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APPENDIX I
DATA

Tanggal	BBCA	BBRI	BMRI	BBNI
05/01/2014	-1.05%	4.83%	5.77%	2.08%
12/01/2014	5.32%	9.54%	6.06%	8.78%
19/01/2014	2.78%	0.9%	-0.85%	0.58%
26/01/2014	-2.46%	-0.89%	0.28%	1.4%
02/02/2014	3.27%	4.8%	0.87%	-2.52%
09/02/2014	1.22%	0%	2.83%	3.06%
16/02/2014	0.72%	10.6%	4.43%	7.88%
23/02/2014	-2.15%	-3.89%	-3.44%	-3.7%
02/03/2014	3.67%	-0.27%	1.65%	6.04%
09/03/2014	4.48%	11.35%	9.73%	7.25%
16/03/2014	-6.77%	-9.71%	-7.63%	-7.25%
23/03/2014	2.66%	2.96%	0.79%	3.33%
30/03/2014	2.36%	3.92%	7.13%	3.33%
06/04/2014	2.3%	-4.02%	-4.19%	-4%
13/04/2014	0.9%	4.71%	1.55%	2.64%
20/04/2014	-1.79%	0%	0.51%	0%
27/04/2014	-0.23%	0.5%	-0.24%	-4.46%
04/05/2014	2.05%	0.75%	2.03%	0.83%
11/05/2014	1.34%	6.42%	5.2%	3.29%
18/05/2014	0.22%	0.46%	-2.11%	-2.59%
25/05/2014	-5.27%	-5.77%	-1.93%	-2.45%
01/06/2014	2.55%	-1.23%	-0.98%	1.15%
08/06/2014	0.23%	0.99%	-1.51%	0%
15/06/2014	-1.58%	-1.72%	-1.25%	-0.21%
22/06/2014	-0.69%	1%	-1.53%	-1.04%
29/06/2014	2.54%	0.99%	0.27%	-0.42%
06/07/2014	1.8%	12.75%	8.52%	6.32%
13/07/2014	3.1%	0.65%	1.18%	1.49%
20/07/2014	-0.43%	-3.24%	-3.52%	-0.49%
03/08/2014	0.22%	-4.02%	-0.49%	-0.49%
10/08/2014	1.51%	0%	2.45%	1.97%
17/08/2014	0%	4.88%	0.71%	3.38%
24/08/2014	-5.08%	-2%	-1.41%	0%
31/08/2014	8.04%	-0.9%	0.96%	7.01%

07/09/2014	-0.41%	-3.42%	-2.63%	-1.31%
14/09/2014	4.56%	2.13%	3.18%	3.1%
21/09/2014	1.59%	-4.17%	-4.5%	-5.58%
28/09/2014	-5.27%	-3.14%	-3.98%	-6.82%
05/10/2014	5.57%	0.75%	-1.04%	4.39%
12/10/2014	-1.76%	5.94%	3.92%	6.07%
19/10/2014	5.96%	0.93%	1.77%	2.2%
26/10/2014	-2.06%	2.55%	2.48%	2.59%
02/11/2014	-2.68%	-3.84%	-1.68%	-3.78%
09/11/2014	1.77%	3.99%	3.18%	2.62%
16/11/2014	3.09%	0.9%	-1.18%	-1.7%
23/11/2014	-1.69%	3.13%	1.43%	4.33%
30/11/2014	1.91%	-0.43%	1.2%	2.49%
07/12/2014	-0.75%	1.53%	0.94%	-2.83%
14/12/2014	-0.57%	-1.07%	-0.93%	0.83%
21/12/2014	0.19%	0.65%	0.47%	1.65%
28/12/2014	0.19%	0.43%	1.16%	-0.81%
04/01/2015	-2.27%	3.22%	2.77%	0.82%
11/01/2015	0.19%	-3.74%	-3.81%	-2.85%
18/01/2015	2.9%	2.59%	6.32%	2.09%
25/01/2015	0.38%	-1.68%	-3.31%	2.46%
01/02/2015	2.43%	-0.21%	3.18%	6.8%
08/02/2015	2.37%	3%	4.85%	0%
15/02/2015	0.18%	6.04%	1.48%	3.37%
22/02/2015	0.36%	1.18%	-0.63%	-0.36%
01/03/2015	3.55%	1.55%	0.83%	-1.45%
08/03/2015	-3.42%	-2.49%	-1.65%	-0.37%
15/03/2015	1.6%	1.18%	2.52%	2.96%
22/03/2015	0.87%	1.36%	-2.05%	2.16%
29/03/2015	2.42%	-0.57%	2.73%	1.41%
05/04/2015	1.69%	0.19%	-2.25%	-1.04%
12/04/2015	-1.99%	-0.19%	0%	-1.05%
19/04/2015	1.02%	-0.38%	-0.83%	-1.42%
26/04/2015	-9.56%	-10.23%	-9.66%	-7.55%
03/05/2015	2.23%	0.22%	3.96%	3.5%
10/05/2015	-1.81%	1.29%	-2.02%	1.13%
17/05/2015	6.1%	6.78%	4.33%	5.2%
24/05/2015	-1.57%	-6.55%	-5.67%	-2.83%
31/05/2015	-3.36%	-4.03%	-0.93%	-9.45%

07/06/2015	-2.93%	-8.19%	-7.27%	-9.64%
14/06/2015	3.4%	6.51%	1.01%	-0.89%
21/06/2015	-1.09%	-5.2%	1%	-5.38%
28/06/2015	0.55%	3.34%	0.75%	6.64%
05/07/2015	-2.39%	-3.23%	-1.73%	-3.11%
12/07/2015	1.5%	-3.34%	0%	-6.88%
19/07/2015	1.67%	-0.25%	0%	-1.48%
26/07/2015	-4.55%	-0.99%	-4.76%	-4.8%
02/08/2015	4.96%	5.5%	1.32%	5.04%
09/08/2015	-3.64%	-3.08%	-6.74%	-8.5%
16/08/2015	-10.38%	-7.09%	-5.56%	-6.01%
23/08/2015	8.21%	9.47%	6.78%	16.28%
30/08/2015	-4.67%	-3.13%	-2.78%	-8%
06/09/2015	-2.65%	-4.71%	-1.97%	-4.24%
13/09/2015	2.94%	1.82%	0%	-2.72%
20/09/2015	-3.87%	-12.53%	-10.71%	-4.08%
27/09/2015	0.64%	1.46%	-0.62%	0.85%
04/10/2015	11.16%	21.61%	18.55%	21.23%
11/10/2015	-3.03%	-2.37%	-1.93%	1.49%
18/10/2015	5.27%	8.74%	5.33%	3.43%
25/10/2015	-4.27%	-6.03%	-7.45%	-9.86%
01/11/2015	5.04%	1.66%	3.17%	1.26%
08/11/2015	-4.61%	-1.64%	-3.34%	0.52%
15/11/2015	1.74%	4.51%	0%	7.44%
22/11/2015	0%	2.73%	3.46%	-4.23%
29/11/2015	-0.19%	0%	-2.52%	-0.5%
06/12/2015	0.57%	-4.2%	0%	-0.5%
13/12/2015	0.19%	0.46%	-0.3%	0.61%
20/12/2015	-0.38%	2.07%	1.74%	-1.61%
27/12/2015	0.95%	2.93%	4.21%	2.25%
03/01/2016	-2.26%	1.53%	0.28%	0.2%
10/01/2016	0%	-1.29%	0%	-0.5%
17/01/2016	0%	-1.53%	1.08%	0.5%
24/01/2016	0.77%	-0.44%	2.39%	-1.8%
31/01/2016	2.48%	9.58%	7.81%	7.43%
07/02/2016	-1.12%	-4.07%	-6.05%	0%
14/02/2016	-1.69%	-2.97%	-4.36%	-3.32%
21/02/2016	2.3%	-5.24%	1.89%	-1.47%
28/02/2016	1.69%	4.84%	3.17%	4.98%

06/03/2016	-0.92%	-2.2%	3.83%	1.42%
13/03/2016	1.86%	0%	-0.49%	0.47%
20/03/2016	-2.74%	1.35%	1.23%	-4.19%
27/03/2016	-0.19%	-1.55%	-1.21%	-0.97%
03/04/2016	-1.69%	-2.7%	-2.48%	1.96%
10/04/2016	0.19%	-6.94%	-6.09%	-6.92%
17/04/2016	0.19%	8.46%	7.85%	1.14%
24/04/2016	-0.57%	-5.05%	-3.27%	-6.33%
01/05/2016	0.38%	0%	0.52%	0.76%
08/05/2016	0.38%	-4.59%	-4.12%	-3.03%
15/05/2016	-0.95%	-0.76%	-6.45%	-2.23%
22/05/2016	-0.19%	6.12%	4.02%	5.71%
29/05/2016	0.96%	0%	0.82%	1.51%
05/06/2016	-1.52%	-0.72%	1.67%	1.28%
12/06/2016	-0.19%	-0.73%	-3.51%	-2.1%
19/06/2016	-0.97%	0.49%	1.12%	4.94%
26/06/2016	3.52%	4.37%	3.87%	5.32%
10/07/2016	5.86%	6.98%	2.94%	5.83%
17/07/2016	3.75%	-0.65%	2.56%	-2.75%
24/07/2016	-0.52%	0.88%	1.77%	0.94%
31/07/2016	4.5%	3.9%	12.87%	5.61%
07/08/2016	-80.13%	-0.21%	-2.84%	-0.44%
14/08/2016	2%	0.42%	3.38%	4%
21/08/2016	-0.65%	-2.08%	-0.44%	-0.43%
28/08/2016	-1.32%	-1.06%	-1.96%	0%
04/09/2016	0.33%	1.08%	-2.92%	-2.58%
11/09/2016	0.33%	1.49%	2.08%	-3.52%
18/09/2016	2.48%	1.26%	3.83%	0.91%
25/09/2016	1.45%	1.04%	-2.61%	0.45%
02/10/2016	0.64%	-1.84%	-2.68%	-4.5%
09/10/2016	0%	2.09%	4.13%	3.3%
16/10/2016	0%	0%	-1.11%	-0.91%
23/10/2016	-1.27%	-0.2%	1.35%	1.84%
30/10/2016	-0.64%	1.64%	-2.43%	1.36%
06/11/2016	-5.32%	-3.43%	-2.25%	-8.04%
13/11/2016	0.34%	-3.97%	0.68%	1.46%
20/11/2016	-1.36%	-5%	-7.09%	-3.83%
27/11/2016	1.03%	3.43%	5.42%	5.47%
04/12/2016	0.17%	1.55%	2.58%	3.3%

