

Chapter 5

Conclusion

This chapter provides the conclusion of the research study, managerial implication, suggestion for further research, and also gives the research limitations. This paper aims to determine the extent of integration and interaction between the selected Southeast Asian, developed and European stock markets through co-integration and causality analysis from January 1998 to December 2017 period of time.

5.1 Conclusion

From the data analysis in chapter IV about the causal relationship and long-run cointegration between emerging Southeast Asian stock market, European and developed stock markets, it can be concluded as follows:

1. Cointegration Test is conducted to know the long-run relationship between the variables. From the result obtained in chapter 4, it can be seen that all of the trace statistic from all of the stocks are greater than the critical value. It means that null hypothesis that stated there is no cointegration is not supported and alternative hypothesis that stated there is cointegration is supported. Based on the econometric analysis, it can be seen that there is cointegration in 5% level. In the other words, the emerging Southeast Asian stock market and developed countries stock market have stability relationship and the similarity movement in the long-run.

2. Granger Causality test indicates the relationship is bidirectional, unidirectional, or there is no causality relationship. There are three groups of variable that have been tested:

(1) Based on the result of Granger Causality test by using lag 1, the researcher can conclude that there is bidirectional relationship between JKSE and KLCI; and between PSEI and KLCI. It means that JKSE stock market has impact to KLCI stock market, and vice versa; and PSEI stock market has impact to KLCI, and vice versa. The rest of the variable in the group has a unidirectional relationship.

(2) Based on the result of Granger Causality test by using lag 1, the researcher can conclude that there is unidirectional relationship between FTSE100 and JKSE; S&P500 and JKSE; STOXX600 and JKSE; STOXX600 and KLCI; STOXX600 and SET; STOXX600 and PSEI. And as for the rest of the variables pairing in the group, it appears that it has no relationship.

(3) Based on the result of Granger Causality test by using lag 1, the researcher can conclude that there is unidirectional relationship between S&P100 and FTSE100; STOXX600 and FTSE100; STOXX600 and S&P500.

5.2 Managerial Implications

This research is expected to help the party that is involved in the stock market such as the investor. Based on the research results, the researcher hope that the investor can use informations from this research to help them understanding the relationship between stock markets.

The current study motivates the reader and investment community regarding the relationship between Southeast Asian and developed European and US markets especially during global financial crisis of 2008-2009. This changing relationship has an evolving nature, i.e. from no correlation (Ajayi and Mehdi, 1995; Bowman and Comer, 2000) to relationship among more concentrated countries (Lucey and Zhang, 2010) and finally an increased relationship especially after the 2008 financial crisis period (Syriopoulos, 2011). Therefore, for such changing trends, this current study with latest results and more methodological frontiers will be helpful to the investment community. Final practical implication of this study is the diminishing diversification benefits among international emerging and developed markets and therefore in future investors will have to rely on sector or fundamental-based diversification benefits.

5.3 Research Limitations

There are some limitation of analysis of this research study. It can be from variables, length period, the research method, and so on. Those limitation are as follows:

1. The data that is used in this research are monthly data from January 1998 to December 2017.
2. This research doesn't consider the structural breaks that happen within the period of time that is used. This may lead to less accurate findings.
3. The Southeast Asian countries stock market that were used in this research are only Indonesia, Malaysia, Thailand, and Philippines. Singapore stock

market weren't used in this research because according the reports in World Bank, Singapore is categorized as developed country with high GDP. Thus, the researcher didn't use Singapore's stock market for this reason.

4. The developed countries stock market that were used in this research are only UK and US.

5.4 Suggestions

Below is the suggestion that the researcher can give as a reference for future research that will be done, they are:

1. The future researchers are suggested to consider to use daily market price data for a more accurate results. The use of daily data can capture the accurate fluctuation of the daily price of each stock markets that may lead to different and more accurate findings.

2. The future researchers are suggested to consider about the structural breaks that happened between the period of time used in the research. Structural breaks is an unexpected shift in a time series that can lead to huge forecasting errors and unreliability of the model in general. The researcher highly recommend the future research to use the ARDL model and bound-testing to capture the effect of structural breaks within the period of time choosen to get a more accurate results.

3. The future researchers are suggested consider to use all countries to represent Southeast Asian stock market data. This may lead to a different result and more accurate.

4. The future researchers should consider to use other developed countries stock market data to provide more accurate findings.



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APPENDIX



Appendix 1
Data

Numb.	Date	FTSE 100		S&P 500		STOXX 600		JKSE		KLCI		SET		PSEi	
		Price	Return	Price	Return	Price	Return	Price	Return	Price	Return	Price	Return	Price	Return
1	Dec-97	5,135.50		970.43		235.10		401.71		594.44		372.69		1,869.23	
2	Jan-98	5,458.50	0.062896	980.28	0.010150	265.78	0.130498	485.94	0.209679	569.51	-0.041939	495.23	0.328799	1,948.01	0.042146
3	Feb-98	5,767.30	0.056572	1,049.34	0.070449	287.92	0.083302	482.38	-0.007326	745.36	0.308774	528.42	0.067019	2,266.30	0.163392
4	Mar-98	5,932.20	0.028592	1,101.75	0.049946	288.18	0.000903	541.42	0.122393	719.52	-0.034668	459.11	-0.131165	2,238.42	-0.012302
5	Apr-98	5,928.30	-0.000657	1,111.75	0.009076	293.86	0.019710	460.14	-0.150124	625.97	-0.130017	412.13	-0.102328	2,181.32	-0.025509
6	May-98	5,870.70	-0.009716	1,090.82	-0.018826	297.52	0.012455	420.46	-0.086235	538.24	-0.140150	325.59	-0.209982	2,011.45	-0.077875
7	Jun-98	5,832.50	-0.006507	1,133.84	0.039438	299.76	0.007529	445.92	0.060553	455.64	-0.153463	267.33	-0.178937	1,760.13	-0.124945
8	Jul-98	5,837.00	0.000772	1,120.67	-0.011615	259.47	-0.134408	481.72	0.080283	402.65	-0.116298	266.72	-0.002282	1,607.61	-0.086653
9	Aug-98	5,249.40	-0.100668	957.28	-0.145797	235.86	-0.090993	342.44	-0.289131	302.91	-0.247709	214.53	-0.195673	1,192.25	-0.258371
10	Sep-98	5,064.40	-0.035242	1,017.01	0.062396	251.64	0.066904	276.15	-0.193581	373.52	0.233106	253.82	0.183145	1,259.64	0.056523
11	Oct-98	5,438.40	0.073849	1,098.67	0.080294	271.27	0.078008	300.77	0.089154	405.33	0.085163	331.29	0.305216	1,755.04	0.393287
12	Nov-98	5,743.90	0.056175	1,163.63	0.059126	279.20	0.029233	386.27	0.284270	501.47	0.237189	362.82	0.095173	1,975.36	0.125536

13	Dec 98	5,882.60	0.024147	1,229.23	0.056375	288.31	0.032629	398.04	0.030471	586.13	0.168824	355.81	- 0.019321	1,968.78	- 0.003331
14	Jan-99	5,896.00	0.002278	1,279.64	0.041009	289.96	0.005723	411.93	0.034896	591.43	0.009042	363	0.020207	1,954.15	- 0.007431
15	Feb-99	6,175.10	0.047337	1,238.33	- 0.032283	297.15	0.024797	396.09	- 0.038453	542.23	- 0.083188	340.94	- 0.060771	1,965.05	0.005578
16	Mar-99	6,295.30	0.019465	1,286.37	0.038794	312.35	0.051153	393.63	- 0.006211	502.82	- 0.072681	352.01	0.032469	2,028.21	0.032142
17	Apr-99	6,552.20	0.040808	1,335.18	0.037944	301.22	- 0.035633	495.22	0.258085	674.96	0.342349	459.35	0.304935	2,433.70	0.199925
18	May 99	6,226.20	- 0.049754	1,301.84	- 0.024970	309.69	0.028119	585.24	0.181778	743.04	0.100865	453.6	- 0.012518	2,419.83	- 0.005699
19	Jun-99	6,318.50	0.014824	1,372.71	0.054438	301.28	- 0.027156	662.03	0.131211	811.1	0.091597	521.77	0.150287	2,486.96	0.027742
20	Jul-99	6,231.90	- 0.013706	1,328.72	- 0.032046	308.69	0.024595	597.87	- 0.096914	768.69	- 0.052287	456.81	- 0.124499	2,342.81	- 0.057962
21	Aug 99	6,246.40	0.002327	1,320.41	- 0.006254	303.91	- 0.015485	567.03	- 0.051583	767.06	- 0.002120	440.27	- 0.036208	2,173.82	- 0.072131
22	Sep-99	6,029.80	- 0.034676	1,282.71	- 0.028552	317.27	0.043960	547.94	- 0.033667	675.45	- 0.119430	389.49	- 0.115338	2,096.20	- 0.035707
23	Oct 99	6,255.70	0.037464	1,362.93	0.062539	342.13	0.078356	593.87	0.083823	742.87	0.099815	395.55	0.015559	2,036.05	- 0.028695
24	Nov-99	6,597.20	0.054590	1,388.91	0.019062	379.49	0.109198	583.80	- 0.016957	734.66	- 0.011052	422.12	0.067172	1,979.42	- 0.027814
25	Dec 99	6,930.20	0.050476	1,469.25	0.057844	360.93	- 0.048908	676.92	0.159507	812.33	0.105722	481.92	0.141666	2,142.97	0.082625
26	Jan-00	6,268.50	- 0.095481	1,394.46	- 0.050904	386.01	0.069487	636.37	- 0.059904	922.1	0.135130	477.57	- 0.009026	1,989.43	- 0.071648
27	Feb-00	6,232.60	- 0.005727	1,366.42	- 0.020108	394.10	0.020958	576.54	- 0.094018	982.24	0.065221	374.32	- 0.216199	1,641.94	- 0.174668

