

## BAB 5

### KSEIMPULAN DAN SARAN

Sebagai penutup dari tesis ini akan disajikan kesimpulan dari hasil penelitian dan pembahasan pada bab sebelumnya. Kemudian, akan di sampaikan pula saran yang didasarkan pada hasil kesimpulan. Saran dalam hasil penelitian ini diharapkan dapat bermanfaat bagi investor dan beberapa pihak sebagai masukan atau dasar pengambilan keputusan terkait dengan indeks KLCI, LQ45, SET50, BSESN, PSEI, STI dan NIKKEI225.

#### 5.1 kesimpulan

Berdasarkan analisi pada bab sebelumnya dengan menggunakan Eviews 8, bahwa penelitian ini bermaksud untuk menganalisis tingkat volatilitas dari indeks KLCI, LQ45, SET50, BSESN, PSEI, STI dan NIKKEI225 dengan menggunakan GARCH serta untuk mengetahui pengaruh dari indeks yang berasal dari *mature market* terhadap indeks *emerging market* atau sebaliknya pengaruh ideks dari *emerging market* terhadap indeks *mature market*. Menggunakan metode VAR.

Penelitian ini dilakukan dengan beberapa tahap, Tahap pertama adalah menghitung return saham dari setiap indeks yang dipilih, kemudian meneliti tingkat kestasioneran data, GARCH, pemilihan *Lag Optimal*, estimasi VAR, *Granger Causality Tests*, *Variance Decomposition*, *Impulse Response Function*.

Hasil yang didapat dari penelitian ini adalah dari ketujuh indeks didalam penelitian ini, return dari indeks BSESN, KLCI, LQ45 dan STI menunjukkan volatilitas dilihat dari hasil *z-statistic* dan nilai probabilitasnya, sedangkan return

dari indeks NIKKEI225, SET50 dan PSEI setelah pengujian GARCH tidak menunjukkan volatilitas yang signifikan. Hasil penelitian lain yang diperoleh adalah terbuktinya pengaruh dari indeks *mature market* terhadap indeks *emerging market*. Indeks NIKKEI225 yang merupakan indeks yang berasal dari *mature market* mempunyai pengaruh yang signifikan terhadap indeks KLCI, LQ45, SET50, BSESN, PSEI dan STI. Indeks STI (*mature market*) mempunyai pengaruh yang signifikan terhadap indeks BSESN (*emerging market*) sehingga Hipotesis 1 terbukti.

## 5.2 Saran

Berdasarkan kesimpulan yang telah diambil, maka saran yang dapat diberikan berdasarkan hasil penelitian ini adalah :

1. Penelitian ini memiliki implikasi penting bagi investor. Hasil penelitian menunjukkan bahwa terdapat pengaruh yang signifikan antara indeks yang berasal dari *mature market* terhadap indeks yang berasal dari *emerging market*, oleh karena itu investor juga perlu mengamati indeks yang berasal dari *mature market* (NIKKEI225) untuk meminimalisir resiko ketika akan berinvestasi, meskipun terdapat pengaruh dari *mature market* akan tetapi pergerakan indeks dari *emerging market* tidak selalu mengikuti *trend* dari *mature marke*, selain itu dengan terbuktinya adanya pengaruh *mature market* teori mengenai *contagion effect* juga terjadi diantara indeks-indeks didalam penelitian ini.
2. Dalam penelitian ini, pengukuran volatilitas dengan menggunakan metode GARCH (1.1) dan tidak melalui proses permodelan menghasilkan analisis

yang tidak terlalu mendalam, hal ini disebabkan karena penelitian langsung menggunakan jangka waktu yang panjang, dengan keterbatasan tersebut penelitian selanjutnya dapat dilakukan dengan menggunakan analisis *wavelet* dengan komponen skala waktu yang berbeda dan tidak secara langsung dalam jangka panjang supaya dalam menganalisisnya dapat lebih mendalam atau menggunakan *CAPM*.

3. Variabel penelitian ini terbatas hanya menggunakan indeks *mature market* dan *emerging market* yang berasal dari negara Asia, penelitian selanjutnya dapat diperluas dengan menggunakan indeks yang berasal dari negara selain Asia.

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## LAMPIRAN

Date	RETURN KLCI	RETURN LQ45	RETURN SET50	RETURN BSESN
30-Dec-2013	0.003170236	0.002932262	-0.060572787	-0.002505476
23-Dec-2013	0.012529719	0.011219137	-0.036462594	0.0054014
16-Dec-2013	-0.00126063	0.004669015	0.004249959	0.017578074
9-Dec-2013	0.007334629	0.009703403	-0.017255485	-0.013380782
2-Dec-2013	0.007850082	0.000709097	-0.006672227	0.009840356
25-Nov-2013	0.010141988	-0.019662921	0.008791138	0.028418109
18-Nov-2013	0.002597954	-0.022208659	-0.045310843	-0.008923293
11-Nov-2013	-0.008096515	-0.001634191	0.010815256	-0.012906613
5-Nov-2013	-0.003275501	-0.036700552	-0.016975861	-0.025034899
28-Oct-2013	-0.003939326	0.013932475	-0.014858721	0.024816376
21-Oct-2013	0.009991165	-0.042098034	-0.022091441	-0.00954705
14-Oct-2013	0.007750245	0.005288455	0.01848375	0.017258857
7-Oct-2013	0.005172918	0.005764368	0.023522279	0.030761274
30-Sep-2013	0.000225205	0.04147849	0.00579839	0.009564425
23-Sep-2013	-0.014246627	-0.008200604	-0.048943281	-0.026472941
17-Sep-2013	0.017523153	-0.045172044	0.062731784	0.026907032
9-Sep-2013	0.027265344	0.050521915	0.047823898	0.024011342
2-Sep-2013	-0.002188032	0.089710972	0.034632721	0.034927485
26-Aug-2013	0.003782531	-0.035674041	-0.028592803	0.005414851
19-Aug-2013	-0.037562072	0.017134318	-0.073500632	-0.004233748
12-Aug-2013	0.005013151	-0.091716522	0.011735588	-0.010173854
5-Aug-2013	-0.001789611	-0.020749994	0.002812881	-0.019551222
29-Jul-2013	-0.013885739	-0.002843724	-0.035844974	-0.029580939
22-Jul-2013	0.005490227	-0.018638482	-0.002000119	-0.019933647
16-Jul-2013	0.006770644	0.018324203	0.013453005	0.009588911
8-Jul-2013	0.00754964	0.017506673	0.01439342	0.023730728

