Internet Appendix for "Share Issuance and Factor Timing"*

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Internet Appendix Table 1
Time-series data: Issuer-repurchaser Spreads 1962-2006

The issuer-repurchaser spread for characteristic *X* is the mean NYSE characteristic decile for stock issuers minus the mean NYSE characteristic decile for stock repurchasers. Issuers are seasoned firms that increase shares outstanding by more than 10% during the fiscal year. Repurchasers are seasoned firms that reduce split-adjusted shares outstanding by more than 0.5% during the fiscal year. Characteristics include the book-to-market (*B/M*) ratio, Size (*ME*), nominal price (*P*), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate (*SHUM*), dividend policy (*Div*), sales growth ($\Delta S/S$), accruals (*Acc/A*), and profitability (*E/B*). All characteristics except for dividend policy are measured by their NYSE decile rank; dividend policy is a dummy variable that takes a value of one if the firm paid a dividend in that year.

	Value and Size		Size-related						Other		
	High-Low	High-Low	High-Low	High-Low	High-Low	High-Low	High-Low	Payer	High-Low	High-Low	High-Low
Year	***B/M***	***ME***	***P***	***Age***	***β***	***Σ***	***SHUM***	***Div***	***ΔS/S***	***Acc/A***	***E/B***
1962	-2.32	0.22	-0.46	-0.70	1.11	0.96	1.42	-0.06	3.17	3.24	2.47
1963	-1.67	0.11	-0.36	-0.92	-0.07	0.93	1.03	-0.13	3.34	2.83	1.42
1964	-2.67	0.48	0.20	-0.38	0.60	0.68	0.83	-0.26	3.82	2.12	2.18
1965	-1.74	0.77	0.59	-0.23	1.84	1.00	-0.29	-0.16	3.36	2.43	1.94
1966	-2.03	0.39	0.80	-0.85	0.71	1.69	0.95	-0.07	3.01	2.30	1.52
1967	-3.05	1.13	0.52	-0.53	2.05	1.16	0.53	-0.16	3.21	2.73	1.97
1968	-2.52	-0.90	-1.21	-1.89	2.46	2.46	2.34	-0.31	3.66	2.15	1.50
1969	-1.75	-1.61	-2.21	-1.98	2.77	2.91	2.98	-0.38	3.70	3.53	0.69
1970	-1.75	0.31	-0.15	-1.33	0.41	0.73	0.99	-0.21	3.76	2.48	1.39
1971	-1.66	1.58	1.15	-0.77	0.11	-0.66	-0.59	-0.09	3.75	1.98	1.48
1972	-1.93	0.91	0.49	-0.58	0.56	-0.08	0.05	-0.09	3.51	2.07	1.79
1973	-2.10	0.46	0.26	-1.06	0.55	0.38	0.74	-0.18	2.77	1.34	0.98
1974	-1.31	1.83	1.43	0.22	-0.32	-1.15	-0.26	-0.06	2.69	0.57	0.26
1975	-1.78	2.58	1.98	1.03	-0.60	-2.17	-1.13	0.11	2.06	1.03	0.42
1976	-2.11	2.76	2.28	0.92	0.00	-2.33	-1.45	0.11	2.11	0.87	1.33
1977	-1.58	1.69	1.07	0.67	0.13	-1.59	0.04	0.04	2.11	0.26	0.45
1978	-1.82	1.30	0.80	-0.10	0.77	-0.99	-0.25	0.01	2.28	0.40	0.76
1979	-1.86	0.88	0.32	-0.55	0.86	0.08	-0.12	-0.11	2.05	0.84	-0.04
1980	-2.44	1.15	-0.02	-0.67	1.54	0.19	-0.01	-0.17	2.87	1.36	0.03
1981	-2.55	0.11	-0.97	-1.45	2.23	1.38	0.50	-0.30	2.61	1.41	0.24
1982	-2.25	0.47	-0.43	-1.62	0.88	0.62	-0.12	-0.23	2.71	1.71	0.36
1983	-1.97	0.11	-1.03	-1.20	2.51	1.14	0.74	-0.20	2.13	1.23	0.00
1984	-1.20	-1.34	-1.96	-2.45	0.94	2.01	1.11	-0.34	2.10	1.36	-0.44
1985	-1.41	-0.53	-1.14	-2.01	0.48	1.61	1.06	-0.26	2.05	1.40	-0.24

[Continued overleaf]

IA Table I: Issuer-repurchaser Spreads 1962-2006 [Continued]

