Online Appendix to "Hard Times"

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Figure Descriptions

Appendix Figure 1: This figure plots the implied consumption growth process during the period 1995:1-2010:4. Each row of graphs plots the consumption growth process extracted from the corresponding VARs estimated in Tables 2 through 4 respectively. Each column reports the consumption plot under different values for the EIS coefficient, ψ.

Appendix Figure 2: This figure plots the cash-flow news and the negative of discount-rate news, smoothed with a trailing exponentially-weighted moving average. Each row of graphs plots news terms extracted from the corresponding VARs that study robustness to the inclusion of different variables in the VAR, in the unrestricted and restricted cases. The news terms correspond to the estimates in Tables 3 and 4 and Appendix Tables 8 through 11. The sample period is 1995:1-2010:4.

Appendix Figure 3: This figure plots the cash-flow news and the negative of discount-rate news, smoothed with a trailing exponentially-weighted moving average. Each row of graphs plots news terms extracted from the corresponding VARs that study robustness to the inclusion of CAY in the VAR, in the unrestricted and restricted cases. The news terms correspond to the estimates in Tables 3 and 4 and Appendix Tables 12 through 15. The sample period is 1995:1-2010:4.
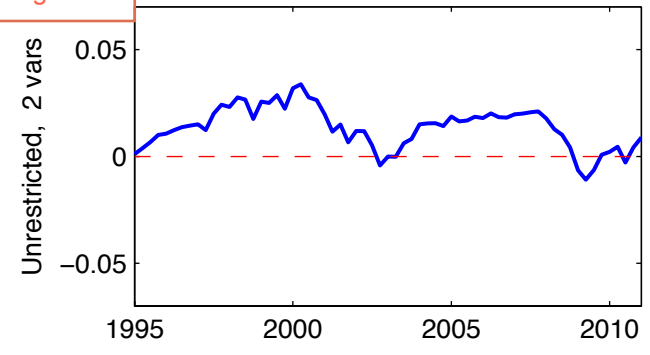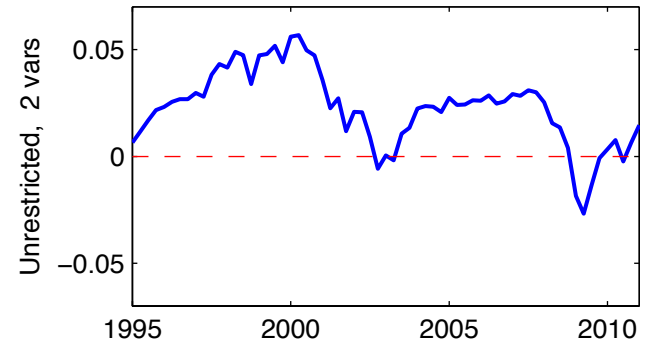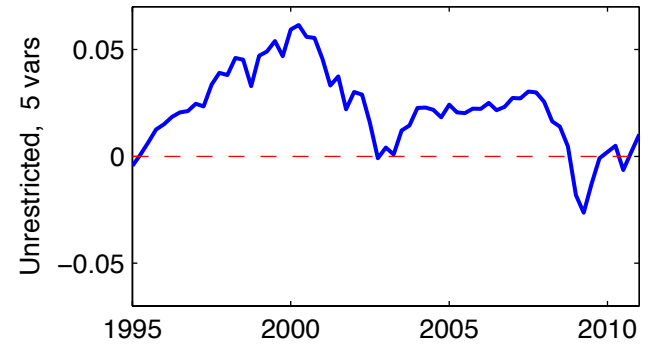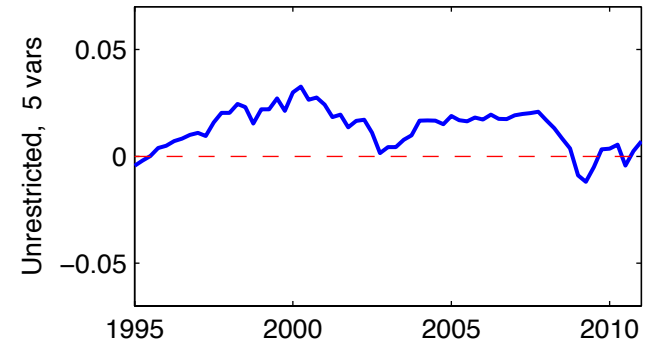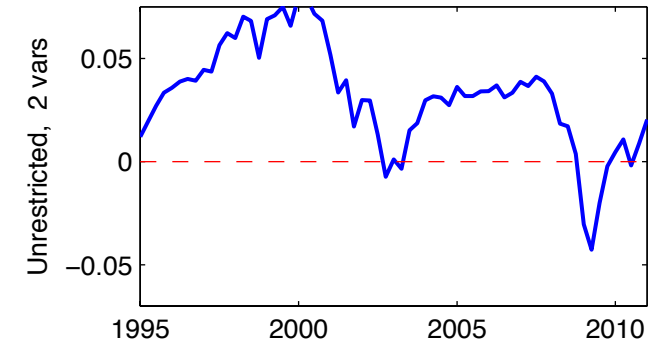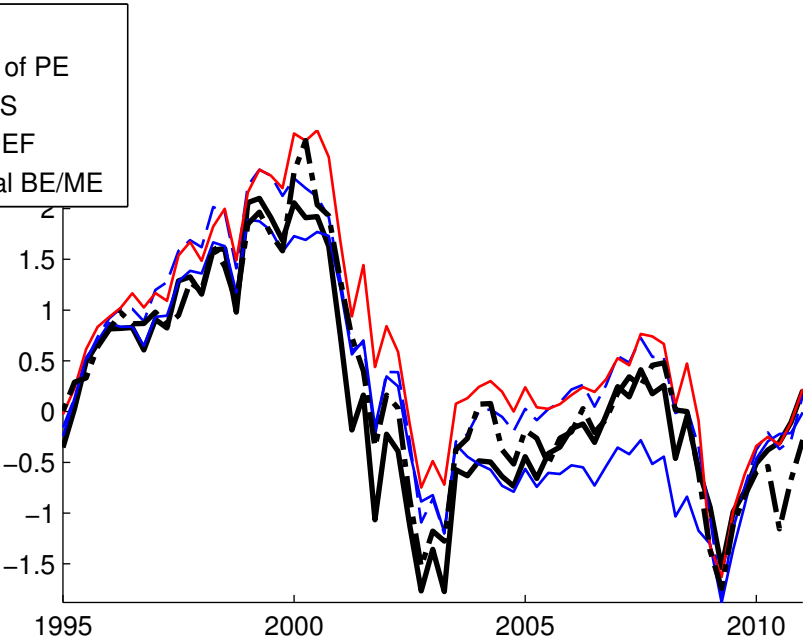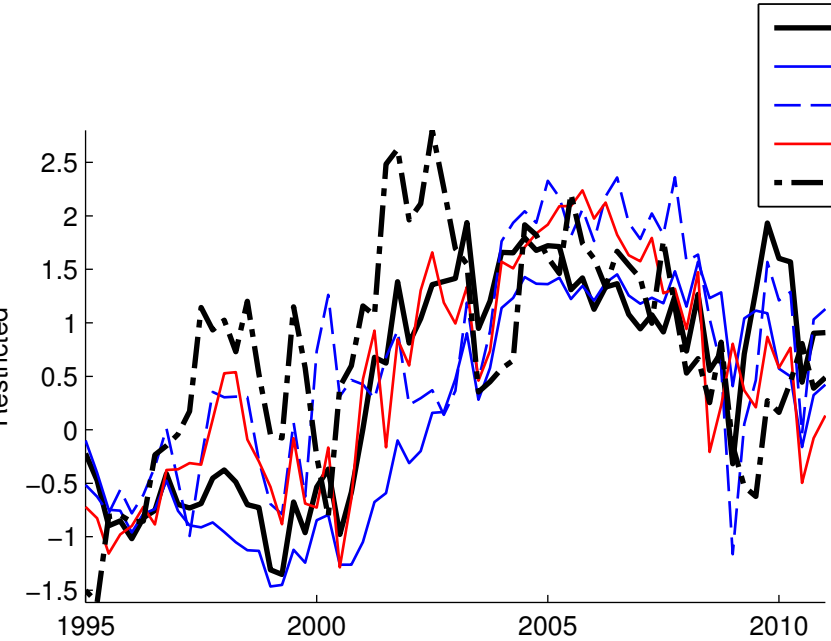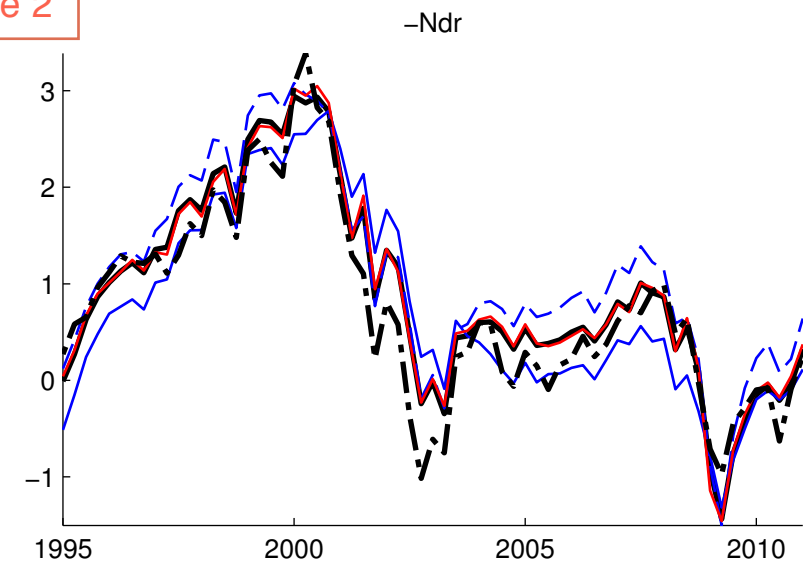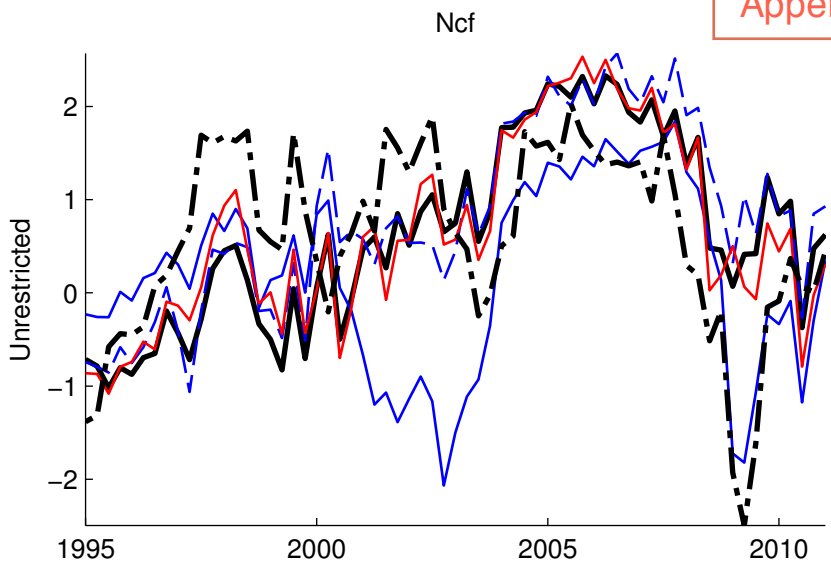
Appendix Figure 1

