	0.7720
D(OPEN)	-0.018063	0.054439	-0.331809	0.7400
D(HIGH)	-0.019636	0.047000	-0.417784	0.6761
D(LOW)	-0.014666	0.071213	-0.205948	0.8368
D(CLOSE)	0.940765	0.057113	16.47212	0.0000
AR(1)	0.013264	0.817923	0.016216	0.9871
Variance Equation				
C	109.5924	155.1009	0.706588	0.4798
RESID(-1)^2	-0.006225	0.005262	-1.183117	0.2368
RESID(-1)^2*(RESID(-1)<0)	0.424828	0.608450	0.698213	0.4850
GARCH(-1)	0.548482	0.605149	0.906358	0.3647

R-squared	0.972781	Mean dependent var	0.430585
Adjusted R-squared	0.972227	S.D. dependent var	86.44607
S.E. of regression	14.40635	Akaike info criterion	8.042486
Sum squared resid	51055.56	Schwarz criterion	8.182543
Log likelihood	-1003.353	Hannan-Quinn criter.	8.098842
Durbin-Watson stat	2.086707		

Inverted AR Roots	.01

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GARCH(1,1,0)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:52
Sample (adjusted): 4 254
Included observations: 251 after adjustments
Failure to improve likelihood (non-zero gradients) after 283 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.573252	3.366886	0.170262	0.8648
D(OPEN)	0.001950	0.058828	0.033146	0.9736
D(HIGH)	0.008917	0.081925	0.108838	0.9133
D(LOW)	-0.007287	0.059181	-0.123132	0.9020
D(CLOSE)	0.955271	0.067492	14.15393	0.0000
AR(2)	0.021393	0.088794	0.240932	0.8096
Variance Equation				
C	33.32712	7.334950	4.543606	0.0000
RESID(-1)^2	-0.002652	0.000808	-3.281705	0.0010
RESID(-1)^2*(RESID(-1)<0)	0.681217	1.895988	0.359294	0.7194

R-squared	0.980498	Mean dependent var	2.287327
Adjusted R-squared	0.980099	S.D. dependent var	51.26852
S.E. of		Akaike info criterion	6.854147
Sum s		Schwarz criterion	6.980558
Log lik		Hannan-Quinn criter.	6.905018
Durbin			

Inverte	-.15

GARCH(0,1,1)

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 04/29/19 Time: 11:06
Sample (adjusted): 4 254
Included observations: 251 after adjustments
Failure to improve likelihood (non-zero gradients) after 102 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2*(RESID(-1)<0) + C(9)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.866821	1.597501	0.542611	0.5874
D(OPEN)	-0.003512	0.024709	-0.142127	0.8870
D(HIGH)	-0.000278	0.028386	-0.009811	0.9922
D(LOW)	-0.014830	0.022258	-0.666287	0.5052
D(CLOSE)	0.940774	0.026307	35.76186	0.0000
AR(2)	-0.051259	0.126636	-0.404779	0.6856
Variance Equation				
C	14.11236	7.295209	1.934470	0.0531
RESID(-1)^2*(RESID(-1)<0)	-0.728383	0.564421	-1.290496	0.1969
GARCH(-1)	0.749206	0.133592	5.608145	0.0000

R-squared	0.980433	Mean dependent var	2.287327
Adjusted R-squared	0.980034	S.D. dependent var	51.26852
S.E. of regression	7.244295	Akaike info criterion	6.698086
Sum squared resid	12857.55	Schwarz criterion	6.824497
Log likelihood	-831.6098	Hannan-Quinn criter.	6.748957
Durbin-Watson stat	1.978741		

Inverted AR Roots	-.00+.23i	-.00-.23i

GARCH (1,1

Dependent Variable: D(ADJ_CLOSE)
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 04/29/19 Time: 10:58
Sample (adjusted): 4 254
Included observations: 251 after adjustments
Failure to improve likelihood (non-zero gradients) after 297 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*RESID(-1)^2*(RESID(-1)<0) + C(10)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.720775	3.870109	0.186241	0.8523
D(OPEN)	0.001793	0.067414	0.026598	0.9788
D(HIGH)	-0.003176	0.077480	-0.040996	0.9673
D(LOW)	-0.015347	0.065522	-0.234218	0.8148
D(CLOSE)	0.945696	0.081546	11.59702	0.0000
AR(2)	-0.029524	0.179784	-0.164217	0.8696
Variance Equation				
C	32.20740	36.29193	0.887453	0.3748
RESID(-1)^2	-0.006497	0.001809	-3.592405	0.0003
RESID(-1)^2*(RESID(-1)<0)	-0.536206	1.544893	-0.347083	0.7285
GARCH(-1)	0.593801	0.459496	1.292288	0.1963

R-squared	0.980630	Mean dependent var	2.287327
Adjusted R-squared	0.980235	S.D. dependent var	51.26852
S.E. of regression	7.207739	Akaike info criterion	6.844373
Sum squared resid	12728.12	Schwarz criterion	6.984830
Log likelihood	-848.9689	Hannan-Quinn criter.	6.900896
Durbin-Watson stat	1.989400		