	B/M	*ME*	*P*	*Age*	*β*	*Σ*	*SHUM*	*Div*	*ΔS/S*	*Acc/A*	*E/B*
1986	-1.69	-0.79	-1.38	-2.02	0.82	1.87	1.37	-0.30	2.15	1.76	-0.06
1987	-1.37	-1.19	-1.76	-2.08	1.34	2.06	1.42	-0.35	1.95	0.96	-0.68
1988	-1.71	-1.18	-1.72	-2.03	0.86	1.89	1.35	-0.35	1.62	0.72	-0.89
1989	-1.83	-1.29	-1.68	-2.09	0.78	2.21	1.15	-0.34	2.10	1.24	-0.64
1990	-2.21	-0.99	-1.46	-1.92	0.61	2.30	1.14	-0.39	2.16	0.85	-0.75
1991	-2.72	-0.11	-0.61	-1.71	1.26	1.61	0.23	-0.31	2.30	1.55	-0.42
1992	-2.03	-0.77	-1.03	-1.90	0.40	1.96	0.77	-0.34	1.93	1.32	-0.64
1993	-1.52	-0.91	-1.34	-1.43	1.11	1.83	1.32	-0.31	2.52	1.34	-0.89
1994	-1.50	-1.55	-2.20	-1.78	0.63	2.96	1.20	-0.47	2.68	0.81	-1.35
1995	-2.18	-0.87	-1.42	-1.70	1.05	2.85	0.43	-0.46	2.57	0.82	-1.23
1996	-1.97	-1.18	-1.80	-1.60	1.97	3.41	1.19	-0.50	2.71	1.28	-1.50
1997	-1.19	-1.03	-1.71	-1.88	1.31	2.97	0.99	-0.44	3.14	1.25	-1.51
1998	-1.17	-0.78	-1.03	-1.75	1.78	2.35	0.89	-0.34	3.13	1.27	-1.37
1999	-2.52	0.23	-0.19	-1.67	2.51	3.23	-0.20	-0.39	2.62	0.46	-1.86
2000	-1.69	-0.39	-1.28	-1.80	3.34	4.07	1.29	-0.49	2.80	0.24	-2.21
2001	-1.70	-0.32	-1.22	-1.44	2.33	3.04	0.83	-0.40	1.92	-0.12	-1.88
2002	-0.35	-0.70	-1.51	-0.90	1.84	2.98	0.81	-0.32	1.79	0.18	-1.86
2003	-1.67	-1.12	-1.78	-1.47	1.94	3.08	0.55	-0.38	2.32	0.21	-2.11
2004	-0.82	-2.16	-2.40	-1.51	1.60	3.32	1.66	-0.41	2.44	0.54	-2.30
2005	-0.44	-2.48	-2.39	-1.62	1.84	3.25	1.59	-0.45	2.20	0.20	-2.53
2006	-0.51	-2.31	-2.28	-1.76	1.31	3.28	1.67	-0.44	1.97	0.00	-2.37
Mean	-1.78	-0.16	-0.67	-1.21	1.18	1.50	0.73	-0.26	2.62	1.30	-0.15
SD	0.58	1.23	1.22	0.83	0.88	1.57	0.84	0.16	0.61	0.87	1.40

Internet Appendix Table 2
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: book-to-market (*B/M*) ratio, Size (*ME*), nominal price (*P*), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate (*SHUM*), dividend policy (*Div*), sales growth ($\Delta S/S$), accruals (*Acc/A*), 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]
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]
$\Delta S/S_{t-1}$	-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]
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]
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]
$\Delta S/S_{t-1}$	-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]
E/B	-1.384	[-1.42]	-1.989	[-1.59]	0.237	[0.36]	-0.163	[-0.19]

Internet Appendix Table 2—Continued

Panel C. Forecasting returns using the 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]**
B/M	-9.013	[-1.78]	-9.497	[-1.76]	-8.343	[-1.60]	-8.900	[-1.60]
ME	-6.007	[-2.05]	-7.439	[-3.07]	-6.010	[-1.97]	-7.670	[-3.04]
P	-8.765	[-3.14]	-11.594	[-3.33]	-6.896	[-2.27]	-10.150	[-2.59]
Age	-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]
SHUM	-11.758	[-1.86]	-12.056	[-1.77]	-7.973	[-1.35]	-9.366	[-1.41]
Div	-5.794	[-1.38]	-7.021	[-1.73]	-3.440	[-0.86]	-4.200	[-1.11]
$\Delta S/S_{t-1}$	-2.646	[-1.00]	-1.893	[-0.67]	-0.454	[-0.19]	0.483	[0.19]
Acc/A	-3.825	[-1.42]	-4.615	[-1.59]	-3.698	[-0.83]	-5.922	[-1.31]
E/B	-7.187	[-3.02]	-8.136	[-3.51]	0.557	[0.31]	-0.101	[-0.06]

Panel D. Forecasting returns using the 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]**
B/M	-0.809	[-2.57]	-1.027	[-2.64]	-0.723	[-2.28]	-0.926	[-2.33]
ME	-0.309	[-1.61]	-0.404	[-2.95]	-0.335	[-1.68]	-0.447	[-3.11]
P	-0.484	[-3.39]	-0.712	[-3.88]	-0.443	[-2.62]	-0.707	[-3.01]
Age	-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]
SHUM	-0.541	[-1.43]	-0.828	[-2.18]	-0.472	[-1.15]	-0.833	[-1.80]
Div	-0.457	[-1.40]	-0.540	[-1.94]	-0.282	[-0.89]	-0.341	[-1.29]
$\Delta S/S_{t-1}$	-0.169	[-0.68]	-0.156	[-0.49]	0.054	[0.22]	0.118	[0.38]
Acc/A	-0.065	[-0.41]	-0.117	[-0.49]	0.092	[0.58]	0.080	[0.28]
E/B	-0.233	[-1.44]	-0.446	[-1.88]	0.041	[0.36]	-0.066	[-0.38]

Internet Appendix Table 2--Continued

Panel E. Forecasting returns to 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]**
B/M	-0.677	[1.96]	-0.971	[-2.24]	-0.366	[-1.03]	-0.605	[-1.33]
ME	-0.005	[-2.30]	-0.006	[-4.05]	-0.004	[-2.33]	-0.005	[-4.28]
P	-0.623	[-3.18]	-0.750	[-5.74]	-0.606	[-3.06]	-0.739	[-5.15]
Age	-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]
SHUM	-0.633	[-1.60]	-1.138	[-5.31]	-0.706	[-1.71]	-1.266	[-4.43]
Div	----Not valid for this construction---				----Not valid for this construction---			
$\Delta S/S_{t-1}$	0.063	[0.27]	-0.219	[-0.52]	0.191	[0.66]	-0.123	[-0.16]
Acc/A	-0.114	[0.66]	-0.149	[-0.62]	0.012	[0.07]	-0.040	[-0.14]
E/B	-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]**
B/M	-0.668	[-2.30]	-0.759	[-1.87]	-0.564	[-2.08]	-0.637	[-1.69]
ME	-0.176	[-1.08]	-0.363	[-4.08]	-0.177	[-1.06]	-0.371	[-4.11]
P	-0.210	[-2.74]	-0.272	[-3.16]	-0.169	[-2.29]	-0.240	[-2.88]
Age	-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]
SHUM	-0.307	[-1.46]	-0.561	[-2.68]	-0.273	[-1.28]	-0.565	[-2.39]
Div	-1.311	[-0.89]	-2.442	[-1.93]	-0.541	[-0.39]	-1.489	[-1.26]
$\Delta S/S_{t-1}$	0.053	[0.42]	-0.198	[-0.87]	0.134	[1.05]	0.008	[0.03]
Acc/A	0.031	[0.36]	-0.037	[-0.29]	0.103	[1.28]	0.091	[0.64]
E/B	-0.097	[-1.25]	-0.160	[-1.36]	0.036	[0.63]	0.001	[0.01]