1-Jul-2013	-0.000716082	-0.049402985	-0.005554482	0.005156268
24-Jun-2013	0.010074893	0.092005542	0.045011428	0.033107598
17-Jun-2013	-0.003597796	-0.068426247	-0.039045021	-0.021049717
10-Jun-2013	-0.007546787	-0.013727007	-0.028310783	-0.01293412
3-Jun-2013	0.003600457	-0.045421516	-0.021010486	-0.0167543
27-May-2013	-0.002165747	-0.034692516	-0.033330515	0.002840492
20-May-2013	0.002204436	-0.00044826	-0.014160292	-0.028679215
13-May-2013	-0.001816766	0.009936504	0.003391784	0.01013314
7-May-2013	0.045793825	0.033420904	0.032060995	0.025898515
30-Apr-2013	-0.009653536	-0.009882057	-0.002029058	0.014980256
22-Apr-2013	0.002936212	-0.00592715	0.025982953	0.014211899
15-Apr-2013	0.004562769	0.01538148	0.010829322	0.042422774
8-Apr-2013	0.005850828	0.004165362	0.025415276	-0.011255686
1-Apr-2013	0.010181679	-0.007420507	-0.04140811	-0.020468502
25-Mar-2013	0.027500323	0.047580302	0.049005158	0.005346506
18-Mar-2013	-0.00046079	-0.027855187	-0.065266058	-0.035617442
11-Mar-2013	-0.015913323	-0.018548156	0.019050033	-0.01298923
4-Mar-2013	0.010088919	0.011244369	0.01240685	0.040421238
25-Feb-2013	0.009469323	0.042402649	-0.001084545	-0.020628969
18-Feb-2013	-0.003593521	0.005659517	0.008140668	-0.00776345
12-Feb-2013	0.002543417	0.027274501	0.010201827	-0.000852974
4-Feb-2013	-0.002304077	0.003484821	-0.00914346	-0.014984943
28-Jan-2013	-0.005851704	0.010165201	0.028193508	-0.016034
21-Jan-2013	-0.023448498	-0.011018098	0.018727333	0.003218218
15-Jan-2013	-0.003720212	0.047876701	0.009978107	0.019091074
7-Jan-2013	-0.005837243	-0.029182363	-0.008701822	-0.006087723
25-Dec-2012	0.006691131	0.025631258	0.013782672	0.017446274
17-Dec-2012	0.013551557	0.012563368	0.011967331	0.010541524
10-Dec-2012	0.004158646	-0.013534815	0.012298724	-0.003895482
3-Dec-2012	0.021146393	0.011644052	0.018935421	-0.005500898
26-Nov-2012	0.004308338	0.000825525	0.007676817	0.004353694

19-Nov-2012	-0.002161901	-0.026259027	0.033447546	0.045028874
12-Nov-2012	-0.00918197	-0.002499065	0.00305627	0.010770442
5-Nov-2012	-0.007190387	0.001753752	-0.006986039	-0.020034062
29-Oct-2012	-0.009087451	-0.001590569	-0.011736877	-0.003826621
22-Oct-2012	-0.009426457	-0.001921025	0.019100787	0.006985644
15-Oct-2012	0.003324632	-0.00093296	-0.022305923	-0.003049409
9-Oct-2012	0.007856728	0.00579104	0.008472552	0.00038179
1-Oct-2012	-0.004137981	0.00153053	-0.011755847	-0.01390187
24-Sep-2012	0.014401281	0.017860803	0.003598096	0.00936537
18-Sep-2012	0.00798177	0.001916837	0.008795585	0.000528454
10-Sep-2012	-0.011716729	-0.002948685	0.004618146	0.015628021
3-Sep-2012	0.011326213	0.029542803	0.026832561	0.044138878
27-Aug-2012	-0.013097545	0.022975285	0.013839966	0.017431929
20-Aug-2012	-0.001280169	-0.024857696	-0.012085587	-0.02263146
13-Aug-2012	-0.000951636	-0.007389677	0.008142415	0.005207709
6-Aug-2012	0.00269242	0.007119932	0.00265003	0.007594371
30-Jul-2012	0.006311772	0.013825736	0.01941924	0.020921704
23-Jul-2012	0.006215614	0.007011419	0.016138165	0.021303875
17-Jul-2012	-0.010992088	0.004686601	-0.029426875	-0.018606004
9-Jul-2012	0.010219014	0.012252976	-0.005465844	-0.003210234
2-Jul-2012	0.003597544	-0.010582696	0.009173322	-0.017545682
25-Jun-2012	0.013382109	0.029253546	0.024018272	0.005228922
18-Jun-2012	-0.002445308	0.016479626	0.017885935	0.026953586
11-Jun-2012	0.015095964	0.020915033	-0.015371173	0.001338067
4-Jun-2012	0.005481912	-0.002362724	0.036851776	0.013814331
28-May-2012	-0.001887404	0.016151412	0.014616968	0.047209674
21-May-2012	0.014486307	-0.02500456	-0.018402023	-0.015579159
14-May-2012	0.012176501	-0.025406278	-0.02459372	0.004028416
7-May-2012	-0.032733286	-0.030881213	-0.03231572	-0.008606774
1-May-2012	-0.004223652	-0.027477591	-0.032810089	-0.031970616
23-Apr-2012	0.014823319	0.011053233	0.013904083	-0.0176938