28	Mar-00	6,540.20	0.049353	1,498.58	0.096720	392.62	- 0.003755	583.28	0.011690	974.38	- 0.008002	400.32	0.069459	1,681.72	0.024227
29	Apr-00	6,327.40	- 0.032537	1,452.43	- 0.030796	380.24	- 0.031532	526.74	- 0.096935	898.35	- 0.078029	390.4	- 0.024780	1,598.73	- 0.049348
30	May 00	6,359.30	0.005042	1,420.60	- 0.021915	376.74	- 0.009205	454.33	- 0.137468	911.51	0.014649	323.29	- 0.171901	1,478.76	- 0.075041
31	Jun-00	6,312.70	- 0.007328	1,454.60	0.023934	382.63	0.015634	515.11	0.133779	833.37	- 0.085726	325.69	0.007424	1,533.99	0.037349
32	Jul-00	6,365.30	0.008332	1,430.83	- 0.016341	394.96	0.032224	492.19	- 0.044495	798.83	- 0.041446	284.67	- 0.125948	1,417.17	- 0.076154
33	Aug 00	6,672.70	0.048293	1,517.68	0.060699	377.44	- 0.044359	466.38	- 0.052439	795.84	- 0.003743	307.83	0.081357	1,537.52	0.084923
34	Sep-00	6,294.20	- 0.056724	1,436.51	- 0.053483	388.03	0.028057	421.34	- 0.096574	713.51	- 0.103450	277.29	- 0.099211	1,434.49	- 0.067011
35	Oct 00	6,438.40	0.022910	1,429.40	- 0.004949	363.25	- 0.063861	405.35	- 0.037950	752.36	0.054449	271.84	- 0.019655	1,287.85	- 0.102224
36	Nov-00	6,142.20	- 0.046005	1,314.95	- 0.080069	359.79	- 0.009525	429.21	0.058863	729.95	- 0.029786	277.92	0.022366	1,404.83	0.090834
37	Dec 00	6,222.50	0.013073	1,320.28	0.004053	362.33	0.007060	416.32	- 0.030032	679.64	- 0.068923	269.19	- 0.031412	1,494.50	0.063830
38	Jan-01	6,297.50	0.012053	1,366.01	0.034637	335.02	- 0.075373	425.61	0.022315	727.73	0.070758	332.77	0.236190	1,687.00	0.128806
39	Feb-01	5,917.90	- 0.060278	1,239.94	- 0.092291	321.70	- 0.039759	428.30	0.006320	709.39	- 0.025202	325.2	- 0.022748	1,613.49	- 0.043574
40	Mar-01	5,633.70	- 0.048024	1,160.33	- 0.064205	342.02	0.063164	381.05	- 0.110320	647.48	- 0.087272	291.94	- 0.102276	1,446.40	- 0.103558
41	Apr-01	5,966.90	0.059144	1,249.46	0.076814	341.97	- 0.000146	358.23	- 0.059887	584.5	- 0.097269	300.63	0.029766	1,378.84	- 0.046709
42	May 01	5,796.10	- 0.028625	1,255.82	0.005090	329.35	- 0.036904	405.86	0.132959	572.88	- 0.019880	310.13	0.031600	1,402.29	0.017007

43	Jun-01	5,642.50	- 0.026501	1,224.38	- 0.025035	316.95	- 0.037650	437.62	0.078254	592.99	0.035103	322.55	0.040048	1,410.07	0.005548
44	Jul-01	5,529.10	- 0.020097	1,211.23	- 0.010740	297.66	- 0.060861	444.08	0.014762	659.4	0.111992	297.69	- 0.077073	1,362.89	- 0.033459
45	Aug-01	5,345.00	- 0.033297	1,133.58	- 0.064108	266.29	- 0.105389	435.55	- 0.019208	687.16	0.042099	335.57	0.127246	1,265.44	- 0.071503
46	Sep-01	4,903.40	- 0.082619	1,040.94	- 0.081723	277.41	- 0.041759	392.48	- 0.098886	615.34	- 0.104517	277.04	- 0.174420	1,126.63	- 0.109693
47	Oct-01	5,039.70	0.027797	1,059.78	0.018099	288.95	0.041599	383.73	- 0.022294	600.07	- 0.024816	275.09	- 0.007039	993.35	- 0.118300
48	Nov-01	5,203.60	0.032522	1,139.45	0.075176	298.73	0.033847	380.31	- 0.008913	638.02	0.063243	302.62	0.100076	1,128.47	0.136025
49	Dec-01	5,217.40	0.002652	1,148.08	0.007574	292.45	- 0.021022	392.04	0.030843	696.09	0.091016	303.85	0.004065	1,168.08	0.035101
50	Jan-02	5,164.80	- 0.010082	1,130.20	- 0.015574	289.84	- 0.008925	451.64	0.152025	718.82	0.032654	340.82	0.121672	1,361.94	0.165965
51	Feb-02	5,101.00	- 0.012353	1,106.73	- 0.020766	303.04	0.045542	453.25	0.003565	708.91	- 0.013786	371.81	0.090928	1,406.22	0.032512
52	Mar-02	5,271.80	0.033484	1,147.39	0.036739	290.64	- 0.040919	481.77	0.062923	756.1	0.066567	373.95	0.005756	1,403.62	- 0.001849
53	Apr-02	5,165.60	- 0.020145	1,076.92	- 0.061418	279.03	- 0.039946	534.06	0.108537	793.99	0.050112	371.42	- 0.006766	1,346.09	- 0.040987
54	May-02	5,085.10	- 0.015584	1,067.14	- 0.009081	254.04	- 0.089560	530.79	- 0.006123	741.76	- 0.065782	407.96	0.098379	1,315.00	- 0.023096
55	Jun-02	4,656.40	- 0.084305	989.82	- 0.072455	227.63	- 0.103960	505.01	- 0.048569	725.44	- 0.022002	389.1	- 0.046230	1,156.35	- 0.120646
56	Jul-02	4,246.20	- 0.088094	911.62	- 0.079004	226.82	- 0.003558	463.67	- 0.081860	721.59	- 0.005307	376.02	- 0.033616	1,123.24	- 0.028633
57	Aug-02	4,227.30	- 0.004451	916.07	0.004881	194.76	- 0.141346	443.67	- 0.043134	711.36	- 0.014177	361.16	- 0.039519	1,103.36	- 0.017699

58	Sep-02	3,721.80	- 0.119580	815.28	- 0.110024	213.01	0.093705	419.31	- 0.054906	638.01	- 0.103112	331.79	- 0.081321	1,129.34	0.023546
59	Oct 02	4,039.70	0.085416	885.76	0.086449	222.47	0.044411	369.04	- 0.119887	659.57	0.033793	357.22	0.076645	1,048.53	- 0.071555
60	Nov-02	4,169.40	0.032106	936.31	0.057070	201.72	- 0.093271	390.43	0.057961	629.22	- 0.046015	364.9	0.021499	1,047.22	- 0.001249
61	Dec 02	3,940.40	- 0.054924	879.82	- 0.060333	189.00	- 0.063058	424.94	0.088390	646.32	0.027177	356.48	- 0.023075	1,018.41	- 0.027511
62	Jan-03	3,567.40	- 0.094660	855.70	- 0.027415	181.75	- 0.038360	388.44	- 0.085894	664.77	0.028546	370.01	0.037954	1,056.69	0.037588
63	Feb-03	3,655.60	0.024724	841.15	- 0.017004	176.41	- 0.029381	399.22	0.027752	646.80	- 0.027032	361.32	- 0.023486	1,019.33	- 0.035356
64	Mar-03	3,613.30	- 0.011571	848.18	0.008358	194.88	0.104699	398.00	- 0.003056	635.72	- 0.017130	364.55	0.008939	1,039.67	0.019954
65	Apr-03	3,926.00	0.086541	916.92	0.081044	196.54	0.008518	450.86	0.132814	630.37	- 0.008416	374.63	0.027651	1,068.15	0.027393
66	May 03	4,048.10	0.031100	963.59	0.050899	202.94	0.032563	494.78	0.097414	671.46	0.065184	403.82	0.077917	1,073.69	0.005186
67	Jun-03	4,031.20	- 0.004175	974.50	0.011322	211.11	0.040258	505.50	0.021666	691.96	0.030530	461.82	0.143628	1,222.80	0.138876
68	Jul-03	4,157.00	0.031207	993.32	0.019312	214.70	0.017005	507.99	0.004926	720.56	0.041332	484.11	0.048266	1,240.42	0.014410
69	Aug 03	4,161.06	0.000977	1,008.01	0.014789	206.86	- 0.036516	529.67	0.042678	743.30	0.031559	537.71	0.110719	1,192.83	- 0.038366
70	Sep-03	4,091.31	- 0.016763	995.97	- 0.011944	221.53	0.070918	597.65	0.128344	733.45	- 0.013252	578.98	0.076751	1,297.42	0.087682
71	Oct 03	4,287.59	0.047975	1,050.71	0.054961	223.30	0.007990	625.55	0.046683	817.12	0.114077	639.45	0.104442	1,399.07	0.078348
72	Nov-03	4,342.60	0.012830	1,058.20	0.007129	229.31	0.026914	617.08	- 0.013540	779.28	- 0.046309	646.03	0.010290	1,313.87	- 0.060898

