

Supplementary Results
For Greenwood and Hanson 2009, “Catering to Characteristics”
Last revision: June 2009

Appendix Table I
Robustness to Forecasting Regressions

Robustness of regressions of monthly long-short characteristic portfolio returns on lagged values of the corresponding characteristic issuer-repurchaser spread:

$$R_t^X = a + b \cdot ISSREP_{t-1}^X + u_t$$

The sample period includes monthly returns from July 1963 to June 2008. The long-short portfolios are formed based on firm characteristics: the book-to-market (B/M) ratio, sales growth ($\Delta S/S$), accruals (Acc/A), Size (ME), nominal share price (P), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate ($SHUM$), dividend policy (Div), and profitability (E/B). All characteristics except for dividend policy are measures as their NYSE decile rank; dividend policy is measured by a dummy variable that takes a value of one if the firm paid a dividend in year $t-1$. Monthly returns between July of year t and June of year $t+1$ are matched to the issuer-repurchaser spread in year $t-1$. Standard errors are clustered by 12-month blocks running from July t to June $t+1$. The corresponding t -statistics are shown in brackets.

Panel A. Issuer-repurchaser spreads are based on raw characteristics (rather than characteristic deciles)

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
B/M	-2.474	[-2.72]	-2.304	[-2.41]	-2.277	[-2.72]	-2.032	[-2.33]
$\Delta S/S_{t-1}$	-1.900	[-1.19]	-1.690	[-0.89]	-0.442	[-0.26]	-0.239	[-0.12]
Acc/A	-0.548	[-0.22]	-1.480	[-0.48]	1.016	[0.38]	0.399	[0.11]
ME	-0.360	[-2.17]	-0.469	[-3.91]	-0.375	[-2.17]	-0.498	[-3.90]
P	-0.050	[-3.55]	-0.066	[-3.88]	-0.048	[-2.98]	-0.067	[-3.36]
Age	-0.355	[-0.97]	-0.318	[-0.84]	-0.063	[-0.21]	-0.011	[-0.04]
β	-0.892	[-1.29]	-1.075	[-1.57]	-0.718	[-1.12]	-0.894	[-1.40]
σ	-5.773	[-0.89]	-8.196	[-1.39]	-2.599	[-0.46]	-4.391	[-0.88]
$SHUM$	-8.729	[-1.03]	-11.939	[-1.35]	-9.041	[-1.08]	-10.887	[-1.27]
Div	-15.898	[-0.98]	-24.861	[-1.85]	-4.622	[-0.30]	-14.753	[-1.14]
E/B	-1.097	[-1.85]	-1.537	[-2.08]	-0.041	[-0.10]	-0.391	[-0.78]

Panel B. Issuer-repurchaser spreads are based on cross-sectional regression of NS decile on characteristic decile X

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
B/M	-8.936	[-2.68]	-9.292	[-2.41]	-7.704	[-2.32]	-8.040	[-2.10]
$\Delta S/S_{t-1}$	-1.825	[-0.95]	-1.809	[-0.58]	-0.135	[-0.07]	0.643	[0.22]
Acc/A	-0.638	[-0.51]	-0.841	[-0.45]	0.357	[-0.26]	0.004	[0.00]
ME	-1.872	[-1.64]	-2.458	[-2.95]	-2.042	[-1.71]	-2.722	[-3.09]
P	-2.022	[-3.05]	-2.506	[-3.42]	-1.739	[-2.45]	-2.364	[-2.95]
Age	-0.896	[-0.71]	-0.769	[-0.57]	-0.058	[-0.07]	0.146	[0.16]
β	-2.933	[-0.88]	-4.330	[-1.21]	-2.039	[-0.65]	-3.351	[-0.99]
σ	-0.390	[-0.22]	-0.551	[-0.34]	0.353	[0.22]	0.255	[0.17]
$SHUM$	-5.228	[-2.08]	-6.845	[-2.96]	-5.120	[-1.93]	-7.174	[-2.69]
Div	-0.338	[-1.18]	-0.375	[-1.44]	-0.220	[-0.79]	-0.215	[-0.87]
E/B	-1.384	[-1.42]	-1.989	[-1.59]	0.237	[0.36]	-0.163	[-0.19]

