Not–for–Publication Appendix of Tables for

"Using Out–of–Sample Mean Squared Prediction Errors to Test the Martingale Difference Hypothesis"

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This appendix reports, in the tables listed below, the details of auxiliary Monte Carlo results referred to in the paper. The first four tables present versions of the paper's Tables 1, 2, 4, and 5 augmented to include additional tests. Subsequent tables generally appear in the order in which the paper makes reference to the results contained in each table. In light of the volume of numbers reported, the legends to the appendix tables provide less detail than those in the paper.

Note that, in all cases, the reported results are based on 10,000 simulations. Unless otherwise indicated, the data are based on draws from the normal distribution.

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Table A1 Augmented Results on Empirical Size: DGP 1 Nominal Size = 10%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.074	.072	.072	.075	.080	.092
MSPE:normal	.009	.002	.000	.000	.000	.000
MSPE:McCracken	.085	.072	.048	.052	.037	.025
CCS:robust	.141	.121	.108	.114	.106	.101
CCS:OLS	.112	.108	.099	.108	.103	.099
MSE-F:McCracken	.084	.071	.045	.045	.027	.007
ENC-F:Clark-McCracken	.116	.118	.128	.114	.112	.126
ENC-t:Clark-McCracken	.105	.110	.106	.101	.096	.105
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.069	.068	.063	.065	.069	.081
MSPE:normal	.020	.009	.003	.001	.000	.000
MSPE:McCracken	.088	.090	.076	.070	.062	.050
CCS:robust	.142	.119	.116	.109	.105	.096
CCS:OLS	.111	.104	.105	.103	.102	.095
MSE-F:McCracken	.088	.087	.076	.068	.056	.037
ENC-F:Clark-McCracken	.106	.106	.109	.106	.104	.108
ENC-t:Clark-McCracken	.100	.097	.099	.095	.095	.095
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.082	.074	.071	.070	.066	.076
MSPE:normal	.040	.022	.014	.006	.001	.000
MSPE:McCracken	.106	.099	.095	.100	.081	.074
CCS:robust	.145	.130	.125	.114	.102	.100
CCS:OLS	.113	.111	.114	.106	.099	.100
MSE-F:McCracken	.103	.099	.094	.102	.079	.070
ENC-F:Clark-McCracken	.109	.106	.107	.111	.102	.104
ENC-t:Clark-McCracken	.112	.107	.100	.112	.096	.099

Notes:
1. The results in the first four rows of each panel repeat the results in the paper's Table 1. The test *CCS:robust* is the heteroskedasticity–robust version of the CCS used in the paper and denoted in the paper's tables as simply *CCS*.
2. *CCS:OLS* refers to a CCS test computed imposing homoskedasticity (as default least-squares estimators do) in computing the variance matrix that enters the test statistic.
3. *MSE-F:McCracken* refers to the F-type test of equal MSPE developed by McCracken (2000), compared against McCracken's asymptotic critical values.
4. *ENC-F:Clark-McCracken* refers to the F-type test of forecast encompassing developed in Clark and McCracken (2001, 2003), compared against Clark and McCracken's (2001) asymptotic critical values.
4. *ENC-t:Clark-McCracken* refers to a t-test for forecast encompassing compared against Clark and McCracken's (2001) asymptotic critical values.

Table A2 **Augmented Results on Empirical Size: DGP 2** **Nominal Size = 10%**						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.094	.081	.079	.083	.084	.089
MSPE:normal	.019	.005	.001	.000	.000	.000
MSPE:McCracken	.131	.097	.060	.056	.037	.018
CCS:robust	.239	.183	.153	.132	.119	.111
CCS:OLS	.188	.157	.140	.124	.115	.111
MSE-F:McCracken	.122	.097	.057	.052	.026	.004
ENC-F:Clark-McCracken	.128	.129	.140	.124	.123	.133
ENC-t:Clark-McCracken	.134	.124	.116	.107	.100	.102
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.098	.085	.080	.074	.077	.086
MSPE:normal	.040	.018	.008	.002	.000	.000
MSPE:McCracken	.140	.117	.104	.083	.065	.043
CCS:robust	.249	.179	.163	.137	.120	.110
CCS:OLS	.200	.155	.148	.128	.115	.108
MSE-F:McCracken	.121	.113	.101	.082	.062	.029
ENC-F:Clark-McCracken	.119	.117	.126	.119	.118	.124
ENC-t:Clark-McCracken	.139	.121	.121	.108	.104	.104
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.100	.085	.082	.075	.074	.078
MSPE:normal	.056	.035	.023	.010	.002	.000
MSPE:McCracken	.137	.123	.116	.115	.092	.075
CCS:robust	.245	.177	.157	.131	.120	.110
CCS:OLS	.197	.154	.142	.122	.116	.109
MSE-F:McCracken	.114	.110	.106	.114	.091	.069
ENC-F:Clark-McCracken	.109	.111	.111	.111	.112	.113
ENC-t:Clark-McCracken	.133	.122	.112	.118	.106	.101

