CHAPTER V

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

5.1 Conclusion

1. Based on the run test, there are randomness in the data return that used in this research based on the significant level above 0.05 level of significance.
2. The result of descriptive statistics shows that Republic of Korea's stock market dominates the daily return by showing the highest median at -0.00167 points and SET or Thailand index shows the highest volatility by having the highest standard deviation at 0.0494554 points.
3. The Unit-Root test in this case using Augmented Dickey-Fuller and Philips-Perron test, use to test the stationarity of the data. Based on the ADF and PP test, all the variables are stationary at the level.
4. The next results is the Pearson correlation which measured by 1% significant level and two-tailed with 5% level of significance. The result of Pearson correlation that all the variables are highly correlated by the values of Pearson correlation which is more than 0.01, means the correlation are significant, and also from the two-tailed significant values, which shows that all values are less than 0.05 level of significance, at 0.0000 points. It shows that there are positive correlation among one stock market and another stock

markets. Singapore (STI) and Hongkong (HSI) stock market are highly correlated by 0.830 points, and the lowest correlation is between China (SSE) and Thailand (SET) by 0.319 points.

5. Based on Granger causality test, there are 18 cases a variable Granger cause another variable. STI Granger cause HSI, STI Granger cause TWII, STI Granger cause KOSPI, SET Granger cause STI, N225 Granger cause TWII and KOSPI, HSI Granger cause TWII, KLSE, AXJO, and SET Granger cause HSI and TWII, KLSE and SET Granger cause NZ50, KLSE and KOSPI Granger cause AXJO, SET Granger cause KOSPI.
6. Based on Johansen co-integration test with lag 1 to 4, the series are co-integrated and based on the trace test, all the series are co-integrated because there are ten co-integrating equations based on the value of probability at 0.05 level, ten equations fulfill the minimum values to decide the series are co-integrated or not. But on the maximum Eigenvalue test, there are at least four co-integrating equations based on the value of probability at 0.05 level. It means that only four series are co-integrated in the long term based on the maximum Eigenvalue test.
7. The last step of this research is GARCH (1,1) test. Based on GARCH (1,1) which stated that sum of ARCH(1) and GARCH(1) coefficient are close to unity, the series is considered to be volatile and presence of volatility clustering indicates inefficiency in stock

markets. Singapore (STI) and Republic of Korea (KOSPI) got the perfect results at 1.003574 points and 1.003151 points. It means that this two stock markets are highly volatile among the other stock markets, Following the STI and KOSPI, there are eight variables or eight stock markets which also got the result almost close to unity (1), Taiwan (TWII) at 0.987380 points, Thailand (SET) at 0.970095 points, Republic of China (SSE) at 0.956601 points, New Zealand (NZ50) at 0.946875 points, Malaysia (KLSE) at 0.945997 points, Hongkong (HSI) at 0.917151 points, Japan (N225) at 0.894114 points, and the last is Australia (AXJO) at 0.892525 points. All these stock markets also efficient in the strong form.

The result of this research are in line with Seth and Sharma (2015) research about international stock market efficiency and integration which takes samples from US and Asian markets.

5.2 Limitation and suggestion

The limitation of this research is, this research is really far from perfect, because only take sample from limited countries (groups), and overall apart from the financial crisis, this research does not conduct detailed analysis that affect the integration and efficiency. For further research, it may better to include the detailed analysis to explain the portfolio diversification, the advantages and disadvantages since the investor may need detailed information. Future studies on the same or related issues may cover more stock markets, employ more advanced

techniques for data analysis and use more presentative data in order to add to the literature on stock market efficiency and integration.

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Appendix 1. Stock Market Return

MONTH	STI	N225	HSI	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
Jan-03	0.013808506	-0.002762107	0.014939726	0.131462032	0.038477282	0.027782981	0.055696385	0.028552547	-0.008016244	0.024050703
Feb-03	0.00475622	0.048958269	0.056542102	0.02574267	-0.026278601	0.017429084	-0.029218096	0.074164607	0.000893696	-0.008860239
Mar-03	-0.01054374	0.018041433	-0.009494946	0.0417424	-0.040579976	0.008487041	-0.04066502	-0.106198326	-0.007137975	-0.026906548
Apr-03	-0.050163116	-0.070400517	-0.081177329	-0.089516909	-0.035336789	-0.061195046	-0.001162405	-0.053787389	-0.034778526	-0.072284681
May-03	-0.068299397	-0.072508266	-0.009370273	-0.064909743	-0.056704554	-0.029625989	-0.005252867	-0.054498247	0.060725966	-0.125590057
Jun-03	-0.071192582	-0.050202768	-0.055029039	-0.083896471	0.030829044	-0.039691318	-0.030554446	-0.061091526	0.006284112	-0.046043255
Jul-03	-0.025249339	-0.07544217	-0.070965336	-0.058839185	-0.030953771	-0.030593287	-0.024189738	-0.060502657	0.038509684	-0.099681985
Aug-03	-0.019346363	0.012183129	-0.028573784	0.007024958	-0.028901831	0.013429649	0.009528301	0.088814585	0.040097721	-0.071280528
Sep-03	-0.053901128	-0.032249362	-0.078771259	-0.071745466	-0.011309384	-0.102396201	-0.031326406	-0.108441084	0.013987985	-0.094565642
Oct-03	0.005665088	0.045444912	-0.010340607	0.047359839	-0.016591142	0.048557598	0.026864204	-0.017357894	-0.035012382	-0.010185286
Nov-03	-0.028631027	-0.053956053	-0.020552793	-0.020187775	-0.042647141	-0.018464837	-0.034365763	-0.017922597	-0.066678245	-0.163336139
Dec-03	-0.045359111	-0.009919749	-0.053684236	-0.076025265	-0.008565582	-0.030527267	0.008496347	-0.044537393	-0.058897487	0.104807555
Jan-04	-0.021322345	-0.023393538	-0.044413519	-0.055574836	0.012714724	-0.068581944	-0.026364368	-0.039528179	-0.050350135	-0.024291498
Feb-04	0.015982377	-0.057485901	0.096624526	0.035011262	-0.058827174	-0.025070673	-0.016016148	0.003316278	-0.03821155	0.106596632
Mar-04	0.00916924	-0.003945011	0.061853172	0.066098796	-0.014491718	0.075923638	0.004263703	0.020467262	0.091521005	-0.001311425
Apr-04	0.029837976	0.046760646	-0.020927631	0.023414849	0.013645457	0.033971949	-0.01716661	0.073397689	0.02550276	0.011075579
May-04	-0.026844378	-0.052492353	-0.007122867	0.023700886	-0.037217166	-0.011209233	-0.020577982	0.022970577	0.112031505	-0.008644686
Jun-04	-0.028392281	0.047068708	0.003899298	0.077274185	-0.032976905	-0.016930856	-0.000905007	0.06860765	0.0093493	0.015611748
Jul-04	-0.013881796	0.022017222	-0.047644875	-0.059833114	0.014002495	0.007246552	-0.004672461	-0.08490857	0.032889737	0.019388719
Aug-04	-0.033455276	0.023857167	-0.020560166	-0.01371094	-0.029949864	-0.025860089	-0.030641214	-0.037744457	-0.039120785	-0.031147719
Sep-04	0.002044767	0.004841552	0.005007416	0.024493774	0.007843935	-0.012982782	-0.03006407	0.000299459	0.057673376	0.026283113

Oct-04	-0.023164679	-0.011728337	-0.071506834	-0.023752831	-0.05966964	-0.061110552	-0.0388421	-0.049222116	-0.015088345	-0.043503418
Nov-04	-0.018624034	-0.051311872	-0.011952788	-0.048036656	-0.024030457	0.010755661	-0.029452438	-0.019934799	0.058641927	-0.01701841
Dec-04	-0.01439674	0.008884226	0.037054415	0.024266663	-0.003622125	-0.00964784	-0.013804619	-0.039433932	0.062660469	-0.048168569
Jan-05	-0.010889797	-0.030067439	-0.033367208	-0.034408174	-0.041403509	0.009797455	-0.015696895	-0.077776434	-0.087427259	-0.0534556
Feb-05	-0.010287532	0.006140177	0.050194256	0.033625414	0.055720757	0.041349664	0.015329214	0.047303447	0.105617825	0.08813042
Mar-05	0.00761319	0.059956016	-0.028189712	0.032280475	0.018919477	-0.008658012	0.031783454	0.059673001	0.019057068	0.034315809
Apr-05	-0.016893573	-0.023738511	0.003021504	-0.03218636	-0.017038309	0.021179746	-0.030001937	-0.060718847	0.092774855	-0.012987791
May-05	-0.022999419	-0.0265383	-0.023518615	-0.036908379	-0.065344385	-0.031058658	-0.040000023	-0.037642787	-0.018687439	-0.01176906
Jun-05	-0.059467195	-0.026521047	-0.045690598	-0.011096366	-0.033575658	-0.052347483	-0.025359964	-0.092802115	-0.001929771	-0.000251602
Jul-05	0.033896947	-0.041406201	-0.00151436	0.046160792	0.001840059	0.026084786	-0.013043088	0.025809388	-0.068601651	-0.031783335
Aug-05	-0.012888572	-0.085507187	-0.03402593	-0.013914868	-0.028869387	-0.015072105	-0.041885801	-0.112759153	0.006221822	-0.035092571
Sep-05	0.039864249	-0.00236653	0.072440053	0.061466279	0.048473239	0.018424138	0.040697803	0.054312652	0.057456855	0.059491371
Oct-05	-0.036291699	-0.085102044	-0.03687249	-0.070794313	-0.007417665	0.016325762	-0.037779325	-0.107388367	-0.005858487	0.022268813
Nov-05	-0.020061042	-0.076919263	0.00408095	-0.0526652	-0.015647481	-0.004067586	-0.026997544	-0.05939672	-0.053227223	-0.06442212
Dec-05	-0.026839901	-0.032336122	-0.05565303	0.002473855	0.005927241	-0.015557851	-0.033714742	-0.014616033	-0.077095505	-0.064120216
Jan-06	-0.028155121	0.027422329	-0.010386721	-0.004488169	-0.0159416	-0.016072074	0.001686606	0.020589236	-0.031546616	0.02497144
Feb-06	-0.020304706	-0.050073123	0.007177485	-0.007913603	-0.080365066	0.002492901	-0.040626232	0.008818763	0.000562274	0.014728946
Mar-06	-0.029612657	0.009075334	-0.05139219	-0.077777146	-0.024423134	-0.023808745	-0.024549254	-0.042353127	-0.098540501	-0.045607778
Apr-06	0.095156125	0.093028363	0.050663181	0.047440074	0.050249151	0.023119652	0.051402443	0.077430396	-0.122512642	0.082968017
May-06	-0.021154632	-0.002441095	-0.025186872	0.021260638	0.007730333	0.014310889	-0.014229628	0.017411054	-0.01848452	0.046156342
Jun-06	-0.004105633	0.003129373	-0.041465184	0.038705861	0.001483024	-0.022610434	0.017629343	-0.002057236	0.036881561	-0.019320598
Jul-06	-0.014888862	-0.042374102	-0.024202114	-0.02377426	0.020024112	-0.023243455	-0.025296146	-0.040599113	-0.027679304	0.000853959
Aug-06	-0.033660928	0.000817214	-0.008594928	-0.03941273	-0.022029138	-0.009746259	-0.007508623	-0.013613758	-0.053514568	0.006996065
Sep-06	-0.049186599	-0.01657443	-0.042637193	-0.019692881	-0.051568216	-0.020995649	-0.042771675	0.005027287	-0.046556292	-0.050328046
Oct-06	-0.048186923	0.007684528	-0.033550355	-0.072201452	-0.020501011	-0.085466329	-0.017821673	-0.047241615	-0.124470654	-0.022460964
Nov-06	-0.049333031	-0.055236816	-0.05030074	-0.032721006	-0.047284288	-0.014212176	-0.033122243	-0.001568535	-0.215356554	0.087108731