Appendix Table I—Continued

Panel C. Net Issuance Spread = difference in average *NS* between firms with high and low values of characteristic *X* (i.e., high-low *NS* spreads)

	Panel A: Characteristic Returns				Panel B: 1-year ahead issuance purged R			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-9.013	[-1.78]	-9.497	[-1.76]	-8.343	[-1.60]	-8.900	[-1.60]
$\Delta S/S_{t-1}$	-2.646	[-1.00]	-1.893	[-0.67]	-0.454	[-0.19]	0.483	[0.19]
<i>Acc/A</i>	-3.825	[-1.42]	-4.615	[-1.59]	-3.698	[-0.83]	-5.922	[-1.31]
<i>ME</i>	-6.007	[-2.05]	-7.439	[-3.07]	-6.010	[-1.97]	-7.670	[-3.04]
<i>P</i>	-8.765	[-3.14]	-11.594	[-3.33]	-6.896	[-2.27]	-10.150	[-2.59]
<i>Age</i>	-2.154	[-1.01]	-2.188	[-0.95]	-0.510	[-0.47]	-0.310	[-0.27]
β	-11.275	[-1.40]	-10.598	[-1.20]	-8.556	[-1.08]	-7.896	[-0.91]
σ	-6.090	[-1.17]	-5.787	[-1.11]	-2.852	[-0.60]	-2.358	[-0.50]
<i>SHUM</i>	-11.758	[-1.86]	-12.056	[-1.77]	-7.973	[-1.35]	-9.366	[-1.41]
<i>Div</i>	-5.794	[-1.38]	-7.021	[-1.73]	-3.440	[-0.86]	-4.200	[-1.11]
<i>E/B</i>	-7.187	[-3.02]	-8.136	[-3.51]	0.557	[0.31]	-0.101	[-0.06]

Panel D. Net Issuance Spread = difference in average *NS* decile between firms with high and low values of characteristic *X* (i.e., high-low *NS* spreads)

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.809	[-2.57]	-1.027	[-2.64]	-0.723	[-2.28]	-0.926	[-2.33]
$\Delta S/S_{t-1}$	-0.169	[-0.68]	-0.156	[-0.49]	0.054	[0.22]	0.118	[0.38]
<i>Acc/A</i>	-0.065	[-0.41]	-0.117	[-0.49]	0.092	[0.58]	0.080	[0.28]
<i>ME</i>	-0.309	[-1.61]	-0.404	[-2.95]	-0.335	[-1.68]	-0.447	[-3.11]
<i>P</i>	-0.484	[-3.39]	-0.712	[-3.88]	-0.443	[-2.62]	-0.707	[-3.01]
<i>Age</i>	-0.359	[-1.26]	-0.361	[-1.18]	-0.142	[-0.87]	-0.111	[-0.64]
β	-0.411	[-0.96]	-0.534	[-1.04]	-0.259	[-0.63]	-0.383	[-0.77]
σ	-0.123	[-0.44]	-0.137	[-0.50]	0.015	[0.06]	0.005	[0.02]
<i>SHUM</i>	-0.541	[-1.43]	-0.828	[-2.18]	-0.472	[-1.15]	-0.833	[-1.80]
<i>Div</i>	-0.457	[-1.40]	-0.540	[-1.94]	-0.282	[-0.89]	-0.341	[-1.29]
<i>E/B</i>	-0.233	[-1.44]	-0.446	[-1.88]	0.041	[0.36]	-0.066	[-0.38]

Appendix Table I--Continued

Panel E. Decile 10 minus decile 1 characteristic portfolio returns (i.e., not size balanced 30/70 portfolios)