Appendix Figure 2

Appendix Figure 3
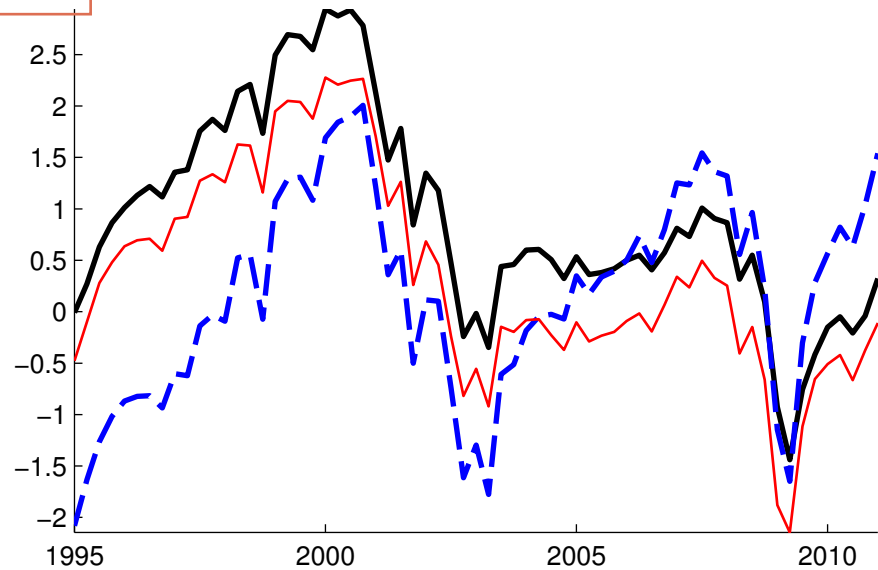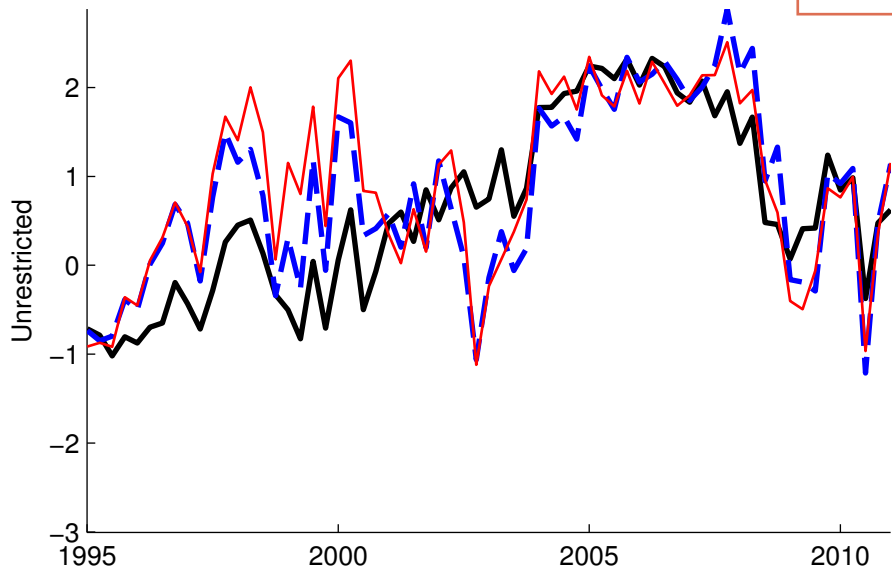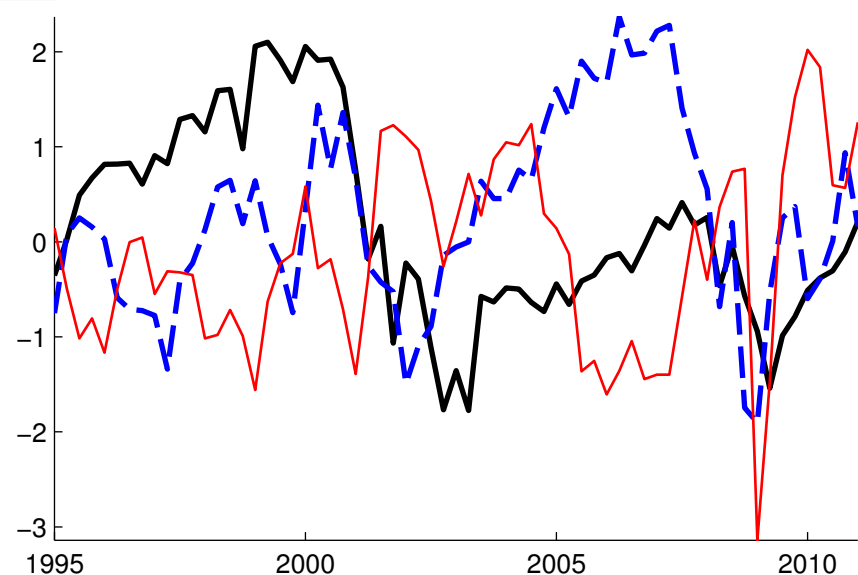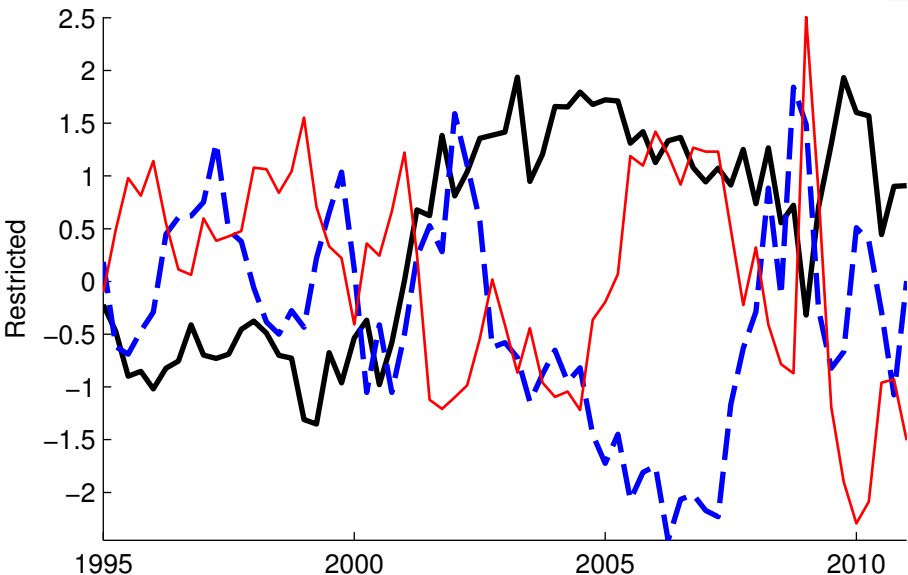
Appendix Table 1 - Maximum Eigenvalue 0.98