Dec-06	-0.044705582	-0.009065526	-0.007047461	0.016115049	-0.023479528	-0.078286449	-0.017927045	0.05457164	-0.039787103	0.039447129
Jan-07	0.006897269	-0.012536794	0.023148865	-0.025603752	0.028696153	-0.005934201	-0.010132893	-0.040293781	-0.032883616	-0.034099804
Feb-07	-0.039331677	0.018306059	-0.007546106	0.002225887	-0.017045986	-0.04043729	-0.027105922	-0.024240186	-0.095135648	0.005076368
Mar-07	-0.038690517	-0.006480294	-0.025495904	0.001141556	-0.020859954	-0.05700889	-0.027732728	-0.058155632	-0.171112679	-0.036400824
Apr-07	-0.042675677	-0.026591323	-0.015289475	-0.033091703	-0.025035146	-0.018294007	-0.023362636	-0.093285383	-0.065304831	-0.051857879
May-07	-0.01044757	-0.014478122	-0.052279147	-0.083107319	0.016073547	-0.005530198	0.006151508	-0.024483794	0.075627503	-0.050708686
Jun-07	0.000152224	0.051566722	-0.060910618	-0.043504809	0.004981899	-0.014071352	0.021272046	-0.098108408	-0.145454179	-0.096503675
Jul-07	0.045609817	0.041028251	-0.033322068	0.0339662	0.022901256	0.078324478	-0.016487386	0.032046097	-0.143288821	0.057242287
Aug-07	-0.084538755	-0.012903826	-0.116361186	-0.045664292	-0.035121387	-0.046673646	-0.048813852	-0.037626891	-0.060059795	-0.03819042
Sep-07	-0.026137103	0.00287129	-0.134282709	-0.030831893	0.014214561	-0.054716495	-0.027583289	-0.057326252	-0.067587833	-0.068093643
Oct-07	0.080774814	0.067405343	0.094575047	0.131017618	0.035979299	0.011932915	0.033827738	0.083342129	0.222298626	0.071877511
Nov-07	0.011190871	0.024359485	0.029877015	0.009418937	0.005322442	-0.033251938	0.030489968	0.004675481	-0.074080691	-0.01358816
Dec-07	0.167871233	0.12619565	0.185750273	0.130984361	0.10100146	0.037164923	0.122028923	0.167694526	0.200340376	0.094194305
Jan-08	-0.014769764	-0.000775549	-0.035999571	-0.105985421	0.024539993	0.026410767	0.014034153	-0.05079395	0.008014184	-0.072751135
Feb-08	0.006347708	0.086022598	0.064880641	-0.018644316	0.032356233	0.08807875	0.04040553	0.004477729	0.25220361	0.035163947
Mar-08	-0.04461223	-0.09562824	-0.112836767	-0.038938699	-0.042587209	-0.025268362	-0.042838709	-0.066547236	-0.059678699	-0.018523635
Apr-08	-0.014041783	-0.034072493	0.049819612	0.034903939	0.000157294	0.002946485	-0.010486903	-0.014335725	0.075657885	-0.001439453
May-08	0.083147328	0.06358104	0.109994946	0.145614968	0.134482725	0.075452804	0.084252182	0.105736376	0.254833522	0.084648512
Jun-08	0.006106578	0.007817284	-0.027675293	0.071109867	-0.042463439	0.020187587	0.04779602	0.05032389	-0.014273774	0.136429501
Jul-08	0.069234823	0.023249635	0.06910058	-0.003129359	-0.005057783	0.056874117	-0.030804617	0.081689586	0.157818776	-0.011863713
Aug-08	0.161532256	0.161015298	0.180153291	0.231992511	0.085113688	0.080319637	0.116313465	0.018079313	0.045161262	0.147349717
Sep-08	0.314741933	0.312800046	0.289758512	0.174230926	0.095488558	0.179560231	0.144972623	0.300972079	0.326812395	0.43216575
Oct-08	0.035571438	0.007602078	0.005791208	0.091956243	0.040539199	-0.00292104	0.073613894	0.034375194	-0.076086492	0.036556839
Nov-08	-0.016457068	-0.03919947	-0.034699629	-0.028473908	-0.001749082	-0.012101494	0.005426739	-0.043042523	0.027652528	-0.106942839
Dec-08	0.008640336	0.108269249	0.083540666	0.080803297	-0.02106236	-0.008705989	0.051289321	-0.032389373	-0.085323461	0.02803354
Jan-09	0.095054755	0.056237615	0.036423298	-0.067844968	0.099836586	-0.006983474	0.058663463	0.093205228	-0.044261469	0.014298294

Feb-09	-0.061835655	-0.066725183	-0.056308789	-0.125448097	-0.02627783	0.020766713	-0.066329832	-0.118738895	-0.122349055	4.63499E-05
Mar-09	-0.114717664	-0.081412419	-0.125312282	-0.130449874	-0.054802334	-0.119294672	-0.052479805	-0.119106719	-0.042121918	-0.122414529
Apr-09	-0.175519963	-0.072905249	-0.14583731	-0.130306646	-0.008534151	-0.0511153	-0.009821896	-0.019005817	-0.059006506	-0.122624507
May-09	-0.001740065	-0.043775974	-0.011302765	0.071248193	-0.011423078	-0.028951681	-0.034615263	0.004186889	-0.110304255	-0.062043918
Jun-09	-0.122615848	-0.038466369	-0.106672065	-0.091208853	-0.072969249	-0.084824268	-0.068119721	-0.107378901	-0.132676448	-0.0425
Jul-09	0.025569845	-0.012933029	0.043050723	0.036882743	-0.026404148	0.000536507	-0.052488244	-0.021710549	0.279002905	-0.044776119
Aug-09	-0.029810319	0.035457577	-0.058747118	-0.090984721	-0.019949023	-0.023134847	-0.055759338	-0.048585318	-0.0401809	-0.089001074
Sep-09	0.008087188	0.009814926	-0.036667307	0.023036512	-0.016967196	-0.033099285	0.021622997	0.058487165	-0.072239932	0.046450879
Oct-09	-0.029643731	0.073745306	-0.003145103	-0.031933946	0.028827234	-0.012612087	-0.012379229	0.016128803	-0.062419804	-0.005558216
Nov-09	-0.057115838	-0.113866914	-0.002331695	-0.07399753	-0.032391649	-0.010740304	-0.034739086	-0.07557185	-0.024972995	-0.061902687
Dec-09	0.0554647	0.034163466	0.086994862	0.071680417	0.020697392	0.010816731	0.065870097	0.050136333	0.096293769	0.054540234
Jan-10	-0.002003013	0.007111352	-0.023616677	0.027479437	0.002708977	-0.009143986	-0.014684023	0.004922988	-0.020527926	-0.034406754
Feb-10	-0.047307965	-0.086917523	-0.029692547	-0.061105592	-0.034238138	-0.037703355	-0.048774445	-0.058050047	-0.018384742	-0.084532602
Mar-10	-0.029298006	0.002942829	0.006194623	-0.010518155	-0.005520139	-0.019169966	0.014165682	-0.027969224	0.083079903	0.032049351
Apr-10	0.080654654	0.131921358	0.067968	0.085472163	0.07346717	0.047758379	0.085265298	0.061118086	0.107424339	0.017430007
May-10	-0.029239859	0.041146262	-0.018073474	0.006086452	0.029992325	-0.022077297	0.029803602	-0.033586748	0.080796541	-0.058797707
Jun-10	-0.05093883	-0.016216346	-0.042835398	-0.055570201	-0.020605554	-0.034461998	-0.042728385	-0.03469498	-0.090665403	-0.068378066
Jul-10	0.012666336	0.080829037	0.024021647	0.018952836	-0.000487461	-0.043283219	0.020276055	0.009513674	-0.000492648	-0.062812777
Aug-10	-0.047552423	-0.058199348	-0.081477138	-0.07544514	-0.044677774	-0.028021872	-0.038992714	-0.069446476	-0.006348704	-0.063682969
Sep-10	-0.014316154	0.01813641	-0.031959653	-0.005950167	-0.038367331	-0.028001031	-0.016882657	-0.00538511	-0.108488903	-0.009304593
Oct-10	-0.000661378	-0.073924412	0.003839104	-0.010198964	0.012372459	0.013755482	0.01683976	-0.011382817	0.056255274	-0.02055476
Nov-10	-0.014213015	-0.028534771	-0.001192032	-0.066873171	-0.013457124	-0.022173831	-0.033886936	-0.071365185	0.004308994	-0.026763236
Dec-10	0.00324559	-0.000879085	-0.017566625	-0.018900274	-0.008898555	-0.000677597	-0.001830015	-0.00904948	0.006231434	0.071216679
Jan-11	0.05620641	-0.036348518	0.004684216	0.063455977	-0.009428821	0.019238854	-0.016102053	0.067256189	-0.039365932	-0.024101386
Feb-11	-0.030696938	0.089080611	-0.008054398	-0.009633367	-0.020154971	-0.034870855	-0.001281487	-0.079460723	-0.007875387	-0.056869821
Mar-11	-0.021079601	-0.009608439	-0.008148584	-0.03603186	-0.022583838	0.006632173	0.003047708	-0.039072119	0.005701509	-0.042137606

Apr-11	0.004050738	0.016093883	0.001548703	0.0021171	-0.007979901	-0.014978013	0.024403796	0.023286271	0.061250898	0.018373486
May-11	0.012655264	-0.012465185	0.057416981	0.038861197	0.028793421	-0.013159586	0.021766451	0.019888718	-0.006737676	0.031061566
Jun-11	-0.021578695	-0.001722809	-0.001878339	0.000972927	0.015525901	0.019537507	0.041450052	-0.015244641	0.022337539	-0.081206497
Jul-11	0.105363121	0.098024618	0.092788622	0.116622898	0.021835175	0.070159706	0.029814988	0.134619771	0.052346008	0.059324331
Aug-11	0.078537398	0.029299041	0.167256188	0.071412159	-0.006065781	0.043355716	0.07182056	0.0624191	0.088215597	0.167909104
Sep-11	-0.063243926	-0.032052417	-0.11439587	-0.047749718	0.003237763	-0.07021966	-0.067355342	-0.073010902	-0.044172997	-0.060056425
Oct-11	0.056729817	0.065655587	0.104257217	0.09900897	0.019066084	0.013443407	0.043278873	0.033298883	0.057786673	-0.02067656
Nov-11	0.021202736	-0.002452797	-0.024141889	-0.023749726	-0.001374167	-0.03830199	0.015579477	0.011923943	0.060920606	-0.029249405
Dec-11	-0.089565743	-0.03943877	-0.095931956	-0.059198518	-0.006519626	0.006205221	-0.048349658	-0.066494893	-0.040647995	-0.054106663
Jan-12	-0.029181151	-0.09469379	-0.059482707	-0.074415358	-0.007924707	-0.030809406	-0.008328441	-0.036675267	-0.055952464	-0.066267551
Feb-12	-0.00544764	-0.035733347	0.05470534	0.023753932	-0.053288888	-0.016713294	-0.008465629	0.00804848	0.073228183	-0.029972342
Mar-12	0.010706444	0.059098461	-0.025534535	0.057490785	-0.013026367	0.016375785	-0.013965314	0.016170641	-0.055722942	-0.025820316
Apr-12	0.07431093	0.114501936	0.132300321	0.027421792	0.019373411	-0.006364427	0.078576171	0.075140914	0.010155002	0.076206746
May-12	-0.036794078	-0.051522274	-0.041763395	0.000715463	0.026018936	-0.011556127	-0.004469313	-0.005684996	0.06596478	-0.026115296
Jun-12	-0.052018824	0.035850324	-0.017949841	0.003547154	-0.040953321	-0.019888424	-0.040897613	-0.014867231	0.057899916	-0.022671558
Jul-12	0.00361596	-0.016385979	0.016129301	-0.017110828	-0.033182586	-0.008814726	-0.010866269	-0.01214097	0.027403884	-0.022957604
Aug-12	-0.011397468	-0.00341031	-0.065152866	-0.041230524	-0.043678514	0.005773924	-0.016161364	-0.045631455	-0.018526774	-0.05490495
Sep-12	0.007230841	-0.006510752	-0.03703198	0.076626645	-0.031261682	-0.021762337	-0.028780164	0.044010073	0.008357179	-6.1592E-05
Oct-12	-0.010286759	-0.054808299	-0.017637922	-0.054632036	-0.022767445	0.038638461	0.00244119	-0.010781709	0.044825566	-0.01901
Nov-12	-0.030668668	-0.091308659	-0.027652889	-0.015498419	-0.004037841	-0.046253588	-0.030759303	-0.032122392	-0.127365995	-0.048774004
Dec-12	-0.035209201	-0.066747747	-0.04520146	-0.019174476	-0.031741794	0.037725354	-0.047101708	0.017895608	-0.048750325	-0.055806539
Jan-13	0.003886898	-0.036394764	0.030810229	-0.006072434	-0.003506922	-0.00615521	-0.044141041	-0.03185313	0.008382687	-0.043708403
Feb-13	-0.011532344	-0.067636383	0.03231617	-0.00260524	-0.047063456	-0.020339429	0.027705647	0.010773646	0.057662902	-0.0124787
Mar-13	-0.017837478	-0.105545411	-0.01923643	-0.021628076	-0.04152682	-0.026792431	-0.043284826	0.020845778	0.026957037	-0.023030804
Apr-13	0.017155985	0.006266657	0.015400462	-0.019520722	0.02283574	-0.029148409	0.053708459	-0.018540315	-0.053325451	0.022911905
May-13	0.05108181	0.007108098	0.076375956	0.023887972	0.016030958	-0.002435845	0.025819347	0.073916508	0.162377918	0.075879882