16-Apr-2012	-0.015108207	-0.006549238	0.012698791	-0.013790273
9-Apr-2012	-0.007030041	0.001095075	0.021912472	0.016340334
2-Apr-2012	0.002658127	-0.008891424	-0.012371655	-0.022389886
26-Mar-2012	0.00159115	0.008588871	-0.013251711	0.004701164
19-Mar-2012	0.006621138	0.022588654	0.001366185	0.002445607
12-Mar-2012	0.009182894	0.002979532	0.003959735	-0.005980694
5-Mar-2012	-0.004813173	0.00796518	0.028899606	-0.00211618
27-Feb-2012	-0.003018096	-0.008572949	-0.007659709	-0.007572802
20-Feb-2012	0.016044702	0.035077793	0.015972385	-0.015999603
13-Feb-2012	0.001040362	-0.029968226	0.016870896	-0.019999617
6-Feb-2012	-0.002887953	0.019209539	0.017472895	0.030461966
30-Jan-2012	0.014875517	-0.033820204	0.015930608	0.008164176
23-Jan-2012	0.011749622	0.000725855	0.02230849	0.021526078
16-Jan-2012	-0.001155872	-0.001761714	0.0170642	0.029569849
10-Jan-2012	-0.000269193	0.014134428	0.012541073	0.036174791
4-Jan-2012	0.005904381	0.016282782	0.006490375	0.018080091
26-Dec-2011	-0.010844499	0.013986429	0.01014755	0.026710588
19-Dec-2011	0.023112656	0.003157628	-0.013146146	-0.018030714
12-Dec-2011	0.020413035	0.012181333	0.002037193	0.015966975
5-Dec-2011	0.004170861	-0.000226087	0.00078521	-0.044537687
28-Nov-2011	-0.019402023	-0.009021658	0.002333513	-0.037595797
21-Nov-2011	0.040145297	0.043761595	0.071980462	0.073358933
14-Nov-2011	-0.015710946	-0.033874563	-0.019163763	-0.04129613
7-Nov-2011	-0.009770213	-0.011847354	0.008477182	-0.047770523
31-Oct-2011	-0.005928894	-0.00423867	0.010953065	-0.021055526
24-Oct-2011	-0.002908585	-0.013364918	-0.023670862	-0.013602512
17-Oct-2011	0.029878443	0.068145256	0.073185484	0.060716184
11-Oct-2011	-0.002495788	-0.014530007	-0.042513699	-0.017388948
3-Oct-2011	0.030270347	0.082401746	0.058735674	0.052373196
26-Sep-2011	0.009314195	-0.035991905	-0.000361465	-0.013444951
20-Sep-2011	0.015513126	0.050479147	-0.046055591	0.018048442

12-Sep-2011	-0.045418015	-0.115475302	-0.071830124	-0.045575632
5-Sep-2011	-0.025995154	-0.049840482	-0.028510402	0.00396396
29-Aug-2011	-0.003371572	0.042883549	-0.003462212	0.002705473
22-Aug-2011	0.02026564	-0.004343345	0.028344231	0.061369199
15-Aug-2011	-0.026395234	-0.015081206	-0.028296045	-0.018141865
8-Aug-2011	0.000208941	-0.005322448	0.006476263	-0.041447466
1-Aug-2011	-0.026737863	-0.050079469	-0.0303094	-0.026941148
25-Jul-2011	-0.015741117	0.005372345	-0.041384869	-0.048981711
19-Jul-2011	-0.010382989	0.017891696	0.008920063	-0.028046768
11-Jul-2011	-0.007728642	0.003207202	0.040372794	0.00864027
4-Jul-2011	-0.010967305	0.017228057	-0.009039104	-0.015702586
27-Jun-2011	0.007454483	0.025473221	0.046000164	0.005076001
20-Jun-2011	0.011683049	0.03447229	0.022072211	0.028623933
13-Jun-2011	0.000786732	-0.016834062	0.006072903	0.020712872
6-Jun-2011	0.004652388	-0.021081081	-0.002838155	-0.021786634
30-May-2011	-0.002346379	0.00471165	-0.038020707	-0.005873813
23-May-2011	0.00720609	-0.015249191	-0.012572069	0.006042888
16-May-2011	0.004970701	0.013833529	-0.005983099	-0.003273475
9-May-2011	0.000188221	0.007068963	-0.013415528	-0.01107263
2-May-2011	0.016654569	-0.004437066	0.035593266	0.000673369
25-Apr-2011	-0.012671423	-0.002549936	-0.042701994	-0.032250799
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11-Apr-2011	0.000532215	-0.001299283	0.020234681	0.011111157
4-Apr-2011	-0.022825187	0.006902152	0.00155391	-0.003322631
28-Mar-2011	0.001356582	0.02694731	0.020930264	0.00159935
22-Mar-2011	0.026280888	0.042417218	0.029833329	0.032140815
14-Mar-2011	0.007753227	-0.016294537	0.036338285	0.052398901
7-Mar-2011	0.005529479	-0.002085901	-0.00200213	-0.016247306
28-Feb-2011	-0.017726141	0.041336186	0.012639117	-0.0168967
21-Feb-2011	0.022386807	-0.017858586	0.008863422	0.044378509
14-Feb-2011	-0.018641767	0.039706278	-0.00808668	-0.028037748