Notes:
1. The results in the first four rows of each panel repeat the results in the paper's Table 2.
2. See the notes to Table A1.

Table A3
Augmented Results on Size–Adjusted Power: DGP 1
Empirical Size = 10%

	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.280	.376	.441	.556	.735	.943
MSPE	.257	.363	.439	.554	.738	.944
CCS	.234	.371	.503	.676	.919	1.000
MSE-F	.267	.356	.420	.526	.706	.923
ENC-F	.282	.377	.445	.549	.728	.940
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.356	.477	.561	.678	.848	.986
MSPE	.290	.407	.511	.652	.837	.983
CCS	.232	.380	.484	.674	.914	1.000
MSE-F	.339	.426	.510	.633	.809	.977
ENC-F	.394	.496	.568	.677	.850	.985
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.383	.527	.635	.764	.918	.997
MSPE	.292	.411	.516	.678	.888	.994
CCS	.224	.353	.470	.668	.914	.999
MSE-F	.402	.500	.575	.699	.877	.991
ENC-F	.481	.609	.692	.793	.923	.996

Notes:
1. *MSE-F:McCracken* refers to the F-type test of equal MSPE developed by McCracken (2000).
2. *ENC-F:Clark-McCracken* refers to the F-type test of forecast encompassing developed in Clark and McCracken (2001, 2003).

Table A4
Augmented Results on Size–Adjusted Power: DGP 2
Empirical Size = 10%

	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.104	.106	.105	.108	.106	.107
MSPE	.112	.114	.118	.122	.121	.134
CCS	.105	.112	.117	.143	.191	.338
MSE-F	.105	.116	.119	.123	.132	.147
ENC-F	.099	.103	.102	.100	.100	.102
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.119	.120	.125	.136	.147	.162
MSPE	.123	.124	.135	.142	.157	.174
CCS	.108	.113	.121	.145	.197	.348
MSE-F	.116	.123	.135	.143	.160	.182
ENC-F	.114	.119	.116	.129	.140	.157
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.130	.139	.145	.155	.179	.236
MSPE	.133	.142	.142	.156	.180	.235
CCS	.107	.114	.122	.147	.191	.342
MSE-F	.125	.140	.140	.155	.180	.234
ENC-F	.122	.132	.140	.157	.177	.236

Notes:
1. See the notes to Table A3.