11/12/2016	0.68%	-1.74%	-2.06%	-2.28%
18/12/2016	-2.36%	-3.55%	0.24%	-1.87%
25/12/2016	7.27%	7.36%	7.42%	5.24%
01/01/2017	0.65%	3.64%	-1.73%	1.36%
08/01/2017	-2.08%	-1.24%	-2.43%	-2.23%
15/01/2017	-0.16%	-1.26%	-0.9%	-0.46%
22/01/2017	0.98%	-0.64%	-0.22%	5.5%
29/01/2017	0.49%	2.35%	0.91%	3.91%
05/02/2017	-3.07%	0.21%	2.93%	4.6%
12/02/2017	3.17%	-2.7%	-2.85%	0.8%
19/02/2017	0.16%	2.14%	0.23%	0.79%
26/02/2017	-0.16%	-0.84%	2.25%	0%
05/03/2017	0.97%	1.9%	0.44%	-0.79%
12/03/2017	2.08%	5.04%	1.97%	6.35%
19/03/2017	3.76%	1.15%	2.37%	1.49%
26/03/2017	0%	-1.33%	-1.68%	-4.78%
02/04/2017	4.83%	0.58%	4.27%	0%
09/04/2017	0%	-2.68%	-4.51%	-3.09%
16/04/2017	0.72%	1.77%	-2.15%	-1.99%
23/04/2017	1.57%	-0.19%	2.63%	3.66%
30/04/2017	0.14%	7.95%	2.35%	3.14%
07/05/2017	1.27%	0.72%	0.21%	1.52%
14/05/2017	-0.56%	3.38%	7.5%	0.37%
21/05/2017	-1.82%	-1.89%	-5.81%	-3.36%
28/05/2017	-0.14%	3.69%	3.7%	-0.39%
04/06/2017	0.85%	-2.54%	-2.98%	-0.78%
11/06/2017	0.56%	2.09%	2.04%	1.56%
18/06/2017	1.97%	3.92%	2.2%	1.54%
02/07/2017	1.93%	-1.31%	3.92%	1.89%
09/07/2017	-0.54%	-1.66%	2.26%	5.58%
16/07/2017	-0.95%	-0.84%	-3.69%	-2.11%
23/07/2017	3.16%	-1.19%	2.49%	5.76%
30/07/2017	-1.2%	2.93%	-2.24%	-1.02%
06/08/2017	0.54%	0.5%	0.96%	0%
13/08/2017	0.13%	1%	-0.76%	1.72%
20/08/2017	2.14%	0.99%	0.57%	0.34%
27/08/2017	-0.79%	-1.14%	-0.57%	-1.01%
03/09/2017	-0.53%	-0.83%	1.34%	-1.7%
10/09/2017	0.13%	-1%	-0.19%	0.69%

17/09/2017	5.3%	5.56%	-0.38%	2.75%
24/09/2017	2.14%	-2.55%	1.89%	-1%
01/10/2017	0.74%	0.65%	-1.86%	0.34%
08/10/2017	1.1%	-0.16%	2.65%	2.69%
15/10/2017	-1.57%	1.79%	4.8%	0.33%
22/10/2017	-0.25%	-0.16%	-2.11%	0.65%
29/10/2017	3.57%	2.56%	4.32%	0.65%
05/11/2017	-1.78%	2.5%	-2.76%	2.9%
12/11/2017	2.54%	0.3%	3.9%	2.51%
19/11/2017	-0.83%	1.83%	1.71%	0.61%
26/11/2017	-3.1%	-4.18%	-0.67%	-1.52%
03/12/2017	3.81%	4.98%	1.01%	9.26%
10/12/2017	-0.12%	0.59%	-0.67%	5.93%
17/12/2017	1.9%	2.07%	3.37%	5.07%
24/12/2017	1.86%	5.2%	4.23%	0.51%
31/12/2017	1.6%	-1.37%	-2.19%	-6.06%
07/01/2018	0.79%	-1.39%	3.51%	-0.27%
14/01/2018	0.11%	2.26%	-0.31%	1.62%
21/01/2018	1.11%	6.35%	1.55%	1.86%
28/01/2018	5.62%	-2.86%	-0.91%	-3.13%
04/02/2018	-1.67%	-0.8%	1.23%	1.34%
11/02/2018	-0.53%	3.5%	0.91%	2.12%
18/02/2018	3.41%	-1.3%	3.01%	2.34%
25/02/2018	-5.67%	0%	-0.88%	-3.3%
04/03/2018	1.86%	-2.64%	-4.42%	-1.31%
11/03/2018	0.21%	-0.27%	-2.16%	1.33%
18/03/2018	1.93%	-2.17%	1.58%	-8.4%
25/03/2018	-2.1%	0%	-4.66%	-0.57%
01/04/2018	-2.47%	-3.33%	-1.63%	-4.32%
08/04/2018	0.77%	2.01%	6.29%	6.33%
15/04/2018	1.31%	3.1%	-0.31%	-1.13%
22/04/2018	-7.33%	-13.94%	-13.44%	-6.59%
29/04/2018	2.44%	-3.81%	-4.33%	-8.28%
06/05/2018	3.29%	4.29%	8.68%	10.7%
13/05/2018	-4.62%	-6.96%	-5.56%	-8.46%
20/05/2018	3.92%	6.12%	2.94%	5.28%
27/05/2018	0.67%	-1.28%	0.71%	6.27%
03/06/2018	-1.98%	1.95%	-1.42%	-5.01%
17/06/2018	-1.46%	-5.1%	-3.6%	-8.07%

24/06/2018	-2.05%	-4.7%	2.24%	-4.73%
01/07/2018	-2.56%	0%	-8.03%	-1.42%
08/07/2018	10.04%	4.58%	4.76%	4.32%
15/07/2018	0.33%	0.34%	-3.79%	0%
22/07/2018	0.54%	3.69%	3.54%	2.76%
29/07/2018	0.97%	7.77%	9.51%	6.04%
05/08/2018	1.81%	1.8%	2.08%	0.95%
12/08/2018	-2.09%	-10.03%	-8.84%	-11.29%
19/08/2018	7.27%	7.21%	1.12%	4.95%
26/08/2018	-1.1%	-2.75%	1.85%	5.05%
02/09/2018	0.2%	-4.72%	-3.99%	-5.77%
09/09/2018	-3.52%	1.32%	1.89%	2.38%
16/09/2018	-1.15%	1.63%	1.48%	1.66%
23/09/2018	1.9%	0.96%	-1.82%	-3.27%
30/09/2018	-4.55%	-5.4%	-6.69%	-7.09%
07/10/2018	0.87%	-1.01%	1.99%	0.73%
14/10/2018	0.54%	2.37%	0.78%	3.61%
21/10/2018	0.96%	-0.99%	0%	-1.05%
28/10/2018	1.69%	9.7%	15.12%	9.51%
04/11/2018	0%	1.83%	-2.69%	2.89%
11/11/2018	3.44%	4.49%	3.11%	3.75%
18/11/2018	1.11%	-0.28%	-2.01%	1.51%
25/11/2018	3.78%	4.02%	1.37%	0.89%
02/12/2018	-0.38%	0%	1.35%	0.88%
09/12/2018	-0.48%	1.66%	1%	0.29%
16/12/2018	0.1%	-1.63%	-4.62%	0.87%
23/12/2018	0.58%	1.1%	2.08%	1.44%
30/12/2018	0.1%	0%	1.02%	-0.85%
06/01/2019	0.86%	1.91%	3.36%	2.29%
13/01/2019	3.33%	2.41%	2.27%	5.32%
20/01/2019	1.38%	-1.05%	-6.35%	-3.19%
27/01/2019	2.45%	3.7%	3.05%	1.65%
03/02/2019	-2.04%	-0.76%	-50.16%	-51.49%
10/02/2019	-2.9%	-3.09%	-5.28%	-2.23%
17/02/2019	2.43%	3.45%	-1.05%	-0.57%
24/02/2019	0.91%	-0.77%	1.06%	2.87%
03/03/2019	-1.81%	-0.52%	-3.83%	-3.34%
10/03/2019	1.1%	3.38%	2.9%	4.32%
17/03/2019	-0.18%	2.01%	4.93%	6.08%