Jun-13	-0.022188562	0.000658457	-0.049368848	-0.005640148	-0.021553656	0.000519031	-0.049366568	-0.026493881	-0.007317685	0.020208834
Jul-13	0.063715357	0.020872573	0.007007889	0.010726874	-0.000658501	0.026071175	-0.016163583	-0.00640065	-0.049838447	0.099544155
Aug-13	-0.04385602	-0.073807016	-0.049365581	-0.018593393	-0.0505386	-0.023204554	-0.016076166	-0.035353726	-0.035081185	-0.064244194
Sep-13	-0.013330491	0.008923779	-0.014931667	-0.032684912	-0.025877147	-0.021158359	-0.038079458	-0.016319476	0.015436984	-0.041389443
Oct-13	0.010804799	-0.085170524	-0.028261453	0.005142187	0.023937639	-0.003238225	0.019811639	-0.007227858	-0.035528034	0.052329101
Nov-13	0.002816216	-0.038636517	0.024666987	-0.023768154	0.012231435	-0.029052573	-0.005997552	0.016670493	0.049395552	0.055763026
Dec-13	0.04631641	0.092311274	0.057678533	0.017599789	-0.028221982	0.034882974	0.031252446	0.036158948	0.040775572	0.019171611
Jan-14	-0.026861449	0.004949775	-0.03509841	-0.020488237	-0.023138083	-0.017230862	-0.039742417	-0.019616244	-0.011292127	-0.038518709
Feb-14	-0.024411841	0.000892931	0.030964675	-0.023696864	-0.029171308	-0.007327414	0.001853637	-0.002830362	0.011306687	-0.037006089
Mar-14	-0.02330677	0.036613233	0.000772109	0.006579109	-0.017715624	-0.011920823	-0.017179554	0.012141945	0.003429795	-0.027336848
Apr-14	-0.009448287	-0.022434459	-0.041057709	-0.031343383	0.010474242	-0.00099285	-0.000619008	-0.016626861	-0.00630146	-0.000558016
May-14	0.0123416	-0.034937096	-0.004703188	-0.033765334	0.007188584	-0.004955599	0.017940175	-0.003620999	-0.004452408	-0.047127713
Jun-14	-0.035088331	-0.029362825	-0.063260428	0.008289174	-0.005129703	0.006065095	-0.042109697	-0.035600135	-0.069600647	-0.011075686
Jul-14	0.014117433	0.012718632	0.00059773	-0.012761391	-0.010589009	0.002813339	0.001244245	0.003664458	-0.007053942	-0.037934722
Aug-14	0.015365912	-0.046305919	0.07888552	0.052342344	-0.00603996	0.010724052	0.062934573	0.023984116	-0.062046559	-0.015160784
Sep-14	0.000760476	-0.014636515	-0.044381923	-0.000873544	-0.024646293	-0.004765094	-0.042304543	0.028333873	-0.023266864	0.000953187
Oct-14	-0.022757797	-0.059914024	0.00044237	-0.023118227	-0.006750936	0.01881498	0.040203293	-0.008254311	-0.097900351	-0.006117033
Nov-14	-0.004353417	0.000520325	0.016200361	-0.012904913	-0.025830166	0.033862322	-0.018111255	0.034031324	-0.170604202	0.064259817
Dec-14	-0.007681661	-0.012652266	-0.036806213	-0.005837526	-0.030591959	-0.011233627	-0.031726967	-0.017273244	0.007575474	-0.052856917
Jan-15	-0.003426575	-0.059769787	-0.01273958	-0.027040819	-0.022875036	-0.021935939	-0.057431523	-0.018400664	-0.030190617	-0.003629467
Feb-15	-0.012808174	-0.021296974	-0.003116417	0.003719752	0.007624281	-0.005227317	0.006331122	-0.027059857	-0.116758718	0.053833486
Mar-15	-0.011578827	-0.016035829	-0.114886766	-0.023789021	0.007364512	0.006880171	0.017530225	-0.040495069	-0.156191956	-0.0136238
Apr-15	0.028088648	-0.050728639	0.02584618	0.012264574	-0.00917208	0.040485945	0.002215572	0.005849193	-0.036881958	0.02051402
May-15	0.022542233	0.016180287	0.044729861	0.040550251	0.020602595	0.023953502	0.0582891	0.019573859	0.078209678	-0.00564953
Jun-15	0.035856387	-0.016978659	0.065502992	0.075897737	-0.032764957	-0.009575542	-0.042146299	0.02169283	0.167449566	0.044739327
Jul-15	0.096206003	0.089715016	0.136853707	0.059990792	0.046801359	0.068454944	0.094526636	0.045671131	0.14277649	0.041745936

Aug-15	0.046777212	0.086399648	0.039540795	-0.000772537	0.011241968	-0.0051202	0.036920483	-0.010862013	0.050187043	0.024766494
Sep-15	-0.069191455	-0.088819387	-0.079228586	-0.043611858	-0.065650845	-0.026817347	-0.041569609	-0.032845971	-0.097494206	-0.032933316
Oct-15	0.049864549	-0.033643351	0.029260177	0.028086788	-0.018651965	-0.00385733	0.014110114	0.018825585	-0.018238811	0.025917482
Nov-15	-0.009293288	0.037499769	0.003742723	-0.002092719	-0.035436537	-0.012023548	-0.024433978	0.015632364	-0.026497663	0.05565131
Dec-15	0.990706712	1.037499769	1.003742723	0.997907281	0.964563463	0.987976452	0.975566022	1.015632364	0.973502337	1.05565131

Appendix 2. Descriptive Statistics

	STI	N225	HSI	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
Mean	0.030487	0.035923	0.032642	0.046933	0.012498	0.039315	-0.00188	0.005065	0.051516	0.009704
Median	-0.11514	-0.04693	-0.11214	-0.07316	-0.10005	-0.06762	-0.12036	-0.00167	-0.01848	-0.09174
Maximum	1.16374	0.980022	1.139248	1.12111	1.043194	1.039908	0.873647	1.013214	0.929871	1.266983
Minimum	-0.40882	-0.36441	-0.37986	-0.53933	-0.33864	-0.24058	-0.23647	-0.376	-0.74101	-0.58988
Std. Dev.	0.42324	0.385845	0.422561	0.42508	0.367001	0.355615	0.306892	0.366098	0.484815	0.494554

Appendix 3. Runs Test

	STI	N225	HSI	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
Test Value[a]	-.011556	-.006496	-.010364	-.006011	-.010009	-.008979	-.012711	-.010822	-.007228	-.013606
Cases < Test Value	78	78	78	78	78	78	78	78	78	78
Cases >= Test Value	78	78	78	78	78	78	78	78	78	78
Total Cases	156	156	156	156	156	156	156	156	156	156
Number of Runs	73	75	83	79	75	79	83	75	70	69
Z	-.964	-.643	.643	0.000	-.643	0.000	.643	-.643	-1.446	-1.606
Asymp. Sig. (2-tailed)	.335	.520	.520	1.000	.520	1.000	.520	.520	.148	.108

Appendix 3. Summary of Runs Test

Variable	Asym. Sig Value	Meaning
STI	0.05 < 0.335	Significant
N225	0.05 < 0.520	Significant
HSI	0.05 < 0.520	Significant
TWII	0.05 < 1.000	Significant
NZ50	0.05 < 0.520	Significant
KLSE	0.05 < 1.000	Significant
AXJO	0.05 < 0.520	Significant
KOSPI	0.05 < 0.520	Significant
SSE	0.05 < 0.148	Significant
SET	0.05 < 0.108	Significant

Appendix 4. Augmented Dickey Fuller Test at Level

SINGAPORE: STI

Null Hypothesis: STI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.732374	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(STI)
Method: Least Squares
Date: 06/06/16 Time: 15:11
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STI(-1)	-0.765075	0.078611	-9.732374	0.0000
C	-0.002913	0.004159	-0.700417	0.4847

R-squared	0.382365	Mean dependent var	8.91E-05
Adjusted R-squared	0.378328	S.D. dependent var	0.065486
S.E. of regression	0.051633	Akaike info criterion	-3.076474
Sum squared resid	0.407900	Schwarz criterion	-3.037204
Log likelihood	240.4267	Hannan-Quinn criter.	-3.060523
F-statistic	94.71911	Durbin-Watson stat	2.035620
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

JAPAN: N225

Null Hypothesis: N225 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.27974	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(N225)
Method: Least Squares
Date: 06/06/16 Time: 15:12
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
N225(-1)	-0.817028	0.079479	-10.27974	0.0000
C	-0.003025	0.004610	-0.656247	0.5127

R-squared	0.408520	Mean dependent var	-1.78E-05
Adjusted R-squared	0.404654	S.D. dependent var	0.074227
S.E. of regression	0.057273	Akaike info criterion	-2.869158
Sum squared resid	0.501869	Schwarz criterion	-2.829888
Log likelihood	224.3597	Hannan-Quinn criter.	-2.853207
F-statistic	105.6731	Durbin-Watson stat	1.993787
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

HONGKONG: HSI

Null Hypothesis: HSI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.92530	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HSI)
Method: Least Squares
Date: 06/06/16 Time: 15:12
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HSI(-1)	-0.876770	0.080251	-10.92530	0.0000
C	-0.003181	0.005037	-0.631544	0.5286

R-squared	0.438248	Mean dependent var	9.64E-05
Adjusted R-squared	0.434576	S.D. dependent var	0.083248
S.E. of regression	0.062598	Akaike info criterion	-2.691357
Sum squared resid	0.599526	Schwarz criterion	-2.652087
Log likelihood	210.5802	Hannan-Quinn criter.	-2.675407
F-statistic	119.3621	Durbin-Watson stat	2.020674
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