Table A5 MSPE Summary Statistics, Size Experiments: DGP 1						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	1.00156	1.00158	1.00022	1.00038	0.99987	1.00042
$\hat{\sigma}_2^2$: mean	1.04554	1.04591	1.04451	1.04469	1.04402	1.04454
adj.: mean	0.04419	0.04453	0.04423	0.04427	0.04422	0.04432
$\hat{\sigma}_2^2$-adj.: mean	1.00135	1.00138	1.00029	1.00042	0.99980	1.00022
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	0.00021	0.00020	-0.00007	-0.00004	0.00007	0.00020
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.04398	-0.04433	-0.04429	-0.04431	-0.04415	-0.04412
$\hat{\sigma}_1^2$: median	0.98931	0.99400	0.99547	0.99788	0.99904	0.99989
$\hat{\sigma}_2^2$: median	1.03346	1.03887	1.03819	1.04169	1.04257	1.04400
adj.: median	0.03221	0.03696	0.03857	0.04070	0.04231	0.04348
$\hat{\sigma}_2^2$-adj.: median	0.99075	0.99619	0.99410	0.99767	0.99826	0.99966
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): median	-0.01176	-0.00779	-0.00627	-0.00397	-0.00209	-0.00076
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: median	-0.04256	-0.04371	-0.04405	-0.04415	-0.04418	-0.04409
prob.(($\hat{\sigma}_1^2 - \hat{\sigma}_2^2$) < 0)	0.85920	0.93560	0.96650	0.99270	0.99940	1.00000
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	0.99861	1.00056	1.00119	1.00082	1.00089	1.00068
$\hat{\sigma}_2^2$: mean	1.01900	1.02098	1.02154	1.02107	1.02108	1.02078
adj.: mean	0.02027	0.02029	0.02016	0.02005	0.02026	0.02021
$\hat{\sigma}_2^2$-adj.: mean	0.99873	1.00070	1.00138	1.00101	1.00082	1.00057
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00012	-0.00014	-0.00019	-0.00020	0.00008	0.00011
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.02039	-0.02043	-0.02035	-0.02025	-0.02019	-0.02010
$\hat{\sigma}_1^2$: median	0.98479	0.99352	0.99624	0.99815	0.99933	1.00038
$\hat{\sigma}_2^2$: median	1.00542	1.01314	1.01677	1.01803	1.01982	1.02068
adj.: median	0.01320	0.01530	0.01620	0.01736	0.01891	0.01954
$\hat{\sigma}_2^2$-adj.: median	0.98431	0.99330	0.99624	0.99723	0.99978	1.00039
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): median	-0.00691	-0.00576	-0.00489	-0.00362	-0.00168	-0.00069
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: median	-0.01981	-0.02057	-0.02045	-0.02040	-0.02032	-0.02018
prob.(($\hat{\sigma}_1^2 - \hat{\sigma}_2^2$) < 0)	0.77780	0.85720	0.90300	0.95030	0.98810	0.99990
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	1.00116	1.00088	1.00020	1.00073	1.00052	1.00042
$\hat{\sigma}_2^2$: mean	1.00998	1.00994	1.00922	1.00995	1.00982	1.00968
adj.: mean	0.00937	0.00934	0.00931	0.00936	0.00935	0.00932
$\hat{\sigma}_2^2$-adj.: mean	1.00061	1.00060	0.99991	1.00059	1.00047	1.00036
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	0.00056	0.00028	0.00029	0.00014	0.00005	0.00005
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.00881	-0.00906	-0.00902	-0.00922	-0.00930	-0.00926
$\hat{\sigma}_1^2$: median	0.98875	0.99387	0.99451	0.99692	0.99816	0.99969
$\hat{\sigma}_2^2$: median	0.99704	1.00295	1.00335	1.00620	1.00720	1.00918
adj.: median	0.00538	0.00615	0.00660	0.00732	0.00815	0.00878
$\hat{\sigma}_2^2$-adj.: median	0.98795	0.99450	0.99462	0.99691	0.99789	0.99943
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): median	-0.00353	-0.00308	-0.00287	-0.00248	-0.00152	-0.00077
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: median	-0.00838	-0.00904	-0.00914	-0.00939	-0.00942	-0.00936
prob.(($\hat{\sigma}_1^2 - \hat{\sigma}_2^2$) < 0)	0.69420	0.75950	0.80320	0.86520	0.94440	0.99180