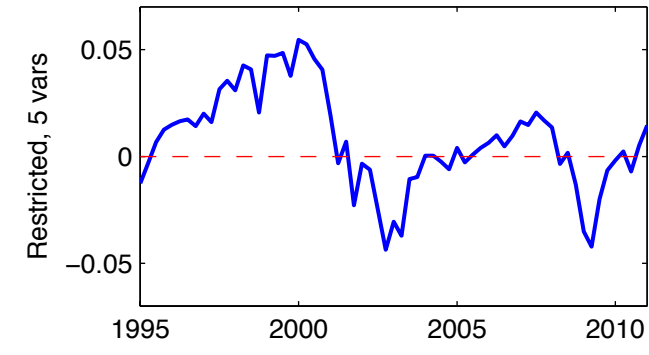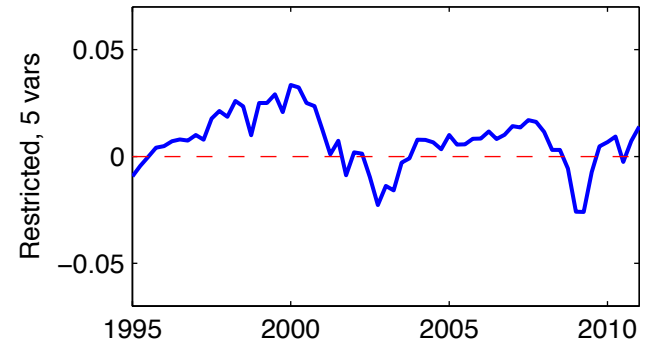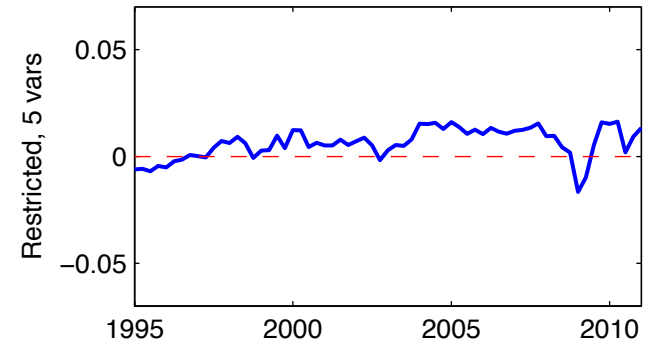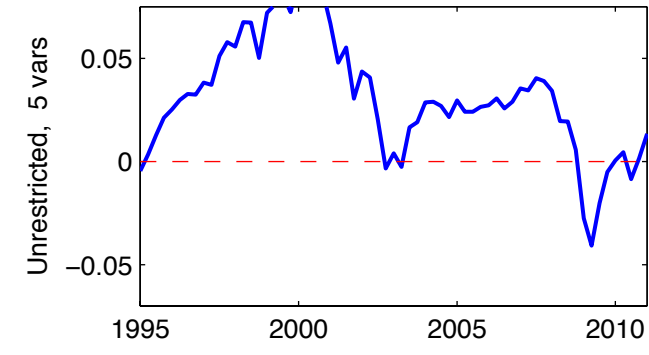| VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.075	-0.038	0.005	0.000	-0.029	-0.003
	(0.084)	(0.017)	(0.007)	(0.025)	(0.025)	
PE	0.161	0.988	0.002	0.003	-0.011	0.930
	(0.087)	(0.015)	(0.006)	(0.024)	(0.025)	
TY	-0.080	0.055	0.805	0.022	0.166	0.713
	(0.300)	(0.096)	(0.048)	(0.111)	(0.087)	
VS	0.018	0.020	-0.007	0.943	0.033	0.943
	(0.066)	(0.017)	(0.005)	(0.017)	(0.014)	
DEF	-0.527	-0.030	-0.012	0.058	0.926	0.810
	(0.355)	(0.038)	(0.017)	(0.065)	(0.089)	
Error to Ncf	0.942	-1.345	0.028	-0.204	-0.178	
Error to -Ndr	0.058	1.345	-0.028	0.204	0.178	
Structural Error to Ncf	0.006	-0.037	0.015	-0.033	-0.039	
Structural Error to -Ndr	0.103	0.037	-0.015	0.033	0.039	

News terms corr/std	Ncf	-Ndr		Gamma	15.000
Ncf	0.065	-0.451			
-Ndr	-0.451	0.121		J-stat p-value	0.004

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.241	0.281	0.352	0.122	0.213	0.337	
Discount Rate	1.056	1.022	1.147	0.779	0.856	1.027	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.006	0.017	0.028	-0.008	0.008	0.025	0.017
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.000	-0.002	-0.007	0.007	-0.006	-0.014	0.000

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.276	-0.149	-0.101	-0.238	-0.131	-0.107	
Discount Rate	1.708	1.259	1.168	1.243	0.969	0.975	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.023	0.033	0.054	-0.013	0.012	0.048	0.060
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.010	-0.017	-0.028	0.011	-0.009	-0.031	-0.035

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.291	-0.159	-0.112	-0.247	-0.134	-0.114	
Discount Rate	1.720	1.258	1.166	1.251	0.973	0.972	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.006	0.005	0.010	-0.005	0.005	0.008	-0.013
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.007	0.008	0.009	0.004	-0.004	-0.002	0.026

Note: the table reproduces the estimation in Table 4, but imposing the restriction that the largest eigenvalue of the transition matrix is at most 0.98 instead of 0.99.