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	B	[t]	B	[t]
<i>B/M</i>	-0.677	[1.96]	-0.971	[-2.24]	-0.366	[-1.03]	-0.605	[-1.33]
$\Delta S/S_{t-1}$	0.063	[0.27]	-0.219	[-0.52]	0.191	[0.66]	-0.123	[-0.16]
<i>Acc/A</i>	-0.114	[0.66]	-0.149	[-0.62]	0.012	[0.07]	-0.040	[-0.14]
<i>ME</i>	-0.005	[-2.30]	-0.006	[-4.05]	-0.004	[-2.33]	-0.005	[-4.28]
<i>P</i>	-0.623	[-3.18]	-0.750	[-5.74]	-0.606	[-3.06]	-0.739	[-5.15]
<i>Age</i>	-0.417	[-2.16]	-0.454	[-2.32]	-0.366	[-2.03]	-0.337	[-1.79]
β	-0.398	[-0.89]	-0.580	[-1.15]	-0.313	[-0.74]	-0.558	[-1.22]
σ	-0.185	[-0.93]	-0.264	[-1.79]	-0.082	[-0.44]	-0.156	[-1.18]
<i>SHUM</i>	-0.633	[-1.60]	-1.138	[-5.31]	-0.706	[-1.71]	-1.266	[-4.43]
<i>Div</i>	----Not valid for this construction---				----Not valid for this construction---			
<i>E/B</i>	-0.292	[-1.98]	-0.474	[-2.50]	-0.152	[-1.27]	-0.237	[-1.45]

Panel F. Control for lagged characteristic returns (cumulative return over previous 12 months)

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.668	[-2.30]	-0.759	[-1.87]	-0.564	[-2.08]	-0.637	[-1.69]
$\Delta S/S_{t-1}$	0.053	[0.42]	-0.198	[-0.87]	0.134	[1.05]	0.008	[0.03]
<i>Acc/A</i>	0.031	[0.36]	-0.037	[-0.29]	0.103	[1.28]	0.091	[0.64]
<i>ME</i>	-0.176	[-1.08]	-0.363	[-4.08]	-0.177	[-1.06]	-0.371	[-4.11]
<i>P</i>	-0.210	[-2.74]	-0.272	[-3.16]	-0.169	[-2.29]	-0.240	[-2.88]
<i>Age</i>	-0.107	[-0.85]	-0.093	[-0.73]	-0.009	[-0.09]	0.009	[0.08]
β	-0.221	[-0.74]	-0.383	[-1.06]	-0.141	[-0.50]	-0.297	[-0.87]
σ	-0.057	[-0.39]	-0.117	[-0.88]	0.015	[0.12]	-0.039	[-0.33]
<i>SHUM</i>	-0.307	[-1.46]	-0.561	[-2.68]	-0.273	[-1.28]	-0.565	[-2.39]
<i>Div</i>	-1.311	[-0.89]	-2.442	[-1.93]	-0.541	[-0.39]	-1.489	[-1.26]
<i>E/B</i>	-0.097	[-1.25]	-0.160	[-1.36]	0.036	[0.63]	0.001	[0.01]

Appendix Table I--Continued

Panel G. Include a time trend

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	b	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.898	[-2.45]	-0.935	[-2.07]	-0.764	[-2.11]	-0.778	[-1.74]
$\Delta S/S_{t-1}$	0.001	[0.01]	-0.196	[-0.73]	0.194	[0.95]	0.035	[0.11]
<i>Acc/A</i>	-0.003	[-0.03]	-0.083	[-0.51]	0.063	[0.49]	0.038	[0.21]
<i>ME</i>	-0.245	[-1.44]	-0.513	[-4.47]	-0.258	[-1.50]	-0.535	[-4.63]
<i>P</i>	-0.362	[-2.20]	-0.597	[-3.35]	-0.378	[-2.04]	-0.640	[-2.76]
<i>Age</i>	-0.117	[-0.99]	-0.171	[-1.17]	-0.051	[-0.49]	-0.117	[-0.95]
β	-0.297	[-1.03]	-0.638	[-1.66]	-0.205	[-0.76]	-0.561	[-1.60]
σ	-0.152	[-0.80]	-0.686	[-2.73]	-0.066	[-0.38]	-0.600	[-2.57]
<i>SHUM</i>	-0.377	[-1.52]	-0.810	[-2.70]	-0.359	[-1.39]	-0.887	[-2.35]
<i>Div</i>	-2.184	[-1.07]	-4.064	[-2.31]	-0.889	[-0.46]	-3.100	[-1.86]
<i>E/B</i>	-0.693	[-2.19]	-0.625	[-1.45]	-0.476	[-1.80]	-0.320	[-0.92]