Table A6: MSPE Summary Statistics, Size Experiments: Varying k Version of DGP 1, $R = 120$						
	A. null model					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	0.99985	0.99905	0.99828	0.99799	0.99843	0.99889
	B. $k = 2$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_2^2$: mean	1.02010	1.01896	1.01816	1.01801	1.01845	1.01884
adj.: mean	0.01990	0.01983	0.01988	0.02002	0.02014	0.02012
$\hat{\sigma}_2^2$-adj.: mean	1.00020	0.99912	0.99828	0.99799	0.99831	0.99872
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00035	-0.00007	-0.00000	0.00000	0.00012	0.00018
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.02025	-0.01991	-0.01988	-0.02002	-0.02002	-0.01995
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.77400	0.85430	0.89810	0.94990	0.98740	0.99950
	C. $k = 3$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_2^2$: mean	1.03284	1.03180	1.03096	1.03072	1.03110	1.03150
adj.: mean	0.03264	0.03253	0.03257	0.03274	0.03285	0.03283
$\hat{\sigma}_2^2$-adj.: mean	1.00020	0.99928	0.99839	0.99798	0.99825	0.99867
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00035	-0.00023	-0.00012	0.00001	0.00018	0.00022
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.03299	-0.03276	-0.03269	-0.03273	-0.03267	-0.03261
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.81380	0.89490	0.93990	0.97670	0.99690	1.00000
	E. $k = 5$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_2^2$: mean	1.06030	1.05962	1.05900	1.05860	1.05878	1.05911
adj.: mean	0.06027	0.06045	0.06041	0.06036	0.06052	0.06042
$\hat{\sigma}_2^2$-adj.: mean	1.00003	0.99917	0.99859	0.99823	0.99826	0.99869
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00019	-0.00012	-0.00031	-0.00024	0.00017	0.00020
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.06046	-0.06057	-0.06073	-0.06061	-0.06035	-0.06022
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.87340	0.94880	0.97720	0.99430	0.99980	1.00000
	F. $k = 7$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_2^2$: mean	1.09146	1.09019	1.08945	1.08911	1.08934	1.08974
adj.: mean	0.09135	0.09138	0.09135	0.09114	0.09118	0.09109
$\hat{\sigma}_2^2$-adj.: mean	1.00011	0.99881	0.99810	0.99798	0.99816	0.99865
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00026	0.00024	0.00018	0.00002	0.00027	0.00025
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.09161	-0.09114	-0.09117	-0.09112	-0.09091	-0.09085
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.91550	0.97320	0.99200	0.99870	1.00000	1.00000
	G. $k = 11$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_2^2$: mean	1.15841	1.15777	1.15713	1.15691	1.15738	1.15805
adj.: mean	0.15839	0.15884	0.15902	0.15872	0.15894	0.15923
$\hat{\sigma}_2^2$-adj.: mean	1.00002	0.99894	0.99810	0.99819	0.99845	0.99881
$\hat{\sigma}_1^2$-($\hat{\sigma}_2^2$-adj.): mean	-0.00017	0.00011	0.00017	-0.00020	-0.00002	0.00008
$\hat{\sigma}_1^2 - \hat{\sigma}_2^2$: mean	-0.15856	-0.15872	-0.15885	-0.15892	-0.15895	-0.15916
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.95860	0.99330	0.99900	1.00000	1.00000	1.00000

Notes:
1. The DGP takes the same form as DGP 1, except that data are generated for a total of 10 x variables, $x_{i,t}, i = 1, 2, \ldots, 10$, each following an AR(1) process with coefficient .9.
2. Each panel reports, for a different k, the results of comparing forecasts from the null "no change" model to an alternative model that includes a constant and $x_{1,t-1}, x_{2,t-1}, \ldots, x_{k-1,t-1}$.

Table A7 Empirical Size, Data with Fat Tails: DGP 1 Nominal Size = 10%						
	A. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.076	.070	.069	.065	.072	.082
MSPE:normal	.021	.009	.003	.001	.000	.000
MSPE:McCracken	.091	.089	.078	.070	.064	.048
CCS	.141	.116	.112	.106	.101	.102
	B. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.079	.068	.064	.063	.065	.074
MSPE:normal	.037	.019	.011	.004	.000	.000
MSPE:McCracken	.099	.093	.086	.093	.078	.071
CCS	.133	.112	.109	.105	.101	.100

Table A8 Empirical Size, Data with Fat Tails: DGP 2 Nominal Size = 10%						
	A. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.104	.091	.076	.074	.081	.085
MSPE:normal	.040	.014	.008	.001	.000	.000
MSPE:McCracken	.144	.126	.100	.082	.065	.042
CCS	.233	.181	.150	.127	.118	.102
	B. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.098	.083	.077	.075	.071	.078
MSPE:normal	.052	.033	.018	.010	.001	.000
MSPE:McCracken	.138	.119	.114	.110	.085	.068
CCS	.236	.176	.149	.132	.116	.110

Notes:
1. The data are generated from innovations drawn from the t(6) distribution, following the approach of Diebold and Mariano (1995). The forecast error e_t follows a t(6) distribution. The error v_t in the equation for x_t is t(6) distributed in the case of DGP 1 (for which e_t and v_t are uncorrelated) and a linear combination of t(6)-distributed innovations in the case of DGP 2 (for which e_t and v_t are correlated).

