

## Lampiran 1 Data Return USD

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	10560	9560	1-Jan-05	10060	
2	1	9805	8805	3-Jan-05	9305	-0.07801527
3	1	9775	8775	4-Jan-05	9275	-0.00322928
4	1	9805	8805	5-Jan-05	9305	0.00322928
5	1	9780	8780	6-Jan-05	9280	-0.00269034
6	1	9805	8805	7-Jan-05	9305	0.00269034
7	1	9795	8795	10-Jan-05	9295	-0.00107527
8	1	9780	8780	11-Jan-05	9280	-0.00161507
9	1	9765	8765	12-Jan-05	9265	-0.00161769
10	1	9645	8645	13-Jan-05	9145	-0.01303658
11	1	9660	8660	14-Jan-05	9160	0.00163890
12	1	9645	8645	17-Jan-05	9145	-0.00163890
13	1	9650	8650	18-Jan-05	9150	0.00054660
14	1	9645	8645	19-Jan-05	9145	-0.00054660
15	1	9651	8651	20-Jan-05	9151	0.00065588
16	1	9649	8649	24-Jan-05	9149	-0.00021858
17	1	9635	8635	25-Jan-05	9135	-0.00153139
18	1	9650	8650	26-Jan-05	9150	0.00164069
19	1	9633	8633	27-Jan-05	9133	-0.00185965
20	1	9645	8645	28-Jan-05	9145	0.00131305
21	1	9665	8665	31-Jan-05	9165	0.00218460
22	1	9666	8666	1-Feb-05	9166	0.00010910
23	1	9728	8728	2-Feb-05	9228	0.00674135
24	1	9700	8700	3-Feb-05	9200	-0.00303886
25	1	9705	8705	4-Feb-05	9205	0.00054333
26	1	9762	8762	16-Feb-05	9262	0.00617319
27	1	9759	8759	24-Feb-05	9259	-0.00032396
28	1	9755	8755	25-Feb-05	9255	-0.00043211
29	1	9760	8760	28-Feb-05	9260	0.00054010
30	1	9750	8750	1-Mar-05	9250	-0.00108050
31	1	9765	8765	2-Mar-05	9265	0.00162031
32	1	9779	8779	3-Mar-05	9279	0.00150992
33	1	9827	8827	4-Mar-05	9327	0.00515964
34	1	9825	8825	7-Mar-05	9325	-0.00021445
35	1	9835	8835	8-Mar-05	9335	0.00107181
36	1	9865	8865	9-Mar-05	9365	0.00320856
37	1	9845	8845	10-Mar-05	9345	-0.00213789
38	1	9875	8875	14-Mar-05	9375	0.00320513

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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(lanjutan)

459	1	9,655.00	8,655.00	29-Nov-06	9155	-0.0016371
460	1	9,665.00	8,665.00	30-Nov-06	9165	0.0010917
461	1	9,640.00	8,640.00	1-Dec-06	9140	-0.0027315
462	1	9,665.00	8,665.00	4-Dec-06	9165	0.0027315
463	1	9,645.00	8,645.00	5-Dec-06	9145	-0.0021846
464	1	9,605.00	8,605.00	6-Dec-06	9105	-0.0043836
465	1	9,600.00	8,600.00	7-Dec-06	9100	-0.0005493
466	1	9,565.00	8,565.00	8-Dec-06	9065	-0.0038536
467	1	9,595.00	8,595.00	11-Dec-06	9095	0.00330397
468	1	9,575.00	8,575.00	12-Dec-06	9075	-0.0022014
469	1	9,565.00	8,565.00	13-Dec-06	9065	-0.0011025
470	1	9,575.00	8,575.00	14-Dec-06	9075	0.00110254
471	1	9,574.00	8,574.00	15-Dec-06	9074	-0.0001102
472	1	9,575.00	8,575.00	18-Dec-06	9075	0.0001102
473	1	9,600.00	8,600.00	19-Dec-06	9100	0.00275103
474	1	9,610.00	8,610.00	20-Dec-06	9110	0.0010983
475	1	9,595.00	8,595.00	21-Dec-06	9095	-0.0016479
476	1	9,579.00	8,579.00	22-Dec-06	9079	-0.0017608
477	1	9,573.00	8,573.00	26-Dec-06	9073	-0.0006611
478	1	9,555.00	8,555.00	27-Dec-06	9055	-0.0019859
479	1	9,525.00	8,525.00	28-Dec-06	9025	-0.0033186
480	1	9,520.00	8,520.00	29-Dec-06	9020	-0.0005542
481	1	9,600.00	8,600.00	1-Jan-07	9100	0.00883008
482	1	9,450.00	8,450.00	2-Jan-07	8950	-0.0166209
483	1	9,465.00	8,465.00	3-Jan-07	8965	0.00167457
484	1	9,480.00	8,480.00	4-Jan-07	8980	0.00167178
485	1	9,505.00	8,505.00	5-Jan-07	9005	0.0027801
486	1	9,530.00	8,530.00	8-Jan-07	9030	0.00277239
487	1	9,515.00	8,515.00	9-Jan-07	9015	-0.0016625
488	1	9,560.00	8,560.00	10-Jan-07	9060	0.00497926
489	1	9,558.00	8,558.00	11-Jan-07	9058	-0.0002208
490	1	9,635.00	8,635.00	12-Jan-07	9135	0.00846484
491	1	9,610.00	8,610.00	15-Jan-07	9110	-0.0027405
492	1	9,605.00	8,605.00	16-Jan-07	9105	-0.000549
493	1	9,580.00	8,580.00	17-Jan-07	9080	-0.0027495
494	1	9,595.00	8,595.00	18-Jan-07	9095	0.00165062
495	1	9,585.00	8,585.00	19-Jan-07	9085	-0.0011001
496	1	9,570.00	8,570.00	22-Jan-07	9070	-0.0016524
498	1	9,580.00	8,580.00	24-Jan-07	9080	-0.0027495
499	1	9,585.00	8,585.00	25-Jan-07	9085	0.00055051
500	1	9,615.00	8,615.00	26-Jan-07	9115	0.00329671
501	1	9,630.00	8,630.00	29-Jan-07	9130	0.00164429
502	1	9,615.00	8,615.00	30-Jan-07	9115	-0.0016443
503	1	9,590.00	8,590.00	31-Jan-07	9090	-0.0027465

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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## Lampiran 2 Data Return EURO

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	12429.12	11247.34	1-Jan-05	11838	
2	1	13260.28	11903.48	3-Jan-05	12582	0.06092356
3	1	13163.99	11814.66	4-Jan-05	12489	-0.00738340
4	1	13006.33	11675.43	5-Jan-05	12341	-0.01195695
5	1	12976.1	11644.04	6-Jan-05	12310	-0.00249970
6	1	12926.91	11605.87	7-Jan-05	12266	-0.00355462
7	1	12803.04	11494.19	10-Jan-05	12149	-0.00964783
8	1	12840.16	11522.87	11-Jan-05	12182	0.00270447
9	1	12802.89	11489.16	12-Jan-05	12146	-0.00291768
10	1	12782.52	11454.63	13-Jan-05	12119	-0.00226256
11	1	12725.12	11403.49	14-Jan-05	12064	-0.00448831
12	1	12648.45	11334.46	17-Jan-05	11991	-0.00605678
13	1	12556.58	11253.65	18-Jan-05	11905	-0.00722617
14	1	12567.44	11261.84	19-Jan-05	11915	0.00079976
15	1	12556.92	11251.49	20-Jan-05	11904	-0.00087620
16	1	12583.26	11274.84	24-Jan-05	11929	0.00208490
17	1	12549.59	11241.91	25-Jan-05	11896	-0.00279541
18	1	12534.39	11232.89	26-Jan-05	11884	-0.00101853
19	1	12589.37	11276.42	27-Jan-05	11933	0.00413621
20	1	12565.51	11260.11	28-Jan-05	11913	-0.00168458
21	1	12589.63	11283.56	31-Jan-05	11937	0.00199460
22	1	12611.23	11302.2	1-Feb-05	11957	0.00168415
23	1	12721.31	11411.86	2-Feb-05	12067	0.00914702
24	1	12634.25	11327.4	3-Feb-05	11981	-0.00713261
25	1	12583.5	11283.42	4-Feb-05	11933	-0.00396124
26	1	12700.36	11394.98	16-Feb-05	12048	0.00952506
27	1	12917.01	11592.54	24-Feb-05	12255	0.01704438
28	1	12882.45	11556.6	25-Feb-05	12220	-0.00288057
29	1	12963.23	11630.65	28-Feb-05	12297	0.00631537
30	1	12870.98	11548.25	1-Mar-05	12210	-0.00712669
31	1	12856.6	11537.37	2-Mar-05	12197	-0.00103497
32	1	12847.65	11529.46	3-Mar-05	12189	-0.00069139
33	1	12887.13	11573.08	4-Mar-05	12230	0.00340314
34	1	13006.34	11679.89	7-Mar-05	12343	0.00919788
35	1	13008.75	11679.87	8-Mar-05	12344	0.00009681
36	1	13161.88	11825.02	9-Mar-05	12493	0.01200928
37	1	13231.68	11884.14	10-Mar-05	12558	0.00514624
38	1	13279.9	11931.55	14-Mar-05	12606	0.00380033

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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459	1	12,741.70	11,419.41	29-Nov-06	12081	0.002615466
460	1	12,726.87	11,409.21	30-Nov-06	12068	-0.001036499
461	1	12,785.53	11,456.64	1-Dec-06	12121	0.004385862
462	1	12,886.34	11,550.45	4-Dec-06	12218	0.007996105
463	1	12,859.68	11,522.06	5-Dec-06	12191	-0.002255292
464	1	12,794.82	11,459.28	6-Dec-06	12127	-0.005248816
465	1	12,756.48	11,425.10	7-Dec-06	12091	-0.002994489
466	1	12,711.89	11,380.32	8-Dec-06	12046	-0.003702635
467	1	12,602.07	11,286.09	11-Dec-06	11944	-0.008505613
468	1	12,687.83	11,360.16	12-Dec-06	12024	0.006668478
469	1	12,706.15	11,373.46	13-Dec-06	12040	0.001314007
470	1	12,653.36	11,329.29	14-Dec-06	11991	-0.004034772
471	1	12,592.68	11,273.10	15-Dec-06	11933	-0.004885018
472	1	12,537.51	11,223.82	18-Dec-06	11881	-0.004386164
473	1	12,578.88	11,267.72	19-Dec-06	11923	0.00358218
474	1	12,715.95	11,389.31	20-Dec-06	12053	0.010788424
475	1	12,654.85	11,332.51	21-Dec-06	11994	-0.004903049
476	1	12,632.79	11,309.70	22-Dec-06	11971	-0.00187232
477	1	12,575.09	11,259.78	26-Dec-06	11917	-0.00450507
478	1	12,544.76	11,229.29	27-Dec-06	11887	-0.002554985
479	1	12,489.18	11,175.42	28-Dec-06	11832	-0.004614389
480	1	12,516.90	11,199.54	29-Dec-06	11858	0.002188218
481	1	12,851.52	11,510.24	1-Jan-07	12181	0.026846211
482	1	12,512.75	11,186.11	2-Jan-07	11849	-0.027587744
483	1	12,578.04	11,244.06	3-Jan-07	11911	0.005186776
484	1	12,487.06	11,167.31	4-Jan-07	11827	-0.007065845
485	1	12,436.34	11,124.54	5-Jan-07	11780	-0.003960166
486	1	12,389.00	11,084.74	8-Jan-07	11737	-0.00370536
487	1	12,401.85	11,095.90	9-Jan-07	11749	0.001022322
488	1	12,387.85	11,091.19	10-Jan-07	11740	-0.000796564
489	1	12,381.43	11,084.32	11-Jan-07	11733	-0.000566197
490	1	12,431.08	11,138.29	12-Jan-07	11785	0.004406076
491	1	12,429.57	11,133.59	15-Jan-07	11782	-0.000263512
492	1	12,418.30	11,123.68	16-Jan-07	11771	-0.000899265
494	1	12,432.24	11,135.68	18-Jan-07	11784	0.004484768
495	1	12,447.08	11,145.91	19-Jan-07	11796	0.001063169
496	1	12,418.03	11,117.86	22-Jan-07	11768	-0.002423144
497	1	12,431.75	11,133.15	23-Jan-07	11782	0.001231827
498	1	12,482.74	11,178.02	24-Jan-07	11830	0.004059663
499	1	12,425.99	11,128.74	25-Jan-07	11777	-0.00449133
500	1	12,426.43	11,132.30	26-Jan-07	11779	0.000169803
501	1	12,424.63	11,131.84	29-Jan-07	11778	-9.59351E-05
502	1	12,468.73	11,169.35	30-Jan-07	11819	0.003458454
503	1	12,420.97	11,121.47	31-Jan-07	11771	-0.004054221

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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## Lampiran 3 Data Return JPY

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	100	8859.8	8016.77	1-Jan-05	84.3829	
2	100	9571.46	8591.92	3-Jan-05	90.8169	0.07348121
3	100	9518.01	8540.98	4-Jan-05	90.295	-0.00576386
4	100	9389.96	8428.26	5-Jan-05	89.0911	-0.01342209
5	100	9392.11	8428.53	6-Jan-05	89.1032	0.00013581
6	100	9351.45	8395.31	7-Jan-05	88.7338	-0.00415437
7	100	9357.09	8397.78	10-Jan-05	88.7744	0.00045688
8	100	9396.62	8431.77	11-Jan-05	89.142	0.00413229
9	100	9437.52	8467.78	12-Jan-05	89.5265	0.00430463
10	100	9410.67	8430.86	13-Jan-05	89.2077	-0.00356787
11	100	9395.97	8419.21	14-Jan-05	89.0759	-0.00147798
12	100	9448.47	8466.36	17-Jan-05	89.5742	0.00557796
13	100	9412.8	8434.91	18-Jan-05	89.2386	-0.00375365
14	100	9420.79	8439.91	19-Jan-05	89.3035	0.00072756
15	100	9410.1	8432.6	20-Jan-05	89.2135	-0.00100831
16	100	9387.1	8409.33	24-Jan-05	88.9822	-0.00259659
17	100	9378.95	8401.44	25-Jan-05	88.902	-0.00090171
18	100	9302.1	8333.33	26-Jan-05	88.1772	-0.00818622
19	100	9324.36	8353.17	27-Jan-05	88.3877	0.00238439
20	100	9350.46	8378.56	28-Jan-05	88.6451	0.00290850
21	100	9328.25	8360.67	31-Jan-05	88.4446	-0.00226439
22	100	9328.31	8361.64	1-Feb-05	88.4498	0.00005823
23	100	9389.96	8421.46	2-Feb-05	89.0571	0.00684314
24	100	9326.92	8361.36	3-Feb-05	88.4414	-0.00693755
25	100	9292.42	8333.33	4-Feb-05	88.1288	-0.00354137
26	100	9324.67	8365.48	16-Feb-05	88.4508	0.00364709
27	100	9320.92	8362.61	24-Feb-05	88.4177	-0.00037429
28	100	9259.61	8309.61	25-Feb-05	87.8461	-0.00648519
29	100	9314.75	8356.39	28-Feb-05	88.3557	0.00578429
30	100	9316.77	8358.01	1-Mar-05	88.3739	0.00020596
31	100	9336.46	8379.54	2-Mar-05	88.58	0.00232942
32	100	9327.55	8371.32	3-Mar-05	88.4944	-0.00096739
33	100	9330.61	8378.74	4-Mar-05	88.5468	0.00059195
34	100	9379.47	8424.02	7-Mar-05	89.0175	0.00530176
35	100	9369.34	8413.48	8-Mar-05	88.9141	-0.00116168
36	100	9421.26	8463.01	9-Mar-05	89.4214	0.00568873
37	100	9488.24	8522.84	10-Mar-05	90.0554	0.00706557
38	100	9454.28	8492.01	14-Mar-05	89.7315	-0.00360372

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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(lanjutan)

459	100	8,348.47	7,480.55	29-Nov-06	79.1451	0.00069896
460	100	8,317.56	7,454.40	30-Nov-06	78.8598	-0.0036113
461	100	8,347.04	7,477.93	1-Dec-06	79.1249	0.00335539
462	100	8,374.49	7,506.06	4-Dec-06	79.4028	0.00350602
463	100	8,367.31	7,497.83	5-Dec-06	79.3257	-0.0009708
464	100	8,361.63	7,487.82	6-Dec-06	79.2473	-0.0009895
465	100	8,337.68	7,467.22	7-Dec-06	79.0245	-0.0028148
466	100	8,305.11	7,434.90	8-Dec-06	78.7001	-0.0041141
467	100	8,215.60	7,357.47	11-Dec-06	77.8654	-0.0106627
468	100	8,200.58	7,341.61	12-Dec-06	77.711	-0.0019849
469	100	8,183.61	7,326.15	13-Dec-06	77.5488	-0.0020888
470	100	8,153.10	7,299.74	14-Dec-06	77.2642	-0.0036767
471	100	8,130.79	7,279.06	15-Dec-06	77.0493	-0.0027859
472	100	8,113.72	7,263.26	18-Dec-06	76.8849	-0.0021353
473	100	8,145.26	7,295.55	19-Dec-06	77.2041	0.00414242
474	100	8,131.66	7,284.26	20-Dec-06	77.0796	-0.0016133
475	100	8,106.62	7,259.90	21-Dec-06	76.8326	-0.0032096
476	100	8,097.90	7,250.68	22-Dec-06	76.7429	-0.0011682
477	100	8,047.92	7,206.02	26-Dec-06	76.2697	-0.0061851
478	100	8,042.93	7,197.54	27-Dec-06	76.2024	-0.0008834
479	100	8,015.65	7,171.10	28-Dec-06	75.9338	-0.0035311
480	100	8,001.34	7,157.86	29-Dec-06	75.796	-0.0018157
481	100	8,166.74	7,313.55	1-Jan-07	77.4015	0.02095999
482	100	7,961.25	7,115.79	2-Jan-07	75.3852	-0.0263945
483	100	7,971.20	7,127.82	3-Jan-07	75.4951	0.00145678
484	100	7,943.69	7,105.15	4-Jan-07	75.2442	-0.0033289
485	100	8,021.10	7,173.58	5-Jan-07	75.9734	0.00964445
486	100	8,053.75	7,206.22	8-Jan-07	76.2999	0.00428769
487	100	8,005.22	7,160.88	9-Jan-07	75.8305	-0.0061704
488	100	8,008.71	7,167.98	10-Jan-07	75.8835	0.00069802
489	100	7,990.97	7,152.53	11-Jan-07	75.7175	-0.0021893
490	100	7,987.90	7,157.07	12-Jan-07	75.7249	9.7067E-05
491	100	7,999.00	7,163.66	15-Jan-07	75.8133	0.00116736
492	100	7,971.62	7,140.49	16-Jan-07	75.5606	-0.0033394
493	100	7,928.49	7,099.12	17-Jan-07	75.1381	-0.0056072
494	100	7,961.99	7,129.23	18-Jan-07	75.4561	0.00422394
495	100	7,899.94	7,073.99	19-Jan-07	74.8697	-0.0078024
496	100	7,888.88	7,062.80	22-Jan-07	74.7584	-0.001487
497	100	7,892.36	7,068.92	23-Jan-07	74.8064	0.00064186
498	100	7,877.64	7,052.44	24-Jan-07	74.6504	-0.0020876
499	100	7,950.40	7,119.75	25-Jan-07	75.3508	0.009338
500	100	7,925.32	7,100.47	26-Jan-07	75.129	-0.0029479
501	100	7,907.70	7,085.97	29-Jan-07	74.9684	-0.0021399
502	100	7,905.77	7,082.37	30-Jan-07	74.9407	-0.0003689
503	100	7,884.57	7,060.66	31-Jan-07	74.7262	-0.002867

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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Lampiran 4 Data *Return* AUD

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	7781.66	7042.85	1-Jan-05	7412.26	
2	1	7658.69	6873.18	3-Jan-05	7265.94	-0.01993772
3	1	7594.2	6812.91	4-Jan-05	7203.56	-0.00862233
4	1	7501.81	6732.3	5-Jan-05	7117.06	-0.01208064
5	1	7478.77	6709.68	6-Jan-05	7094.23	-0.00321294
6	1	7471.41	6705.01	7-Jan-05	7088.21	-0.00084823
7	1	7415.79	6654.3	10-Jan-05	7035.05	-0.00752875
8	1	7432.8	6668.41	11-Jan-05	7050.61	0.00220934
9	1	7426.28	6661.4	12-Jan-05	7043.84	-0.00095995
10	1	7400.61	6628.99	13-Jan-05	7014.8	-0.00413127
11	1	7355.12	6589.39	14-Jan-05	6972.26	-0.00608350
12	1	7335.02	6570.2	17-Jan-05	6952.61	-0.00282157
13	1	7250.05	6495.29	18-Jan-05	6872.67	-0.01156445
14	1	7299.34	6538.21	19-Jan-05	6918.78	0.00668605
15	1	7345.38	6581.68	20-Jan-05	6963.53	0.00644780
16	1	7430.69	6656.27	24-Jan-05	7043.48	0.01141584
17	1	7427.62	6653.27	25-Jan-05	7040.45	-0.00043099
18	1	7401.55	6630.23	26-Jan-05	7015.89	-0.00349380
19	1	7475.21	6694.89	27-Jan-05	7085.05	0.00980935
20	1	7495.13	6713.71	28-Jan-05	7104.42	0.00273020
21	1	7482.64	6704.11	31-Jan-05	7093.38	-0.00155588
22	1	7491.15	6711.82	1-Feb-05	7101.49	0.00114267
23	1	7537.25	6758.96	2-Feb-05	7148.11	0.00654337
24	1	7532.05	6748.59	3-Feb-05	7140.32	-0.00108969
25	1	7463.15	6692.4	4-Feb-05	7077.78	-0.00879800
26	1	7663.17	6873.79	16-Feb-05	7268.48	0.02658760
27	1	7690.09	6897.71	24-Feb-05	7293.9	0.00349119
28	1	7655.72	6870.05	25-Feb-05	7262.89	-0.00426125
29	1	7705.52	6915.14	28-Feb-05	7310.33	0.00651128
30	1	7677.15	6888.88	1-Mar-05	7283.02	-0.00374349
31	1	7633.3	6850.72	2-Mar-05	7242.01	-0.00564613
32	1	7653.05	6866.06	3-Mar-05	7259.56	0.00241974
33	1	7691.59	6908.01	4-Mar-05	7299.8	0.00552842
34	1	7764.7	6969.99	7-Mar-05	7367.35	0.00921045
35	1	7801.12	7003.5	8-Mar-05	7402.31	0.00473472
36	1	7863.39	7061.86	9-Mar-05	7462.63	0.00811512
37	1	7851.39	7052.12	10-Mar-05	7451.76	-0.00145765
38	1	7818.04	7021.9	14-Mar-05	7419.97	-0.00427456

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

(lanjutan)

459	1	7,563.73	6,776.00	29-Nov-06	7169.87	0.00367977
460	1	7,591.86	6,802.03	30-Nov-06	7196.95	0.0037698
461	1	7,609.82	6,817.82	1-Dec-06	7213.82	0.002342
462	1	7,605.39	6,814.16	4-Dec-06	7209.78	-0.0005609
463	1	7,607.98	6,814.85	5-Dec-06	7211.42	0.00022744
464	1	7,570.66	6,778.16	6-Dec-06	7174.41	-0.0051447
465	1	7,555.20	6,763.90	7-Dec-06	7159.55	-0.0020734
466	1	7,549.65	6,758.64	8-Dec-06	7154.15	-0.0007552
467	1	7,505.21	6,718.71	11-Dec-06	7111.96	-0.005914
468	1	7,524.04	6,733.95	12-Dec-06	7129	0.0023924
469	1	7,545.83	6,752.65	13-Dec-06	7149.24	0.00283579
470	1	7,536.48	6,745.10	14-Dec-06	7140.79	-0.0011826
471	1	7,486.87	6,700.58	15-Dec-06	7093.73	-0.0066128
472	1	7,485.74	6,699.65	18-Dec-06	7092.7	-0.0001452
473	1	7,497.60	6,712.30	19-Dec-06	7104.95	0.00172634
474	1	7,540.01	6,751.10	20-Dec-06	7145.56	0.00569876
475	1	7,539.75	6,749.65	21-Dec-06	7144.7	-0.0001197
476	1	7,517.60	6,730.23	22-Dec-06	7123.92	-0.0029134
477	1	7,516.72	6,728.95	26-Dec-06	7122.84	-0.0001516
478	1	7,483.48	6,697.71	27-Dec-06	7090.6	-0.0045366
479	1	7,479.98	6,691.27	28-Dec-06	7085.63	-0.0007012
480	1	7,531.27	6,735.91	29-Dec-06	7133.59	0.00674653
481	1	7,743.36	6,935.04	1-Jan-07	7339.2	0.02841523
482	1	7,489.13	6,694.09	2-Jan-07	7091.61	-0.0343174
483	1	7,553.07	6,750.84	3-Jan-07	7151.96	0.00847335
484	1	7,507.21	6,711.07	4-Jan-07	7109.14	-0.0060045
485	1	7,443.37	6,657.71	5-Jan-07	7050.54	-0.0082771
486	1	7,432.45	6,648.28	8-Jan-07	7040.37	-0.0014442
487	1	7,443.58	6,657.88	9-Jan-07	7050.73	0.00147114
488	1	7,455.84	6,673.38	10-Jan-07	7064.61	0.00196666
489	1	7,471.49	6,685.51	11-Jan-07	7078.5	0.00196421
490	1	7,514.34	6,730.12	12-Jan-07	7122.23	0.00615886
491	1	7,553.46	6,763.16	15-Jan-07	7158.31	0.00505304
492	1	7,521.68	6,734.27	16-Jan-07	7127.98	-0.0042467
493	1	7,500.18	6,713.85	17-Jan-07	7107.02	-0.0029449
494	1	7,570.46	6,777.16	18-Jan-07	7173.81	0.00935457
495	1	7,563.52	6,770.13	19-Jan-07	7166.83	-0.0009742
496	1	7,564.13	6,771.16	22-Jan-07	7167.65	0.00011441
497	1	7,576.42	6,783.32	23-Jan-07	7179.87	0.00170413
498	1	7,512.64	6,725.86	24-Jan-07	7119.25	-0.0084789
499	1	7,476.30	6,692.01	25-Jan-07	7084.16	-0.0049418
500	1	7,446.82	6,668.01	26-Jan-07	7057.42	-0.0037818
501	1	7,443.99	6,666.68	29-Jan-07	7055.34	-0.0002948
502	1	7,441.05	6,662.84	30-Jan-07	7051.95	-0.0004806
503	1	7,407.32	6,631.48	31-Jan-07	7019.4	-0.0046257