Internet Appendix Table 2--Continued

Panel G. Control for the "characteristic value spread" (the difference between the average book-to-market of high *X* and low *X* stocks)

	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	-0.593	[-2.44]	-0.627	[-1.98]	-0.494	[-2.26]	-0.499	[-1.79]
ME	-0.151	[-1.08]	-0.273	[-2.80]	-0.155	[-1.07]	-0.287	[-2.82]
P	-0.125	[-1.25]	-0.186	[-1.98]	-0.071	[-0.63]	-0.142	[-1.31]
Age	-0.207	[-1.43]	-0.194	[-1.32]	-0.078	[-0.73]	-0.050	[-0.46]
β	-0.166	[-0.58]	-0.299	[-0.90]	-0.097	[-0.36]	-0.229	[-0.74]
σ	0.045	[0.29]	-0.027	[-0.19]	0.099	[0.70]	0.034	[0.25]
SHUM	-0.287	[-1.35]	-0.562	[-3.27]	-0.291	[-1.27]	-0.606	[-2.87]
Div	-0.078	[-0.06]	-1.112	[-0.89]	0.485	[0.36]	-0.356	[-0.28]
$\Delta S/S_{t-1}$	0.097	[0.90]	-0.162	[-0.66]	0.185	[1.68]	0.046	[0.16]
Acc/A	0.068	[0.57]	0.016	[0.11]	0.136	[1.10]	0.185	[1.14]
E/B	0.105	[0.92]	0.053	[0.38]	0.198	[2.03]	0.171	[1.49]

Panel H. 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]**
B/M	-0.898	[-2.45]	-0.935	[-2.07]	-0.764	[-2.11]	-0.778	[-1.74]
ME	-0.245	[-1.44]	-0.513	[-4.47]	-0.258	[-1.50]	-0.535	[-4.63]
P	-0.362	[-2.20]	-0.597	[-3.35]	-0.378	[-2.04]	-0.640	[-2.76]
Age	-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]
SHUM	-0.377	[-1.52]	-0.810	[-2.70]	-0.359	[-1.39]	-0.887	[-2.35]
Div	-2.184	[-1.07]	-4.064	[-2.31]	-0.889	[-0.46]	-3.100	[-1.86]
$\Delta S/S_{t-1}$	0.001	[0.01]	-0.196	[-0.73]	0.194	[0.95]	0.035	[0.11]
Acc/A	-0.003	[-0.03]	-0.083	[-0.51]	0.063	[0.49]	0.038	[0.21]
E/B	-0.693	[-2.19]	-0.625	[-1.45]	-0.476	[-1.80]	-0.320	[-0.92]

Internet Appendix Table 2--Continued

Panel I. 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]**
B/M	-0.705	[-2.49]	-0.718	[-1.61]	-0.617	[-2.24]	-0.608	[-1.38]
ME	-0.194	[-1.29]	-0.327	[-3.54]	-0.200	[-1.29]	-0.346	[-3.57]
P	-0.223	[-2.92]	-0.261	[-2.85]	-0.193	[-2.34]	-0.246	[-2.28]
Age	-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]
SHUM	-0.333	[-1.66]	-0.522	[-2.27]	-0.324	[-1.51]	-0.564	[-2.03]
Div	-1.382	[-1.08]	-2.476	[-2.60]	-0.674	[-0.54]	-1.646	[-1.78]
$\Delta S/S_{t-1}$	0.084	[0.65]	-0.171	[-0.67]	0.177	[1.37]	0.051	[0.17]
Acc/A	-0.017	[-0.19]	-0.056	[-0.43]	0.045	[0.49]	0.059	[0.39]
E/B	-0.120	[-1.58]	-0.151	[-1.24]	0.003	[0.05]	-0.016	[-0.16]

Panel J. Issuer-repurchaser spreads are based on value-weighted averages (as opposed to equal-weighted averages)

	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	-0.167	[-1.84]	-0.380	[-3.27]	-0.141	[-1.60]	-0.327	[-3.00]
ME	-0.383	[-3.75]	-0.418	[-4.87]	-0.371	[-3.66]	-0.417	[-4.86]
P	-0.372	[-3.52]	-0.507	[-3.69]	-0.361	[-2.89]	-0.516	[-2.97]
Age	-0.236	[-1.36]	-0.226	[-1.25]	-0.122	[-1.21]	-0.101	[-0.99]
β	-0.278	[-1.27]	-0.284	[-1.08]	-0.210	[-0.99]	-0.231	[-0.89]
σ	-0.190	[-1.59]	-0.132	[-1.27]	-0.155	[-1.35]	-0.103	[-1.02]
SHUM	-0.328	[-2.50]	-0.318	[-2.22]	-0.358	[-2.23]	-0.359	[-1.99]
Div	-2.626	[-1.88]	-2.602	[-2.03]	-1.845	[-1.38]	-1.679	[-1.43]
$\Delta S/S_{t-1}$	0.058	[0.63]	-0.020	[-0.15]	0.137	[1.59]	0.086	[0.67]
Acc/A	-0.065	[-0.66]	-0.026	[-0.21]	-0.017	[-0.16]	0.021	[0.14]
E/B	-0.049	[-0.67]	-0.137	[-1.06]	0.057	[0.97]	0.000	[0.00]