24/03/2019	1.09%	1.48%	0%	-2.08%
31/03/2019	-0.81%	3.4%	1.34%	2.39%
07/04/2019	0.09%	1.17%	-2.98%	0.26%
14/04/2019	2.09%	3.48%	6.48%	2.07%
21/04/2019	-0.09%	-2.92%	-0.96%	-2.03%
28/04/2019	0.98%	1.16%	-0.97%	-4.15%
05/05/2019	-1.15%	-5.93%	-2.29%	-7.03%
12/05/2019	-7.66%	-8.01%	-5.35%	-5.81%
19/05/2019	8.3%	1.58%	8.83%	6.79%
26/05/2019	3.74%	6.49%	-0.32%	-2.89%
09/06/2019	-0.34%	3.17%	1.95%	1.19%
16/06/2019	1.38%	3.07%	1.92%	4.12%
23/06/2019	1.96%	0%	0.63%	3.95%
30/06/2019	-0.42%	0.92%	-2.49%	0%
07/07/2019	0.67%	2.5%	3.19%	0%
14/07/2019	3.16%	-0.67%	-2.48%	-3.26%
21/07/2019	-0.08%	-0.89%	-1.59%	-5.34%
28/07/2019	-0.48%	0.22%	-0.97%	-3.86%
04/08/2019	-1.62%	-2.7%	-2.93%	-2.16%
11/08/2019	-1.73%	-2.77%	-1.01%	0%
18/08/2019	0.59%	-3.09%	-2.71%	-3.79%
25/08/2019	1.75%	4.66%	1.05%	0.98%
01/09/2019	-1.23%	0%	-2.76%	-1.3%
08/09/2019	0.08%	0.94%	2.13%	3.29%
15/09/2019	-0.66%	-3.48%	-1.74%	-2.55%
22/09/2019	1.34%	0.48%	-1.41%	-2.94%
29/09/2019	-0.41%	-5.5%	-8.24%	-7.41%
06/10/2019	1.32%	-0.76%	2.34%	1.45%
13/10/2019	0.57%	6.38%	3.44%	7.17%
20/10/2019	0.65%	1.44%	3.32%	4.68%
27/10/2019	2.02%	-1.18%	-0.36%	-1.92%
03/11/2019	-0.71%	-4.55%	1.79%	0%
10/11/2019	-0.08%	2.51%	-2.11%	-2.93%
17/11/2019	0.48%	2.93%	1.8%	2.68%
24/11/2019	-0.4%	-2.85%	-1.41%	-1.96%
01/12/2019	1.83%	1.95%	2.87%	1%
08/12/2019	-0.55%	2.64%	2.79%	0.99%
15/12/2019	4.72%	1.87%	4.41%	1.96%
22/12/2019	0.53%	1.61%	0.65%	1.6%

29/12/2019	1.57%	-0.23%	-0.32%	-1.58%
05/01/2020	-1.1%	-0.22%	0%	-0.96%
12/01/2020	2.23%	4.99%	0%	0.65%
19/01/2020	-0.95%	2.38%	2.59%	-0.96%
26/01/2020	-4.85%	-5.91%	-4.73%	-6.49%
02/02/2020	4.32%	2.02%	2.32%	2.08%
09/02/2020	-1.18%	0%	1.29%	2.38%
16/02/2020	-0.97%	-0.88%	0.96%	3.32%
23/02/2020	-4.91%	-7.1%	-7.91%	-9.65%
01/03/2020	-1.43%	-4.3%	-0.34%	-8.9%
08/03/2020	-8.71%	-7.23%	-12.41%	-18.75%
15/03/2020	-16.34%	-24.46%	-29.76%	-30%
22/03/2020	16.37%	14.95%	10.76%	9.62%
29/03/2020	-0.27%	-10.53%	1.72%	0.5%
05/04/2020	1.82%	-3.46%	-7.06%	-0.5%
12/04/2020	-3.04%	1.43%	-6.21%	4.26%
19/04/2020	-9.31%	-7.07%	-2.28%	-8.65%
26/04/2020	5.08%	3.8%	4.21%	7.89%
03/05/2020	1.45%	-5.13%	-5.83%	-7.32%
10/05/2020	-8.77%	-13.52%	-10.48%	-12.11%
17/05/2020	-0.42%	10.72%	8.24%	7.78%
24/05/2020	8.92%	18.95%	9.83%	6.39%
31/05/2020	10.31%	5.42%	8.5%	10.97%
07/06/2020	-0.96%	-2.57%	0.82%	5.18%
14/06/2020	-1.68%	2.31%	-0.2%	0.22%
21/06/2020	1.26%	-2.26%	2.46%	2.23%
28/06/2020	3.99%	0.66%	0%	-0.44%
05/07/2020	5.62%	1.97%	3.5%	2.41%
12/07/2020	-1.29%	-0.32%	0%	0%
19/07/2020	-0.33%	-0.32%	8.21%	-1.28%
26/07/2020	2.3%	2.27%	3.57%	-0.22%
02/08/2020	-0.96%	-1.58%	0%	0.43%
09/08/2020	3.64%	7.4%	3.88%	8.23%
16/08/2020	-1.17%	6.59%	1.24%	1%
23/08/2020	2.61%	3.65%	2.05%	3.96%
30/08/2020	-1.77%	-3.79%	-4.82%	-0.48%
06/09/2020	-7.45%	-8.45%	-7.59%	-6.79%
13/09/2020	-4.66%	-0.92%	1.83%	-2.67%
20/09/2020	-0.36%	-1.86%	-4.04%	-2.95%

27/09/2020	-1.87%	-1.9%	-2.8%	-1.96%
04/10/2020	4.9%	1.61%	6.73%	2.88%
11/10/2020	-0.26%	3.18%	0.45%	3.66%
18/10/2020	0.17%	1.23%	-0.45%	0.83%
25/10/2020	0.35%	2.13%	4.05%	-2.27%
01/11/2020	8.81%	5.95%	4.76%	4.64%
08/11/2020	1.43%	12.36%	3.31%	13.91%
15/11/2020	3.29%	0.5%	0.8%	0.44%
22/11/2020	-3.26%	6.22%	5.56%	11.89%
29/11/2020	0.08%	0.7%	-0.75%	0%
06/12/2020	5.4%	-0.46%	2.65%	3.54%
13/12/2020	0.97%	0%	-1.11%	1.14%
20/12/2020	-1.1%	-2.8%	-5.22%	-6.02%
27/12/2020	0.67%	0.24%	-0.39%	-1.2%
03/01/2021	4.14%	5.28%	3.56%	4.86%
10/01/2021	-1.35%	4.33%	2.67%	-2.32%
17/01/2021	1.8%	3.06%	7.06%	-0.79%
24/01/2021	-4.52%	-11.44%	-8.68%	-11.55%
31/01/2021	2.29%	6.94%	-0.38%	13.51%
07/02/2021	-0.51%	4.7%	-0.76%	-1.59%
14/02/2021	-0.8%	2.35%	-1.92%	-3.23%
21/02/2021	-1.68%	-1.67%	-3.53%	-0.83%
28/02/2021	1.34%	1.27%	5.28%	0.84%
07/03/2021	-0.51%	-3.98%	3.86%	2.5%
14/03/2021	-0.07%	1.96%	0.74%	0%
21/03/2021	-5.1%	1.07%	-5.17%	-1.63%
28/03/2021	-2.96%	-9.11%	-3.5%	-6.2%
04/04/2021	-0.4%	1.4%	4.44%	5.73%
11/04/2021	1.21%	-0.23%	-2.7%	-0.83%
18/04/2021	1.83%	-2.07%	-2.38%	-2.94%
25/04/2021	0.23%	-4.71%	0.41%	-1.3%
02/05/2021	-0.08%	0%	-3.64%	-1.75%
09/05/2021	1.25%	-1.48%	-0.84%	-1.34%
16/05/2021	-1.85%	-2.5%	-1.27%	-3.62%
23/05/2021	-0.31%	4.63%	-0.43%	-2.35%
30/05/2021	3.79%	6.63%	5.6%	8.17%
06/06/2021	-1.67%	-1.38%	2.45%	0.89%
13/06/2021	-2.24%	-8.65%	-1.2%	-12.95%
20/06/2021	-2.13%	2.04%	-4.84%	-3.64%

27/06/2021	-1.45%	0%	0.85%	1.47%
04/07/2021	-1.31%	-4.76%	-2.94%	-3.93%
11/07/2021	1.5%	1.05%	1.73%	3.66%
18/07/2021	-1.23%	0.78%	1.7%	5.51%
25/07/2021	-1.08%	-4.13%	-4.6%	-5.81%
01/08/2021	3.18%	5.93%	4.82%	7.22%
08/08/2021	4.06%	-1.53%	0.42%	-0.49%
15/08/2021	2.96%	1.55%	-1.67%	6.37%
22/08/2021	-1.36%	-2.29%	-1.69%	-2.3%
29/08/2021	1.38%	2.34%	5.6%	2.83%
05/09/2021	-1.21%	-1.41%	1.22%	0%
12/09/2021	0%	-4.5%	-2.42%	-2.75%
19/09/2021	1%	5.82%	-1.24%	-3.77%
26/09/2021	2.66%	2.09%	2.09%	4.9%
03/10/2021	7.84%	6.67%	13.11%	14.95%
10/10/2021	4.94%	3.85%	3.62%	9.76%
17/10/2021	-1.63%	1.85%	0.7%	10.37%
24/10/2021	-0.66%	-3.41%	-0.35%	-6.04%
31/10/2021	-0.33%	-0.24%	-1.05%	-0.71%
07/11/2021	1.01%	-0.47%	0%	-0.72%
14/11/2021	-1.33%	1.42%	2.11%	1.81%
21/11/2021	-2.02%	-2.8%	-2.07%	-2.14%
28/11/2021	1.37%	0.24%	0.7%	-2.18%
05/12/2021	0%	-0.96%	0.7%	0.74%
12/12/2021	1.69%	-0.48%	-0.69%	-0.37%
19/12/2021	-2.67%	-0.97%	-1.4%	-0.37%
26/12/2021	0%	0.98%	-0.35%	0.37%
02/01/2022	4.79%	1.95%	0.36%	4.81%
09/01/2022	2.61%	-0.24%	1.77%	0.35%
16/01/2022	1.27%	-0.24%	1.74%	1.06%
23/01/2022	-2.2%	-0.72%	4.79%	4.53%
30/01/2022	-0.64%	1.69%	-2.29%	-2.33%
06/02/2022	1.29%	5.7%	3.34%	5.12%
13/02/2022	1.28%	-0.45%	1.62%	3.57%
20/02/2022	1.58%	2.71%	-1.91%	0.31%
27/02/2022	-1.86%	2.64%	-0.65%	-1.25%
06/03/2022	0.63%	-5.78%	0%	0.63%
13/03/2022	-0.63%	4.09%	3.59%	4.4%
20/03/2022	0.63%	2.84%	-0.95%	-0.9%