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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## Lampiran 5 Data Return SGD

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	6244.83	5650.79	1-Jan-05	5947.81	
2	1	6004.65	5388.95	3-Jan-05	5696.8	-0.04311847
3	1	5970.19	5356.16	4-Jan-05	5663.18	-0.00591992
4	1	5956.87	5346.08	5-Jan-05	5651.48	-0.00206812
5	1	5942.4	5331.55	6-Jan-05	5636.98	-0.00256900
6	1	5955.78	5345.11	7-Jan-05	5650.45	0.00238673
7	1	5944.65	5335.8	10-Jan-05	5640.23	-0.00181034
8	1	5960.14	5347.46	11-Jan-05	5653.8	0.00240393
9	1	5951.73	5338.98	12-Jan-05	5645.36	-0.00149480
10	1	5911.01	5294.91	13-Jan-05	5602.96	-0.00753805
11	1	5914.77	5299.23	14-Jan-05	5607	0.00072079
12	1	5903.42	5288.11	17-Jan-05	5595.77	-0.00200576
13	1	5888.1	5274.71	18-Jan-05	5581.41	-0.00256952
14	1	5906.67	5291.02	19-Jan-05	5598.85	0.00311979
15	1	5908.17	5292.75	20-Jan-05	5600.46	0.00028841
16	1	5905.86	5290.56	24-Jan-05	5598.21	-0.00040183
17	1	5901.27	5285.55	25-Jan-05	5593.41	-0.00085778
18	1	5895.65	5281.48	26-Jan-05	5588.57	-0.00086657
19	1	5899.68	5285.62	27-Jan-05	5592.65	0.00073069
20	1	5906.67	5291.02	28-Jan-05	5598.85	0.00110709
21	1	5897.61	5284.18	31-Jan-05	5590.9	-0.00142094
22	1	5900.74	5287.05	1-Feb-05	5593.9	0.00053644
23	1	5945.48	5331.7	2-Feb-05	5638.59	0.00795821
24	1	5926.56	5312.33	3-Feb-05	5619.45	-0.00340113
25	1	5929.25	5315.06	4-Feb-05	5622.16	0.00048214
26	1	5952.44	5339.75	16-Feb-05	5646.1	0.00424911
27	1	5997.79	5379.89	24-Feb-05	5688.84	0.00754221
28	1	5982.46	5365.9	25-Feb-05	5674.18	-0.00258030
29	1	5996.19	5378.52	28-Feb-05	5687.36	0.00231923
30	1	6000	5381.3	1-Mar-05	5690.65	0.00057919
31	1	6012.56	5393.51	2-Mar-05	5703.04	0.00217401
32	1	6010.82	5393.17	3-Mar-05	5702	-0.00018238
33	1	6032.16	5415.01	4-Mar-05	5723.59	0.00377924
34	1	6046.15	5427.76	7-Mar-05	5736.96	0.00233322
35	1	6059.77	5440.27	8-Mar-05	5750.02	0.00227475
36	1	6083.5	5463.45	9-Mar-05	5773.48	0.00407082
37	1	6085.42	5465.61	10-Mar-05	5775.52	0.00035328
38	1	6097.18	5476.37	14-Mar-05	5786.78	0.00194771

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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(lanjutan)

459	1	6,247.57	5,596.87	29-Nov-06	5922.22	0.00208416
460	1	6,262.96	5,611.68	30-Nov-06	5937.32	0.00254647
461	1	6,235.04	5,586.45	1-Dec-06	5910.75	-0.004486
462	1	6,269.46	5,617.14	4-Dec-06	5943.3	0.00549265
463	1	6,261.36	5,608.90	5-Dec-06	5935.13	-0.0013756
464	1	6,244.72	5,591.29	6-Dec-06	5918.01	-0.0028895
465	1	6,238.63	5,586.23	7-Dec-06	5912.43	-0.0009425
466	1	6,211.85	5,560.61	8-Dec-06	5886.23	-0.0044412
467	1	6,206.34	5,555.91	11-Dec-06	5881.13	-0.0008677
468	1	6,221.57	5,569.99	12-Dec-06	5895.78	0.00248877
469	1	6,217.09	5,563.86	13-Dec-06	5890.48	-0.0009002
470	1	6,218.74	5,567.46	14-Dec-06	5893.1	0.00044554
471	1	6,218.90	5,565.73	15-Dec-06	5892.32	-0.0001332
472	1	6,212.69	5,561.32	18-Dec-06	5887.01	-0.0009016
473	1	6,214.80	5,563.46	19-Dec-06	5889.13	0.0003609
474	1	6,237.42	5,585.83	20-Dec-06	5911.63	0.00381247
475	1	6,226.48	5,575.74	21-Dec-06	5901.11	-0.0017803
476	1	6,221.75	5,570.42	22-Dec-06	5896.09	-0.0008519
477	1	6,215.43	5,562.55	26-Dec-06	5888.99	-0.0012041
478	1	6,208.17	5,554.83	27-Dec-06	5881.5	-0.0012727
479	1	6,200.36	5,545.80	28-Dec-06	5873.08	-0.0014326
480	1	6,206.81	5,550.85	29-Dec-06	5878.83	0.00097856
481	1	6,323.69	5,661.62	1-Jan-07	5992.66	0.01917679
482	1	6,174.05	5,518.19	2-Jan-07	5846.12	-0.0247564
483	1	6,189.51	5,532.32	3-Jan-07	5860.92	0.00252754
484	1	6,187.59	5,531.64	4-Jan-07	5859.62	-0.0002218
485	1	6,192.18	5,537.47	5-Jan-07	5864.83	0.00088874
486	1	6,187.91	5,536.09	8-Jan-07	5862	-0.0004818
487	1	6,199.10	5,545.79	9-Jan-07	5872.45	0.00178023
488	1	6,217.48	5,565.31	10-Jan-07	5891.4	0.00322174
489	1	6,214.16	5,560.75	11-Jan-07	5887.46	-0.000669
490	1	6,230.20	5,581.41	12-Jan-07	5905.81	0.00311195
491	1	6,233.38	5,580.76	15-Jan-07	5907.07	0.00021417
492	1	6,234.99	5,584.04	16-Jan-07	5909.52	0.00041383
493	1	6,226.84	5,575.05	17-Jan-07	5900.95	-0.0014513
494	1	6,245.12	5,590.61	18-Jan-07	5917.87	0.00286323
495	1	6,240.23	5,585.56	19-Jan-07	5912.9	-0.0008402
496	1	6,228.44	5,573.62	22-Jan-07	5901.03	-0.0020086
497	1	6,239.44	5,586.21	23-Jan-07	5912.83	0.00199681
498	1	6,241.45	5,585.94	24-Jan-07	5913.7	0.00014713
499	1	6,245.52	5,589.92	25-Jan-07	5917.72	0.00068039
500	1	6,247.56	5,594.16	26-Jan-07	5920.86	0.00053047
501	1	6,262.60	5,608.63	29-Jan-07	5935.62	0.00248894
502	1	6,254.47	5,599.61	30-Jan-07	5927.04	-0.0014457
503	1	6,240.24	5,587.72	31-Jan-07	5913.98	-0.0022059

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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Lampiran 6 Data *Return* GBP

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	18181.15	16455.63	1-Jan-05	17318.39	
2	1	18767.75	16849.25	3-Jan-05	17808.5	0.02790693
3	1	18631.15	16721.64	4-Jan-05	17676.395	-0.00744574
4	1	18463.8	16572.77	5-Jan-05	17518.285	-0.00898494
5	1	18436.28	16547.67	6-Jan-05	17491.975	-0.00150299
6	1	18404.97	16518.18	7-Jan-05	17461.575	-0.00173945
7	1	18332.32	16457.2	10-Jan-05	17394.76	-0.00383374
8	1	18375.64	16492.35	11-Jan-05	17433.995	0.00225302
9	1	18332.81	16451.03	12-Jan-05	17391.92	-0.00241631
10	1	18225.19	16329.54	13-Jan-05	17277.365	-0.00660847
11	1	18134.72	16253.09	14-Jan-05	17193.905	-0.00484230
12	1	18057.37	16181.71	17-Jan-05	17119.54	-0.00433446
13	1	17902.68	16041.43	18-Jan-05	16972.055	-0.00865233
14	1	18006.25	16134.16	19-Jan-05	17070.205	0.00576638
15	1	18067.64	16192.08	20-Jan-05	17129.86	0.00348859
16	1	18089.95	16209.96	24-Jan-05	17149.955	0.00117241
17	1	18108.02	16219.98	25-Jan-05	17164	0.00081862
18	1	18023.31	16151.28	26-Jan-05	17087.295	-0.00447896
19	1	18126.42	16240.4	27-Jan-05	17183.41	0.00560918
20	1	18210.72	16318.3	28-Jan-05	17264.51	0.00470857
21	1	18218.53	16328.33	31-Jan-05	17273.43	0.00051653
22	1	18227.18	16338.01	1-Feb-05	17282.595	0.00053044
23	1	18338.25	16448.79	2-Feb-05	17393.52	0.00639780
24	1	18276.74	16387.32	3-Feb-05	17332.03	-0.00354149
25	1	18258.99	16374.11	4-Feb-05	17316.55	-0.00089354
26	1	18485.32	16587.34	16-Feb-05	17536.33	0.01261204
27	1	18638.71	16721.81	24-Feb-05	17680.26	0.00817403
28	1	18644.73	16727.3	25-Feb-05	17686.015	0.00032545
29	1	18776.29	16849.86	28-Feb-05	17813.075	0.00715852
30	1	18716.1	16792.13	1-Mar-05	17754.115	-0.00331542
31	1	18728.29	16806.01	2-Mar-05	17767.15	0.00073393
32	1	18713.09	16796.86	3-Mar-05	17754.975	-0.00068549
33	1	18743.04	16832.21	4-Mar-05	17787.625	0.00183723
34	1	18896.42	16968.71	7-Mar-05	17932.565	0.00811534
35	1	18831.07	16915.49	8-Mar-05	17873.28	-0.00331147
36	1	19016.76	17084.63	9-Mar-05	18050.695	0.00987733
37	1	18992.97	17062.01	10-Mar-05	18027.49	-0.00128637
38	1	18994.56	17066.63	14-Mar-05	18030.595	0.00017222

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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(lanjutan)

460	1	18,831.29	16,878.55	30-Nov-06	17854.92	-0.0012669
461	1	18,976.34	17,004.38	1-Dec-06	17990.36	0.00755696
462	1	19,138.63	17,154.10	4-Dec-06	18146.365	0.00863421
463	1	19,085.53	17,102.40	5-Dec-06	18093.965	-0.0028918
464	1	18,960.27	16,981.11	6-Dec-06	17970.69	-0.0068364
465	1	18,873.60	16,903.30	7-Dec-06	17888.45	-0.0045868
466	1	18,784.70	16,816.52	8-Dec-06	17800.61	-0.0049225
467	1	18,681.47	16,729.31	11-Dec-06	17705.39	-0.0053636
468	1	18,776.58	16,810.43	12-Dec-06	17793.505	0.00496439
469	1	18,851.66	16,877.33	13-Dec-06	17864.495	0.00398172
470	1	18,837.86	16,867.03	14-Dec-06	17852.445	-0.0006747
471	1	18,776.53	16,811.04	15-Dec-06	17793.785	-0.0032912
472	1	18,711.47	16,752.98	18-Dec-06	17732.225	-0.0034656
473	1	18,714.24	16,760.54	19-Dec-06	17737.39	0.00029124
474	1	18,962.45	16,986.67	20-Dec-06	17974.56	0.01328258
475	1	18,873.37	16,903.79	21-Dec-06	17888.58	-0.0047949
476	1	18,801.66	16,834.57	22-Dec-06	17818.115	-0.0039469
477	1	18,759.25	16,795.36	26-Dec-06	17777.305	-0.002293
478	1	18,707.73	16,745.56	27-Dec-06	17726.645	-0.0028538
479	1	18,631.85	16,671.49	28-Dec-06	17651.67	-0.0042385
480	1	18,680.14	16,713.68	29-Dec-06	17696.91	0.00255965
481	1	18,895.68	16,923.94	1-Jan-07	17909.81	0.01195856
482	1	18,573.98	16,605.10	2-Jan-07	17589.54	-0.0180442
483	1	18,694.32	16,715.84	3-Jan-07	17705.08	0.0065472
484	1	18,504.96	16,548.72	4-Jan-07	17526.84	-0.0101182
485	1	18,445.40	16,501.40	5-Jan-07	17473.4	-0.0030537
486	1	18,374.79	16,441.58	8-Jan-07	17408.185	-0.0037392
487	1	18,476.23	16,531.02	9-Jan-07	17503.625	0.0054675
488	1	18,507.20	16,567.88	10-Jan-07	17537.54	0.00193572
489	1	18,481.35	16,542.61	11-Jan-07	17511.98	-0.0014585
490	1	18,745.86	16,796.80	12-Jan-07	17771.33	0.01470127
491	1	18,831.76	16,868.71	15-Jan-07	17850.235	0.00443019
492	1	18,864.22	16,896.78	16-Jan-07	17880.5	0.00169406
493	1	18,787.34	16,821.95	17-Jan-07	17804.645	-0.0042514
494	1	18,933.81	16,955.36	18-Jan-07	17944.585	0.00782902
495	1	18,939.00	16,959.67	19-Jan-07	17949.335	0.00026467
496	1	18,907.45	16,929.18	22-Jan-07	17918.315	-0.0017297
497	1	19,002.53	17,019.83	23-Jan-07	18011.18	0.0051693
498	1	18,988.52	17,002.13	24-Jan-07	17995.325	-0.0008807
499	1	18,863.28	16,891.85	25-Jan-07	17877.565	-0.0065654
500	1	18,899.24	16,929.34	26-Jan-07	17914.29	0.00205214
501	1	18,856.50	16,894.09	29-Jan-07	17875.295	-0.0021791
502	1	18,882.90	16,914.69	30-Jan-07	17898.795	0.0013138
503	1	18,817.50	16,851.86	31-Jan-07	17834.68	-0.0035885

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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## Lampiran 7 Data Return HKD

No	Nilai	Kurs Jual	Kurs Beli	Tanggal	Kurs Tengah BI	Return
1	1	1361.81	1232.75	1-Jan-05	1297.28	
2	1	1260.9	1132.16	3-Jan-05	1196.53	-0.08084406
3	1	1256.02	1127.46	4-Jan-05	1191.74	-0.00401128
4	1	1259.18	1130.61	5-Jan-05	1194.895	0.00264389
5	1	1255.75	1127.32	6-Jan-05	1191.535	-0.00281592
6	1	1258.45	1129.96	7-Jan-05	1194.205	0.00223830
7	1	1256.83	1128.37	10-Jan-05	1192.6	-0.00134489
8	1	1255.04	1126.57	11-Jan-05	1190.805	-0.00150625
9	1	1252.68	1124.32	12-Jan-05	1188.5	-0.00193754
10	1	1237.87	1109.47	13-Jan-05	1173.67	-0.01255642
11	1	1239.53	1111.07	14-Jan-05	1175.3	0.00138784
12	1	1237.25	1108.83	17-Jan-05	1173.04	-0.00192476
13	1	1237.51	1109.23	18-Jan-05	1173.37	0.00028128
14	1	1236.86	1108.48	19-Jan-05	1172.67	-0.00059675
15	1	1237.83	1109.43	20-Jan-05	1173.63	0.00081831
16	1	1237.38	1109.07	24-Jan-05	1173.225	-0.00034514
17	1	1235.45	1107.15	25-Jan-05	1171.3	-0.00164212
18	1	1237.32	1109.06	26-Jan-05	1173.19	0.00161229
19	1	1235.32	1107.02	27-Jan-05	1171.17	-0.00172329
20	1	1236.97	1108.57	28-Jan-05	1172.77	0.00136522
21	1	1239.2	1110.95	31-Jan-05	1175.075	0.00196350
22	1	1239.31	1111.03	1-Feb-05	1175.17	0.00008084
23	1	1247.29	1118.93	2-Feb-05	1183.11	0.00673375
24	1	1243.7	1115.34	3-Feb-05	1179.52	-0.00303899
25	1	1244.42	1116.05	4-Feb-05	1180.235	0.00060600
26	1	1251.68	1123.32	16-Feb-05	1187.5	0.00613669
27	1	1251.25	1122.96	24-Feb-05	1187.105	-0.00033269
28	1	1250.77	1122.41	25-Feb-05	1186.59	-0.00043392
29	1	1251.38	1123.09	28-Feb-05	1187.235	0.00054343
30	1	1250.18	1122.79	1-Mar-05	1186.485	-0.00063192
31	1	1252.05	1123.8	2-Mar-05	1187.925	0.00121293
32	1	1253.78	1125.53	3-Mar-05	1189.655	0.00145526
33	1	1259.92	1131.67	4-Mar-05	1195.795	0.00514789
34	1	1259.76	1131.4	7-Mar-05	1195.58	-0.00017981
35	1	1260.95	1132.71	8-Mar-05	1196.83	0.00104497
36	1	1264.81	1136.52	9-Mar-05	1200.665	0.00319918
37	1	1262.28	1133.99	10-Mar-05	1198.135	-0.00210939
38	1	1266.16	1137.86	14-Mar-05	1202.01	0.00322897

Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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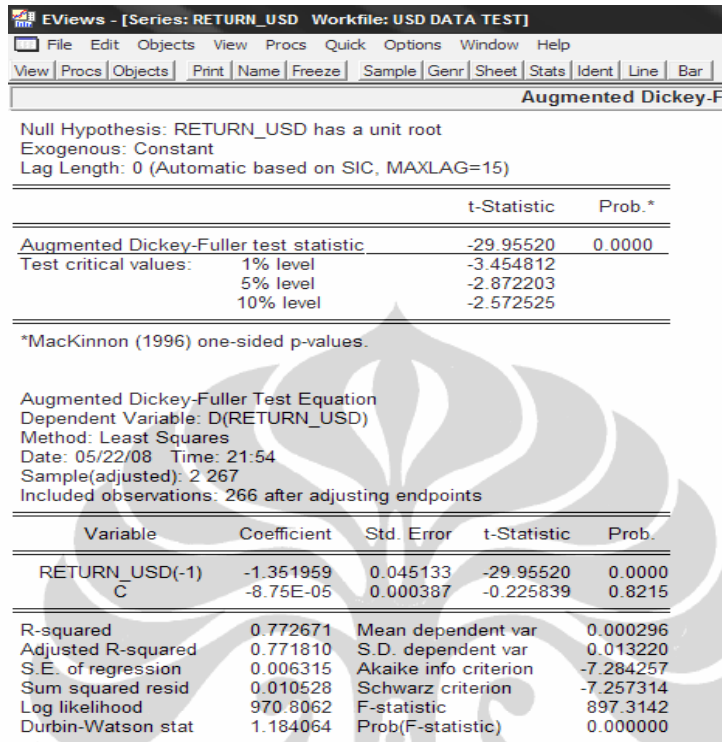
(lanjutan)

459	1	1,241.78	1,113.07	29-Nov-06	1177.425	-0.0016336
460	1	1,243.05	1,114.35	30-Nov-06	1178.7	0.00108229
461	1	1,239.52	1,110.87	1-Dec-06	1175.195	-0.002978
462	1	1,243.34	1,114.61	4-Dec-06	1178.975	0.00321133
463	1	1,240.88	1,112.17	5-Dec-06	1176.525	-0.0020802
464	1	1,236.28	1,107.45	6-Dec-06	1171.865	-0.0039687
465	1	1,236.01	1,106.84	7-Dec-06	1171.425	-0.0003755
466	1	1,231.38	1,102.60	8-Dec-06	1166.99	-0.0037932
467	1	1,234.54	1,105.74	11-Dec-06	1170.14	0.00269562
468	1	1,231.64	1,102.92	12-Dec-06	1167.28	-0.0024471
469	1	1,230.84	1,102.10	13-Dec-06	1166.47	-0.0006942
470	1	1,232.15	1,103.39	14-Dec-06	1167.77	0.00111385
471	1	1,231.97	1,103.23	15-Dec-06	1167.6	-0.0001456
472	1	1,231.65	1,102.95	18-Dec-06	1167.3	-0.000257
473	1	1,234.92	1,106.24	19-Dec-06	1170.58	0.00280596
474	1	1,235.97	1,107.28	20-Dec-06	1171.625	0.00089232
475	1	1,234.24	1,105.55	21-Dec-06	1169.895	-0.0014777
476	1	1,232.03	1,102.98	22-Dec-06	1167.505	-0.002045
477	1	1,230.53	1,101.84	26-Dec-06	1166.185	-0.0011313
478	1	1,228.53	1,099.88	27-Dec-06	1164.205	-0.0016993
479	1	1,225.02	1,096.34	28-Dec-06	1160.68	-0.0030324
480	1	1,224.77	1,096.05	29-Dec-06	1160.41	-0.0002326
481	1	1,229.05	1,100.96	1-Jan-07	1165.005	0.00395199
482	1	1,214.93	1,086.30	2-Jan-07	1150.615	-0.0124288
483	1	1,216.07	1,087.53	3-Jan-07	1151.8	0.00102935
484	1	1,217.30	1,088.76	4-Jan-07	1153.03	0.00106732
485	1	1,220.36	1,091.90	5-Jan-07	1156.13	0.00268496
486	1	1,222.89	1,094.47	8-Jan-07	1158.68	0.00220321
487	1	1,220.47	1,092.13	9-Jan-07	1156.3	-0.0020562
488	1	1,225.97	1,097.68	10-Jan-07	1161.825	0.00476679
489	1	1,226.12	1,097.76	11-Jan-07	1161.94	9.8977E-05
490	1	1,235.43	1,107.15	12-Jan-07	1171.29	0.00801468
491	1	1,232.67	1,104.26	15-Jan-07	1168.465	-0.0024148
492	1	1,231.66	1,103.29	16-Jan-07	1167.475	-0.0008476
493	1	1,227.69	1,099.48	17-Jan-07	1163.585	-0.0033375
494	1	1,229.17	1,100.92	18-Jan-07	1165.045	0.00125396
495	1	1,227.54	1,099.34	19-Jan-07	1163.44	-0.0013786
496	1	1,225.67	1,097.45	22-Jan-07	1161.56	-0.0016172
497	1	1,231.41	1,103.13	23-Jan-07	1167.27	0.00490376
498	1	1,228.00	1,099.73	24-Jan-07	1163.865	-0.0029213
499	1	1,228.12	1,099.94	25-Jan-07	1164.03	0.00014176
500	1	1,231.63	1,103.47	26-Jan-07	1167.55	0.00301941
501	1	1,233.00	1,104.89	29-Jan-07	1168.945	0.0011941
502	1	1,231.15	1,103.02	30-Jan-07	1167.085	-0.0015924
503	1	1,228.46	1,100.31	31-Jan-07	1164.385	-0.0023161

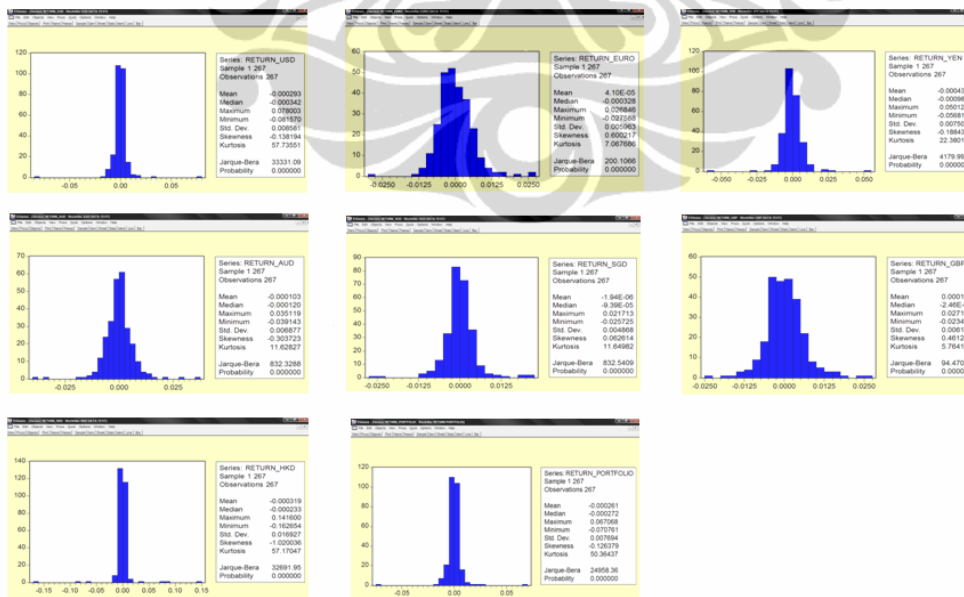
Sumber : Kurs Tengah BI periode 1 Januari 2005 – 31 Januari 2007, telah diolah kembali.