Internet Appendix Table 2--Continued

Panel K. 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]**
B/M	-0.855	[-3.01]	-0.956	[-2.61]	-0.710	[2.92]	-0.740	[-2.42]
ME	----Not valid for this construction---				----Not valid for this construction---			
P	-0.276	[-3.97]	-0.282	[-3.84]	-0.224	[2.87]	-0.247	[-2.85]
Age	-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]
SHUM	-0.366	[-1.86]	-0.463	[-2.78]	-0.366	[1.83]	-0.462	[-2.53]
Div	----Not valid for this construction---				----Not valid for this construction---			
$\Delta S/S_{t-1}$	-0.231	[-1.64]	-0.550	[-2.77]	-0.113	[0.78]	-0.321	[-1.61]
Acc/A	-0.119	[-1.64]	-0.199	[-1.26]	-0.058	[0.84]	-0.054	[-0.35]
E/B	-0.225	[-2.31]	-0.194	[-1.33]	-0.085	[0.96]	-0.036	[-0.29]

Panel L. 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]**
B/M	-0.571	[-2.06]	-0.674	[-1.82]	-0.505	[-1.68]	-0.617	[-1.52]
ME	----Not valid for this construction---				----Not valid for this construction---			
P	-0.243	[-2.04]	-0.390	[-3.35]	-0.242	[-1.98]	-0.402	[-3.37]
Age	-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]
SHUM	-0.397	[-1.41]	-0.784	[-2.76]	-0.379	[-1.21]	-0.876	[-2.52]
Div	----Not valid for this construction---				----Not valid for this construction---			
$\Delta S/S_{t-1}$	0.381	[2.67]	0.155	[0.46]	0.438	[2.73]	0.339	[0.70]
Acc/A	0.078	[0.61]	0.023	[0.15]	0.138	[0.99]	0.100	[0.45]
E/B	-0.041	[-0.51]	-0.255	[-2.21]	0.080	[1.12]	-0.092	[-0.91]

Internet Appendix Table 3
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: book-to-market (*B/M*) ratio, Size (*ME*), nominal price (*P*), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate (*SHUM*), dividend policy (*Div*), sales growth ($\Delta S/S$**)**, accruals (*Acc/A*), 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*. The table also lists the R^2 for these annual forecasting regressions.

	1963-2007					1973-2007				
	OLS Annual			Bias-adjusted Annual		OLS Annual			Bias-adjusted Annual	
	b	**[t]**	**R^2**	**b**	**[t]**	**B**	**[t]**	**R^2**	**b**	**[t]**
B/M	-9.094	[-2.62]	13.7%	-8.628	[-2.28]	-10.598	[-2.50]	15.9%	-10.074	[-2.14]
ME	-2.968	[-2.05]	8.9%	-3.306	[-2.12]	-4.058	[-3.45]	26.5%	-4.314	[-3.34]
P	-3.111	[-2.61]	13.7%	-3.073	[-2.46]	-4.033	[-2.99]	21.3%	-3.943	[-2.73]
Age	-1.647	[-0.65]	1.0%	-1.788	[-0.68]	-1.434	[-0.49]	0.7%	-1.484	[-0.49]
β	-2.955	[-1.15]	3.0%	-3.317	[-1.27]	-4.382	[-1.52]	6.5%	-4.886	[-1.66]
σ	-1.089	[-0.57]	0.8%	-1.564	[-0.78]	-1.510	[-0.82]	2.0%	-1.916	[-0.97]
SHUM	-4.394	[-2.09]	9.2%	-3.672	[-1.77]	-7.297	[-2.86]	19.8%	-5.659	[-2.19]
Div	-13.989	[-0.74]	1.3%	-20.107	[-1.01]	-26.666	[-1.64]	7.5%	-32.619	[-1.86]
$\Delta S/S_{t-1}$	0.922	[0.53]	0.7%	1.310	[0.72]	-2.372	[-0.81]	2.0%	-1.961	[-0.63]
Acc/A	-0.212	[-0.21]	0.1%	-0.388	[-0.37]	-1.055	[-0.62]	1.1%	-1.440	[-0.78]
E/B	-1.661	[-1.67]	6.1%	-1.440	[-1.32]	-2.735	[-1.78]	8.8%	-2.765	[-1.61]

Internet Appendix Table 4
Alternate measures of investment when forecasting characteristic returns using investment-non-investment spreads

Univariate time-series regressions of monthly long-short portfolio returns on lagged values of the investment-non-investment spread for the corresponding characteristic:

$$R_t^X = a + c \cdot INVNONINV_{t-1}^X + u_t$$

The investment-non-investment spread is the difference between the average characteristic decile of high- and low- investment firms. In Panel A, investment is the percentage change in total debt. In Panel B, investment is the percentage change in assets. In Panel C, investment is *future* capital expenditures over assets. High investment firms are defined as those in the top NYSE quintile and low investment firms are those in the bottom NYSE quintile. The sample period includes monthly returns from July 1963 to June 2008. The long-short portfolios are formed based on firm characteristics: book-to-market (*B/M*) ratio, Size (*ME*), nominal price (*P*), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate (*SHUM*), dividend policy (*Div*), sales growth (*ΔS/S*), accruals (*Acc/A*), 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*. Since $INVNONINV_{t-1}$ is only refreshed annually, standard errors are clustered by 12-month blocks running from July *t* to June *t+1*. *t*-statistics are in brackets.