TAIWAN: TWII (TWSE)

Null Hypothesis: TWII has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.21828	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TWII)
Method: Least Squares
Date: 06/06/16 Time: 15:13
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TWII(-1)	-0.828869	0.081116	-10.21828	0.0000
C	-0.001226	0.004589	-0.267038	0.7898

R-squared	0.405625	Mean dependent var	0.000848
Adjusted R-squared	0.401740	S.D. dependent var	0.073799
S.E. of regression	0.057081	Akaike info criterion	-2.875856
Sum squared resid	0.498519	Schwarz criterion	-2.836586
Log likelihood	224.8788	Hannan-Quinn criter.	-2.859905
F-statistic	104.4132	Durbin-Watson stat	2.002085
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

NEW ZEALAND: NZ50

Null Hypothesis: NZ50 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.82719	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NZ50)
Method: Least Squares
Date: 06/06/16 Time: 15:13
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NZ50(-1)	-0.873276	0.080656	-10.82719	0.0000
C	-0.006063	0.002796	-2.168793	0.0316

R-squared	0.433811	Mean dependent var	0.000248
Adjusted R-squared	0.430111	S.D. dependent var	0.045092
S.E. of regression	0.034040	Akaike info criterion	-3.909713
Sum squared resid	0.177290	Schwarz criterion	-3.870443
Log likelihood	305.0027	Hannan-Quinn criter.	-3.893762
F-statistic	117.2280	Durbin-Watson stat	1.957323
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

MALAYSIA: KLSE

Null Hypothesis: KLSE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.74252	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(KLSE)
Method: Least Squares
Date: 06/06/16 Time: 15:14
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KLSE(-1)	-0.862425	0.080281	-10.74252	0.0000
C	-0.004568	0.003011	-1.517065	0.1313

R-squared	0.429959	Mean dependent var	0.000179
Adjusted R-squared	0.426233	S.D. dependent var	0.048960
S.E. of regression	0.037086	Akaike info criterion	-3.738352
Sum squared resid	0.210428	Schwarz criterion	-3.699082
Log likelihood	291.7223	Hannan-Quinn criter.	-3.722402
F-statistic	115.4018	Durbin-Watson stat	2.033506
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

AUSTRALIA: AXJO

Null Hypothesis: AXJO has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.68714	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AXJO)
Method: Least Squares
Date: 06/06/16 Time: 15:14
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AXJO(-1)	-0.862104	0.080667	-10.68714	0.0000
C	-0.002534	0.003162	-0.801415	0.4241

R-squared	0.427427	Mean dependent var	0.000359
Adjusted R-squared	0.423685	S.D. dependent var	0.051660
S.E. of regression	0.039218	Akaike info criterion	-3.626556
Sum squared resid	0.235319	Schwarz criterion	-3.587286
Log likelihood	283.0581	Hannan-Quinn criter.	-3.610606
F-statistic	114.2150	Durbin-Watson stat	1.997375
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

REPUBLIC OF KOREA: KOSPI

Null Hypothesis: KOSPI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-12.24066	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(KOSPI)
Method: Least Squares
Date: 06/06/16 Time: 15:15
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOSPI(-1)	-0.990713	0.080936	-12.24066	0.0000
C	-0.006069	0.004626	-1.311970	0.1915

R-squared	0.494772	Mean dependent var	0.000184
Adjusted R-squared	0.491470	S.D. dependent var	0.080267
S.E. of regression	0.057240	Akaike info criterion	-2.870316
Sum squared resid	0.501288	Schwarz criterion	-2.831046
Log likelihood	224.4495	Hannan-Quinn criter.	-2.854365
F-statistic	149.8337	Durbin-Watson stat	1.998257
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

REPUBLIC OF CHINA: SSE

Null Hypothesis: SSE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.684342	0.0000
Test critical values:	1% level	-3.473096	
	5% level	-2.880211	
	10% level	-2.576805	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SSE)
Method: Least Squares
Date: 06/06/16 Time: 15:15
Sample (adjusted): 3 156
Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SSE(-1)	-0.708696	0.106023	-6.684342	0.0000
D(SSE(-1))	-0.198129	0.079745	-2.484550	0.0141
C	-0.001240	0.006831	-0.181531	0.8562

R-squared	0.463944	Mean dependent var	0.000120
Adjusted R-squared	0.456844	S.D. dependent var	0.114965
S.E. of regression	0.084728	Akaike info criterion	-2.079453
Sum squared resid	1.084004	Schwarz criterion	-2.020292
Log likelihood	163.1179	Hannan-Quinn criter.	-2.055422
F-statistic	65.34347	Durbin-Watson stat	1.998807
Prob(F-statistic)	0.000000		

Appendix 4. Augmented Dickey Fuller Test at Level

THAILAND: SET

Null Hypothesis: SET has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=13)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.22631	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SET)
Method: Least Squares
Date: 06/06/16 Time: 15:16
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SET(-1)	-0.812660	0.079468	-10.22631	0.0000
C	-0.004844	0.005233	-0.925707	0.3561

R-squared	0.406004	Mean dependent var	0.000155
Adjusted R-squared	0.402121	S.D. dependent var	0.083890
S.E. of regression	0.064866	Akaike info criterion	-2.620169
Sum squared resid	0.643761	Schwarz criterion	-2.580899
Log likelihood	205.0631	Hannan-Quinn criter.	-2.604218
F-statistic	104.5774	Durbin-Watson stat	1.988462
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Singapore: STI

Null Hypothesis: STI has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-9.920694	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.002632
HAC corrected variance (Bartlett kernel)	0.003023

Phillips-Perron Test Equation
Dependent Variable: D(STI)
Method: Least Squares
Date: 06/06/16 Time: 15:26
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STI(-1)	-0.765075	0.078611	-9.732374	0.0000
C	-0.002913	0.004159	-0.700417	0.4847

R-squared	0.382365	Mean dependent var	8.91E-05
Adjusted R-squared	0.378328	S.D. dependent var	0.065486
S.E. of regression	0.051633	Akaike info criterion	-3.076474
Sum squared resid	0.407900	Schwarz criterion	-3.037204
Log likelihood	240.4267	Hannan-Quinn criter.	-3.060523
F-statistic	94.71911	Durbin-Watson stat	2.035620
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Japan: N225

Null Hypothesis: N225 has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.36640	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.003238
HAC corrected variance (Bartlett kernel)	0.003508

Phillips-Perron Test Equation
Dependent Variable: D(N225)
Method: Least Squares
Date: 06/06/16 Time: 15:27
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
N225(-1)	-0.817028	0.079479	-10.27974	0.0000
C	-0.003025	0.004610	-0.656247	0.5127

R-squared	0.408520	Mean dependent var	-1.78E-05
Adjusted R-squared	0.404654	S.D. dependent var	0.074227
S.E. of regression	0.057273	Akaike info criterion	-2.869158
Sum squared resid	0.501869	Schwarz criterion	-2.829888
Log likelihood	224.3597	Hannan-Quinn criter.	-2.853207
F-statistic	105.6731	Durbin-Watson stat	1.993787
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Hongkong: HSI

Null Hypothesis: HSI has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-11.00150	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.003868
HAC corrected variance (Bartlett kernel)	0.004235

Phillips-Perron Test Equation
Dependent Variable: D(HSI)
Method: Least Squares
Date: 06/06/16 Time: 15:27
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HSI(-1)	-0.876770	0.080251	-10.92530	0.0000
C	-0.003181	0.005037	-0.631544	0.5286

R-squared	0.438248	Mean dependent var	9.64E-05
Adjusted R-squared	0.434576	S.D. dependent var	0.083248
S.E. of regression	0.062598	Akaike info criterion	-2.691357
Sum squared resid	0.599526	Schwarz criterion	-2.652087
Log likelihood	210.5802	Hannan-Quinn criter.	-2.675407
F-statistic	119.3621	Durbin-Watson stat	2.020674
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Taiwan: TWII

Null Hypothesis: TWII has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.32143	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.003216
HAC corrected variance (Bartlett kernel)	0.003495

Phillips-Perron Test Equation
Dependent Variable: D(TWII)
Method: Least Squares
Date: 06/06/16 Time: 15:28
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TWII(-1)	-0.828869	0.081116	-10.21828	0.0000
C	-0.001226	0.004589	-0.267038	0.7898

R-squared	0.405625	Mean dependent var	0.000848
Adjusted R-squared	0.401740	S.D. dependent var	0.073799
S.E. of regression	0.057081	Akaike info criterion	-2.875856
Sum squared resid	0.498519	Schwarz criterion	-2.836586
Log likelihood	224.8788	Hannan-Quinn criter.	-2.859905
F-statistic	104.4132	Durbin-Watson stat	2.002085
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

New Zealand: NZ50

Null Hypothesis: NZ50 has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.81439	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.001144
HAC corrected variance (Bartlett kernel)	0.001125

Phillips-Perron Test Equation
Dependent Variable: D(NZ50)
Method: Least Squares
Date: 06/06/16 Time: 15:28
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NZ50(-1)	-0.873276	0.080656	-10.82719	0.0000
C	-0.006063	0.002796	-2.168793	0.0316

R-squared	0.433811	Mean dependent var	0.000248
Adjusted R-squared	0.430111	S.D. dependent var	0.045092
S.E. of regression	0.034040	Akaike info criterion	-3.909713
Sum squared resid	0.177290	Schwarz criterion	-3.870443
Log likelihood	305.0027	Hannan-Quinn criter.	-3.893762
F-statistic	117.2280	Durbin-Watson stat	1.957323
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Malaysia: KLSE

Null Hypothesis: KLSE has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-11.02933	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.001358
HAC corrected variance (Bartlett kernel)	0.001743

Phillips-Perron Test Equation
Dependent Variable: D(KLSE)
Method: Least Squares
Date: 06/06/16 Time: 15:28
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KLSE(-1)	-0.862425	0.080281	-10.74252	0.0000
C	-0.004568	0.003011	-1.517065	0.1313

R-squared	0.429959	Mean dependent var	0.000179
Adjusted R-squared	0.426233	S.D. dependent var	0.048960
S.E. of regression	0.037086	Akaike info criterion	-3.738352
Sum squared resid	0.210428	Schwarz criterion	-3.699082
Log likelihood	291.7223	Hannan-Quinn criter.	-3.722402
F-statistic	115.4018	Durbin-Watson stat	2.033506
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Australia: AXJO

Null Hypothesis: AXJO has a unit root
Exogenous: Constant
Bandwidth: 6 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.96062	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.001518
HAC corrected variance (Bartlett kernel)	0.001914

Phillips-Perron Test Equation
Dependent Variable: D(AXJO)
Method: Least Squares
Date: 06/06/16 Time: 15:29
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AXJO(-1)	-0.862104	0.080667	-10.68714	0.0000
C	-0.002534	0.003162	-0.801415	0.4241

R-squared	0.427427	Mean dependent var	0.000359
Adjusted R-squared	0.423685	S.D. dependent var	0.051660
S.E. of regression	0.039218	Akaike info criterion	-3.626556
Sum squared resid	0.235319	Schwarz criterion	-3.587286
Log likelihood	283.0581	Hannan-Quinn criter.	-3.610606
F-statistic	114.2150	Durbin-Watson stat	1.997375
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Republic of Korea: KOSPI

Null Hypothesis: KOSPI has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-12.29310	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.003234
HAC corrected variance (Bartlett kernel)	0.003766

Phillips-Perron Test Equation
Dependent Variable: D(KOSPI)
Method: Least Squares
Date: 06/06/16 Time: 15:29
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOSPI(-1)	-0.990713	0.080936	-12.24066	0.0000
C	-0.006069	0.004626	-1.311970	0.1915