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Lampiran 8 Hasil Tes Stasionaritas Data Return USD



Lampiran 9 Hasil Tes Normal Data Return 7 Mata Uang Asing dan Portfolio



Lampiran 10 Hasil Tes Heteroskedastik Data *Return* USD

**EViews - [Equation: PERSAMAANUSD Workfile: USD DATA TEST]**

File Edit Objects View Procs Quick Options Window Help

View | Procs | Objects | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

White Heteroskedasticity Test:

F-statistic	242.7247	Probability	0.000000
Obs*R-squared	172.5294	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:02  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.98E-05	6.70E-06	2.958792	0.0034
RETURN_USD(-1)	-0.005850	0.000774	-7.558242	0.0000
RETURN_USD(-1)^2	0.245630	0.011994	20.47977	0.0000

R-squared	0.648607	Mean dependent var	3.96E-05
Adjusted R-squared	0.645935	S.D. dependent var	0.000182
S.E. of regression	0.000108	Akaike info criterion	-15.41293
Sum squared resid	3.08E-06	Schwarz criterion	-15.37251
Log likelihood	2052.920	F-statistic	242.7247
Durbin-Watson stat	1.870933	Prob(F-statistic)	0.000000

Lampiran 11 Hasil Tes Stasionaritas Data *Return* EURO

**EViews - [Series: RETURN\_EURO Workfile: EURO DATA TEST]**

File Edit Objects View Procs Quick Options Window Help

View | Procs | Objects | Print | Name | Freeze | Sample | Genr | Sheet | Stats | Ident | Line | I

**Augmented Dickey-Fuller**

Null Hypothesis: RETURN\_EURO has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-17.11557	0.0000
Test critical values:		
1% level	-3.454812	
5% level	-2.872203	
10% level	-2.572525	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_EURO)  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:18  
 Sample(adjusted): 2 267  
 Included observations: 266 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_EURO(-1)	-1.052551	0.061497	-17.11557	0.0000
C	3.49E-05	0.000366	0.095220	0.9242

R-squared	0.525984	Mean dependent var	-2.44E-05
Adjusted R-squared	0.524188	S.D. dependent var	0.008663
S.E. of regression	0.005976	Akaike info criterion	-7.394664
Sum squared resid	0.009428	Schwarz criterion	-7.367720
Log likelihood	985.4903	F-statistic	292.9429
Durbin-Watson stat	1.996037	Prob(F-statistic)	0.000000



Lampiran 12 Hasil Tes Heteroskedastik Data *Return* EURO

EViews - [Equation: PERSAMAANEURO Workfile: EURO DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View | Procs | Objects | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

White Heteroskedasticity Test:

F-statistic	31.20990	Probability	0.000000
Obs*R-squared	51.02231	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:24  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.25E-05	5.23E-06	4.296318	0.0000
RETURN_EURO(-1)	0.002481	0.000836	2.966242	0.0033
RETURN_EURO(-1)^2	0.361716	0.056915	6.355385	0.0000

R-squared	0.191813	Mean dependent var	3.54E-05
Adjusted R-squared	0.185667	S.D. dependent var	8.72E-05
S.E. of regression	7.87E-05	Akaike info criterion	-16.05021
Sum squared resid	1.63E-06	Schwarz criterion	-16.00979
Log likelihood	2137.677	F-statistic	31.20990
Durbin-Watson stat	1.833905	Prob(F-statistic)	0.000000

Lampiran 13 Hasil Tes Stasionaritas Data *Return* JPY

EViews - [Series: RETURN\_YEN Workfile: JPY DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View | Procs | Objects | Print | Name | Freeze | Sample | Genr | Sheet | Stats | Ident | Line | E

Augmented Dick

Null Hypothesis: RETURN\_YEN has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-22.81666	0.0000
Test critical values:		
1% level	-3.454812	
5% level	-2.872203	
10% level	-2.572525	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_YEN)  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:41  
 Sample(adjusted): 2 267  
 Included observations: 266 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_YEN(-1)	-1.210344	0.053046	-22.81666	0.0000
C	-0.000307	0.000398	-0.770971	0.4414

R-squared	0.663523	Mean dependent var	0.000203
Adjusted R-squared	0.662248	S.D. dependent var	0.011165
S.E. of regression	0.006489	Akaike info criterion	-7.229937
Sum squared resid	0.011116	Schwarz criterion	-7.202994
Log likelihood	963.5817	F-statistic	520.6002
Durbin-Watson stat	1.494325	Prob(F-statistic)	0.000000

Lampiran 14 Hasil Tes Heteroskedastik Data *Return* JPY

EViews - [Equation: PERSAMAANYEN Workfile: JPY DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Estimate Forecast Stats Resids

White Heteroskedasticity Test:

F-statistic	100.2343	Probability	0.000000
Obs*R-squared	115.0556	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:47  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.36E-05	5.97E-06	3.949687	0.0001
RETURN_YEN(-1)	-0.002084	0.000778	-2.677018	0.0079
RETURN_YEN(-1)^2	0.307460	0.022447	13.69710	0.0000

R-squared	0.432540	Mean dependent var	4.18E-05
Adjusted R-squared	0.428224	S.D. dependent var	0.000126
S.E. of regression	9.50E-05	Akaike info criterion	-15.67418
Sum squared resid	2.37E-06	Schwarz criterion	-15.63376
Log likelihood	2087.665	F-statistic	100.2343
Durbin-Watson stat	1.730591	Prob(F-statistic)	0.000000

Lampiran 15 Hasil Tes Stasionaritas Data *Return* AUD

EViews - [Series: RETURN\_AUD Workfile: AUD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Sample Genr Sheet Stats Ident Line

**Augmented Dick**

Null Hypothesis: RETURN\_AUD has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-21.83290	0.0000
Test critical values:		
1% level	-3.454812	
5% level	-2.872203	
10% level	-2.572525	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_AUD)  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:51  
 Sample(adjusted): 2 267  
 Included observations: 266 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_AUD(-1)	-1.223942	0.056059	-21.83290	0.0000
C	2.41E-05	0.000385	0.062631	0.9501

R-squared	0.643569	Mean dependent var	0.000130
Adjusted R-squared	0.642219	S.D. dependent var	0.010503
S.E. of regression	0.006282	Akaike info criterion	-7.294701
Sum squared resid	0.010419	Schwarz criterion	-7.267758
Log likelihood	972.1953	F-statistic	476.6756
Durbin-Watson stat	1.721812	Prob(F-statistic)	0.000000

Lampiran 16 Hasil Tes Heteroskedastik Data *Return* AUD

EViews - [Equation: PERSAMAANAUD Workfile: AUD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Estimate Forecast Stats Resids

White Heteroskedasticity Test:

F-statistic	31.75375	Probability	0.000000
Obs*R-squared	51.73845	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 22:56  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.59E-05	5.72E-06	4.520917	0.0000
RETURN_AUD(-1)	0.001051	0.000800	1.313468	0.1902
RETURN_AUD(-1)^2	0.283855	0.035689	7.953558	0.0000

R-squared	0.194505	Mean dependent var	3.92E-05
Adjusted R-squared	0.188380	S.D. dependent var	9.90E-05
S.E. of regression	8.92E-05	Akaike info criterion	-15.80089
Sum squared resid	2.09E-06	Schwarz criterion	-15.76048
Log likelihood	2104.519	F-statistic	31.75375
Durbin-Watson stat	1.816359	Prob(F-statistic)	0.000000

Lampiran 17 Hasil Tes Stasionaritas Data *Return* SGD

EViews - [Series: RETURN\_SGD Workfile: SGD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Sample Genr Sheet Stats Ident Line

**Augmented Dickey-Fuller**

Null Hypothesis: RETURN\_SGD has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-21.27719	0.0000
Test critical values:		
1% level	-3.454812	
5% level	-2.872203	
10% level	-2.572525	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_SGD)  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:00  
 Sample(adjusted): 2 267  
 Included observations: 266 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_SGD(-1)	-1.208611	0.056803	-21.27719	0.0000
C	9.61E-05	0.000276	0.347617	0.7284

R-squared	0.631655	Mean dependent var	8.84E-05
Adjusted R-squared	0.630259	S.D. dependent var	0.007414
S.E. of regression	0.004508	Akaike info criterion	-7.958270
Sum squared resid	0.005366	Schwarz criterion	-7.931327
Log likelihood	1060.450	F-statistic	452.7186
Durbin-Watson stat	1.824248	Prob(F-statistic)	0.000000

Lampiran 18 Hasil Tes Heteroskedastik Data *Return* SGD

**EViews - [Equation: PERSAMAANSGD Workfile: SGD DATA TEST]**

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Estimate Forecast Stats Resids

White Heteroskedasticity Test:

F-statistic	35.51282	Probability	0.000000
Obs*R-squared	56.56099	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:04  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.19E-05	3.63E-06	3.283294	0.0012
RETURN_SGD(-1)	0.002235	0.000712	3.137634	0.0019
RETURN_SGD(-1)^2	0.348595	0.044909	7.762316	0.0000

R-squared	0.212635	Mean dependent var	2.02E-05
Adjusted R-squared	0.206648	S.D. dependent var	6.35E-05
S.E. of regression	5.65E-05	Akaike info criterion	-16.71251
Sum squared resid	8.40E-07	Schwarz criterion	-16.67210
Log likelihood	2225.764	F-statistic	35.51282
Durbin-Watson stat	1.868015	Prob(F-statistic)	0.000000

Lampiran 19 Hasil Tes Stasionaritas Data *Return* GBP

**EViews - [Series: RETURN\_GBP Workfile: GBP DATA TEST]**

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Sample Genr Sheet Stats Ident Line E

**Augmented Dickey-Fuller Test**

Null Hypothesis: RETURN\_GBP has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-16.60076	0.0000
Test critical values:		
1% level	-3.454812	
5% level	-2.872203	
10% level	-2.572525	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_GBP)  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:12  
 Sample(adjusted): 2 267  
 Included observations: 266 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_GBP(-1)	-1.007150	0.060669	-16.60076	0.0000
C	0.000120	0.000373	0.322184	0.7476

R-squared	0.510735	Mean dependent var	-7.89E-05
Adjusted R-squared	0.508882	S.D. dependent var	0.008674
S.E. of regression	0.006079	Akaike info criterion	-7.360616
Sum squared resid	0.009754	Schwarz criterion	-7.333673
Log likelihood	980.9620	F-statistic	275.5851
Durbin-Watson stat	1.858939	Prob(F-statistic)	0.000000

Lampiran 20 Hasil Tes Heteroskedastik Data *Return* GBP

EViews - [Equation: PERSAMAANGBP Workfile: GBP DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Estimate Forecast Stats Resids

White Heteroskedasticity Test:

F-statistic	23.86102	Probability	0.000000
Obs*R-squared	40.85343	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:15  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.37E-05	5.07E-06	4.670870	0.0000
RETURN_GBP(-1)	0.001660	0.000771	2.154072	0.0321
RETURN_GBP(-1)^2	0.335361	0.057160	5.867020	0.0000

R-squared	0.153584	Mean dependent var	3.67E-05
Adjusted R-squared	0.147148	S.D. dependent var	8.12E-05
S.E. of regression	7.50E-05	Akaike info criterion	-16.14643
Sum squared resid	1.48E-06	Schwarz criterion	-16.10601
Log likelihood	2150.475	F-statistic	23.86102
Durbin-Watson stat	2.039329	Prob(F-statistic)	0.000000

Lampiran 21 Hasil Tes Stasionaritas Data *Return* HKD

EViews - [Series: RETURN\_HKD Workfile: HKD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Sample Genr Sheet Stats Ident Line B

Augmented Dickey

Null Hypothesis: RETURN\_HKD has a unit root  
 Exogenous: Constant  
 Lag Length: 1 (Automatic based on SIC, MAXLAG=15)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-18.68093	0.0000
Test critical values:		
1% level	-3.454906	
5% level	-2.872244	
10% level	-2.572547	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RETURN\_HKD)  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:20  
 Sample(adjusted): 3 267  
 Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN_HKD(-1)	-1.814569	0.097135	-18.68093	0.0000
D(RETURN_HKD(-1))	0.276000	0.055172	5.002533	0.0000
C	-0.000389	0.000823	-0.472759	0.6368

R-squared	0.748742	Mean dependent var	-0.000312
Adjusted R-squared	0.746824	S.D. dependent var	0.026633
S.E. of regression	0.013401	Akaike info criterion	-5.775746
Sum squared resid	0.047050	Schwarz criterion	-5.735220
Log likelihood	768.2863	F-statistic	390.3763
Durbin-Watson stat	2.100960	Prob(F-statistic)	0.000000

Lampiran 22 Hasil Tes Heteroskedastik Data *Return* HKD

EViews - [Equation: PERSAMAANHKD Workfile: HKD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Estimate Forecast Stats Resids

White Heteroskedasticity Test:

F-statistic	31.04870	Probability	0.000000
Obs*R-squared	50.80911	Probability	0.000000

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Date: 05/22/08 Time: 23:25  
 Sample: 2 267  
 Included observations: 266

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000120	8.39E-05	1.434904	0.1525
RETURN_HKD(-1)	0.015051	0.004962	3.033080	0.0027
RETURN_HKD(-1)^2	0.298738	0.039162	7.628301	0.0000

R-squared	0.191012	Mean dependent var	0.000201
Adjusted R-squared	0.184860	S.D. dependent var	0.001502
S.E. of regression	0.001356	Akaike info criterion	-10.35716
Sum squared resid	0.000484	Schwarz criterion	-10.31674
Log likelihood	1380.502	F-statistic	31.04870
Durbin-Watson stat	1.926892	Prob(F-statistic)	0.000000

Lampiran 23 Perhitungan *Variance EWMA* Data *Return* USD

No	Period	USD	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	10060			0.99				
2	3-Jan-05	9305	-0.07801527	502		0.0000410046483	0.00608638	0.00604538	0.000036546600230
3	4-Jan-05	9275	-0.00322928	501		0.0000000626856	0.00001043	0.00001037	0.000000000107445
4	5-Jan-05	9305	0.00322928	500		0.0000000813377	0.00001043	0.00001035	0.000000000107059
5	6-Jan-05	9280	-0.00269034	499		0.0000000432060	0.00000724	0.00000719	0.000000000051764
6	7-Jan-05	9305	0.00269034	498		0.0000000589573	0.00000724	0.00000718	0.000000000051538
7	10-Jan-05	9295	-0.00107527	497		0.0000000054287	0.00000116	0.00000115	0.000000000001324
8	11-Jan-05	9280	-0.00161507	496		0.0000000143565	0.00000261	0.00000259	0.0000000000006729
9	12-Jan-05	9265	-0.00161769	495		0.0000000145540	0.00000262	0.00000260	0.0000000000006772
10	13-Jan-05	9145	-0.01303658	494		0.0000012081736	0.00016995	0.00016874	0.000000028474602
11	14-Jan-05	9160	0.00163890	493		0.0000000251040	0.00000269	0.00000266	0.0000000000007080
12	17-Jan-05	9145	-0.00163890	492		0.0000000154486	0.00000269	0.00000267	0.0000000000007132
13	18-Jan-05	9150	0.00054660	491		0.0000000042347	0.00000030	0.00000029	0.0000000000000087
14	19-Jan-05	9145	-0.00054660	490		0.0000000009065	0.00000030	0.00000030	0.0000000000000089
15	20-Jan-05	9151	0.00065588	489		0.0000000056734	0.00000043	0.00000042	0.0000000000000180
16	24-Jan-05	9149	-0.00021858	488		0.0000000000021	0.00000005	0.00000005	0.0000000000000002
17	25-Jan-05	9135	-0.00153139	487		0.0000000138994	0.00000235	0.00000233	0.0000000000005435
18	26-Jan-05	9150	0.00164069	486		0.0000000269710	0.00000269	0.00000266	0.0000000000007102
19	27-Jan-05	9133	-0.00185965	485		0.0000000220461	0.00000346	0.00000344	0.0000000000011808
20	28-Jan-05	9145	0.00131305	484		0.0000000185997	0.00000172	0.00000171	0.0000000000002909
21	31-Jan-05	9165	0.00218460	483		0.0000000466170	0.00000477	0.00000473	0.0000000000022334
22	1-Feb-05	9166	0.00010910	482		0.0000000008000	0.00000001	0.00000001	0.0000000000000000
23	2-Feb-05	9228	0.00674135	481		0.0000004025213	0.00004545	0.00004504	0.000000002028902
24	3-Feb-05	9200	-0.00303886	480		0.0000000678680	0.00000923	0.00000917	0.000000000084030
25	4-Feb-05	9205	0.00054333	479		0.0000000047313	0.00000030	0.00000029	0.0000000000000084
26	16-Feb-05	9262	0.00617319	478		0.0000003496442	0.00003811	0.00003776	0.000000001425717

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485	5-Jan-07	9005	0.002780096	19		0.0000074318769	0.00000773	0.00000030	0.000000000000088
486	8-Jan-07	9030	0.002772389	18		0.0000074675910	0.00000769	0.00000022	0.000000000000048
487	9-Jan-07	9015	-0.001662511	17		0.0000018186336	0.00000276	0.00000095	0.0000000000000894
488	10-Jan-07	9060	0.004979263	16		0.0000231163404	0.00002479	0.00000168	0.0000000000002811
489	11-Jan-07	9058	-0.000220775	15		0.0000000003073	0.00000005	0.00000005	0.0000000000000002
490	12-Jan-07	9135	0.008464845	14		0.0000659828580	0.00007165	0.00000567	0.00000000000032157
491	15-Jan-07	9110	-0.002740479	13		0.0000057173704	0.00000751	0.00000179	0.00000000000003214
492	16-Jan-07	9105	-0.000548998	12		0.0000001079155	0.00000030	0.00000019	0.0000000000000037
493	17-Jan-07	9080	-0.002749521	11		0.0000058741425	0.00000756	0.00000169	0.0000000000002842
494	18-Jan-07	9095	0.001650619	10		0.0000031375628	0.00000272	-0.00000041	0.0000000000000171
495	19-Jan-07	9085	-0.00110011	9		0.0000007448052	0.00000121	0.00000047	0.0000000000000217
496	22-Jan-07	9070	-0.001652438	8		0.0000019620179	0.00000273	0.00000077	0.0000000000000591
497	23-Jan-07	9105	0.003851449	7		0.0000154762269	0.00001483	-0.00000064	0.0000000000000413
498	24-Jan-07	9080	-0.002749521	6		0.0000061743881	0.00000756	0.00000139	0.0000000000001920
499	25-Jan-07	9085	0.000550509	5		0.0000005440980	0.00000030	-0.00000024	0.0000000000000058
500	26-Jan-07	9115	0.003296706	4		0.0000118800835	0.00001087	-0.00000101	0.0000000000001024
501	29-Jan-07	9130	0.001644286	3		0.0000033413917	0.00000270	-0.00000064	0.0000000000000407
502	30-Jan-07	9115	-0.001644286	2		0.0000020596208	0.00000270	0.00000064	0.0000000000000415
503	31-Jan-07	9090	-0.0027465	1		0.0000064745990	0.00000754	0.00000107	0.0000000000001142
<i>Mean return</i>		-0.000202	<b>TOTAL</b>			0.0029223531798		<b>MEAN SQUARE</b>	0.000000234729135
			<b>EWMA VARIANCE</b>			0.0000289909228		<b>RMSE</b>	0.000484488528950
			<b>EWMA VOLATILITY</b>			0.005384			

## Lampiran 24 Perhitungan Variance EWMA Data Return EURO

No	Period	EURO	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	11838			0.99				
2	3-Jan-05	12582	0.06092356	502		0.0000251453204	0.00371168	0.00368653	0.000013590537916
3	4-Jan-05	12489	-0.00738340	501		0.0000003717383	0.00005451	0.00005414	0.000000002931456
4	5-Jan-05	12341	-0.01195695	500		0.0000009858351	0.00014297	0.00014198	0.0000000020159125
5	6-Jan-05	12310	-0.00249970	499		0.0000000432069	0.00000625	0.00000621	0.000000000038506
6	7-Jan-05	12266	-0.00355462	498		0.0000000884840	0.00001264	0.00001255	0.000000000157424
7	10-Jan-05	12149	-0.00964783	497		0.0000006610215	0.00009308	0.00009242	0.000000008541384
8	11-Jan-05	12182	0.00270447	496		0.0000000530264	0.00000731	0.00000726	0.000000000052724
9	12-Jan-05	12146	-0.00291768	495		0.0000000613392	0.00000851	0.00000845	0.000000000071428
10	13-Jan-05	12119	-0.00226256	494		0.0000000371716	0.00000512	0.00000508	0.000000000025827
11	14-Jan-05	12064	-0.00448831	493		0.0000001484802	0.00002014	0.00002000	0.000000000399857
12	17-Jan-05	11991	-0.00605678	492		0.0000002734543	0.00003668	0.00003641	0.000000001325770
13	18-Jan-05	11905	-0.00722617	491		0.0000003933785	0.00005222	0.00005182	0.000000002685748
14	19-Jan-05	11915	0.00079976	490		0.0000000050211	0.00000064	0.00000063	0.000000000000403
15	20-Jan-05	11904	-0.00087620	489		0.0000000057668	0.00000077	0.00000076	0.000000000000581
16	24-Jan-05	11929	0.00208490	488		0.0000000342148	0.00000435	0.00000431	0.000000000018599
17	25-Jan-05	11896	-0.00279541	487		0.0000000609598	0.00000781	0.00000775	0.000000000060114
18	26-Jan-05	11884	-0.00101853	486		0.0000000080585	0.00000104	0.00000103	0.000000000001060
19	27-Jan-05	11933	0.00413621	485		0.0000001380097	0.00001711	0.00001697	0.000000000287988
20	28-Jan-05	11913	-0.00168458	484		0.0000000226880	0.00000284	0.00000282	0.000000000007925
21	31-Jan-05	11937	0.00199460	483		0.0000000329318	0.00000398	0.00000395	0.000000000015567
22	1-Feb-05	11957	0.00168415	482		0.0000000237629	0.00000284	0.00000281	0.000000000007911
23	2-Feb-05	12067	0.00914702	481		0.0000007003017	0.00008367	0.00008297	0.000000006883626
24	3-Feb-05	11981	-0.00713261	480		0.0000004276628	0.00005087	0.00005045	0.000000002544841
25	4-Feb-05	11933	-0.00396124	479		0.0000001328897	0.00001569	0.00001556	0.000000000242067
26	16-Feb-05	12048	0.00952506	478		0.0000007823640	0.00009073	0.00008994	0.000000008089999