	Panel A: Investment = ΔDebt/Debt				Panel B: Investment = ΔAssets/Assets				Panel C: Investment = Future Capx/Assets			
	1963-2007		1973-2007		1963-2007		1973-2007		1963-2007		1973-2007	
	c	**[t]**	**c**	**[t]**	**c**	**[t]**	**c**	**[t]**	**c**	**[t]**	**c**	**[t]**
B/M	0.160	[0.35]	0.092	[0.17]	-0.475	[-1.52]	-0.554	[-1.71]	-0.220	[-0.68]	-0.296	[-0.87]
ME	0.014	[0.03]	-0.983	[-1.54]	0.014	[0.03]	-0.772	[-2.91]	-0.375	[-1.21]	-0.632	[-2.04]
P	-0.786	[-1.96]	-1.458	[-3.01]	-0.588	[-2.44]	-0.960	[-3.48]	-0.525	[-2.77]	-0.783	[-3.59]
Age	-0.608	[-1.01]	-0.629	[-0.90]	-0.340	[-1.14]	-0.397	[-1.12]	-0.462	[-1.97]	-0.398	[1.58]
β	0.307	[0.76]	0.243	[0.53]	0.032	[0.14]	-0.144	[-0.65]	0.219	[0.67]	-0.026	[-0.08]
σ	0.418	[0.73]	-0.084	[-0.13]	0.124	[0.32]	-0.236	[-0.70]	0.070	[0.36]	-0.029	[-0.19]
SHUM	0.320	[0.61]	0.746	[1.04]	-0.342	[-1.09]	-0.685	[-2.01]	0.275	[0.95]	0.242	[0.78]
Div	-2.510	[-0.55]	-6.772	[-1.62]	-3.733	[-1.38]	-3.607	[-1.47]	-0.522	[-0.33]	-1.448	[-1.19]
$\Delta S/S_{t-1}$	-0.297	[-1.55]	-0.502	[-1.43]	-0.299	[-1.23]	-0.393	[-0.81]	-0.033	[-0.24]	-0.006	[-0.04]
Acc/A	-0.045	[-0.62]	-0.042	[-0.66]	-0.086	[-0.79]	-0.079	[-0.69]	-0.112	[-0.88]	-0.105	[-0.70]
E/B	-0.491	[-1.90]	-0.854	[-2.63]	-0.375	[-1.87]	-0.417	[-2.01]	-0.384	[-1.46]	-0.471	[-1.67]

Internet Appendix Table 5

Alternate measures of investment when forecasting characteristic returns using issuer repurchaser spreads and investment-non-investment spreads

Bivariate time-series regressions of monthly long-short portfolio returns on lagged values of the issuer-repurchaser spread and lagged values of the investment-non-investment spread for the corresponding characteristic:

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

The issuer repurchaser spread is the difference between the average characteristic decile of issuers and repurchasers. The investment-non-investment spread is the difference between the average characteristic decile of high- and low- investment firms. High investment firms are defined as those in the top NYSE quintile and low investment firms are those in the bottom NYSE quintile. In Panel A, investment is the percentage change in total debt. In Panel B, investment is the percentage change in assets. In Panel C, investment is *future* capital expenditures over assets. The sample period includes monthly returns from July 1963 to June 2008. The long-short portfolios are formed based on firm characteristics: book-to-market (*B/M*) ratio, Size (*ME*), nominal price (*P*), Age, CAPM beta (β), residual volatility (σ), the Shumway bankruptcy hazard rate (*SHUM*), dividend policy (*Div*), sales growth ($\Delta S/S$), accruals (*Acc/A*), 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*. Since $ISSREP_{t-1}$ and $INVNONINV_{t-1}$ are only refreshed annually, standard errors are clustered by 12-month blocks running from July *t* to June *t+1*. *t*-statistics are in brackets.

	Panel A: Investment = ΔDebt/Debt								Panel B: Investment = ΔAssets/Assets							
	1963-2007				1973-2007				1963-2007				1973-2007			
	b	**[t]**	**C**	**[t]**	**b**	**[t]**	**c**	**[t]**	**b**	**[t]**	**c**	**[t]**	**b**	**[t]**	**c**	**[t]**
B/M	-0.824	[-2.63]	0.465	[1.05]	-0.875	[-2.26]	0.331	[0.64]	-0.666	[-1.64]	-0.086	[-0.19]	-0.748	[-1.28]	-0.105	[-0.19]
ME	-0.240	[-1.94]	0.357	[-0.73]	-0.297	[-3.39]	-0.295	[-0.49]	-0.310	[-2.62]	0.534	[1.01]	-0.287	[-2.51]	-0.178	[-0.51]
P	-0.221	[-2.46]	-0.497	[-1.15]	-0.279	[-2.97]	-1.157	[-2.39]	-0.181	[-2.09]	-0.390	[-1.48]	-0.219	[-2.39]	-0.740	[-2.70]
Age	-0.167	[-1.09]	-0.720	[-1.10]	-0.150	[-0.92]	-0.758	[-0.98]	-0.054	[-0.38]	-0.296	[-0.95]	-0.030	[-0.21]	-0.374	[-1.04]
β	-0.281	[-1.02]	0.352	[0.84]	-0.391	[-1.19]	0.099	[0.20]	-0.309	[-1.12]	0.130	[0.54]	-0.391	[-1.23]	-0.105	[-0.47]
σ	-0.059	[-0.38]	0.369	[0.63]	-0.145	[-1.10]	-0.267	[-0.41]	-0.092	[-0.62]	0.167	[0.43]	-0.119	[-0.91]	-0.186	[-0.54]
SHUM	-0.407	[-1.77]	0.480	[0.95]	-0.627	[-3.20]	0.756	[1.18]	-0.349	[-1.64]	-0.135	[-0.42]	-0.611	[-2.89]	-0.640	[-1.76]
Div	-1.383	[-1.14]	-2.382	[-0.52]	-2.217	[-2.32]	-6.268	[-1.56]	-0.224	[-0.16]	-3.447	[-1.04]	-2.134	[-1.33]	-0.556	[-0.15]
$\Delta S/S_{t-1}$	0.183	[1.25]	-0.438	[-1.89]	-0.126	[-0.48]	-0.455	[-1.27]	0.222	[1.49]	-0.546	[-1.85]	-0.101	[-0.35]	-0.281	[-0.50]
Acc/A	0.006	[0.06]	-0.049	[-0.62]	-0.078	[-0.51]	-0.026	[-0.35]	0.040	[0.31]	-0.119	[-0.77]	-0.023	[-0.10]	-0.064	[-0.34]
E/B	-0.070	[-0.89]	-0.368	[-1.39]	-0.112	[-0.97]	-0.699	[-2.06]	-0.02	[-0.26]	-0.35	[-1.48]	-0.002	[0.01]	-0.415	[-1.26]