Appendix Table 2 - Upper bound on gamma (50)

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	-0.045	-0.051	0.004	-0.027	0.000	0.038
	(0.073)	(0.018)	(0.007)	(0.024)	(0.026)	
PE	0.047	0.971	0.003	-0.019	0.004	0.933
	(0.080)	(0.015)	(0.007)	(0.022)	(0.026)	
TY	0.154	0.069	0.783	0.046	0.192	0.714
	(0.291)	(0.098)	(0.048)	(0.111)	(0.085)	
VS	0.072	0.010	-0.004	0.953	0.021	0.943
	(0.060)	(0.018)	(0.005)	(0.019)	(0.014)	
DEF	-0.182	-0.013	0.004	0.129	0.849	0.817
	(0.327)	(0.041)	(0.018)	(0.067)	(0.091)	
Error to Ncf	0.907	-1.105	0.004	-0.135	-0.041	
Error to -Ndr	0.093	1.105	-0.004	0.135	0.041	
Structural Error to Ncf	0.002	-0.040	0.003	-0.015	-0.009	
Structural Error to -Ndr	0.104	0.040	-0.003	0.015	0.009	

News terms corr/std	Ncf	-Ndr		Gamma	50.000
Ncf	0.044	-0.335			
-Ndr	-0.335	0.113		J-stat p-value	0.175

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.013	0.036	0.051	-0.005	0.021	0.048	
Discount Rate	1.330	1.197	1.289	0.960	0.980	1.143	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.004	0.015	0.024	-0.011	0.004	0.021	0.019
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.003	0.000	-0.003	0.009	-0.002	-0.011	-0.001

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.065	0.082	0.099	0.036	0.051	0.106	
Discount Rate	1.263	1.258	1.436	0.910	1.073	1.311	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.012	0.026	0.043	-0.017	-0.003	0.046	0.062
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.001	-0.010	-0.017	0.015	0.007	-0.029	-0.037

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.067	-0.033	-0.021	-0.066	-0.022	-0.038	
Discount Rate	1.434	1.101	1.059	1.035	0.836	0.884	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.003	0.008	0.012	-0.006	0.010	0.004	-0.012
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.005	0.006	0.007	0.005	-0.009	0.002	0.025

Note: the table reproduces the estimation in Table 4, but imposes that the risk aversion parameter Gamma is not greater than 50 (as opposed to 15 in Table 4).

Appendix Table 3 - Upper bound on gamma (200)

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	-0.032	-0.056	0.006	-0.027	-0.004	0.039
	(0.074)	(0.017)	(0.007)	(0.024)	(0.026)	
PE	0.052	0.967	0.005	-0.021	0.000	0.933
	(0.080)	(0.016)	(0.006)	(0.022)	(0.025)	
TY	0.115	0.080	0.785	0.052	0.204	0.714
	(0.288)	(0.097)	(0.048)	(0.109)	(0.085)	
VS	0.064	0.008	-0.004	0.949	0.024	0.943
	(0.060)	(0.018)	(0.005)	(0.019)	(0.014)	
DEF	-0.236	-0.014	0.008	0.121	0.856	0.817
	(0.328)	(0.041)	(0.018)	(0.068)	(0.089)	
Error to Ncf	0.917	-1.126	-0.003	-0.083	-0.041	
Error to -Ndr	0.083	1.126	0.003	0.083	0.041	
Structural Error to Ncf	0.001	-0.041	-0.002	-0.011	-0.009	
Structural Error to -Ndr	0.105	0.041	0.002	0.011	0.009	

News terms corr/std	Ncf	-Ndr		Gamma	200.000
Ncf	0.044	-0.352			
-Ndr	-0.352	0.114		J-stat p-value	0.357

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.005	0.016	0.020	-0.007	0.006	0.022	
Discount Rate	1.341	1.220	1.322	0.963	0.995	1.172	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.003	0.027	0.037	-0.028	0.002	0.039	0.023
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.004	-0.012	-0.015	0.027	0.000	-0.028	-0.005

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.037	0.050	0.058	0.021	0.025	0.069	
Discount Rate	1.296	1.295	1.484	0.926	1.100	1.353	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.008	0.050	0.078	-0.052	-0.036	0.112	0.136
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.005	-0.034	-0.052	0.049	0.039	-0.094	-0.112

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.045	-0.034	-0.035	-0.049	-0.022	-0.050	
Discount Rate	1.411	1.102	1.071	1.018	0.833	0.893	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.003	0.012	0.010	-0.012	0.029	-0.013	-0.056
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.005	0.002	0.008	0.011	-0.029	0.019	0.069

Note: the table reproduces the estimation in Table 4, but imposes that the risk aversion parameter Gamma is not greater than 200 (as opposed to 15 in Table 4).

Appendix Table 4 - Alternative equity premium constraint

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.094	-0.036	0.005	0.004	-0.036	-0.023
	(0.084)	(0.017)	(0.007)	(0.025)	(0.025)	
PE	0.184	0.990	0.002	0.007	-0.019	0.928
	(0.087)	(0.015)	(0.006)	(0.024)	(0.025)	
TY	-0.055	0.051	0.803	0.021	0.172	0.713
	(0.300)	(0.096)	(0.048)	(0.111)	(0.087)	
VS	0.002	0.021	-0.007	0.942	0.037	0.943
	(0.066)	(0.017)	(0.005)	(0.017)	(0.014)	
DEF	-0.639	-0.027	-0.012	0.042	0.958	0.803
	(0.361)	(0.038)	(0.017)	(0.065)	(0.087)	
Error to Ncf	0.959	-1.392	0.028	-0.199	-0.197	
Error to -Ndr	0.041	1.392	-0.028	0.199	0.197	
Structural Error to Ncf	0.007	-0.036	0.015	-0.034	-0.043	
Structural Error to -Ndr	0.103	0.036	-0.015	0.034	0.043	

News terms corr/std	Ncf	-Ndr		Gamma	15.000
Ncf	0.068	-0.463			
-Ndr	-0.463	0.123		J-stat p-value	0.004

Betas		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.052	0.125	0.190	-0.012	0.089	0.179
Discount Rate	1.280	1.091	1.132	0.938	0.879	0.983

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.007	0.018	0.030	-0.009	0.009	0.026	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.001	-0.003	-0.008	0.007	-0.007	-0.016	0.000

Betas (early sample)		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.255	0.297	0.372	0.130	0.226	0.354
Discount Rate	1.021	0.984	1.103	0.753	0.821	0.984

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.025	0.036	0.058	-0.014	0.013	0.052	0.063
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.012	-0.020	-0.032	0.012	-0.010	-0.034	-0.038

Betas (late sample)		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.255	0.297	0.372	0.130	0.226	0.354
Discount Rate	1.021	0.984	1.103	0.753	0.821	0.984

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.006	0.005	0.010	-0.005	0.005	0.008	-0.014
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.008	0.009	0.009	0.004	-0.005	-0.002	0.027

Note: the table reproduces the estimation in Table 4, but imposing the restriction on the equity premium deriving the predicted value in terms of discount rate and cash flow betas as opposed to the representation in terms of expectations.

Appendix Table 5 - Equity premium as moment condition

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.125	-0.057	0.012	-0.004	-0.051	-0.048
	(0.080)	(0.017)	(0.006)	(0.022)	(0.020)	
PE	0.215	0.963	0.010	0.001	-0.035	0.927
	(0.085)	(0.016)	(0.006)	(0.021)	(0.019)	
TY	-0.062	0.036	0.783	0.009	0.184	0.713
	(0.286)	(0.097)	(0.047)	(0.110)	(0.082)	
VS	-0.041	0.017	-0.004	0.939	0.042	0.941
	(0.067)	(0.018)	(0.005)	(0.017)	(0.011)	
DEF	-0.837	-0.010	-0.015	0.040	0.983	0.793
	(0.359)	(0.032)	(0.016)	(0.044)	(0.062)	
Error to Ncf	1.603	-1.803	0.075	-0.592	-0.931	
Error to -Ndr	-0.603	1.803	-0.075	0.592	0.931	
Structural Error to Ncf	0.173	0.023	0.039	-0.135	-0.205	
Structural Error to -Ndr	-0.062	-0.023	-0.039	0.135	0.205	

News terms corr/std	Ncf	-Ndr		Gamma	4.994	
Ncf	0.304	-0.935				
-Ndr	-0.935	0.257		J-stat p-value	0.044	

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	1.806	1.991	2.448	1.074	1.603	2.216	
Discount Rate	-0.512	-0.808	-1.164	-0.180	-0.667	-1.086	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.028	0.036	0.060	-0.013	0.014	0.047	0.077
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.022	-0.021	-0.038	0.011	-0.012	-0.036	-0.059

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	2.705	2.879	3.498	1.676	2.368	3.190	
Discount Rate	-1.466	-1.633	-2.065	-0.827	-1.357	-1.891	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.062	0.075	0.125	-0.022	0.033	0.100	0.164
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.049	-0.059	-0.099	0.020	-0.029	-0.082	-0.139

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.242	0.456	0.632	0.031	0.277	0.526	
Discount Rate	1.147	0.617	0.392	0.942	0.529	0.310	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.004	0.008	0.014	-0.006	0.001	0.009	0.014
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	-0.002	0.005	0.005	0.005	0.000	-0.003	-0.001

Note: the table reproduces the estimation in Table 4, but uses the market excess return as a moment condition as opposed to a constraint in the GMM estimation.