27/03/2022	-0.31%	0.42%	0.32%	-0.3%
03/04/2022	-0.95%	-2.54%	-2.22%	2.74%
10/04/2022	-1.91%	-1.52%	-0.32%	-0.3%
17/04/2022	2.27%	4.63%	7.82%	11.31%
24/04/2022	3.17%	2.53%	8.16%	-1.34%
08/05/2022	-9.85%	-12.73%	-12.85%	-10.57%
15/05/2022	1.02%	4.24%	2.56%	6.36%
22/05/2022	2.36%	2.48%	1.25%	4.84%
29/05/2022	0.33%	-0.44%	1.23%	-2.72%
05/06/2022	-3.29%	-2.65%	-0.3%	-7.26%
12/06/2022	2.04%	-0.68%	-1.22%	-1.51%
19/06/2022	-0.33%	-0.69%	2.79%	-0.31%
26/06/2022	-3.01%	-4.61%	-8.43%	-3.68%
03/07/2022	-1.38%	1.45%	-1.64%	-3.18%
10/07/2022	-2.1%	-2.14%	-4.01%	-4.28%
17/07/2022	4.64%	3.89%	9.41%	5.84%
24/07/2022	0.34%	2.11%	5.41%	1.95%
31/07/2022	7.14%	0%	-0.3%	5.1%
07/08/2022	0.63%	-0.92%	2.73%	3.33%
14/08/2022	-0.32%	-0.46%	0.29%	-0.29%
21/08/2022	1.27%	-0.7%	0%	-2.35%
28/08/2022	2.81%	4.22%	4.12%	4.82%
04/09/2022	1.82%	3.6%	2.54%	1.15%
11/09/2022	0.9%	-2.39%	0.28%	1.7%
18/09/2022	-0.89%	-0.44%	1.1%	0.56%
25/09/2022	2.09%	0.22%	2.45%	-0.28%
02/10/2022	-4.09%	-1.11%	0%	-2.23%
09/10/2022	0.61%	-3.83%	-0.27%	-3.99%
16/10/2022	4.85%	3.75%	10.11%	6.82%
23/10/2022	1.16%	4.51%	-1.45%	3.61%
30/10/2022	0.29%	0.43%	-0.49%	-0.54%
06/11/2022	0.85%	0%	2.71%	0.27%
13/11/2022	-0.28%	-0.86%	-2.4%	-1.08%
20/11/2022	1.7%	3.04%	0%	1.09%
27/11/2022	-0.84%	2.95%	3.44%	4.84%
04/12/2022	-3.65%	-1.84%	-5.7%	-2.05%
11/12/2022	0.29%	3.75%	1.76%	2.62%
18/12/2022	-1.16%	-2.01%	-1.73%	-4.85%
25/12/2022	0.59%	1.23%	0%	-1.07%

01/01/2023	-2.92%	-6.48%	-1.26%	-3.52%
08/01/2023	-3.01%	-3.03%	-6.38%	-2.53%
15/01/2023	3.11%	3.79%	8.72%	4.03%
22/01/2023	4.82%	-0.22%	0.5%	5.82%
29/01/2023	0%	2.37%	-1%	-2.62%
05/02/2023	1.44%	2.32%	3.78%	2.42%
12/02/2023	-1.13%	0.41%	0%	-2.62%
19/02/2023	-0.57%	-2.46%	-1.7%	-4.04%
26/02/2023	-2.31%	0%	-0.74%	-1.69%
05/03/2023	-0.29%	1.26%	3.23%	3.14%
12/03/2023	-0.89%	1.66%	-2.65%	0%
19/03/2023	5.37%	-2.65%	7.92%	6.65%
26/03/2023	-0.85%	-0.84%	-5.28%	-2.86%
02/04/2023	0%	2.33%	0.24%	0.27%
09/04/2023	2.86%	4.86%	0.97%	0.27%
16/04/2023	1.39%	-2.46%	-0.96%	0.8%
23/04/2023	-0.82%	3.03%	0%	-0.53%
30/04/2023	-0.55%	2.45%	0%	-1.86%
07/05/2023	-2.22%	-1.44%	-3.38%	-2.7%
14/05/2023	2.27%	4.85%	1.5%	-1.94%
21/05/2023	1.67%	3.7%	0.99%	1.42%
28/05/2023	-1.09%	-0.45%	-1.46%	1.12%
04/06/2023	0.55%	-2.69%	1.49%	1.93%
11/06/2023	-0.55%	2.3%	0.49%	-2.17%
18/06/2023	0%	-2.7%	-1.46%	0%
25/06/2023	1.1%	0.46%	2.46%	1.39%
02/07/2023	-1.37%	-0.92%	-0.96%	-0.82%
09/07/2023	1.94%	2.79%	4.85%	-1.65%
16/07/2023	-0.54%	1.81%	2.78%	1.4%
23/07/2023	-0.27%	1.33%	2.7%	-1.93%
30/07/2023	0.27%	-2.19%	1.32%	1.41%
06/08/2023	2.73%	1.35%	2.6%	1.11%
13/08/2023	-1.6%	-1.33%	-2.53%	-0.55%
20/08/2023	0.27%	0.45%	2.16%	0.55%
27/08/2023	-0.54%	-0.45%	2.97%	0.82%
03/09/2023	-1.08%	-4.04%	-2.88%	2.18%
10/09/2023	-1.37%	0.47%	0.42%	1.07%
17/09/2023	0.83%	-0.47%	1.27%	2.9%
24/09/2023	-2.75%	-2.34%	0.42%	5.9%

01/10/2023	2.27%	-0.96%	0%	0.73%
08/10/2023	0.55%	1.93%	0.83%	-0.48%
15/10/2023	-1.1%	-4.27%	-5.35%	-3.96%
22/10/2023	-3.06%	-0.99%	-0.87%	-2.41%
29/10/2023	2.3%	2%	2.19%	0.82%
05/11/2023	-0.84%	-0.49%	-0.86%	-0.61%
12/11/2023	2.83%	2.96%	2.16%	2.47%
19/11/2023	-1.65%	3.35%	-0.42%	4.42%
26/11/2023	0.28%	-0.93%	0.43%	0.96%
03/12/2023	-2.23%	0.47%	-3.39%	-3.33%
10/12/2023	5.43%	3.26%	3.51%	3.94%
17/12/2023	1.08%	2.25%	1.27%	-0.47%
24/12/2023	0.8%	0.88%	1.26%	2.38%
31/12/2023	1.86%	0.44%	6.2%	3.72%
07/01/2024	1.31%	1.74%	2.33%	0.45%
14/01/2024	-0.77%	-0.85%	-0.76%	-1.79%
21/01/2024	-2.86%	-6.47%	-3.45%	-1.36%
28/01/2024	3.74%	7.83%	5.95%	6.45%
04/02/2024	0%	0%	4.12%	-0.43%
11/02/2024	2.58%	5.13%	3.6%	4.35%
18/02/2024	-1.26%	-0.41%	-2.08%	-1.67%
25/02/2024	0%	0%	-0.35%	0%
03/03/2024	3.31%	3.67%	1.42%	3.39%
10/03/2024	0%	-5.91%	3.86%	-4.92%
17/03/2024	-0.49%	2.51%	-4.73%	0.86%
24/03/2024	-0.25%	-1.22%	2.84%	0.85%
31/03/2024	-2.48%	-6.61%	-5.86%	-10.17%
14/04/2024	-3.56%	-6.64%	-1.47%	-1.42%
21/04/2024	1.58%	-8.44%	0.37%	-1.44%
28/04/2024	2.34%	-1.66%	-8.89%	-6.21%
05/05/2024	-4.82%	-1.47%	2.03%	-3.31%
12/05/2024	4%	5.13%	4.78%	10.81%
19/05/2024	-3.33%	-4.07%	-7.98%	-8.02%
26/05/2024	-1.86%	-8.05%	-2.48%	-7.56%
02/06/2024	0.81%	0.23%	6.36%	6.82%
09/06/2024	-1.34%	-3.91%	-8.37%	-8.3%
16/06/2024	4.35%	6.22%	6.52%	5.34%
23/06/2024	3.39%	3.6%	0.41%	2.64%
30/06/2024	0.25%	4.35%	4.47%	0.86%