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485	5-Jan-07	11780	-0.003960166	19		0.0000130318217	0.00001568	0.00000265	0.000000000007028
486	8-Jan-07	11737	-0.00370536	18		0.0000115185528	0.00001373	0.00000221	0.000000000004889
487	9-Jan-07	11749	0.001022322	17		0.0000009108611	0.00000105	0.00000013	0.000000000000018
488	10-Jan-07	11740	-0.000796564	16		0.0000005309748	0.00000063	0.00000010	0.000000000000011
489	11-Jan-07	11733	-0.000566197	15		0.0000002677898	0.00000032	0.00000005	0.000000000000003
490	12-Jan-07	11785	0.004406076	14		0.0000171412234	0.00001941	0.00000227	0.0000000000005163
491	15-Jan-07	11782	-0.000263512	13		0.0000000564348	0.00000007	0.00000001	0.000000000000000
492	16-Jan-07	11771	-0.000899265	12		0.0000007065700	0.00000081	0.00000010	0.000000000000010
493	17-Jan-07	11731	-0.003383513	11		0.0000102926966	0.00001145	0.00000116	0.000000000001335
494	18-Jan-07	11784	0.004484768	10		0.0000184798441	0.00002011	0.00000163	0.000000000002668
495	19-Jan-07	11796	0.001063169	9		0.0000010659941	0.00000113	0.00000006	0.000000000000004
496	22-Jan-07	11768	-0.002423144	8		0.0000054248322	0.00000587	0.00000045	0.000000000000200
497	23-Jan-07	11782	0.001231827	7		0.0000014556498	0.00000152	0.00000006	0.000000000000004
498	24-Jan-07	11830	0.004059663	6		0.0000157669082	0.00001648	0.00000071	0.0000000000000510
499	25-Jan-07	11777	-0.00449133	5		0.0000192859395	0.00002017	0.00000089	0.0000000000000785
500	26-Jan-07	11779	0.000169803	4		0.0000000318346	0.00000003	0.00000000	0.000000000000000
501	29-Jan-07	11778	-9.59351E-05	3		0.0000000070204	0.00000001	0.00000000	0.000000000000000
502	30-Jan-07	11819	0.003458454	2		0.0000119198108	0.00001196	0.00000004	0.000000000000002
503	31-Jan-07	11771	-0.004054221	1		0.0000163451477	0.00001644	0.00000009	0.000000000000008
	<i>Mean return</i>	-0.000011	<b>TOTAL</b>			0.0037646755241	<b>MEAN SQUARE</b>		0.000000049131927
			<b>EWMA VARIANCE</b>			0.0000373471004	<b>RMSE</b>		0.000221657227725
			<b>EWMA VOLATILITY</b>			0.006111			

## Lampiran 25 Perhitungan Variance EWMA Data Return JPY

No	Period	JPY	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	84.38			0.99				
2	3-Jan-05	90.82	0.07348121	502		0.0000368073959	0.00539949	0.00536268	0.000028758345236
3	4-Jan-05	90.29	-0.00576386	501		0.0000002085499	0.00003322	0.00003301	0.000000001089891
4	5-Jan-05	89.09	-0.01342209	500		0.0000012000948	0.00018015	0.00017895	0.000000032023987
5	6-Jan-05	89.10	0.00013581	499		0.0000000009965	0.00000002	0.00000002	0.000000000000000
6	7-Jan-05	88.73	-0.00415437	498		0.0000001078706	0.00001726	0.00001715	0.000000000294155
7	10-Jan-05	88.77	0.00045688	497		0.0000000034778	0.00000021	0.00000021	0.000000000000042
8	11-Jan-05	89.14	0.00413229	496		0.0000001375748	0.00001708	0.00001694	0.000000000286903
9	12-Jan-05	89.53	0.00430463	495		0.0000001501179	0.00001853	0.00001838	0.000000000337813
10	13-Jan-05	89.21	-0.00356787	494		0.0000000811241	0.00001273	0.00001265	0.000000000159987
11	14-Jan-05	89.08	-0.00147798	493		0.0000000113149	0.00000218	0.00000217	0.000000000004722
12	17-Jan-05	89.57	0.00557796	492		0.0000002534423	0.00003111	0.00003086	0.000000000952351
13	18-Jan-05	89.24	-0.00375365	491		0.0000000931864	0.00001409	0.00001400	0.000000000195908
14	19-Jan-05	89.30	0.00072756	490		0.0000000071767	0.00000053	0.00000052	0.0000000000000273
15	20-Jan-05	89.21	-0.00100831	489		0.0000000045259	0.00000102	0.00000101	0.000000000001024
16	24-Jan-05	88.98	-0.00259659	488		0.0000000431654	0.00000674	0.00000670	0.000000000044878
17	25-Jan-05	88.90	-0.00090171	487		0.0000000034218	0.00000081	0.00000081	0.0000000000000656
18	26-Jan-05	88.18	-0.00818622	486		0.0000005012969	0.00006701	0.00006651	0.000000004423961
19	27-Jan-05	88.39	0.00238439	485		0.0000000553460	0.00000569	0.00000563	0.0000000000031697
20	28-Jan-05	88.65	0.00290850	484		0.0000000804361	0.00000846	0.00000838	0.000000000070207
21	31-Jan-05	88.44	-0.00226439	483		0.0000000334719	0.00000513	0.00000509	0.0000000000025949
22	1-Feb-05	88.45	0.00005823	482		0.0000000007456	0.00000000	0.00000000	0.000000000000000
23	2-Feb-05	89.06	0.00684314	481		0.0000004191434	0.00004683	0.00004641	0.000000002153838
24	3-Feb-05	88.44	-0.00693755	480		0.0000003780443	0.00004813	0.00004775	0.000000002280213
25	4-Feb-05	88.13	-0.00354137	479		0.0000000927149	0.00001254	0.00001245	0.000000000154968
26	16-Feb-05	88.45	0.00364709	478		0.0000001301249	0.00001330	0.00001317	0.000000000173478



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485	5-Jan-07	75.97	0.009644455	19		0.0000816868079	0.00009302	0.00001133	0.000000000128339
486	8-Jan-07	76.30	0.004287693	18		0.0000173200290	0.00001838	0.00000106	0.000000000001133
487	9-Jan-07	75.83	-0.006170386	17		0.0000299626413	0.00003807	0.00000811	0.000000000065789
488	10-Jan-07	75.88	0.000698024	16		0.0000007610652	0.00000049	-0.00000027	0.000000000000075
489	11-Jan-07	75.72	-0.002189301	15		0.0000032976403	0.00000479	0.00000150	0.000000000002236
490	12-Jan-07	75.72	9.70666E-05	14		0.0000001010502	0.00000001	-0.00000009	0.000000000000008
491	15-Jan-07	75.81	0.001167363	13		0.0000017625787	0.00000136	-0.00000040	0.000000000000160
492	16-Jan-07	75.56	-0.003339417	12		0.0000085969165	0.00001115	0.00000255	0.000000000006527
493	17-Jan-07	75.14	-0.005607233	11		0.0000260532666	0.00003144	0.00000539	0.000000000029028
494	18-Jan-07	75.46	0.004223942	10		0.0000182337731	0.00001784	-0.00000039	0.000000000000154
495	19-Jan-07	74.87	-0.007802429	9		0.0000527767048	0.00006088	0.00000810	0.000000000065629
496	22-Jan-07	74.76	-0.001487021	8		0.0000014453548	0.00000221	0.00000077	0.000000000000587
497	23-Jan-07	74.81	0.000641862	7		0.0000007360171	0.00000041	-0.00000032	0.000000000000105
498	24-Jan-07	74.65	-0.002087561	6		0.0000032401131	0.00000436	0.00000112	0.000000000001249
499	25-Jan-07	75.35	0.009337996	5		0.0000881901676	0.00008720	-0.00000099	0.000000000000984
500	26-Jan-07	75.13	-0.002947908	4		0.0000071056593	0.00000869	0.00000158	0.000000000002511
501	29-Jan-07	74.97	-0.002139946	3		0.0000035307119	0.00000458	0.00000105	0.000000000001100
502	30-Jan-07	74.94	-0.00036889	2		0.0000000159164	0.00000014	0.00000012	0.000000000000014
503	31-Jan-07	74.73	-0.002867036	1		0.0000068902919	0.00000822	0.00000133	0.000000000001768
<b>Mean return</b>		-0.000242	<b>TOTAL</b>			0.0037939505696	<b>MEAN SQUARE</b>		0.000000104464327
			<b>EWMA VARIANCE</b>			0.0000376375207	<b>RMSE</b>		0.000323209416559
			<b>EWMA VOLATILITY</b>			0.006135			

## Lampiran 26 Perhitungan Variance EWMA Data Return AUD

No	Period	AUD	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	7412			0.99				
2	3-Jan-05	7266	-0.01993772	502		0.0000026627950	0.00039751	0.00039485	0.000000155906541
3	4-Jan-05	7204	-0.00862233	501		0.0000004958014	0.00007434	0.00007385	0.000000005453651
4	5-Jan-05	7117	-0.01208064	500		0.0000009902164	0.00014594	0.00014495	0.000000021010965
5	6-Jan-05	7094	-0.00321294	499		0.0000000672494	0.00001032	0.00001026	0.000000000105181
6	7-Jan-05	7088	-0.00084823	498		0.000000038567	0.00000072	0.00000072	0.000000000000512
7	10-Jan-05	7035	-0.00752875	497		0.0000003919356	0.00005668	0.00005629	0.000000003168586
8	11-Jan-05	7051	0.00220934	496		0.0000000386247	0.00000488	0.00000484	0.000000000023450
9	12-Jan-05	7044	-0.00095995	495		0.0000000052647	0.00000092	0.00000092	0.000000000000840
10	13-Jan-05	7015	-0.00413127	494		0.0000001186916	0.00001707	0.00001695	0.000000000287259
11	14-Jan-05	6972	-0.00608350	493		0.0000002644681	0.00003701	0.00003674	0.000000001350159
12	17-Jan-05	6953	-0.00282157	492		0.0000000550749	0.00000796	0.00000791	0.000000000062508
13	18-Jan-05	6873	-0.01156445	491		0.0000009917863	0.00013374	0.00013274	0.000000017621170
14	19-Jan-05	6919	0.00668605	490		0.0000003523737	0.00004470	0.00004435	0.000000001967006
15	20-Jan-05	6964	0.00644780	489		0.0000003313819	0.00004157	0.00004124	0.000000001700963
16	24-Jan-05	7043	0.01141584	488		0.0000010341279	0.00013032	0.00012929	0.000000016715179
17	25-Jan-05	7040	-0.00043099	487		0.0000000008180	0.00000019	0.00000018	0.000000000000034
18	26-Jan-05	7016	-0.00349380	486		0.0000000910340	0.00001221	0.00001212	0.000000000146788
19	27-Jan-05	7085	0.00980935	485		0.0000007891639	0.00009622	0.00009543	0.000000009107698
20	28-Jan-05	7104	0.00273020	484		0.0000000652972	0.00000745	0.00000739	0.000000000054592
21	31-Jan-05	7093	-0.00155588	483		0.0000000171462	0.00000242	0.00000240	0.000000000005777
22	1-Feb-05	7101	0.00114267	482		0.0000000129402	0.00000131	0.00000129	0.0000000000001671
23	2-Feb-05	7148	0.00654337	481		0.0000003694349	0.00004282	0.00004245	0.000000001801684
24	3-Feb-05	7140	-0.00108969	480		0.0000000081191	0.00000119	0.00000118	0.0000000000001391
25	4-Feb-05	7078	-0.00879800	479		0.0000006431385	0.00007740	0.00007676	0.000000005892355
26	16-Feb-05	7268	0.02658760	478		0.0000061310906	0.00070690	0.00070077	0.0000000491077617

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485	5-Jan-07	7051	-0.00827707	19		0.0000557642977	0.00006851	0.00001275	0.000000000162450
486	8-Jan-07	7040	-0.001444194	18		0.0000015059792	0.00000209	0.00000058	0.000000000000336
487	9-Jan-07	7051	0.001471142	17		0.0000021272974	0.00000216	0.00000004	0.000000000000001
488	10-Jan-07	7065	0.001966655	16		0.0000037080410	0.00000387	0.00000016	0.000000000000026
489	11-Jan-07	7079	0.001964208	15		0.0000037363659	0.00000386	0.00000012	0.000000000000015
490	12-Jan-07	7122	0.006158858	14		0.0000345046514	0.00003793	0.00000343	0.000000000011743
491	15-Jan-07	7158	0.005053041	13		0.0000236372376	0.00002553	0.00000190	0.0000000000003595
492	16-Jan-07	7128	-0.004246737	12		0.0000153463844	0.00001803	0.00000269	0.000000000007227
493	17-Jan-07	7107	-0.002944858	11		0.0000072816441	0.00000867	0.00000139	0.000000000001934
494	18-Jan-07	7174	0.00935457	10		0.0000818640541	0.00008751	0.00000564	0.000000000031854
495	19-Jan-07	7167	-0.000974155	9		0.0000006919435	0.00000095	0.00000026	0.000000000000066
496	22-Jan-07	7168	0.00011441	8		0.000000463308	0.00000001	-0.00000003	0.000000000000001
497	23-Jan-07	7180	0.001704128	7		0.0000030947715	0.00000290	-0.00000019	0.000000000000036
498	24-Jan-07	7119	-0.008478894	6		0.0000666567992	0.00007189	0.00000523	0.000000000027404
499	25-Jan-07	7084	-0.004941783	5		0.0000224475244	0.00002442	0.00000197	0.0000000000003895
500	26-Jan-07	7057	-0.003781763	4		0.0000130954090	0.00001430	0.00000121	0.000000000001455
501	29-Jan-07	7055	-0.000294769	3		0.0000000340184	0.00000009	0.00000005	0.000000000000003
502	30-Jan-07	7052	-0.000480603	2		0.0000001371017	0.00000023	0.00000009	0.000000000000009
503	31-Jan-07	7019	-0.004625721	1		0.0000204054661	0.00002140	0.00000099	0.0000000000000984
	<i>Mean return</i>	-0.000108		<b>TOTAL</b>		0.0043220194025		<b>MEAN SQUARE</b>	0.000000033447780
				<i>EWMA VARIANCE</i>		0.0000428761766		<i>RMSE</i>	0.000182887343083
				<i>EWMA VOLATILITY</i>		0.006548			

## Lampiran 27 Perhitungan Variance EWMA Data Return SGD

No	Period	SGD	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	5947.81			0.99				
2	3-Jan-05	5696.8	-0.04311847	502		0.0000125841309	0.00185920	0.00184662	0.000003409999519
3	4-Jan-05	5663.175	-0.00591992	501		0.0000002387915	0.00003505	0.00003481	0.00000001211508
4	5-Jan-05	5651.475	-0.00206812	500		0.0000000292247	0.00000428	0.00000425	0.00000000018044
5	6-Jan-05	5636.975	-0.00256900	499		0.0000000456449	0.00000660	0.00000655	0.00000000042956
6	7-Jan-05	5650.445	0.00238673	498		0.0000000405300	0.00000570	0.00000566	0.00000000031990
7	10-Jan-05	5640.225	-0.00181034	497		0.0000000230371	0.00000328	0.00000325	0.00000000010591
8	11-Jan-05	5653.8	0.00240393	496		0.0000000419414	0.00000578	0.00000574	0.000000000032912
9	12-Jan-05	5645.355	-0.00149480	495		0.0000000159799	0.00000223	0.00000222	0.00000000004922
10	13-Jan-05	5602.96	-0.00753805	494		0.0000004155016	0.00005682	0.00005641	0.000000003181722
11	14-Jan-05	5607	0.00072079	493		0.0000000039710	0.00000052	0.00000052	0.000000000000266
12	17-Jan-05	5595.765	-0.00200576	492		0.0000000297609	0.00000402	0.00000399	0.00000000015946
13	18-Jan-05	5581.405	-0.00256952	491		0.0000000494550	0.00000660	0.00000655	0.00000000042942
14	19-Jan-05	5598.845	0.00311979	490		0.0000000748329	0.00000973	0.00000966	0.00000000093282
15	20-Jan-05	5600.46	0.00028841	489		0.0000000006928	0.00000008	0.00000008	0.000000000000007
16	24-Jan-05	5598.21	-0.00040183	488		0.0000000011872	0.00000016	0.00000016	0.000000000000026
17	25-Jan-05	5593.41	-0.00085778	487		0.0000000056344	0.00000074	0.00000073	0.0000000000000533
18	26-Jan-05	5588.565	-0.00086657	486		0.0000000058096	0.00000075	0.00000075	0.0000000000000555
19	27-Jan-05	5592.65	0.00073069	485		0.0000000044178	0.00000053	0.00000053	0.0000000000000280
20	28-Jan-05	5598.845	0.00110709	484		0.0000000101368	0.00000123	0.00000122	0.000000000001477
21	31-Jan-05	5590.895	-0.00142094	483		0.0000000162620	0.00000202	0.00000200	0.0000000000004011
22	1-Feb-05	5593.895	0.00053644	482		0.0000000024807	0.00000029	0.00000029	0.0000000000000081
23	2-Feb-05	5638.59	0.00795821	481		0.0000005303019	0.00006333	0.00006280	0.000000003944192
24	3-Feb-05	5619.445	-0.00340113	480		0.0000000968998	0.00001157	0.00001147	0.000000000131579
25	4-Feb-05	5622.155	0.00048214	479		0.0000000020744	0.00000023	0.00000023	0.0000000000000053
26	16-Feb-05	5646.095	0.00424911	478		0.0000001561561	0.00001805	0.00001790	0.000000000320367

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485	5-Jan-07	5864.825	0.000888742	19		0.0000006770923	0.00000079	0.00000011	0.000000000000013
486	8-Jan-07	5862	-0.000481801	18		0.0000001868091	0.00000023	0.00000005	0.000000000000002
487	9-Jan-07	5872.445	0.00178023	17		0.0000027365292	0.00000317	0.00000043	0.000000000000187
488	10-Jan-07	5891.395	0.00322174	16		0.0000090009970	0.00001038	0.00000138	0.000000000001901
489	11-Jan-07	5887.455	-0.000668996	15		0.0000003761394	0.00000045	0.00000007	0.000000000000005
490	12-Jan-07	5905.805	0.003111195	14		0.0000085692383	0.00000968	0.00000111	0.000000000001243
491	15-Jan-07	5907.07	0.000214173	13		0.0000000451307	0.00000005	0.00000000	0.000000000000000
492	16-Jan-07	5909.515	0.000413825	12		0.0000001620066	0.00000017	0.00000001	0.000000000000000
493	17-Jan-07	5900.945	-0.001451256	11		0.0000018765575	0.00000211	0.00000023	0.000000000000053
494	18-Jan-07	5917.865	0.002863234	10		0.0000075541384	0.00000820	0.00000064	0.000000000000415
495	19-Jan-07	5912.895	-0.000840183	9		0.0000006342806	0.00000071	0.00000007	0.000000000000005
496	22-Jan-07	5901.03	-0.002008647	8		0.0000037202377	0.00000403	0.00000031	0.000000000000099
497	23-Jan-07	5912.825	0.001996809	7		0.0000037985878	0.00000399	0.00000019	0.000000000000036
498	24-Jan-07	5913.695	0.000147127	6		0.0000000238975	0.00000002	0.00000000	0.000000000000000
499	25-Jan-07	5917.72	0.000680392	5		0.0000004598166	0.00000046	0.00000000	0.000000000000000
500	26-Jan-07	5920.86	0.000530469	4		0.0000002849306	0.00000028	0.00000000	0.000000000000000
501	29-Jan-07	5935.615	0.002488937	3		0.00000061280771	0.00000619	0.00000007	0.000000000000004
502	30-Jan-07	5927.04	-0.001445714	2		0.0000020369531	0.00000209	0.00000005	0.000000000000003
503	31-Jan-07	5913.98	-0.002205892	1		0.0000048159589	0.00000487	0.00000005	0.000000000000003
		<i>Mean return</i>	-0.000011	<b>TOTAL</b>		0.0020562550207		<b>MEAN SQUARE</b>	0.00000027518452
				<b>EWMA</b>		0.0000203988796		<b>RMSE</b>	0.000165886866540
				<b>VOLATILITY</b>		0.004517			

## Lampiran 28 Perhitungan Variance EWMA Data Return GBP

No	Period	GBP	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	17318.39			0.99				
2	3-Jan-05	17808.5	0.02790693	502		0.0000052520189	0.00077880	0.00077354	0.000000598371328
3	4-Jan-05	17676.4	-0.00744574	501		0.0000003851861	0.00005544	0.00005505	0.000000003030924
4	5-Jan-05	17518.29	-0.00898494	500		0.0000005650077	0.00008073	0.00008016	0.000000006426292
5	6-Jan-05	17491.98	-0.00150299	499		0.0000000170138	0.00000226	0.00000224	0.000000000005026
6	7-Jan-05	17461.58	-0.00173945	498		0.0000000227829	0.00000303	0.00000300	0.000000000009017
7	10-Jan-05	17394.76	-0.00383374	497		0.0000001078396	0.00001470	0.00001459	0.000000000212860
8	11-Jan-05	17434	0.00225302	496		0.0000000346241	0.00000508	0.00000504	0.000000000025417
9	12-Jan-05	17391.92	-0.00241631	495		0.0000000444757	0.00000584	0.00000579	0.000000000033571
10	13-Jan-05	17277.37	-0.00660847	494		0.0000003260044	0.00004367	0.00004335	0.000000001878861
11	14-Jan-05	17193.91	-0.00484230	493		0.0000001779230	0.00002345	0.00002327	0.000000000541492
12	17-Jan-05	17119.54	-0.00433446	492		0.0000001443917	0.00001879	0.00001864	0.000000000347567
13	18-Jan-05	16972.06	-0.00865233	491		0.0000005734234	0.00007486	0.00007429	0.000000005518922
14	19-Jan-05	17070.21	0.00576638	490		0.0000002486742	0.00003325	0.00003300	0.000000001089161
15	20-Jan-05	17129.86	0.00348859	489		0.0000000907029	0.00001217	0.00001208	0.000000000145916
16	24-Jan-05	17149.96	0.00117241	488		0.0000000096612	0.00000137	0.00000136	0.000000000001863
17	25-Jan-05	17164	0.00081862	487		0.0000000045438	0.00000067	0.00000067	0.0000000000000443
18	26-Jan-05	17087.3	-0.00447896	486		0.0000001635434	0.00002006	0.00001990	0.000000000395913
19	27-Jan-05	17183.41	0.00560918	485		0.0000002471855	0.00003146	0.00003122	0.000000000974420
20	28-Jan-05	17264.51	0.00470857	484		0.0000001752178	0.00002217	0.00002200	0.000000000483796
21	31-Jan-05	17273.43	0.00051653	483		0.0000000017169	0.00000027	0.00000027	0.000000000000070
22	1-Feb-05	17282.6	0.00053044	482		0.0000000018411	0.00000028	0.00000028	0.000000000000078
23	2-Feb-05	17393.52	0.00639780	481		0.0000003355312	0.00004093	0.00004060	0.000000001648058
24	3-Feb-05	17332.03	-0.00354149	480		0.0000001092923	0.00001254	0.00001243	0.000000000154576
25	4-Feb-05	17316.55	-0.00089354	479		0.0000000077204	0.00000080	0.00000079	0.0000000000000625
26	16-Feb-05	17536.33	0.01261204	478		0.0000013557319	0.00015906	0.00015771	0.000000024871736

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485	5-Jan-07	17473.4	-0.003053696	19		0.0000080947001	0.00000933	0.00000123	0.000000000001514
486	8-Jan-07	17408.19	-0.003739227	18		0.0000121742819	0.00001398	0.00000181	0.000000000003267
487	9-Jan-07	17503.63	0.005467504	17		0.0000249432814	0.00002989	0.00000495	0.0000000000024506
488	10-Jan-07	17537.54	0.001935724	16		0.0000030344192	0.00000375	0.00000071	0.0000000000000508
489	11-Jan-07	17511.98	-0.001458508	15		0.0000020015551	0.00000213	0.00000013	0.0000000000000016
490	12-Jan-07	17771.33	0.014701266	14		0.0001883461100	0.00021613	0.00002778	0.000000000771791
491	15-Jan-07	17850.24	0.004430189	13		0.0000169565021	0.00001963	0.00000267	0.0000000000007129
492	16-Jan-07	17880.5	0.00169406	12		0.0000023971478	0.00000287	0.00000047	0.0000000000000223
493	17-Jan-07	17804.65	-0.004251355	11		0.0000168124134	0.00001807	0.00000126	0.000000000001592
494	18-Jan-07	17944.59	0.00782902	10		0.0000551987381	0.00006129	0.00000609	0.00000000037147
495	19-Jan-07	17949.34	0.000264669	9		0.0000000392402	0.00000007	0.00000003	0.0000000000000001
496	22-Jan-07	17918.32	-0.001729693	8		0.0000029821405	0.00000299	0.00000001	0.0000000000000000
497	23-Jan-07	18011.18	0.005169302	7		0.0000246034362	0.00002672	0.00000212	0.0000000000004487
498	24-Jan-07	17995.33	-0.000880674	6		0.0000008391882	0.00000078	-0.00000006	0.0000000000000004
499	25-Jan-07	17877.57	-0.006565427	5		0.0000421612881	0.00004310	0.00000094	0.0000000000000890
500	26-Jan-07	17914.29	0.002052144	4		0.0000038574261	0.00000421	0.00000035	0.0000000000000125
501	29-Jan-07	17875.3	-0.002179126	3		0.0000049082005	0.00000475	-0.00000016	0.0000000000000025
502	30-Jan-07	17898.8	0.0013138	2		0.0000015601020	0.00000173	0.00000017	0.0000000000000028
503	31-Jan-07	17834.68	-0.003588516	1		0.0000133008536	0.00001288	-0.00000042	0.0000000000000179
	<i>Mean return</i>	0.000059		<b>TOTAL</b>		0.0032824108506		<b>MEAN SQUARE</b>	0.000000009588174
				<b>EWMA VARIANCE</b>		0.0000325628402		<b>RMSE</b>	0.000097919219832
				<b>EWMA VOLATILITY</b>		0.005706			