Appendix Table 6 - Separate moment conditions for early and late samples

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	-0.016	-0.028	0.010	-0.006	-0.023	0.014
	(0.073)	(0.016)	(0.006)	(0.025)	(0.026)	
PE	0.066	0.990	0.006	-0.005	-0.008	0.931
	(0.074)	(0.015)	(0.006)	(0.024)	(0.026)	
TY	-0.051	0.026	0.992	-0.071	0.063	0.676
	(0.290)	(0.039)	(0.011)	(0.059)	(0.049)	
VS	0.070	0.016	-0.013	0.947	0.037	0.943
	(0.059)	(0.018)	(0.005)	(0.019)	(0.015)	
DEF	-0.189	-0.040	-0.016	0.090	0.908	0.813
	(0.302)	(0.039)	(0.015)	(0.070)	(0.096)	
Error to Ncf	0.861	-0.881	0.542	-0.595	-0.004	
Error to -Ndr	0.139	0.881	-0.542	0.595	0.004	
Structural Error to Ncf	0.013	-0.028	0.327	-0.052	-0.001	
Structural Error to -Ndr	0.094	0.028	-0.327	0.052	0.001	

News terms corr/std	Ncf	-Ndr		Gamma	7.845
Ncf	0.332	-0.950			
-Ndr	-0.950	0.345		J-stat p-value	0.026

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.248	0.450	0.561	-0.075	0.138	0.432	
Discount Rate	1.115	0.794	0.790	1.028	0.860	0.764	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.020	0.034	0.044	-0.011	0.007	0.032	0.016
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.013	-0.020	-0.023	0.009	-0.005	-0.022	0.002

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.421	0.499	0.535	0.072	0.274	0.490	
Discount Rate	0.899	0.827	0.986	0.850	0.821	0.901	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.035	0.045	0.052	-0.013	0.014	0.045	0.037
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.022	-0.028	-0.026	0.011	-0.010	-0.027	-0.013

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.036	0.374	0.610	-0.314	-0.081	0.341	
Discount Rate	1.469	0.739	0.467	1.320	0.925	0.539	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.008	0.027	0.039	-0.009	0.002	0.024	0.001
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	-0.007	-0.014	-0.020	0.008	-0.001	-0.018	0.012

Note: the table reproduces the estimation in Table 4, but imposes separately the ICAPM moment conditions constraints for the early and late samples.

Appendix Table 7 - Separate moment conditions for early and late samples, incl. equity premium

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.175	-0.043	0.018	0.031	-0.099	-0.294
	(0.091)	(0.017)	(0.007)	(0.030)	(0.035)	
PE	-0.578	1.064	-0.039	-0.212	0.399	0.564
	(0.193)	(0.041)	(0.016)	(0.060)	(0.085)	
TY	-0.677	0.078	0.969	-0.166	0.269	0.672
	(0.349)	(0.041)	(0.013)	(0.061)	(0.080)	
VS	0.253	-0.012	-0.001	1.007	-0.068	0.919
	(0.075)	(0.021)	(0.005)	(0.022)	(0.020)	
DEF	-0.114	-0.052	0.011	0.065	0.844	0.814
	(0.280)	(0.040)	(0.015)	(0.061)	(0.084)	
Error to Ncf	0.656	-0.248	0.565	-0.777	0.246	
Error to -Ndr	0.344	0.248	-0.565	0.777	-0.246	
Structural Error to Ncf	0.010	-0.008	0.341	-0.047	0.057	
Structural Error to -Ndr	0.112	0.008	-0.341	0.047	-0.057	

News terms corr/std	Ncf	-Ndr		Gamma	10.869
Ncf	0.349	-0.942			
-Ndr	-0.942	0.367		J-stat p-value	0.000

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.152	0.295	0.360	-0.056	0.064	0.255	
Discount Rate	0.965	0.720	0.741	0.809	0.722	0.704	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.024	0.043	0.054	-0.013	0.005	0.037	0.016
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.017	-0.029	-0.033	0.011	-0.003	-0.026	0.002

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.146	0.185	0.169	-0.030	0.054	0.151	
Discount Rate	0.896	0.857	1.031	0.722	0.769	0.920	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.037	0.046	0.046	-0.013	0.010	0.039	0.022
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.024	-0.030	-0.020	0.011	-0.006	-0.021	0.003

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.162	0.509	0.729	-0.104	0.084	0.455	
Discount Rate	1.099	0.458	0.184	0.975	0.633	0.290	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.014	0.042	0.061	-0.013	0.002	0.035	0.012
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	-0.012	-0.028	-0.042	0.012	-0.001	-0.029	0.001

Note: the table reproduces the estimation in Table 4, but imposes separately the ICAPM moment conditions constraints for the early and late samples. In addition, it imposes that the equity premium is matched exactly in both subperiods.

Appendix Table 8 - Using PD instead of PE

VAR estimate	Rm	PD	TY	VS	DEF	R squared
Rm	0.052	-0.018	0.004	-0.022	-0.008	0.004
	(0.081)	(0.012)	(0.007)	(0.025)	(0.027)	
PD	0.071	1.004	-0.002	-0.028	0.017	0.947
	(0.064)	(0.011)	(0.007)	(0.022)	(0.026)	
TY	-0.057	0.060	0.793	0.000	0.184	0.714
	(0.287)	(0.065)	(0.047)	(0.115)	(0.091)	
VS	0.005	0.014	-0.007	0.962	0.021	0.943
	(0.062)	(0.014)	(0.005)	(0.019)	(0.013)	
DEF	-0.491	-0.021	-0.006	0.120	0.880	0.814
	(0.341)	(0.027)	(0.017)	(0.067)	(0.089)	
Error to Ncf	1.050	-1.557	0.044	-0.126	-0.222	
Error to -Ndr	-0.050	1.557	-0.044	0.126	0.222	
Structural Error to Ncf	0.007	-0.085	0.024	-0.032	-0.052	
Structural Error to -Ndr	0.101	0.085	-0.024	0.032	0.052	

News terms corr/std	Ncf	-Ndr		Gamma	15.000	
Ncf	0.108	-0.681				
-Ndr	-0.681	0.148		J-stat p-value	0.005	

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.088	0.185	0.293	-0.046	0.136	0.266	
Discount Rate	1.266	1.053	1.053	0.994	0.859	0.922	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.012	0.027	0.046	-0.014	0.016	0.040	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.006	-0.012	-0.024	0.013	-0.014	-0.029	0.000

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.333	0.423	0.573	0.109	0.335	0.525	
Discount Rate	0.969	0.886	0.930	0.802	0.746	0.843	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.036	0.058	0.099	-0.026	0.033	0.085	0.069
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.023	-0.042	-0.073	0.024	-0.029	-0.067	-0.045

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.327	-0.216	-0.180	-0.308	-0.202	-0.175	
Discount Rate	1.773	1.341	1.267	1.323	1.055	1.060	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.004	0.005	0.008	-0.006	0.004	0.007	-0.019
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.006	0.009	0.010	0.005	-0.003	-0.001	0.032

Note: the table reproduces the estimation in Table 4, but uses the price-dividend ratio PD in the VAR in place of the price-earnings ratio PE.