Internet Appendix Table 5 --Continued

	Panel C: Investment = Future Capx/Assets							
	1963-2007				1973-2007			
	b	**[t]**	**C**	**[t]**	**b**	**[t]**	**c**	**[t]**
B/M	-0.702	[-2.53]	-0.082	[-0.26]	-0.799	[-2.01]	-0.064	[-0.18]
ME	-0.185	[-1.17]	-0.110	[-0.30]	-0.317	[-3.06]	0.010	[0.03]
P	-0.171	[-1.18]	-0.276	[-0.83]	-0.203	[-1.30]	-0.428	[-1.07]
Age	-0.168	[-1.18]	-0.504	[-2.10]	-0.144	[-0.99]	-0.441	[-1.71]
β	-0.313	[-1.11]	0.308	[0.85]	-0.414	[-1.23]	0.090	[0.23]
σ	-0.131	[-0.72]	0.209	[0.83]	-0.166	[-0.93]	0.151	[0.59]
SHUM	-0.376	[-1.68]	0.235	[0.87]	-0.617	[-2.94]	0.152	[0.54]
Div	-1.491	[-1.18]	0.461	[0.30]	-2.322	[-2.05]	-0.045	[-0.03]
$\Delta S/S_{t-1}$	0.079	[0.59]	-0.044	[-0.31]	-0.197	[-0.77]	0.005	[0.03]
Acc/A	-0.047	[-0.50]	-0.131	[-1.01]	-0.068	[-0.49]	-0.084	[-0.53]
E/B	-0.084	[-1.03]	-0.244	[-0.84]	-0.145	[-0.90]	-0.257	[-0.67]

Internet Appendix Table 6
Alternate construction of ISSREP for 1982+ using Characteristics of SEOs from SDC data

We recreate $ISSREP^X$ as the mean characteristic decile of issuers minus the mean characteristic decile of repurchasers. Repurchasers are based on the same data as in the paper (Compustat), but for issuers we now use the characteristics of SEO issuances from SDC (thus omitting stock-financed acquirers for example). In Panel A, we use all SEOs in SDC which could be matched to Compustat. In Panel B, we use only the subset of SEOs in which some secondary shares (i.e., insider shares) were offered (some secondary shares are only offered in 38% of SEOs). The table shows regressions of monthly long-short portfolio returns on lagged values of the issuer-repurchaser spread for the corresponding characteristic, controlling for contemporaneous returns on the market (*MKTRF*), the Fama-French factors (*HML* and *SMB*) and a momentum factor (*UMD*):

$$R_t^X = a + b \cdot ISSREP_{t-1}^X + c \cdot MKTRF_t + d \cdot HML_t + e \cdot SMB_t + f \cdot UMD_t + u_t$$

The univariate regressions in panel A are estimated excluding the controls. The sample period includes monthly returns from July 1963 to June 2008. Monthly returns between July of year *t* and June of year *t+1* are matched to the issuer-repurchaser spread in year *t-1*. Since $ISSREP_{t-1}$ is only refreshed annually, standard errors are clustered by 12-month blocks running from July *t* to June *t+1*. *t*-statistics are in brackets.

Panel A: Issuers from SDC SEO database, including all SEOs that could be matched to Compustat

	Full SDC Sample: 1982+				SDC Jenter (2005) subsample: 1992+			
	Univariate		Multivariate		Univariate		Multivariate	
	b	**[t]**	**B**	**[t]**	**b**	**[t]**	**B**	**[t]**
B/M	-0.678	[-1.89]	-0.612	[-1.84]	-0.777	[-1.94]	-0.651	[-1.73]
ME	-0.239	[-1.93]	-0.553	[-2.65]	-0.311	[-3.74]	-0.677	[-2.62]
P	-0.360	[-1.33]	-0.061	[-0.36]	-0.508	[-2.25]	-0.198	[-1.41]
Age	-0.130	[-0.27]	-0.199	[-1.05]	-0.791	[-1.22]	-0.314	[-1.27]
β	-0.728	[-1.85]	0.036	[0.14]	-1.129	[-2.63]	-0.194	[-0.91]
σ	-0.116	[-0.32]	0.059	[0.37]	-0.854	[-2.25]	-0.278	[-1.49]
SHUM	-0.678	[-2.48]	-0.148	[-0.91]	-0.811	[-2.39]	-0.306	[-2.26]
Div	0.338	[0.15]	0.338	[0.15]	-6.233	[-1.72]	-1.875	[-1.20]
$\Delta S/S_{t-1}$	-0.145	[-0.42]	-0.106	[-0.60]	-0.272	[-0.67]	-0.055	[-0.28]
Acc/A	-0.096	[-0.47]	-0.113	[-0.56]	-0.356	[-1.66]	-0.328	[-1.49]
E/B	-0.107	[-0.61]	-0.145	[-0.88]	-0.362	[-1.25]	-0.275	[-1.16]

Panel B: Issuers from SDC SEO database, including only SEOs in which some secondary shares were sold