R-squared	0.494772	Mean dependent var	0.000184
Adjusted R-squared	0.491470	S.D. dependent var	0.080267
S.E. of regression	0.057240	Akaike info criterion	-2.870316
Sum squared resid	0.501288	Schwarz criterion	-2.831046
Log likelihood	224.4495	Hannan-Quinn criter.	-2.854365
F-statistic	149.8337	Durbin-Watson stat	1.998257
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Republic of China: SSE

Null Hypothesis: SSE has a unit root
Exogenous: Constant
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-11.46472	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.007283
HAC corrected variance (Bartlett kernel)	0.010643

Phillips-Perron Test Equation
Dependent Variable: D(SSE)
Method: Least Squares
Date: 06/06/16 Time: 15:30
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SSE(-1)	-0.883852	0.080299	-11.00698	0.0000
C	-0.001738	0.006901	-0.251880	0.8015

R-squared	0.441919	Mean dependent var	-5.17E-05
Adjusted R-squared	0.438271	S.D. dependent var	0.114611
S.E. of regression	0.085899	Akaike info criterion	-2.058466
Sum squared resid	1.128936	Schwarz criterion	-2.019196
Log likelihood	161.5311	Hannan-Quinn criter.	-2.042516
F-statistic	121.1536	Durbin-Watson stat	2.045359
Prob(F-statistic)	0.000000		

Appendix 5. Phillips-Perron Test at Level

Thailand: SET

Null Hypothesis: SET has a unit root
Exogenous: Constant
Bandwidth: 6 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.41081	0.0000
Test critical values:	1% level	-3.472813	
	5% level	-2.880088	
	10% level	-2.576739	

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

Residual variance (no correction)	0.004153
HAC corrected variance (Bartlett kernel)	0.004842

Phillips-Perron Test Equation
Dependent Variable: D(SET)
Method: Least Squares
Date: 06/06/16 Time: 15:30
Sample (adjusted): 2 156
Included observations: 155 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SET(-1)	-0.812660	0.079468	-10.22631	0.0000
C	-0.004844	0.005233	-0.925707	0.3561

R-squared	0.406004	Mean dependent var	0.000155
Adjusted R-squared	0.402121	S.D. dependent var	0.083890
S.E. of regression	0.064866	Akaike info criterion	-2.620169
Sum squared resid	0.643761	Schwarz criterion	-2.580899
Log likelihood	205.0631	Hannan-Quinn criter.	-2.604218
F-statistic	104.5774	Durbin-Watson stat	1.988462
Prob(F-statistic)	0.000000		

Appendix 6. Pearson Correlation

		STI	N225	HSI	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
STI	Pearson Correlation	1	.695**	.830**	.741**	.630**	.701**	.720**	.756**	.492**	.699**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
N225	Pearson Correlation	.695**	1	.614**	.588**	.545**	.496**	.635**	.595**	.363**	.557**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
HSI	Pearson Correlation	.830**	.614**	1	.727**	.499**	.634**	.700**	.691**	.582**	.657**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
TWII	Pearson Correlation	.741**	.588**	.727**	1	.458**	.564**	.611**	.698**	.413**	.596**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
NZ50	Pearson Correlation	.630**	.545**	.499**	.458**	1	.484**	.698**	.494**	.374**	.437**

	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
KLSE	Pearson Correlation	.701**	.496**	.634**	.564**	.484**	1	.533**	.586**	.447**	.567**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
AXJO	Pearson Correlation	.720**	.635**	.700**	.611**	.698**	.533**	1	.618**	.393**	.558**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	156	156	156	156	156	156	156	156	156	156
KOSPI	Pearson Correlation	.756**	.595**	.691**	.698**	.494**	.586**	.618**	1	.449**	.653**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	156	156	156	156	156	156	156	156	156	156
SSE	Pearson Correlation	.492**	.363**	.582**	.413**	.374**	.447**	.393**	.449**	1	.319**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	156	156	156	156	156	156	156	156	156	156
SET	Pearson Correlation	.699**	.557**	.657**	.596**	.437**	.567**	.558**	.653**	.319**	1

Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
N	156	156	156	156	156	156	156	156	156	156

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 7. Johansen's Co-integration Test Lag 1 to 4

Date: 06/09/16 Time: 10:58
Sample (adjusted): 6 156
Included observations: 151 after adjustments
Trend assumption: Linear deterministic trend
Series: STI N225 HSI TWII NZ50 KLSE AXJO KOSPI SSE SET
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.442925	410.0313	239.2354	0.0000
At most 1 *	0.333356	321.6879	197.3709	0.0000
At most 2 *	0.320978	260.4575	159.5297	0.0000
At most 3 *	0.304194	202.0052	125.6154	0.0000
At most 4 *	0.216821	147.2398	95.75366	0.0000
At most 5 *	0.186688	110.3363	69.81889	0.0000
At most 6 *	0.165926	79.13361	47.85613	0.0000
At most 7 *	0.127432	51.73714	29.79707	0.0000
At most 8 *	0.109437	31.15362	15.49471	0.0001
At most 9 *	0.086447	13.65249	3.841466	0.0002

Trace test indicates 10 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.442925	88.34332	64.50472	0.0001
At most 1 *	0.333356	61.23046	58.43354	0.0258
At most 2 *	0.320978	58.45230	52.36261	0.0106
At most 3 *	0.304194	54.76543	46.23142	0.0049
At most 4	0.216821	36.90345	40.07757	0.1092
At most 5	0.186688	31.20270	33.87687	0.1009
At most 6	0.165926	27.39647	27.58434	0.0528
At most 7	0.127432	20.58352	21.13162	0.0595
At most 8 *	0.109437	17.50113	14.26460	0.0149
At most 9 *	0.086447	13.65249	3.841466	0.0002

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
28.07696	-28.13223	-61.62833	92.78301	6.074986	-64.78889	19.57909	-14.31520	1.834564	3.627597
47.73909	4.516713	41.84946	1.910732	91.81668	23.76688	-152.4751	-4.817975	-4.956518	-43.01410
-48.30386	-40.83534	-26.73986	-11.13083	55.43479	2.934168	67.18016	-3.304836	7.615373	29.59685
-32.50328	-24.05103	59.32443	45.86736	22.06558	-41.16480	8.529534	-9.132451	-7.075498	-21.97979
74.32402	-0.667502	10.91038	-22.58705	-46.21497	-35.39187	28.32254	-65.00380	2.620585	9.837395
-70.41855	29.66492	3.281710	27.83450	-35.66024	31.56956	26.25764	-45.61075	8.499357	8.483230
11.94145	8.284899	19.82004	-18.09502	60.01266	-71.20952	-80.03736	13.63295	10.41853	22.48745
45.73794	-13.94336	-23.04056	-19.76471	-19.45767	-34.75886	8.546367	36.53621	16.41433	-25.50747
-12.97165	-15.04736	7.299699	-3.464909	-35.03155	13.06780	-7.409601	7.214712	-6.709525	11.77892
-11.61608	-16.50561	-13.55376	-5.964291	-28.84647	24.39732	10.94151	-2.594879	21.02408	28.39164

Unrestricted Adjustment Coefficients (alpha):

D(STI)	-0.008249	-0.003486	0.014254	-0.005625	0.000583	0.010150	-0.001355	0.000489	0.006213	-0.006226
D(N225)	-0.002565	0.004818	0.018880	-0.002114	0.004611	0.000341	-0.005443	0.003507	0.010166	-0.001212
D(HSI)	0.002080	-0.001998	0.014684	-0.019425	0.003354	0.008234	-0.004768	0.001502	0.004650	-0.007045
D(TWII)	-0.017375	4.69E-05	0.012764	-0.010536	0.011862	0.003079	2.87E-05	0.002558	0.002397	-0.005742
D(NZ50)	-0.003491	-0.004510	-0.003374	-0.001212	0.002922	0.006875	-0.002925	0.002157	0.006627	-0.000267
D(KLSE)	0.003524	-0.009274	0.006697	-0.001158	0.002792	0.003934	0.002812	0.002975	0.003809	-0.004939
D(AXJO)	-0.000685	0.003556	0.003247	-0.006942	0.001385	0.005930	0.001486	0.001152	0.008455	-0.002336
D(KOSPI)	-0.002238	0.001557	0.014815	-0.004115	0.013299	0.011746	-0.001243	-0.003095	0.005361	-0.003869
D(SSE)	0.000559	-0.010665	0.001327	-0.012194	0.002558	-0.003872	-0.009467	-0.012897	0.011304	-0.011917
D(SET)	-0.001817	0.006642	0.009600	0.000219	0.004058	0.011259	-0.008778	0.006254	0.003256	-0.010816

1 Cointegrating Equation(s): Log likelihood 3082.550

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	-1.001968	-2.194979	3.304596	0.216369	-2.307546	0.697337	-0.509856	0.065341	0.129202
	(0.26227)	(0.40234)	(0.42703)	(0.56016)	(0.43743)	(0.66929)	(0.34661)	(0.12574)	(0.26245)

Adjustment coefficients (standard error in parentheses)

D(STI)	-0.231613
	(0.12689)
D(N225)	-0.072031
	(0.13549)
D(HSI)	0.058396
	(0.15381)
D(TWII)	-0.487825
	(0.13276)
D(NZ50)	-0.098014
	(0.08065)

D(KLSE)	0.098954
	(0.08790)
D(AXJO)	-0.019226
	(0.09187)
D(KOSPI)	-0.062831
	(0.14301)
D(SSE)	0.015700
	(0.20129)
D(SET)	-0.051013
	(0.15682)

2 Cointegrating Equation(s): Log likelihood 3113.165

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.611612	0.321690	1.776028	0.255801	-2.858190	-0.136206	-0.089230	-0.812137
		(0.26080)	(0.27996)	(0.37643)	(0.27582)	(0.42621)	(0.23345)	(0.08483)	(0.17628)
0.000000	1.000000	2.801077	-2.977046	1.556595	2.558312	-3.548541	0.372916	-0.154266	-0.939490
		(0.43346)	(0.46530)	(0.62564)	(0.45842)	(0.70838)	(0.38800)	(0.14099)	(0.29298)

Adjustment coefficients (standard error in parentheses)

D(STI)	-0.398046	0.216322
	(0.24962)	(0.12842)
D(N225)	0.157990	0.093936
	(0.26603)	(0.13686)
D(HSI)	-0.037001	-0.067536
	(0.30321)	(0.15599)
D(TWII)	-0.485584	0.488997
	(0.26189)	(0.13473)
D(NZ50)	-0.313316	0.077837
	(0.15728)	(0.08091)
D(KLSE)	-0.343758	-0.141035
	(0.16626)	(0.08554)
D(AXJO)	0.150541	0.035325

	(0.18024)	(0.09273)
D(KOSPI)	0.011521	0.069989
	(0.28198)	(0.14507)
D(SSE)	-0.493442	-0.063902
	(0.39300)	(0.20218)
D(SET)	0.266076	0.081114
	(0.30732)	(0.15810)

3 Cointegrating Equation(s): Log likelihood 3142.391

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.933168	0.707211	-0.369243	-1.731965	-0.164097	-0.073602	-0.561635
			(0.19611)	(0.24783)	(0.19551)	(0.25586)	(0.16516)	(0.05571)	(0.11242)
0.000000	1.000000	0.000000	-0.176582	-3.338403	-0.304281	1.609374	0.245178	-0.082695	0.207769
			(0.47202)	(0.59648)	(0.47056)	(0.61582)	(0.39751)	(0.13408)	(0.27058)
0.000000	0.000000	1.000000	-0.999781	1.747541	1.021962	-1.841404	0.045603	-0.025552	-0.409578
			(0.26897)	(0.33989)	(0.26814)	(0.35091)	(0.22651)	(0.07640)	(0.15418)

Adjustment coefficients (standard error in parentheses)

