Table S1

Descriptive statistics for commodity futures returns and the factors

Panel A

	Commodity Futures Returns				
	Mean	**Median**	**Standard Deviation**	**Skewness**	**Excess Kurtosis**
Light Crude Oil	0.0076	0.0085	0.0863	0.2767	2.3781
Corn	0.0037	0.0000	0.0745	0.1767	0.7107
Soybeans	0.0030	0.0000	0.0686	-0.2925	1.1918
Wheat	0.0039	-0.0014	0.0808	0.6681	2.6618
Coffee	0.0045	-0.0095	0.1030	1.0986	3.3857
Cocoa	0.0049	0.0000	0.0832	0.4364	0.8958
Sugar	0.0041	-0.0010	0.0860	0.3372	0.9646
Cotton No.2	0.0042	0.0054	0.0756	0.1088	0.4408
Gold	0.0043	0.0003	0.0446	0.1784	1.2249
Silver	0.0060	-0.0017	0.0798	0.1315	0.9535
Platinum	0.0037	0.0032	0.0614	0.2097	7.5443
Orange Juice	0.0041	0.0047	0.0904	0.5444	1.1074
Lumber	0.0062	0.0029	0.0784	0.3930	0.3594
Live Cattle	0.0019	0.0028	0.0446	-0.7534	3.4675

Panel B

	Hedging Pressure				
	Mean	**Median**	**Standard Deviation**	**Skewness**	**Excess Kurtosis**
Light Crude Oil	0.0550	0.0421	0.1002	0.1521	-0.4743
Corn	0.0167	0.0170	0.1322	-0.1640	-0.7475
Soybeans	0.1015	0.1277	0.1633	-0.2676	-0.7006
Wheat	0.0177	-0.0116	0.1555	0.4744	-0.7753
Coffee	0.1338	0.1351	0.1588	-0.0382	-1.0892
Cocoa	0.1344	0.1416	0.1596	-0.1174	-0.5712
Sugar	0.1656	0.1929	0.1888	-0.0703	-0.6391
Cotton No.2	0.0905	0.1114	0.2255	-0.3090	-0.8422
Gold	0.2051	0.3013	0.2801	-0.6206	-0.9246
Silver	0.3971	0.4060	0.1561	-0.1283	-0.5484
Platinum	0.4553	0.5010	0.2346	-0.6685	-0.3273
Orange Juice	0.2035	0.2385	0.2500	-0.4662	-0.4220
Lumber	0.0735	0.0521	0.2000	0.0721	-0.7776
Live Cattle	0.0638	0.0517	0.1066	0.0835	-0.9132

Table S1 (continued)

Descriptive statistics for commodity futures returns and the factors

Panel C	Basis				
	Mean	**Median**	**Standard Deviation**	**Skewness**	**Excess Kurtosis**
Light Crude Oil	-0.0011	-0.0024	0.0197	-0.3821	3.6552
Corn	-0.0197	-0.0239	0.0316	3.4492	19.9205
Soybeans	-0.0014	-0.0070	0.0223	2.6293	8.8736
Wheat	-0.0211	-0.0258	0.0313	1.6318	4.1943
Coffee	-0.0164	-0.0206	0.0301	1.7687	5.5912
Cocoa	-0.0113	-0.0104	0.0202	0.0490	1.2644
Sugar	-0.0008	-0.0048	0.0496	-0.0433	4.3632
Cotton No.2	-0.0104	-0.0150	0.0401	2.0345	12.2371
Gold	-0.0025	-0.0023	0.0019	-0.6186	-0.2280
Silver	0.0010	-0.0024	0.0519	13.1632	172.8415
Platinum	0.0293	-0.0007	0.1687	5.5658	29.3783
Orange Juice	-0.0086	-0.0093	0.0292	0.6862	0.6978
Lumber	-0.0215	-0.0174	0.0459	-0.0647	0.5445
Live Cattle	0.0029	0.0003	0.0356	0.4074	0.0202