73	Dec 03	4,476.87	0.030919	1,111.92	0.050765	235.81	0.028346	691.89	0.121232	793.94	0.018812	772.15	0.195223	1,442.37	0.097803
74	Jan- 04	4,390.68	- 0.019252	1,131.13	0.017276	242.59	0.028752	752.93	0.088222	818.94	0.031489	698.90	- 0.094865	1,508.30	0.045709
75	Feb- 04	4,492.21	0.023124	1,144.94	0.012209	236.59	- 0.024733	761.08	0.010824	879.24	0.073632	716.30	0.024896	1,483.18	- 0.016655
76	Mar- 04	4,385.67	- 0.023717	1,126.21	- 0.016359	239.05	0.010398	735.68	- 0.033374	901.85	0.025715	647.30	- 0.096328	1,424.33	- 0.039678
77	Apr- 04	4,489.69	0.023718	1,107.30	- 0.016791	237.35	- 0.007111	783.41	0.064879	838.21	- 0.070566	648.15	0.001313	1,555.01	0.091748
78	May 04	4,430.69	- 0.013141	1,120.68	0.012083	240.86	0.014788	732.52	- 0.064960	810.67	- 0.032856	641.05	- 0.010954	1,511.36	- 0.028071
79	Jun- 04	4,464.07	0.007534	1,140.84	0.017989	236.40	- 0.018517	732.40	- 0.000164	819.86	0.011336	646.64	0.008720	1,579.40	0.045019
80	Jul- 04	4,413.08	- 0.011422	1,101.72	- 0.034291	233.63	- 0.011717	756.98	0.033561	833.98	0.017222	636.70	- 0.015372	1,584.70	0.003356
81	Aug 04	4,459.32	0.010478	1,104.24	0.002287	237.74	0.017592	754.70	- 0.003012	827.98	- 0.007194	624.59	- 0.019020	1,579.83	- 0.003073
82	Sep- 04	4,570.77	0.024993	1,114.58	0.009364	240.30	0.010768	820.13	0.086697	849.96	0.026547	644.67	0.032149	1,761.57	0.115038
83	Oct 04	4,624.21	0.011692	1,130.20	0.014014	246.51	0.025843	860.49	0.049212	861.14	0.013154	628.16	- 0.025610	1,819.03	0.032619
84	Nov- 04	4,703.18	0.017078	1,173.82	0.038595	251.11	0.018661	977.77	0.136294	917.19	0.065088	656.73	0.045482	1,830.96	0.006558
85	Dec 04	4,814.30	0.023627	1,211.92	0.032458	256.85	0.022859	1,000.23	0.022971	907.43	- 0.010641	668.10	0.017313	1,822.83	- 0.004440
86	Jan- 05	4,852.31	0.007895	1,181.27	- 0.025290	264.29	0.028966	1,045.44	0.045200	916.27	0.009742	701.91	0.050606	2,019.56	0.107926
87	Feb- 05	4,968.50	0.023945	1,203.60	0.018903	262.19	- 0.007946	1,073.83	0.027156	907.38	- 0.009702	741.55	0.056474	2,079.99	0.029922

88	Mar-05	4,894.37	- 0.014920	1,180.59	- 0.019118	256.06	- 0.023380	1,080.17	0.005904	871.35	- 0.039708	681.49	- 0.080993	1,954.69	- 0.060241
89	Apr-05	4,801.68	- 0.018938	1,156.85	- 0.020109	267.29	0.043857	1,029.61	- 0.046807	878.96	0.008734	658.88	- 0.033177	1,854.63	- 0.051190
90	May 05	4,963.97	0.033799	1,191.50	0.029952	275.92	0.032287	1,088.17	0.056876	860.73	- 0.020740	667.55	0.013159	1,929.38	0.040305
91	Jun-05	5,113.16	0.030055	1,191.33	- 0.000143	285.03	0.033017	1,122.38	0.031438	888.32	0.032054	675.50	0.011909	1,924.23	- 0.002669
92	Jul-05	5,282.30	0.033079	1,234.18	0.035968	284.82	- 0.000737	1,182.30	0.053387	937.39	0.055239	675.67	0.000252	2,000.25	0.039507
93	Aug 05	5,296.92	0.002768	1,220.33	- 0.011222	297.40	0.044168	1,050.09	- 0.111824	913.56	- 0.025422	697.85	0.032827	1,936.90	- 0.031671
94	Sep-05	5,477.71	0.034131	1,228.81	0.006949	290.29	- 0.023907	1,079.28	0.027798	927.54	0.015303	723.23	0.036369	1,942.07	0.002669
95	Oct 05	5,317.28	- 0.029288	1,207.01	- 0.017741	299.47	0.031624	1,066.22	- 0.012101	910.76	- 0.018091	682.62	- 0.056151	1,960.22	0.009346
96	Nov-05	5,423.17	0.019914	1,249.48	0.035186	310.03	0.035262	1,096.64	0.028531	896.13	- 0.016064	667.75	- 0.021784	2,099.74	0.071176
97	Dec 05	5,618.76	0.036066	1,248.29	- 0.000952	321.04	0.035513	1,162.64	0.060184	899.79	0.004084	713.73	0.068858	2,096.04	- 0.001762
98	Jan-06	5,760.26	0.025183	1,280.08	0.025467	327.88	0.021306	1,232.32	0.059933	914.01	0.015804	762.63	0.068513	2,145.39	0.023544
99	Feb-06	5,791.54	0.005430	1,280.66	0.000453	334.44	0.020007	1,230.66	- 0.001347	928.94	0.016335	744.05	- 0.024363	2,122.96	- 0.010455
100	Mar-06	5,964.57	0.029876	1,294.83	0.011065	336.48	0.006100	1,322.97	0.075009	926.63	- 0.002487	733.25	- 0.014515	2,195.95	0.034381
101	Apr-06	6,023.14	0.009820	1,310.61	0.012187	318.86	- 0.052366	1,464.41	0.106911	949.23	0.024389	768.29	0.047787	2,270.53	0.033963
102	May 06	5,723.81	- 0.049697	1,270.09	- 0.030917	320.66	0.005645	1,330.00	- 0.091784	927.78	- 0.022597	709.43	- 0.076612	2,296.11	0.011266

103	Jun-06	5,833.42	0.019150	1,270.20	0.000087	326.04	0.016778	1,310.26	- 0.014842	914.69	- 0.014109	678.13	- 0.044120	2,178.79	- 0.051095
104	Jul-06	5,928.33	0.016270	1,276.66	0.005086	334.73	0.026653	1,351.65	0.031589	935.85	0.023134	691.49	0.019701	2,390.84	0.097325
105	Aug-06	5,906.13	- 0.003745	1,303.82	0.021274	341.43	0.020016	1,431.26	0.058898	958.12	0.023797	690.90	- 0.000853	2,312.23	- 0.032880
106	Sep-06	5,960.81	0.009258	1,335.85	0.024566	353.34	0.034883	1,534.61	0.072209	967.55	0.009842	686.10	- 0.006947	2,556.71	0.105733
107	Oct-06	6,129.22	0.028253	1,377.94	0.031508	351.78	- 0.004415	1,582.63	0.031291	988.30	0.021446	722.46	0.052995	2,708.50	0.059369
108	Nov-06	6,048.85	- 0.013113	1,400.63	0.016467	365.26	0.038305	1,718.96	0.086141	1,080.66	0.093453	739.06	0.022977	2,788.46	0.029522
109	Dec-06	6,220.81	0.028429	1,418.30	0.012616	372.72	0.020435	1,805.52	0.050356	1,096.24	0.014417	679.84	- 0.080129	2,982.54	0.069601
110	Jan-07	6,203.09	- 0.002849	1,438.24	0.014059	365.03	- 0.020624	1,757.26	- 0.026729	1,189.35	0.084936	654.04	- 0.037950	3,239.27	0.086078
111	Feb-07	6,171.47	- 0.005097	1,406.82	- 0.021846	374.22	0.025179	1,740.97	- 0.009270	1,196.45	0.005970	677.13	0.035304	3,067.45	- 0.053043
112	Mar-07	6,308.03	0.022128	1,420.86	0.009980	386.93	0.033953	1,830.92	0.051667	1,246.87	0.042141	673.71	- 0.005051	3,203.55	0.044369
113	Apr-07	6,449.21	0.022381	1,482.37	0.043291	396.73	0.025343	1,999.17	0.091894	1,322.25	0.060455	699.16	0.037776	3,270.73	0.020970
114	May-07	6,621.45	0.026707	1,530.62	0.032549	393.71	- 0.007625	2,084.32	0.042593	1,346.89	0.018635	737.40	0.054694	3,474.67	0.062353
115	Jun-07	6,607.90	- 0.002046	1,503.35	- 0.017816	380.07	- 0.034635	2,139.28	0.026368	1,354.38	0.005561	776.79	0.053417	3,660.86	0.053585
116	Jul-07	6,360.11	- 0.037499	1,455.27	- 0.031982	375.94	- 0.010887	2,348.67	0.097879	1,373.71	0.014272	859.76	0.106811	3,501.20	- 0.043613
117	Aug-07	6,303.30	- 0.008932	1,473.99	0.012864	377.86	0.005113	2,194.34	- 0.065710	1,273.93	- 0.072635	813.21	- 0.054143	3,365.29	- 0.038818

