Online Appendix: Uncovering Financial Constraints

June 28, 2022

This online appendix contains additional results.

Table 1: **Equity Recycling by Financial Constraint Classification [Debt Constraint Classifications]**
This table examines the difference in equity recycling behavior between the most debt constrained firms (top 20%) and the least debt constrained firms (bottom 20%). We follow the procedure of Farre-Mensa and Ljungqvist (2016). We regress the yearly change ($t-1 \rightarrow t$) in payouts to shareholders on the yearly change in equity issuance proceeds (Δ Equity Issuance). We control for the change in other funding sources (Δ Other Funding) and change in firm size (Δ Size). All variables are scaled by the beginning-of-year ($t-1$) total assets except size. We include industry-by-year fixed effects. Standard errors are clustered at the firm-level. Panel A presents our baseline tests with payouts to shareholders including both dividends and repurchases and financial constraints classified in year $t-1$. In Panel B, financial constraints are classified in year t. In Panel C, the dependent variable is the change in share repurchases (i.e., dividends are not included in the payouts to shareholders). In the first six columns we present results for the random forest measure in different time periods. In the last two columns of each table we present the results for the Hoberg and Maksimovic (2015) equity constraint measure. Standard errors are clustered at the firm level. We report the results of a Wald test comparing the coefficient of interest for constrained and unconstrained firms. *, **, and *** indicate $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

	Entire Period		Pre-1997		Post-1997		HM Measure	
	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ Equity Issuance	0.030***	0.006***	0.031***	0.006***	0.029***	0.006***	0.027***	0.009***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Δ Other Funding	0.011***	0.003***	0.013***	0.003*	0.010***	0.004***	0.009***	0.007***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Δ Size	-0.008***	-0.004***	-0.006***	-0.004*	-0.008***	-0.004***	-0.009***	-0.005***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wald Test:	33.43***		7.84***		24.92***		11.27***	
Observations	16116	18673	4478	5014	11638	13659	6212	6896
R^2	0.053	0.034	0.056	0.031	0.052	0.035	0.053	0.056

Table 2: **Dividend Tests [Debt Constraint Classifications]**

This table examines the difference in behavior between the most debt constrained firms (top 20%) and the least debt constrained firms (bottom 20%). In Panel A, the dependent variable is a dividend omission dummy equal to one if the firm did not pay a dividend during the year and paid a dividend the previous year ($t-1 \rightarrow t$). In Panel B, the dependent variable is a dividend increase dummy equal to one if a firm increased its dividend between the previous and current year ($t-1 \rightarrow t$). The main independent variable of interest (Constrained Dummy) is a dummy variable equal to one (zero) if the firm is in the most (least) constrained quintile in year $t-1$. We control for the logarithm of market capitalization (year $t-1$), logarithm of book-to-market (year $t-1$) Winsorized at the 1% level, a negative earnings dummy (year $t-1$) and the firm's equity return in excess of the market in the previous year ($t-2 \rightarrow t-1$). We only include firm-year observations in which the firm paid a dividend in year $t-1$. We include industry and year fixed effects. Standard errors are clustered at the industry and year level. *, **, and *** indicate $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

Panel A: Dividend Omissions

	(1) RF All	(2) RF Pre-1997	(3) RF Post-1997	(4) HM
Constrained Dummy	-0.007	0.002	-0.016	-0.002
	(0.01)	(0.00)	(0.01)	(0.01)
Log(Mkt Cap)	-0.016***	-0.015***	-0.017***	-0.016***
	(0.00)	(0.00)	(0.00)	(0.00)
Log(Book-to-Market)	0.000	-0.006	0.007	0.001
	(0.00)	(0.01)	(0.01)	(0.01)
Neg. Earnings Dummy	0.152***	0.162***	0.137***	0.122***
	(0.01)	(0.01)	(0.01)	(0.02)
Past Excess Return	0.000	-0.010	0.010***	0.004
	(0.01)	(0.01)	(0.00)	(0.00)
Observations	25928	15618	10310	5713
R^2	0.104	0.103	0.099	0.104

Panel B: Dividend Increases

	(1) RF All	(2) RF Pre-1997	(3) RF Post-1997	(4) HM
Constrained Dummy	-0.024**	-0.034***	0.023**	0.036***
	(0.01)	(0.01)	(0.01)	(0.01)
Log(Mkt Cap)	0.051***	0.057***	0.041***	0.043***
	(0.00)	(0.00)	(0.00)	(0.00)
Log(Book-to-Market)	-0.040***	-0.052***	-0.029***	-0.018**
	(0.01)	(0.01)	(0.01)	(0.01)
Neg. Earnings Dummy	-0.256***	-0.311***	-0.196***	-0.171***
	(0.02)	(0.02)	(0.02)	(0.03)
Past Excess Return	0.040**	0.068***	0.014	0.017**
	(0.02)	(0.02)	(0.01)	(0.01)
Observations	25939	15619	10320	5718
R^2	0.172	0.212	0.138	0.148