Panel D	Net Trading				
	Mean	**Median**	**Standard Deviation**	**Skewness**	**Excess Kurtosis**
Light Crude Oil	0.0086	0.0058	0.0510	0.2517	1.3783
Corn	0.0069	0.0026	0.0758	-0.0493	8.3574
Soybeans	0.0080	0.0096	0.0820	-0.3949	4.2786
Wheat	0.0080	0.0015	0.0894	0.0856	5.2694
Coffee	0.0116	0.0210	0.0975	0.3201	0.6292
Cocoa	0.0082	0.0095	0.0760	0.0294	0.8178
Sugar	0.0082	0.0055	0.0767	-0.1195	0.2702
Cotton No.2	0.0117	0.0117	0.1012	0.2508	1.5604
Gold	0.0070	-0.0006	0.0943	0.5189	1.2594
Silver	0.0061	0.0011	0.0803	0.7065	2.0992
Platinum	0.0108	0.0107	0.1081	0.4331	0.8757
Orange Juice	0.0067	0.0040	0.1109	0.4007	0.7497
Lumber	0.0104	-0.0026	0.1481	1.9518	12.6281
Live Cattle	0.0083	0.0041	0.0746	0.2013	0.2940

Panel E	Aggregate Commodity Specific Factors				
	Mean	**Median**	**Standard Deviation**	**Skewness**	**Excess Kurtosis**
Hedging Pressure	0.0975	0.1002	0.0772	-0.2829	-0.3088
Basis	-0.0055	-0.0073	0.0143	2.0651	7.4183
Net Trading	0.0051	0.0045	0.0414	-1.6270	16.6478