Inverted AR Roots	-.00+.17i	-.00-.17i

Lampiran.6 Hasil Peramalan

	BANK BCA Tbk						PT. Indofood Sukses Makmur Tbk						PT. Telekomunikasi Indonesia Tbk					
Date	Open	High	Low	Close	Adj Close	Hasil Peramalan	Open	High	Low	Close	Adj Close	Hasil Peramalan	Open	High	Low	Close	Adj Close	Hasil Peran
1/3/2018	21900	21900	21900	21900	21663.531	15314.6553	7600	7700	7600	7650	7308.7456	7251.86386	4440	4440	4440	4440	4283.2817	3709.
1/4/2018	21900	22525	21825	21900	21663.531	15237.46118	7650	7725	7600	7725	7380.3999	7435.021927	4430	4460	4380	4410	4254.3408	3757.
1/5/2018	21925	21950	21325	21900	21663.531	15217.65816	7700	7700	7625	7675	7332.6304	7452.361576	4380	4380	4200	4230	4080.6943	3775.
1/8/2018	21900	22225	21900	22225	21985.021	15145.61021	7700	7875	7700	7850	7499.8242	7263.968658	4230	4250	4190	4220	4071.0474	3755.
1/9/2018	22300	22400	22175	22250	22009.752	14898.81701	7825	7850	7775	7825	7475.9395	7415.97257	4220	4280	4200	4280	4128.9297	3717.
1/10/2018	22250	22575	22225	22350	22108.672	14950.79458	7875	7875	7800	7825	7475.9395	7382.106908	4250	4290	4250	4260	4109.6353	3718.
1/11/2018	22500	22550	22450	22525	22281.783	14851.16155	7800	7875	7750	7875	7523.709	7314.286575	4240	4240	4180	4200	4051.7532	3708.
1/12/2018	22525	22725	22325	22450	22207.592	14879.18278	7875	7900	7800	7850	7499.8242	7316.960801	4200	4250	4180	4190	4042.1062	3709.
1/15/2018	22450	22700	22300	22700	22454.893	14829.00706	7850	7875	7775	7800	7452.0547	7243.886769	4200	4200	4150	4170	4022.812	3728.
1/16/2018	22700	22725	22325	22425	22182.861	14730.61933	7800	7900	7775	7900	7547.5938	7247.262431	4160	4190	4130	4130	3984.2239	3718.
1/17/2018	22450	22500	22300	22475	22232.322	14731.52073	7900	7975	7875	7950	7595.3633	7389.190635	4160	4170	4100	4120	3974.5769	3728.
1/18/2018	22450	22675	22450	22600	22355.971	14852.22275	7900	7975	7875	7900	7547.5938	7454.320315	4150	4220	4120	4210	4061.4001	3592.
1/19/2018	22700	22700	22150	22150	21910.83	14925.05394	7925	7925	7850	7925	7571.4785	7477.84457	4210	4220	4180	4200	4051.7532	3606.
1/22/2018	22250	22600	22250	22575	22331.242	14804.20488	7925	8100	7925	8075	7714.7871	7525.41929	4210	4240	4160	4170	4022.812	3672.
1/23/2018	22625	22650	22400	22450	22207.592	14609.40907	8075	8125	8000	8125	7762.5566	7428.294854	4190	4190	4120	4160	4013.165	3661.
1/24/2018	22550	22575	22425	22475	22232.322	14609.87395	8025	8125	8025	8075	7714.7871	7433.971153	4120	4160	4120	4130	3984.2239	3701.
1/25/2018	22650	22700	22525	22650	22405.432	14511.59824	8075	8100	7900	8000	7643.1328	7431.50031	4160	4160	4030	4090	3945.6357	3651.
1/26/2018	22625	22625	22500	22575	22331.242	14856.77565	8000	8075	7975	8075	7714.7871	7431.964542	4090	4090	3970	3980	3839.5186	362
1/29/2018	22550	22650	22450	22575	22331.242	14948.92017	8100	8100	7975	8075	7714.7871	7240.913242	3980	4020	3920	3970	3829.8716	3634.
1/30/2018	22625	22850	22525	22700	22454.893	14994.50258	8125	8125	7800	7800	7452.0547	7368.668801	3990	4160	3990	4150	4003.5181	3701.
1/31/2018	22800	22825	22550	22800	22553.813	14854.21549	7800	7875	7700	7750	7404.2852	7359.938124	4170	4180	4030	4070	3926.3418	3709.
2/1/2018	22700	23450	22650	22800	22553.813	14972.76023	7750	7900	7700	7700	7356.5151	7362.309224	4020	4040	3960	3970	3829.8716	3709.

2/2/2018	22800	22900	22700	22725	22479.623	14999.74873	7800	7875	7750	7775	7428.1699	7314.32577	3960	4060	3950	3990	3849.1655	3718.
2/5/2018	22850	23425	22850	23375	23122.604	15021.49579	7600	7875	7575	7800	7452.0547	7388.264304	4030	4070	3980	3980	3839.5186	3679.
2/6/2018	23625	24700	23600	23975	23716.127	15143.18255	7700	7775	7650	7650	7308.7456	7360.163763	4030	4030	4000	4000	3858.8125	3632.
2/7/2018	23750	24025	23500	23800	23543.016	15169.43172	7800	7925	7700	7925	7571.4785	7386.36884	3950	4030	3920	4010	3868.4597	3633.
2/8/2018	23450	23675	23300	23525	23270.984	15141.84906	7900	7900	7825	7850	7499.8242	7384.838555	3950	3990	3930	3940	3800.9304	3653.
2/9/2018	23650	23975	23475	23500	23246.254	15168.31981	7750	7875	7725	7750	7404.2852	7433.306858	3990	4020	3950	3980	3839.5186	3681.
2/12/2018	23550	23800	23500	23700	23444.096	14557.79245	7775	7825	7750	7775	7428.1699	7430.849858	3980	4040	3940	4020	3878.1067	362
2/13/2018	23400	23725	23350	23575	23320.445	15074.69338	7725	7825	7725	7750	7404.2852	7408.072576	3970	4000	3940	3950	3810.5774	3624.
2/14/2018	23800	23800	23500	23500	23246.254	15047.13518	7750	7850	7750	7825	7475.9395	7409.127051	3950	3990	3950	3960	3820.2244	363
2/15/2018	23800	23925	23750	23800	23543.016	15046.28104	7850	7850	7800	7800	7452.0547	7431.851649	3990	4060	3980	4040	3897.4006	3634.
2/16/2018	23725	23875	23550	23700	23444.096	15045.64761	7800	7800	7800	7800	7452.0547	7431.915037	4050	4080	3990	4040	3897.4006	363
2/19/2018	23900	23925	23450	23450	23196.795	15023.61958	7850	7875	7775	7850	7499.8242	7550.844482	4050	4060	4000	4010	3868.4597	3643.
2/20/2018	23450	23450	23450	23450	23196.795	14996.68687	7800	7875	7725	7750	7404.2852	7569.6827	4010	4010	4010	4010	3868.4597	3643.
2/21/2018	23675	24250	23650	24250	23988.156	15048.70653	7750	7775	7625	7625	7284.8608	7546.997083	4050	4080	4040	4050	3907.0476	3604.
2/22/2018	24100	24200	23875	24025	23765.586	15046.72818	7650	7750	7625	7700	7356.5151	7500.872596	4080	4080	4040	4070	3926.3418	3605.
2/23/2018	23950	24175	23725	24025	23765.586	15046.66081	7725	7775	7625	7625	7284.8608	7525.954844	4040	4080	4020	4070	3926.3418	363
2/26/2018	24100	24175	23750	23900	23641.936	15045.55809	7650	7675	7550	7550	7213.2065	7405.118543	4070	4070	4010	4010	3868.4597	3614.
2/27/2018	24025	24475	23950	24250	23988.156	15046.79015	7625	7675	7550	7575	7237.0913	7553.798147	4030	4040	4010	4030	3887.7537	3615.
2/28/2018	24150	24225	23500	23525	23270.984	14997.8955	7550	7650	7550	7575	7237.0913	7425.876616	4050	4050	4010	4030	3887.7537	359
3/1/2018	23725	23775	23300	23550	23295.715	15047.81899	7575	7800	7550	7775	7428.1699	7458.003324	4030	4030	3960	4020	3878.1067	361
3/2/2018	23400	23450	23075	23175	22924.764	15044.42632	7750	7775	7675	7700	7356.5151	7478.632712	3970	4050	3970	4000	3858.8125	3682.
3/5/2018	23100	23225	23100	23175	22924.764	15024.02333	7700	7700	7575	7600	7260.9761	7501.602686	4050	4090	4020	4060	3916.6948	3709.
3/6/2018	23075	23125	22750	22875	22628.002	15022.86241	7600	7600	7450	7450	7117.6675	7453.41191	4060	4070	4030	4070	3926.3418	3641.
3/7/2018			875	22875	22628.002	14998.05734	7450	7450	7250	7275	6950.4741	7408.150207	4050	4060	4000	4020	3878.1067	3720.
3/8/2018			725	22775	22529.082	15045.99772	7300	7500	7300	7325	6998.2437	7433.444218	4050	4060	4020	4020	3878.1067	3708.