Table A9 Empirical Size: DGP 1 Nominal Size = 5%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.037	.034	.036	.035	.037	.045
MSPE:normal	.003	.001	.000	.000	.000	.000
MSPE:McCracken	.041	.039	.026	.024	.017	.009
CCS	.084	.066	.057	.055	.053	.049
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.035	.033	.033	.030	.034	.038
MSPE:normal	.009	.003	.000	.000	.000	.000
MSPE:McCracken	.048	.039	.041	.039	.030	.022
CCS	.084	.066	.062	.054	.053	.047
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.042	.037	.035	.032	.029	.037
MSPE:normal	.018	.009	.006	.001	.000	.000
MSPE:McCracken	.056	.054	.048	.050	.043	.037
CCS	.086	.072	.066	.057	.052	.049

Table A10 Empirical Size: DGP 2 Nominal Size = 5%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.049	.040	.039	.039	.042	.045
MSPE:normal	.008	.002	.000	.000	.000	.000
MSPE:McCracken	.073	.057	.035	.030	.018	.006
CCS	.157	.108	.093	.074	.062	.059
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.050	.042	.039	.036	.038	.041
MSPE:normal	.018	.006	.003	.000	.000	.000
MSPE:McCracken	.085	.067	.060	.049	.032	.020
CCS	.163	.109	.096	.077	.059	.057
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.051	.044	.040	.036	.036	.038
MSPE:normal	.025	.014	.011	.003	.001	.000
MSPE:McCracken	.077	.072	.066	.059	.053	.037
CCS	.154	.105	.088	.072	.064	.055

Notes:

1. The results in Tables A9 and A10 come from the same experiments used in generating the results in the paper's Tables 1 and 2. In other words, compared to Tables 1 and 2, the simulated test statistics are the same, but the critical values are larger.

Table A11 Empirical Size: DGP 1 with Heteroskedasticity, R = 120 Nominal Size = 10%						
	A. GARCH					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.077	.069	.064	.069	.074	.079
MSPE:normal	.022	.008	.003	.001	.000	.000
MSPE:McCracken	.091	.089	.080	.075	.070	.072
CCS	.146	.128	.115	.107	.107	.102
	B. Conditional heteroskedasticity					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.083	.071	.066	.065	.069	.079
MSPE:normal	.024	.010	.005	.002	.000	.000
MSPE:McCracken	.107	.103	.099	.107	.134	.201
CCS	.159	.137	.125	.114	.108	.100

Notes:
1. The GARCH model takes the form given in equation (4.2) (for DGP 2), except that $\rho = 0$.
2. The conditional heteroskedasticity takes the form given in equation (4.3) (for DGP 2), except that $\rho = 0$.

Table A12 **Empirical Size, Large R and P: DGP 1** **Nominal Size = 10%**			
	$R = 600$ $P = 6000$	$R = 1200$ $P = 12000$	$R = 2500$ $P = 25000$
MSPE–adjusted	.080	.080	.085
MSPE:normal	.000	.000	.000
MSPE:McCracken	.080	.086	.095
CCS	.099	.093	.101
MSE-F:McCracken	.077	.084	.096
ENC-F:Clark-McCracken	.094	.094	.098
ENC-t:Clark-McCracken	.091	.095	.099

Notes:
1. *MSE-F:McCracken* refers to the F-type test of equal MSPE developed by McCracken (2000), compared against McCracken's asymptotic critical values.
2. *ENC-F:Clark-McCracken* refers to the F-type test of forecast encompassing developed in Clark and McCracken (2001, 2003), compared against Clark and McCracken's (2001) asymptotic critical values.
3. *ENC-t:Clark-McCracken* refers to a t-test for forecast encompassing compared against Clark and McCracken's (2001) asymptotic critical values.

Table A13 **Empirical Size, $R = 120$, P Large: DGP 1** **Nominal Size = 10%**					
	A. Homoskedasticity				
	$P = 240$	$P = 480$	$P = 1200$	$P = 12000$	$P = 24000$
MSPE–adjusted	.077	.076	.083	.094	.101
MSPE:normal	.002	.000	.000	.000	.000
MSPE:McCracken	.084	.063	.044	.000	.000
CCS	.142	.119	.105	.101	.095
	B. Multiplicative conditional heteroskedasticity				
	$P = 240$	$P = 480$	$P = 1200$	$P = 12000$	$P = 24000$
MSPE–adjusted	.069	.056	.051	.073	.082
MSPE:normal	.003	.000	.000	.000	.000
MSPE:McCracken	.103	.116	.210	.003	.000
CCS	.161	.134	.118	.099	.100