Table 3: **Pension Underfunding Tests [Equity Constraint Classifications]**
This table examines the difference in pension funding behavior between more equity constrained firms (top 30%) and less equity constrained firms (bottom 30%). The dependent variable is a pension underfunded dummy equal to one if a firm's pension is underfunded in year t. The main independent variable of interest (Constrained Dummy) is a dummy variable equal to one (zero) if the firm is in the most (least) constrained 30% of firms in year $t-1$. We control for the lagged dependent variable (year $t-1$). We control for the logarithm of market capitalization (year $t-1$), logarithm of book-to-market (year $t-1$) Winsorized at the 1% level, a negative earnings dummy (year $t-1$) and the firm's equity return in excess of the market in the previous year ($t-2 \rightarrow t-1$). We only include firm-year observations in which the firm had pension obligations in the year $t-1$. We include industry and year fixed effects. Standard errors are clustered at the industry and year level. *, **, and *** indicate $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

	(1) RF All	(2) RF Pre-1997	(3) RF Post-1997	(4) HM
Constrained Dummy	0.011***	0.011	0.011**	0.003
	(0.00)	(0.01)	(0.01)	(0.01)
Lag Underfund Dummy	0.591***	0.611***	0.570***	0.517***
	(0.03)	(0.02)	(0.04)	(0.05)
Log(Mkt Cap)	-0.004**	-0.012***	-0.002	-0.002
	(0.00)	(0.00)	(0.00)	(0.00)
Log(Book-to-Market)	-0.011**	-0.033**	-0.004	-0.006
	(0.01)	(0.01)	(0.00)	(0.01)
Neg. Earnings Dummy	-0.001	-0.006	0.002	-0.003
	(0.01)	(0.02)	(0.01)	(0.01)
Past Excess Return	0.005	0.003	0.006	0.003
	(0.00)	(0.02)	(0.00)	(0.00)
Observations	17360	5136	12224	6533
R^2	0.636	0.418	0.495	0.470

Table 4: **Summary Statistics for Data Used in Equity Issuance and Investment Analysis**
This table presents summary statistics for the variables used in the equity issuance and investment analysis. Equity/Assets is the equity issuance in year t divided by assets in year $t-1$. CAPX/k is capital expenditures in year t divided by PPE in year $t-1$. Cash/Assets is cash in year $t-1$ divided by assets in year $t-1$. Debt/Assets is the book value of debt in year $t-1$ divided by assets in year $t-1$

Variable	Obs	Mean	Std. Dev.	P10	P25	P50	P75	P90
Equity/Assets	358639	.21	.833	0	0	.001	.026	.35
CAPX/k	213058	.2	.307	.023	.055	.107	.209	.427
Cash/Assets	364634	.102	.217	0	.001	.011	.078	.315
Debt/Assets	363506	.311	.431	0	.05	.226	.412	.635

Table 5: **Summary Statistics for Data Used in Institutional Ownership Analysis**
This table presents summary statistics for the variables used in the institutional ownership analysis. Inst. Ownership is the percentage of shares held by institutions each quarter. Sentiment is the Baker and Wurgler (2006) sentiment measure that has been orthogonalized to macroeconomic variables. log(Mkt Cap) is the logarithm of market capitalization.

Variable	Obs	Mean	Std. Dev.	P10	P25	P50	P75	P90
Inst. Ownership	506859	22.618	30.834	0	0	2.305	41.708	76.014
Sentiment	506944	.353	.663	-.36	-.04	.28	.69	.97
log(Mkt Cap)	506799	4.965	2.402	1.95	3.227	4.853	6.606	8.134

Table 6: **Equity Constraints and Discount Brokerage Share Ownership**
This table examines the relationship between retail investor stock ownership and equity constraints. The measure of retail ownership is defined as the dollar amount of holdings across all account holders at a discount brokerage at the end of the quarter divided by the market capitalization of the stock. We standardize the measure for easier interpretation. We regress the retail ownership measure on dummies for the contemporaneous quintiles of equity constraints. We include the logarithm of market capitalization as a control variable in columns (2) and (3). In column (3), we condition the sample to only stocks with at least one account holder holding the stock at the end of the period. The time period is Q2 1991 – Q3 1996. We include year-quarter fixed effects in all specifications. Standard errors are clustered at the year and firm-level. *, **, and *** indicate $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

	(1) Std. Retail Own.	(2) Std. Retail Own	(3) Std. Retail Own
EqCons. Q=2	0.000	0.045**	0.059**
	(0.02)	(0.02)	(0.02)
EqCons. Q=3	-0.041**	0.014	0.049*
	(0.02)	(0.02)	(0.02)
EqCons. Q=4	0.027	0.056**	0.145***
	(0.03)	(0.03)	(0.04)
EqCons. Q=5	0.138***	0.099***	0.250***
	(0.03)	(0.03)	(0.04)
log(Mkt Cap)		-0.083***	-0.131***
		(0.01)	(0.01)
Observations	86237	86237	58287
R^2	0.003	0.032	0.061

References

Baker, M. and Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. *The journal of Finance*, 61(4):1645–1680.

Farre-Mensa, J. and Ljungqvist, A. (2016). Do measures of financial constraints measure financial constraints? *The Review of Financial Studies*, 29(2):271–308.

Hoberg, G. and Maksimovic, V. (2015). Redefining Financial Constraints: A Text-Based Analysis. *Review of Financial Studies*, 28(5):1312–1352.