118	Sep-07	6,466.79	0.025937	1,526.75	0.035794	388.43	0.027968	2,359.21	0.075134	1,336.30	0.048959	845.50	0.039707	3,572.90	0.061692
119	Oct 07	6,721.57	0.039398	1,549.38	0.014822	370.36	- 0.046511	2,643.49	0.120498	1,413.65	0.057884	907.28	0.073069	3,758.97	0.052078
120	Nov-07	6,432.45	- 0.043014	1,481.14	- 0.044043	364.64	- 0.015439	2,688.33	0.016962	1,396.98	- 0.011792	846.44	- 0.067058	3,578.55	- 0.047997
121	Dec 07	6,456.91	0.003803	1,468.36	- 0.008628	322.16	- 0.116492	2,745.83	0.021389	1,445.03	0.034396	858.10	0.013775	3,621.60	0.012030
122	Jan-08	5,879.78	- 0.089382	1,378.55	- 0.061163	318.95	- 0.009961	2,627.25	- 0.043185	1,393.25	- 0.035833	784.23	- 0.086086	3,266.00	- 0.098189
123	Feb-08	5,884.28	0.000765	1,330.63	- 0.034761	305.96	- 0.040752	2,721.94	0.036041	1,357.40	- 0.025731	845.76	0.078459	3,129.99	- 0.041644
124	Mar-08	5,702.11	- 0.030959	1,322.70	- 0.005960	323.09	0.055995	2,447.30	- 0.100899	1,247.52	- 0.080949	817.03	- 0.033969	2,984.67	- 0.046428
125	Apr-08	6,087.30	0.067552	1,385.59	0.047547	322.12	- 0.002996	2,304.52	- 0.058342	1,279.86	0.025923	832.45	0.018873	2,749.77	- 0.078702
126	May 08	6,053.50	- 0.005553	1,400.38	0.010674	289.39	- 0.101611	2,444.35	0.060676	1,276.10	- 0.002938	833.65	0.001442	2,827.44	0.028246
127	Jun-08	5,625.90	- 0.070637	1,280.00	- 0.085962	283.76	- 0.019451	2,349.10	- 0.038967	1,186.57	- 0.070159	768.59	- 0.078042	2,459.98	- 0.129962
128	Jul-08	5,411.90	- 0.038038	1,267.38	- 0.009859	288.18	0.015562	2,304.51	- 0.018982	1,163.09	- 0.019788	676.32	- 0.120051	2,577.10	0.047610
129	Aug 08	5,636.61	0.041521	1,282.83	0.012191	256.05	- 0.111490	2,165.94	- 0.060130	1,100.50	- 0.053814	684.44	0.012006	2,688.09	0.043068
130	Sep-08	4,902.45	- 0.130249	1,166.36	- 0.090791	222.07	- 0.132702	1,832.51	- 0.153942	1,018.68	- 0.074348	596.54	- 0.128426	2,569.65	- 0.044061
131	Oct 08	4,377.34	- 0.107112	968.75	- 0.169425	206.25	- 0.071248	1,256.70	- 0.314219	863.61	- 0.152226	416.53	- 0.301757	1,951.09	- 0.240718
132	Nov-08	4,288.01	- 0.020407	896.24	- 0.074849	198.36	- 0.038255	1,241.54	- 0.012063	866.14	0.002930	401.84	- 0.035268	1,971.57	0.010497

133	Dec 08	4,434.17	0.034086	903.25	0.007822	191.23	- 0.035930	1,355.41	0.091717	876.75	0.012250	449.96	0.119749	1,872.85	- 0.050072
134	Jan- 09	4,149.64	- 0.064168	825.88	- 0.085657	172.91	- 0.095780	1,332.67	- 0.016777	884.45	0.008782	437.69	- 0.027269	1,825.09	- 0.025501
135	Feb- 09	3,830.09	- 0.077007	735.09	- 0.109931	176.46	0.020490	1,285.48	- 0.035410	890.67	0.007033	431.52	- 0.014097	1,872.22	0.025823
136	Mar- 09	3,926.14	0.025078	797.87	0.085405	200.23	0.134718	1,434.07	0.115591	872.55	- 0.020344	431.50	- 0.000046	1,986.22	0.060890
137	Apr- 09	4,243.71	0.080886	872.81	0.093925	208.21	0.039854	1,722.77	0.201315	990.74	0.135454	491.69	0.139490	2,103.50	0.059047
138	May 09	4,417.94	0.041056	919.14	0.053081	205.83	- 0.011431	1,916.83	0.112644	1,044.11	0.053869	560.41	0.139763	2,389.31	0.135874
139	Jun- 09	4,249.21	- 0.038192	919.32	0.000196	224.91	0.092698	2,026.78	0.057360	1,075.24	0.029815	597.48	0.066148	2,437.99	0.020374
140	Jul- 09	4,608.36	0.084522	987.48	0.074142	236.00	0.049309	2,323.24	0.146271	1,174.90	0.092686	624.00	0.044386	2,798.33	0.147802
141	Aug 09	4,908.90	0.065216	1,020.62	0.033560	242.47	0.027415	2,341.54	0.007877	1,174.27	- 0.000536	653.25	0.046875	2,884.18	0.030679
142	Sep- 09	5,133.90	0.045835	1,057.08	0.035723	236.93	- 0.022848	2,467.59	0.053832	1,202.08	0.023683	717.07	0.097696	2,800.82	- 0.028902
143	Oct 09	5,044.55	- 0.017404	1,036.19	- 0.019762	239.17	0.009454	2,367.70	- 0.040481	1,243.23	0.034232	685.24	- 0.044389	2,908.50	0.038446
144	Nov- 09	5,190.68	0.028968	1,095.63	0.057364	253.89	0.061559	2,415.84	0.020332	1,259.11	0.012773	689.07	0.005589	3,044.97	0.046921
145	Dec 09	5,412.88	0.042807	1,115.10	0.017771	246.96	- 0.027307	2,534.36	0.049060	1,272.78	0.010857	734.54	0.065987	3,052.68	0.002532
146	Jan- 10	5,188.52	- 0.041449	1,073.87	- 0.036974	245.80	- 0.004697	2,610.80	0.030161	1,259.16	- 0.010701	696.55	- 0.051719	2,953.19	- 0.032591
147	Feb- 10	5,354.52	0.031994	1,104.49	0.028514	263.57	0.072295	2,549.03	- 0.023659	1,270.78	0.009228	721.37	0.035633	3,043.75	0.030665

148	Mar-10	5,679.64	0.060719	1,169.43	0.058796	259.91	- 0.013886	2,777.30	0.089552	1,320.57	0.039181	787.98	0.092338	3,161.80	0.038784
149	Apr-10	5,553.29	- 0.022246	1,186.69	0.014759	244.97	- 0.057481	2,971.25	0.069834	1,346.38	0.019545	763.51	- 0.031054	3,290.09	0.040575
150	May 10	5,188.43	- 0.065702	1,089.41	- 0.081976	243.32	- 0.006735	2,796.96	- 0.058659	1,285.01	- 0.045581	750.43	- 0.017131	3,272.73	- 0.005276
151	Jun-10	4,916.87	- 0.052340	1,030.71	- 0.053882	255.35	- 0.049441	2,913.68	0.041731	1,314.02	0.022576	797.31	0.062471	3,372.71	0.030549
152	Jul-10	5,258.02	0.069384	1,101.60	0.068778	251.31	- 0.015821	3,069.28	0.053403	1,360.92	0.035692	855.83	0.073397	3,426.95	0.016082
153	Aug 10	5,225.22	- 0.006238	1,049.33	- 0.047449	259.72	0.033465	3,081.88	0.004105	1,422.49	0.045241	913.19	0.067023	3,566.23	0.040643
154	Sep-10	5,548.62	0.061892	1,141.20	0.087551	265.96	0.024026	3,501.30	0.136092	1,463.50	0.028830	975.30	0.068014	4,100.07	0.149693
155	Oct 10	5,675.16	0.022806	1,183.26	0.036856	261.83	- 0.015529	3,635.32	0.038277	1,505.66	0.028808	984.46	0.009392	4,268.74	0.041138
156	Nov-10	5,528.27	- 0.025883	1,180.55	- 0.002290	275.81	0.053393	3,531.21	- 0.028638	1,485.23	- 0.013569	1,005.12	0.020986	3,953.70	- 0.073802
157	Dec 10	5,899.94	0.067231	1,257.64	0.065300	280.05	0.015355	3,703.51	0.048793	1,518.91	0.022677	1,032.76	0.027499	4,201.14	0.062584
158	Jan-11	5,862.94	- 0.006271	1,286.12	0.022646	286.46	0.022925	3,409.17	- 0.079476	1,519.94	0.000678	964.10	- 0.066482	3,881.47	- 0.076091
159	Feb-11	5,994.01	0.022356	1,327.22	0.031957	275.90	- 0.036895	3,470.35	0.017946	1,491.25	- 0.018876	987.91	0.024697	3,766.73	- 0.029561
160	Mar-11	5,908.76	- 0.014223	1,325.83	- 0.001047	283.79	0.028594	3,678.67	0.060029	1,545.13	0.036131	1,047.48	0.060299	4,055.14	0.076568
161	Apr-11	6,069.90	0.027271	1,363.61	0.028495	281.06	- 0.009613	3,819.62	0.038315	1,534.95	- 0.006588	1,093.56	0.043991	4,319.51	0.065194
162	May 11	5,989.99	- 0.013165	1,345.20	- 0.013501	272.86	- 0.029179	3,836.97	0.004542	1,558.29	0.015206	1,073.83	- 0.018042	4,244.64	- 0.017333