07/07/2024	1.26%	2.08%	0%	6.91%
14/07/2024	0.5%	0%	1.56%	1.49%
21/07/2024	1.98%	-2.86%	0.38%	-1.96%
28/07/2024	-1.21%	-1.05%	3.82%	2%
04/08/2024	-0.49%	-0.85%	0.74%	0.49%
11/08/2024	1.72%	3.43%	3.28%	3.41%
18/08/2024	0%	6.63%	-0.35%	2.83%
25/08/2024	0%	0%	1.06%	-1.83%
01/09/2024	-0.24%	1.46%	1.75%	5.61%
08/09/2024	1.21%	1.44%	0.34%	-0.44%
15/09/2024	3.36%	1.42%	0.34%	2.22%
22/09/2024	-1.16%	-5.12%	-3.42%	-5.22%
29/09/2024	-1.64%	-4.71%	-1.42%	-2.29%
06/10/2024	-0.95%	0.82%	0%	0.94%
13/10/2024	3.61%	1.43%	3.24%	5.12%
20/10/2024	0%	-4.02%	-1.74%	0%
27/10/2024	-3.02%	-1.47%	-5.67%	-7.96%
03/11/2024	-3.36%	-3.83%	-4.89%	-4.23%
10/11/2024	0.99%	-1.11%	0.4%	-1.41%
17/11/2024	-3.19%	-1.57%	-1.57%	-1.43%
24/11/2024	1.52%	-3.41%	-1.6%	2.89%
01/12/2024	0.75%	1.41%	1.22%	-2.41%
08/12/2024	-0.25%	-3.25%	-3.21%	-2.67%
15/12/2024	-3.98%	-2.64%	-5.81%	-9.94%
22/12/2024	1.55%	0.99%	2.2%	2.35%
29/12/2024	0.51%	1.22%	0%	4.13%

GARCH(1,1) MODEL

NORMAL

Dependent Variable: BBCA

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 13:18

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 26 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000771	0.000932	0.826840	0.4083
BBCA(-2)	-0.218402	0.039299	-5.557443	0.0000
Variance Equation				
C	0.000391	4.38E-05	8.928134	0.0000
RESID(-1)^2	1.587738	0.101121	15.70140	0.0000
GARCH(-1)	0.083883	0.026880	3.120626	0.0018
R-squared	-0.043332	Mean dependent var	0.001842	
Adjusted R-squared	-0.045162	S.D. dependent var	0.044436	
S.E. of regression	0.045429	Akaike info criterion	-3.888123	
Sum squared resid	1.176342	Schwarz criterion	-3.850106	
Log likelihood	1117.003	Hannan-Quinn criter.	-3.873293	
Durbin-Watson stat	2.262521			

Dependent Variable: BBRI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 13:27

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 23 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003509	0.001527	2.298370	0.0215
BBRI(-1)	-0.054545	0.049168	-1.109353	0.2673
Variance Equation				

C	0.000139	3.78E-05	3.690682	0.0002
RESID(-1)^2	0.118904	0.016031	7.417160	0.0000
GARCH(-1)	0.795582	0.033417	23.80748	0.0000
R-squared	0.004858	Mean dependent var	0.002598	
Adjusted R-squared	0.003115	S.D. dependent var	0.040955	
S.E. of regression	0.040891	Akaike info criterion	-3.664435	
Sum squared resid	0.954772	Schwarz criterion	-3.626469	
Log likelihood	1054.861	Hannan-Quinn criter.	-3.649625	
Durbin-Watson stat	2.044180			

Dependent Variable: BMRI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 13:28

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 13 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002934	0.001826	1.606999	0.1081
BMRI(-1)	-0.025694	0.061134	-0.420293	0.6743

Variance Equation

C	0.000681	0.000170	3.995382	0.0001
RESID(-1)^2	0.351492	0.065684	5.351227	0.0000
GARCH(-1)	0.414433	0.102494	4.043491	0.0001

R-squared	0.002008	Mean dependent var	0.001758	
Adjusted R-squared	0.000261	S.D. dependent var	0.045319	
S.E. of regression	0.045313	Akaike info criterion	-3.409125	
Sum squared resid	1.172426	Schwarz criterion	-3.371159	
Log likelihood	981.7144	Hannan-Quinn criter.	-3.394316	
Durbin-Watson stat	2.079436			

Dependent Variable: BBNI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 13:29

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 19 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002361	0.002206	1.070248	0.2845
BBNI(-1)	0.028825	0.060178	0.478997	0.6319
Variance Equation				
C	0.000880	0.000200	4.409535	0.0000
RESID(-1)^2	0.175841	0.040395	4.353057	0.0000
GARCH(-1)	0.494150	0.097587	5.063674	0.0000
R-squared	0.000035	Mean dependent var	0.001652	
Adjusted R-squared	-0.001716	S.D. dependent var	0.050070	
S.E. of regression	0.050113	Akaike info criterion	-3.193362	
Sum squared resid	1.433965	Schwarz criterion	-3.155397	
Log likelihood	919.8983	Hannan-Quinn criter.	-3.178553	
Durbin-Watson stat	2.015630			

STUDENT-T DISTRIBUTION

Dependent Variable: BBCA

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 13:54

Sample (adjusted): 12/21/2014 12/29/2024

Included observations: 524 after adjustments

Failure to improve likelihood (non-zero gradients) after 196 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002338	0.000924	2.528843	0.0114
BBCA(-50)	-0.022714	0.020172	-1.126031	0.2602
Variance Equation				
C	0.000578	0.001053	0.549171	0.5829
RESID(-1)^2	-0.003631	0.006360	-0.570955	0.5680
GARCH(-1)	0.836359	0.162142	5.158174	0.0000
T-DIST. DOF	2.176468	0.273644	7.953634	0.0000
R-squared	0.002877	Mean dependent var	0.001424	
Adjusted R-squared	0.000967	S.D. dependent var	0.045533	
S.E. of regression	0.045511	Akaike info criterion	-4.403973	
Sum squared resid	1.081196	Schwarz criterion	-4.355177	

Log likelihood	1159.841	Hannan-Quinn criter.	-4.384864
Durbin-Watson stat	2.186893		

Dependent Variable: BBRI
Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)
Date: 04/12/25 Time: 13:56
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 42 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003820	0.001357	2.814740	0.0049
BBRI(-1)	-0.071178	0.041083	-1.732536	0.0832
Variance Equation				
C	0.000123	5.78E-05	2.135181	0.0327
RESID(-1)^2	0.097706	0.036931	2.645627	0.0082
GARCH(-1)	0.826520	0.056806	14.54997	0.0000
T-DIST. DOF	4.662639	0.952444	4.895447	0.0000
R-squared	0.004974	Mean dependent var		0.002598
Adjusted R-squared	0.003231	S.D. dependent var		0.040955
S.E. of regression	0.040889	Akaike info criterion		-3.753399
Sum squared resid	0.954661	Schwarz criterion		-3.707840
Log likelihood	1081.349	Hannan-Quinn criter.		-3.735628
Durbin-Watson stat	2.011527			

Dependent Variable: BMRI
Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)
Date: 04/12/25 Time: 14:11
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 37 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.004018	0.001340	2.997545	0.0027

BMRI(-1)	-0.147384	0.040935	-3.600490	0.0003
Variance Equation				
C	0.000877	0.000363	2.418186	0.0156
RESID(-1)^2	0.192763	0.092694	2.079553	0.0376
GARCH(-1)	0.352967	0.214707	1.643949	0.1002
T-DIST. DOF	3.453653	0.485949	7.107031	0.0000
R-squared	-0.004825	Mean dependent var	0.001758	
Adjusted R-squared	-0.006584	S.D. dependent var	0.045319	
S.E. of regression	0.045468	Akaike info criterion	-3.736889	
Sum squared resid	1.180453	Schwarz criterion	-3.691330	
Log likelihood	1076.619	Hannan-Quinn criter.	-3.719118	
Durbin-Watson stat	1.841755			

Dependent Variable: BBNI

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/12/25 Time: 14:17

Sample (adjusted): 1/26/2014 12/29/2024

Included observations: 571 after adjustments

Convergence achieved after 79 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003953	0.001501	2.633596	0.0084
BBNI(-3)	-0.041304	0.040207	-1.027292	0.3043
Variance Equation				
C	0.000473	0.000168	2.817516	0.0048
RESID(-1)^2	0.269349	0.088088	3.057734	0.0022
GARCH(-1)	0.557384	0.110107	5.062216	0.0000
T-DIST. DOF	4.163607	0.591443	7.039739	0.0000
R-squared	-0.001377	Mean dependent var	0.001494	
Adjusted R-squared	-0.003137	S.D. dependent var	0.050027	
S.E. of regression	0.050106	Akaike info criterion	-3.491544	
Sum squared resid	1.428527	Schwarz criterion	-3.445862	
Log likelihood	1002.836	Hannan-Quinn criter.	-3.473722	
Durbin-Watson stat	1.964585			

GED

Dependent Variable: BBCA

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/12/25 Time: 14:20

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 70 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001759	0.000631	2.785625	0.0053
BBCA(-2)	0.010307	0.022866	0.450734	0.6522
Variance Equation				
C	2.50E-05	1.74E-05	1.434892	0.1513
RESID(-1)^2	-0.001501	0.000319	-4.704748	0.0000
GARCH(-1)	0.979266	0.016909	57.91311	0.0000
GED PARAMETER	0.785190	0.026368	29.77767	0.0000
R-squared	-0.000372	Mean dependent var		0.001842
Adjusted R-squared	-0.002128	S.D. dependent var		0.044436
S.E. of regression	0.044484	Akaike info criterion		-4.323283
Sum squared resid	1.127906	Schwarz criterion		-4.277663
Log likelihood	1242.459	Hannan-Quinn criter.		-4.305486
Durbin-Watson stat	2.211781			

