Theoretical price of stock				1-day returns				Variance
	Stock-i							
Trading day	**Company 1**	**Company 2**	**Company 3**					
1	100	200	1000					
2	110	210	1050	0.09531	0.04879	0.04879		0.010072
3	121	205	1080	0.09531	-0.0241	0.028171		0.010072
4	95	150	1020	-0.24191	-0.31237	-0.05716		0.056104
5	98	210	950	0.031091	0.336472	-0.0711		0.001306
				E(ri)	-0.00505	0.012198	-0.01282	Var (sample) 0.025852
								sigma 0.160784
								0.025852
								0.160784

		2-day returns				Variance	
0.001339	0.003796						
0.001317	0.001681	0.19062	0.024693	0.076961		0.060625	0.014541
0.105347	0.001966	-0.1466	-0.33647	-0.02899		0.008281	0.057878
0.105154	0.003396	-0.21082	0.024098	-0.12825		0.024094	0.014398
0.071053	0.003613 E(ri)	-0.0556	-0.09589	-0.02676	Var	0.0465	0.043408
0.266557	0.060106				sigma	0.215639	0.208347

0.071053	0.003613
0.266557	0.060106

0.010758

4.96E-06

0.010301
0.010532
0.102626

Compa ny	Year						
	2020				2021		
	I.	II.	III.	IV.	I.	II.	III.
A	1010	1055	1100	1031	988	1065	918
B	2650	3000	3848	3228	3638	4205	3979
C	1505	2030	2190	2325	2250	2443	1700
D	178	300	325	396	351	370	335
E	281	372	358	494	460	539	443
F	2645	3125	3400	3330	3400	3425	3475
G	547	800	803	1070	975	952	997

0.098067
0.146364
0.198645
0.220938
0.190778
0.077418
0.181996

IV.		II.	III.	IV.	I.	II.	III.	IV.
1060		0.04359	0.041769	-0.06478	-0.0426	0.075047	-0.14853	0.143827
4731		0.124053	0.248941	-0.17569	0.119571	0.14484	-0.05524	0.173106
1796		0.299243	0.075866	0.059818	-0.03279	0.082297	-0.3626	0.054934
327		0.521999	0.080043	0.197589	-0.12063	0.052717	-0.09937	-0.02417
468		0.280539	-0.03836	0.322003	-0.07131	0.158489	-0.19615	0.054899
4100		0.166763	0.084341	-0.0208	0.020803	0.007326	0.014493	0.165392
944		0.380163	0.003743	0.287059	-0.09298	-0.02387	0.046186	-0.05462

Covariance Matrix

	A	B	C	D	E	F	G
A	0.009617	0.010344	0.013408	0.004913	0.006368	0.005069	-0.00303
B	0.010344	0.021422	0.0114	-0.00098	-0.00646	0.006738	-0.01235
C	0.013408	0.0114	0.03946	0.033623	0.02949	0.007957	0.016462
D	0.004913	-0.00098	0.033623	0.048813	0.032966	0.007341	0.03579
E	0.006368	-0.00646	0.02949	0.032966	0.036396	0.001804	0.024994
F	0.005069	0.006738	0.007957	0.007341	0.001804	0.005994	0.002183
G	-0.00303	-0.01235	0.016462	0.03579	0.024994	0.002183	0.033122

Correl Matrix

	0.098067	0.146364	0.198645	0.220938	0.190778	0.077418	0.181996
	A	B	C	D	E	F	G
A	1	0.720674	0.688288	0.226756	0.340369	0.667638	-0.16979
B	0.720674	1	0.392109	-0.03026	-0.23152	0.594603	-0.46366
C	0.688288	0.392109	1	0.766101	0.778153	0.517375	0.455353
D	0.226756	-0.03026	0.766101	1	0.782114	0.429199	0.890092
E	0.340369	-0.23152	0.778153	0.782114	1	0.122128	0.719859
F	0.667638	0.594603	0.517375	0.429199	0.122128	1	0.154941
G	-0.16979	-0.46366	0.455353	0.890092	0.719859	0.154941	1