D(STI)	-1.086573	-0.365748	-0.018666
	(0.31566)	(0.21388)	(0.33997)
D(N225)	-0.754004	-0.677050	-0.145108
	(0.32703)	(0.22158)	(0.35222)
D(HSI)	-0.746300	-0.667167	-0.604456
	(0.38883)	(0.26345)	(0.41877)
D(TWII)	-1.102141	-0.032230	0.731419
	(0.33568)	(0.22744)	(0.36153)
D(NZ50)	-0.150344	0.215611	0.116616
	(0.20734)	(0.14048)	(0.22331)
D(KLSE)	-0.667230	-0.414493	-0.784362
	(0.21552)	(0.14603)	(0.23212)
D(AXJO)	-0.006323	-0.097285	0.104186
	(0.23807)	(0.16131)	(0.25641)

D(KOSPI)	-0.704088	-0.534975	-0.193052
	(0.35933)	(0.24347)	(0.38701)
D(SSE)	-0.557522	-0.118074	-0.516262
	(0.52139)	(0.35327)	(0.56154)
D(SET)	-0.197638	-0.310903	0.133241
	(0.40214)	(0.27247)	(0.43311)

4 Cointegrating Equation(s): Log likelihood 3169.774

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	1.694756	0.491761	-2.444177	-0.083943	-0.002931	-0.483862
				(0.35862)	(0.26298)	(0.36560)	(0.22642)	(0.07625)	(0.14853)
0.000000	1.000000	0.000000	0.000000	-3.525274	-0.467208	1.744145	0.230011	-0.096068	0.193053
				(0.63444)	(0.46525)	(0.64679)	(0.40057)	(0.13489)	(0.26277)
0.000000	0.000000	1.000000	0.000000	0.689502	0.099496	-1.078352	-0.040272	-0.101267	-0.492902
				(0.19827)	(0.14539)	(0.20213)	(0.12518)	(0.04215)	(0.08212)
0.000000	0.000000	0.000000	1.000000	-1.058271	-0.922667	0.763219	-0.085894	-0.075733	-0.083342
				(0.28535)	(0.20925)	(0.29090)	(0.18016)	(0.06067)	(0.11818)

Adjustment coefficients (standard error in parentheses)

D(STI)	-0.903755	-0.230470	-0.352342	-1.188694
	(0.34244)	(0.23565)	(0.42152)	(0.44369)
D(N225)	-0.685300	-0.626212	-0.270505	-0.535934
	(0.35722)	(0.24582)	(0.43972)	(0.46284)
D(HSI)	-0.114931	-0.199981	-1.756820	-0.865254
	(0.39801)	(0.27389)	(0.48992)	(0.51569)
D(TWII)	-0.759687	0.221171	0.106378	-2.237309
	(0.35798)	(0.24635)	(0.44065)	(0.46383)
D(NZ50)	-0.110959	0.244754	0.044730	-0.350540
	(0.22652)	(0.15588)	(0.27883)	(0.29350)
D(KLSE)	-0.629579	-0.386632	-0.853083	0.181612
	(0.23549)	(0.16206)	(0.28988)	(0.30512)
D(AXJO)	0.219321	0.069681	-0.307654	-0.411303

	(0.25477)	(0.17532)	(0.31361)	(0.33011)
D(KOSPI)	-0.570339	-0.436007	-0.437167	-0.558295
	(0.39163)	(0.26950)	(0.48208)	(0.50743)
D(SSE)	-0.161187	0.175197	-1.239646	-0.542555
	(0.56233)	(0.38697)	(0.69220)	(0.72861)
D(SET)	-0.204769	-0.316180	0.146256	-0.252679
	(0.43972)	(0.30259)	(0.54126)	(0.56973)

5 Cointegrating Equation(s): Log likelihood 3188.226

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	0.000000	-0.283218	-0.468024	-0.578591	0.014914	-0.077163
					(0.16383)	(0.15177)	(0.13309)	(0.04770)	(0.09155)
0.000000	1.000000	0.000000	0.000000	0.000000	1.144832	-2.366467	1.258930	-0.133187	-0.652927
					(0.40782)	(0.37779)	(0.33131)	(0.11873)	(0.22789)
0.000000	0.000000	1.000000	0.000000	0.000000	-0.215800	-0.274365	-0.241517	-0.094007	-0.327438
					(0.16066)	(0.14883)	(0.13051)	(0.04677)	(0.08977)
0.000000	0.000000	0.000000	1.000000	0.000000	-0.438741	-0.470767	0.222982	-0.086875	-0.337301
					(0.16075)	(0.14891)	(0.13059)	(0.04680)	(0.08983)
0.000000	0.000000	0.000000	0.000000	1.000000	0.457281	-1.166040	0.291869	-0.010529	-0.239975
					(0.14349)	(0.13292)	(0.11656)	(0.04177)	(0.08018)

Adjustment coefficients (standard error in parentheses)

D(STI)	-0.860443	-0.230859	-0.345984	-1.201856	0.268916
	(0.46642)	(0.23565)	(0.42404)	(0.45397)	(0.50711)
D(N225)	-0.342625	-0.629290	-0.220202	-0.640073	1.213727
	(0.48419)	(0.24462)	(0.44019)	(0.47127)	(0.52643)
D(HSI)	0.134380	-0.202220	-1.720223	-0.941020	0.059527
	(0.54101)	(0.27333)	(0.49186)	(0.52658)	(0.58821)
D(TWII)	0.121941	0.213253	0.235796	-2.505235	-0.174346
	(0.47150)	(0.23822)	(0.42866)	(0.45892)	(0.51264)
D(NZ50)	0.106204	0.242804	0.076609	-0.416535	-0.784099
	(0.30704)	(0.15512)	(0.27914)	(0.29884)	(0.33382)

D(KLSE)	-0.422064	-0.388496	-0.822621	0.118549	-0.613428
	(0.31944)	(0.16139)	(0.29042)	(0.31092)	(0.34731)
D(AXJO)	0.322282	0.068757	-0.292540	-0.442593	0.285170
	(0.34674)	(0.17518)	(0.31524)	(0.33749)	(0.37699)
D(KOSPI)	0.418096	-0.444884	-0.292070	-0.858681	0.245246
	(0.51493)	(0.26015)	(0.46814)	(0.50118)	(0.55985)
D(SSE)	0.028928	0.173490	-1.211738	-0.600331	-1.289573
	(0.76552)	(0.38676)	(0.69597)	(0.74510)	(0.83231)
D(SET)	0.096870	-0.318889	0.190535	-0.344347	0.948273
	(0.59745)	(0.30185)	(0.54317)	(0.58151)	(0.64958)

6 Cointegrating Equation(s): Log likelihood 3203.827

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.008329	-5.457031	0.666368	0.922480
						(1.15986)	(1.07714)	(0.36795)	(0.66952)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-8.334226	20.97872	-2.766514	-4.693716
						(4.52490)	(4.20221)	(1.43547)	(2.61197)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.850553	-3.958680	0.402373	0.434247
						(0.83691)	(0.77722)	(0.26550)	(0.48310)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	1.816292	-7.334347	0.922310	1.211274
						(1.57022)	(1.45824)	(0.49813)	(0.90640)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-3.549745	8.168552	-1.062360	-1.853989
						(1.73589)	(1.61209)	(0.55069)	(1.00203)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	5.212782	-17.22505	2.300187	3.529592
						(3.75166)	(3.48411)	(1.19017)	(2.16562)

Adjustment coefficients (standard error in parentheses)

D(STI)	-1.575172	0.070231	-0.312675	-0.919344	-0.093025	1.024757
	(0.53997)	(0.26036)	(0.41308)	(0.45683)	(0.51542)	(0.38730)
D(N225)	-0.366652	-0.619168	-0.219082	-0.630575	1.201559	0.270737
	(0.57572)	(0.27759)	(0.44042)	(0.48707)	(0.54954)	(0.41294)
D(HSI)	-0.445467	0.042049	-1.693200	-0.711822	-0.234109	0.801694

	(0.63506)	(0.30620)	(0.48582)	(0.53728)	(0.60619)	(0.45550)
D(TWII)	-0.094888	0.304596	0.245901	-2.419529	-0.284148	1.275349
	(0.55933)	(0.26969)	(0.42789)	(0.47321)	(0.53390)	(0.40119)
D(NZ50)	-0.377941	0.446758	0.099171	-0.225166	-1.029272	0.272605
	(0.35488)	(0.17111)	(0.27149)	(0.30024)	(0.33875)	(0.25454)
D(KLSE)	-0.699068	-0.271804	-0.809712	0.228040	-0.753704	-0.356041
	(0.37666)	(0.18161)	(0.28815)	(0.31867)	(0.35954)	(0.27016)
D(AXJO)	-0.095292	0.244666	-0.273080	-0.277538	0.073709	0.562359
	(0.40562)	(0.19558)	(0.31030)	(0.34317)	(0.38718)	(0.29093)
D(KOSPI)	-0.409014	-0.096451	-0.253524	-0.531747	-0.173606	0.294987
	(0.59451)	(0.28665)	(0.45480)	(0.50298)	(0.56749)	(0.42642)
D(SSE)	0.301562	0.058639	-1.224443	-0.708095	-1.151511	0.003384
	(0.90898)	(0.43828)	(0.69537)	(0.76902)	(0.86765)	(0.65197)
D(SET)	-0.695943	0.015096	0.227482	-0.030970	0.546790	0.506508
	(0.69641)	(0.33579)	(0.53275)	(0.58918)	(0.66475)	(0.49950)

7 Cointegrating Equation(s): Log likelihood 3217.525

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-2.197180	0.209296	0.177819
							(0.37695)	(0.13628)	(0.26210)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-5.965202	1.011360	1.461194
							(1.15130)	(0.41624)	(0.80052)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-1.208908	0.016820	-0.193894
							(0.21820)	(0.07889)	(0.15172)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-1.462412	0.098991	-0.130076
							(0.25836)	(0.09341)	(0.17964)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-3.307503	0.546726	0.767533
							(0.64237)	(0.23224)	(0.44665)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-0.372522	-0.062748	-0.320100
							(0.16058)	(0.05805)	(0.11165)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-3.232924	0.453296	0.738510
							(0.57941)	(0.20948)	(0.40287)

Adjustment coefficients (standard error in parentheses)

D(STI)	-1.591350	0.059007	-0.339528	-0.894829	-0.174331	1.121232	1.671125
	(0.54198)	(0.26249)	(0.42098)	(0.46273)	(0.57213)	(0.48688)	(0.78805)
D(N225)	-0.431644	-0.664259	-0.326953	-0.532092	0.874938	0.658298	1.040604
	(0.57410)	(0.27805)	(0.44593)	(0.49016)	(0.60604)	(0.51574)	(0.83476)
D(HSI)	-0.502401	0.002549	-1.787698	-0.625549	-0.520237	1.141206	1.859027
	(0.63493)	(0.30750)	(0.49318)	(0.54209)	(0.67025)	(0.57038)	(0.92320)
D(TWII)	-0.094545	0.304833	0.246470	-2.420048	-0.282427	1.273307	0.834810
	(0.56168)	(0.27203)	(0.43629)	(0.47956)	(0.59293)	(0.50458)	(0.81670)
D(NZ50)	-0.412867	0.422526	0.041202	-0.172242	-1.204797	0.480877	0.879690
	(0.35449)	(0.17168)	(0.27535)	(0.30266)	(0.37421)	(0.31845)	(0.51543)
D(KLSE)	-0.665492	-0.248509	-0.753983	0.177162	-0.584964	-0.556264	1.880315
	(0.37660)	(0.18239)	(0.29252)	(0.32154)	(0.39755)	(0.33831)	(0.54759)
D(AXJO)	-0.077553	0.256974	-0.243636	-0.304419	0.162860	0.456574	-0.320638
	(0.40690)	(0.19707)	(0.31606)	(0.34741)	(0.42954)	(0.36553)	(0.59164)
D(KOSPI)	-0.423857	-0.106749	-0.278160	-0.509255	-0.248200	0.383498	1.463427
	(0.59681)	(0.28904)	(0.46357)	(0.50955)	(0.63001)	(0.53613)	(0.86777)
D(SSE)	0.188509	-0.019797	-1.412085	-0.536785	-1.719666	0.677543	2.350747
	(0.90507)	(0.43834)	(0.70301)	(0.77274)	(0.95542)	(0.81306)	(1.31599)
D(SET)	-0.800765	-0.057629	0.053502	0.127867	0.020000	1.131584	0.711599
	(0.69065)	(0.33449)	(0.53646)	(0.58967)	(0.72907)	(0.62043)	(1.00422)