7-Feb-2011	0.015416321	-0.034209672	0.058969631	0.027239022
31-Jan-2011	-0.024350119	0.003027639	-0.043547329	-0.015522972
24-Jan-2011	0.006524782	0.040830848	0.006897058	-0.021081791
17-Jan-2011	-0.016504785	-0.06172604	-0.023878416	-0.032174617
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20-Dec-2010	0.004849231	0.010226007	0.012000281	0.02169161
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6-Dec-2010	-0.004909506	0.000968906	-0.0135064	0.018246041
29-Nov-2010	0.004197258	0.013628672	0.000526681	-0.022939931
22-Nov-2010	0.005985054	-0.033965349	0.048234781	0.043389085
15-Nov-2010	-0.00929584	0.018357215	-0.018690923	-0.022916513
8-Nov-2010	0.004160527	-0.003377578	-0.007513584	-0.028350108
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18-Oct-2010	0.010076209	-0.002601208	-0.012548642	-0.006621091
12-Oct-2010	0.000523539	0.014437367	-0.008940952	0.002027821
4-Oct-2010	0.005704025	-0.003400589	0.039425878	-0.00618313
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21-Sep-2010	0.010425926	-0.000250274	0.032617161	0.019947938
13-Sep-2010	-0.010756866	0.048909744	0.034974871	0.02298728
6-Sep-2010	0.020302132	0.019350415	-0.004531009	0.042292786
30-Aug-2010	0.001469697	0.019158655	-0.002823884	0.031733514
23-Aug-2010	0.017448	-0.009254256	0.04250691	0.012391095
16-Aug-2010	0.011490875	0.021088752	0.001884381	-0.021922288
9-Aug-2010	0.025636878	-0.006356658	0.04191351	0.012923962
2-Aug-2010	-0.000220515	-0.010645511	-0.017676556	0.001269842
26-Jul-2010	-0.000345355	0.002276666	0.021307572	0.015429568
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12-Jul-2010	0.006755695	0.019528371	0.016277247	0.009755054

5-Jul-2010	0.00931806	0.02393015	0.002123749	0.006856743
28-Jun-2010	0.012903078	-0.030599627	0.017468359	0.021338472
21-Jun-2010	-0.014331486	0.00782827	0.005624235	-0.006462762
14-Jun-2010	0.006647998	0.053592233	-0.001804528	0.000211146
7-Jun-2010	0.017780593	-0.013427962	0.027840228	0.029643802
31-May-2010	0.000216318	0.042866928	-0.008378695	-0.003081023
24-May-2010	0.01987929	0.045285496	0.047116039	0.015099869
17-May-2010	-0.01288762	-0.087459165	-0.04123769	0.025383674
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6-May-2010	0.004809099	-0.083715576	-0.004579363	0.013446748
26-Apr-2010	-0.01001946	0.009489771	0.00488004	-0.044969135
19-Apr-2010	0.007181436	0.018980983	0.011448304	-0.007657311
12-Apr-2010	0.003008771	0.013454545	0.02777617	0.005856344
5-Apr-2010	-0.00090706	-0.000690432	-0.07373593	-0.019068607
29-Mar-2010	-0.001467132	0.003116627	-0.015236822	0.013594369
23-Mar-2010	0.015815807	0.024058382	0.032837231	0.00271242
15-Mar-2010	0.014298936	0.030603805	0.003904041	0.003784795
8-Mar-2010	-0.011134838	0.03508213	0.058531593	0.023977347
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8-Feb-2010	0.003414739	0.009660649	0.002491169	0.00241695
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25-Jan-2010	-0.00894247	-0.002929974	-0.010880861	-0.034663858
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9-Dec-2013	-0.015461584	0.006748428	-0.041199081
2-Dec-2013	-0.019575928	-0.023114098	-0.031226545
25-Nov-2013	0.001103109	0.018213178	0.020375228
18-Nov-2013	-0.008877727	0.014229272	-0.041213917
11-Nov-2013	0.007559997	0.076605049	-0.00138155
5-Nov-2013	-0.007481569	-0.008081501	-0.034956221
28-Oct-2013	-0.001260436	0.008047876	0.006968092
21-Oct-2013	0.003864825	-0.032506864	-0.010293848
14-Oct-2013	0.004148177	0.010885306	0.018187001
7-Oct-2013	0.013266074	0.027126468	0.015541869
30-Sep-2013	-0.0224598	-0.049848002	0.001672464
23-Sep-2013	-0.008447798	0.001197225	-0.006948455
17-Sep-2013	0.037570105	0.023447257	0.047480614
9-Sep-2013	0.023602933	0.039237245	0.026548969
2-Sep-2013	0.006408182	0.035249454	-0.016550977
26-Aug-2013	-0.019395568	-0.019888657	-0.013964789
19-Aug-2013	-0.033988735	0.000764829	-0.055890713
12-Aug-2013	-0.010025047	0.002564782	0.019006188
5-Aug-2013	-0.00744285	-0.058824871	-0.019853228
29-Jul-2013	0.005571521	0.023791966	-0.033956668
22-Jul-2013	0.007108046	-0.031523841	0.021537467
16-Jul-2013	-0.007045605	0.005767169	0.007120247
8-Jul-2013	0.020926073	0.013716311	0.011342239
1-Jul-2013	0.006122954	0.046255407	0.005444466
24-Jun-2013	0.008318264	0.033800877	0.0457946
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10-Jun-2013	-0.007313045	-0.014832813	-0.068590485
3-Jun-2013	-0.03824701	-0.065120868	-0.045571387
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20-May-2013	-0.016272867	-0.03472492	-0.001505521
13-May-2013	0.001605798	0.036322338	0.002408301
7-May-2013	0.021920532	0.066707852	0.006518048
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8-Apr-2013	-0.001694052	0.050765021	0.024421968
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4-Feb-2013	-0.006332152	-0.003411566	0.022166268
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18-Sep-2012	-0.005811781	-0.00539228	0.010211524
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2-Jul-2012	0.005710832	0.001551054	-0.027627977
25-Jun-2012	0.034775661	0.023689669	0.022161821
18-Jun-2012	0.017807071	0.026726741	0.024675444
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7-May-2012	-0.037487792	-0.045514778	-0.054034982
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22-Nov-2010	0.004547067	0.001713164	0.030318879
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15-Feb-2010	-0.002277723	0.003110326	0.021896707
8-Feb-2010	-0.000637935	0.003490075	0.009790992
1-Feb-2010	0.028074647	-0.013821283	0.032920816
25-Jan-2010	-0.022507148	-0.037062287	-0.033032077
18-Jan-2010	-0.026371506	-0.035653472	-0.023244815
12-Jan-2010	-0.030501097	0.017019314	-0.030463657