Table A14 **Empirical Size: Varying k Version of DGP 1, $R = 120$** **Nominal Size = 10%**						
	A. $k = 2$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.073	.067	.065	.066	.076	.086
MSPE:normal	.021	.009	.003	.001	.000	.000
MSPE:McCracken	.093	.090	.080	.073	.067	.055
CCS:robust	.146	.124	.117	.108	.111	.105
CCS:OLS	.115	.109	.106	.101	.106	.103
	B. $k = 3$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.076	.069	.068	.072	.079	.090
MSPE:normal	.012	.004	.002	.000	.000	.000
MSPE:McCracken	.076	.068	.066	.060	.050	.033
CCS:robust	.185	.140	.129	.120	.114	.108
CCS:OLS	.117	.106	.106	.105	.108	.105
	C. $k = 4$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.078	.074	.073	.076	.081	.090
MSPE:normal	.010	.002	.001	.000	.000	.000
MSPE:McCracken	.063	.060	.056	.043	.034	.018
CCS:robust	.225	.160	.143	.123	.113	.108
CCS:OLS	.120	.110	.107	.104	.105	.103
	D. $k = 5$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.079	.078	.076	.078	.084	.089
MSPE:normal	.008	.001	.000	.000	.000	.000
MSPE:McCracken	.059	.054	.049	.037	.021	.012
CCS:robust	.269	.184	.152	.132	.120	.108
CCS:OLS	.121	.112	.107	.108	.106	.101
	E. $k = 7$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.081	.082	.084	.084	.087	.096
MSPE:normal	.004	.000	.000	.000	.000	.000
CCS:robust	.377	.235	.187	.153	.131	.112
CCS:OLS	.131	.116	.111	.109	.108	.100
	F. $k = 11$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.085	.086	.089	.090	.091	.098
MSPE:normal	.001	.000	.000	.000	.000	.000
CCS:robust	.625	.370	.275	.200	.150	.120
CCS:OLS	.145	.125	.118	.111	.109	.103

Notes:
1. See the notes to Table A6.
2. The results in panel A for $k = 2$ are conceptually the same as the paper's Table 1 results for $R = 120$ except that the results are based on different sets of random draws.

Table A15
Empirical Size, Long-Horizon Forecasts, $R = 120$: DGP 1
Nominal Size = 10%

	A. Horizon (τ) = 6									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.070	.068	.068	.077	.086	.112	.098	.086	.083	.083
MSPE:normal	.013	.005	.002	.000	.000	.028	.012	.004	.000	.000
CCS	.091	.099	.097	.098	.094	.130	.123	.123	.121	.115
	B. Horizon (τ) = 12									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.073	.068	.068	.078	.088	.151	.125	.106	.095	.089
MSPE:normal	.015	.005	.003	.000	.000	.046	.020	.007	.001	.000
CCS	.091	.094	.094	.100	.099	.187	.177	.156	.133	.126
	C. Horizon (τ) = 24									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.078	.068	.066	.072	.084	.205	.163	.126	.105	.091
MSPE:normal	.024	.011	.003	.001	.000	.077	.038	.013	.003	.000
CCS	.099	.095	.090	.100	.098	.277	.268	.256	.202	.139
	D. Horizon (τ) = 36									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.092	.072	.062	.069	.081	.260	.199	.147	.115	.090
MSPE:normal	.033	.015	.004	.001	.000	.118	.061	.020	.003	.000
CCS	.143	.105	.092	.098	.098	.245	.314	.313	.281	.185

Notes:
1. The underlying data are the same as those used in generating the one–step ahead forecast results in the paper's Tables 1 and 2.
2. For a given forecast horizon τ, the variable being forecast is $y_{t+\tau,\tau} \equiv y_{t+\tau} + y_{t+\tau-1} + \cdots y_{t+1}$. The null model is "no change." The alternative model regresses $y_{t+\tau,\tau}$ on $X_{t+1} = (1, x_t)'$.
3. The left or *West–Hodrick* side of the table reports results for test statistics computed with variances estimated by the method of West (1997) and Hodrick (1992), as described at the end of section 3.
4. The right or *QS-AR(1)* side of the table reports results for test statistics computed with variances estimated with the quadratic spectral kernel and bandwidth chosen as recommended in Andrews (1991).