163	Jun-11	5,945.71	- 0.007392	1,320.64	- 0.018258	265.25	- 0.027868	3,888.57	0.013448	1,579.07	0.013335	1,041.48	- 0.030126	4,291.21	0.010971
164	Jul-11	5,815.19	- 0.021952	1,292.28	- 0.021474	237.43	- 0.104885	4,130.80	0.062293	1,548.81	- 0.019163	1,133.53	0.088384	4,503.63	0.049501
165	Aug-11	5,394.53	- 0.072338	1,218.89	- 0.056791	226.18	- 0.047370	3,841.73	- 0.069979	1,447.27	- 0.065560	1,070.05	- 0.056002	4,348.50	- 0.034446
166	Sep-11	5,128.48	- 0.049318	1,131.42	- 0.071762	243.48	- 0.076486	3,549.03	- 0.076190	1,387.13	- 0.041554	916.21	- 0.143769	3,999.65	- 0.080223
167	Oct-11	5,544.22	0.081065	1,253.30	0.107723	240.08	- 0.013968	3,790.85	0.068137	1,491.89	0.075523	974.75	0.063894	4,333.72	0.083525
168	Nov-11	5,505.42	- 0.006998	1,246.96	- 0.005059	244.54	0.018573	3,715.08	- 0.019988	1,472.10	- 0.013265	995.33	0.021113	4,211.04	- 0.028308
169	Dec-11	5,572.28	0.012144	1,257.60	0.008533	254.41	0.040365	3,821.99	0.028777	1,530.73	0.039827	1,025.32	0.030131	4,371.96	0.038214
170	Jan-12	5,681.61	0.019620	1,312.41	0.043583	264.32	0.038945	3,941.69	0.031319	1,521.29	- 0.006167	1,083.97	0.057202	4,682.44	0.071016
171	Feb-12	5,871.51	0.033424	1,365.68	0.040589	263.32	- 0.003787	3,985.21	0.011041	1,569.65	0.031789	1,160.90	0.070971	4,897.65	0.045961
172	Mar-12	5,768.45	- 0.017553	1,408.47	0.031332	257.28	- 0.022945	4,121.55	0.034211	1,596.33	0.016997	1,196.77	0.030898	5,107.73	0.042894
173	Apr-12	5,737.78	- 0.005317	1,397.91	- 0.007497	239.73	- 0.068218	4,180.73	0.014359	1,570.61	- 0.016112	1,228.49	0.026505	5,202.70	0.018593
174	May-12	5,320.86	- 0.072662	1,310.33	- 0.062651	251.17	- 0.047742	3,832.82	- 0.083218	1,580.67	0.006405	1,141.50	- 0.070811	5,091.23	- 0.021425
175	Jun-12	5,571.15	0.047039	1,362.16	0.039555	261.38	0.040630	3,955.58	0.032029	1,599.15	0.011691	1,172.11	0.026816	5,246.41	0.030480
176	Jul-12	5,635.28	0.011511	1,379.32	0.012598	266.23	0.018578	4,142.34	0.047214	1,631.60	0.020292	1,199.30	0.023197	5,307.66	0.011675
177	Aug-12	5,711.48	0.013522	1,406.58	0.019763	268.48	0.008440	4,060.33	- 0.019798	1,646.11	0.008893	1,227.48	0.023497	5,196.19	- 0.021002

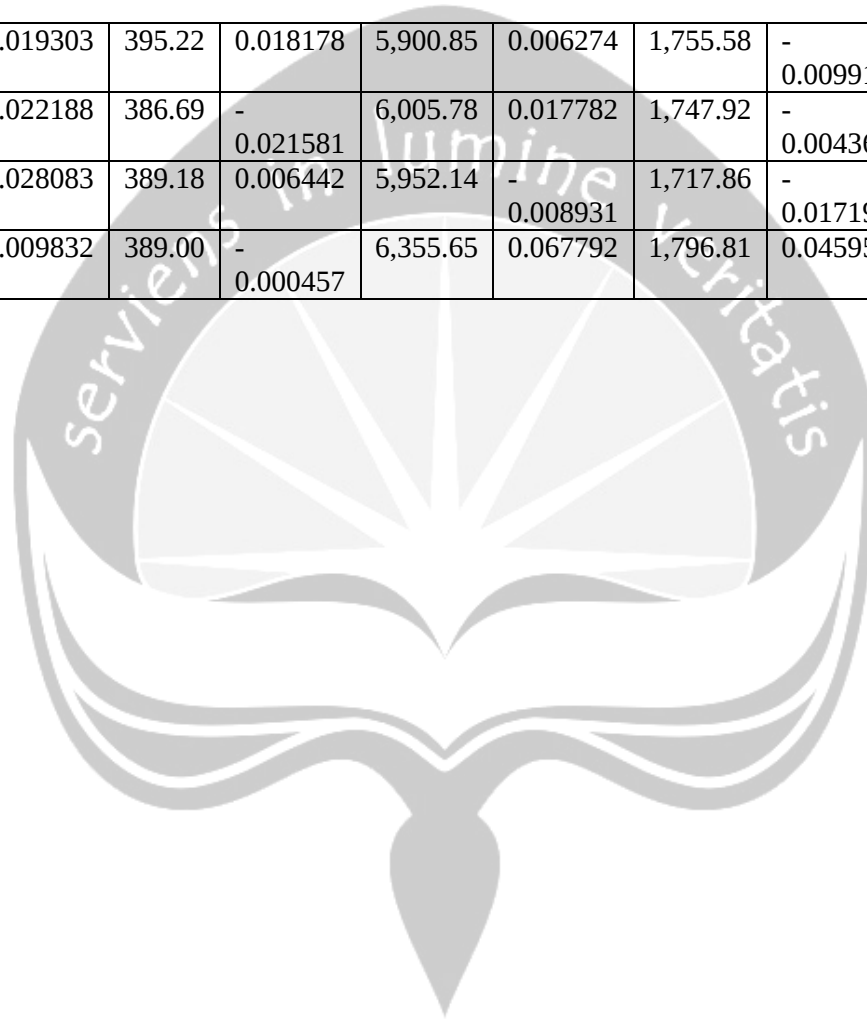
178	Sep-12	5,742.07	0.005356	1,440.67	0.024236	270.30	0.006783	4,262.56	0.049806	1,636.66	- 0.005741	1,298.79	0.058095	5,346.10	0.028850
179	Oct 12	5,782.70	0.007076	1,412.16	- 0.019789	275.78	0.020270	4,350.29	0.020582	1,673.07	0.022247	1,298.87	0.000062	5,424.51	0.014667
180	Nov-12	5,866.82	0.014547	1,416.18	0.002847	279.68	0.014127	4,276.14	- 0.017045	1,610.83	- 0.037201	1,324.04	0.019378	5,640.45	0.039808
181	Dec 12	5,897.81	0.005282	1,426.19	0.007068	287.22	0.026974	4,316.69	0.009483	1,688.95	0.048497	1,391.93	0.051275	5,812.73	0.030544
182	Jan-13	6,276.88	0.064273	1,498.11	0.050428	289.94	0.009463	4,453.70	0.031740	1,627.55	- 0.036354	1,474.20	0.059105	6,242.74	0.073977
183	Feb-13	6,360.81	0.013371	1,514.68	0.011061	293.78	0.013261	4,795.79	0.076810	1,637.63	0.006193	1,541.58	0.045706	6,721.45	0.076683
184	Mar-13	6,411.74	0.008007	1,569.19	0.035988	296.72	0.010011	4,940.99	0.030277	1,671.63	0.020762	1,561.06	0.012636	6,847.47	0.018749
185	Apr-13	6,430.12	0.002867	1,597.57	0.018086	300.88	0.014000	5,034.07	0.018838	1,717.65	0.027530	1,597.86	0.023574	7,070.99	0.032643
186	May 13	6,583.09	0.023790	1,630.74	0.020763	285.02	- 0.052692	5,068.63	0.006865	1,769.22	0.030024	1,562.07	- 0.022399	7,021.95	- 0.006935
187	Jun-13	6,215.47	- 0.055843	1,606.28	- 0.014999	299.58	0.051055	4,818.90	- 0.049270	1,773.54	0.002442	1,451.90	- 0.070528	6,465.28	- 0.079276
188	Jul-13	6,621.06	0.065255	1,685.73	0.049462	297.32	- 0.007524	4,610.38	- 0.043271	1,772.62	- 0.000519	1,423.14	- 0.019809	6,639.12	0.026888
189	Aug 13	6,412.93	- 0.031435	1,632.97	- 0.031298	310.45	0.044171	4,195.09	- 0.090077	1,727.58	- 0.025409	1,294.30	- 0.090532	6,075.17	- 0.084943
190	Sep-13	6,462.22	0.007686	1,681.55	0.029749	322.37	0.038392	4,316.18	0.028865	1,768.62	0.023756	1,383.16	0.068655	6,191.80	0.019198
191	Oct 13	6,731.43	0.041659	1,756.54	0.044596	325.16	0.008636	4,510.63	0.045051	1,806.85	0.021616	1,442.88	0.043176	6,585.38	0.063565
192	Nov-13	6,650.57	- 0.012012	1,805.81	0.028049	328.26	0.009531	4,256.44	- 0.056354	1,812.72	0.003249	1,371.13	- 0.049727	6,208.82	- 0.057181