Dependent Variable: BBRI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/12/25 Time: 14:22

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 33 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003054	0.001285	2.377229	0.0174
BBRI(-1)	-0.063732	0.039597	-1.609503	0.1075

Variance Equation

C	0.000137	6.41E-05	2.135415	0.0327
RESID(-1)^2	0.103959	0.033599	3.094082	0.0020
GARCH(-1)	0.806266	0.061407	13.12995	0.0000
GED PARAMETER	1.199745	0.086139	13.92802	0.0000
R-squared	0.005451	Mean dependent var	0.002598	
Adjusted R-squared	0.003709	S.D. dependent var	0.040955	
S.E. of regression	0.040879	Akaike info criterion	-3.747349	
Sum squared resid	0.954203	Schwarz criterion	-3.701790	
Log likelihood	1079.615	Hannan-Quinn criter.	-3.729577	
Durbin-Watson stat	2.027074			

Dependent Variable: BMRI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/12/25 Time: 14:25

Sample (adjusted): 2/16/2014 12/29/2024

Included observations: 568 after adjustments

Convergence achieved after 47 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003294	0.001168	2.819966	0.0048
BMRI(-6)	0.044215	0.027140	1.629151	0.1033

Variance Equation

C	0.000735	0.000328	2.240899	0.0250
RESID(-1)^2	0.215544	0.089359	2.412108	0.0159
GARCH(-1)	0.391188	0.215124	1.818433	0.0690

GED PARAMETER	0.988086	0.043826	22.54589	0.0000
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R-squared	-0.003892	Mean dependent var	0.001611	
Adjusted R-squared	-0.005666	S.D. dependent var	0.045434	
S.E. of regression	0.045563	Akaike info criterion	-3.678508	
Sum squared resid	1.175007	Schwarz criterion	-3.632640	
Log likelihood	1050.696	Hannan-Quinn criter.	-3.660609	
Durbin-Watson stat	2.136158			

Dependent Variable: BBNI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/12/25 Time: 14:27

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 46 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003503	0.001320	2.653404	0.0080
BBNI(-1)	-0.007534	0.038493	-0.195730	0.8448
Variance Equation				
C	0.000527	0.000201	2.618023	0.0088
RESID(-1)^2	0.232689	0.089007	2.614284	0.0089
GARCH(-1)	0.559585	0.126207	4.433873	0.0000
GED PARAMETER	1.023367	0.040558	25.23191	0.0000
R-squared	-0.001693	Mean dependent var		0.001652
Adjusted R-squared	-0.003447	S.D. dependent var		0.050070
S.E. of regression	0.050156	Akaike info criterion		-3.453870
Sum squared resid	1.436443	Schwarz criterion		-3.408311
Log likelihood	995.5337	Hannan-Quinn criter.		-3.436098
Durbin-Watson stat	1.940323			

GJR-GARCH

NORMAL

Dependent Variable: BBCA

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/26/25 Time: 10:19

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 62 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.005081	0.001071	4.741998	0.0000
BBCA(-2)	-0.194073	0.035174	-5.517499	0.0000

Variance Equation				
C	0.000470	4.75E-05	9.888683	0.0000
RESID(-1)^2	2.759358	0.203842	13.53677	0.0000
RESID(-1)^2*(RESID(-1)<0)	-2.351554	0.231950	-10.13817	0.0000
GARCH(-1)	0.069412	0.027149	2.556680	0.0106
R-squared	-0.036971	Mean dependent var	0.001842	
Adjusted R-squared	-0.038790	S.D. dependent var	0.044436	
S.E. of regression	0.045290	Akaike info criterion	-3.945637	
Sum squared resid	1.169170	Schwarz criterion	-3.900017	
Log likelihood	1134.452	Hannan-Quinn criter.	-3.927840	
Durbin-Watson stat	2.250599			

Dependent Variable: BBRI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/26/25 Time: 10:20

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 35 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001843	0.001635	1.127331	0.2596
BBRI(-1)	-0.066550	0.049302	-1.349846	0.1771

Variance Equation				
C	7.93E-05	1.81E-05	4.382862	0.0000
RESID(-1)^2	0.013698	0.016222	-0.844399	0.3984
RESID(-1)^2*(RESID(-1)<0)	0.137449	0.017975	7.646600	0.0000
GARCH(-1)	0.891586	0.023783	37.48875	0.0000
R-squared	0.005037	Mean dependent var	0.002598	
Adjusted R-squared	0.003294	S.D. dependent var	0.040955	
S.E. of regression	0.040888	Akaike info criterion	-3.694470	
Sum squared resid	0.954600	Schwarz criterion	-3.648911	
Log likelihood	1064.466	Hannan-Quinn criter.	-3.676698	
Durbin-Watson stat	2.020685			

Dependent Variable: BMRI
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 04/26/25 Time: 10:21
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 23 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002041	0.002023	1.008856	0.3130
BMRI(-1)	-0.116233	0.059220	-1.962745	0.0497
Variance Equation				
C	0.000519	0.000108	4.792234	0.0000
RESID(-1)^2	0.006618	0.030387	0.217798	0.8276
RESID(-1)^2*(RESID(-1)<0)	0.629904	0.093490	6.737651	0.0000
GARCH(-1)	0.522351	0.069501	7.515716	0.0000
R-squared	0.001341	Mean dependent var	0.001758	
Adjusted R-squared	-0.000408	S.D. dependent var	0.045319	
S.E. of regression	0.045328	Akaike info criterion	-3.456799	
Sum squared resid	1.173209	Schwarz criterion	-3.411240	
Log likelihood	996.3729	Hannan-Quinn criter.	-3.439027	
Durbin-Watson stat	1.904687			

Dependent Variable: BBNI
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 04/26/25 Time: 10:23
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 19 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001778	0.002239	0.794108	0.4271
BBNI(-1)	0.026156	0.058684	0.445709	0.6558
Variance Equation				

C	0.000961	0.000227	4.226617	0.0000
RESID(-1)^2	0.056040	0.053685	1.043874	0.2965
RESID(-1)^2*(RESID(-1)<0)	0.218459	0.088880	2.457918	0.0140
GARCH(-1)	0.466480	0.115904	4.024707	0.0001
R-squared	0.000297	Mean dependent var	0.001652	
Adjusted R-squared	-0.001453	S.D. dependent var	0.050070	
S.E. of regression	0.050107	Akaike info criterion	-3.198668	
Sum squared resid	1.433589	Schwarz criterion	-3.153109	
Log likelihood	922.4184	Hannan-Quinn criter.	-3.180897	
Durbin-Watson stat	2.010699			

STUDENT-T DISTRIBUTION

Dependent Variable: BBCA

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:20

Sample (adjusted): 10/16/2016 12/29/2024

Included observations: 429 after adjustments

Convergence achieved after 41 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002429	0.001055	2.302372	0.0213
BBCA(-145)	-0.048914	0.021697	-2.254397	0.0242

Variance Equation

C	5.44E-05	2.59E-05	2.103578	0.0354
RESID(-1)^2	0.027557	0.029022	-0.949541	0.3423
RESID(-1)^2*(RESID(-1)<0)	-0.171488	0.063307	2.708833	0.0068
GARCH(-1)	0.878043	0.052253	16.80373	0.0000

T-DIST. DOF	4.157945	1.073526	3.873168	0.0001
R-squared	0.013220	Mean dependent var	0.003062	
Adjusted R-squared	0.010909	S.D. dependent var	0.028533	
S.E. of regression	0.028377	Akaike info criterion	-4.554449	
Sum squared resid	0.343844	Schwarz criterion	-4.488178	
Log likelihood	983.9293	Hannan-Quinn criter.	-4.528278	
Durbin-Watson stat	2.112501			

Dependent Variable: BBRI
Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)
Date: 04/19/25 Time: 14:22
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 68 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003074	0.001367	2.249246	0.0245
BBRI(-1)	-0.077301	0.040191	-1.923308	0.0544
Variance Equation				
C	6.53E-05	2.78E-05	2.352488	0.0186
RESID(-1)^2	0.017316	0.024045	-0.720137	0.4714
RESID(-1)^2*(RESID(-1)<0)	0.128948	0.036612	3.522012	0.0004
GARCH(-1)	0.905787	0.034367	26.35648	0.0000
T-DIST. DOF	5.168973	1.079437	4.788582	0.0000
R-squared	0.005576	Mean dependent var	0.002598	
Adjusted R-squared	0.003834	S.D. dependent var	0.040955	
S.E. of regression	0.040877	Akaike info criterion	-3.771972	
Sum squared resid	0.954083	Schwarz criterion	-3.718820	
Log likelihood	1087.670	Hannan-Quinn criter.	-3.751238	
Durbin-Watson stat	2.000931			

Dependent Variable: BMRI
Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)
Date: 04/19/25 Time: 14:23
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 52 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
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C	0.004008	0.001357	2.954180	0.0031
BMRI(-1)	-0.150649	0.036324	-4.147418	0.0000
Variance Equation				
C	0.000364	0.000146	2.494842	0.0126
RESID(-1)^2	0.026935	0.031618	-0.851895	0.3943
RESID(-1)^2*(RESID(-1)<0)	0.160662	0.074801	2.147869	0.0317
GARCH(-1)	0.736604	0.099759	7.383836	0.0000
T-DIST. DOF	3.501141	0.500688	6.992660	0.0000
R-squared	-0.005350	Mean dependent var	0.001758	
Adjusted R-squared	-0.007110	S.D. dependent var	0.045319	
S.E. of regression	0.045480	Akaike info criterion	-3.740322	
Sum squared resid	1.181070	Schwarz criterion	-3.687170	
Log likelihood	1078.602	Hannan-Quinn criter.	-3.719588	
Durbin-Watson stat	1.835662			