	Full SDC Sample: 1982+				SDC Jenter (2005) subsample: 1992+			
	Univariate		Multivariate		Univariate		Multivariate	
	b	**[t]**	**B**	**[t]**	**b**	**[t]**	**B**	**[t]**
B/M	-0.548	[-1.59]	-0.468	[-1.30]	-0.703	[-1.74]	-0.638	[-1.61]
ME	-0.219	[-1.55]	-0.437	[-2.31]	-0.330	[-3.18]	-0.686	[-2.17]
P	-0.246	[-0.87]	0.046	[0.25]	-0.635	[-2.66]	-0.281	[-1.69]
Age	0.016	[0.05]	0.004	[0.04]	-1.356	[-1.73]	-0.278	[-0.86]
β	-0.413	[-1.10]	0.119	[0.61]	-0.741	[-1.23]	-0.061	[-0.26]
σ	-0.033	[-0.09]	0.162	[1.00]	-1.093	[-2.54]	-0.447	[-1.45]
SHUM	-0.661	[-2.25]	-0.228	[-1.31]	-0.865	[-2.18]	-0.471	[-3.17]
Div	0.940	[0.51]	0.940	[0.51]	-7.803	[-1.62]	-4.082	[-1.46]
$\Delta S/S_{t-1}$	-0.096	[-0.54]	-0.013	[-0.09]	-0.230	[-0.80]	0.055	[0.30]
Acc/A	-0.032	[-0.20]	-0.050	[-0.31]	-0.185	[-1.02]	-0.145	[-0.77]
E/B	-0.160	[-0.99]	-0.196	[-1.30]	-0.401	[-1.76]	-0.401	[-1.95]

Internet Appendix Model

Corporate Investment and Equity Issuance in a Model with Rationally Time-varying Discount Rates and Time-varying Mispricing

In this section we develop a simple model of corporate investment and equity issuance in a setting in which there is time variation in rationally required returns as well as time-varying mispricing. The key take-away is that, if there is some noise in issuance decisions (e.g., equity issuance is impacted by uninformative shocks to target leverage), then investment should completely beat out equity issuance in a horse race in the absence of time-varying mispricing. Intuitively, issuance contains no additional information about expected returns over and above investment, so it will be beaten in a horse race because it also reflects uninformative decisions about how investment should be financed.

Our model draws on Stein (1996). Managers maximize the net present value of investment *f(I)* of which *E* is funded with equity and the remaining (*I*-*E*) with debt. The firm's target leverage ratio is $D \in (0,1)$. All projects must be financed externally, and all external capital must be devoted to investment. The manager solves:

$$\max_{I,E} \left\{ f(I)/R_F - I + E\left(1 - R_\Delta / R_F\right) - Z(E - (1-D)I) \right\} \tag{A1}$$

where R_F is the (possibly time-varying) rationally required return for the project and $R_\Delta = \Delta R_F$ is the conditional expected return that takes into account the expected mean reversion of any temporary mispricing.

We assume that $f' > 0,\ f'' < 0,$ and that $Z(\cdot)$ is a convex U-shaped function with $Z(0) = 0$. When $\Delta < 1$ the firm's stock is temporarily overvalued and when $\Delta > 1$ the firm's stock is temporarily undervalued. The first two terms capture the manager's desire to maximize the long-term fundamental-based net present value of investment; the second term captures the manager's desire to issue stock to exploit any temporary mispricing and reflects the value transfer to long-term shareholders from short-term shareholders who buy mispriced equity; the third term represents the costs of deviating from target leverage ratio *D*. The third term implies that firms do not respond with infinite elasticity at the slightest bit of mispricing and that investment as well as equity issuance may respond to mispricing.

The first order conditions are:

$$f'(I^*)/R_F - 1 + (1-D)Z'(E^* - (1-D)I^*) = 0, \tag{A2}$$

and

$$1-\Delta = Z'(E^* - (1-D)I^*). \tag{A3}$$

We explore these results under a simple parameterization, where $f(I)$=log(I) and $Z(L)$= (1/2)θL^2. In this case, equations (A2) and (A3) simplify to the following expressions for optimal investment I and equity issuance E:

$$I^* = \left[DR_F + (1-D)R_\Delta\right]^{-1} = R_F^{-1}\left[1-(1-D)(1-\Delta)\right]^{-1}, \tag{A4}$$

and

$$E^* = (1-D)I^* + (1-\Delta)/\theta. \tag{A5}$$

Equation (A4) states that the hurdle rate for investment is a weighted average of the rationally required return (which may vary over time) and the conditional expected return which reflects the expected mean reversion of any temporary mispricing. Intuitively, because it is costly for firms to deviate from their target capital structure and because firms cannot issue equity and hold the proceeds in cash indefinitely, investment also responds to temporary mispricing if managers are attempting to time the market. Equation (A5) states that equity issuance reflects optimal investment and the firm's target capital structure, plus the deviation from target leverage due to market timing (i.e., the manager want to issue more stock when $\Delta < 1$).

The above discussion suggests that equity issuance and investment may each be useful for forecasting future stock returns because they contain different information about rationally required returns (R_F) and the expected reversion of any mispricing (Δ). A multivariate regression that includes both equity issuance and investment as a control can help to isolate the effect of time-varying mispricing. To see this formally, we use lower case letters to denote logs (i.e, let x = log(X)) and log-linearize (A4) and (A5) around the long-run mean in which there is no mispricing (Δ = 1) and rationally required returns are R. This yields the following expressions for log investment and equity issuance at time t:

$$i_t^* - \overline{i}^* = -(r_{F,t} - \overline{r}) - (1-D)\delta_t, \tag{A6}$$

and

$$e_t^* - \overline{e}^* = -(r_{F,t} - \overline{r}) - (1-D)\delta_t - \frac{R}{(1-D)\theta}\delta_t = (i_t^* - \overline{i}^*) - \frac{R}{(1-D)\theta}\delta_t. \tag{A7}$$

Consider a thought experiment, in which we compare the effect of changes in the rational discount rate ($r_{F,t}$) on i_t^* and e_t^*, with the effect of changes in expected returns due to mispricing (δ_t).