3/9/2018	23100	23150	22525	22600	22355.971	15167.43886	7450	7500	7375	7450	7117.6675	7359.479794	4000	4040	3980	4000	3858.8125	3709.
3/12/2018	23000	23400	22750	23300	23048.414	15167.25448	7525	7600	7500	7550	7213.2065	7387.561803	4050	4140	4020	4140	3993.8711	3805.
3/13/2018	23300	23300	22975	23300	23048.414	15095.73429	7550	7575	7475	7500	7165.437	7360.956777	4150	4160	4090	4150	4003.5181	3793.
3/14/2018	23400	23650	23350	23625	23369.904	15216.32198	7600	7600	7325	7325	6998.2437	7410.065631	4170	4200	4130	4200	4051.7532	3890.
3/15/2018	23600	23700	23275	23450	23196.795	15191.34028	7425	7425	7150	7175	6854.9346	7717.327943	4160	4180	4080	4090	3945.6357	3858.
3/16/2018	23475	23600	23225	23400	23147.334	15410.69668	7175	7325	7075	7150	6831.0493	7729.019716	4070	4090	4040	4060	3916.6948	3850.
3/19/2018	23400	23425	23250	23375	23122.604	15482.91434	7150	7350	7150	7200	6878.8193	7591.116841	4030	4040	3930	3930	3791.2834	3840.
3/20/2018	23650	23675	23000	23350	23097.875	15604.44794	7200	7275	7000	7000	6687.7407	7549.057393	3930	3950	3820	3820	3685.166	3821.
3/21/2018	23300	23375	23200	23350	23097.875	15774.3915	7000	7350	7000	7275	6950.4741	7525.098543	3860	3900	3810	3820	3685.166	3841.
3/22/2018	23275	23300	23000	23275	23023.684	15849.32073	7325	7400	7150	7150	6831.0493	7500.79772	3800	3810	3640	3660	3530.8135	3830.
3/23/2018	23350	23525	23275	23375	23122.604	16112.65508	7150	7375	7050	7150	6831.0493	7477.641346	3660	3720	3630	3710	3579.0486	3831.
3/26/2018	23475	23500	23350	23450	23196.795	16061.81311	7150	7225	7125	7200	6878.8193	7384.100069	3720	3810	3690	3700	3569.4016	3898.
3/27/2018	23000	23800	23000	23800	23543.016	16067.99378	7250	7350	7050	7150	6831.0493	7434.352428	3520	3690	3520	3660	3530.8135	3887.
3/28/2018	23400	23450	23200	23275	23023.684	16211.08347	7125	7150	6975	7125	6807.1646	7431.366773	3600	3650	3580	3590	3463.2842	3878.
3/29/2018	23650	23775	23425	23450	23196.795	16331.93434	7125	7200	7025	7200	6878.8193	7431.687091	3630	3650	3540	3560	3434.3433	3916.
3/30/2018	23450	23450	23150	23325	23073.143	16064.35572	7200	7200	7200	7200	6878.8193	7431.587635	3570	3620	3540	3570	3443.9902	3992.
4/2/2018	23150	23325	22825	23300	23048.414	16092.45381	7250	7350	7150	7350	7022.1284	7503.489969	3580	3600	3530	3600	3472.9314	3990.
4/3/2018	23300	23300	23300	23300	23048.414	16259.22815	7350	7350	7125	7150	6831.0493	7404.763423	3600	3600	3600	3600	3472.9314	3913.
4/4/2018	23450	23475	23100	23400	23147.334	16525.67841	7225	7300	7075	7200	6878.8193	7434.413604	3640	3680	3600	3670	3540.4604	3877.
4/5/2018	23375	23500	23325	23400	23147.334	16817.99238	7200	7225	7125	7125	6807.1646	7407.440985	3640	3670	3620	3630	3501.8723	3849.
4/6/2018	23500	23500	23025	23300	23048.414	16839.82146	7150	7200	7100	7100	6783.2798	7408.961085	3630	3660	3570	3600	3472.9314	3898.
4/9/2018	23500	23500	23050	23050	22801.113	16840.82605	7075	7225	7075	7175	6854.9346	7408.585559	3650	3690	3650	3680	3550.1077	3896.
4/10/2018	23125	23125	22600	22725	22479.623	16940.89566	7125	7275	7125	7250	6926.5889	7408.350355	3680	3690	3650	3650	3521.1665	3839.
4/11/2018			575	22775	22529.082	17135.01431	7300	7300	7150	7225	6902.7041	7409.013775	3630	3780	3630	3770	3636.9309	3763.
4/12/2018			800	23300	23048.414	16838.40402	7225	7225	7050	7125	6807.1646	7408.425629	3740	3880	3730	3860	3723.7542	3823.