## Lampiran 29 Perhitungan Variance EWMA Data Return HKD

No	Period	HKD	Return	Time	DF	Projected Variance	Actual Variance = Return ^2	Error	Error Square
1	1-Jan-05	1297.28			0,99				
2	3-Jan-05	1196.53	-0.08084406	502		0.0000440256251	0.00653576	0.00649174	0.000042142649328
3	4-Jan-05	1191.74	-0.00401128	501		0.000000985608	0.00001609	0.00001599	0.000000000255737
4	5-Jan-05	1194.895	0.00264389	500		0.0000000564767	0.00000699	0.00000693	0.000000000048076
5	6-Jan-05	1191.535	-0.00281592	499		0.0000000471925	0.00000793	0.00000788	0.0000000000062130
6	7-Jan-05	1194.205	0.00223830	498		0.0000000424277	0.00000501	0.00000497	0.0000000000024677
7	10-Jan-05	1192.6	-0.00134489	497		0.0000000090829	0.00000181	0.00000180	0.000000000003239
8	11-Jan-05	1190.805	-0.00150625	496		0.0000000119820	0.00000227	0.00000226	0.000000000005093
9	12-Jan-05	1188.5	-0.00193754	495		0.0000000215390	0.00000375	0.00000373	0.000000000013932
10	13-Jan-05	1173.67	-0.01255642	494		0.0000011170535	0.00015766	0.00015655	0.000000024506818
11	14-Jan-05	1175.3	0.00138784	493		0.0000000190386	0.00000193	0.00000191	0.000000000003637
12	17-Jan-05	1173.04	-0.00192476	492		0.0000000218649	0.00000370	0.00000368	0.000000000013563
13	18-Jan-05	1173.37	0.00028128	491		0.0000000018635	0.00000008	0.00000008	0.0000000000000006
14	19-Jan-05	1172.67	-0.00059675	490		0.0000000011107	0.00000036	0.00000036	0.0000000000000126
15	20-Jan-05	1173.63	0.00081831	489		0.0000000082361	0.00000067	0.00000066	0.0000000000000437
16	24-Jan-05	1173.225	-0.00034514	488		0.0000000001313	0.00000012	0.00000012	0.0000000000000014
17	25-Jan-05	1171.3	-0.00164212	487		0.0000000160110	0.00000270	0.00000268	0.0000000000007185
18	26-Jan-05	1173.19	0.00161229	486		0.0000000265313	0.00000260	0.00000257	0.0000000000006620
19	27-Jan-05	1171.17	-0.00172329	485		0.0000000182445	0.00000297	0.00000295	0.0000000000008711
20	28-Jan-05	1172.77	0.00136522	484		0.0000000202423	0.00000186	0.00000184	0.0000000000003399
21	31-Jan-05	1175.075	0.00196350	483		0.0000000388532	0.00000386	0.00000382	0.000000000014566
22	1-Feb-05	1175.17	0.00008084	482		0.0000000007249	0.00000001	0.00000001	0.0000000000000000
23	2-Feb-05	1183.11	0.00673375	481		0.0000004031834	0.00004534	0.00004494	0.00000002019618
24	3-Feb-05	1179.52	-0.00303899	480		0.0000000672386	0.00000924	0.00000917	0.0000000000084056
25	4-Feb-05	1180.235	0.00060600	479		0.0000000057452	0.00000037	0.00000036	0.0000000000000131
26	16-Feb-05	1187.5	0.00613669	478		0.0000003471049	0.00003766	0.00003731	0.000000001392171

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485	5-Jan-07	1156.13	0.002684961	19		0.0000070296505	0.00000721	0.00000018	0.000000000000032
486	8-Jan-07	1158.68	0.002203205	18		0.0000049372288	0.00000485	-0.00000008	0.000000000000007
487	9-Jan-07	1156.3	-0.002056174	17		0.0000028891730	0.00000423	0.00000134	0.000000000001792
488	10-Jan-07	1161.825	0.004766793	16		0.0000213734135	0.00002272	0.00000135	0.000000000001820
489	11-Jan-07	1161.94	9.89773E-05	15		0.0000000858986	0.00000001	-0.00000008	0.000000000000006
490	12-Jan-07	1171.29	0.008014684	14		0.0000594988479	0.00006424	0.00000474	0.00000000022433
491	15-Jan-07	1168.465	-0.002414784	13		0.0000042922595	0.00000583	0.00000154	0.000000000002368
492	16-Jan-07	1167.475	-0.000847625	12		0.0000003583125	0.00000072	0.00000036	0.000000000000130
493	17-Jan-07	1163.585	-0.003337541	11		0.0000088234001	0.00001114	0.00000232	0.000000000005363
494	18-Jan-07	1165.045	0.001253956	10		0.0000019734293	0.00000157	-0.00000040	0.000000000000161
495	19-Jan-07	1163.44	-0.001378579	9		0.0000012494948	0.00000190	0.00000065	0.000000000000424
496	22-Jan-07	1161.56	-0.001617205	8		0.0000018328736	0.00000262	0.00000078	0.000000000000612
497	23-Jan-07	1167.27	0.00490376	7		0.0000246831028	0.00002405	-0.00000064	0.000000000000405
498	24-Jan-07	1163.865	-0.002921326	6		0.0000069665363	0.00000853	0.00000157	0.000000000002457
499	25-Jan-07	1164.03	0.000141759	5		0.0000001225015	0.00000002	-0.00000010	0.000000000000010
500	26-Jan-07	1167.55	0.003019414	4		0.0000101550025	0.00000912	-0.00000104	0.000000000001078
501	29-Jan-07	1168.945	0.001194096	3		0.0000019471606	0.00000143	-0.00000052	0.000000000000272
502	30-Jan-07	1167.085	-0.001592446	2		0.0000018777369	0.00000254	0.00000066	0.000000000000433
503	31-Jan-07	1164.385	-0.002316136	1		0.0000044135459	0.00000536	0.00000095	0.000000000000904
		<i>Mean return</i>	-0.000215	<b>TOTAL</b>		0.0134860285194		<b>MEAN SQUARE</b>	0.000001703156316
				<b>EWMA VARIANCE</b>		0.0001337868451		<b>RMSE</b>	0.001305050311692
				<b>EWMA VOLATILITY</b>		0.011567			

## Lampiran 30 Kupiec Test VaR Dari Volatilitas EWMA Data Return USD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	223,711,154	(20,723,564)	20,723,564	202,987,591	0	Not overshoot
2	4-Jan-06	222,622,874	(109,499,136)	109,499,136	113,123,738	0	Not overshoot
3	5-Jan-06	222,253,860	(20,991,726)	20,991,726	201,262,134	0	Not overshoot
4	6-Jan-06	221,171,527	(57,952,353)	57,952,353	163,219,174	0	Not overshoot
5	9-Jan-06	220,269,703	(143,667,059)	143,667,059	76,602,645	0	Not overshoot
6	11-Jan-06	220,441,789	42,780,654	PROFIT	220,441,789	0	Not overshoot
7	12-Jan-06	219,481,496	(123,484,185)	123,484,185	95,997,312	0	Not overshoot
8	13-Jan-06	219,315,501	5,400,266	PROFIT	219,315,501	0	Not overshoot
9	16-Jan-06	218,230,407	(21,618,345)	21,618,345	196,612,062	0	Not overshoot
10	17-Jan-06	217,165,558	107,633,707	PROFIT	217,165,558	0	Not overshoot
11	18-Jan-06	216,889,213	26,730,835	PROFIT	216,889,213	0	Not overshoot
12	19-Jan-06	215,868,673	(16,030,043)	16,030,043	199,838,631	0	Not overshoot
13	20-Jan-06	214,806,285	(102,116,421)	102,116,421	112,689,864	0	Not overshoot
14	23-Jan-06	214,378,624	32,358,538	PROFIT	214,378,624	0	Not overshoot
15	24-Jan-06	213,397,801	26,886,783	PROFIT	213,397,801	0	Not overshoot
16	25-Jan-06	212,397,290	26,815,673	PROFIT	212,397,290	0	Not overshoot
17	26-Jan-06	211,400,957	(118,523,135)	118,523,135	92,877,822	0	Not overshoot
18	27-Jan-06	211,233,608	16,244,062	PROFIT	211,233,608	0	Not overshoot
19	30-Jan-06	210,209,920	27,015,737	PROFIT	210,209,920	0	Not overshoot
20	1-Feb-06	209,227,521	(81,264,127)	81,264,127	127,963,394	0	Not overshoot
21	2-Feb-06	208,593,044	16,305,016	PROFIT	208,593,044	0	Not overshoot
22	3-Feb-06	207,583,398	(27,189,611)	27,189,611	180,393,787	0	Not overshoot
23	6-Feb-06	206,588,069	(32,724,074)	32,724,074	173,863,996	0	Not overshoot
24	7-Feb-06	205,616,977	(65,766,717)	65,766,717	139,850,260	0	Not overshoot
25	8-Feb-06	204,853,818	10,990,787	PROFIT	204,853,818	0	Not overshoot
26	9-Feb-06	203,851,579	(5,493,904)	5,493,904	198,357,675	0	Not overshoot

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255	17-Jan-07	96,159,367	(27,877,389)	27,877,389	68,281,977	0	Not overshoot
256	18-Jan-07	95,780,575	16,735,630	PROFIT	95,780,575	0	Not overshoot
257	19-Jan-07	95,355,484	(11,154,017)	11,154,017	84,201,468	0	Not overshoot
258	22-Jan-07	94,894,086	(16,754,066)	16,754,066	78,140,020	0	Not overshoot
259	23-Jan-07	94,454,999	39,049,842	PROFIT	94,454,999	0	Not overshoot
260	24-Jan-07	94,235,661	(27,877,389)	27,877,389	66,358,272	0	Not overshoot
261	25-Jan-07	93,868,660	5,581,613	PROFIT	93,868,660	0	Not overshoot
262	26-Jan-07	93,410,279	33,425,305	PROFIT	93,410,279	0	Not overshoot
263	29-Jan-07	93,133,494	16,671,421	PROFIT	93,133,494	0	Not overshoot
264	30-Jan-07	92,721,669	(16,671,421)	16,671,421	76,050,249	0	Not overshoot
265	31-Jan-07	92,294,723	(27,846,763)	27,846,763	64,447,960	0	Not overshoot

Jumlah data	265
Jumlah failure (V)	1
Alfa	5%
Loglikelihood Ratio (LR)	19.91864267
Critical Value (Chi-square)	3.841459149

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR > CV, maka menolak  $H_0$ . Berarti model VaR tidak valid.**

### Lampiran 31 Kupiec Test VaR Dari Volatilitas EWMA Data Return EURO

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	16,776,469	(89,744)	89,743.90	16,686,725	0	Not overshoot
2	4-Jan-06	16,710,966	7,792,835	PROFIT	16,710,966	0	Not overshoot
3	5-Jan-06	16,669,545	1,561,864	PROFIT	16,669,545	0	Not overshoot
4	6-Jan-06	16,588,656	(10,016,211)	10,016,210.86	6,572,446	0	Not overshoot
5	9-Jan-06	16,568,676	(13,063,414)	13,063,413.59	3,505,262	0	Not overshoot
6	11-Jan-06	16,592,486	(3,393,395)	3,393,394.76	13,199,091	0	Not overshoot
7	12-Jan-06	16,516,007	(7,964,614)	7,964,614.02	8,551,393	0	Not overshoot
8	13-Jan-06	16,471,512	(11,099,907)	11,099,906.58	5,371,606	0	Not overshoot
9	16-Jan-06	16,464,107	8,972,828	PROFIT	16,464,107	0	Not overshoot
10	17-Jan-06	16,440,483	10,010,594	PROFIT	16,440,483	0	Not overshoot
11	18-Jan-06	16,429,691	3,156,941	PROFIT	16,429,691	0	Not overshoot
12	19-Jan-06	16,356,001	(2,380,292)	2,380,292.28	13,975,709	0	Not overshoot
13	20-Jan-06	16,277,450	(16,624,774)	16,624,774.13	(347,325)	1	Overshoot
14	23-Jan-06	16,371,090	23,889,948	PROFIT	16,371,090	0	Not overshoot
15	24-Jan-06	16,674,212	8,667,216	PROFIT	16,674,212	0	Not overshoot
16	25-Jan-06	16,642,858	1,240,679	PROFIT	16,642,858	0	Not overshoot
17	26-Jan-06	16,561,470	(17,476,606)	17,476,605.72	(915,135)	1	Overshoot
18	27-Jan-06	16,671,796	(4,505,322)	4,505,321.73	12,166,474	0	Not overshoot
19	30-Jan-06	16,600,194	(8,469,816)	8,469,816.31	8,130,378	0	Not overshoot
20	1-Feb-06	16,560,393	(4,406,670)	4,406,670.14	12,153,723	0	Not overshoot
21	2-Feb-06	16,488,484	(6,876,485)	6,876,484.66	9,612,000	0	Not overshoot
22	3-Feb-06	16,433,674	(1,197,589)	1,197,589.40	15,236,085	0	Not overshoot
23	6-Feb-06	16,352,290	(11,697,086)	11,697,086.34	4,655,203	0	Not overshoot
24	7-Feb-06	16,353,844	(17,279,884)	17,279,883.71	(926,040)	1	Overshoot
25	8-Feb-06	16,456,123	3,095,121	PROFIT	16,456,123	0	Not overshoot
26	9-Feb-06	16,383,351	(1,464,090)	1,464,089.80	14,919,261	0	Not overshoot

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255	17-Jan-07	13,127,052	(4,730,152)	4,730,151.71	8,396,900	0	Not overshoot
256	18-Jan-07	13,080,184	6,269,706	PROFIT	13,080,184	0	Not overshoot
257	19-Jan-07	13,047,694	1,486,310	PROFIT	13,047,694	0	Not overshoot
258	22-Jan-07	12,984,620	(3,387,555)	3,387,555.11	9,597,065	0	Not overshoot
259	23-Jan-07	12,929,665	1,722,094	PROFIT	12,929,665	0	Not overshoot
260	24-Jan-07	12,867,844	5,675,409	PROFIT	12,867,844	0	Not overshoot
261	25-Jan-07	12,830,786	(6,278,880)	6,278,879.63	6,551,906	0	Not overshoot
262	26-Jan-07	12,800,396	237,384	PROFIT	12,800,396	0	Not overshoot
263	29-Jan-07	12,736,791	(134,117)	134,117.23	12,602,674	0	Not overshoot
264	30-Jan-07	12,673,473	4,834,918	PROFIT	12,673,473	0	Not overshoot
265	31-Jan-07	12,630,314	(5,667,801)	5,667,801.17	6,962,513	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 6  
 Alfa 5%

Loglikelihood Ratio (LR) 5.199955594  
 Critical Value (Chi-square) 12.59158724

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR < CV, maka tidak menolak  $H_0$ . Berarti model VaR valid.**

### Lampiran 32 Kupiec Test VaR Dari Volatilitas EWMA Data Return JPY

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	11,588,735	132,440	PROFIT	11,588,735	0	Not overshoot
2	4-Jan-06	11,546,174	2,107,632	PROFIT	11,546,174	0	Not overshoot
3	5-Jan-06	11,494,965	(4,110,299)	4,110,299	7,384,666	0	Not overshoot
4	6-Jan-06	11,457,576	(3,411,920)	3,411,920	8,045,655	0	Not overshoot
5	9-Jan-06	11,413,888	3,251,485	PROFIT	11,413,888	0	Not overshoot
6	11-Jan-06	11,371,723	(724,594)	724,594	10,647,129	0	Not overshoot
7	12-Jan-06	11,315,590	(5,061,367)	5,061,367	6,254,223	0	Not overshoot
8	13-Jan-06	11,289,775	(2,281,629)	2,281,629	9,008,146	0	Not overshoot
9	16-Jan-06	11,239,221	1,136,718	PROFIT	11,239,221	0	Not overshoot
10	17-Jan-06	11,185,555	1,950,778	PROFIT	11,185,555	0	Not overshoot
11	18-Jan-06	11,135,721	(1,853,786)	1,853,786	9,281,934	0	Not overshoot
12	19-Jan-06	11,083,987	906,778	PROFIT	11,083,987	0	Not overshoot
13	20-Jan-06	11,030,369	(8,481,338)	8,481,338	2,549,031	0	Not overshoot
14	23-Jan-06	11,064,644	6,537,127	PROFIT	11,064,644	0	Not overshoot
15	24-Jan-06	11,068,433	2,666,053	PROFIT	11,068,433	0	Not overshoot
16	25-Jan-06	11,023,809	(316,148)	316,148	10,707,662	0	Not overshoot
17	26-Jan-06	10,969,013	(10,781,703)	10,781,703	187,310	0	Not overshoot
18	27-Jan-06	11,060,479	(2,776,444)	2,776,444	8,284,034	0	Not overshoot
19	30-Jan-06	11,013,862	(4,080,275)	4,080,275	6,933,588	0	Not overshoot
20	1-Feb-06	10,978,178	(4,596,431)	4,596,431	6,381,748	0	Not overshoot
21	2-Feb-06	10,947,959	(4,496,667)	4,496,667	6,451,293	0	Not overshoot
22	3-Feb-06	10,916,551	(2,602,064)	2,602,064	8,314,487	0	Not overshoot
23	6-Feb-06	10,869,071	(3,547,953)	3,547,953	7,321,118	0	Not overshoot
24	7-Feb-06	10,828,596	(6,488,644)	6,488,644	4,339,952	0	Not overshoot
25	8-Feb-06	10,824,340	6,543,896	PROFIT	10,824,340	0	Not overshoot
26	9-Feb-06	10,833,698	(3,182,638)	3,182,638	7,651,060	0	Not overshoot

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255	17-Jan-07	6,902,491	(3,616,666)	3,616,666	3,285,826	0	Not overshoot
256	18-Jan-07	6,892,788	2,724,443	PROFIT	6,892,788	0	Not overshoot
257	19-Jan-07	6,876,046	(5,032,567)	5,032,567	1,843,479	0	Not overshoot
258	22-Jan-07	6,890,924	(959,128)	959,128	5,931,796	0	Not overshoot
259	23-Jan-07	6,857,891	414,001	PROFIT	6,857,891	0	Not overshoot
260	24-Jan-07	6,824,552	(1,346,477)	1,346,477	5,478,076	0	Not overshoot
261	25-Jan-07	6,793,429	6,023,008	PROFIT	6,793,429	0	Not overshoot
262	26-Jan-07	6,840,638	(1,901,401)	1,901,401	4,939,237	0	Not overshoot
263	29-Jan-07	6,812,899	(1,380,265)	1,380,265	5,432,633	0	Not overshoot
264	30-Jan-07	6,782,070	(237,934)	237,934	6,544,136	0	Not overshoot
265	31-Jan-07	6,748,351	(1,849,238)	1,849,238	4,899,113	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 2  
 Alfa 5%

Loglikelihood Ratio (LR) 15.43200382  
 Critical Value (Chi-square) 5.991464547

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR > CV, maka menolak  $H_0$ . Berarti model VaR tidak valid.**

### Lampiran 33 Kupiec Test VaR Dari Volatilitas EWMA Data Return AUD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	1,169,233	58,434	PROFIT	1,169,233	0	Not overshoot
2	4-Jan-06	1,163,489	(86,830)	86,830	1,076,660	0	Not overshoot
3	5-Jan-06	1,157,767	314,381	PROFIT	1,157,767	0	Not overshoot
4	6-Jan-06	1,153,411	(495,430)	495,430	657,981	0	Not overshoot
5	9-Jan-06	1,150,652	(353,879)	353,879	796,773	0	Not overshoot
6	11-Jan-06	1,146,390	(70,101)	70,101	1,076,289	0	Not overshoot
7	12-Jan-06	1,140,722	(307,364)	307,364	833,359	0	Not overshoot
8	13-Jan-06	1,136,125	(465,531)	465,531	670,594	0	Not overshoot
9	16-Jan-06	1,133,046	343,706	PROFIT	1,133,046	0	Not overshoot
10	17-Jan-06	1,129,185	547,895	PROFIT	1,129,185	0	Not overshoot
11	18-Jan-06	1,127,829	(191,491)	191,491	936,338	0	Not overshoot
12	19-Jan-06	1,122,616	(461,710)	461,710	660,905	0	Not overshoot
13	20-Jan-06	1,119,618	(520,242)	520,242	599,376	0	Not overshoot
14	23-Jan-06	1,117,335	728,335	PROFIT	1,117,335	0	Not overshoot
15	24-Jan-06	1,119,296	34,316	PROFIT	1,119,296	0	Not overshoot
16	25-Jan-06	1,113,769	157,738	PROFIT	1,113,769	0	Not overshoot
17	26-Jan-06	1,108,651	(590,980)	590,980	517,670	0	Not overshoot
18	27-Jan-06	1,107,514	(95,786)	95,786	1,011,728	0	Not overshoot
19	30-Jan-06	1,102,078	48,737	PROFIT	1,102,078	0	Not overshoot
20	1-Feb-06	1,096,666	102,340	PROFIT	1,096,666	0	Not overshoot
21	2-Feb-06	1,091,422	(424,784)	424,784	666,637	0	Not overshoot
22	3-Feb-06	1,088,205	(74,248)	74,248	1,013,957	0	Not overshoot
23	6-Feb-06	1,082,828	(794,806)	794,806	288,021	0	Not overshoot
24	7-Feb-06	1,085,555	(1,071,800)	1,071,800	13,754	0	Not overshoot
25	8-Feb-06	1,094,929	9,612	PROFIT	1,094,929	0	Not overshoot
26	9-Feb-06	1,089,509	(206,733)	206,733	882,777	0	Not overshoot

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255	17-Jan-07	851,922	(214,975)	214,975	636,947	0	Not overshoot
256	18-Jan-07	848,476	682,884	PROFIT	848,476	0	Not overshoot
257	19-Jan-07	852,471	(71,113)	71,113	781,358	0	Not overshoot
258	22-Jan-07	848,319	8,352	PROFIT	848,319	0	Not overshoot
259	23-Jan-07	844,102	124,401	PROFIT	844,102	0	Not overshoot
260	24-Jan-07	840,181	(618,959)	618,959	221,222	0	Not overshoot
261	25-Jan-07	842,753	(360,750)	360,750	482,003	0	Not overshoot
262	26-Jan-07	840,823	(276,069)	276,069	564,755	0	Not overshoot
263	29-Jan-07	837,951	(21,518)	21,518	816,433	0	Not overshoot
264	30-Jan-07	833,789	(35,084)	35,084	798,705	0	Not overshoot
265	31-Jan-07	829,659	(337,678)	337,678	491,982	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 5  
 Alfa 5%

Loglikelihood Ratio (LR) 7.021855297  
 Critical Value (Chi-square) 11.07049775

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model VaR valid.**

#### Lampiran 34 Kupiec Test VaR Dari Volatilitas EWMA Data Return SGD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	672,121	36,417	PROFIT	672,121	0	Not overshoot
2	4-Jan-06	668,808	(272,007)	272,007	396,801	0	Not overshoot
3	5-Jan-06	666,913	(91,960)	91,960	574,953	0	Not overshoot
4	6-Jan-06	663,751	(370,201)	370,201	293,550	0	Not overshoot
5	9-Jan-06	663,093	(387,424)	387,424	275,669	0	Not overshoot
6	11-Jan-06	662,657	214,078	PROFIT	662,657	0	Not overshoot
7	12-Jan-06	660,346	(259,539)	259,539	400,808	0	Not overshoot
8	13-Jan-06	658,322	(222,044)	222,044	436,278	0	Not overshoot
9	16-Jan-06	655,950	100,742	PROFIT	655,950	0	Not overshoot
10	17-Jan-06	652,936	323,844	PROFIT	652,936	0	Not overshoot
11	18-Jan-06	651,920	134,752	PROFIT	651,920	0	Not overshoot
12	19-Jan-06	649,086	2,346	PROFIT	649,086	0	Not overshoot
13	20-Jan-06	645,860	(652,960)	652,960	(7,099)	1	Overshoot
14	23-Jan-06	651,074	537,567	PROFIT	651,074	0	Not overshoot
15	24-Jan-06	653,864	173,701	PROFIT	653,864	0	Not overshoot
16	25-Jan-06	651,268	153,247	PROFIT	651,268	0	Not overshoot
17	26-Jan-06	648,541	(631,364)	631,364	17,177	0	Not overshoot
18	27-Jan-06	653,199	(15,032)	15,032	638,168	0	Not overshoot
19	30-Jan-06	649,952	1,408	PROFIT	649,952	0	Not overshoot
20	1-Feb-06	646,722	(241,384)	241,384	405,338	0	Not overshoot
21	2-Feb-06	644,600	(174,242)	174,242	470,358	0	Not overshoot
22	3-Feb-06	641,940	(261,026)	261,026	380,914	0	Not overshoot
23	6-Feb-06	640,019	(42,490)	42,490	597,529	0	Not overshoot
24	7-Feb-06	636,854	(442,011)	442,011	194,843	0	Not overshoot
25	8-Feb-06	637,463	125,076	PROFIT	637,463	0	Not overshoot
26	9-Feb-06	634,701	(106,151)	106,151	528,550	0	Not overshoot