Table S2

Optimal Asset Allocation – Hidden Markov Models

	No Transaction Costs			With Transaction Costs		
	Macro Principal Components Only					
	γ = 0.1	**γ = 0.25**	**γ = 0.5**	**γ = 0.1**	**γ = 0.25**	**γ = 0.5**
Average Realized Return	0.0001	-0.0001	-0.0001	0.0006	-0.0014	-0.0012
Realized Standard Deviation	0.0275	0.0267	0.0262	0.0301	0.0306	0.0304
Annualized Sharpe Ratio	0.0067	-0.0106	-0.0128	0.0660	-0.1631	-0.1397
Realized Average MV Utility	0.0000	-0.0002	-0.0003	0.0005	-0.0016	-0.0015
	Average Portfolio Weights					
Light Crude Oil	0.0145	0.0113	0.0081	0.0319	0.0254	0.0195
Corn	-0.0037	-0.0060	-0.0006	-0.0425	-0.0468	-0.0376
Soybeans	0.0008	0.0103	0.0081	-0.0164	-0.0014	-0.0028
Wheat	0.0034	0.0014	-0.0016	0.0650	0.0635	0.0579
Coffee	-0.0031	-0.0050	-0.0060	0.0011	-0.0023	-0.0049
Cocoa	0.0002	-0.0025	-0.0015	-0.0023	-0.0057	-0.0066
Sugar	0.0034	0.0039	0.0016	0.0155	0.0146	0.0096
Cotton No.2	0.0072	0.0019	-0.0006	0.0270	0.0178	0.0107
Gold	0.0063	-0.0065	-0.0082	-0.0221	-0.0391	-0.0440
Silver	-0.0025	-0.0022	-0.0004	0.0075	0.0092	0.0131
Platinum	0.0221	0.0235	0.0217	0.0210	0.0199	0.0216
Orange Juice	0.0039	0.0036	0.0023	0.0052	0.0057	0.0033
Lumber	0.0105	0.0036	0.0034	-0.0159	-0.0259	-0.0251
Live Cattle	-0.0050	-0.0035	-0.0009	-0.0163	-0.0134	-0.0078
S&P500	-0.0158	-0.0043	-0.0025	0.0136	0.0435	0.0502
10Y Treasury Bond	0.9578	0.9705	0.9770	0.9277	0.9348	0.9429
	Macro Principal Components + Commodity-Specific					
	γ = 0.1	**γ = 0.25**	**γ = 0.5**	**γ = 0.1**	**γ = 0.25**	**γ = 0.5**
Rendimento Mensile Medio	0.0020	0.0000	0.0018	0.0028	0.0011	0.0018
Deviazione Standard Mensile	0.0455	0.0422	0.0358	0.0408	0.0363	0.0296
Sharpe Ratio Annuo	0.1516	0.0023	0.1770	0.2340	0.1039	0.2077
Utilità Media-Varianza	0.0019	-0.0002	0.0015	0.0027	0.0009	0.0016
	Average Portfolio Weights					
Light Crude Oil	0.0014	0.0011	0.0018	0.0012	-0.0030	-0.0024
Corn	-0.0029	-0.0053	-0.0192	0.0360	0.0315	0.0029
Soybeans	0.0091	0.0052	0.0223	-0.0241	-0.0293	0.0076
Wheat	0.0077	0.0090	0.0094	-0.0019	0.0040	-0.0003
Coffee	-0.0024	-0.0024	-0.0040	0.0231	0.0224	0.0162
Cocoa	0.0023	-0.0013	0.0031	-0.0038	-0.0073	0.0050
Sugar	0.0034	0.0012	0.0003	0.0116	0.0057	0.0026
Cotton No.2	0.0014	-0.0037	-0.0064	0.0098	0.0077	0.0044
Gold	-0.0064	-0.0013	-0.0208	0.0260	0.0171	-0.0160
Silver	0.0077	0.0101	0.0209	0.0031	-0.0012	0.0164
Platinum	0.0109	0.0100	0.0087	-0.0086	0.0034	0.0048
Orange Juice	0.0065	0.0047	0.0053	-0.0088	-0.0065	-0.0005
Lumber	0.0048	0.0067	0.0028	-0.0008	-0.0011	-0.0110
Live Cattle	-0.0082	-0.0027	-0.0027	0.0158	0.0174	0.0181
S&P500	-0.0112	-0.0111	-0.0118	0.0384	0.0312	0.0383
10Y Treasury Bond	0.9760	0.9798	0.9904	0.8828	0.9081	0.9140

Table S2 (continued)

Optimal Asset Allocation – Hidden Markov Models

	No Transaction Costs			With Transaction Costs		
	Principal Components + Aggregated Commodity-Specific					
	γ = 0.1	γ = 0.25	γ = 0.5	γ = 0.1	γ = 0.25	γ = 0.5
Rendimento Mensile Medio	0.0028	0.0012	0.0012	0.0024	0.0027	0.0027
Deviazione Standard Mensile	0.0383	0.0287	0.0290	0.0473	0.0277	0.0288
Sharpe Ratio Annuo	0.2496	0.1426	0.1437	0.1727	0.3362	0.3210
Utilità Media-Varianza	0.0027	0.0011	0.0010	0.0022	0.0026	0.0025
	Avrg. Weights			Avrg. Weights		
Light Crude Oil	0.0076	-0.0002	-0.0047	0.0067	0.0025	0.0026
Corn	0.0245	0.0119	0.0074	0.0656	0.0108	0.0013
Soybeans	-0.0302	-0.0139	-0.0087	-0.0267	0.0093	0.0109
Wheat	0.0140	0.0094	0.0101	-0.0217	-0.0019	0.0030
Coffee	-0.0110	-0.0128	-0.0142	-0.0086	-0.0068	-0.0094
Cocoa	0.0112	0.0093	0.0068	0.0389	0.0185	0.0188
Sugar	-0.0080	-0.0076	-0.0057	0.0050	0.0086	0.0106
Cotton No.2	-0.0018	-0.0016	0.0003	0.0075	-0.0118	-0.0052
Gold	0.0394	0.0251	0.0231	-0.0085	-0.0015	0.0011
Silver	0.0099	0.0137	0.0112	0.0312	0.0062	0.0202
Platinum	-0.0084	-0.0043	-0.0023	-0.0149	0.0079	-0.0061
Orange Juice	0.0018	-0.0038	-0.0035	0.0270	0.0008	0.0024
Lumber	0.0037	0.0024	0.0002	-0.0118	-0.0012	-0.0059
Live Cattle	0.0422	0.0362	0.0284	0.0458	0.0263	0.0272
S&P500	-0.0181	-0.0156	-0.0178	0.0459	0.0396	0.0290
10Y Treasury Bond	0.9233	0.9518	0.9693	0.8187	0.8927	0.8995