Appendix Table 9 - Dropping the Value Spread from the VAR

VAR estimate	Rm	PE	TY	DEF	R squared
Rm	-0.098	-0.037	0.006	-0.015	0.023
	(0.067)	(0.017)	(0.007)	(0.019)	
PE	-0.007	0.986	0.004	0.001	0.932
	(0.074)	(0.016)	(0.006)	(0.019)	
TY	0.020	0.129	0.800	0.190	0.712
	(0.292)	(0.099)	(0.049)	(0.068)	
DEF	0.020	-0.041	0.001	0.899	0.812
	(0.300)	(0.040)	(0.017)	(0.069)	
Error to Ncf	0.916	-1.050	0.004	-0.126	
Error to -Ndr	0.084	1.050	-0.004	0.126	
Structural Error to Ncf	0.021	-0.031	0.002	-0.029	
Structural Error to -Ndr	0.086	0.031	-0.002	0.029	

News terms corr/std	Ncf	-Ndr		Gamma	3.980
Ncf	0.048	0.002			
-Ndr	0.002	0.096		J-stat p-value	0.000

Betas		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.265	0.263	0.296	0.161	0.205	0.272
Discount Rate	1.087	0.974	1.046	0.794	0.795	0.920

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.007	0.005	0.008	-0.001	0.001	0.005	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.000	0.010	0.014	0.000	0.001	0.006	0.000

Betas (early sample)		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.347	0.366	0.423	0.223	0.292	0.406
Discount Rate	0.977	0.963	1.099	0.714	0.817	0.997

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.009	0.011	0.017	-0.003	0.003	0.014	0.030
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.003	0.006	0.009	0.001	0.001	0.004	-0.005

Betas (late sample)		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.138	0.105	0.102	0.067	0.071	0.065
Discount Rate	1.259	0.986	0.959	0.918	0.758	0.798

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.005	0.002	0.001	0.000	-0.001	-0.001	0.009
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	-0.003	0.012	0.017	-0.001	0.002	0.007	0.004

Note: the table reproduces the estimation in Table 4, but excluding the Value Spread from the set of variables in the VAR.

Appendix Table 10 - Dropping the Default Spread from the VAR

VAR estimate	Rm	PE	TY	VS	R squared
Rm	-0.082	-0.048	0.007	-0.032	0.035
	(0.076)	(0.023)	(0.006)	(0.019)	
PE	0.006	0.966	0.006	-0.016	0.932
	(0.085)	(0.022)	(0.006)	(0.018)	
TY	0.019	-0.035	0.810	0.190	0.707
	(0.290)	(0.118)	(0.045)	(0.087)	
VS	0.076	0.008	-0.003	0.978	0.942
	(0.061)	(0.014)	(0.005)	(0.014)	
Error to Ncf	0.896	-0.995	0.007	-0.341	
Error to -Ndr	0.104	0.995	-0.007	0.341	
Structural Error to Ncf	0.006	-0.038	0.004	-0.030	
Structural Error to -Ndr	0.101	0.038	-0.004	0.030	

News terms corr/std	Ncf	-Ndr		Gamma	15.000
Ncf	0.049	-0.324			
-Ndr	-0.324	0.112		J-stat p-value	0.012

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.029	0.082	0.129	0.012	0.065	0.114	
Discount Rate	1.307	1.144	1.203	0.938	0.932	1.072	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.002	0.009	0.018	-0.005	0.004	0.014	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.005	0.006	0.004	0.004	-0.002	-0.003	0.000

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.119	0.144	0.191	0.075	0.104	0.183	
Discount Rate	1.204	1.190	1.336	0.867	1.016	1.229	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.009	0.015	0.029	-0.008	0.002	0.025	0.040
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.004	0.002	-0.003	0.005	0.002	-0.007	-0.016

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.108	-0.010	0.037	-0.082	0.008	0.011	
Discount Rate	1.463	1.071	0.997	1.044	0.801	0.832	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.003	0.005	0.010	-0.003	0.005	0.006	0.002
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.005	0.009	0.009	0.003	-0.004	0.000	0.011

Note: the table reproduces the estimation in Table 4, but excluding the Default Spread from the set of variables in the VAR.

Appendix Table 11 - Using nonfinancial BE/ME instead of PE

VAR estimate	Rm	PD	TY	VS	DEF	R squared
Rm	-0.090	0.029	0.011	-0.051	0.012	0.019
	(0.068)	(0.013)	(0.007)	(0.024)	(0.023)	
PD	0.076	0.983	-0.010	0.044	-0.020	0.942
	(0.069)	(0.014)	(0.007)	(0.026)	(0.024)	
TY	-0.010	-0.095	0.799	0.071	0.174	0.713
	(0.276)	(0.074)	(0.046)	(0.120)	(0.087)	
VS	0.087	-0.010	-0.004	0.962	0.007	0.943
	(0.063)	(0.015)	(0.005)	(0.020)	(0.012)	
DEF	0.103	0.057	-0.003	0.165	0.754	0.808
	(0.305)	(0.033)	(0.016)	(0.059)	(0.066)	
Error to Ncf	0.964	0.949	0.010	-0.222	-0.027	
Error to -Ndr	0.036	-0.949	-0.010	0.222	0.027	
Structural Error to Ncf	0.006	0.032	0.006	-0.021	-0.006	
Structural Error to -Ndr	0.102	-0.032	-0.006	0.021	0.006	

News terms corr/std	Ncf	-Ndr		Gamma	15.000
Ncf	0.040	-0.217			
-Ndr	-0.217	0.109		J-stat p-value	0.017

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.041	0.089	0.143	0.018	0.066	0.116	
Discount Rate	1.276	1.121	1.171	0.921	0.920	1.058	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.004	0.010	0.020	-0.004	0.004	0.014	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.003	0.005	0.001	0.003	-0.002	-0.004	0.000

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.118	0.136	0.195	0.072	0.118	0.172	
Discount Rate	1.178	1.173	1.301	0.855	0.984	1.212	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.010	0.015	0.032	-0.007	0.007	0.025	0.039
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.003	0.002	-0.006	0.004	-0.004	-0.007	-0.015

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.079	0.017	0.064	-0.065	-0.014	0.030	
Discount Rate	1.431	1.044	0.972	1.026	0.823	0.821	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.001	0.007	0.012	-0.003	0.002	0.007	0.003
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.003	0.007	0.007	0.002	-0.001	-0.001	0.010

Note: the table reproduces the estimation in Table 4, but uses the BE/ME ratio of nonfinancial firms in the VAR in place of the price-earnings ratio PE.

Appendix Table 12 - Adding CAY - Unrestricted

VAR estimate	Rm	PE	TY	VS	DEF	CAY	R squared
Rm	0.113	-0.020	0.005	-0.061	0.007	0.882	0.068
	(0.065)	(0.021)	(0.006)	(0.047)	(0.017)	(0.351)	
PE	0.163	0.980	0.003	-0.034	0.012	0.893	0.953
	(0.057)	(0.019)	(0.005)	(0.041)	(0.015)	(0.310)	
TY	-0.536	-0.018	0.772	0.394	0.358	4.520	0.696
	(0.480)	(0.155)	(0.041)	(0.347)	(0.126)	(2.599)	
VS	-0.070	0.057	-0.010	0.724	0.036	0.711	0.664
	(0.063)	(0.020)	(0.005)	(0.046)	(0.017)	(0.342)	
DEF	-0.811	-0.044	-0.002	-0.015	0.844	-0.587	0.788
	(0.148)	(0.048)	(0.013)	(0.107)	(0.039)	(0.802)	
CAY	-0.002	-0.002	0.000	0.004	-0.002	0.914	0.841
	(0.005)	(0.002)	0.000	(0.004)	(0.001)	(0.029)	
Error to Ncf	0.996	-0.803	0.014	-0.069	-0.026	1.917	
Error to -Ndr	0.004	0.803	-0.014	0.069	0.026	-1.917	
Structural Error to Ncf	0.021	-0.018	0.009	-0.006	-0.004	0.012	
Structural Error to -Ndr	0.061	0.018	-0.009	0.006	0.004	-0.012	

News terms corr/std	Ncf	-Ndr			Gamma	8.560
Ncf	0.032	0.339				
-Ndr	0.339	0.066				

Betas		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.367	0.300	0.296	0.241	0.225	0.237
Discount Rate	1.027	0.798	0.775	0.762	0.615	0.681

		E[Ri-Rm]				E[Rm-Rf]
Predicted	0.009	0.003	0.003	0.000	-0.002	-0.001	0.019
Realized	0.001	0.012	0.017	0.000	0.001	0.007	0.015
Error	-0.007	0.009	0.014	0.000	0.004	0.008	-0.004

Note: the table reproduces the estimation in Table 3, but adds CAY to the set of variables in the VAR.