8 Cointegrating Equation(s): Log likelihood 3227.817

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.955391	1.130973
								(0.29787)	(0.40633)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-2.150690	4.048944
								(0.76291)	(1.04072)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.624001	0.330539
								(0.16487)	(0.22490)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-0.676208	0.504330

								(0.18889)	(0.25767)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-1.206524	2.202353
								(0.42339)	(0.57756)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-0.260216	-0.158497
								(0.06643)	(0.09062)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-1.260421	2.140977
								(0.42119)	(0.57456)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-0.530083	0.433808
								(0.16250)	(0.22168)

Adjustment coefficients (standard error in parentheses)

D(STI)	-1.568971	0.052184	-0.350801	-0.904499	-0.183851	1.104224	1.675307	-0.362265	
	(0.57417)	(0.26876)	(0.43166)	(0.46991)	(0.57775)	(0.50773)	(0.78879)	(0.37431)	
D(N225)	-0.271249	-0.713156	-0.407753	-0.601404	0.806703	0.536405	1.070574	-0.290920	
	(0.60646)	(0.28388)	(0.45594)	(0.49634)	(0.61025)	(0.53629)	(0.83316)	(0.39536)	
D(HSI)	-0.433725	-0.018387	-1.822294	-0.655226	-0.549453	1.089015	1.871859	-0.495037	
	(0.67239)	(0.31474)	(0.50550)	(0.55029)	(0.67659)	(0.59458)	(0.92373)	(0.43834)	
D(TWII)	0.022436	0.269171	0.187540	-2.470599	-0.332193	1.184406	0.856669	-0.515146	
	(0.59412)	(0.27810)	(0.44665)	(0.48623)	(0.59783)	(0.52537)	(0.81620)	(0.38731)	
D(NZ50)	-0.314207	0.392449	-0.008498	-0.214876	-1.246768	0.405900	0.898125	-0.370660	
	(0.37448)	(0.17529)	(0.28153)	(0.30648)	(0.37681)	(0.33115)	(0.51446)	(0.24413)	
D(KLSE)	-0.529409	-0.289994	-0.822535	0.118356	-0.642856	-0.659681	1.905743	-0.231197	
	(0.39704)	(0.18585)	(0.29849)	(0.32494)	(0.39952)	(0.35110)	(0.54546)	(0.25884)	
D(AXJO)	-0.024842	0.240905	-0.270189	-0.327196	0.140436	0.416517	-0.310789	-0.252822	
	(0.43082)	(0.20166)	(0.32389)	(0.35259)	(0.43351)	(0.38097)	(0.59186)	(0.28086)	
D(KOSPI)	-0.565397	-0.063600	-0.206859	-0.448092	-0.187986	0.491062	1.436979	-1.517072	
	(0.63096)	(0.29535)	(0.47436)	(0.51639)	(0.63490)	(0.55795)	(0.86682)	(0.41134)	
D(SSE)	-0.401394	0.160037	-1.114920	-0.281870	-1.468712	1.125844	2.240520	-0.439625	
	(0.94351)	(0.44165)	(0.70933)	(0.77218)	(0.94940)	(0.83433)	(1.29619)	(0.61509)	
D(SET)	-0.514706	-0.144835	-0.090600	0.004253	-0.101694	0.914192	0.765051	-0.708209	
	(0.72700)	(0.34030)	(0.54655)	(0.59499)	(0.73154)	(0.64288)	(0.99875)	(0.47394)	

9 Cointegrating Equation(s): Log likelihood 3236.568

Normalized cointegrating coefficients (standard error in parentheses)

STI	N225	HIS	TWII	NZ50	KLSE	AXJO	KOSPI	SSE	SET
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.692060
									(0.10592)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.054902
									(0.19949)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.860151
									(0.10252)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.785979
									(0.09563)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-0.099880
									(0.10890)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-0.655029
									(0.08878)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-0.264099
									(0.11629)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-0.577671
									(0.09408)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-1.908153
									(0.42415)

Adjustment coefficients (standard error in parentheses)

D(STI)	-1.649563	-0.041304	-0.305449	-0.926027	-0.401501	1.185414	1.629271	-0.317440	0.190517
	(0.57071)	(0.27305)	(0.42824)	(0.46526)	(0.58957)	(0.50533)	(0.78122)	(0.37162)	(0.10366)
D(N225)	-0.403120	-0.866129	-0.333543	-0.636628	0.450570	0.669253	0.995248	-0.217574	0.077780
	(0.59387)	(0.28413)	(0.44562)	(0.48414)	(0.61349)	(0.52583)	(0.81292)	(0.38670)	(0.10786)
D(HSI)	-0.494038	-0.088351	-1.788353	-0.671336	-0.712335	1.149775	1.837408	-0.461491	0.285538
	(0.67248)	(0.32175)	(0.50460)	(0.54823)	(0.69470)	(0.59544)	(0.92053)	(0.43788)	(0.12214)
D(TWII)	-0.008657	0.233103	0.205037	-2.478904	-0.416163	1.215729	0.838908	-0.497852	0.223098
	(0.59586)	(0.28509)	(0.44711)	(0.48576)	(0.61555)	(0.52760)	(0.81565)	(0.38799)	(0.10822)
D(NZ50)	-0.400168	0.292733	0.039876	-0.237837	-1.478916	0.492498	0.849023	-0.322850	0.025394
	(0.36561)	(0.17492)	(0.27434)	(0.29805)	(0.37769)	(0.32372)	(0.50046)	(0.23806)	(0.06640)
D(KLSE)	-0.578812	-0.347303	-0.794734	0.105160	-0.776274	-0.609912	1.877523	-0.203719	0.204952
	(0.39554)	(0.18924)	(0.29679)	(0.32245)	(0.40861)	(0.35022)	(0.54143)	(0.25755)	(0.07184)
D(AXJO)	-0.134522	0.113674	-0.208468	-0.356494	-0.155768	0.527010	-0.373440	-0.191819	0.086660

	(0.41779)	(0.19989)	(0.31349)	(0.34059)	(0.43159)	(0.36993)	(0.57189)	(0.27204)	(0.07588)
D(KOSPI)	-0.634932	-0.144262	-0.167729	-0.466666	-0.375774	0.561113	1.397260	-1.478398	0.165079
	(0.62969)	(0.30127)	(0.47249)	(0.51334)	(0.65049)	(0.55755)	(0.86195)	(0.41002)	(0.11437)
D(SSE)	-0.548020	-0.010051	-1.032407	-0.321036	-1.864692	1.273556	2.156766	-0.358074	-0.262116
	(0.93560)	(0.44763)	(0.70203)	(0.76272)	(0.96651)	(0.82841)	(1.28070)	(0.60921)	(0.16993)
D(SET)	-0.556944	-0.193831	-0.066831	-0.007029	-0.215762	0.956742	0.740924	-0.684717	0.130985
	(0.72889)	(0.34873)	(0.54693)	(0.59421)	(0.75297)	(0.64539)	(0.99774)	(0.47461)	(0.13239)

Appendix 8. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Meaning
N225 does not Granger Cause STI	154	0.47322	0.6239	Supported
STI does not Granger Cause N225		2.7855	0.0649	Supported
HSI does not Granger Cause STI	154	0.37249	0.6897	Supported
STI does not Granger Cause HIS		**3.96442**	**0.0210**	**Not supported**
TWII does not Granger Cause STI	154	0.22126	0.8018	Supported
STI does not Granger Cause TWII		**6.51359**	**0.0019**	**Not supported**
NZ50 does not Granger Cause STI	154	0.35012	0.7052	Supported
STI does not Granger Cause NZ50		0.91232	0.4038	Supported
KLSE does not Granger Cause STI	154	1.86773	0.1581	Supported
STI does not Granger Cause KLSE		1.55317	0.215	Supported
AXJO does not Granger Cause STI	154	1.29103	0.278	Supported
STI does not Granger Cause AXJO		1.98823	0.1406	Supported
KOSPI does not Granger Cause STI	154	0.18937	0.8277	Supported
STI does not Granger Cause KOSPI		**2.93051**	**0.0565**	**Not supported**
SSE does not Granger Cause STI	154	0.96953	0.3816	Supported
STI does not Granger Cause SSE		1.76322	0.1751	Supported
SET does not Granger Cause STI	**154**	**3.03851**	**0.0509**	**Not supported**
STI does not Granger Cause SET		1.86458	0.1586	Supported
HSI does not Granger Cause N225	154	0.4652	0.6289	Supported
N225 does not Granger Cause HIS		3.02947	0.0513	Supported
TWII does not Granger Cause N225	154	0.68138	0.5075	Supported
N225 does not Granger Cause TWII		**4.56939**	**0.0119**	**Not supported**
NZ50 does not Granger Cause N225	154	1.34014	0.2649	Supported
N225 does not Granger Cause NZ50		1.29243	0.2777	Supported
KLSE does not Granger Cause N225	154	1.02455	0.3615	Supported
N225 does not Granger Cause KLSE		1.24466	0.291	Supported
AXJO does not Granger Cause N225	154	0.81997	0.4424	Supported
N225 does not Granger Cause AXJO		1.0011	0.3699	Supported
KOSPI does not Granger Cause N225	154	0.90964	0.4049	Supported
N225 does not Granger Cause KOSPI		**2.92885**	**0.0565**	**Not supported**
SSE does not Granger Cause N225	154	0.10924	0.8966	Supported
N225 does not Granger Cause SSE		1.91101	0.1515	Supported
SET does not Granger Cause N225	154	2.01198	0.1373	Supported
N225 does not Granger Cause SET		0.86043	0.4251	Supported
TWII does not Granger Cause HIS	154	0.3873	0.6796	Supported