Table S3

Optimal Asset Allocation – Stepwise Regression Models Based on Macro Principal Components Only

Panel A (No Transaction Costs)

	Forward $\gamma = 0.1$	Backward $\gamma = 0.1$	Forward $\gamma = 0.25$	Backward $\gamma = 0.25$	Forward $\gamma = 0.5$	Backward $\gamma = 0.5$
Average Realized Return	-0.0005	-0.0009	-0.0006	-0.0007	-0.0003	-0.0004
Realized Standard Deviation	0.0267	0.0295	0.0267	0.0278	0.0252	0.0265
Annualized Sharpe Ratio	-0.0588	-0.0998	-0.0774	-0.0906	-0.0421	-0.0466
Realized Average MV Utility	-0.0005	-0.0009	-0.0007	-0.0008	-0.0005	-0.0005
	Average Portfolio Weights					
Light Crude Oil	0.0435	0.0303	0.0435	0.0357	0.0445	0.0254
Corn	-0.0098	-0.0470	-0.0114	-0.0540	-0.0120	-0.0408
Soybeans	-0.0221	0.0020	-0.0215	0.0015	-0.0223	-0.0007
Wheat	-0.0003	0.0176	0.0010	0.0221	0.0017	0.0166
Coffee	0.0280	0.0258	0.0284	0.0303	0.0296	0.0334
Cocoa	0.0049	0.0268	0.0053	0.0297	0.0057	0.0234
Sugar	0.0168	0.0070	0.0171	0.0059	0.0178	0.0074
Cotton No.2	0.0124	0.0124	0.0130	0.0195	0.0136	0.0213
Gold	-0.0704	-0.0976	-0.0661	-0.1106	-0.0699	-0.1148
Silver	0.0308	0.0405	0.0296	0.0484	0.0309	0.0543
Platinum	-0.0114	-0.0071	-0.0124	-0.0151	-0.0134	-0.0152
Orange Juice	0.0166	0.0217	0.0167	0.0247	0.0173	0.0338
Lumber	0.0320	0.0243	0.0312	0.0289	0.0319	0.0313
Live Cattle	0.0146	0.0217	0.0132	0.0218	0.0136	0.0306
S&P500	0.0499	0.0519	0.0474	0.0349	0.0444	0.0123
10Y Treasury Bond	0.8646	0.8699	0.8650	0.8763	0.8666	0.8816

Panel B (With Transaction Costs)