Dependent Variable: BBNI

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:24

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 75 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) +
C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003204	0.001521	2.106955	0.0351
BBNI(-2)	-0.016439	0.039741	-0.413662	0.6791
Variance Equation				
C	0.000474	0.000157	3.025301	0.0025
RESID(-1)^2	0.122747	0.074484	1.647958	0.0994
RESID(-1)^2*(RESID(-1)<0)	0.305621	0.150884	2.025538	0.0428
GARCH(-1)	0.558968	0.103562	5.397421	0.0000
T-DIST. DOF	4.068809	0.573730	7.091851	0.0000
R-squared	-0.001592	Mean dependent var	0.001501	
Adjusted R-squared	-0.003349	S.D. dependent var	0.049984	

S.E. of regression	0.050068	Akaike info criterion	-3.500244
Sum squared resid	1.428852	Schwarz criterion	-3.447020
Log likelihood	1008.070	Hannan-Quinn criter.	-3.479481
Durbin-Watson stat	1.961934		

GED

Dependent Variable: BBCA

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:25

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Failure to improve likelihood (singular hessian) after 110 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) +

C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001556	0.000660	2.356339	0.0185
BBCA(-2)	0.010053	0.026200	0.383721	0.7012
Variance Equation				
C	0.000139	0.000109	1.283409	0.1993
RESID(-1)^2	0.145299	0.077861	1.737701	0.0823
RESID(-1)^2*(RESID(-1)<0)	-0.136909	0.078105	-1.752893	0.0796
GARCH(-1)	0.811002	0.127699	6.350909	0.0000
GED PARAMETER	0.794354	0.037399	21.23977	0.0000
R-squared	-0.000395	Mean dependent var	0.001842	
Adjusted R-squared	-0.002150	S.D. dependent var	0.044436	
S.E. of regression	0.044484	Akaike info criterion	-4.327948	
Sum squared resid	1.127932	Schwarz criterion	-4.274724	
Log likelihood	1244.793	Hannan-Quinn criter.	-4.307185	
Durbin-Watson stat	2.211767			

Dependent Variable: BBRI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:28

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 39 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002392	0.001317	1.816236	0.0693
BBRI(-1)	-0.064146	0.038611	-1.661337	0.0966
Variance Equation				
C	7.37E-05	3.04E-05	2.424767	0.0153
RESID(-1)^2	0.016567	0.024903	-0.665247	0.5059
RESID(-1)^2*(RESID(-1)<0)	0.133038	0.033410	3.982038	0.0001
GARCH(-1)	0.897467	0.038267	23.45291	0.0000
GED PARAMETER	1.239298	0.088689	13.97348	0.0000
R-squared	0.005424	Mean dependent var		0.002598
Adjusted R-squared	0.003682	S.D. dependent var		0.040955
S.E. of regression	0.040880	Akaike info criterion		-3.765767
Sum squared resid	0.954229	Schwarz criterion		-3.712615
Log likelihood	1085.892	Hannan-Quinn criter.		-3.745034
Durbin-Watson stat	2.026204			

Dependent Variable: BMRI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:28

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 48 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003829	0.001194	3.205994	0.0013
BMRI(-1)	-0.126233	0.034707	-3.637140	0.0003
Variance Equation				
C	0.000547	0.000223	2.450838	0.0143

RESID(-1)^2	0.002503	0.051646	0.048465	0.9613
RESID(-1)^2*(RESID(-1)<0)	0.264237	0.114077	2.316306	0.0205
GARCH(-1)	0.545964	0.154688	3.529453	0.0004
GED PARAMETER	1.010081	0.046140	21.89160	0.0000
R-squared	-0.001452	Mean dependent var	0.001758	
Adjusted R-squared	-0.003206	S.D. dependent var	0.045319	
S.E. of regression	0.045392	Akaike info criterion	-3.704793	
Sum squared resid	1.176491	Schwarz criterion	-3.651641	
Log likelihood	1068.423	Hannan-Quinn criter.	-3.684060	
Durbin-Watson stat	1.882419			

Dependent Variable: BBNI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:29

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 63 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003335	0.001316	2.533454	0.0113
BBNI(-2)	-0.010362	0.035465	-0.292179	0.7701

Variance Equation

C	0.000523	0.000191	2.739785	0.0061
RESID(-1)^2	0.100590	0.083226	1.208627	0.2268
RESID(-1)^2*(RESID(-1)<0)	0.285392	0.167985	1.698906	0.0893
GARCH(-1)	0.557448	0.127428	4.374609	0.0000
GED PARAMETER	1.019412	0.040514	25.16177	0.0000

R-squared	-0.001554	Mean dependent var	0.001501	
Adjusted R-squared	-0.003311	S.D. dependent var	0.049984	
S.E. of regression	0.050067	Akaike info criterion	-3.466083	
Sum squared resid	1.428798	Schwarz criterion	-3.412859	
Log likelihood	998.2997	Hannan-Quinn criter.	-3.445320	
Durbin-Watson stat	1.961340			

E-GARCH

NORMAL

Aic kcil (mkin minus bsr)

Dependent Variable: BBKA

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:36

Sample (adjusted): 1/19/2014 12/29/2024

Included observations: 572 after adjustments

Convergence achieved after 40 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002795	0.000870	3.210963	0.0013
BBKA(-2)	-0.136427	0.020815	-6.554334	0.0000
Variance Equation				
C(3)	-5.973206	0.276659	-21.59053	0.0000
C(4)	1.265863	0.046218	27.38893	0.0000
C(5)	0.327598	0.063782	5.136219	0.0000
C(6)	0.255222	0.042767	5.967679	0.0000
R-squared	-0.015407	Mean dependent var	0.001842	
Adjusted R-squared	-0.017189	S.D. dependent var	0.044436	
S.E. of regression	0.044817	Akaike info criterion	-4.016624	
Sum squared resid	1.144857	Schwarz criterion	-3.971004	
Log likelihood	1154.755	Hannan-Quinn criter.	-3.998827	
Durbin-Watson stat	2.246270			

Dependent Variable: BBRI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:39

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 37 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002192	0.001715	1.278090	0.2012
BBRI(-1)	-0.071389	0.046888	-1.522552	0.1279

Variance Equation

C(3)	-0.547792	0.125184	-4.375876	0.0000
C(4)	0.143746	0.033514	4.289179	0.0000
C(5)	-0.110258	0.017491	-6.303553	0.0000
C(6)	0.932660	0.016761	55.64304	0.0000

R-squared	0.005401	Mean dependent var	0.002598
Adjusted R-squared	0.003659	S.D. dependent var	0.040955
S.E. of regression	0.040880	Akaike info criterion	-3.683759
Sum squared resid	0.954251	Schwarz criterion	-3.638200
Log likelihood	1061.397	Hannan-Quinn criter.	-3.665987
Durbin-Watson stat	2.011980		

Dependent Variable: BMRI

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:41

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 40 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001522	0.001984	0.766918	0.4431
BMRI(-1)	-0.139566	0.059370	-2.350769	0.0187

Variance Equation

C(3)	-2.143478	0.409903	-5.229229	0.0000
C(4)	0.387956	0.056562	6.858959	0.0000
C(5)	-0.284781	0.039367	-7.233970	0.0000
C(6)	0.700224	0.063708	10.99111	0.0000

R-squared	-0.001772	Mean dependent var	0.001758
Adjusted R-squared	-0.003526	S.D. dependent var	0.045319
S.E. of regression	0.045399	Akaike info criterion	-3.446043
Sum squared resid	1.176866	Schwarz criterion	-3.400484
Log likelihood	993.2913	Hannan-Quinn criter.	-3.428271
Durbin-Watson stat	1.859880		

Dependent Variable: BBNI
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 04/19/25 Time: 14:44
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 57 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $\text{LOG}(\text{GARCH}) = \text{C}(3) + \text{C}(4) * \text{ABS}(\text{RESID}(-1) / @ \text{SQRT}(\text{GARCH}(-1))) + \text{C}(5) * \text{RESID}(-1) / @ \text{SQRT}(\text{GARCH}(-1)) + \text{C}(6) * \text{LOG}(\text{GARCH}(-1))$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000816	0.002103	0.388160	0.6979
BBNI(-1)	0.063969	0.057427	1.113910	0.2653
Variance Equation				
C(3)	-2.291090	0.503379	-4.551418	0.0000
C(4)	0.324080	0.075722	4.279892	0.0000
C(5)	-0.094761	0.056952	-1.663869	0.0961
C(6)	0.658014	0.080553	8.168717	0.0000
R-squared	-0.001876	Mean dependent var		0.001652
Adjusted R-squared	-0.003631	S.D. dependent var		0.050070
S.E. of regression	0.050161	Akaike info criterion		-3.206107
Sum squared resid	1.436705	Schwarz criterion		-3.160548
Log likelihood	924.5497	Hannan-Quinn criter.		-3.188335
Durbin-Watson stat	2.086120			

STUDENT-T DISTRIBUTION

Dependent Variable: BBNA
Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)
Date: 04/19/25 Time: 14:47
Sample (adjusted): 6/18/2017 12/29/2024
Included observations: 394 after adjustments
Convergence achieved after 51 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $\text{LOG}(\text{GARCH}) = \text{C}(3) + \text{C}(4) * \text{ABS}(\text{RESID}(-1) / @ \text{SQRT}(\text{GARCH}(-1))) + \text{C}(5) * \text{RESID}(-1) / @ \text{SQRT}(\text{GARCH}(-1)) + \text{C}(6) * \text{LOG}(\text{GARCH}(-1))$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
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C	0.002204	0.001123	1.963129	0.0496
BBCA(-180)	0.001417	0.017749	0.079815	0.9364