Panel H. Include a recession Control

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	B	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.705	[-2.49]	-0.718	[-1.61]	-0.617	[-2.24]	-0.608	[-1.38]
$\Delta S/S_{t-1}$	0.084	[0.65]	-0.171	[-0.67]	0.177	[1.37]	0.051	[0.17]
<i>Acc/A</i>	-0.017	[-0.19]	-0.056	[-0.43]	0.045	[0.49]	0.059	[0.39]
<i>ME</i>	-0.194	[-1.29]	-0.327	[-3.54]	-0.200	[-1.29]	-0.346	[-3.57]
<i>P</i>	-0.223	[-2.92]	-0.261	[-2.85]	-0.193	[-2.34]	-0.246	[-2.28]
<i>Age</i>	-0.139	[-1.02]	-0.141	[-1.07]	-0.044	[-0.41]	-0.040	[-0.40]
β	-0.277	[-0.97]	-0.443	[-1.36]	-0.194	[-0.72]	-0.356	[-1.16]
σ	-0.077	[-0.50]	-0.151	[-1.26]	-0.008	[-0.05]	-0.076	[-0.73]
<i>SHUM</i>	-0.333	[-1.66]	-0.522	[-2.27]	-0.324	[-1.51]	-0.564	[-2.03]
<i>Div</i>	-1.382	[-1.08]	-2.476	[-2.60]	-0.674	[-0.54]	-1.646	[-1.78]
<i>E/B</i>	-0.120	[-1.58]	-0.151	[-1.24]	0.003	[0.05]	-0.016	[-0.16]

Appendix Table I--Continued

Panel I. Small firms only

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	B	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.855	[-3.01]	-0.956	[-2.61]	-0.710	[2.92]	-0.740	[-2.42]
$\Delta S/S_{t-1}$	-0.231	[-1.64]	-0.550	[-2.77]	-0.113	[0.78]	-0.321	[-1.61]
<i>Acc/A</i>	-0.119	[-1.64]	-0.199	[-1.26]	-0.058	[0.84]	-0.054	[-0.35]
<i>ME</i>	----Not valid for this construction---				----Not valid for this construction---			
<i>P</i>	-0.276	[-3.97]	-0.282	[-3.84]	-0.224	[2.87]	-0.247	[-2.85]
<i>Age</i>	-0.179	[-1.31]	-0.148	[-1.09]	-0.049	[0.38]	0.019	[0.15]
β	-0.315	[-1.13]	-0.464	[-1.52]	-0.202	[0.79]	-0.329	[-1.22]
σ	-0.128	[-0.81]	-0.178	[-1.27]	-0.062	[0.43]	-0.108	[-0.87]
<i>SHUM</i>	-0.366	[-1.86]	-0.463	[-2.78]	-0.366	[1.83]	-0.462	[-2.53]
<i>Div</i>	----Not valid for this construction---				----Not valid for this construction---			
<i>E/B</i>	-0.225	[-2.31]	-0.194	[-1.33]	-0.085	[0.96]	-0.036	[-0.29]