	Forward $\gamma = 0.1$	Backward $\gamma = 0.1$	Forward $\gamma = 0.25$	Backward $\gamma = 0.25$	Forward $\gamma = 0.5$	Backward $\gamma = 0.5$
Rendimento Mensile Medio	0.0038	0.0038	0.0032	0.0037	0.0032	0.0041
Deviazione Standard Mensile	0.0353	0.0412	0.0353	0.0410	0.0351	0.0398
Sharpe Ratio Annuo	0.3736	0.3222	0.3187	0.3094	0.3186	0.3526
Utilità Media-Varianza	0.0037	0.0038	0.0031	0.0035	0.0029	0.0037
	Average Portfolio Weights					
Light Crude Oil	0.0295	0.0796	0.0326	0.0907	0.0325	0.0940
Corn	-0.0279	-0.0857	-0.0280	-0.0953	-0.0279	-0.0807
Soybeans	-0.0362	-0.1175	-0.0308	-0.1348	-0.0309	-0.1775
Wheat	-0.0275	0.0348	-0.0284	0.0406	-0.0283	0.0339
Coffee	0.0356	0.1279	0.0349	0.1430	0.0348	0.1836
Cocoa	0.0266	0.1050	0.0230	0.1167	0.0229	0.1327
Sugar	0.0121	0.0078	0.0131	0.0049	0.0131	0.0074
Cotton No.2	0.0279	0.1732	0.0264	0.2022	0.0262	0.2588
Gold	-0.0350	-0.4650	-0.0508	-0.5117	-0.0508	-0.6425
Silver	0.0166	0.2473	0.0243	0.2786	0.0242	0.3585
Platinum	-0.1158	-0.3760	-0.1134	-0.4337	-0.1130	-0.5666
Orange Juice	0.0364	0.1195	0.0382	0.1321	0.0380	0.1716
Lumber	0.0339	0.0320	0.0349	0.0364	0.0347	0.0406
Live Cattle	0.0210	0.0705	0.0227	0.0737	0.0227	0.0982
S&P500	0.2662	0.2032	0.2569	0.2038	0.2565	0.2202
10Y Treasury Bond	0.7365	0.8435	0.7446	0.8531	0.7452	0.8678

Table S4

Optimal Asset Allocation – Stepwise Regression Models Based on Macro Principal Components + Commodity-Specific Factors (Always Included)

Panel A (No Transaction Costs)

	Forward γ = 0.1	Backward γ = 0.1	Forward γ = 0.25	Backward γ = 0.25	Forward γ = 0.5	Backward γ = 0.5
Average Realized Return	0.0021	-0.0029	0.0020	-0.0028	0.0024	-0.0031
Realized Standard Deviation	0.0418	0.0355	0.0412	0.0349	0.0406	0.0348
Annualized Sharpe Ratio	0.1734	-0.2842	0.1700	-0.2808	0.2063	-0.3123
Realized Average MV Utility	0.0020	-0.0030	0.0018	-0.0030	0.0020	-0.0034
	Average Portfolio Weights					
Light Crude Oil	0.0023	0.0082	0.0020	0.0079	0.0024	0.0097
Corn	0.0780	0.0814	0.0765	0.0859	0.0768	0.0763
Soybeans	-0.0397	0.0072	-0.0362	0.0162	-0.0375	0.0227
Wheat	-0.0218	-0.0507	-0.0243	-0.0578	-0.0209	-0.0557
Coffee	0.0133	0.0117	0.0134	0.0109	0.0116	0.0120
Cocoa	0.0108	0.0000	0.0107	0.0045	0.0067	0.0028
Sugar	0.0011	0.0021	0.0040	0.0034	0.0008	0.0047
Cotton No.2	0.0164	-0.0212	0.0180	-0.0250	0.0176	-0.0261
Gold	0.0774	0.0284	0.0593	0.0035	0.0514	-0.0133
Silver	-0.0291	-0.0241	-0.0136	-0.0122	-0.0111	-0.0092
Platinum	-0.0067	0.0593	-0.0243	0.0627	-0.0161	0.0784
Orange Juice	0.0192	0.0274	0.0200	0.0290	0.0161	0.0308
Lumber	-0.0010	0.0061	0.0002	0.0059	0.0015	0.0082
Live Cattle	0.0731	0.0414	0.0838	0.0402	0.0883	0.0410
S&P500	-0.0074	-0.0172	-0.0091	-0.0273	-0.0143	-0.0371
10Y Treasury Bond	0.8142	0.8398	0.8197	0.8520	0.8267	0.8549