193	Dec 13	6,749.09	0.014814	1,848.36	0.023563	322.52	- 0.017486	4,274.18	0.004168	1,866.96	0.029922	1,298.71	- 0.052818	5,889.83	- 0.051377
194	Jan- 14	6,510.44	- 0.035360	1,782.59	- 0.035583	338.02	0.048069	4,418.76	0.033826	1,804.03	- 0.033707	1,274.28	- 0.018811	6,041.19	0.025699
195	Feb- 14	6,809.70	0.045966	1,859.45	0.043117	334.31	- 0.010979	4,620.22	0.045592	1,835.66	0.017533	1,325.33	0.040062	6,424.99	0.063531
196	Mar- 14	6,598.37	- 0.031034	1,872.34	0.006932	337.89	0.010724	4,768.28	0.032046	1,849.21	0.007382	1,376.26	0.038428	6,428.71	0.000579
197	Apr- 14	6,780.03	0.027531	1,883.95	0.006201	344.24	0.018784	4,840.15	0.015073	1,871.52	0.012065	1,414.94	0.028105	6,707.91	0.043430
198	May 14	6,844.51	0.009510	1,923.57	0.021030	341.86	- 0.006905	4,893.91	0.011107	1,873.38	0.000994	1,415.73	0.000558	6,647.65	- 0.008983
199	Jun- 14	6,743.94	- 0.014694	1,960.23	0.019058	335.99	- 0.017191	4,878.58	- 0.003132	1,882.71	0.004980	1,485.75	0.049459	6,844.31	0.029583
200	Jul- 14	6,730.11	- 0.002051	1,930.67	- 0.015080	341.05	0.015057	5,088.80	0.043090	1,871.36	- 0.006029	1,502.39	0.011200	6,864.82	0.002997
201	Aug 14	6,819.75	0.013319	2,003.37	0.037655	343.08	0.005973	5,136.86	0.009444	1,866.11	- 0.002805	1,561.63	0.039431	7,050.89	0.027105
202	Sep- 14	6,622.72	- 0.028891	1,972.29	- 0.015514	336.80	- 0.018316	5,137.58	0.000140	1,846.31	- 0.010610	1,585.67	0.015394	7,283.07	0.032929
203	Oct 14	6,546.47	- 0.011513	2,018.05	0.023201	347.25	0.031027	5,089.55	- 0.009349	1,855.15	0.004788	1,584.16	- 0.000952	7,215.73	- 0.009246
204	Nov- 14	6,722.62	0.026908	2,067.56	0.024534	342.54	- 0.013561	5,149.89	0.011856	1,820.89	- 0.018468	1,593.91	0.006155	7,294.38	0.010900
205	Dec 14	6,566.09	- 0.023284	2,058.90	- 0.004189	367.05	0.071557	5,226.95	0.014963	1,761.25	- 0.032753	1,497.67	- 0.060380	7,230.57	- 0.008748
206	Jan- 15	6,749.40	0.027918	1,994.99	- 0.031041	392.21	0.068538	5,289.40	0.011948	1,781.26	0.011361	1,581.25	0.055807	7,689.91	0.063527
207	Feb- 15	6,946.66	0.029226	2,104.50	0.054893	397.30	0.012978	5,450.29	0.030417	1,821.21	0.022428	1,587.01	0.003643	7,730.57	0.005287

208	Mar-15	6,773.04	- 0.024993	2,067.89	- 0.017396	395.79	- 0.003808	5,518.67	0.012546	1,830.78	0.005255	1,505.94	- 0.051083	7,940.49	0.027155
209	Apr-15	6,960.63	0.027697	2,085.51	0.008521	399.87	0.010324	5,086.42	- 0.078325	1,818.27	- 0.006833	1,526.74	0.013812	7,714.82	- 0.028420
210	May 15	6,984.43	0.003419	2,107.39	0.010491	381.31	- 0.046417	5,216.38	0.025550	1,747.52	- 0.038911	1,496.05	- 0.020102	7,580.46	- 0.017416
211	Jun-15	6,520.98	- 0.066355	2,063.11	- 0.021012	396.37	0.039488	4,910.66	- 0.058608	1,706.64	- 0.023393	1,504.55	0.005682	7,564.50	- 0.002105
212	Jul-15	6,696.28	0.026882	2,103.84	0.019742	362.27	- 0.086014	4,802.53	- 0.022019	1,723.14	0.009668	1,440.12	- 0.042823	7,550.00	- 0.001917
213	Aug 15	6,247.94	- 0.066954	1,972.18	- 0.062581	347.77	- 0.040047	4,509.61	- 0.060993	1,612.74	- 0.064069	1,382.41	- 0.040073	7,098.81	- 0.059760
214	Sep-15	6,061.61	- 0.029823	1,920.03	- 0.026443	375.46	0.079648	4,223.91	- 0.063354	1,621.04	0.005147	1,349.00	- 0.024168	6,893.98	- 0.028854
215	Oct 15	6,361.09	0.049406	2,079.36	0.082983	385.43	0.026535	4,455.18	0.054753	1,665.71	0.027556	1,394.94	0.034055	7,134.26	0.034854
216	Nov-15	6,356.09	- 0.000786	2,080.41	0.000505	366.39	- 0.049387	4,446.46	- 0.001957	1,672.16	0.003872	1,359.70	- 0.025263	6,927.07	- 0.029042
217	Dec 15	6,242.32	- 0.017899	2,043.94	- 0.017530	342.27	- 0.065831	4,593.01	0.032959	1,692.51	0.012170	1,288.02	- 0.052718	6,952.08	0.003610
218	Jan-16	6,083.79	- 0.025396	1,940.24	- 0.050735	333.92	- 0.024393	4,615.16	0.004823	1,667.80	- 0.014600	1,300.98	0.010062	6,687.62	- 0.038040
219	Feb-16	6,097.09	0.002186	1,932.23	- 0.004128	337.54	0.010832	4,770.96	0.033758	1,654.75	- 0.007825	1,332.37	0.024128	6,671.04	- 0.002479
220	Mar-16	6,174.90	0.012762	2,059.74	0.065991	341.48	0.011661	4,845.37	0.015596	1,717.58	0.037969	1,407.70	0.056538	7,262.30	0.088631
221	Apr-16	6,241.89	0.010849	2,065.30	0.002699	347.45	0.017492	4,838.58	- 0.001401	1,672.72	- 0.026118	1,404.61	- 0.002195	7,159.29	- 0.014184
222	May 16	6,230.79	- 0.001778	2,096.96	0.015329	329.89	- 0.050554	4,796.87	- 0.008620	1,626.00	- 0.027931	1,424.28	0.014004	7,401.60	0.033846

223	Jun-16	6,504.33	0.043901	2,098.86	0.000906	341.89	0.036404	5,016.65	0.045817	1,654.08	0.017269	1,444.99	0.014541	7,796.25	0.053320
224	Jul-16	6,724.43	0.033839	2,173.60	0.035610	343.53	0.004791	5,215.99	0.039736	1,653.26	- 0.000496	1,524.07	0.054727	7,963.11	0.021403
225	Aug-16	6,781.51	0.008488	2,170.95	- 0.001219	342.92	- 0.001790	5,386.08	0.032609	1,678.06	0.015001	1,548.44	0.015990	7,787.37	- 0.022069
226	Sep-16	6,899.33	0.017374	2,168.27	- 0.001234	338.97	- 0.011498	5,364.80	- 0.003951	1,652.55	- 0.015202	1,483.21	- 0.042126	7,629.73	- 0.020243
227	Oct-16	6,954.22	0.007956	2,126.15	- 0.019426	341.99	0.008903	5,422.54	0.010763	1,672.46	0.012048	1,495.72	0.008434	7,404.80	- 0.029481
228	Nov-16	6,783.79	- 0.024507	2,198.81	0.034174	360.26	0.053405	5,148.91	- 0.050462	1,619.12	- 0.031893	1,510.24	0.009708	6,781.20	- 0.084216
229	Dec-16	7,142.83	0.052926	2,238.83	0.018201	360.12	- 0.000369	5,296.71	0.028705	1,641.73	0.013964	1,542.94	0.021652	6,840.64	0.008765
230	Jan-17	7,099.15	- 0.006115	2,278.87	0.017884	370.24	0.028088	5,294.10	- 0.000493	1,671.54	0.018158	1,577.31	0.022276	7,229.66	0.056869
231	Feb-17	7,263.44	0.023142	2,363.64	0.037198	381.14	0.029432	5,386.69	0.017489	1,693.77	0.013299	1,559.56	- 0.011253	7,212.09	- 0.002430
232	Mar-17	7,322.92	0.008189	2,362.72	- 0.000389	387.08	0.015611	5,568.11	0.033679	1,740.09	0.027347	1,575.11	0.009971	7,311.72	0.013814
233	Apr-17	7,203.94	- 0.016248	2,384.20	0.009091	389.99	0.007500	5,685.30	0.021047	1,768.06	0.016074	1,566.32	- 0.005581	7,661.01	0.047771
234	May-17	7,519.95	0.043866	2,411.80	0.011576	379.37	- 0.027216	5,738.15	0.009296	1,765.87	- 0.001239	1,561.66	- 0.002975	7,837.12	0.022988
235	Jun-17	7,312.72	- 0.027557	2,423.41	0.004814	377.85	- 0.004014	5,829.71	0.015956	1,763.67	- 0.001246	1,574.74	0.008376	7,843.16	0.000771
236	Jul-17	7,372.00	0.008106	2,470.30	0.019349	373.88	- 0.010509	5,840.94	0.001926	1,760.03	- 0.002064	1,576.08	0.000851	8,018.05	0.022298
237	Aug-17	7,430.62	0.007952	2,471.65	0.000546	388.16	0.038194	5,864.06	0.003958	1,773.16	0.007460	1,616.16	0.025430	7,958.57	- 0.007418

238	Sep-17	7,372.76	- 0.007787	2,519.36	0.019303	395.22	0.018178	5,900.85	0.006274	1,755.58	- 0.009915	1,673.16	0.035269	8,171.43	0.026746
239	Oct 17	7,493.08	0.016320	2,575.26	0.022188	386.69	- 0.021581	6,005.78	0.017782	1,747.92	- 0.004363	1,721.37	0.028814	8,365.26	0.023720
240	Nov-17	7,326.67	- 0.022208	2,647.58	0.028083	389.18	0.006442	5,952.14	- 0.008931	1,717.86	- 0.017198	1,697.39	- 0.013931	8,254.03	- 0.013297
241	Dec 17	7,687.77	0.049286	2,673.61	0.009832	389.00	- 0.000457	6,355.65	0.067792	1,796.81	0.045958	1,753.71	0.033180	8,558.42	0.036878