HSI does not Granger Cause TWII		**3.16334**	**0.0451**	**Not supported**
NZ50 does not Granger Cause HIS	154	2.53805	0.0824	Supported
HSI does not Granger Cause NZ50		0.70219	0.4971	Supported
KLSE does not Granger Cause HSI	**154**	**3.66488**	**0.0279**	**Not supported**
HSI does not Granger Cause KLSE		0.12121	0.8859	Supported
AXJO does not Granger Cause HSI	**154**	**3.38409**	**0.0365**	**Not supported**
HSI does not Granger Cause AXJO		0.15801	0.854	Supported
KOSPI does not Granger Cause HIS	154	0.45626	0.6345	Supported
HSI does not Granger Cause KOSPI		2.64011	0.0747	Supported
SSE does not Granger Cause HIS	154	0.73095	0.4832	Supported
HSI does not Granger Cause SSE		0.78228	0.4592	Supported
SET does not Granger Cause HIS	**154**	**3.94422**	**0.0214**	**Not supported**
HSI does not Granger Cause SET		2.60411	0.0773	Supported
NZ50 does not Granger Cause TWII	154	1.56873	0.2117	Supported
TWII does not Granger Cause NZ50		0.62013	0.5393	Supported
KLSE does not Granger Cause TWII	**154**	**3.99912**	**0.0203**	**Not supported**
TWII does not Granger Cause KLSE		0.60269	0.5487	Supported
AXJO does not Granger Cause TWII	**154**	**3.1865**	**0.0441**	**Not supported**
TWII does not Granger Cause AXJO		0.03667	0.964	Supported
KOSPI does not Granger Cause TWII	154	2.74961	0.0672	Supported
TWII does not Granger Cause KOSPI		1.51799	0.2225	Supported
SSE does not Granger Cause TWII	154	2.31701	0.1021	Supported
TWII does not Granger Cause SSE		0.3746	0.6882	Supported
SET does not Granger Cause TWII	**154**	**3.4936**	**0.0329**	**Not supported**
TWII does not Granger Cause SET		1.75095	0.1772	Supported
KLSE does not Granger Cause NZ50	**154**	**3.39683**	**0.0361**	**Not supported**
NZ50 does not Granger Cause KLSE		0.20531	0.8146	Supported
AXJO does not Granger Cause NZ50	154	2.31853	0.102	Supported
NZ50 does not Granger Cause AXJO		2.45954	0.0889	Supported
KOSPI does not Granger Cause NZ50	154	0.38953	0.6781	Supported
NZ50 does not Granger Cause KOSPI		0.96437	0.3836	Supported
SSE does not Granger Cause NZ50	154	2.52938	0.0831	Supported
NZ50 does not Granger Cause SSE		0.37354	0.6889	Supported
SET does not Granger Cause NZ50	**154**	**3.40757**	**0.0357**	**Not supported**
NZ50 does not Granger Cause SET		0.70101	0.4977	Supported
AXJO does not Granger Cause KLSE	154	0.57845	0.562	Supported

KLSE does not Granger Cause AXJO		**3.55166**	**0.0311**	**Not supported**
KOSPI does not Granger Cause KLSE	154	0.30546	0.7372	Supported
KLSE does not Granger Cause KOSPI		2.20558	0.1138	Supported
SSE does not Granger Cause KLSE	154	0.56143	0.5716	Supported
KLSE does not Granger Cause SSE		1.5753	0.2104	Supported
SET does not Granger Cause KLSE	154	1.52424	0.2212	Supported
KLSE does not Granger Cause SET		1.961	0.1443	Supported
KOSPI does not Granger Cause AXJO	**154**	**3.99262**	**0.0205**	**Not supported**
AXJO does not Granger Cause KOSPI		2.00083	0.1388	Supported
SSE does not Granger Cause AXJO	154	0.36231	0.6967	Supported
AXJO does not Granger Cause SSE		2.12986	0.1225	Supported
SET does not Granger Cause AXJO	154	1.98552	0.1409	Supported
AXJO does not Granger Cause SET		0.36682	0.6936	Supported
SSE does not Granger Cause KOSPI	154	1.40263	0.2492	Supported
KOSPI does not Granger Cause SSE		0.92913	0.3972	Supported
SET does not Granger Cause KOSPI	**154**	**3.2516**	**0.0415**	**Not supported**
KOSPI does not Granger Cause SET		0.3085	0.735	Supported
SET does not Granger Cause SSE	154	0.6435	0.5269	Supported
SSE does not Granger Cause SET		0.66521	0.5157	Supported

Appendix 9. GARCH (1, 1) Test

SINGAPORE (STI)

Dependent Variable: STI
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:24
Sample: 1 156
Included observations: 156
Convergence achieved after 21 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.
C	-0.005674	0.002918	-1.944377	0.0519
Variance Equation				
C	7.37E-05	5.24E-05	1.405636	0.1598
RESID(-1)^2	0.209405	0.065655	3.189450	0.0014
GARCH(-1)	0.794169	0.050392	15.75969	0.0000

R-squared	-0.001255	Mean dependent var	-0.003810
Adjusted R-squared	-0.001255	S.D. dependent var	0.052776
S.E. of regression	0.052809	Akaike info criterion	-3.277482
Sum squared resid	0.432267	Schwarz criterion	-3.199281
Log likelihood	259.6436	Hannan-Quinn criter.	-3.245720
Durbin-Watson stat	1.527817		

Appendix 9. GARCH (1, 1) Test

JAPAN (N225)

Dependent Variable: N225
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:28
Sample: 1 156
Included observations: 156
Convergence achieved after 35 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.
C	-0.006034	0.004893	-1.233097	0.2175
Variance Equation				
C	0.000374	0.000432	0.866083	0.3864
RESID(-1)^2	0.104134	0.090437	1.151459	0.2495
GARCH(-1)	0.789980	0.188139	4.198908	0.0000

R-squared	-0.001672	Mean dependent var	-0.003675
Adjusted R-squared	-0.001672	S.D. dependent var	0.057880
S.E. of regression	0.057929	Akaike info criterion	-2.861869
Sum squared resid	0.520135	Schwarz criterion	-2.783668
Log likelihood	227.2258	Hannan-Quinn criter.	-2.830107
Durbin-Watson stat	1.631300		

Appendix 9. GARCH (1, 1) Test

HONGKONG (HSI)

Dependent Variable: HSI
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:30
Sample: 1 156
Included observations: 156
Convergence achieved after 28 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.
C	-0.005252	0.004800	-1.094086	0.2739
Variance Equation				
C	0.000355	0.000187	1.893433	0.0583
RESID(-1)^2	0.163083	0.094978	1.717060	0.0860
GARCH(-1)	0.754068	0.092339	8.166297	0.0000

R-squared	-0.000684	Mean dependent var	-0.003618
Adjusted R-squared	-0.000684	S.D. dependent var	0.062671
S.E. of regression	0.062692	Akaike info criterion	-2.789769
Sum squared resid	0.609195	Schwarz criterion	-2.711567
Log likelihood	221.6020	Hannan-Quinn criter.	-2.758007
Durbin-Watson stat	1.751893		

Appendix 9. GARCH (1, 1) Test

TAIWAN (TWII)

Dependent Variable: TWII
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:31
Sample: 1 156
Included observations: 156
Convergence achieved after 31 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.
C	-0.003733	0.003361	-1.110713	0.2667
Variance Equation				
C	0.000130	0.000104	1.251407	0.2108
RESID(-1)^2	0.266743	0.114318	2.333347	0.0196
GARCH(-1)	0.720637	0.107997	6.672725	0.0000

R-squared	-0.001328	Mean dependent var	-0.001643
Adjusted R-squared	-0.001328	S.D. dependent var	0.057531
S.E. of regression	0.057569	Akaike info criterion	-3.122148
Sum squared resid	0.513705	Schwarz criterion	-3.043947
Log likelihood	247.5276	Hannan-Quinn criter.	-3.090386
Durbin-Watson stat	1.632920		

Appendix 9. GARCH (1, 1) Test

NEW ZEALAND (NZ50)

Dependent Variable: NZ50
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:35
Sample: 1 156
Included observations: 156
Convergence achieved after 16 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.
C	-0.008945	0.002399	-3.728775	0.0002
Variance Equation				
C	7.00E-05	6.49E-05	1.077655	0.2812
RESID(-1)^2	0.140817	0.078179	1.801208	0.0717
GARCH(-1)	0.806058	0.108575	7.423970	0.0000

R-squared	-0.003501	Mean dependent var	-0.006934
Adjusted R-squared	-0.003501	S.D. dependent var	0.034096
S.E. of regression	0.034156	Akaike info criterion	-3.983426
Sum squared resid	0.180829	Schwarz criterion	-3.905224
Log likelihood	314.7072	Hannan-Quinn criter.	-3.951664
Durbin-Watson stat	1.731676		

Appendix 9. GARCH (1, 1) Test

MALAYSIA (KLSE)

Dependent Variable: KLSE
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:33
Sample: 1 156
Included observations: 156
Convergence achieved after 21 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.
C	-0.003877	0.002716	-1.427150	0.1535
Variance Equation				
C	8.71E-05	4.71E-05	1.850050	0.0643
RESID(-1)^2	0.092953	0.055221	1.683273	0.0923
GARCH(-1)	0.853044	0.071273	11.96866	0.0000

R-squared	-0.001456	Mean dependent var	-0.005292
Adjusted R-squared	-0.001456	S.D. dependent var	0.037200
S.E. of regression	0.037227	Akaike info criterion	-3.788334
Sum squared resid	0.214808	Schwarz criterion	-3.710132
Log likelihood	299.4900	Hannan-Quinn criter.	-3.756572
Durbin-Watson stat	1.718518		

Appendix 9. GARCH (1, 1) Test

AUSTRALIA (AXJO)

Dependent Variable: AXJO
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:37
Sample: 1 156
Included observations: 156
Convergence achieved after 26 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.
C	-0.007781	0.003048	-2.552865	0.0107
Variance Equation				
C	0.000217	0.000111	1.956599	0.0504
RESID(-1)^2	0.323408	0.118648	2.725762	0.0064
GARCH(-1)	0.569117	0.103919	5.476522	0.0000

R-squared	-0.015010	Mean dependent var	-0.002977
Adjusted R-squared	-0.015010	S.D. dependent var	0.039335
S.E. of regression	0.039629	Akaike info criterion	-3.724416
Sum squared resid	0.243422	Schwarz criterion	-3.646215
Log likelihood	294.5045	Hannan-Quinn criter.	-3.692654
Durbin-Watson stat	1.688448		

Appendix 9. GARCH (1, 1) Test

REPUBLIC OF KOREA (KOSPI)

Dependent Variable: KOSPI
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:38
Sample: 1 156
Included observations: 156
Convergence achieved after 23 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.
C	-0.001424	0.003690	-0.385943	0.6995
Variance Equation				
C	5.01E-05	4.15E-05	1.208521	0.2268
RESID(-1)^2	0.106426	0.044312	2.401775	0.0163
GARCH(-1)	0.896725	0.046619	19.23516	0.0000

R-squared	-0.006769	Mean dependent var	-0.006088
Adjusted R-squared	-0.006769	S.D. dependent var	0.056874
S.E. of regression	0.057066	Akaike info criterion	-3.030580
Sum squared resid	0.504762	Schwarz criterion	-2.952379
Log likelihood	240.3853	Hannan-Quinn criter.	-2.998818
Durbin-Watson stat	1.965693		

Appendix 9. GARCH (1, 1) Test

REPUBLIC OF CHINA (SSE)

Dependent Variable: SSE
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:39
Sample: 1 156
Included observations: 156
Convergence achieved after 28 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.
C	0.004872	0.005961	0.817339	0.4137
Variance Equation				
C	0.000330	0.000255	1.292748	0.1961
RESID(-1)^2	0.130097	0.071671	1.815197	0.0695
GARCH(-1)	0.826564	0.086899	9.511785	0.0000

R-squared	-0.006340	Mean dependent var	-0.001947
Adjusted R-squared	-0.006340	S.D. dependent var	0.085925
S.E. of regression	0.086197	Akaike info criterion	-2.168054
Sum squared resid	1.151632	Schwarz criterion	-2.089853
Log likelihood	173.1082	Hannan-Quinn criter.	-2.136292
Durbin-Watson stat	1.756540		

Appendix 9. GARCH (1, 1) Test

THAILAND (SET)

Dependent Variable: SET
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 08/18/16 Time: 05:42
Sample: 1 156
Included observations: 156
Convergence achieved after 102 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.
C	-0.000472	0.004995	-0.094435	0.9248
Variance Equation				
C	0.000318	0.000254	1.252544	0.2104
RESID(-1)^2	0.211380	0.110640	1.910529	0.0561
GARCH(-1)	0.758715	0.126863	5.980589	0.0000

R-squared	-0.007039	Mean dependent var	-0.005958
Adjusted R-squared	-0.007039	S.D. dependent var	0.065608
S.E. of regression	0.065838	Akaike info criterion	-2.660473
Sum squared resid	0.671877	Schwarz criterion	-2.582271
Log likelihood	211.5169	Hannan-Quinn criter.	-2.628711
Durbin-Watson stat	1.613070		

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