Reductions in $r_{F,t}$ increase both investment and equity issuance one-for-one. Reductions in δ_t increase investment, but less so than reductions in $r_{F,t}$. This is because managers trade off the benefits of market timing against the costs of overinvestment. The above expressions also show that e_t^* will respond more elastically than i_t^* to changes in δ_t. Moreover, assuming that $\theta < R/(D(1-D))$ so that the costs of deviating from target leverage are not too high, issuance will respond more to a given change in δ_t than a comparable change in $r_{F,t}$.

Now suppose that the realized log return at time $t+1$ is given by $r_{t+1} = r_{F,t} + \delta_t + \varepsilon_{t+1}$ and assume that the three terms are uncorrelated. We first consider the case in which there is time series variation in both $r_{F,t}$ and δ_t. The coefficient on e_t^* in a univariate return forecasting regression is

$$b_u = \frac{Cov[e_t^*, r_{t+1}]}{Var[e_t^*]} = -\frac{Var[r_{F,t}] + [(1-D) + (R/((1-D)\theta))] \cdot Var[\delta_t]}{Var[r_{F,t}] + [(1-D) + (R/((1-D)\theta))]^2 \cdot Var[\delta_t]}. \tag{A8}$$

Similarly, the coefficient on i_t^* in a univariate return forecasting regression is

$$c_u = \frac{Cov[i_t^*, r_{t+1}]}{Var[i_t^*]} = -\frac{Var[r_{F,t}] + (1-D) \cdot Var[\delta_t]}{Var[r_{F,t}] + (1-D)^2 \cdot Var[\delta_t]}. \tag{A9}$$

By contrast in a multivariate regression, we have

$$\begin{bmatrix} b_m \\ c_m \end{bmatrix} = \begin{bmatrix} Var[e_t^*] & Cov[e_t^*, i_t^*] \\ Cov[e_t^*, i_t^*] & Var[i_t^*] \end{bmatrix}^{-1} \begin{bmatrix} Cov[e_t^*, r_{t+1}] \\ Cov[i_t^*, r_{t+1}] \end{bmatrix} = \begin{bmatrix} -(1-D)(D\theta)/R \\ -1 + (1-D)(D\theta)/R \end{bmatrix}. \tag{A10}$$

Again, assuming that $\theta < R/(D(1-D))$, it follows that $-1 < b_u < b_m < 0$ and $c_u < -1 < c_m < 0$. That is, the coefficients on equity issuance and investment from a multivariate regression that includes both variables will be smaller in magnitude than the corresponding univariate coefficients due to a classic omitted variable bias.

However, in a fully rational model with $Var[\delta_t] = 0$ or in the absence of managerial attempts to time mispricing, one would expect investment to drive out issuance in a multivariate specification as long as there is some amount of noise in financing decisions. (In the absence of any noise, investment and issuance would be perfectly collinear in this case.) One way to model this noise is to assume that target leverage ratios fluctuate in ways that are uncorrelated with expected returns. Under this assumption, (A6) remains unchanged and (A7) becomes

$$e_t^* - \bar{e}^* = (i_t^* - \bar{i}^*) - \frac{R}{(1-D)\theta}\delta_t - \frac{D}{(1-D)}(d_t - \bar{d}), \tag{A11}$$

where $d_t - \bar{d}$ represents the deviation of target leverage from its long-run mean. The intuition is that changes in target leverage have a first order effect on equity issuance, but only have a second order effect on investment: they only affect investment when $\Delta \neq 1$, i.e., away from the long-run mean. In this case, the coefficient on investment from a univariate forecasting regression (c_u) remains unchanged, the coefficient on issuance (b_u) in a univariate regression is

$$b_u = -\frac{Var[r_{F,t}] + [(1-D) + (R/((1-D)\theta))] \cdot Var[\delta_t]}{Var[r_{F,t}] + [(1-D) + (R/((1-D)\theta))]^2 \cdot Var[\delta_t] + (D/(1-D))^2 \cdot Var[d_t]}, \tag{A12}$$

and a multivariate regression yields

$$\begin{bmatrix} b_m \\ c_m \end{bmatrix} = -\begin{bmatrix} \dfrac{Var[r_{F,t}]Var[\delta_t] \cdot R\theta D(1-D)}{R^2 Var[r_{F,t}]Var[\delta_t] + Var[d_t]\theta^2 D^2 \cdot [Var[r_{F,t}] + (1-D)^2 Var[\delta_t]]} \\ \dfrac{Var[r_{F,t}]Var[\delta_t] \cdot [R^2 - R\theta D(1-D)] + Var[d_t]\theta^2 D^2 \cdot [Var[r_{F,t}] + (1-D)Var[\delta_t]]}{R^2 Var[r_{F,t}]Var[\delta_t] + Var[d_t]\theta^2 D^2 \cdot [Var[r_{F,tt}] + (1-D)^2 Var[\delta_t]]} \end{bmatrix}. \tag{A13}$$

Note that (A13) reduces to (A10) when $Var[d_t] = 0$. It is straightforward to see from (A13) that so long as $Var[d_t] > 0$ investment will completely drive out issuance in a horse race when $Var[r_{F,t}] = 0$ or $Var[\delta_t] = 0$. Furthermore, even if there are also shocks to investment opportunities (i.e., an investment of I_t at time t yields output of $\Psi_t f(I_t)$ where Ψ_t various over time, then investment will still completely drive out issuance in a horse race when $Var[\delta_t] = 0$ and $Var[d_t] > 0$.

The intuition is that, in each case, equity issuance contains no additional information about expected returns over and above investment. Thus, it is driven out in a horse race because it also reflects a series of uninformative decisions about how investment should be financed.