APPENDIX 2

DESCRIPTIVE STATISTICS

Descriptive Statistics from January 1998 to December 2017 Period

	FTSE100	SP500	STOXX 600	JKSE	KLCI	SET	PSEI
Mean	0.002475	0.005164	0.003148	0.014345	0.006499	0.009506	0.008598
Median	0.007610	0.009598	0.009178	0.016459	0.007208	0.012321	0.011119
Maximum	0.086541	0.107723	0.134718	0.284270	0.342349	0.328799	0.393287
Minimum	-0.130249	-0.169425	-0.141346	-0.314219	-0.247709	-0.301757	-0.258371
Std. Dev.	0.039580	0.042907	0.045524	0.073999	0.062468	0.078081	0.067392
Skewness	-0.592282	-0.667467	-0.474683	-0.303918	1.042975	0.180698	0.396706
Kurtosis	3.567320	4.299996	4.001623	6.087032	10.16037	6.471201	8.261098
Jarque-Bera	17.25045	34.72037	19.04542	98.99230	556.2213	121.7985	283.0866
Probability	0.000180	0.000000	0.000073	0.000000	0.000000	0.000000	0.000000
Sum	0.593914	1.239431	0.755441	3.442766	1.559749	2.281470	2.063450
Sum Sq. Dev.	0.374420	0.440011	0.495301	1.308721	0.932650	1.457100	1.085478
Observations	240	240	240	240	240	240	240

APPENDIX 3

UNIT ROOT TEST

AUGMENTED DICKEY-FULLER TEST

1. FTSE100

Null Hypothesis: FTSE100 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-15.45038	0.0000
Test critical values: 1% level	-3.457630	
5% level	-2.873440	
10% level	-2.573187	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FTSE100)

Method: Least Squares

Date: 11/03/18 Time: 15:57

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FTSE100(-1)	-1.001631	0.064829	-15.45038	0.0000
C	0.002226	0.002563	0.868450	0.3860
R-squared	0.501802	Mean dependent var		-5.69E-05
Adjusted R-squared	0.499700	S.D. dependent var		0.055918
S.E. of regression	0.039552	Akaike info criterion		-3.614069
Sum squared resid	0.370753	Schwarz criterion		-3.584977
Log likelihood	433.8812	Hannan-Quinn criter.		-3.602345
F-statistic	238.7143	Durbin-Watson stat		2.003995
Prob(F-statistic)	0.000000			

2. S&P 500

Null Hypothesis: SP500 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-14.05245	0.0000
Test critical values:		
1% level	-3.457630	
5% level	-2.873440	
10% level	-2.573187	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SP500)

Method: Least Squares

Date: 11/03/18 Time: 15:58

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SP500(-1)	-0.909015	0.064687	-14.05245	0.0000
C	0.004675	0.002795	1.672523	0.0957

R-squared	0.454509	Mean dependent var	-1.33E-06
Adjusted R-squared	0.452208	S.D. dependent var	0.057974
S.E. of regression	0.042908	Akaike info criterion	-3.451175
Sum squared resid	0.436344	Schwarz criterion	-3.422083
Log likelihood	414.4154	Hannan-Quinn criter.	-3.439452
F-statistic	197.4712	Durbin-Watson stat	1.977314
Prob(F-statistic)	0.000000		

3. DJ STOXX600

Null Hypothesis: STOXX600 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-13.02521	0.0000
Test critical values:		
1% level	-3.457630	
5% level	-2.873440	
10% level	-2.573187	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(STOXX600)

Method: Least Squares

Date: 11/03/18 Time: 16:00

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STOXX600(-1)	-0.817631	0.062773	-13.02521	0.0000
C	0.002038	0.002864	0.711481	0.4775

R-squared	0.417198	Mean dependent var	-0.000548
Adjusted R-squared	0.414739	S.D. dependent var	0.057747
S.E. of regression	0.044178	Akaike info criterion	-3.392866
Sum squared resid	0.462543	Schwarz criterion	-3.363774
Log likelihood	407.4475	Hannan-Quinn criter.	-3.381143
F-statistic	169.6560	Durbin-Watson stat	2.013101
Prob(F-statistic)	0.000000		

4. JKSE

Null Hypothesis: JKSE has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-12.78870	0.0000
Test critical values:		
1% level	-3.457630	
5% level	-2.873440	
10% level	-2.573187	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(JKSE)

Method: Least Squares

Date: 11/03/18 Time: 16:01

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JKSE(-1)	-0.802824	0.062776	-12.78870	0.0000
C	0.010743	0.004724	2.274089	0.0239

R-squared	0.408315	Mean dependent var	-0.000594
Adjusted R-squared	0.405818	S.D. dependent var	0.093064
S.E. of regression	0.071737	Akaike info criterion	-2.423298
Sum squared resid	1.219636	Schwarz criterion	-2.394206
Log likelihood	291.5841	Hannan-Quinn criter.	-2.411574
F-statistic	163.5508	Durbin-Watson stat	1.925851
Prob(F-statistic)	0.000000		

5. KLCI

Null Hypothesis: KLCI has a unit root

Exogenous: Constant

Lag Length: 11 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.818667	0.0000
Test critical values: 1% level	-3.458973	
5% level	-2.874029	
10% level	-2.573502	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KLCI)

Method: Least Squares

Date: 11/03/18 Time: 16:02

Sample (adjusted): 1999M01 2017M12

Included observations: 228 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KLCI(-1)	-1.008222	0.173274	-5.818667	0.0000
D(KLCI(-1))	0.098043	0.163216	0.600695	0.5487
D(KLCI(-2))	0.095390	0.154893	0.615843	0.5386
D(KLCI(-3))	0.011771	0.147224	0.079953	0.9363
D(KLCI(-4))	0.066961	0.133790	0.500493	0.6172
D(KLCI(-5))	0.160538	0.126225	1.271834	0.2048
D(KLCI(-6))	0.189171	0.113678	1.664089	0.0976
D(KLCI(-7))	0.345555	0.102565	3.369121	0.0009
D(KLCI(-8))	0.255224	0.091587	2.786693	0.0058
D(KLCI(-9))	0.295578	0.078156	3.781873	0.0002
D(KLCI(-10))	0.198149	0.067390	2.940316	0.0036
D(KLCI(-11))	0.105248	0.053104	1.981906	0.0488
C	0.005807	0.003337	1.740420	0.0832

R-squared	0.534353	Mean dependent var	-0.000539
Adjusted R-squared	0.508364	S.D. dependent var	0.066626
S.E. of regression	0.046716	Akaike info criterion	-3.234126
Sum squared resid	0.469216	Schwarz criterion	-3.038593
Log likelihood	381.6904	Hannan-Quinn criter.	-3.155235
F-statistic	20.56027	Durbin-Watson stat	2.035551
Prob(F-statistic)	0.000000		

6. SET

Null Hypothesis: SET has a unit root

Exogenous: Constant

Lag Length: 13 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.488319	0.0003
Test critical values:		
1% level	-3.459231	
5% level	-2.874143	
10% level	-2.573563	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SET)

Method: Least Squares

Date: 11/03/18 Time: 16:02

Sample (adjusted): 1999M03 2017M12

Included observations: 226 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SET(-1)	-1.078997	0.240401	-4.488319	0.0000
D(SET(-1))	0.095132	0.224793	0.423198	0.6726
D(SET(-2))	0.095010	0.210094	0.452224	0.6516
D(SET(-3))	0.187971	0.194495	0.966456	0.3349
D(SET(-4))	0.218098	0.182438	1.195461	0.2332
D(SET(-5))	0.243881	0.172911	1.410443	0.1599
D(SET(-6))	0.214624	0.159921	1.342064	0.1810
D(SET(-7))	0.299114	0.148477	2.014544	0.0452
D(SET(-8))	0.197325	0.136356	1.447135	0.1493
D(SET(-9))	0.195172	0.123609	1.578946	0.1158
D(SET(-10))	0.047594	0.110845	0.429370	0.6681
D(SET(-11))	-0.091935	0.097874	-0.939318	0.3486
D(SET(-12))	-0.079567	0.079590	-0.999708	0.3186
D(SET(-13))	-0.129323	0.058116	-2.225235	0.0271
C	0.010208	0.004983	2.048472	0.0418

R-squared	0.546835	Mean dependent var	0.000416
Adjusted R-squared	0.516768	S.D. dependent var	0.095964
S.E. of regression	0.066710	Akaike info criterion	-2.512870
Sum squared resid	0.938986	Schwarz criterion	-2.285843
Log likelihood	298.9543	Hannan-Quinn criter.	-2.421251
F-statistic	18.18674	Durbin-Watson stat	2.004307
Prob(F-statistic)	0.000000		

7. PSE

Null Hypothesis: PSEI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=14)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-13.16082	0.0000
Test critical values:		
1% level	-3.457630	
5% level	-2.873440	
10% level	-2.573187	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PSEI)

Method: Least Squares

Date: 11/03/18 Time: 16:03

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSEI(-1)	-0.844335	0.064155	-13.16082	0.0000
C	0.007137	0.004356	1.638490	0.1026
R-squared	0.422243	Mean dependent var		-2.20E-05
Adjusted R-squared	0.419805	S.D. dependent var		0.087719
S.E. of regression	0.066816	Akaike info criterion		-2.565409
Sum squared resid	1.058064	Schwarz criterion		-2.536318
Log likelihood	308.5664	Hannan-Quinn criter.		-2.553686
F-statistic	173.2071	Durbin-Watson stat		1.971301
Prob(F-statistic)	0.000000			