## GARCH (1.1)

Dependent Variable: RETURN\_BSESN

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:04

Sample: 1 207

Included observations: 207

Convergence achieved after 40 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.076168	0.070435	1.081385	0.2795
Variance Equation				
C	6.11E-05	5.61E-05	1.088232	0.2765
RESID(-1)^2	0.101739	0.068349	1.488513	0.1366
GARCH(-1)	0.792045	0.146298	5.413909	0.0000
R-squared	-0.005208	Mean dependent var	0.001178	
Adjusted R-squared	-0.005208	S.D. dependent var	0.023760	
S.E. of regression	0.023821	Akaike info criterion	-4.667355	
Sum squared resid	0.116896	Schwarz criterion	-4.602955	
Log likelihood	487.0712	Hannan-Quinn criter.	-4.641312	
Durbin-Watson stat	1.912599			

## GARCH (1.1)

Dependent Variable: RETURN\_KLCI

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:04

Sample: 1 207

Included observations: 207

Convergence achieved after 15 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.146974	0.069808	2.105386	0.0353
Variance Equation				
C	1.56E-05	1.18E-05	1.318488	0.1873
RESID(-1)^2	0.016305	0.023207	0.702590	0.4823
GARCH(-1)	0.900949	0.078679	11.45093	0.0000
R-squared	-0.003122	Mean dependent var		0.001846
Adjusted R-squared	-0.003122	S.D. dependent var		0.013477
S.E. of regression	0.013498	Akaike info criterion		-5.764683
Sum squared resid	0.037531	Schwarz criterion		-5.700283
Log likelihood	600.6447	Hannan-Quinn criter.		-5.738640
Durbin-Watson stat	2.066818			



## GARCH (1.1)

Dependent Variable: RETURN\_LQ45

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:05

Sample: 1 207

Included observations: 207

Convergence achieved after 14 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.103729	0.061059	1.698820	0.0894
Variance Equation				
C	0.000112	5.36E-05	2.080966	0.0374
RESID(-1)^2	0.304409	0.098584	3.087821	0.0020
GARCH(-1)	0.582489	0.119307	4.882259	0.0000
R-squared	-0.018136	Mean dependent var	0.001987	
Adjusted R-squared	-0.018136	S.D. dependent var	0.029170	
S.E. of regression	0.029434	Akaike info criterion	-4.402190	
Sum squared resid	0.178467	Schwarz criterion	-4.337789	
Log likelihood	459.6267	Hannan-Quinn criter.	-4.376147	
Durbin-Watson stat	2.398940			

## GARCH (1.1)

Dependent Variable: RETURN\_NIKKEI\_225

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:05

Sample: 1 207

Included observations: 207

Convergence achieved after 18 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.090157	0.071576	1.259600	0.2078
Variance Equation				
C	0.000263	0.000757	0.348236	0.7277
RESID(-1)^2	0.017965	0.066503	0.270143	0.7871
GARCH(-1)	0.635695	1.044216	0.608778	0.5427
R-squared	-0.000499	Mean dependent var	0.002369	
Adjusted R-squared	-0.000499	S.D. dependent var	0.027580	
S.E. of regression	0.027587	Akaike info criterion	-4.312774	
Sum squared resid	0.156771	Schwarz criterion	-4.248374	
Log likelihood	450.3721	Hannan-Quinn criter.	-4.286731	
Durbin-Watson stat	1.800350			