Panel B (With Transaction Costs)

	Forward γ = 0.1	Backward γ = 0.1	Forward γ = 0.25	Backward γ = 0.25	Forward γ = 0.5	Backward γ = 0.5
Rendimento Mensile Medio	0.0029	-0.0012	0.0036	-0.0007	0.0022	-0.0001
Deviazione Standard Mensile	0.0576	0.0319	0.0567	0.0309	0.0544	0.0317
Sharpe Ratio Annuo	0.1724	-0.1331	0.2229	-0.0817	0.1408	-0.0147
Utilità Media-Varianza	0.0027	-0.0013	0.0032	-0.0008	0.0015	-0.0004
	Average Portfolio Weights					
Light Crude Oil	-0.0176	-0.0267	-0.0147	-0.0273	-0.0159	-0.0271
Corn	0.1167	0.1027	0.0988	0.1126	0.0921	0.1105
Soybeans	-0.0885	-0.0366	-0.0733	-0.0778	-0.0635	-0.0646
Wheat	-0.0326	-0.0800	-0.0327	-0.0624	-0.0314	-0.0722
Coffee	0.0234	0.0267	0.0310	0.0220	0.0294	0.0248
Cocoa	0.0114	0.0059	0.0113	-0.0057	0.0146	-0.0028
Sugar	-0.0128	0.0012	0.0073	0.0013	0.0052	-0.0014
Cotton No.2	-0.0014	-0.0124	0.0256	-0.0043	0.0187	-0.0098
Gold	0.0819	0.0412	0.0948	0.0821	0.0775	0.0719
Silver	-0.0592	-0.0664	-0.0144	-0.0425	0.0072	-0.0631
Platinum	0.0888	0.0931	-0.0570	0.0438	-0.0739	0.0766
Orange Juice	0.0131	0.0099	0.0129	0.0106	0.0231	0.0140
Lumber	-0.0257	-0.0165	-0.0261	-0.0010	-0.0280	-0.0097
Live Cattle	0.1471	0.0225	0.1282	0.0267	0.1309	0.0152
S&P500	0.0594	0.1271	0.0825	0.1114	0.0839	0.1254
10Y Treasury Bond	0.6961	0.8084	0.7259	0.8105	0.7300	0.8125

Table S5

Optimal Asset Allocation – Stepwise Regression Models Based on Macro Principal Components + Commodity-Specific Factors

Panel A (No Transaction Costs)

	Forward γ = 0.1	Backward γ = 0.1	Forward γ = 0.25	Backward γ = 0.25	Forward γ = 0.5	Backward γ = 0.5
Average Realized Return	-0.0033	-0.0022	-0.0016	-0.0022	0.0000	-0.0020
Realized Standard Deviation	0.0359	0.0324	0.0381	0.0324	0.0327	0.0313
Annualized Sharpe Ratio	-0.3152	-0.2371	-0.1419	-0.2384	-0.0013	-0.2218
Realized Average MV Utility	-0.0033	-0.0023	-0.0017	-0.0024	-0.0003	-0.0022
	Average Portfolio Weights					
Light Crude Oil	0.0091	0.0141	0.0043	0.0111	0.0028	-0.0095
Corn	0.0577	0.0479	0.0554	0.0494	0.0729	0.0170
Soybeans	0.0057	0.0077	-0.0114	-0.0170	-0.0309	0.0431
Wheat	-0.0443	-0.0366	-0.0260	-0.0221	-0.0228	0.0072
Coffee	0.0013	0.0003	0.0088	0.0025	0.0111	-0.0038
Cocoa	0.0153	0.0013	0.0205	0.0047	0.0158	0.0030
Sugar	0.0018	0.0125	0.0047	0.0070	0.0011	-0.0265
Cotton No.2	-0.0145	-0.0001	-0.0111	-0.0079	-0.0021	-0.0675
Gold	0.0821	0.0749	0.0621	0.0440	0.0673	-0.0901
Silver	-0.0324	-0.0099	-0.0345	0.0010	-0.0396	0.0676
Platinum	0.0115	-0.0036	0.0351	0.0106	0.0557	0.0559
Orange Juice	0.0285	0.0198	0.0373	0.0236	0.0235	0.0409
Lumber	0.0000	-0.0035	0.0043	-0.0029	0.0033	0.0225
Live Cattle	0.0286	0.0437	0.0091	0.0596	0.0151	0.1179
S&P500	0.0137	-0.0159	-0.0051	-0.0216	-0.0297	-0.0597
10Y Treasury Bond	0.8359	0.8473	0.8470	0.8580	0.8566	0.8819