1	0.720674	0.688288	0.226756	0.340369	0.667638	-0.16979
0.720674	1	0.392109	-0.03026	-0.23152	0.594603	-0.46366
0.688288	0.392109	1	0.766101	0.778153	0.517375	0.455353
0.226756	-0.03026	0.766101	1	0.782114	0.429199	0.890092
0.340369	-0.23152	0.778153	0.782114	1	0.122128	0.719859
0.667638	0.594603	0.517375	0.429199	0.122128	1	0.154941

-0.16979 -0.46366 0.455353 0.890092 0.719859 0.154941 1

E(ri)								Var
0.006903	0.001346	0.001216	0.005139	0.002451	0.004644	0.02416	0.018748	0.009617
0.082797	0.001702	0.027604	0.066816	0.001352	0.003849	0.019055	0.008156	0.021422
0.025253	0.075071	0.002562	0.001195	0.003369	0.003254	0.150429	0.000881	0.03946
0.086882	0.189326	4.68E-05	0.012256	0.043061	0.001167	0.034691	0.012333	0.048813
0.072873	0.043125	0.012373	0.062065	0.020789	0.00733	0.072371	0.000323	0.036396
0.062617	0.010847	0.000472	0.006959	0.001748	0.003057	0.002316	0.010563	0.005994
0.077954	0.09133	0.005507	0.043725	0.029217	0.010369	0.001009	0.017577	0.033122

Covariance

A	0.036688	0.034867	-0.07168	-0.0495	0.068145	-0.15544	0.136924
B	0.041256	0.166145	-0.25849	0.036775	0.062044	-0.13804	0.090309
C	0.27399	0.050613	0.034566	-0.05804	0.057044	-0.38785	0.029681
D	0.435117	-0.00684	0.110707	-0.20751	-0.03417	-0.18625	-0.11105
E	0.207666	-0.11123	0.249129	-0.14418	0.085616	-0.26902	-0.01797
F	0.104147	0.021725	-0.08342	-0.04181	-0.05529	-0.04812	0.102776
G	0.302209	-0.07421	0.209105	-0.17093	-0.10183	-0.03177	-0.13258

								Covar
A*A	0.001346	0.001216	0.005139	0.002451	0.004644	0.02416	0.018748	0.009617
A*B	0.001514	0.005793	0.018529	-0.00182	0.004228	0.021456	0.012366	0.010344
A*C	0.010052	0.001765	-0.00248	0.002873	0.003887	0.060286	0.004064	0.013408
A*D	0.015963	-0.00024	-0.00794	0.010273	-0.00233	0.028951	-0.01521	0.004913
A*E	0.007619	-0.00388	-0.01786	0.007138	0.005834	0.041815	-0.00246	0.006368

A*F

A*G

B*B	0.001702	0.027604	0.066816	0.001352	0.003849	0.019055	0.008156	0.021422
B*C	0.011304	0.008409	-0.00893	-0.00213	0.003539	0.053539	0.00268	0.0114
B*D	0.017951	-0.00114	-0.02862	-0.00763	-0.00212	0.025711	-0.01003	-0.00098
B*E	0.008567	-0.01848	-0.0644	-0.0053	0.005312	0.037136	-0.00162	-0.00646
B*F	0.004297	0.003609	0.021563	-0.00154	-0.00343	0.006643	0.009282	0.006738
B*G	0.012468	-0.01233	-0.05405	-0.00629	-0.00632	0.004385	-0.01197	-0.01235

fce in excel

sigma		
0.098067	0.009617	0.098067
0.146364	0.021422	0.146364
0.198645	0.03946	0.198645
0.220938	0.048813	0.220938
0.190778	0.036396	0.190778
0.077418	0.005994	0.077418
0.181996	0.033122	0.181996

fce-excel

0.009617	0.009617
0.010344	
0.013408	
0.004913	
0.006368	

0.021422
0.0114
-0.00098
-0.00646
0.006738
-0.01235