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255	17-Jan-07	446,806	(84,173)	84,173	362,633	0	Not overshoot
256	18-Jan-07	444,798	166,068	PROFIT	444,798	0	Not overshoot
257	19-Jan-07	443,393	(48,731)	48,731	394,662	0	Not overshoot
258	22-Jan-07	441,262	(116,502)	116,502	324,761	0	Not overshoot
259	23-Jan-07	439,480	115,815	PROFIT	439,480	0	Not overshoot
260	24-Jan-07	437,691	8,533	PROFIT	437,691	0	Not overshoot
261	25-Jan-07	435,516	39,463	PROFIT	435,516	0	Not overshoot
262	26-Jan-07	433,395	30,767	PROFIT	433,395	0	Not overshoot
263	29-Jan-07	431,266	144,358	PROFIT	431,266	0	Not overshoot
264	30-Jan-07	429,745	(83,851)	83,851	345,894	0	Not overshoot
265	31-Jan-07	427,833	(127,942)	127,942	299,891	0	Not overshoot

Jumlah data	265
Jumlah failure (V)	3
Alfa	5%
Loglikelihood Ratio (LR)	11.99946583
Critical Value (Chi-square)	7.814727764

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR > CV, maka menolak  $H_0$ . Berarti model VaR tidak valid.**

### Lampiran 35 Kupiec Test VaR Dari Volatilitas EWMA Data Return GBP

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	133,186	(3,324)	3,324	129,862	0	Not overshoot
2	4-Jan-06	132,523	44,342	PROFIT	132,523	0	Not overshoot
3	5-Jan-06	132,055	11,055	PROFIT	132,055	0	Not overshoot
4	6-Jan-06	131,414	(92,161)	92,161	39,253	0	Not overshoot
5	9-Jan-06	131,454	(57,351)	57,351	74,102	0	Not overshoot
6	11-Jan-06	131,054	(1,294)	1,294	129,761	0	Not overshoot
7	12-Jan-06	130,403	(121,342)	121,342	9,061	0	Not overshoot
8	13-Jan-06	130,960	(29,673)	29,673	101,287	0	Not overshoot
9	16-Jan-06	130,365	83,652	PROFIT	130,365	0	Not overshoot
10	17-Jan-06	130,388	51,501	PROFIT	130,388	0	Not overshoot
11	18-Jan-06	130,004	22,763	PROFIT	130,004	0	Not overshoot
12	19-Jan-06	129,416	(39,362)	39,362	90,054	0	Not overshoot
13	20-Jan-06	128,888	(158,067)	158,067	(29,180)	1	Overshoot
14	23-Jan-06	130,338	217,039	PROFIT	130,338	0	Not overshoot
15	24-Jan-06	133,888	56,078	PROFIT	133,888	0	Not overshoot
16	25-Jan-06	133,516	11,559	PROFIT	133,516	0	Not overshoot
17	26-Jan-06	132,869	(119,430)	119,430	13,439	0	Not overshoot
18	27-Jan-06	133,373	(24,851)	24,851	108,523	0	Not overshoot
19	30-Jan-06	132,750	(40,124)	40,124	92,626	0	Not overshoot
20	1-Feb-06	132,206	(26,462)	26,462	105,744	0	Not overshoot
21	2-Feb-06	131,594	(7,001)	7,001	124,592	0	Not overshoot
22	3-Feb-06	130,940	(163)	163	130,777	0	Not overshoot
23	6-Feb-06	130,290	(154,948)	154,948	(24,658)	1	Overshoot
24	7-Feb-06	131,622	(178,989)	178,989	(47,367)	1	Overshoot
25	8-Feb-06	133,566	(4,532)	4,532	129,034	0	Not overshoot
26	9-Feb-06	132,902	(14,390)	14,390	118,512	0	Not overshoot

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255	17-Jan-07	106,684	(51,016)	51,016	55,667	0	Not overshoot
256	18-Jan-07	106,446	93,948	PROFIT	106,446	0	Not overshoot
257	19-Jan-07	106,832	3,176	PROFIT	106,832	0	Not overshoot
258	22-Jan-07	106,301	(20,756)	20,756	85,544	0	Not overshoot
259	23-Jan-07	105,825	62,032	PROFIT	105,825	0	Not overshoot
260	24-Jan-07	105,692	(10,568)	10,568	95,124	0	Not overshoot
261	25-Jan-07	105,183	(78,785)	78,785	26,398	0	Not overshoot
262	26-Jan-07	105,358	24,626	PROFIT	105,358	0	Not overshoot
263	29-Jan-07	104,893	(26,150)	26,150	78,743	0	Not overshoot
264	30-Jan-07	104,454	15,766	PROFIT	104,454	0	Not overshoot
265	31-Jan-07	103,957	(43,062)	43,062	60,895	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 7  
 Alfa 5%

Loglikelihood Ratio (LR) 3.720671867  
 Critical Value (Chi-square) 14.06714043

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR < CV, maka tidak menolak  $H_0$ . Berarti model VaR valid.**

### Lampiran 36 Kupiec Test VaR Dari Volatilitas EWMA Data Return HKD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	103,679	(7,908)	7,908	95,770	0	Not overshoot
2	4-Jan-06	103,173	(43,272)	43,272	59,901	0	Not overshoot
3	5-Jan-06	102,989	(8,476)	8,476	94,513	0	Not overshoot
4	6-Jan-06	102,488	(22,886)	22,886	79,602	0	Not overshoot
5	9-Jan-06	102,066	(55,908)	55,908	46,158	0	Not overshoot
6	11-Jan-06	102,105	17,450	PROFIT	102,105	0	Not overshoot
7	12-Jan-06	101,662	(48,598)	48,598	53,063	0	Not overshoot
8	13-Jan-06	101,565	2,015	PROFIT	101,565	0	Not overshoot
9	16-Jan-06	101,062	297,420	PROFIT	101,062	0	Not overshoot
10	17-Jan-06	115,794	(264,797)	264,797	(149,004)	1	Overshoot
11	18-Jan-06	125,982	10,467	PROFIT	125,982	0	Not overshoot
12	19-Jan-06	125,376	(6,113)	6,113	119,263	0	Not overshoot
13	20-Jan-06	124,756	(41,238)	41,238	83,518	0	Not overshoot
14	23-Jan-06	124,374	13,299	PROFIT	124,374	0	Not overshoot
15	24-Jan-06	123,788	10,167	PROFIT	123,788	0	Not overshoot
16	25-Jan-06	123,192	10,142	PROFIT	123,192	0	Not overshoot
17	26-Jan-06	122,599	(46,869)	46,869	75,731	0	Not overshoot
18	27-Jan-06	122,305	6,843	PROFIT	122,305	0	Not overshoot
19	30-Jan-06	121,707	9,821	PROFIT	121,707	0	Not overshoot
20	1-Feb-06	121,121	(32,632)	32,632	88,489	0	Not overshoot
21	2-Feb-06	120,668	6,837	PROFIT	120,668	0	Not overshoot
22	3-Feb-06	120,079	(10,568)	10,568	109,511	0	Not overshoot
23	6-Feb-06	119,495	(13,471)	13,471	106,024	0	Not overshoot
24	7-Feb-06	118,922	(26,271)	26,271	92,652	0	Not overshoot
25	8-Feb-06	118,426	3,869	PROFIT	118,426	0	Not overshoot
26	9-Feb-06	117,842	(3,398)	3,398	114,444	0	Not overshoot

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255	17-Jan-07	94,338	(13,350)	13,350	80,987	0	Not overshoot
256	18-Jan-07	93,900	5,016	PROFIT	93,900	0	Not overshoot
257	19-Jan-07	93,439	(5,514)	5,514	87,925	0	Not overshoot
258	22-Jan-07	92,979	(6,469)	6,469	86,510	0	Not overshoot
259	23-Jan-07	92,523	19,615	PROFIT	92,523	0	Not overshoot
260	24-Jan-07	92,147	(11,685)	11,685	80,462	0	Not overshoot
261	25-Jan-07	91,713	567	PROFIT	91,713	0	Not overshoot
262	26-Jan-07	91,257	12,078	PROFIT	91,257	0	Not overshoot
263	29-Jan-07	90,837	4,776	PROFIT	90,837	0	Not overshoot
264	30-Jan-07	90,392	(6,370)	6,370	84,022	0	Not overshoot
265	31-Jan-07	89,949	(9,265)	9,265	80,685	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 2  
 Alfa 5%

Loglikelihood Ratio (LR) 15.43200382  
 Critical Value (Chi-square) 5.991464547

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

**Karena LR > CV, maka menolak  $H_0$ . Berarti model VaR tidak valid.**

### Lampiran 37 Rangkuman Model ARCH/GARCH Untuk Data Return USD

Model	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Varian Equation	Akaike Info Criterion	Schwarz Criterion
ARCH(1)	8.95010%	7.90760%	0.000019	semua koefisien independent variabel menolak $H_0$	-7.883566	-7.829679
ARCH(2)	7.83210%	6.41960%	0.000268	ada koefisien independent variabel tidak menolak $H_0$	-7.900853	-7.833494
GARCH(1,1)	7.76250%	6.34890%	0.000293	semua koefisien independent variabel menolak $H_0$	-7.939501	-7.872142
ARCH-M Standar Deviasi (1,1)	14.47080%	12.82600%	0.000000	semua koefisien independent variabel menolak $H_0$	-7.691689	-7.610859
ARCH-M Variance (1,1)	16.66670%	15.06420%	0.000000	semua koefisien independent variabel menolak $H_0$	-7.689924	-7.609094
TARCH(1,1)	7.52500%	5.74660%	0.001026	semua koefisien independent variabel menolak $H_0$	-7.947738	-7.866907
TARCH(1,1) Regressor	9.3841%	7.2849%	0.000251	semua koefisien independent variabel menolak $H_0$	-7.957472	-7.863169
GARCH(1,1) Regressor	7.69790%	5.92280%	0.000829	ada koefisien independent variabel tidak menolak $H_0$	-7.932033	-7.851202
GARCH(1,2)	8.40330%	6.64180%	0.000345	ada koefisien independent variabel tidak menolak $H_0$	-7.955054	-7.874223
GARCH(2,1)	8.99280%	7.24260%	0.000163	semua koefisien independent variabel menolak $H_0$	-7.952781	-7.871951
GARCH(2,2)	7.49160%	5.34860%	0.002426	ada koefisien independent variabel tidak menolak $H_0$	-7.951505	-7.857203
ARCH-M Variance (2,1)	18.75720%	16.87510%	0.000000	semua koefisien independent variabel menolak $H_0$	-7.729325	-7.635023
ARCH-M Variance (2,1) Regressor	19.93220%	17.75980%	0.000000	semua koefisien independent variabel menolak $H_0$	-7.838713	-7.730939

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## Lampiran 38 Korelogram Residu ARCH-M Variance(2,1) Data Return USD

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.156	0.156	6.5868	0.010
		2	-0.040	-0.066	7.0117	0.030
		3	0.029	0.047	7.2430	0.065
		4	0.054	0.040	8.0266	0.091
		5	-0.050	-0.064	8.7132	0.121
		6	-0.098	-0.078	11.372	0.078
		7	0.006	0.027	11.381	0.123
		8	-0.056	-0.072	12.233	0.141
		9	0.000	0.036	12.233	0.200
		10	0.047	0.043	12.861	0.232
		11	0.059	0.040	13.818	0.243
		12	0.035	0.024	14.158	0.291
		13	0.010	-0.001	14.184	0.361
		14	0.046	0.031	14.790	0.393
		15	-0.036	-0.048	15.156	0.440
		16	0.025	0.050	15.328	0.501
		17	-0.080	-0.094	17.150	0.444
		18	-0.066	-0.028	18.398	0.430
		19	-0.023	-0.007	18.552	0.486
		20	-0.044	-0.043	19.116	0.514
		21	-0.026	-0.013	19.316	0.565
		22	-0.043	-0.034	19.852	0.592
		23	-0.024	-0.042	20.017	0.641
		24	0.058	0.070	20.994	0.639
		25	0.027	-0.008	21.211	0.681
		26	-0.013	-0.018	21.258	0.729
		27	0.006	0.016	21.267	0.774
		28	-0.045	-0.069	21.877	0.787
		29	-0.085	-0.057	24.074	0.725
		30	-0.087	-0.063	25.364	0.656
		31	-0.076	-0.052	26.100	0.616
		32	-0.035	-0.009	26.476	0.646
		33	-0.107	-0.095	31.956	0.519
		34	-0.075	-0.059	33.672	0.484
		35	0.026	0.016	33.886	0.522
		36	0.064	0.037	35.175	0.508

## Lampiran 39 Tes Stasionaritas Residu ARCH-M Variance(2,1) Data Return USD

EViews - [Series: RESID01 Workfile: USD DATA TEST]

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**Augmented Dickey-Fuller Test**

Null Hypothesis: RESID01 has a unit root  
Exogenous: None  
Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-15.60125	0.0000
Test critical values:		
1% level	-2.573718	
5% level	-1.942026	
10% level	-1.615900	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/15/08 Time: 23:47  
Sample(adjusted): 3 267  
Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.790891	0.050694	-15.60125	0.0000

R-squared	0.479233	Mean dependent var	-0.000214
Adjusted R-squared	0.479233	S.D. dependent var	0.007151
S.E. of regression	0.005161	Akaike info criterion	-7.691718
Sum squared resid	0.007031	Schwarz criterion	-7.678210
Log likelihood	1020.153	Durbin-Watson stat	1.978064

## Lampiran 40 Rangkuman Model ARCH/GARCH Untuk Data Return EURO

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
ARCH(1)	-0.59760%	-1.74860%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.483921	-7.430034
ARCH(2)	-2.41170%	-2.41170%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.47719	-7.409831
GARCH(1,1)	-0.98050%	-2.52810%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.477545	-7.410186
ARCH-M Standar Deviasi (1,1)	0.24950%	-1.66880%	0.985435	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.471894	-7.391063
ARCH-M Variance (1,1)	-3.86480%	-5.86220%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.483537	-7.402706
TARCH(1,1)	-1.63150%	-3.58600%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.498432	-7.417602
TARCH(1,1) Regressor	-1.5948%	-3.9483%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.497017	-7.402714
GARCH(1,1) Regressor	-5.80300%	-7.83760%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.511755	-7.430925
GARCH(1,2)	-0.59270%	-2.52720%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.482713	-7.401883
GARCH(2,1)	-0.44940%	-2.38110%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.469285	-7.388454
GARCH(2,2)	-0.21760%	-2.53920%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.479183	-7.384881
GARCH(3,3)	0.0474%	-3.0640%	0.999999	semua koefisien independent variabel menolak H <sub>0</sub>	-7.497013	-7.375767
ARCH-M Standar Deviasi (2,1)	0.36190%	-1.94630%	0.987570	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.467552	-7.373249
ARCH-M Variance (2,1)	0.38640%	-1.92130%	0.985217	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.465563	-7.371261
ARCH-M Standar Deviasi (2,2)	0.19450%	-2.51340%	0.999419	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.509054	-7.40128
EGARCH (1,1)	0.25390%	-1.66430%	0.984843	semua koefisien independent variabel menolak H <sub>0</sub>	-7.506309	-7.425479

## Lampiran 41 Korelogram Residu EGARCH(1,1) Data Return EURO

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.039	0.039	0.4087	0.523
		2 -0.070	-0.072	1.7504	0.417
		3 -0.009	-0.004	1.7746	0.620
		4 -0.045	-0.050	2.3352	0.674
		5 0.028	0.031	2.5465	0.769
		6 0.078	0.069	4.2167	0.647
		7 0.081	0.080	6.0208	0.537
		8 -0.080	-0.079	7.7880	0.454
		9 -0.015	0.006	7.8517	0.549
		10 0.002	-0.002	7.8533	0.643
		11 0.041	0.044	8.3136	0.685
		12 0.054	0.034	9.1324	0.692
		13 0.087	0.085	11.280	0.587
		14 -0.100	-0.100	14.105	0.442
		15 -0.028	0.010	14.321	0.501
		16 0.045	0.028	14.906	0.532
		17 -0.030	-0.035	15.161	0.584
		18 0.044	0.026	15.713	0.613
		19 0.079	0.069	17.501	0.556
		20 0.002	0.009	17.503	0.620
		21 0.000	0.036	17.503	0.680
		22 -0.068	-0.088	18.841	0.655
		23 0.000	0.007	18.841	0.710
		24 -0.028	-0.048	19.079	0.748
		25 -0.018	-0.029	19.173	0.789
		26 0.064	0.051	20.402	0.772
		27 -0.035	-0.017	20.771	0.797
		28 -0.048	-0.048	21.475	0.805
		29 -0.023	-0.017	21.639	0.835
		30 -0.091	-0.101	24.146	0.765
		31 0.046	0.042	24.782	0.777
		32 0.040	0.005	25.280	0.795
		33 -0.082	-0.069	27.328	0.745
		34 -0.067	-0.048	28.699	0.725
		35 -0.034	-0.009	29.048	0.750
		36 0.019	0.011	29.157	0.784

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Lampiran 42 Tes Stasionaritas Residu *EGARCH(1,1)* Data *Return* EURO

EViews - [Series: RESID01 Workfile: EURO DATA TEST]

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**Augmented Dic**

Null Hypothesis: RESID01 has a unit root  
Exogenous: None  
Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-16.20956	0.0000
Test critical values:		
1% level	-2.573718	
5% level	-1.942026	
10% level	-1.615900	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/15/08 Time: 23:54  
Sample(adjusted): 3 267  
Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.996804	0.061495	-16.20956	0.0000

R-squared	0.498813	Mean dependent var	6.29E-06
Adjusted R-squared	0.498813	S.D. dependent var	0.008429
S.E. of regression	0.005967	Akaike info criterion	-7.401365
Sum squared resid	0.009400	Schwarz criterion	-7.387857
Log likelihood	981.6809	Durbin-Watson stat	1.998575

Lampiran 43 Rangkuman Model *ARCH/GARCH* Untuk Data *Return* JPY

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
<i>ARCH</i> (1)	3.79760%	2.69610%	0.017231	semua koefisien independent variabel menolak H <sub>0</sub>	-7.441875	-7.387988
<i>ARCH</i> (2)	3.67770%	2.20150%	0.043625	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.434565	-7.367206
<i>GARCH</i> (1,1)	3.70150%	2.22570%	0.042467	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.438674	-7.371315
<i>ARCH-M</i> Standar Deviasi (1,1)	4.57560%	2.74050%	0.031555	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.324245	-7.243414
<i>ARCH-M</i> Variance (1,1)	5.97300%	4.16480%	0.006551	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.325201	-7.24437
<i>TARCH</i> (1,1)	1.83770%	-0.05000%	0.434433	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.451038	-7.370207
<i>TARCH</i> (1,1) Regressor	1.7713%	-0.5043%	0.587522	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.449654	-7.355352
<i>GARCH</i> (1,1) Regressor	3.35530%	1.49670%	0.112118	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.439194	-7.358363
<i>GARCH</i> (1,2)	2.99950%	1.13410%	0.158263	semua koefisien independent variabel menolak H <sub>0</sub>	-7.465139	-7.384309
<i>GARCH</i> (2,1)	3.68410%	1.83180%	0.080635	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.440688	-7.359857
<i>GARCH</i> (2,2)	2.34550%	0.08320%	0.401772	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.455979	-7.361675
<i>GARCH</i> (3,3)	2.8459%	-0.1784%	0.483138	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.451119	-7.329873
<i>ARCH-M</i> Standar Deviasi (2,1)	4.86990%	2.66610%	0.042566	semua koefisien independent variabel menolak H <sub>0</sub>	-7.357184	-7.262881
<i>ARCH-M</i> Variance (2,1)	6.19690%	4.02390%	0.010469	semua koefisien independent variabel menolak H <sub>0</sub>	-7.341156	-7.246853
<i>ARCH-M</i> Standar Deviasi (2,2)	5.54840%	2.98570%	0.037718	semua koefisien independent variabel menolak H <sub>0</sub>	-7.343338	-7.235564
<i>EGARCH</i> (1,1)	16.09090%	14.14710%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.413535	-7.319233

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## Lampiran 44 Korelogram Residu ARCH-M Variance(2,1) Data Return JPY

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.154	0.154	6.3986	0.011	
2	-0.033	-0.059	6.6994	0.035	
3	0.026	0.041	6.8798	0.076	
4	0.043	0.031	7.3753	0.117	
5	0.102	0.096	10.215	0.069	
6	0.013	-0.017	10.262	0.114	
7	0.003	0.012	10.265	0.174	
8	-0.052	-0.064	11.005	0.201	
9	-0.069	-0.058	12.322	0.196	
10	0.084	0.093	14.301	0.160	
11	0.025	-0.006	14.480	0.208	
12	-0.022	-0.010	14.610	0.263	
13	0.059	0.077	15.577	0.273	
14	0.007	-0.011	15.591	0.339	
15	-0.023	-0.034	15.735	0.400	
16	0.005	0.009	15.743	0.471	
17	-0.072	-0.091	17.214	0.440	
18	0.020	0.041	17.324	0.501	
19	-0.077	-0.083	19.027	0.455	
20	-0.100	-0.076	21.929	0.344	
21	-0.053	-0.030	22.746	0.358	
22	-0.070	-0.037	24.177	0.338	
23	-0.020	-0.019	24.291	0.388	
24	-0.013	0.008	24.343	0.442	
25	0.040	0.065	24.808	0.473	
26	0.008	-0.011	24.826	0.529	
27	-0.074	-0.050	26.460	0.493	
28	-0.070	-0.075	27.927	0.468	
29	-0.030	-0.029	28.204	0.507	
30	-0.094	-0.091	30.854	0.423	
31	-0.022	0.005	31.004	0.466	
32	-0.074	-0.064	32.678	0.433	
33	-0.077	-0.015	34.474	0.397	
34	-0.060	-0.043	35.569	0.394	
35	-0.020	0.006	35.693	0.436	
36	0.071	0.053	37.238	0.412	

## Lampiran 45 Tes Stasionaritas Residu ARCH-M Variance(2,1) Data Return JPY

EViews - [Series: RESID01 Workfile: JPY DATA TEST]

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**Augmented L**

Null Hypothesis: RESID01 has a unit root  
 Exogenous: None  
 Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-13.42198	0.0000
Test critical values:		
1% level	-2.573718	
5% level	-1.942026	
10% level	-1.615900	

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

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RESID01)  
 Method: Least Squares  
 Date: 07/15/08 Time: 23:50  
 Sample(adjusted): 3 267  
 Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.758151	0.056486	-13.42198	0.0000

R-squared 0.405425 Mean dependent var -0.000134  
 Adjusted R-squared 0.405425 S.D. dependent var 0.007698  
 S.E. of regression 0.005936 Akaike info criterion -7.411858  
 Sum squared resid 0.009302 Schwarz criterion -7.398350  
 Log likelihood 983.0712 Durbin-Watson stat 1.980724



## Lampiran 46 Rangkuman Model ARCH/GARCH Untuk Data Return AUD

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
ARCH(1)	1.02950%	-0.10370%	0.437435	semua koefisien independent variabel menolak H <sub>0</sub>	-7.466941	-7.413054
ARCH(2)	1.34590%	-0.16600%	0.470276	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.464887	-7.397528
GARCH(1,1)	0.25790%	-1.27070%	0.954198	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.465881	-7.398522
ARCH-M Standar Deviasi (1,1)	-1.06420%	-3.00770%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.398136	-7.317306
ARCH-M Variance (1,1)	-1.39560%	-3.34550%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.400337	-7.319506
TARCH(1,1)	-0.33210%	-2.26160%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.472828	-7.391998
TARCH(1,1) Regressor	-0.6429%	-2.9744%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.476538	-7.382236
GARCH(1,1) Regressor	0.86780%	-1.03860%	0.809320	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.457959	-7.377129
GARCH(1,2)	1.04150%	-0.86160%	0.740343	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.457609	-7.376778
GARCH(2,1)	0.16880%	-1.75100%	0.994097	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.462958	-7.382127
GARCH(2,2)	-0.36890%	-2.69410%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.455907	-7.361605
GARCH(3,3)	1.3828%	-1.6870%	0.889659	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.441421	-7.320175
ARCH-M Standar Deviasi (2,1)	6.53590%	4.37070%	0.007196	semua koefisien independent variabel menolak H <sub>0</sub>	-7.413307	-7.319005
ARCH-M Variance (2,1)	<b>8.07760%</b>	<b>5.94810%</b>	<b>0.001220</b>	semua koefisien independent variabel menolak H <sub>0</sub>	<b>-7.400003</b>	<b>-7.305701</b>
ARCH-M Standar Deviasi (2,2)	5.15290%	2.57960%	0.055223	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.392033	-7.284258
EGARCH(1,1)	2.52470%	0.65010%	0.245013	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.434233	-7.353402