Table A16 Empirical Size, Long-Horizon Forecasts, $R = 120$: DGP 2 Nominal Size = 10%										
	A. Horizon (τ) = 6									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.085	.086	.079	.077	.085	.129	.116	.101	.093	.093
MSPE:normal	.015	.007	.003	.000	.000	.033	.018	.005	.001	.000
CCS	.144	.139	.122	.111	.106	.230	.225	.205	.171	.148
	B. Horizon (τ) = 12									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.089	.085	.078	.078	.093	.169	.141	.117	.101	.102
MSPE:normal	.019	.010	.004	.000	.000	.053	.026	.008	.001	.000
CCS	.150	.139	.123	.111	.107	.263	.268	.242	.191	.161
	C. Horizon (τ) = 24									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.091	.079	.072	.073	.085	.206	.167	.133	.112	.103
MSPE:normal	.025	.011	.004	.000	.000	.078	.040	.014	.001	.000
CCS	.178	.142	.123	.107	.106	.308	.315	.357	.296	.202
	D. Horizon (τ) = 36									
	West–Hodrick					**QS-AR(1)**				
	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.100	.082	.069	.067	.083	.255	.202	.150	.121	.101
MSPE:normal	.032	.015	.004	.001	.000	.110	.054	.017	.002	.000
CCS	.249	.166	.129	.107	.106	.238	.347	.374	.389	.286

Notes:
1. See the notes to Table A15.

Table A17
Empirical Size, Null Model Includes Constant: DGP 1
Nominal Size = 10%

	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.070	.069	.070	.076	.082	.095
MSPE:normal	.015	.003	.002	.000	.000	.000
MSPE:McCracken	.093	.077	.056	.059	.037	.023
CCS	.121	.112	.104	.103	.103	.102
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.072	.065	.064	.065	.071	.079
MSPE:normal	.030	.011	.007	.002	.000	.000
MSPE:McCracken	.105	.096	.088	.079	.067	.049
CCS	.118	.109	.109	.105	.102	.098
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.082	.073	.062	.059	.066	.077
MSPE:normal	.051	.033	.021	.011	.003	.000
MSPE:McCracken	.123	.108	.096	.099	.092	.082
CCS	.123	.119	.113	.105	.101	.104

Table A18
Empirical Size, Null Model Includes Constant: DGP 2
Nominal Size = 10%

	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.101	.088	.093	.100	.111	.135
MSPE:normal	.028	.007	.002	.001	.000	.000
MSPE:McCracken	.135	.103	.070	.060	.036	.014
CCS	.118	.105	.106	.104	.103	.106
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.103	.086	.079	.079	.086	.100
MSPE:normal	.055	.025	.015	.004	.000	.000
MSPE:McCracken	.151	.124	.113	.088	.065	.041
CCS	.127	.108	.111	.108	.105	.103
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.105	.084	.075	.070	.067	.076
MSPE:normal	.071	.044	.031	.015	.003	.000
MSPE:McCracken	.152	.124	.113	.114	.093	.070
CCS	.121	.103	.104	.104	.104	.106

Notes:
1. In these experiments, the null model relates the predictand y_{t+1} to a constant, rather than taking the "no change" form used throughout the paper.

Table A19 Size–Adjusted Power: DGP 1 with b = -1 Empirical Size = 10%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.146	.174	.189	.221	.271	.384
MSPE	.139	.167	.187	.220	.273	.392
CCS	.134	.169	.213	.270	.446	.787
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.170	.205	.231	.283	.370	.524
MSPE	.153	.182	.211	.268	.359	.523
CCS	.134	.174	.203	.286	.449	.798
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.185	.232	.271	.320	.444	.649
MSPE	.163	.199	.236	.286	.416	.635
CCS	.134	.164	.196	.271	.444	.787

Notes:
1. In these power experiments, the slope coefficient b on x in the DGP for y is set to -1 rather than -2 as in the paper's Table 4 results.

Table A20
Size–Adjusted Power: DGP 1
Empirical Size = 5%

	$P=48$	$P=96$	$P=144$	$P=240$	$P=480$	$P=1200$
	$R=60$					
MSPE–adjusted	.187	.273	.336	.442	.638	.900
MSPE	.154	.247	.322	.430	.639	.909
CCS	.146	.265	.378	.576	.865	.998
	$R=120$					
MSPE–adjusted	.235	.352	.434	.571	.783	.971
MSPE	.183	.286	.373	.530	.757	.970
CCS	.146	.260	.364	.569	.865	.998
	$R=240$					
MSPE–adjusted	.254	.392	.507	.671	.869	.991
MSPE	.190	.280	.384	.546	.823	.986
CCS	.137	.242	.352	.560	.859	.998

Table A21
Size–Adjusted Power: DGP 2
Empirical Size = 5%

	$P=48$	$P=96$	$P=144$	$P=240$	$P=480$	$P=1200$
	$R=60$					
MSPE–adjusted	.053	.052	.057	.054	.054	.056
MSPE	.055	.059	.063	.066	.068	.071
CCS	.055	.058	.061	.072	.103	.215
	$R=120$					
MSPE–adjusted	.060	.066	.064	.073	.078	.096
MSPE	.066	.065	.069	.075	.086	.107
CCS	.053	.060	.064	.076	.115	.221
	$R=240$					
MSPE–adjusted	.065	.069	.079	.087	.103	.147
MSPE	.073	.073	.080	.091	.105	.148
CCS	.065	.069	.079	.087	.103	.147

Notes:
1. The results in Tables A20 and A21 come from the same experiments used in generating the results in the paper's Tables 4 and 5. In other words, compared to Tables 4 and 5, the simulated test statistics are the same, but the critical values are larger.