4/13/2018	23500	23650	23300	23325	23073.143	16430.52074	7150	7175	7050	7075	6759.395	7384.708555	3850	3890	3850	3870	3733.4011	3821.
4/16/2018	23325	23325	23050	23150	22900.033	16553.33235	7075	7075	7075	7075	6759.395	7385.96741	3830	3860	3740	3750	3617.6367	3860.
4/17/2018	23100	23150	22900	22900	22825.279	16678.21789	7075	7075	7075	7075	6759.395	7385.094748	3760	3780	3630	3660	3530.8135	4158.
4/18/2018	22900	22900	22900	22900	22825.279	17069.52277	7125	7150	7025	7050	6735.5103	7456.779458	3660	3660	3660	3660	3530.8135	4150.
4/19/2018	22900	22900	22900	22900	22825.279	17223.26065	7050	7050	7050	7050	6735.5103	7525.537656	3660	3660	3660	3660	3530.8135	4132.
4/20/2018	22825	22975	22725	22975	22900.033	17145.55015	7050	7050	7050	7050	6735.5103	7547.214166	3720	3770	3710	3770	3636.9309	410
4/23/2018	22975	22975	22975	22975	22900.033	17735.093	7050	7100	6975	7000	6687.7407	7856.956737	3770	3770	3770	3770	3636.9309	4103.
4/24/2018	22975	22975	22975	22975	22900.033	17280.13162	7050	7050	6900	6900	6592.2017	7773.342486	3770	3770	3770	3770	3636.9309	414
4/25/2018	23200	23200	22925	23000	22924.953	17491.77985	6900	6900	6900	6900	6592.2017	7829.379867	3720	3780	3720	3750	3617.6367	4073.
4/26/2018	23100	23125	22875	22925	22850.197	17639.16613	6900	6900	6900	6900	6592.2017	7873.304727	3810	3830	3770	3830	3694.813	4215.
4/27/2018	22925	22925	22925	22925	22850.197	17495.83401	6900	6900	6900	6900	6592.2017	7872.439027	3830	3830	3830	3830	3694.813	4173.
4/30/2018	22925	22925	22925	22925	22850.197	17568.11417	6775	6975	6775	6975	6663.856	7873.127918	3830	3830	3830	3830	3694.813	4186.
5/1/2018	22925	22925	22925	22925	22850.197	17520.35689	6975	6975	6975	6975	6663.856	7848.876858	3830	3830	3830	3830	3694.813	4186.
5/2/2018	21500	22400	21450	22100	22027.889	17689.27182	6975	6975	6850	6925	6616.0864	7874.49898	3750	3870	3750	3830	3694.813	4215.
5/3/2018	22100	22100	22100	22100	22027.889	17736.7597	6800	6850	6700	6725	6425.0083	7800.942437	3830	3830	3830	3830	3694.813	4244.
5/4/2018	22100	22900	22100	22900	22825.279	17673.0134	6675	6675	6300	6350	6066.7363	7876.385452	3810	3880	3780	3870	3733.4011	4206.
5/7/2018	22800	22875	22300	22300	22227.236	17733.58537	6300	6475	6250	6375	6090.6211	7871.743772	3850	3860	3740	3740	3607.9897	4186.
5/8/2018	22300	22325	22000	22025	21953.135	17989.82553	6375	6450	6200	6200	5923.4277	7777.491821	3700	3750	3650	3730	3598.3428	4186.
5/9/2018	22050	22300	21800	22300	22227.236	17159.08857	6100	6600	6075	6375	6090.6211	7877.544072	3750	3820	3730	3800	3665.8718	4157.
5/10/2018	22000	22025	21700	22025	21953.135	16715.79392	6375	6375	6375	6375	6090.6211	7847.452998	3650	3670	3570	3620	3620	437
5/11/2018	21525	22900	21525	22900	22825.279	17151.24435	6400	6575	6400	6500	6210.0449	8039.603038	3600	3780	3530	3700	3700	4312.
5/14/2018	22900	22900	22900	22900	22825.279	17632.35861	6350	6500	6325	6450	6162.2754	8081.806621	3700	3700	3700	3700	3700	4244.
5/15/2018	22750	23050	22550	22750	22675.768	17391.7799	6450	6500	6425	6475	6186.1602	8176.342285	3700	3750	3620	3630	3630	4206.
5/16/2018			325	22975	22900.033	17449.53405	6375	6450	6300	6425	6138.3906	8173.333119	3560	3610	3500	3540	3540	4312.
5/17/2018			000	22200	22127.563	17228.17002	6500	6500	6300	6300	6018.9668	8127.224963	3520	3530	3350	3370	3370	4235.