## Lampiran 47 Korelogram Residu ARCH-M Variance(2,1) Data Return AUD

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
█	█	1	0.117	0.117	3.7075	0.054
█	█	2	0.089	0.076	5.8259	0.054
█	█	3	0.003	-0.016	5.8286	0.120
█	█	4	-0.060	-0.067	6.8136	0.146
█	█	5	-0.021	-0.006	6.9362	0.225
█	█	6	0.003	0.017	6.9382	0.327
█	█	7	0.031	0.032	7.2056	0.408
█	█	8	-0.088	-0.103	9.3248	0.316
█	█	9	-0.004	0.010	9.3286	0.408
█	█	10	-0.007	0.011	9.3419	0.500
█	█	11	-0.042	-0.039	9.8381	0.545
█	█	12	-0.074	-0.080	11.368	0.498
█	█	13	0.029	0.051	11.603	0.560
█	█	14	0.033	0.042	11.911	0.613
█	█	15	0.035	0.022	12.254	0.660
█	█	16	0.040	0.005	12.703	0.694
█	█	17	-0.118	-0.130	16.717	0.474
█	█	18	0.021	0.061	16.849	0.533
█	█	19	-0.007	0.011	16.865	0.599
█	█	20	0.060	0.041	17.905	0.594
█	█	21	-0.006	-0.033	17.915	0.654
█	█	22	-0.059	-0.064	18.941	0.649
█	█	23	-0.033	-0.014	19.268	0.686
█	█	24	-0.058	-0.025	20.262	0.682
█	█	25	0.063	0.063	21.453	0.667
█	█	26	0.052	0.052	22.258	0.675
█	█	27	-0.021	-0.050	22.384	0.718
█	█	28	-0.041	-0.052	22.881	0.739
█	█	29	-0.027	-0.026	23.100	0.772
█	█	30	-0.060	-0.035	24.187	0.763
█	█	31	0.027	0.054	24.410	0.793
█	█	32	-0.001	-0.008	24.410	0.829
█	█	33	-0.081	-0.099	26.440	0.784
█	█	34	-0.028	-0.040	26.675	0.810
█	█	35	0.040	0.073	27.160	0.825
█	█	36	0.063	0.065	28.379	0.813

Lampiran 48 Tes Stasionaritas Residu *ARCH-M Variance(2,1)* Data Return AUD

EViews - [Series: RESID01 Workfile: AUD DATA TEST]

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**Augmented I**

Null Hypothesis: RESID01 has a unit root  
Exogenous: None  
Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-14.75447	0.0000
Test critical values:		
1% level	-2.573718	
5% level	-1.942026	
10% level	-1.615900	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/15/08 Time: 23:57  
Sample(adjusted): 3 267  
Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.864911	0.058620	-14.75447	0.0000

R-squared	0.451798	Mean dependent var	-0.000126
Adjusted R-squared	0.451798	S.D. dependent var	0.007968
S.E. of regression	0.005900	Akaike info criterion	-7.424128
Sum squared resid	0.009188	Schwarz criterion	-7.410620
Log likelihood	984.6970	Durbin-Watson stat	2.077436

Lampiran 49 Rangkuman Model *ARCH/GARCH* Untuk Data Return SGD

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
ARCH (1)	2.89710%	1.78520%	0.052235	semua koefisien independent variabel menolak H <sub>0</sub>	-8.152007	-8.098119
ARCH (2)	4.51750%	3.05420%	0.016542	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.162714	-8.095355
GARCH (1,1)	4.50340%	3.03980%	0.016820	semua koefisien independent variabel menolak H <sub>0</sub>	-8.171126	-8.103767
ARCH-M Standar Deviasi (1,1)	2.67530%	0.80360%	0.213968	semua koefisien independent variabel menolak H <sub>0</sub>	-8.140391	-8.059561
ARCH-M Variance (1,1)	2.97710%	1.11130%	0.161650	semua koefisien independent variabel menolak H <sub>0</sub>	-8.136811	-8.05598
TARCH (1,1)	3.92200%	2.07430%	0.063152	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.179212	-8.098381
TARCH (1,1) Regressor	3.9816%	1.7572%	0.101417	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.173232	-8.078930
GARCH (1,1) Regressor	4.34090%	2.50140%	0.040621	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.169614	-8.088783
GARCH (1,2)	4.36310%	2.52390%	0.039671	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.167206	-8.086375
GARCH (2,1)	4.46510%	2.62790%	0.035557	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.1664	-8.085569
GARCH (2,2)	4.11930%	1.89820%	0.089037	semua koefisien independent variabel menolak H <sub>0</sub>	-8.178156	-8.083853
GARCH (3,3)	4.1032%	1.1180%	0.207871	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.170344	-8.049098
ARCH-M Standar Deviasi (2,1)	3.06250%	0.81690%	0.229590	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.134259	-8.039956
ARCH-M Variance (2,1)	2.76300%	0.51040%	0.292893	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.131877	-8.037575
ARCH-M Standar Deviasi (2,2)	4.37210%	1.77760%	0.112847	semua koefisien independent variabel menolak H <sub>0</sub>	-8.18284	-8.075066
EGARCH (1,1)	1.69440%	-0.58300%	0.614670	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-8.13882	-8.044517

Lampiran 50 Korelogram Residu *GARCH(1,1)* Data Return SGD

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.025	0.025	0.1711	0.679
		2 -0.047	-0.047	0.7553	0.685
		3 0.018	0.020	0.8423	0.839
		4 -0.024	-0.027	1.0014	0.910
		5 0.027	0.030	1.1945	0.945
		6 0.040	0.036	1.6329	0.950
		7 0.032	0.034	1.9224	0.964
		8 -0.070	-0.070	3.2754	0.916
		9 -0.015	-0.008	3.3380	0.949
		10 0.056	0.051	4.2226	0.937
		11 0.043	0.042	4.7376	0.943
		12 0.037	0.033	5.1138	0.954
		13 0.088	0.090	7.3119	0.885
		14 -0.013	-0.009	7.3586	0.920
		15 -0.078	-0.067	9.0669	0.874
		16 0.062	0.054	10.171	0.858
		17 -0.045	-0.061	10.760	0.869
		18 0.014	0.021	10.813	0.902
		19 0.057	0.047	11.751	0.896
		20 -0.057	-0.053	12.699	0.890
		21 -0.043	-0.030	13.229	0.900
		22 -0.041	-0.048	13.730	0.911
		23 -0.064	-0.088	14.925	0.897
		24 0.030	0.029	15.194	0.915
		25 0.029	0.018	16.442	0.930
		26 0.017	0.016	15.533	0.947
		27 0.010	0.032	15.560	0.961
		28 -0.058	-0.046	16.569	0.957
		29 -0.028	-0.042	16.796	0.965
		30 -0.086	-0.094	19.056	0.939
		31 -0.034	-0.038	19.407	0.948
		32 -0.012	-0.028	19.451	0.960
		33 -0.141	-0.108	25.505	0.821
		34 -0.054	-0.034	26.409	0.820
		35 0.093	0.096	29.064	0.750
		36 0.052	0.066	29.901	0.753

Lampiran 51 Tes Stasionaritas Residu *GARCH(1,1)* Data Return SGD

EViews - [Series: RESID01 Workfile: SGD DATA TEST]

File Edit Objects View Procs Quick Options Window Help

View Procs Objects Print Name Freeze Sample Genr Sheet Stats Ident Line

**Augmented D**

Null Hypothesis: RESID01 has a unit root  
Exogenous: None  
Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-16.54312	0.0000
Test critical values:		
1% level	-2.573718	
5% level	-1.942026	
10% level	-1.615900	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/15/08 Time: 23:59  
Sample(adjusted): 3 267  
Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.989910	0.059838	-16.54312	0.0000

R-squared	0.508927	Mean dependent var	-7.48E-05
Adjusted R-squared	0.508927	S.D. dependent var	0.006263
S.E. of regression	0.004389	Akaike info criterion	-8.015679
Sum squared resid	0.005085	Schwarz criterion	-8.002170
Log likelihood	1063.077	Durbin-Watson stat	2.020484

## Lampiran 52 Rangkuman Model ARCH/GARCH Untuk Data Return GBP

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
ARCH(1)	-0.79240%	-1.94660%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.46092	-7.407033
ARCH-M Variance (1) Regressor	0.23770%	-1.68080%	0.986957	semua koefisien independent variabel menolak H <sub>0</sub>	-7.435804	-7.354973
ARCH(2)	-0.16190%	-1.69690%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.459063	-7.391704
GARCH(1,1)	-0.20380%	-1.73950%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.466495	-7.399136
ARCH-M Standar Deviasi (1,1)	-0.15530%	-2.08140%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.423251	-7.34242
ARCH-M Variance (1,1)	0.44720%	-1.46730%	0.947528	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.423247	-7.342639
ARCH-M Variance (1,1) Regressor	0.12460%	-2.18910%	0.999364	semua koefisien independent variabel menolak H <sub>0</sub>	-7.442713	-7.34841
TARCH(1,1)	-0.13270%	-2.05830%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.46845	-7.38762
TARCH(1,1) Regressor	-0.1354%	-2.4552%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.460939	-7.366637
GARCH(1,1) Regressor	-0.18170%	-2.10820%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.46699	-7.386159
GARCH(1,2)	-0.27870%	-2.20720%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.464052	-7.383222
GARCH(2,1)	-0.30030%	-2.22910%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.473375	-7.392545
GARCH(2,2)	-0.32710%	-2.65130%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.465895	-7.371592
GARCH(3,3)	-0.0394%	-3.1535%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.484403	-7.363156
ARCH-M Standar Deviasi (2,1)	-0.62290%	-2.95390%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.431737	-7.337434
ARCH-M Variance (2,1)	-0.18110%	-2.50190%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.430458	-7.336155
ARCH-M Standar Deviasi (2,2)	-0.62560%	-3.35580%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.424414	-7.31664
EGARCH (1,1)	-0.19680%	-2.12370%	-	semua koefisien independent variabel menolak H <sub>0</sub>	-7.454145	-7.373315

## Lampiran 53 Korelogram Residu ARCH-M Variance(1) Regressor Return GBP

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1		-0.020	-0.020	0.1066	0.744
2		-0.034	-0.035	0.4206	0.810
3		0.040	0.039	0.8550	0.836
4		0.028	0.029	1.0706	0.899
5		-0.014	-0.010	1.1215	0.952
6		0.059	0.059	2.0630	0.914
7		0.162	0.162	9.2650	0.234
8		-0.198	-0.192	20.059	0.010
9		-0.025	-0.025	20.234	0.017
10		0.020	-0.006	20.346	0.026
11		0.006	0.011	20.356	0.041
12		-0.010	0.002	20.383	0.060
13		0.126	0.115	24.827	0.024
14		-0.033	-0.040	25.137	0.033
15		-0.118	-0.054	29.076	0.016
16		0.105	0.071	32.236	0.009
17		0.036	0.018	32.609	0.013
18		0.019	0.029	32.718	0.018
19		0.043	0.043	33.260	0.022
20		-0.004	-0.046	33.263	0.032
21		0.009	0.073	33.285	0.043
22		-0.037	-0.034	33.680	0.053
23		0.055	-0.009	34.573	0.057
24		-0.058	-0.051	35.558	0.061
25		0.006	0.015	35.569	0.078
26		0.017	0.001	35.653	0.098
27		-0.057	-0.030	36.636	0.102
28		-0.075	-0.077	38.305	0.093
29		0.005	-0.002	38.313	0.116
30		-0.065	-0.095	39.578	0.113
31		-0.032	0.009	39.889	0.132
32		0.075	0.050	41.604	0.119
33		-0.082	-0.073	43.660	0.102
34		-0.105	-0.099	47.041	0.068
35		0.016	0.025	47.119	0.083
36		0.078	0.059	48.987	0.073

## Lampiran 54 Stasionaritas Residu ARCH-M Variance(1) Regressor Return GBP

EViews - [Series: RESID01 Workfile: GBP DATA TEST]

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**Augmented I**

Null Hypothesis: RESID01 has a unit root  
Exogenous: Constant  
Lag Length: 0 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-17.27299	0.0000
Test critical values:		
1% level	-3.454906	
5% level	-2.872244	
10% level	-2.572547	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/16/08 Time: 00:03  
Sample(adjusted): 3 267  
Included observations: 265 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.031423	0.059713	-17.27299	0.0000
C	-0.000156	0.000362	-0.430579	0.6671

R-squared	0.531492	Mean dependent var	7.94E-05
Adjusted R-squared	0.529710	S.D. dependent var	0.008577
S.E. of regression	0.005882	Akaike info criterion	-7.426282
Sum squared resid	0.009100	Schwarz criterion	-7.399265
Log likelihood	985.9823	F-statistic	298.3564
Durbin-Watson stat	2.016344	Prob(F-statistic)	0.000000

## Lampiran 55 Rangkuman Model ARCH/GARCH Untuk Data Return HKD

MODEL	R <sup>2</sup>	Adjusted R <sup>2</sup>	Probability F-statistic	Koefisien Independent Variabel pada Variance Equation	Akaike Info Criterion	Schwarz Criterion
ARCH(1)	21.35910%	20.45860%	0.000000	semua koefisien independent variabel menolak H <sub>0</sub>	-7.069653	-7.015765
ARCH(2)	21.95910%	20.76300%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.099233	-7.031874
GARCH(1,1)	21.95490%	20.75880%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.099258	-7.0319
TARCH(1,1)	21.79440%	20.29040%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.12198	-7.041149
TARCH(1,1) Regressor	-44.85100%	-48.20780%	-	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-6.320789	-6.226487
GARCH(1,1) Regressor	21.74700%	20.24210%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.121349	-7.040519
GARCH(1,2)	21.41820%	19.90700%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-7.097456	-7.016625
GARCH(2,1)	21.09370%	19.57630%	0.000000	ada koefisien independent variabel tidak menolak H <sub>0</sub>	-5.856747	-5.775916
GARCH(1,3) Regressor	5.6694%	3.1101%	0.033485	semua koefisien independent variabel menolak H <sub>0</sub>	-7.062829	-6.955054
EGARCH(2,2)	21.53830%	19.09590%	0.000000	semua koefisien independent variabel menolak H <sub>0</sub>	-7.46957	-7.348324
TARCH(1,3)	17.26740%	15.02270%	0.000000	semua koefisien independent variabel menolak H <sub>0</sub>	-7.079353	-6.971579
GARCH(1,4) Regressor	16.94080%	14.35530%	0.000000	semua koefisien independent variabel menolak H <sub>0</sub>	-6.836482	-6.715236

Lampiran 56 Korelogram Residu *EGARCH(2,2)* Data *Return* HKD

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.172	0.172	7.9594	0.005
		2	-0.025	-0.056	8.1218	0.017
		3	0.040	0.056	8.5601	0.036
		4	-0.008	-0.028	8.5769	0.073
		5	-0.049	-0.040	9.2223	0.101
		6	-0.019	-0.006	9.3182	0.156
		7	0.073	0.078	10.778	0.149
		8	-0.053	-0.081	11.544	0.173
		9	0.012	0.046	11.583	0.238
		10	0.018	-0.008	11.676	0.307
		11	-0.038	-0.032	12.075	0.358
		12	-0.063	-0.050	13.206	0.354
		13	-0.033	-0.018	13.521	0.408
		14	0.003	0.003	13.524	0.486
		15	0.023	0.039	13.676	0.550
		16	0.056	0.037	14.580	0.556
		17	-0.054	-0.078	15.419	0.565
		18	-0.066	-0.040	16.665	0.546
		19	-0.076	-0.068	18.351	0.499
		20	0.031	0.066	18.633	0.546
		21	0.104	0.095	21.798	0.411
		22	-0.035	-0.071	22.148	0.451
		23	-0.021	-0.018	22.283	0.503
		24	0.066	0.068	23.550	0.488
		25	-0.035	-0.066	23.908	0.525
		26	-0.066	-0.025	25.218	0.507
		27	0.060	0.070	26.285	0.503
		28	-0.019	-0.055	26.388	0.552
		29	-0.078	-0.042	28.223	0.506
		30	-0.152	-0.178	35.195	0.236
		31	-0.071	-0.049	36.715	0.221
		32	-0.025	0.026	36.898	0.253
		33	-0.094	-0.071	39.577	0.200
		34	-0.022	-0.014	39.724	0.230
		35	-0.013	-0.013	39.778	0.266
		36	0.027	0.003	40.012	0.297

Lampiran 57 Tes Stasionaritas Residu *EGARCH(2,2)* Data *Return* HKD

EViews - [Series: RESID01 Workfile: HKD DATA TEST]

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Augmented Di

Null Hypothesis: RESID01 has a unit root  
Exogenous: Constant  
Lag Length: 1 (Automatic based on SIC, MAXLAG=36)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-16.54580	0.0000
Test critical values:		
1% level	-3.455001	
5% level	-2.872286	
10% level	-2.572570	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(RESID01)  
Method: Least Squares  
Date: 07/16/08 Time: 00:06  
Sample(adjusted): 4 267  
Included observations: 264 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.465555	0.088576	-16.54580	0.0000
D(RESID01(-1))	0.246481	0.057697	4.271953	0.0000
C	-0.001380	0.000820	-1.682858	0.0936

R-squared	0.620773	Mean dependent var	-0.000115
Adjusted R-squared	0.617867	S.D. dependent var	0.021465
S.E. of regression	0.013269	Akaike info criterion	-5.795445
Sum squared resid	0.045955	Schwarz criterion	-5.754809
Log likelihood	767.9988	F-statistic	213.6214
Durbin-Watson stat	2.037512	Prob(F-statistic)	0.000000

## Lampiran 58 Kupiec Test VaR Dari Volatilitas ARCH/GARCH Data Return USD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	110,431,509	(20,723,564)	20,723,564	89,707,945	0	Not overshoot
2	4-Jan-06	490,355,943	(109,499,136)	109,499,136	380,856,807	0	Not overshoot
3	5-Jan-06	523,880,575	(20,991,726)	20,991,726	502,888,849	0	Not overshoot
4	6-Jan-06	361,284,106	(57,952,353)	57,952,353	303,331,753	0	Not overshoot
5	9-Jan-06	245,469,069	(143,667,059)	143,667,059	101,802,011	0	Not overshoot
6	11-Jan-06	178,306,480	42,780,654	PROFIT	178,306,480	0	Not overshoot
7	12-Jan-06	239,153,607	(123,484,185)	123,484,185	115,669,423	0	Not overshoot
8	13-Jan-06	157,093,569	5,400,266	PROFIT	157,093,569	0	Not overshoot
9	16-Jan-06	163,718,169	(21,618,345)	21,618,345	142,099,824	0	Not overshoot
10	17-Jan-06	127,258,502	107,633,707	PROFIT	127,258,502	0	Not overshoot
11	18-Jan-06	92,073,332	26,730,835	PROFIT	92,073,332	0	Not overshoot
12	19-Jan-06	138,995,176	(16,030,043)	16,030,043	122,965,133	0	Not overshoot
13	20-Jan-06	135,339,560	(102,116,421)	102,116,421	33,223,139	0	Not overshoot
14	23-Jan-06	93,826,687	32,358,538	PROFIT	93,826,687	0	Not overshoot
15	24-Jan-06	150,504,327	26,886,783	PROFIT	150,504,327	0	Not overshoot
16	25-Jan-06	104,008,953	26,815,673	PROFIT	104,008,953	0	Not overshoot
17	26-Jan-06	93,188,462	(118,523,135)	118,523,135	(25,334,673)	1	Overshoot
18	27-Jan-06	86,860,105	16,244,062	PROFIT	86,860,105	0	Not overshoot
19	30-Jan-06	144,550,546	27,015,737	PROFIT	144,550,546	0	Not overshoot
20	1-Feb-06	110,001,765	(81,264,127)	81,264,127	28,737,638	0	Not overshoot
21	2-Feb-06	91,052,977	16,305,016	PROFIT	91,052,977	0	Not overshoot
22	3-Feb-06	108,065,089	(27,189,611)	27,189,611	80,875,477	0	Not overshoot
23	6-Feb-06	83,301,124	(32,724,074)	32,724,074	50,577,050	0	Not overshoot
24	7-Feb-06	70,299,942	(65,766,717)	65,766,717	4,533,225	0	Not overshoot
25	8-Feb-06	81,344,658	10,990,787	PROFIT	81,344,658	0	Not overshoot
26	9-Feb-06	117,711,823	(5,493,904)	5,493,904	112,217,918	0	Not overshoot

(lanjutan)

255	17-Jan-07	87,482,334	(27,877,389)	27,877,389	59,604,945	0	Not overshoot
256	18-Jan-07	71,993,125	16,735,630	PROFIT	71,993,125	0	Not overshoot
257	19-Jan-07	71,078,142	(11,154,017)	11,154,017	59,924,125	0	Not overshoot
258	22-Jan-07	61,239,393	(16,754,066)	16,754,066	44,485,326	0	Not overshoot
259	23-Jan-07	56,816,583	39,049,842	PROFIT	56,816,583	0	Not overshoot
260	24-Jan-07	60,576,961	(27,877,389)	27,877,389	32,699,572	0	Not overshoot
261	25-Jan-07	68,728,548	5,581,613	PROFIT	68,728,548	0	Not overshoot
262	26-Jan-07	60,771,722	33,425,305	PROFIT	60,771,722	0	Not overshoot
263	29-Jan-07	57,130,090	16,671,421	PROFIT	57,130,090	0	Not overshoot
264	30-Jan-07	71,304,263	(16,671,421)	16,671,421	54,632,842	0	Not overshoot
265	31-Jan-07	73,542,255	(27,846,763)	27,846,763	45,695,492	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 10  
 Alfa 5%

Loglikelihood Ratio (LR) 0.913527727  
 Critical Value (Chi-square) 18.30703805

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model VaR valid.

