

Financial Physics short option, C J Foot


Calculation of correlations. Financial Physics short option S9 (2006) Q3.

See Ch. 3.6.2 Drawdowns and crashes

Change in x depends on random variables at 3 previous time steps

All two-time correlations are zero (and also the mean change at each time).

Correlation of changes over 3 time steps is NOT zero.



					F	G	H	F*G	F*H	F*G*H
$e[t-4]$	$e[t-3]$	$e[t-2]$	$e[t-1]$	$e[t]$	$Dx(t-2)$	$Dx(t-1)$	$Dx(t)$			
1	1	1	1	1	2	2	2	4	4	8
1	1	1	1	-1	2	2	0	4	0	0
1	1	1	-1	1	2	0	0	0	0	0
1	1	1	-1	-1	2	0	-2	0	-4	0
1	1	-1	1	1	0	0	0	0	0	0
1	1	-1	1	-1	0	0	-2	0	0	0
1	1	-1	-1	1	0	-2	2	0	0	0
1	1	-1	-1	-1	0	-2	0	0	0	0
1	-1	1	1	1	0	0	2	0	0	0
1	-1	1	1	-1	0	0	0	0	0	0
1	-1	1	-1	1	0	-2	0	0	0	0
1	-1	1	-1	-1	0	-2	-2	0	0	0
1	-1	-1	1	1	-2	2	0	-4	0	0
1	-1	-1	1	-1	-2	2	-2	-4	4	8
1	-1	-1	-1	1	-2	0	2	0	-4	0
1	-1	-1	-1	-1	-2	0	0	0	0	0
-1	1	1	1	1	0	2	2	0	0	0
-1	1	1	1	-1	0	2	0	0	0	0
-1	1	1	-1	1	0	0	0	0	0	0
-1	1	1	-1	-1	0	0	-2	0	0	0
-1	1	-1	1	1	-2	0	0	0	0	0
-1	1	-1	1	-1	-2	0	-2	0	4	0
-1	1	-1	-1	1	-2	-2	2	4	-4	8
-1	1	-1	-1	-1	-2	-2	0	4	0	0
-1	-1	1	1	1	2	0	2	0	4	0
-1	-1	1	1	-1	2	0	0	0	0	0
-1	-1	1	-1	1	2	-2	0	-4	0	0
-1	-1	1	-1	-1	2	-2	-2	-4	-4	8
-1	-1	-1	1	1	0	2	0	0	0	0
-1	-1	-1	1	-1	0	2	-2	0	0	0
-1	-1	-1	-1	1	0	0	2	0	0	0
-1	-1	-1	-1	-1	0	0	0	0	0	0
SUM					0	0	0	0	0	32

Hint: There is considerable repetition of patterns, i.e. blocks, in this table.