5/18/2018	21900	22400	21900	22375	22301.992	17321.16902	6400	6425	6325	6375	6090.6211	8224.748657	3280	3530	3250	3480	3480	4177.
5/21/2018	22200	22275	22000	22000	21928.215	17515.91194	6375	6375	6275	6300	6018.9668	8147.965532	3510	3610	3490	3490	3490	4196.
5/22/2018	22000	22025	21700	21700	21629.193	17348.53803	6500	6650	6375	6550	6257.8145	8129.869995	3520	3530	3400	3490	3490	4196.
5/23/2018	21550	21725	21475	21650	21579.357	16908.85652	6550	6950	6525	6800	6496.6626	8128.687313	3490	3490	3410	3420	3420	4225.
5/24/2018	21950	22100	21700	22000	21928.215	16907.93423	6875	7075	6800	6975	6663.856	8199.837115	3420	3500	3420	3470	3470	418(
5/25/2018	22100	22350	22000	22000	21928.215	17291.4856	7000	7025	6800	7025	6711.6255	8244.73153	3460	3530	3450	3470	3470	4157.
5/28/2018	22300	22625	22275	22450	22376.746	17464.90736	7025	7150	6900	7075	6759.395	8243.766955	3480	3590	3480	3560	3560	4167.
5/29/2018	22425	22675	22375	22550	22476.42	17302.19708	7075	7075	7075	7075	6759.395	8292.558123	3540	3590	3530	3560	3560	4148.
5/30/2018	22500	23000	22400	22850	22775.441	17540.46999	7075	7125	6875	7025	6711.6255	7979.907904	3580	3700	3560	3690	3690	4177.
5/31/2018	22850	22850	22850	22850	22775.441	17664.28731	6900	7075	6875	7075	6759.395	7900.326419	3690	3690	3690	3690	3690	4177.
6/1/2018	22850	22975	22450	22700	22625.932	17445.28698	7075	7075	7075	7075	6759.395	7873.705166	3600	3730	3590	3600	3600	4206.
6/4/2018	22875	22950	22450	22700	22625.932	17498.14189	7075	7125	7025	7025	6711.6255	8240.819081	3600	3610	3500	3520	3520	4206.
6/5/2018	22700	22700	22700	22700	22625.932	17616.54654	7100	7200	7000	7200	6878.8193	8168.724953	3520	3520	3520	3520	3520	4206.
6/6/2018	22950	22975	22800	22925	22850.197	17716.03069	7250	7250	6975	6975	6663.856	8120.81924	3540	3660	3530	3640	3640	4215.
6/7/2018	22800	22925	22400	22725	22650.85	17787.09568	7000	7175	7000	7100	6783.2798	7953.780099	3680	3860	3660	3830	3830	4244.
6/8/2018	22725	23150	22625	23025	22949.871	17545.15843	7125	7150	6950	6950	6639.9712	7953.884803	3790	3830	3760	3790	3790	4331.
6/11/2018	23150	23150	22900	22975	22900.033	17667.56867	6950	6950	6950	6950	6639.9712	8120.224989	3800	3830	3770	3770	3770	4360.
6/12/2018	22850	23000	22100	22250	22177.4	17838.79856	6950	6950	6950	6950	6639.9712	8120.972014	3710	3730	3600	3610	3610	436(
6/13/2018	22250	22250	22250	22250	22177.4	17935.78144	6950	6950	6950	6950	6639.9712	8216.142932	3610	3610	3610	3610	3610	4360.
6/14/2018	22250	22250	22250	22250	22177.4	17888.08787	6950	6950	6950	6950	6639.9712	8216.597716	3610	3610	3610	3610	3610	4360.
6/15/2018	22250	22250	22250	22250	22177.4	17890.09013	6950	6950	6950	6950	6639.9712	8216.33076	3610	3610	3610	3610	3610	4360.
6/18/2018	22250	22250	22250	22250	22177.4	17889.13108	6950	6950	6950	6950	6639.9712	8216.364078	3610	3610	3610	3610	3610	436(
6/19/2018	22250	22250	22250	22250	22177.4	17889.10002	6950	6950	6950	6950	6639.9712	8216.364078	3610	3610	3610	3610	3610	436(
6/20/2018			250	22250	22177.4	17889.09902	6900	6950	6625	6700	6627.1128	8216.364078	3610	3610	3610	3610	3610	436(
6/21/2018			250	22250	22177.4	17889.09898	6850	6850	6475	6525	6454.0166	8216.364078	3610	3610	3610	3610	3610	4620.

6/22/2018	22000	22025	21150	21500	21429.848	17889.09898	6500	6675	6475	6550	6478.7446	8382.938944	3540	3710	3510	3710	3710	4427.
6/25/2018	21625	21950	21150	21150	21080.988	18228.13484	6650	6700	6500	6625	6552.9287	8360.14228	3650	3700	3610	3610	3610	4418.
6/26/2018	21400	21925	21100	21925	21853.461	18281.89331	6625	6725	6550	6625	6552.9287	8359.665513	3610	3630	3540	3580	3580	4485.
6/27/2018	21925	22475	21825	22200	22127.563	18087.62935	6600	6625	6550	6550	6478.7446	8359.622062	3630	3690	3600	3660	3660	4466.
6/28/2018	22100	22300	21375	21375	21305.254	17967.43341	6500	6575	6350	6350	6280.9204	8359.698387	3600	3700	3600	3690	3690	4408.
6/29/2018	21400	21700	21350	21350	21280.336	18230.13759	6425	6700	6400	6650	6577.6567	8216.391481	3690	3780	3690	3710	3710	4437.
7/2/2018	21375	21375	20925	20950	20881.641	18037.38376	6650	6650	6500	6525	6454.0166	8288.250182	3700	3720	3660	3660	3660	44
7/3/2018	20950	21475	20825	21475	21404.928	18062.93682	6450	6450	6200	6250	6182.0083	8311.652608	3650	3750	3640	3750	3750	443
7/4/2018	21650	21650	21425	21450	21380.01	18160.21617	6250	6475	6150	6425	6355.1045	8359.345746	3800	3800	3710	3750	3750	4437.
7/5/2018	21600	21625	20600	20600	20532.783	18230.58455	6375	6400	6225	6300	6231.4644	8383.817379	3740	3740	3670	3700	3700	4485.
7/6/2018	20975	21400	20700	21225	21155.744	18135.92148	6325	6350	6200	6200	6132.5522	8383.553837	3700	3810	3630	3760	3760	4466.
7/9/2018	21050	21300	21000	21225	21155.744	18040.69851	6250	6600	6225	6550	6478.7446	8383.634497	3800	3830	3760	3830	3830	4437.
7/10/2018	20975	21050	20925	20925	20856.723	18086.23088	6600	6650	6475	6650	6577.6567	8288.079236	3850	3890	3830	3860	3860	4466.
7/11/2018	21200	22000	21075	21900	21828.541	18206.80886	6600	6675	6500	6625	6552.9287	8383.372974	3900	4000	3880	3980	3980	4399.
7/12/2018	21850	22000	21400	21900	21828.541	18183.78559	6625	6625	6475	6550	6478.7446	8192.54569	3990	4050	3960	4030	4030	4485.
7/13/2018	21500	22450	21500	22325	22252.154	17965.41136	6475	6550	6450	6525	6454.0166	8336.025181	4000	4080	3960	4060	4060	4553.
7/16/2018	22200	22900	22175	22825	22750.523	18305.39651	6525	6550	6400	6525	6454.0166	8335.623634	4050	4110	4040	4100	4100	4534.
7/17/2018	23000	23075	22800	23025	22949.871	18305.18288	6450	6475	6375	6425	6355.1045	8240.273645	4080	4100	3970	4020	4020	4485.
7/18/2018	23050	23125	22900	23125	23049.545	18503.02329	6450	6450	6350	6400	6330.3765	8216.540553	3970	4030	3860	3940	3940	453
7/19/2018	22925	23000	22525	22725	22650.85	18528.27475	6400	6425	6325	6325	6256.1924	8216.428921	3970	3970	3890	3940	3940	4524.
7/20/2018	22950	23200	22950	23200	23124.301	18527.53973	6300	6350	6275	6275	6206.7363	8001.449899	3910	4030	3890	4010	4010	4601.
7/23/2018	23100	23200	23050	23200	23124.301	18435.69348	6300	6425	6275	6425	6355.1045	7930.166137	4000	4000	3910	3910	3910	463
7/24/2018	23150	23150	22925	23100	23024.627	18648.26996	6425	6450	6375	6400	6330.3765	7929.740231	3900	3990	3890	3990	3990	4534.
7/25/2018			100	23350	23273.811	18652.2979	6400	6425	6350	6350	6280.9204	7881.77683	4030	4090	4010	4060	4060	4505.
7/26/2018			300	23525	23448.24	18480.8183	6400	6400	6325	6375	6305.6484	7858.183301	4090	4090	4030	4030	4030	4505.