APPENDIX 4

OPTIMAL LAG SELECTION AND VAR

VAR Lag Order Selection Criteria

Endogenous variables: FTSE100 SP500 STOXX600 JKSE KLCI SET PSEI

Exogenous variables: C

Date: 11/03/18 Time: 16:05

Sample: 1998M01 2017M12

Included observations: 226

Lag	LogL	LR	FPE	AIC	SC	HQ
0	2823.877	NA	3.52e-20	-24.92812	-24.82217	-24.88536
1	3058.176	452.0101	6.83e-21*	-26.56793*	-25.72036*	-26.22589*
2	3086.142	52.21998	8.24e-21	-26.38179	-24.79260	-25.74046
3	3126.754	73.31682	8.90e-21	-26.30756	-23.97675	-25.36694
4	3155.240	49.66163	1.07e-20	-26.12602	-23.05359	-24.88611
5	3177.708	37.77715	1.37e-20	-25.89122	-22.07717	-24.35202
6	3216.325	62.53998	1.52e-20	-25.79934	-21.24367	-23.96085
7	3254.606	59.62284	1.71e-20	-25.70447	-20.40719	-23.56670
8	3305.728	76.45671	1.72e-20	-25.72325	-19.68434	-23.28619
9	3360.142	78.00987*	1.69e-20	-25.77117	-18.99064	-23.03482
10	3391.773	43.38839	2.06e-20	-25.61746	-18.09531	-22.58183
11	3428.285	47.82092	2.43e-20	-25.50695	-17.24318	-22.17203
12	3454.478	32.68288	3.17e-20	-25.30512	-16.29972	-21.67091
13	3494.640	47.62627	3.71e-20	-25.22691	-15.47990	-21.29341
14	3544.805	56.37979	4.03e-20	-25.23721	-14.74858	-21.00443

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Vector Autoregression Estimates

Date: 11/03/18 Time: 16:06

Sample (adjusted): 1998M02 2017M12

Included observations: 239 after adjustments

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

	FTSE100	SP500	STOXX600	JKSE	KLCI	SET	PSEI
FTSE100(-1)	-0.110074 (0.05744) [-1.91632]	0.205578 (0.07295) [2.81798]	0.115966 (0.13119) [0.88397]	0.317580 (0.18346) [1.73102]	0.009926 (0.16389) [0.06056]	0.269577 (0.20597) [1.30881]	0.185790 (0.17889) [1.03858]
SP500(-1)	0.018572 (0.05465) [0.33981]	-0.218131 (0.06941) [-3.14245]	-0.253064 (0.12482) [-2.02735]	-0.093597 (0.17457) [-0.53617]	-0.214780 (0.15594) [-1.37728]	-0.215856 (0.19598) [-1.10140]	-0.151480 (0.17021) [-0.88995]
STOXX600(-1)	0.757756 (0.02837) [26.7110]	0.789355 (0.03603) [21.9085]	0.196866 (0.06479) [3.03848]	0.686317 (0.09061) [7.57444]	0.556054 (0.08094) [6.86963]	0.685485 (0.10173) [6.73857]	0.616389 (0.08835) [6.97671]
JKSE(-1)	-0.011496 (0.02290) [-0.50207]	-0.008633 (0.02908) [-0.29687]	0.012617 (0.05230) [0.24127]	-0.020540 (0.07314) [-0.28085]	0.057614 (0.06533) [0.88184]	-0.002720 (0.08211) [-0.03313]	-0.096754 (0.07131) [-1.35678]
KLCI(-1)	0.008307 (0.02502) [0.33197]	0.028110 (0.03178) [0.88451]	0.039544 (0.05715) [0.69195]	0.193438 (0.07992) [2.42034]	-0.011910 (0.07140) [-0.16682]	0.025052 (0.08973) [0.27920]	0.117670 (0.07793) [1.50997]
SET(-1)	-0.044733 (0.02357) [-1.89820]	-0.028690 (0.02993) [-0.95856]	0.059783 (0.05382) [1.11074]	0.032211 (0.07527) [0.42794]	0.232104 (0.06724) [3.45183]	0.077773 (0.08450) [0.92034]	0.187507 (0.07339) [2.55484]
PSEI(-1)	0.024834 (0.02699) [0.91996]	-0.005500 (0.03428) [-0.16042]	0.016796 (0.06165) [0.27243]	0.075522 (0.08622) [0.87591]	0.010204 (0.07702) [0.13248]	-0.029640 (0.09680) [-0.30621]	-0.056661 (0.08407) [-0.67397]
C	0.000300 (0.00128) [0.23490]	0.003561 (0.00162) [2.19187]	0.001896 (0.00292) [0.64912]	0.009236 (0.00409) [2.26056]	0.003017 (0.00365) [0.82666]	0.005898 (0.00459) [1.28576]	0.006201 (0.00398) [1.55660]

APPENDIX 5

STABILITY TEST

Roots of Characteristic Polynomial
Endogenous variables: FTSE100 SP500 STOXX600
JKSE KLCI SET PSEI
Exogenous variables: C
Lag specification: 1 1
Date: 11/03/18 Time: 16:11

Root	Modulus
-0.317016	0.317016
0.313211	0.313211
-0.015459 - 0.261513i	0.261969
-0.015459 + 0.261513i	0.261969
-0.054810 - 0.100555i	0.114523
-0.054810 + 0.100555i	0.114523
0.001665	0.001665

No root lies outside the unit circle.
VAR satisfies the stability condition.

APPENDIX 6

GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests

Date: 11/03/18 Time: 16:13

Sample: 1998M01 2017M12

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
SP500 does not Granger Cause FTSE100	239	5.32713	0.0219
FTSE100 does not Granger Cause SP500		0.59678	0.4406
STOXX600 does not Granger Cause FTSE100	239	761.336	8.E-76
FTSE100 does not Granger Cause STOXX600		0.00351	0.9528
JKSE does not Granger Cause FTSE100	239	0.32934	0.5666
FTSE100 does not Granger Cause JKSE		11.6773	0.0007
KLCI does not Granger Cause FTSE100	239	0.62896	0.4285
FTSE100 does not Granger Cause KLCI		1.00836	0.3163
SET does not Granger Cause FTSE100	239	0.35382	0.5525
FTSE100 does not Granger Cause SET		1.73915	0.1885
PSEI does not Granger Cause FTSE100	239	2.99284	0.0849
FTSE100 does not Granger Cause PSEI		2.16863	0.1422
STOXX600 does not Granger Cause SP500	239	479.249	1.E-58
SP500 does not Granger Cause STOXX600		0.81451	0.3677
JKSE does not Granger Cause SP500	239	0.40527	0.5250
SP500 does not Granger Cause JKSE		12.6887	0.0004
KLCI does not Granger Cause SP500	239	0.26300	0.6085
SP500 does not Granger Cause KLCI		0.73555	0.3920
SET does not Granger Cause SP500	239	0.39362	0.5310
SP500 does not Granger Cause SET		0.99911	0.3185
PSEI does not Granger Cause SP500	239	0.90213	0.3432
SP500 does not Granger Cause PSEI		2.02406	0.1561
JKSE does not Granger Cause STOXX600	239	0.81584	0.3673
STOXX600 does not Granger Cause JKSE		68.0094	1.E-14
KLCI does not Granger Cause STOXX600	239	1.04594	0.3075
STOXX600 does not Granger Cause KLCI		43.6709	3.E-10
SET does not Granger Cause STOXX600	239	2.07311	0.1512
STOXX600 does not Granger Cause SET		46.9230	6.E-11

PSEI does not Granger Cause STOXX600	239	0.92196	0.3379
STOXX600 does not Granger Cause PSEI		47.5903	5.E-11
KLCI does not Granger Cause JKSE	239	13.2558	0.0003
JKSE does not Granger Cause KLCI		4.44725	0.0360
SET does not Granger Cause JKSE	239	6.73177	0.0101
JKSE does not Granger Cause SET		0.01104	0.9164
PSEI does not Granger Cause JKSE	239	12.0616	0.0006
JKSE does not Granger Cause PSEI		0.14986	0.6990
SET does not Granger Cause KLCI	239	15.6327	0.0001
KLCI does not Granger Cause SET		0.31928	0.5726
PSEI does not Granger Cause KLCI	239	8.17412	0.0046
KLCI does not Granger Cause PSEI		4.05820	0.0451
PSEI does not Granger Cause SET	239	0.59603	0.4409
SET does not Granger Cause PSEI		5.72105	0.0175

APPENDIX 7

COINTEGRATION TEST

JOHANSEN SYSTEM

Date: 11/03/18 Time: 16:18

Sample (adjusted): 1998M03 2017M12

Included observations: 238 after adjustments

Trend assumption: Linear deterministic trend

Series: FTSE100 SP500 STOXX600 JKSE KLCI SET PSEI

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.548258	884.4693	125.6154	0.0001
At most 1 *	0.492074	695.3439	95.75366	0.0001
At most 2 *	0.452829	534.1180	69.81889	0.0001
At most 3 *	0.425208	390.6056	47.85613	0.0001
At most 4 *	0.366945	258.8140	29.79707	0.0001
At most 5 *	0.282231	150.0009	15.49471	0.0001
At most 6 *	0.258180	71.07843	3.841466	0.0000

Trace test indicates 7 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 *	0.548258	189.1254	46.23142	0.0000
At most 1 *	0.492074	161.2259	40.07757	0.0001
At most 2 *	0.452829	143.5124	33.87687	0.0000
At most 3 *	0.425208	131.7917	27.58434	0.0000
At most 4 *	0.366945	108.8131	21.13162	0.0001
At most 5 *	0.282231	78.92246	14.26460	0.0000
At most 6 *	0.258180	71.07843	3.841466	0.0000

Max-eigenvalue test indicates 7 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values