Panel J. Large firms only

	Panel A: Characteristic Returns				Panel B: Issuance Purged Characteristic Returns			
	1963-2007		1973-2007		1963-2007		1973-2007	
	B	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-0.571	[-2.06]	-0.674	[-1.82]	-0.505	[-1.68]	-0.617	[-1.52]
$\Delta S/S_{t-1}$	0.381	[2.67]	0.155	[0.46]	0.438	[2.73]	0.339	[0.70]
<i>Acc/A</i>	0.078	[0.61]	0.023	[0.15]	0.138	[0.99]	0.100	[0.45]
<i>ME</i>	----Not valid for this construction---				----Not valid for this construction---			
<i>P</i>	-0.243	[-2.04]	-0.390	[-3.35]	-0.242	[-1.98]	-0.402	[-3.37]
<i>Age</i>	-0.090	[-0.57]	-0.078	[-0.48]	-0.019	[-0.14]	-0.026	[-0.19]
β	-0.225	[-0.76]	-0.338	[-0.96]	-0.172	[-0.60]	-0.305	[-0.87]
σ	-0.028	[-0.18]	-0.076	[-0.58]	0.048	[-0.34]	0.003	[0.03]
<i>SHUM</i>	-0.397	[-1.41]	-0.784	[-2.76]	-0.379	[-1.21]	-0.876	[-2.52]
<i>Div</i>	----Not valid for this construction---				----Not valid for this construction---			
<i>E/B</i>	-0.041	[-0.51]	-0.255	[-2.21]	0.080	[1.12]	-0.092	[-0.91]

Appendix Table II
Stambaugh Bias Adjustment: Annual Forecasting Regressions

Regressions of annual long-short portfolio returns on lagged values of the issuer-repurchaser spread for the corresponding characteristic:

$$R_t^X = a + b \cdot ISSREP_{t-1}^X + u_t$$

We use annual forecasting regressions here to facilitate the comparison between OLS and Stambaugh bias-adjusted coefficients. The left- column in each panel show OLS estimates; the right-column show the Stambaugh (1999) bias- adjusted coefficients, with standard errors computed following Amihud and Hurvich (2004). The sample period includes annual (July though June) returns from July 1963 to June 2008. The long-short portfolios are formed based on firm characteristics: the book-to-market (B/M) ratio, sales growth ($\Delta S/S$), accruals (Acc/A), Size (ME), nominal share price (P), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate ($SHUM$), dividend policy (Div), and profitability (E/B). All characteristics except for dividend policy are measures as their NYSE decile rank; dividend policy is measured by a dummy variable that takes a value of one if the firm paid a dividend in year $t-1$.

	1963-2007				1973-2007			
	OLS Annual		Bias-adjusted Annual		OLS Annual		Bias-adjusted Annual	
	b	[t]	b	[t]	b	[t]	b	[t]
<i>B/M</i>	-8.817	[-2.37]	-8.628	[-2.28]	-10.227	[-2.20]	-10.001	[-2.11]
$\Delta S/S_{t-1}$	0.858	[0.48]	1.310	[0.72]	-1.654	[-0.63]	-1.021	[-0.38]
<i>Acc/A</i>	-0.394	[-0.38]	-0.388	[-0.37]	-2.531	[-1.45]	-2.464	[-1.37]
<i>ME</i>	-2.858	[-1.89]	-3.306	[-2.12]	-2.718	[-1.80]	-3.122	[-1.99]
<i>P</i>	-2.921	[-2.39]	-3.073	[-2.46]	-3.442	[-2.56]	-3.570	[-2.55]
Age	-1.772	[-0.69]	-1.788	[-0.68]	-1.170	[-0.39]	-0.995	[-0.32]
β	-3.016	[-1.18]	-3.317	[-1.27]	-3.204	[-1.08]	-3.616	[-1.19]
σ	-1.293	[-0.66]	-1.564	[-0.78]	-0.868	[-0.45]	-1.135	[-0.56]
<i>SHUM</i>	-3.624	[-1.78]	-3.672	[-1.77]	-5.535	[-2.29]	-5.115	[-2.07]
<i>Div</i>	-15.143	[-0.78]	-20.107	[-1.01]	-14.926	[-0.74]	-18.428	[-0.87]
<i>E/B</i>	-1.583	[-1.52]	-1.440	[-1.32]	-2.778	[-1.84]	-2.903	[-1.80]