7/27/2018	23525	23575	23425	23575	23498.076	18312.48441	6400	6400	6275	6275	6206.7363	7834.069454	4060	4060	3900	3900	3900	4524.
7/30/2018	23225	23625	23225	23325	23248.893	18356.8625	6300	6350	6250	6275	6206.7363	8025.123257	3920	3940	3890	3930	3930	4543.
7/31/2018	23300	23350	23125	23225	23149.219	18723.52284	6350	6350	6250	6350	6280.9204	8025.428533	3910	3950	3890	3940	3940	4543.
8/1/2018	23400	23400	23000	23275	23199.055	18699.27966	6350	6450	6325	6425	6355.1045	8072.774123	3890	3950	3890	3910	3910	4514.
8/2/2018	23200	23300	22650	23275	23199.055	18555.48321	6425	6450	6350	6400	6330.3765	7882.363485	3830	3830	3550	3570	3570	4543.
8/3/2018	23400	23475	23250	23475	23398.402	18410.95053	6350	6425	6300	6375	6305.6484	7882.089639	3570	3600	3500	3550	3550	4563.
8/6/2018	23600	23900	23450	23450	23373.484	18480.28828	6400	6625	6375	6600	6528.2007	7953.470888	3550	3590	3450	3500	3500	4601.
8/7/2018	23450	23650	23350	23450	23373.484	18406.91054	6600	6650	6500	6575	6503.4727	8001.297153	3480	3490	3430	3460	3460	4601.
8/8/2018	23400	23800	23400	23800	23722.342	18625.82041	6600	6625	6400	6450	6379.8325	8001.447539	3480	3670	3480	3650	3650	4611.
8/9/2018	23700	23875	23700	23800	23722.342	18626.66019	6450	6475	6375	6425	6355.1045	8025.057584	3650	3670	3570	3580	3580	4601.
8/10/2018	23900	23950	23550	23925	23846.934	18434.31907	6425	6450	6325	6400	6330.3765	7930.179772	3600	3600	3520	3550	3550	4620.
8/13/2018	24000	24100	23900	24100	24021.363	18528.33535	6375	6375	6200	6200	6132.5522	7953.36336	3520	3550	3490	3490	3490	4630.
8/14/2018	24000	24075	23700	23875	23797.098	18529.68782	6250	6300	6000	6125	6058.3682	7977.664192	3510	3540	3480	3500	3500	4611.
8/15/2018	23525	23550	23050	23325	23248.893	18870.16923	6125	6225	6050	6125	6058.3682	8025.046975	3440	3450	3360	3370	3370	460
8/16/2018	23450	23900	23025	23500	23423.32	18677.05841	6100	6150	6050	6100	6033.6401	8215.829631	3360	3440	3330	3350	3350	4582.
8/17/2018	23600	23600	23300	23450	23373.484	18824.31118	6100	6100	6100	6100	6033.6401	8240.561371	3350	3450	3310	3430	3430	4563.
8/20/2018	23450	23475	23200	23375	23298.729	18802.68992	6225	6350	6150	6200	6132.5522	8287.819391	3390	3430	3350	3350	3350	4572.
8/21/2018	23375	23375	23375	23375	23298.729	18799.36072	6200	6500	6200	6475	6404.5605	8288.187829	3350	3350	3350	3350	3350	452
8/22/2018	23500	23900	23425	23900	23822.016	18823.64736	6475	6475	6475	6475	6404.5605	8001.658047	3420	3450	3370	3390	3390	4524.
8/23/2018	23850	23975	23850	23875	23797.098	18681.29298	6500	6600	6500	6600	6528.2007	8002.169562	3400	3440	3350	3350	3350	451
8/24/2018	23875	23875	23875	23875	23797.098	18677.59618	6650	6700	6600	6675	6602.3848	8000.553871	3350	3350	3350	3350	3350	4485.
8/27/2018	23800	24650	23775	24575	24494.813	18603.95969	6700	6775	6625	6675	6602.3848	8001.753302	3390	3390	3290	3300	3300	454
8/28/2018	24600	25475	24575	25075	24993.182	18725.26475	6675	6700	6425	6450	6379.8325	8001.271791	3290	3340	3270	3290	3290	4534.
8/29/2018			675	24775	24694.16	18629.2536	6450	6475	6275	6375	6305.6484	8144.174255	3330	3480	3310	3460	3460	4553.
8/30/2018			550	24975	24893.508	18676.06358	6375	6500	6300	6300	6231.4644	8263.991743	3480	3600	3480	3580	3580	4543.