Appendix Table 13 - Adding CAY - Restricted

VAR estimate	Rm	PE	TY	VS	DEF	CAY	R squared
Rm	0.054	-0.003	0.005	-0.066	0.028	0.820	0.055
	(0.070)	(0.020)	(0.006)	(0.042)	(0.018)	(0.317)	
PE	0.097	0.996	0.001	-0.037	0.041	0.887	0.952
	(0.065)	(0.017)	(0.005)	(0.039)	(0.018)	(0.266)	
TY	-0.725	0.263	0.995	-0.393	0.060	3.528	0.633
	(0.557)	(0.131)	(0.042)	(0.285)	(0.146)	(2.034)	
VS	-0.026	0.045	-0.012	0.764	0.024	0.722	0.665
	(0.067)	(0.024)	(0.005)	(0.047)	(0.017)	(0.340)	
DEF	-0.976	0.000	0.005	0.005	0.937	-0.725	0.779
	(0.229)	(0.039)	(0.015)	(0.132)	(0.059)	(0.688)	
CAY	-0.004	-0.002	0.000	0.003	-0.002	0.933	0.840
	(0.005)	(0.002)	0.000	(0.004)	(0.001)	(0.023)	
Error to Ncf	0.178	1.822	0.464	-0.650	0.577	31.359	
Error to -Ndr	0.822	-1.822	-0.464	0.650	-0.577	-31.359	
Structural Error to Ncf	0.017	0.062	0.317	-0.036	0.113	0.189	
Structural Error to -Ndr	0.066	-0.062	-0.317	0.036	-0.113	-0.189	

News terms corr/std	Ncf	-Ndr			Gamma	6.944	
Ncf	0.393	-0.978					
-Ndr	-0.978	0.398			j p-value	0.005	

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.346	0.701	0.950	0.017	0.224	0.582	
Discount Rate	1.034	0.389	0.119	0.981	0.617	0.340	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.011	0.023	0.033	-0.005	0.002	0.017	0.013
Realized	0.001	0.012	0.017	0.000	0.001	0.007	0.015
Error	-0.009	-0.011	-0.016	0.005	-0.001	-0.010	0.003

Note: the table reproduces the estimation in Table 4, but adds CAY to the set of variables in the VAR.

Appendix Table 14 - Sample 1952-2010 - unrestricted

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.103	-0.027	0.009	-0.037	-0.005	0.042
	(0.065)	(0.021)	(0.005)	(0.046)	(0.016)	
PE	0.153	0.973	0.007	-0.010	0.000	0.952
	(0.058)	(0.019)	(0.005)	(0.041)	(0.015)	
TY	-0.585	-0.053	0.792	0.516	0.296	0.692
	(0.481)	(0.155)	(0.039)	(0.341)	(0.121)	
VS	-0.078	0.051	-0.006	0.743	0.026	0.657
	(0.063)	(0.020)	(0.005)	(0.045)	(0.016)	
DEF	-0.805	-0.039	-0.005	-0.031	0.852	0.788
	(0.148)	(0.047)	(0.012)	(0.105)	(0.037)	
Error to Ncf	0.985	-0.764	0.018	-0.070	-0.007	
Error to -Ndr	0.015	0.764	-0.018	0.070	0.007	
Structural Error to Ncf	0.028	-0.018	0.011	-0.006	-0.001	
Structural Error to -Ndr	0.055	0.018	-0.011	0.006	0.001	

News terms corr/std	Ncf	-Ndr		Gamma	6.587
Ncf	0.036	0.505			
-Ndr	0.505	0.059			

Betas		Small			Large	
	Growth	Neutral	Value	Growth	Neutral	Value
Cash Flow	0.476	0.383	0.374	0.326	0.290	0.305
Discount Rate	0.914	0.713	0.691	0.686	0.557	0.611

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.008	0.003	0.002	0.000	-0.003	-0.002	0.020
Realized	0.001	0.012	0.017	0.000	0.001	0.007	0.015
Error	-0.007	0.009	0.014	0.000	0.004	0.008	-0.004

Note: the table reproduces the estimation in Table 3, estimated over the sample 1952-2010.

Appendix Table 15 - Sample 1952-2010 - restricted

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	-0.599	-0.019	-0.029	0.285	0.380	-4.475
	(0.248)	(0.052)	(0.015)	(0.112)	(0.098)	
PE	2.172	1.008	0.095	-0.858	-1.006	-1.148
	(0.653)	(0.121)	(0.035)	(0.308)	(0.255)	
TY	-1.082	-0.037	0.950	0.223	0.222	0.668
	(0.566)	(0.106)	(0.049)	(0.220)	(0.149)	
VS	1.303	0.064	0.051	0.254	-0.664	-4.961
	(0.467)	(0.089)	(0.023)	(0.192)	(0.179)	
DEF	-0.197	0.038	-0.024	-0.140	0.987	0.761
	(0.220)	(0.037)	(0.011)	(0.106)	(0.055)	
Error to Ncf	2.401	5.093	-4.501	-8.295	11.481	
Error to -Ndr	-1.401	-5.093	4.501	8.295	-11.481	
Structural Error to Ncf	0.831	-0.356	-2.809	-0.220	2.204	
Structural Error to -Ndr	-0.640	0.356	2.809	0.220	-2.204	

News terms corr/std	Ncf	-Ndr		Gamma	6.708	
Ncf	3.690	-0.999				
-Ndr	-0.999	3.651		J-stat p-value	0.000	

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.511	-0.637	-0.858	0.407	0.336	-0.501	
Discount Rate	0.755	0.826	1.056	-0.215	-0.164	0.684	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.127	-0.156	-0.202	0.062	0.047	-0.128	0.030
Realized	0.001	0.012	0.017	0.000	0.001	0.007	0.015
Error	0.129	0.168	0.218	-0.063	-0.045	0.134	-0.014

Note: the table reproduces the estimation in Table 4, estimated over the sample 1952-2010.

Appendix Table 16 - Using CPI-deflated P and E

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.059	-0.037	0.008	0.022	-0.039	-0.020
	(0.075)	(0.014)	(0.007)	(0.025)	(0.026)	
PE	0.098	0.988	0.006	0.006	-0.011	0.937
	(0.077)	(0.013)	(0.006)	(0.023)	(0.024)	
TY	-0.185	-0.006	0.834	-0.004	0.194	0.709
	(0.298)	(0.092)	(0.048)	(0.099)	(0.085)	
VS	0.023	0.024	-0.011	0.928	0.062	0.940
	(0.058)	(0.015)	(0.006)	(0.020)	(0.015)	
DEF	-0.432	0.049	-0.040	-0.051	1.080	0.787
	(0.332)	(0.030)	(0.019)	(0.074)	(0.099)	
Error to Ncf	1.850	-8.030	0.522	2.071	-3.678	
Error to -Ndr	-0.850	8.030	-0.522	-2.071	3.678	
Structural Error to Ncf	0.069	-0.102	0.287	-0.204	-0.867	
Structural Error to -Ndr	0.040	0.102	-0.287	0.204	0.867	

News terms corr/std	Ncf	-Ndr		Gamma	4.179
Ncf	0.944	-0.993			
-Ndr	-0.993	0.942		J-stat p-value	0.001

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.602	1.154	1.649	-0.454	0.709	1.675	
Discount Rate	0.734	0.063	-0.329	1.382	0.260	-0.511	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.026	0.045	0.065	-0.020	0.025	0.064	0.013
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	-0.019	-0.030	-0.044	0.018	-0.023	-0.054	0.004

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	3.135	3.544	4.231	1.335	2.843	4.040	
Discount Rate	-1.850	-2.255	-2.750	-0.446	-1.789	-2.693	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.078	0.101	0.144	-0.033	0.057	0.131	0.125
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.065	-0.085	-0.118	0.030	-0.053	-0.113	-0.100

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-3.651	-2.840	-2.663	-3.449	-2.862	-2.285	
Discount Rate	5.070	3.935	3.714	4.442	3.688	3.141	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.012	0.005	0.009	-0.011	0.003	0.017	-0.067
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.014	0.008	0.009	0.010	-0.002	-0.011	0.080

Note: the table reproduces the estimation in Table 4, but uses the CPI to deflate the series of P and E before constructing the PE ratio.