## GARCH (1.1)

Dependent Variable: RETURN\_PSEI

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:06

Sample: 1 207

Included observations: 207

Convergence achieved after 54 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.149040	0.069594	2.141559	0.0322

Variance Equation				
C	0.000345	0.000188	1.831712	0.0670
RESID(-1)^2	0.204182	0.133048	1.534647	0.1249
GARCH(-1)	0.214062	0.344166	0.621971	0.5340

R-squared	-0.008710	Mean dependent var	0.003414
Adjusted R-squared	-0.008710	S.D. dependent var	0.024040
S.E. of regression	0.024144	Akaike info criterion	-4.604632
Sum squared resid	0.120088	Schwarz criterion	-4.540231
Log likelihood	480.5794	Hannan-Quinn criter.	-4.578589
Durbin-Watson stat	2.131954		

## GARCH (1.1)

Dependent Variable: RETURN\_SET50

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:06

Sample: 1 207

Included observations: 207

Convergence achieved after 14 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.163302	0.063536	2.570236	0.0102
Variance Equation				
C	0.000629	0.000164	3.830180	0.0001
RESID(-1)^2	0.287489	0.113659	2.529396	0.0114
GARCH(-1)	-0.123961	0.189334	-0.654723	0.5126
R-squared	-0.017697	Mean dependent var	0.002550	
Adjusted R-squared	-0.017697	S.D. dependent var	0.026952	
S.E. of regression	0.027190	Akaike info criterion	-4.391741	
Sum squared resid	0.152292	Schwarz criterion	-4.327341	
Log likelihood	458.5452	Hannan-Quinn criter.	-4.365698	
Durbin-Watson stat	2.059009			

## GARCH (1.1)

Dependent Variable: RETURN\_STI

Method: ML - ARCH (Marquardt) - Normal distribution

Date: 01/23/15 Time: 01:07

Sample: 1 207

Included observations: 207

Convergence achieved after 8 iterations

Presample variance: backcast (parameter = 0.7)

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

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.070259	0.061872	1.135553	0.2561
Variance Equation				
C	5.00E-05	2.98E-05	1.680131	0.0929
RESID(-1)^2	0.198406	0.091009	2.180066	0.0293
GARCH(-1)	0.674118	0.141422	4.766717	0.0000
R-squared	-0.009140	Mean dependent var	0.000592	
Adjusted R-squared	-0.009140	S.D. dependent var	0.019002	
S.E. of regression	0.019089	Akaike info criterion	-5.153296	
Sum squared resid	0.075065	Schwarz criterion	-5.088896	
Log likelihood	537.3662	Hannan-Quinn criter.	-5.127253	
Durbin-Watson stat	1.765340			

## Pemilihan Lag Optimal

## VAR Lag Order Selection Criteria

Endogenous variables: RKL CI RLQ45 RSET50 RBSESN RSTI

RNIKKEI225 RPSEI

Exogenous variables: C

Date: 01/21/15 Time: 10:20

Sample: 1 208

Included observations: 199

Lag	LogL	LR	FPE	AIC	SC	HQ
0	3537.605	NA	9.17e-25	-35.48347	-35.36763*	-35.43659
1	3625.638	168.9873	6.20e-25*	-35.87576*	-34.94900	-35.50068*
2	3670.997	83.88044	6.44e-25	-35.83917	-34.10150	-35.13589
3	3705.004	60.49328	7.52e-25	-35.68848	-33.13989	-34.65700
4	3748.859	74.92945*	7.98e-25	-35.63678	-32.27727	-34.27710
5	3788.354	64.70045	8.90e-25	-35.54125	-31.37083	-33.85337
6	3812.236	37.44218	1.17e-24	-35.28880	-30.30747	-33.27273
7	3848.513	54.32423	1.37e-24	-35.16093	-29.36869	-32.81666
8	3876.398	39.79684	1.76e-24	-34.94873	-28.34557	-32.27626

## VAR BSESN KE NIKKEI225 dan STI

## Vector Autoregression Estimates

Date: 03/17/15 Time: 14:45

Sample (adjusted): 2 207

Included observations: 206 after adjustments

Standard errors in ( ) &amp; t-statistics in [ ]

	RBSESN	RNIKKEI22 5	RSTI
RBSESN(-1)	-0.092398 (0.08535) [-1.08257]	0.059367 (0.10999) [ 0.53976]	-0.116475 (0.06436) [-1.80970]
RNIKKEI225(-1)	0.357571 (0.05489) [ 6.51421]	0.089989 (0.07074) [ 1.27218]	0.355555 (0.04139) [ 8.58978]
RSTI(-1)	0.202298 (0.10770) [ 1.87838]	0.066475 (0.13879) [ 0.47897]	0.127156 (0.08121) [ 1.56568]
C	0.000351 (0.00150) [ 0.23418]	0.002009 (0.00193) [ 1.03909]	-0.000183 (0.00113) [-0.16199]
R-squared	0.202765	0.017408	0.291091
Adj. R-squared	0.190925	0.002815	0.280562
Sum sq. resids	0.092700	0.153945	0.052714
S.E. equation	0.021422	0.027606	0.016154
F-statistic	17.12523	1.192898	27.64824
Log likelihood	501.4435	449.1997	559.5854
Akaike AIC	-4.829548	-4.322327	-5.394033
Schwarz SC	-4.764929	-4.257708	-5.329414
Mean dependent	0.001196	0.002347	0.000568
S.D. dependent	0.023816	0.027645	0.019045
Determinant resid covariance (dof adj.)		5.96E-11	
Determinant resid covariance		5.62E-11	
Log likelihood		1554.114	
Akaike information criterion		-14.97198	
Schwarz criterion		-14.77812	