8/31/2018	24500	24800	24475	24800	24719.08	18583.35782	6275	6375	6250	6375	6305.6484	8216.590943	3560	3610	3520	3580	3580	455
9/3/2018	24975	25150	24925	25075	24993.182	18625.64839	6375	6375	6325	6375	6305.6484	8311.948399	3580	3590	3510	3510	3510	4524.
9/4/2018	25000	25050	24800	24800	24719.08	18750.30801	6400	6425	6300	6350	6280.9204	8192.504907	3500	3520	3460	3490	3490	450
9/5/2018	25050	25075	24600	24775	24694.16	18776.63723	6300	6300	5950	5950	5885.272	8145.146742	3520	3550	3480	3490	3490	4524.
9/6/2018	24825	24900	24500	24750	24669.242	18822.39157	5875	6100	5850	5950	5885.272	8120.559201	3500	3510	3410	3420	3420	4543.
9/7/2018	24500	24500	23650	24000	23921.689	18606.77735	6000	6200	5975	6100	6033.6401	8096.834652	3400	3400	3250	3270	3270	4543.
9/10/2018	24025	25200	23600	24700	24619.406	18701.21741	6100	6200	6050	6125	6058.3682	8192.540001	3250	3380	3250	3360	3360	4524.
9/11/2018	24825	24850	24375	24850	24768.916	18801.04333	6125	6125	6125	6125	6058.3682	8335.316429	3360	3390	3320	3390	3390	4524.
9/12/2018	24600	24750	24150	24750	24669.242	18774.06497	6125	6125	6025	6125	6058.3682	8336.038282	3380	3400	3350	3380	3380	4476.
9/13/2018	24750	24750	24750	24750	24669.242	18776.48143	6125	6125	5925	6000	5934.728	8144.73869	3380	3380	3380	3380	3380	4485.
9/14/2018	24750	24825	23825	23900	23822.016	19580.32217	6000	6225	5975	6175	6107.8242	8240.659149	3380	3390	3310	3320	3320	4524.
9/17/2018	24200	24375	23900	24000	23921.689	19388.01008	6200	6200	6050	6100	6033.6401	8144.564766	3370	3470	3370	3450	3450	4534.
9/18/2018	23900	24200	23700	23975	23896.771	19368.13435	6050	6100	5925	5925	5860.5439	8168.693435	3470	3600	3470	3590	3590	4543.
9/19/2018	23750	23975	23750	23925	23846.934	19463.76467	5950	6025	5850	5850	5786.3599	8025.120788	3550	3570	3430	3470	3470	4514.
9/20/2018	23700	24250	23700	24000	23921.689	19538.73601	5900	6025	5875	6000	5934.728	8049.188782	3470	3590	3440	3570	3570	4514.
9/21/2018	24075	24225	23825	24000	23921.689	20001.80687	6075	6075	6000	6075	6008.9121	8168.672159	3580	3610	3540	3550	3550	452
9/24/2018	24200	24225	23900	23950	23871.854	20026.99373	6075	6075	5950	5975	5910	8215.877429	3590	3640	3570	3600	3600	4524.
9/25/2018	23900	24150	23700	23700	23622.668	20058.81038	6000	6025	5950	6000	5934.728	8216.648756	3630	3630	3550	3600	3600	4495.
9/26/2018	23900	24075	23800	23925	23846.934	20030.79779	6000	6025	5975	5975	5910	8049.386709	3590	3600	3510	3540	3540	4495.
9/27/2018	24000	24000	23825	23925	23846.934	19985.66629	5975	6025	5925	5975	5910	8025.578563	3540	3560	3520	3560	3560	4456.
9/28/2018	23800	24300	23800	24200	24121.037	20154.75433	5950	6000	5900	5900	5835.8159	8025.286955	3550	3590	3540	3540	3540	4370.
10/1/2018	23900	24125	23850	24000	23921.689	20057.768	5900	6025	5900	6025	5959.4561	8048.983284	3580	3590	3550	3580	3580	4244.
10/2/2018	23900	24150	23900	24150	24071.199	20082.47679	6025	6025	5925	5975	5910	8001.434408	3600	3670	3600	3640	3640	4283.
10/3/2018			950	23950	23871.854	20081.83129	5950	5975	5925	5950	5885.272	8025.157431	3610	3690	3610	3670	3670	4273.
10/4/2018			750	23950	23871.854	20494.84958	5925	5950	5875	5900	5835.8159	7953.893839	3640	3670	3580	3620	3620	4292.

10/5/2018	23750	23975	23725	23925	23846.934	20374.69331	5900	5900	5775	5775	5712.1758	7953.613103	3570	3640	3570	3600	3600	4244.
10/8/2018	23925	23925	23500	23600	23522.994	20426.21791	5775	5825	5550	5575	5514.3516	7882.019947	3570	3600	3510	3600	3600	4148
10/9/2018	23550	23550	22975	23050	22974.789	20207.32115	5600	5650	5575	5600	5539.0796	7953.642294	3540	3600	3530	3530	3530	4061.
10/10/2018	23075	23950	23075	23450	23373.484	19912.93178	5600	5725	5600	5700	5637.9917	7786.417883	3500	3530	3470	3520	3520	4119.
10/11/2018	23500	23750	23400	23750	23672.506	20036.05749	5550	5675	5500	5525	5464.8955	7858.138064	3530	3620	3520	3590	3590	4099.
10/12/2018	23900	24125	23250	23375	23298.729	20054.40351	5525	5700	5525	5575	5514.3516	7977.097143	3640	3640	3560	3600	3600	4080.
10/15/2018	23000	23300	22475	22725	22650.85	20689.89429	5575	5675	5525	5525	5464.8955	8025.338543	3500	3640	3480	3570	3570	3945.
10/16/2018	23000	23475	23000	23250	23174.137	20304.03848	5550	5650	5525	5650	5588.5356	8096.95949	3630	3700	3620	3680	3680	4013.
10/17/2018	23500	23850	23475	23850	23772.18	20746.06718	5675	6025	5675	6000	5934.728	8096.961249	3700	3750	3650	3660	3660	4003.
10/18/2018	23850	24100	23500	24100	24021.363	20477.01034	6000	6100	5900	6100	6033.6401	7882.113302	3680	3780	3680	3780	3780	3935.
10/19/2018	24150	24175	23775	24025	23946.607	20012.93976	6000	6025	5850	6000	5934.728	7786.916812	3800	3910	3800	3900	3900	3887.
10/22/2018	23800	23875	23600	23600	23522.994	20133.97801	6000	6000	5900	5950	5885.272	7833.921437	3840	3880	3720	3760	3760	3810.
10/23/2018	23300	23650	23225	23375	23298.729	20589.99981	5950	5975	5800	5800	5736.9038	7834.164733	3700	3770	3690	3730	3730	388
10/24/2018	23375	23600	23150	23150	23074.463	21012.11633	5825	5875	5700	5700	5637.9917	7738.617741	3730	3830	3730	3800	3800	3945.
10/25/2018	23400	23425	22875	22950	22875.115	21159.74441	5600	5800	5600	5800	5736.9038	7858.368097	3800	3800	3670	3700	3700	4042.
10/26/2018	23000	23150	22650	22650	22576.094	20726.29453	5800	5825	5700	5700	5637.9917	7834.039217	3700	3710	3520	3520	3520	4042.
10/29/2018	22175	23175	22175	22900	22825.279	20701.06965	5800	5800	5650	5650	5588.5356	7762.696544	3490	3580	3460	3550	3550	3955.
10/30/2018	23100	23600	23000	23600	23522.994	20749.71046	5650	5750	5650	5700	5637.9917	7714.948778	3580	3660	3580	3630	3630	4013.
10/31/2018	23300	23550	23125	23125	23049.545	20502.82398	5750	5975	5750	5975	5910	7595.41099	3630	3660	3580	3660	3660	3974.
11/1/2018	23125	23650	23100	23500	23423.32	20500.22756	5975	6000	5750	5925	5860.5439	7666.853064	3640	3850	3630	3800	3800	3955.
11/2/2018	23750	23875	23500	23650	23572.832	20355.60113	5950	6075	5800	6025	5959.4561	7595.483151	3850	3870	3730	3850	3850	3935.
11/5/2018	23850	24050	23725	23800	23722.342	20184.64006	6050	6075	5900	5975	5910	7595.37602	3850	3880	3810	3880	3880	3984.
11/6/2018	24000	24175	23800	24000	23921.689	20180.73311	6000	6000	5825	5825	5825	7523.766649	3900	3940	3880	3940	3940	4051.
11/7/2018			950	24175	24096.119	20715.98274	5800	5800	5700	5725	5725	7404.678701	3850	3910	3850	3890	3890	4051.
11/8/2018			250	24400	24320.385	20716.86399	5750	6000	5750	5975	5975	7451.653707	3930	3930	3820	3890	3890	4003.