Variance Equation				
C(3)	-0.806772	0.314761	-2.563122	0.0104
C(4)	0.133649	0.078043	1.712494	0.0868
C(5)	-0.192032	0.056595	-3.393090	0.0007
C(6)	0.901323	0.040009	22.52805	0.0000

T-DIST. DOF	4.468540	1.254585	3.561767	0.0004
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R-squared	-0.000857	Mean dependent var	0.003010
Adjusted R-squared	-0.003411	S.D. dependent var	0.029062
S.E. of regression	0.029111	Akaike info criterion	-4.507672
Sum squared resid	0.332207	Schwarz criterion	-4.437026
Log likelihood	895.0114	Hannan-Quinn criter.	-4.479679
Durbin-Watson stat	2.132805		

Dependent Variable: BBRI

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 14:48

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 42 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003161	0.001384	2.283785	0.0224
BBRI(-1)	-0.078621	0.039623	-1.984202	0.0472

Variance Equation				
C(3)	-0.509013	0.195817	-2.599431	0.0093
C(4)	0.128184	0.058735	2.182420	0.0291
C(5)	-0.118159	0.035586	-3.320345	0.0009
C(6)	0.937034	0.026371	35.53232	0.0000

T-DIST. DOF	4.856163	1.034693	4.693339	0.0000
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R-squared	0.005537	Mean dependent var	0.002598
Adjusted R-squared	0.003795	S.D. dependent var	0.040955
S.E. of regression	0.040877	Akaike info criterion	-3.763149

Sum squared resid	0.954120	Schwarz criterion	-3.709997
Log likelihood	1085.142	Hannan-Quinn criter.	-3.742415
Durbin-Watson stat	1.998327		

Dependent Variable: BMRI

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 15:03

Sample (adjusted): 1/03/2021 12/29/2024

Included observations: 209 after adjustments

Convergence achieved after 71 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +

C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.005757	0.002000	2.878573	0.0040
BMRI(-365)	-0.048951	0.060874	-0.804132	0.4213

Variance Equation

C(3)	-12.38155	0.525998	-23.53914	0.0000
C(4)	0.425091	0.143899	2.954098	0.0031
C(5)	-0.101581	0.061009	1.665025	0.0959
C(6)	0.752406	0.078104	-10.23315	0.0000

T-DIST. DOF	4.498786	1.802258	2.496194	0.0126
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R-squared	-0.002491	Mean dependent var	0.003525
Adjusted R-squared	-0.007333	S.D. dependent var	0.035265
S.E. of regression	0.035394	Akaike info criterion	-3.930486
Sum squared resid	0.259322	Schwarz criterion	-3.818542
Log likelihood	1068.395	Hannan-Quinn criter.	-3.885226
Durbin-Watson stat	2.193873		

Dependent Variable: BBNI

Method: ML ARCH - Student's t distribution (BFGS / Marquardt steps)

Date: 04/19/25 Time: 15:09

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 39 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003103	0.001554	1.996167	0.0459
BBNI(-1)	-0.012384	0.041438	-0.298861	0.7650
Variance Equation				
C(3)	-1.404269	0.478923	-2.932141	0.0034
C(4)	0.273548	0.076882	3.558033	0.0004
C(5)	-0.106704	0.052220	-2.043368	0.0410
C(6)	0.805780	0.072230	11.15580	0.0000
T-DIST. DOF	4.159104	0.590749	7.040387	0.0000
R-squared	-0.001441	Mean dependent var		0.001652
Adjusted R-squared	-0.003195	S.D. dependent var		0.050070
S.E. of regression	0.050150	Akaike info criterion		-3.487679
Sum squared resid	1.436082	Schwarz criterion		-3.434527
Log likelihood	1006.220	Hannan-Quinn criter.		-3.466946
Durbin-Watson stat	1.931618			

GED

Dependent Variable: BBNA

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 15:07

Sample (adjusted): 10/21/2018 12/29/2024

Included observations: 324 after adjustments

Convergence achieved after 53 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1)/@SQRT(GARCH(-1))) +
C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000863	0.001168	0.738841	0.4600
BBNA(-250)	0.003719	0.031508	0.118025	0.9060
Variance Equation				
C(3)	-0.740890	0.303799	-2.438750	0.0147

C(4)	0.134515	0.080069	1.680000	0.0930
C(5)	-0.185737	0.054757	-3.392031	0.0007
C(6)	0.910658	0.037889	24.03474	0.0000
GED PARAMETER	1.185307	0.125634	9.434603	0.0000
R-squared	-0.004188	Mean dependent var	0.002736	
Adjusted R-squared	-0.007306	S.D. dependent var	0.029354	
S.E. of regression	0.029461	Akaike info criterion	-4.524168	
Sum squared resid	0.279473	Schwarz criterion	-4.442485	
Log likelihood	739.9152	Hannan-Quinn criter.	-4.491565	
Durbin-Watson stat	2.040327			

Dependent Variable: BBRI

Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)

Date: 04/19/25 Time: 15:07

Sample (adjusted): 1/12/2014 12/29/2024

Included observations: 573 after adjustments

Convergence achieved after 47 iterations

Coefficient covariance computed using outer product of gradients

Presample variance: backcast (parameter = 0.7)

LOG(GARCH) = C(3) + C(4)*ABS(RESID(-1))/@SQRT(GARCH(-1))) + C(5)*RESID(-1)/@SQRT(GARCH(-1)) + C(6)*LOG(GARCH(-1))

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002523	0.001329	1.898625	0.0576
BBRI(-1)	-0.066181	0.038280	-1.728855	0.0838

Variance Equation

C(3)	-0.549294	0.213607	-2.571518	0.0101
C(4)	0.133778	0.058576	2.283819	0.0224
C(5)	-0.116157	0.032201	-3.607262	0.0003
C(6)	0.931700	0.028878	32.26295	0.0000

GED PARAMETER	1.223050	0.090902	13.45457	0.0000
R-squared	0.005511	Mean dependent var	0.002598	
Adjusted R-squared	0.003770	S.D. dependent var	0.040955	
S.E. of regression	0.040878	Akaike info criterion	-3.758008	
Sum squared resid	0.954145	Schwarz criterion	-3.704856	
Log likelihood	1083.669	Hannan-Quinn criter.	-3.737275	
Durbin-Watson stat	2.022375			

Dependent Variable: BMRI
Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)
Date: 04/19/25 Time: 15:07
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 67 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $\text{LOG}(\text{GARCH}) = \text{C}(3) + \text{C}(4) * \text{ABS}(\text{RESID}(-1) / @\text{SQRT}(\text{GARCH}(-1))) + \text{C}(5) * \text{RESID}(-1) / @\text{SQRT}(\text{GARCH}(-1)) + \text{C}(6) * \text{LOG}(\text{GARCH}(-1))$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.003813	0.001198	3.181810	0.0015
BMRI(-1)	-0.153974	0.033769	-4.559652	0.0000
Variance Equation				
C(3)	-1.709774	0.859167	-1.990037	0.0466
C(4)	0.160091	0.089960	1.779587	0.0751
C(5)	-0.153536	0.061697	-2.488567	0.0128
C(6)	-0.799245	0.129574	5.806782	0.0000
GED PARAMETER	1.007064	0.045796	21.99021	0.0000
R-squared	-0.005573	Mean dependent var		0.001758
Adjusted R-squared	-0.007334	S.D. dependent var		0.045319
S.E. of regression	0.045485	Akaike info criterion		-3.704695
Sum squared resid	1.181332	Schwarz criterion		-3.651543
Log likelihood	417.7358	Hannan-Quinn criter.		-3.683962
Durbin-Watson stat	1.830079			

Dependent Variable: BBNI
Method: ML ARCH - Generalized error distribution (GED) (BFGS / Marquardt steps)
Date: 04/19/25 Time: 15:08
Sample (adjusted): 1/12/2014 12/29/2024
Included observations: 573 after adjustments
Convergence achieved after 58 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
 $\text{LOG}(\text{GARCH}) = \text{C}(3) + \text{C}(4) * \text{ABS}(\text{RESID}(-1) / @\text{SQRT}(\text{GARCH}(-1))) + \text{C}(5) * \text{RESID}(-1) / @\text{SQRT}(\text{GARCH}(-1)) + \text{C}(6) * \text{LOG}(\text{GARCH}(-1))$

Variable	Coefficient	Std. Error	z-Statistic	Prob.
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C	0.002833	0.001344	2.108594	0.0350
BBNI(-1)	0.004666	0.036602	0.127490	0.8986
Variance Equation				
C(3)	-1.637187	0.631554	-2.592318	0.0095
C(4)	0.275747	0.091899	3.000542	0.0027
C(5)	-0.114038	0.065971	-1.728612	0.0839
C(6)	0.767651	0.096605	7.946318	0.0000
GED PARAMETER	1.026595	0.044335	23.15560	0.0000
R-squared	-0.000410	Mean dependent var	0.001652	
Adjusted R-squared	-0.002162	S.D. dependent var	0.050070	
S.E. of regression	0.050124	Akaike info criterion	-3.456687	
Sum squared resid	1.434603	Schwarz criterion	-3.403535	
Log likelihood	997.3407	Hannan-Quinn criter.	-3.435953	
Durbin-Watson stat	1.966368			