Panel B (With Transaction Costs)

	Forward γ = 0.1	Backward γ = 0.1	Forward γ = 0.25	Backward γ = 0.25	Forward γ = 0.5	Backward γ = 0.5
Rendimento Mensile Medio	0.0007	0.0021	0.0005	0.0030	0.0006	0.0016
Deviazione Standard Mensile	0.0209	0.0304	0.0216	0.0283	0.0211	0.0283
Sharpe Ratio Annuo	0.1094	0.2388	0.0848	0.3642	0.0956	0.1938
Utilità Media-Varianza	0.0006	0.0020	0.0005	0.0029	0.0005	0.0014
	Average Portfolio Weights					
Light Crude Oil	0.0229	0.0065	0.0105	0.0070	0.0129	0.0030
Corn	0.1002	0.0651	0.0537	0.0626	0.0470	0.0368
Soybeans	-0.0680	-0.0443	-0.0195	-0.0576	-0.0111	-0.0260
Wheat	-0.0630	-0.0301	-0.0302	-0.0209	-0.0403	-0.0161
Coffee	0.0272	0.0200	0.0202	0.0208	0.0093	0.0159
Cocoa	0.0048	0.0105	0.0079	0.0105	0.0180	0.0133
Sugar	0.0249	0.0150	0.0098	0.0124	0.0082	0.0055
Cotton No.2	0.0146	0.0123	-0.0066	0.0123	-0.0002	-0.0043
Gold	0.0712	0.0613	0.1346	0.0585	0.0635	0.0081
Silver	-0.0025	0.0053	-0.0447	0.0044	-0.0108	0.0191
Platinum	-0.0700	-0.0443	-0.0038	-0.0387	-0.0026	-0.0270
Orange Juice	0.0121	0.0229	0.0080	0.0170	0.0221	0.0169
Lumber	-0.0024	-0.0089	-0.0020	-0.0124	-0.0045	-0.0079
Live Cattle	0.0551	0.0447	0.0350	0.0519	0.0068	0.0662
S&P500	0.0427	0.0912	-0.0107	0.0949	0.0406	0.0995
10Y Treasury Bond	0.9225	0.8584	0.9309	0.8635	0.9346	0.8856

Table S6

Optimal Asset Allocation – Stepwise Regression Models Based on Macro Principal Components + Commodity-Specific Factors + Aggregate Commodity Specific Factors (Always Included)

Panel A (No Transaction Costs)