11/9/2018	24600	24600	23900	24100	24021.363	20868.89439	5950	5950	5725	5775	5775	7451.932249	3900	3950	3870	3950	3950	4051.
11/12/2018	24400	24500	23900	24000	23921.689	20723.7425	5775	5800	5575	5575	5575	7381.059836	3970	4000	3920	4000	4000	4051.
11/13/2018	24000	24050	23925	24000	23921.689	20819.39976	5700	5725	5600	5600	5600	7380.132998	3960	3960	3920	3920	3920	4099
11/14/2018	24150	24175	23700	23700	23622.668	20871.81069	5650	5700	5625	5650	5650	7451.633796	3890	3950	3860	3860	3860	4167
11/15/2018	23700	24100	23350	24075	23996.445	20697.14563	5650	5925	5650	5875	5875	7357.198126	3810	3850	3750	3830	3830	4148.
11/16/2018	24075	24250	23900	24050	23971.525	20701.14746	5925	6050	5850	5950	5950	7475.451269	3860	3880	3750	3750	3750	4090
11/19/2018	24275	24350	23950	24175	24096.119	20990.97364	5950	5975	5850	5950	5950	7356.583983	3800	3940	3790	3910	3910	4051.
11/20/2018	24350	24900	24300	24825	24743.998	20989.0243	5950	5950	5950	5950	5950	7261.367795	3930	4110	3920	4050	4050	4003.
11/21/2018	25000	25400	24900	25100	25018.1	20871.24683	5900	6025	5825	6000	6000	6998.365892	4050	4050	3930	3950	3950	4003.
11/22/2018	25100	25100	25100	25100	25018.1	20141.32059	6050	6300	6000	6250	6250	6999.201718	3950	3950	3950	3950	3950	4051.
11/23/2018	25000	25050	24775	24800	24719.08	20141.82714	6150	6325	6150	6250	6250	6972.921731	3860	3960	3850	3960	3960	4051.
11/26/2018	24700	25200	24700	25100	25018.1	20567.80894	6250	6300	6150	6275	6275	6975.21677	3910	3990	3910	3980	3980	4051.
11/27/2018	25300	25450	24875	25100	25018.1	20770.72442	6275	6275	6175	6225	6225	6997.951033	3980	4000	3950	3990	3990	4051.
11/28/2018	24800	25400	24800	25225	25142.693	21067.35686	6175	6200	6050	6050	6050	6998.245923	3980	4000	3950	3990	3990	3993.
11/29/2018	25200	25500	25000	25500	25416.795	20753.87999	6100	6400	6100	6400	6400	7045.925145	3940	3950	3850	3880	3880	3993.
11/30/2018	25625	25625	25400	25450	25366.959	20899.37525	6425	6600	6350	6600	6600	7046.051846	3890	3900	3710	3720	3720	4022.
12/3/2018	25500	26200	25500	26200	26114.512	20849.23105	6650	6750	6500	6650	6650	7022.241203	3770	3810	3710	3740	3740	4051.
12/4/2018	26200	26200	25775	26050	25965	21021.22571	6700	6700	6550	6625	6625	7141.19469	3760	3780	3680	3680	3680	4099.
12/5/2018	26075	26975	25500	25800	25800	20706.04432	6500	6575	6450	6575	6575	7188.774311	3740	3770	3700	3700	3700	4080.
12/6/2018	25800	26475	25775	26200	26200	20874.69727	6575	6725	6525	6675	6675	7118.67938	3720	3780	3720	3780	3780	4090.
12/7/2018	25600	26150	25575	26150	26150	20874.92391	6725	6750	6650	6700	6700	7165.163112	3740	3800	3730	3770	3770	4042.
12/10/2018	25850	26300	25600	26300	26300	20874.65685	6575	6625	6500	6525	6525	7307.963783	3740	3770	3700	3710	3710	4013.
12/11/2018	25950	26050	25800	25950	25950	20874.28359	6525	6600	6400	6575	6575	7213.703301	3700	3710	3660	3670	3670	4099.
12/12/2018			600	25900	25900	20702.98637	6500	6750	6500	6725	6725	7261.269639	3650	3720	3610	3680	3680	4148.
12/13/2018			625	25800	25800	20873.28692	6800	7025	6800	6900	6900	7284.540841	3640	3670	3610	3620	3620	4148.

12/14/2018	25950	25950	25650	25825	25825	21262.74321	6900	7125	6850	7075	7075	7284.917549	3660	3670	3620	3650	3650	4148.
12/17/2018	26000	26025	25725	25825	25825	21267.39651	7050	7100	6925	6975	6975	7284.86583	3680	3780	3660	3750	3750	4148.
12/18/2018	25800	25900	25700	25825	25825	21270.26472	6975	7150	6850	7075	7075	7284.871584	3800	3840	3730	3730	3730	4235.
12/19/2018	25925	26000	25750	25825	25825	21294.69506	7075	7300	7075	7300	7300	7356.231304	3740	3770	3710	3710	3710	428
12/20/2018	25500	25575	24900	25325	25325	21685.29527	7275	7375	7150	7350	7350	7284.785843	3700	3740	3680	3740	3740	428