## VAR KLCI KE NIKKEI225 dan STI

Vector Autoregression Estimates

Date: 03/17/15 Time: 14:55

Sample (adjusted): 2 207

Included observations: 206 after adjustments

Standard errors in ( ) &amp; t-statistics in [ ]

	RKLCI	RNIKKEI225	RSTI
		5	
RKLCI(-1)	-0.063025 (0.07734) [-0.81488]	-0.055817 (0.17154) [-0.32538]	0.047052 (0.10109) [ 0.46543]
RNIKKEI225(-1)	0.195134 (0.03186) [ 6.12421]	0.085925 (0.07067) [ 1.21585]	0.362165 (0.04165) [ 8.69608]
RSTI(-1)	0.015031 (0.05577) [ 0.26952]	0.138967 (0.12370) [ 1.12343]	0.009853 (0.07290) [ 0.13517]
C	0.001496 (0.00088) [ 1.70098]	0.002149 (0.00195) [ 1.10140]	-0.000358 (0.00115) [-0.31175]
R-squared	0.162803	0.016506	0.280369
Adj. R-squared	0.150369	0.001900	0.269681
Sum sq. Resids	0.031322	0.154086	0.053512
S.E. equation	0.012452	0.027619	0.016276
F-statistic	13.09376	1.130069	26.23311
Log likelihood	613.2038	449.1052	558.0393
Akaike AIC	-5.914600	-4.321410	-5.379022
Schwarz SC	-5.849981	-4.256791	-5.314403
Mean dependent	0.001839	0.002347	0.000568
S.D. dependent	0.013509	0.027645	0.019045
Determinant resid covariance (dof adj.)		2.50E-11	
Determinant resid covariance		2.36E-11	
Log likelihood		1643.657	
Akaike information criterion		-15.84133	
Schwarz criterion		-15.64747	



## VAR LQ45 KE NIKKEI225 dan STI

## Vector Autoregression Estimates

Date: 03/17/15 Time: 14:57

Sample (adjusted): 2 207

Included observations: 206 after adjustments

Standard errors in ( ) &amp; t-statistics in [ ]

	RLQ45	RNIKKEI225 5	RSTI
RLQ45(-1)	-0.304918 (0.07073) [-4.31118]	-0.021223 (0.07013) [-0.30263]	0.102433 (0.04071) [ 2.51586]
RNIKKEI225(-1)	0.223527 (0.07347) [ 3.04236]	0.092610 (0.07285) [ 1.27124]	0.334752 (0.04229) [ 7.91474]
RSTI(-1)	0.175675 (0.10624) [ 1.65351]	0.123333 (0.10534) [ 1.17076]	-0.003414 (0.06116) [-0.05582]
C	0.001930 (0.00195) [ 0.98992]	0.002083 (0.00193) [ 1.07755]	-0.000397 (0.00112) [-0.35412]
R-squared	0.105812	0.016437	0.301485
Adj. R-squared	0.092532	0.001829	0.291111
Sum sq. resids	0.156739	0.154097	0.051941
S.E. equation	0.027856	0.027620	0.016035
F-statistic	7.967742	1.125229	29.06160
Log likelihood	447.3465	449.0979	561.1068
Akaike AIC	-4.304334	-4.321339	-5.408804
Schwarz SC	-4.239716	-4.256720	-5.344185
Mean dependent	0.001983	0.002347	0.000568
S.D. dependent	0.029241	0.027645	0.019045
Determinant resid covariance (dof adj.)		1.32E-10	
Determinant resid covariance		1.25E-10	
Log likelihood		1471.986	
Akaike information criterion		-14.17462	
Schwarz criterion		-13.98076	

## VAR PSEI KE NIKKEI225 dan STI

## Vector Autoregression Estimates

Date: 03/17/15 Time: 14:58

Sample (adjusted): 2 207

Included observations: 206 after adjustments

Standard errors in ( ) &amp; t-statistics in [ ]

	RPSEI	RNIKKEI22 5	RSTI
RPSEI(-1)	-0.182344 (0.08076) [-2.25791]	0.124430 (0.09858) [ 1.26225]	0.013720 (0.05833) [ 0.23522]
RNIKKEI225(-1)	0.288729 (0.05763) [ 5.01034]	0.089701 (0.07034) [ 1.27520]	0.361421 (0.04162) [ 8.68332]
RSTI(-1)	0.167918 (0.10325) [ 1.62637]	0.024405 (0.12603) [ 0.19364]	0.018453 (0.07457) [ 0.24745]
C	0.003247 (0.00160) [ 2.03426]	0.001677 (0.00195) [ 0.86075]	-0.000325 (0.00115) [-0.28217]
R-squared	0.137410	0.023691	0.279794
Adj. R-squared	0.124599	0.009192	0.269098
Sum sq. resids	0.102657	0.152960	0.053554
S.E. equation	0.022543	0.027518	0.016283
F-statistic	10.72616	1.633925	26.15848
Log likelihood	490.9356	449.8605	557.9571
Akaike AIC	-4.727530	-4.328742	-5.378224
Schwarz SC	-4.662911	-4.264123	-5.313605
Mean dependent	0.003383	0.002347	0.000568
S.D. dependent	0.024094	0.027645	0.019045
Determinant resid covariance (dof adj.)		7.38E-11	
Determinant resid covariance		6.96E-11	
Log likelihood		1532.074	
Akaike information criterion		-14.75800	
Schwarz criterion		-14.56415	