## Lampiran 59 Kupiec Test VaR Volatilitas ARCH/GARCH Data Return EURO

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	11,966,010	(89,744)	89,743.90	11,876,266	0	Not overshoot
2	4-Jan-06	10,275,486	7,792,835	PROFIT	10,275,486	0	Not overshoot
3	5-Jan-06	10,771,317	1,561,864	PROFIT	10,771,317	0	Not overshoot
4	6-Jan-06	14,025,745	(10,016,211)	10,016,210.86	4,009,534	0	Not overshoot
5	9-Jan-06	9,460,493	(13,063,414)	13,063,413.59	(3,602,920)	1	Overshoot
6	11-Jan-06	12,183,901	(3,393,395)	3,393,394.76	8,790,506	0	Not overshoot
7	12-Jan-06	10,526,813	(7,964,614)	7,964,614.02	2,562,199	0	Not overshoot
8	13-Jan-06	10,887,290	(11,099,907)	11,099,906.58	(212,616)	1	Overshoot
9	16-Jan-06	10,956,006	8,972,828	PROFIT	10,956,006	0	Not overshoot
10	17-Jan-06	11,163,901	10,010,594	PROFIT	11,163,901	0	Not overshoot
11	18-Jan-06	13,866,809	3,156,941	PROFIT	13,866,809	0	Not overshoot
12	19-Jan-06	12,223,624	(2,380,292)	2,380,292.28	9,843,332	0	Not overshoot
13	20-Jan-06	10,970,596	(16,624,774)	16,624,774.13	(5,654,178)	1	Overshoot
14	23-Jan-06	10,472,616	23,889,948	PROFIT	10,472,616	0	Not overshoot
15	24-Jan-06	11,942,399	8,667,216	PROFIT	11,942,399	0	Not overshoot
16	25-Jan-06	21,428,402	1,240,679	PROFIT	21,428,402	0	Not overshoot
17	26-Jan-06	8,366,331	(17,476,606)	17,476,605.72	(9,110,274)	1	Overshoot
18	27-Jan-06	13,244,581	(4,505,322)	4,505,321.73	8,739,259	0	Not overshoot
19	30-Jan-06	10,160,521	(8,469,816)	8,469,816.31	1,690,704	0	Not overshoot
20	1-Feb-06	11,242,696	(4,406,670)	4,406,670.14	6,836,026	0	Not overshoot
21	2-Feb-06	10,768,901	(6,876,485)	6,876,484.66	3,892,416	0	Not overshoot
22	3-Feb-06	10,789,157	(1,197,589)	1,197,589.40	9,591,568	0	Not overshoot
23	6-Feb-06	10,943,357	(11,697,086)	11,697,086.34	(753,729)	1	Overshoot
24	7-Feb-06	10,444,684	(17,279,884)	17,279,883.71	(6,835,199)	1	Overshoot
25	8-Feb-06	11,549,317	3,095,121	PROFIT	11,549,317	0	Not overshoot
26	9-Feb-06	11,224,287	(1,464,090)	1,464,089.80	9,760,197	0	Not overshoot

(lanjutan)

255	17-Jan-07	9,448,314	(4,730,152)	4,730,151.71	4,718,162	0	Not overshoot
256	18-Jan-07	11,395,647	6,269,706	PROFIT	11,395,647	0	Not overshoot
257	19-Jan-07	10,405,604	1,486,310	PROFIT	10,405,604	0	Not overshoot
258	22-Jan-07	13,497,876	(3,387,555)	3,387,555.11	10,110,321	0	Not overshoot
259	23-Jan-07	9,656,104	1,722,094	PROFIT	9,656,104	0	Not overshoot
260	24-Jan-07	11,421,972	5,675,409	PROFIT	11,421,972	0	Not overshoot
261	25-Jan-07	10,666,425	(6,278,880)	6,278,879.63	4,387,545	0	Not overshoot
262	26-Jan-07	13,106,393	237,384	PROFIT	13,106,393	0	Not overshoot
263	29-Jan-07	9,594,407	(134,117)	134,117.23	9,460,290	0	Not overshoot
264	30-Jan-07	11,189,021	4,834,918	PROFIT	11,189,021	0	Not overshoot
265	31-Jan-07	10,205,347	(5,667,801)	5,667,801.17	4,537,546	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 16  
 Alfa 5%

Loglikelihood Ratio (LR) 0.565067137  
 Critical Value (Chi-square) 26.29622761

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

Universitas Indonesia



## Lampiran 60 Kupiec Test VaR Dari Volatilitas ARCH/GARCH Data Return JPY

NO	PERIOD	VaR	ACTUAL RETURN	ACTUAL LOSS	DIFFERENCE	BINARY INDICATOR	DESCRIPTION
1	3-Jan-06	7,052,914	132,440	PROFIT	7,052,914	0	Not overshoot
2	4-Jan-06	19,329,087	2,107,632	PROFIT	19,329,087	0	Not overshoot
3	5-Jan-06	8,748,003	(4,110,299)	4,110,299	4,637,704	0	Not overshoot
4	6-Jan-06	6,262,260	(3,411,920)	3,411,920	2,850,340	0	Not overshoot
5	9-Jan-06	6,588,428	3,251,485	PROFIT	6,588,428	0	Not overshoot
6	11-Jan-06	7,085,970	(724,594)	724,594	6,361,375	0	Not overshoot
7	12-Jan-06	6,328,028	(5,061,367)	5,061,367	1,266,661	0	Not overshoot
8	13-Jan-06	5,998,507	(2,281,629)	2,281,629	3,716,878	0	Not overshoot
9	16-Jan-06	7,346,178	1,136,718	PROFIT	7,346,178	0	Not overshoot
10	17-Jan-06	6,749,266	1,950,778	PROFIT	6,749,266	0	Not overshoot
11	18-Jan-06	5,996,995	(1,853,786)	1,853,786	4,143,208	0	Not overshoot
12	19-Jan-06	6,370,385	906,778	PROFIT	6,370,385	0	Not overshoot
13	20-Jan-06	6,025,826	(8,481,338)	8,481,338	(2,455,512)	1	Overshoot
14	23-Jan-06	5,988,632	6,537,127	PROFIT	5,988,632	0	Not overshoot
15	24-Jan-06	9,024,026	2,666,053	PROFIT	9,024,026	0	Not overshoot
16	25-Jan-06	6,819,025	(316,148)	316,148	6,502,877	0	Not overshoot
17	26-Jan-06	7,262,246	(10,781,703)	10,781,703	(3,519,457)	1	Overshoot
18	27-Jan-06	5,965,691	(2,776,444)	2,776,444	3,189,247	0	Not overshoot
19	30-Jan-06	10,834,804	(4,080,275)	4,080,275	6,754,529	0	Not overshoot
20	1-Feb-06	8,084,413	(4,596,431)	4,596,431	3,487,982	0	Not overshoot
21	2-Feb-06	7,232,129	(4,496,667)	4,496,667	2,735,462	0	Not overshoot
22	3-Feb-06	7,645,203	(2,602,064)	2,602,064	5,043,139	0	Not overshoot
23	6-Feb-06	7,699,053	(3,547,953)	3,547,953	4,151,100	0	Not overshoot
24	7-Feb-06	6,753,247	(6,488,644)	6,488,644	264,603	0	Not overshoot
25	8-Feb-06	6,860,048	6,543,896	PROFIT	6,860,048	0	Not overshoot
26	9-Feb-06	8,620,907	(3,182,638)	3,182,638	5,438,269	0	Not overshoot

(lanjutan)

255	17-Jan-07	4,888,862	(3,616,666)	3,616,666	1,272,197	0	Not overshoot
256	18-Jan-07	4,954,329	2,724,443	PROFIT	4,954,329	0	Not overshoot
257	19-Jan-07	5,816,776	(5,032,567)	5,032,567	784,209	0	Not overshoot
258	22-Jan-07	5,055,951	(959,128)	959,128	4,096,822	0	Not overshoot
259	23-Jan-07	5,782,965	414,001	PROFIT	5,782,965	0	Not overshoot
260	24-Jan-07	5,111,480	(1,346,477)	1,346,477	3,765,003	0	Not overshoot
261	25-Jan-07	4,780,712	6,023,008	PROFIT	4,780,712	0	Not overshoot
262	26-Jan-07	4,808,651	(1,901,401)	1,901,401	2,907,250	0	Not overshoot
263	29-Jan-07	7,022,461	(1,380,265)	1,380,265	5,642,195	0	Not overshoot
264	30-Jan-07	4,747,684	(237,934)	237,934	4,509,750	0	Not overshoot
265	31-Jan-07	4,925,010	(1,849,238)	1,849,238	3,075,772	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 10  
 Alfa 5%

Loglikelihood Ratio (LR) 0.913527727  
 Critical Value (Chi-square) 18.30703805

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

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## Lampiran 61 Kupiec Test VaR Dari Volatilitas ARCH/GARCH Data Return AUD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	788,076	58,434	PROFIT	788,076	0	Not overshoot
2	4-Jan-06	1,822,497	(86,830)	86,830	1,735,667	0	Not overshoot
3	5-Jan-06	1,166,720	314,381	PROFIT	1,166,720	0	Not overshoot
4	6-Jan-06	652,980	(495,430)	495,430	157,550	0	Not overshoot
5	9-Jan-06	689,890	(353,879)	353,879	336,011	0	Not overshoot
6	11-Jan-06	740,293	(70,101)	70,101	670,192	0	Not overshoot
7	12-Jan-06	740,227	(307,364)	307,364	432,863	0	Not overshoot
8	13-Jan-06	656,159	(465,531)	465,531	190,628	0	Not overshoot
9	16-Jan-06	704,490	343,706	PROFIT	704,490	0	Not overshoot
10	17-Jan-06	779,083	547,895	PROFIT	779,083	0	Not overshoot
11	18-Jan-06	690,857	(191,491)	191,491	499,366	0	Not overshoot
12	19-Jan-06	826,230	(461,710)	461,710	364,520	0	Not overshoot
13	20-Jan-06	650,105	(520,242)	520,242	129,863	0	Not overshoot
14	23-Jan-06	774,565	728,335	PROFIT	774,565	0	Not overshoot
15	24-Jan-06	808,132	34,316	PROFIT	808,132	0	Not overshoot
16	25-Jan-06	851,072	157,738	PROFIT	851,072	0	Not overshoot
17	26-Jan-06	673,919	(590,980)	590,980	82,938	0	Not overshoot
18	27-Jan-06	661,326	(95,786)	95,786	565,540	0	Not overshoot
19	30-Jan-06	800,280	48,737	PROFIT	800,280	0	Not overshoot
20	1-Feb-06	663,597	102,340	PROFIT	663,597	0	Not overshoot
21	2-Feb-06	649,821	(424,784)	424,784	225,037	0	Not overshoot
22	3-Feb-06	656,699	(74,248)	74,248	582,451	0	Not overshoot
23	6-Feb-06	736,494	(794,806)	794,806	(58,313)	1	Overshoot
24	7-Feb-06	663,394	(1,071,800)	1,071,800	(408,406)	1	Overshoot
25	8-Feb-06	938,687	9,612	PROFIT	938,687	0	Not overshoot
26	9-Feb-06	1,141,449	(206,733)	206,733	934,717	0	Not overshoot

(lanjutan)

255	17-Jan-07	639,166	(214,975)	214,975	424,191	0	Not overshoot
256	18-Jan-07	562,630	682,884	PROFIT	562,630	0	Not overshoot
257	19-Jan-07	581,512	(71,113)	71,113	510,398	0	Not overshoot
258	22-Jan-07	727,743	8,352	PROFIT	727,743	0	Not overshoot
259	23-Jan-07	523,116	124,401	PROFIT	523,116	0	Not overshoot
260	24-Jan-07	521,795	(618,959)	618,959	(97,165)	1	Overshoot
261	25-Jan-07	525,804	(360,750)	360,750	165,054	0	Not overshoot
262	26-Jan-07	740,222	(276,069)	276,069	464,153	0	Not overshoot
263	29-Jan-07	644,007	(21,518)	21,518	622,489	0	Not overshoot
264	30-Jan-07	594,764	(35,084)	35,084	559,680	0	Not overshoot
265	31-Jan-07	522,368	(337,678)	337,678	184,690	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 12  
 Alfa 5%

Loglikelihood Ratio (LR) 0.128014644  
 Critical Value (Chi-square) 21.02606982

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

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## Lampiran 62 Kupiec Test VaR Dari Volatilitas ARCH/GARCH Data Return SGD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	768,492	36,417	PROFIT	768,492	0	Not overshoot
2	4-Jan-06	915,133	(272,007)	272,007	643,126	0	Not overshoot
3	5-Jan-06	621,176	(91,960)	91,960	529,216	0	Not overshoot
4	6-Jan-06	491,941	(370,201)	370,201	121,740	0	Not overshoot
5	9-Jan-06	401,754	(387,424)	387,424	14,330	0	Not overshoot
6	11-Jan-06	455,079	214,078	PROFIT	455,079	0	Not overshoot
7	12-Jan-06	500,937	(259,539)	259,539	241,398	0	Not overshoot
8	13-Jan-06	408,285	(222,044)	222,044	186,241	0	Not overshoot
9	16-Jan-06	392,966	100,742	PROFIT	392,966	0	Not overshoot
10	17-Jan-06	399,709	323,844	PROFIT	399,709	0	Not overshoot
11	18-Jan-06	352,606	134,752	PROFIT	352,606	0	Not overshoot
12	19-Jan-06	415,447	2,346	PROFIT	415,447	0	Not overshoot
13	20-Jan-06	380,428	(652,960)	652,960	(272,531)	1	Overshoot
14	23-Jan-06	342,155	537,567	PROFIT	342,155	0	Not overshoot
15	24-Jan-06	590,438	173,701	PROFIT	590,438	0	Not overshoot
16	25-Jan-06	541,721	153,247	PROFIT	541,721	0	Not overshoot
17	26-Jan-06	451,853	(631,364)	631,364	(179,511)	1	Overshoot
18	27-Jan-06	393,542	(15,032)	15,032	378,510	0	Not overshoot
19	30-Jan-06	574,589	1,408	PROFIT	574,589	0	Not overshoot
20	1-Feb-06	434,772	(241,384)	241,384	193,389	0	Not overshoot
21	2-Feb-06	363,797	(174,242)	174,242	189,555	0	Not overshoot
22	3-Feb-06	382,400	(261,026)	261,026	121,373	0	Not overshoot
23	6-Feb-06	378,550	(42,490)	42,490	336,060	0	Not overshoot
24	7-Feb-06	404,963	(442,011)	442,011	(37,049)	1	Overshoot
25	8-Feb-06	357,453	125,076	PROFIT	357,453	0	Not overshoot
26	9-Feb-06	474,987	(106,151)	106,151	368,836	0	Not overshoot

(lanjutan)

255	17-Jan-07	330,839	(84,173)	84,173	246,666	0	Not overshoot
256	18-Jan-07	323,774	166,068	PROFIT	323,774	0	Not overshoot
257	19-Jan-07	327,046	(48,731)	48,731	278,316	0	Not overshoot
258	22-Jan-07	340,796	(116,502)	116,502	224,294	0	Not overshoot
259	23-Jan-07	327,602	115,815	PROFIT	327,602	0	Not overshoot
260	24-Jan-07	336,149	8,533	PROFIT	336,149	0	Not overshoot
261	25-Jan-07	332,778	39,463	PROFIT	332,778	0	Not overshoot
262	26-Jan-07	324,477	30,767	PROFIT	324,477	0	Not overshoot
263	29-Jan-07	322,274	144,358	PROFIT	322,274	0	Not overshoot
264	30-Jan-07	321,262	(83,851)	83,851	237,410	0	Not overshoot
265	31-Jan-07	337,847	(127,942)	127,942	209,905	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 11  
 Alfa 5%

Loglikelihood Ratio (LR) 0.425799441  
 Critical Value (Chi-square) 19.67513757

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

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Lampiran 63 *Kupiec Test VaR* Dari Volatilitas ARCH/GARCH Data Return GBP

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	143,388	(3,324)	3,324	140,064	0	Not overshoot
2	4-Jan-06	228,766	44,342	PROFIT	228,766	0	Not overshoot
3	5-Jan-06	95,847	11,055	PROFIT	95,847	0	Not overshoot
4	6-Jan-06	107,774	(92,161)	92,161	15,613	0	Not overshoot
5	9-Jan-06	95,598	(57,351)	57,351	38,246	0	Not overshoot
6	11-Jan-06	101,966	(1,294)	1,294	100,672	0	Not overshoot
7	12-Jan-06	91,548	(121,342)	121,342	(29,794)	1	Overshoot
8	13-Jan-06	92,772	(29,673)	29,673	63,098	0	Not overshoot
9	16-Jan-06	114,189	83,652	PROFIT	114,189	0	Not overshoot
10	17-Jan-06	89,760	51,501	PROFIT	89,760	0	Not overshoot
11	18-Jan-06	128,233	22,763	PROFIT	128,233	0	Not overshoot
12	19-Jan-06	108,938	(39,362)	39,362	69,576	0	Not overshoot
13	20-Jan-06	98,934	(158,067)	158,067	(59,134)	1	Overshoot
14	23-Jan-06	90,284	217,039	PROFIT	90,284	0	Not overshoot
15	24-Jan-06	133,110	56,078	PROFIT	133,110	0	Not overshoot
16	25-Jan-06	213,761	11,559	PROFIT	213,761	0	Not overshoot
17	26-Jan-06	105,894	(119,430)	119,430	(13,536)	1	Overshoot
18	27-Jan-06	95,728	(24,851)	24,851	70,878	0	Not overshoot
19	30-Jan-06	113,772	(40,124)	40,124	73,648	0	Not overshoot
20	1-Feb-06	89,886	(26,462)	26,462	63,424	0	Not overshoot
21	2-Feb-06	89,590	(7,001)	7,001	82,588	0	Not overshoot
22	3-Feb-06	89,456	(163)	163	89,293	0	Not overshoot
23	6-Feb-06	91,671	(154,948)	154,948	(63,277)	1	Overshoot
24	7-Feb-06	93,025	(178,989)	178,989	(85,965)	1	Overshoot
25	8-Feb-06	132,319	(4,532)	4,532	127,787	0	Not overshoot
26	9-Feb-06	149,267	(14,390)	14,390	134,877	0	Not overshoot

(lanjutan)

255	17-Jan-07	106,195	(51,016)	51,016	55,179	0	Not overshoot
256	18-Jan-07	98,216	93,948	PROFIT	98,216	0	Not overshoot
257	19-Jan-07	91,420	3,176	PROFIT	91,420	0	Not overshoot
258	22-Jan-07	134,310	(20,756)	20,756	113,554	0	Not overshoot
259	23-Jan-07	93,984	62,032	PROFIT	93,984	0	Not overshoot
260	24-Jan-07	90,095	(10,568)	10,568	79,527	0	Not overshoot
261	25-Jan-07	116,513	(78,785)	78,785	37,728	0	Not overshoot
262	26-Jan-07	91,736	24,626	PROFIT	91,736	0	Not overshoot
263	29-Jan-07	96,831	(26,150)	26,150	70,681	0	Not overshoot
264	30-Jan-07	100,255	15,766	PROFIT	100,255	0	Not overshoot
265	31-Jan-07	90,099	(43,062)	43,062	47,037	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 11  
 Alfa 5%

Loglikelihood Ratio (LR) 0.425799441  
 Critical Value (Chi-square) 19.67513757

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

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## Lampiran 64 Kupiec Test VaR Dari Volatilitas ARCH/GARCH Data Return HKD

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	241,034	(7,908)	7,908	233,126	0	Not overshoot
2	4-Jan-06	605,228	(43,272)	43,272	561,956	0	Not overshoot
3	5-Jan-06	269,252	(8,476)	8,476	260,776	0	Not overshoot
4	6-Jan-06	152,244	(22,886)	22,886	129,358	0	Not overshoot
5	9-Jan-06	115,941	(55,908)	55,908	60,032	0	Not overshoot
6	11-Jan-06	107,162	17,450	PROFIT	107,162	0	Not overshoot
7	12-Jan-06	140,230	(48,598)	48,598	91,632	0	Not overshoot
8	13-Jan-06	99,841	2,015	PROFIT	99,841	0	Not overshoot
9	16-Jan-06	117,192	297,420	PROFIT	117,192	0	Not overshoot
10	17-Jan-06	99,678	(264,797)	264,797	(165,119)	1	Overshoot
11	18-Jan-06	18,531,575	10,467	PROFIT	18,531,575	0	Not overshoot
12	19-Jan-06	752,868	(6,113)	6,113	746,754	0	Not overshoot
13	20-Jan-06	193,337	(41,238)	41,238	152,099	0	Not overshoot
14	23-Jan-06	96,054	13,299	PROFIT	96,054	0	Not overshoot
15	24-Jan-06	99,821	10,167	PROFIT	99,821	0	Not overshoot
16	25-Jan-06	71,747	10,142	PROFIT	71,747	0	Not overshoot
17	26-Jan-06	80,594	(46,869)	46,869	33,725	0	Not overshoot
18	27-Jan-06	77,227	6,843	PROFIT	77,227	0	Not overshoot
19	30-Jan-06	92,314	9,821	PROFIT	92,314	0	Not overshoot
20	1-Feb-06	70,400	(32,632)	32,632	37,768	0	Not overshoot
21	2-Feb-06	70,992	6,837	PROFIT	70,992	0	Not overshoot
22	3-Feb-06	77,029	(10,568)	10,568	66,461	0	Not overshoot
23	6-Feb-06	60,692	(13,471)	13,471	47,221	0	Not overshoot
24	7-Feb-06	57,014	(26,271)	26,271	30,744	0	Not overshoot
25	8-Feb-06	63,264	3,869	PROFIT	63,264	0	Not overshoot
26	9-Feb-06	77,514	(3,398)	3,398	74,116	0	Not overshoot

(lanjutan)

255	17-Jan-07	33,279	(13,350)	13,350	19,928	0	Not overshoot
256	18-Jan-07	22,811	5,016	PROFIT	22,811	0	Not overshoot
257	19-Jan-07	28,548	(5,514)	5,514	23,033	0	Not overshoot
258	22-Jan-07	19,059	(6,469)	6,469	12,590	0	Not overshoot
259	23-Jan-07	19,198	19,615	PROFIT	19,198	0	Not overshoot
260	24-Jan-07	23,879	(11,685)	11,685	12,194	0	Not overshoot
261	25-Jan-07	53,113	567	PROFIT	53,113	0	Not overshoot
262	26-Jan-07	26,119	12,078	PROFIT	26,119	0	Not overshoot
263	29-Jan-07	20,610	4,776	PROFIT	20,610	0	Not overshoot
264	30-Jan-07	36,912	(6,370)	6,370	30,543	0	Not overshoot
265	31-Jan-07	27,011	(9,265)	9,265	17,747	0	Not overshoot

Jumlah data 265  
 Jumlah failure (V) 6  
 Alfa 5%

Loglikelihood Ratio (LR) 5.199955594  
 Critical Value (Chi-square) 12.59158724

$H_0$ : model VaR valid

$H_1$ : model VaR tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.

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## Lampiran 65 Kupiec Test VaR Portfolio

NO	Period	VaR	Actual Return	Actual Loss	Difference	Binary Indicator	Description
1	3-Jan-06	131,245,491	(22,048,451)	22,048,451	109,197,041	0	Not overshoot
2	4-Jan-06	538,537,283	(107,624,292)	107,624,292	430,912,991	0	Not overshoot
3	5-Jan-06	568,294,627	(24,785,142)	24,785,142	543,509,486	0	Not overshoot
4	6-Jan-06	392,802,302	(76,419,370)	76,419,370	316,382,932	0	Not overshoot
5	9-Jan-06	275,136,969	(164,394,070)	164,394,070	110,742,898	0	Not overshoot
6	11-Jan-06	205,070,685	41,818,584	PROFIT	205,070,685	0	Not overshoot
7	12-Jan-06	268,929,151	(145,894,189)	145,894,189	123,034,962	0	Not overshoot
8	13-Jan-06	175,204,168	(8,318,339)	8,318,339	166,885,829	0	Not overshoot
9	16-Jan-06	186,446,614	(12,197,140)	12,197,140	174,249,474	0	Not overshoot
10	17-Jan-06	148,259,106	127,790,749	PROFIT	148,259,106	0	Not overshoot
11	18-Jan-06	112,805,180	29,882,352	PROFIT	112,805,180	0	Not overshoot
12	19-Jan-06	150,875,893	(19,130,927)	19,130,927	131,744,967	0	Not overshoot
13	20-Jan-06	150,873,882	(135,745,909)	135,745,909	15,127,973	0	Not overshoot
14	23-Jan-06	106,322,516	66,547,813	PROFIT	106,322,516	0	Not overshoot
15	24-Jan-06	172,760,193	40,377,105	PROFIT	172,760,193	0	Not overshoot
16	25-Jan-06	127,015,615	29,950,701	PROFIT	127,015,615	0	Not overshoot
17	26-Jan-06	106,262,025	(156,469,863)	156,469,863	(50,207,838)	1	Overshoot
18	27-Jan-06	102,261,648	9,970,988	PROFIT	102,261,648	0	Not overshoot
19	30-Jan-06	167,160,835	16,377,309	PROFIT	167,160,835	0	Not overshoot
20	1-Feb-06	126,832,906	(96,156,019)	96,156,019	30,676,888	0	Not overshoot
21	2-Feb-06	108,217,899	5,474,459	PROFIT	108,217,899	0	Not overshoot
22	3-Feb-06	126,016,295	(33,239,268)	33,239,268	92,777,027	0	Not overshoot
23	6-Feb-06	98,271,703	(51,266,385)	51,266,385	47,005,319	0	Not overshoot
24	7-Feb-06	83,803,848	(95,859,738)	95,859,738	(12,055,890)	1	Overshoot
25	8-Feb-06	96,895,030	21,533,477	PROFIT	96,895,030	0	Not overshoot
26	9-Feb-06	137,744,285	(10,856,023)	10,856,023	126,888,262	0	Not overshoot

(lanjutan)

255	17-Jan-07	97,667,788	(38,539,880)	38,539,880	59,127,909	0	Not overshoot
256	18-Jan-07	85,259,034	27,849,633	PROFIT	85,259,034	0	Not overshoot
257	19-Jan-07	84,728,229	(15,603,534)	15,603,534	69,124,695	0	Not overshoot
258	22-Jan-07	76,404,677	(22,409,355)	22,409,355	53,995,322	0	Not overshoot
259	23-Jan-07	70,457,112	44,242,328	PROFIT	70,457,112	0	Not overshoot
260	24-Jan-07	74,048,297	(26,133,296)	26,133,296	47,915,002	0	Not overshoot
261	25-Jan-07	81,814,875	5,317,097	PROFIT	81,814,875	0	Not overshoot
262	26-Jan-07	75,423,468	33,893,352	PROFIT	75,423,468	0	Not overshoot
263	29-Jan-07	71,358,245	16,425,949	PROFIT	71,358,245	0	Not overshoot
264	30-Jan-07	85,503,490	(13,351,420)	13,351,420	72,152,070	0	Not overshoot
265	31-Jan-07	88,164,186	(37,831,764)	37,831,764	50,332,422	0	Not overshoot

Jumlah data (T) 265  
 Jumlah failure (V) 10  
 Alfa 5%

Loglikelihood Ratio (LR) 0.913527727  
 Critical Value (Chi-square) 18.30703805

$H_0$ : model VaR Portfolio valid

$H_1$ : model VaR Portfolio tidak valid

Karena  $LR < CV$ , maka tidak menolak  $H_0$ . Berarti model valid.