	Forward $\gamma = 0.1$	Backward $\gamma = 0.1$	Forward $\gamma = 0.25$	Backward $\gamma = 0.25$	Forward $\gamma = 0.5$	Backward $\gamma = 0.5$
Average Realized Return	-0.0042	-0.0032	-0.0034	-0.0032	-0.0034	-0.0018
Realized Standard Deviation	0.0378	0.0376	0.0366	0.0406	0.0366	0.0374
Annualized Sharpe Ratio	-0.3878	-0.2975	-0.3183	-0.2731	-0.3179	-0.1663
Realized Average MV Utility	-0.0043	-0.0033	-0.0035	-0.0034	-0.0037	-0.0021
	Average Portfolio Weights					
Light Crude Oil	0.0134	-0.0028	0.0091	-0.0110	0.0091	-0.0032
Corn	0.0321	-0.0332	0.0041	-0.0182	0.0041	-0.0137
Soybeans	-0.0202	0.0473	-0.0067	0.0593	-0.0067	0.0354
Wheat	-0.0208	0.0133	-0.0010	0.0115	-0.0010	0.0138
Coffee	0.0153	0.0162	0.0031	0.0113	0.0031	0.0180
Cocoa	-0.0166	0.0014	-0.0114	-0.0195	-0.0114	-0.0098
Sugar	-0.0178	0.0044	-0.0142	0.0051	-0.0142	0.0091
Cotton No.2	-0.0007	0.0236	0.0174	0.0489	0.0174	0.0346
Gold	0.0102	-0.0115	0.0198	0.0101	0.0198	0.0021
Silver	0.0224	0.0293	0.0141	0.0209	0.0141	0.0272
Platinum	0.0030	0.0186	0.0122	0.0163	0.0123	-0.0005
Orange Juice	-0.0166	0.0071	-0.0183	-0.0027	-0.0183	-0.0046
Lumber	-0.0016	0.0067	-0.0126	-0.0013	-0.0125	-0.0025
Live Cattle	0.1806	0.1012	0.1680	0.1401	0.1681	0.1075
S&P500	-0.0134	-0.0658	-0.0321	-0.1190	-0.0323	-0.0736
10Y Treasury Bond	0.8306	0.8443	0.8485	0.8482	0.8486	0.8602

Panel B (With Transaction Costs)

	Forward $\gamma = 0.1$	Backward $\gamma = 0.1$	Forward $\gamma = 0.25$	Backward $\gamma = 0.25$	Forward $\gamma = 0.5$	Backward $\gamma = 0.5$
Rendimento Mensile Medio	0.0017	-0.0002	0.0014	-0.0001	0.0014	0.0004
Deviazione Standard Mensile	0.0287	0.0282	0.0307	0.0282	0.0307	0.0305
Sharpe Ratio Annuo	0.2061	-0.0277	0.1595	-0.0101	0.1531	0.0461
Utilità Media-Varianza	0.0017	-0.0003	0.0013	-0.0002	0.0011	0.0002
	Average Portfolio Weights					
Light Crude Oil	0.0305	0.0210	0.0462	0.0252	0.0436	0.0130
Corn	-0.0460	-0.0443	0.0374	-0.0403	0.0418	-0.0043
Soybeans	-0.0119	0.0295	-0.0524	0.0297	-0.0547	0.0055
Wheat	0.0125	-0.0101	-0.0167	-0.0134	-0.0134	-0.0212
Coffee	0.0122	0.0056	0.0168	0.0075	0.0155	0.0130
Cocoa	0.0762	0.0345	0.0653	0.0286	0.0648	0.0340
Sugar	0.0204	-0.0151	0.0042	-0.0111	0.0010	0.0002
Cotton No.2	0.0087	0.0216	0.0502	0.0306	0.0498	0.0033
Gold	0.0889	-0.0482	0.1503	-0.0470	0.1624	0.0123
Silver	0.0632	0.0444	0.0666	0.0467	0.0605	0.0380
Platinum	-0.1296	-0.0123	-0.1822	-0.0207	-0.1789	-0.0697
Orange Juice	0.0000	0.0333	-0.0099	0.0346	-0.0137	0.0182
Lumber	-0.0341	0.0080	-0.0639	0.0079	-0.0673	0.0008
Live Cattle	-0.2218	0.0062	-0.2534	0.0037	-0.2612	-0.0288
S&P500	0.2668	0.0967	0.2742	0.0860	0.2816	0.1493
10Y Treasury Bond	0.8640	0.8291	0.8675	0.8320	0.8680	0.8365