## VAR SET50 KE NIKKEI225 dan STI

## Vector Autoregression Estimates

Date: 03/17/15 Time: 15:00

Sample (adjusted): 2 207

Included observations: 206 after adjustments

Standard errors in ( ) &amp; t-statistics in [ ]

	RSET50	RNIKKEI22 5	RSTI
RSET50(-1)	-0.159051 (0.08184) [-1.94355]	0.016135 (0.08964) [ 0.18000]	-0.052100 (0.05272) [-0.98831]
RNIKKEI225(-1)	0.315878 (0.06458) [ 4.89162]	0.086319 (0.07073) [ 1.22036]	0.363797 (0.04160) [ 8.74562]
RSTI(-1)	0.125525 (0.11595) [ 1.08254]	0.103329 (0.12701) [ 0.81355]	0.071782 (0.07469) [ 0.96101]
C	0.002482 (0.00177) [ 1.40093]	0.002026 (0.00194) [ 1.04400]	-0.000176 (0.00114) [-0.15384]
R-squared	0.117871	0.016149	0.283064
Adj. R-squared	0.104770	0.001537	0.272416
Sum sq. resids	0.128473	0.154142	0.053311
S.E. equation	0.025219	0.027624	0.016246
F-statistic	8.997124	1.105181	26.58483
Log likelihood	467.8295	449.0678	558.4257
Akaike AIC	-4.503199	-4.321046	-5.382774
Schwarz SC	-4.438580	-4.256427	-5.318155
Mean dependent	0.002857	0.002347	0.000568
S.D. dependent	0.026654	0.027645	0.019045
Determinant resid covariance (dof adj.)		8.84E-11	
Determinant resid covariance		8.34E-11	
Log likelihood		1513.471	
Akaike information criterion		-14.57739	
Schwarz criterion		-14.38353	

VARIANCE DECOMPOSITION BSESN

Period	S.E.	RBSESN	RNIKKEI2	
			25	RSTI
1	0.021422	100.0000	0.000000	0.000000
2	0.023893	80.39640	18.38167	1.221925
3	0.023985	79.80973	18.94957	1.240700
4	0.023992	79.76447	18.99266	1.242876
5	0.023992	79.76117	18.99582	1.243019
6	0.023992	79.76094	18.99603	1.243029
7	0.023992	79.76092	18.99605	1.243029
8	0.023992	79.76092	18.99605	1.243029
9	0.023992	79.76092	18.99605	1.243029
10	0.023992	79.76092	18.99605	1.243029

VARIANCE DECOMPOSITION KLCI

Period	S.E.	RKLCI	RNIKKEI2 25	RSTI
1	0.012452	100.0000	0.000000	0.000000
2	0.013598	84.11768	15.85650	0.025814
3	0.013608	84.00619	15.88901	0.104802
4	0.013610	83.97631	15.91865	0.105036
5	0.013610	83.97522	15.91955	0.105229
6	0.013610	83.97512	15.91964	0.105234
7	0.013610	83.97512	15.91965	0.105235
8	0.013610	83.97512	15.91965	0.105235
9	0.013610	83.97512	15.91965	0.105235
10	0.013610	83.97512	15.91965	0.105235

VARIANCE DECOMPOSITION LQ45

Period	S.E.	RNIKKEI2		
		RLQ45	25	RSTI
1	0.027856	100.0000	0.000000	0.000000
2	0.029291	94.84002	4.294977	0.865002
3	0.029442	94.86385	4.260372	0.875781
4	0.029458	94.83599	4.277896	0.886118
5	0.029460	94.83615	4.277330	0.886517
6	0.029460	94.83592	4.277436	0.886645
7	0.029460	94.83592	4.277429	0.886653
8	0.029460	94.83592	4.277429	0.886654
9	0.029460	94.83592	4.277429	0.886655
10	0.029460	94.83592	4.277429	0.886655

VARIANCE DECOMPOSITION PSEI

Variance Decomposition of RPSE I: Period	RNIKKEI2			
	S.E.	RPSEI	25	RSTI
1	0.022543	100.0000	0.000000	0.000000
2	0.024206	87.70763	11.36788	0.924495
3	0.024270	87.61869	11.44797	0.933342
4	0.024275	87.58236	11.47964	0.937999
5	0.024275	87.58127	11.48073	0.938001
6	0.024275	87.58111	11.48087	0.938016
7	0.024275	87.58110	11.48088	0.938016
8	0.024275	87.58110	11.48088	0.938016
9	0.024275	87.58110	11.48088	0.938016
10	0.024275	87.58110	11.48088	0.938016

VARIANCE DECOMPOSITION SET50

Period	S.E.	RSET50	RNIKKEI2	
			25	RSTI
1	0.025219	100.0000	0.000000	0.000000
2	0.026817	88.94207	10.65344	0.404487
3	0.026840	88.89271	10.69145	0.415841
4	0.026845	88.86301	10.72007	0.416920
5	0.026845	88.86233	10.72067	0.416991
6	0.026845	88.86223	10.72078	0.416997
7	0.026845	88.86222	10.72078	0.416997
8	0.026845	88.86222	10.72078	0.416997
9	0.026845	88.86222	10.72078	0.416997
10	0.026845	88.86222	10.72078	0.416997