Appendix Table 17 - Using CPI-deflated P and E and inflation

VAR estimate	Rm	PE	TY	VS	DEF	CPI	R squared
Rm	-0.001	-0.024	0.009	-0.040	0.004	-0.013	0.028
	(0.070)	(0.016)	(0.006)	(0.043)	(0.026)	(0.023)	
PE	0.100	0.983	0.009	-0.016	-0.004	0.013	0.938
	(0.072)	(0.014)	(0.006)	(0.037)	(0.023)	(0.019)	
TY	0.108	0.058	0.793	0.303	0.102	0.201	0.714
	(0.289)	(0.093)	(0.051)	(0.203)	(0.081)	(0.160)	
VS	-0.012	0.039	-0.004	0.905	0.037	-0.036	0.944
	(0.060)	(0.015)	(0.005)	(0.029)	(0.013)	(0.018)	
Def	-0.444	0.039	-0.021	-0.141	1.059	-0.121	0.789
	(0.287)	(0.035)	(0.017)	(0.095)	(0.062)	(0.060)	
CPI	0.017	-0.016	-0.006	0.013	-0.002	0.997	0.998
	(0.019)	(0.004)	(0.001)	(0.007)	(0.005)	(0.004)	
Error to Ncf	0.824	-0.436	0.036	-0.654	0.282	-1.209	
Error to -Ndr	0.176	0.436	-0.036	0.654	-0.282	1.209	
Structural Error to Ncf	0.006	-0.036	0.018	-0.030	0.073	-0.027	
Structural Error to -Ndr	0.101	0.036	-0.018	0.030	-0.073	0.027	

News terms corr/std	Ncf	-Ndr			Gamma	15.000	
Ncf	0.093	-0.626					
-Ndr	-0.626	0.137			J-stat p-value	0.001	

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.005	0.058	0.090	0.045	0.035	0.050	
Discount Rate	1.349	1.184	1.259	0.914	0.972	1.151	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.003	0.004	0.010	-0.001	-0.002	0.002	0.019
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.010	0.011	0.011	0.000	0.004	0.008	-0.002

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.078	-0.073	-0.069	-0.021	-0.091	-0.074	
Discount Rate	1.395	1.403	1.593	0.955	1.201	1.475	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.007	-0.006	-0.002	0.000	-0.014	-0.005	0.011
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.020	0.022	0.027	-0.002	0.017	0.022	0.014

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.140	0.267	0.344	0.149	0.236	0.249	
Discount Rate	1.274	0.836	0.726	0.852	0.604	0.629	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.000	0.011	0.019	-0.002	0.006	0.007	0.025
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.002	0.003	0.000	0.001	-0.005	-0.001	-0.013

Note: the table reproduces the estimation in Table 4, but uses the CPI to deflate the series of P and E before constructing the PE ratio. It also includes a measure of smoothed inflation to the VAR.

Appendix Table 18 - Using Tbill-deflated P and E

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	0.100	-0.045	0.004	0.010	-0.037	-0.025
	(0.081)	(0.018)	(0.007)	(0.025)	(0.028)	
PE	0.166	0.977	0.005	0.013	-0.018	0.930
	(0.084)	(0.016)	(0.007)	(0.024)	(0.026)	
TY	-0.225	0.072	0.799	0.018	0.236	0.711
	(0.301)	(0.116)	(0.048)	(0.097)	(0.086)	
VS	0.009	0.035	-0.006	0.928	0.060	0.941
	(0.061)	(0.017)	(0.005)	(0.018)	(0.015)	
DEF	-0.583	0.026	-0.008	0.030	0.984	0.802
	(0.347)	(0.042)	(0.017)	(0.065)	(0.089)	
Error to Ncf	1.267	-3.133	0.016	-0.752	-1.157	
Error to -Ndr	-0.267	3.133	-0.016	0.752	1.157	
Structural Error to Ncf	0.044	-0.024	-0.002	-0.176	-0.254	
Structural Error to -Ndr	0.066	0.024	0.002	0.176	0.254	

News terms corr/std	Ncf	-Ndr		Gamma	3.270
Ncf	0.313	-0.940			
-Ndr	-0.940	0.317		J-stat p-value	0.001

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.263	0.654	1.058	-0.025	0.556	1.019	
Discount Rate	1.066	0.558	0.259	0.948	0.408	0.139	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.006	0.015	0.027	-0.007	0.009	0.024	0.018
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.001	0.000	-0.005	0.006	-0.007	-0.013	0.000

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	1.505	1.712	2.202	0.808	1.411	2.035	
Discount Rate	-0.223	-0.426	-0.720	0.079	-0.359	-0.689	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.024	0.033	0.057	-0.011	0.016	0.047	0.061
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	-0.011	-0.017	-0.031	0.009	-0.013	-0.030	-0.036

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-1.827	-1.115	-0.852	-1.422	-0.875	-0.683	
Discount Rate	3.238	2.204	1.895	2.406	1.692	1.527	

			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.008	0.002	0.006	-0.004	0.004	0.008	-0.013
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.010	0.012	0.012	0.003	-0.003	-0.002	0.026

Note: the table reproduces the estimation in Table 4, but uses the three month T-bill index to deflate the series of P and E before constructing the PE ratio.

Appendix Table 19 - Using real returns instead of excess returns in the VAR

VAR estimate	Rm	PE	TY	VS	DEF	R squared
Rm	-0.060	-0.033	0.008	-0.045	0.001	0.034
	(0.069)	(0.017)	(0.007)	(0.025)	(0.028)	
PE	0.040	0.974	0.006	-0.020	-0.008	0.932
	(0.077)	(0.016)	(0.007)	(0.024)	(0.028)	
TY	0.192	0.049	0.783	0.020	0.185	0.713
	(0.291)	(0.098)	(0.047)	(0.111)	(0.082)	
VS	0.061	0.016	-0.005	0.972	0.017	0.943
	(0.060)	(0.015)	(0.005)	(0.018)	(0.014)	
DEF	-0.194	-0.009	-0.009	0.087	0.932	0.812
	(0.317)	(0.043)	(0.018)	(0.072)	(0.102)	
Error to Ncf	0.881	-0.916	0.012	-0.416	0.044	
Error to -Ndr	0.119	0.916	-0.012	0.416	-0.044	
Structural Error to Ncf	0.005	-0.041	0.008	-0.032	0.010	
Structural Error to -Ndr	0.101	0.041	-0.008	0.032	-0.010	

News terms corr/std	Ncf	-Ndr		Gamma	15.000
Ncf	0.054	-0.377			
-Ndr	-0.377	0.114		J-stat p-value	0.039

Betas		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.003	0.064	0.109	0.003	0.045	0.090	
Discount Rate	1.341	1.169	1.227	0.953	0.948	1.095	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.000	0.008	0.017	-0.004	0.003	0.012	0.016
Realized	0.006	0.015	0.022	-0.002	0.002	0.011	0.018
Error	0.006	0.006	0.005	0.003	-0.001	-0.001	0.002

Betas (early sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	0.073	0.096	0.134	0.045	0.053	0.123	
Discount Rate	1.259	1.245	1.397	0.896	1.056	1.281	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	0.007	0.012	0.024	-0.006	-0.002	0.019	0.032
Realized	0.013	0.016	0.026	-0.002	0.004	0.017	0.025
Error	0.006	0.004	0.002	0.004	0.005	-0.002	-0.007

Betas (late sample)		Small			Large		
	Growth	Neutral	Value	Growth	Neutral	Value	
Cash Flow	-0.102	0.017	0.072	-0.060	0.034	0.042	
Discount Rate	1.468	1.057	0.972	1.041	0.787	0.814	
			E[Ri-Rm]				E[Rm-Rf]
Predicted	-0.005	0.006	0.012	-0.003	0.006	0.007	0.004
Realized	0.002	0.014	0.019	-0.001	0.001	0.006	0.013
Error	0.006	0.008	0.007	0.002	-0.005	-0.001	0.009

Note: the table reproduces the estimation in Table 4, but replaces the excess market return with the real market return.