Table A22						
Unadjusted Power: DGP 1						
Nominal Size = 10%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.233	.323	.392	.506	.706	.939
MSPE:normal	.041	.027	.022	.015	.007	.001
MSPE:McCracken	.228	.308	.312	.436	.604	.863
CCS	.291	.409	.516	.697	.923	1.000
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.285	.398	.479	.609	.815	.983
MSPE:normal	.092	.090	.087	.086	.103	.146
MSPE:McCracken	.262	.381	.458	.589	.785	.970
CCS	.294	.409	.515	.686	.918	1.000
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.345	.471	.571	.712	.890	.995
MSPE:normal	.154	.171	.195	.216	.310	.583
MSPE:McCracken	.305	.410	.503	.678	.867	.992
CCS	.294	.403	.512	.686	.917	.999

Table A23						
Unadjusted Power: DGP 2						
Nominal Size = 10%						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.098	.087	.085	.088	.089	.097
MSPE:normal	.022	.006	.002	.000	.000	.000
MSPE:McCracken	.142	.111	.072	.074	.054	.029
CCS	.255	.209	.190	.186	.220	.363
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.117	.103	.101	.102	.118	.147
MSPE:normal	.052	.025	.013	.003	.000	.000
MSPE:McCracken	.165	.150	.139	.122	.106	.095
CCS	.260	.200	.194	.196	.224	.360
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
MSPE–adjusted	.130	.120	.120	.123	.140	.202
MSPE:normal	.080	.053	.038	.019	.006	.000
MSPE:McCracken	.180	.170	.164	.175	.169	.192
CCS	.257	.198	.188	.188	.219	.361

Notes:
1. The results in Tables A22 and A22 come from the same experiments used in generating the results in the paper's Tables 4 and 5. In other words, compared to Tables 4 and 5, the simulated test statistics are the same, but the critical values are asymptotic rather than simulated.

Table A24 **MSPE Summary Statistics, Power Experiments: DGP 1**						
	A. $R = 60$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	1.02685	1.02770	1.02603	1.02612	1.02557	1.02611
$\hat{\sigma}_2^2$: mean	1.04555	1.04592	1.04452	1.04469	1.04402	1.04454
$\hat{\sigma}_1^2$: median	1.01395	1.02056	1.02162	1.02345	1.02398	1.02552
$\hat{\sigma}_2^2$: median	1.03302	1.03874	1.03835	1.04169	1.04256	1.04401
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.68040	0.71020	0.73850	0.77270	0.83500	0.92500
	B. $R = 120$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	1.02492	1.02704	1.02743	1.02682	1.02678	1.02635
$\hat{\sigma}_2^2$: mean	1.01900	1.02099	1.02154	1.02107	1.02108	1.02078
$\hat{\sigma}_1^2$: median	1.01042	1.01961	1.02305	1.02389	1.02579	1.02639
$\hat{\sigma}_2^2$: median	1.00506	1.01314	1.01673	1.01812	1.01982	1.02067
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.52100	0.50630	0.49430	0.47090	0.41520	0.32780
	C. $R = 240$					
	$P = 48$	$P = 96$	$P = 144$	$P = 240$	$P = 480$	$P = 1200$
$\hat{\sigma}_1^2$: mean	1.02678	1.02610	1.02552	1.02605	1.02592	1.02595
$\hat{\sigma}_2^2$: mean	1.00997	1.00993	1.00921	1.00995	1.00982	1.00968
$\hat{\sigma}_1^2$: median	1.01392	1.01927	1.02017	1.02311	1.02360	1.02567
$\hat{\sigma}_2^2$: median	0.99709	1.00296	1.00338	1.00618	1.00717	1.00919
prob.$((\hat{\sigma}_1^2 - \hat{\sigma}_2^2) < 0)$	0.41550	0.36480	0.32830	0.26620	0.16600	0.04860