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The effect of macroeconomic conditions on the capital structure adjustment speed of South African listed firms

Krishna, Sudha

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APPENDIX A: RESULTS FROM REGRESSIONS ON THE INITIAL SAMPLE

Table I: Regression results from full sample

	Total leverage			**Long-term Leverage**			**Short-term leverage**		
	Upturn	Downturn	Difference	Upturn	Downturn	Difference	Upturn	Downturn	Difference
Panel A: Regression results when conditions are determined by the return on an equity index									
EQTY_U*TGT	0.4881458 (0.1230) (0.000)			0.2287389 (0.0771) (0.003)			0.9217893 (0.1906) (0.000)		
EQTY_D*TGT		0.4289258 (0.1324) (0.001)			0.242919 (0.0802) (0.002)			0.9309439 (0.2120) (0.000)	
			11.58(0.0007)			0.71(0.4000)			0.06(0.8058)
Number of observations	1239			1239			1239		
1st order autocorrelation	-2.3929 (0.0167)			-3.6104 (0.0003)			-1.8729 (0.0611)		
2nd order autocorrelation	1.3161 (0.1882)			1.1355 (0.3562)			1.3916 (0.1641)		
Sargan test	76.0442 (0.1207)			73.4258 (0.1331)			65.7427 (0.1124)		
Wald	1026.15 (0.0000)			4240.06 (0.0000)			518.74 (0.0000)		
Panel B: Regression results when macroeconomic conditions are determined by the term spread									
TERM_U*TGT	0.2118423 (0.1842) (0.250)			0.261397 (0.0842) (0.002)			1.337545 (0.2504) (0.000)		
TERM_D*TGT		0.2559541 (0.1697) (0.131)			0.2811547 (0.0793) (0.000)			1.248519 (0.2227) (0.000)	
			4.56(0.0328)			1.32(0.2513)			5.85(0.0156)
Number of observations	1239			1239			1239		
1st order autocorrelation	-2.3359 (0.0195)			-3.6368 (0.0003)			-1.86 (0.0629)		

2nd order autocorrelation	1.2578 (0.2085)			1.1416 (0.2536)			1.2975 (0.1945)	
Sargan test	76.7537 (0.1181)			74.3310 (0.1282)			65.2212 (0.1011)	
Wald	997.12 (0.0000)			4418.05 (0.0000)			503.31 (0.0000)	
Panel C: Regression results when macroeconomic conditions are determined by real GDP growth rate								
GDP_U*TGT	0.3662452 (0.1333) (0.006)			0.2297852 (0.0815) (0.005)			0.853582 (0.1681) (0.000)	
GDP_D*TGT		0.4240189 (0.1264) (0.001)			0.3583299 (0.0859) (0.000)			0.8927419 (0.1636) (0.000)
			8.55(0.0035)			33.77(0.0000)		1.42(0.2328)
Number of observations	1239			1239			1239	
1st order autocorrelation	-2.349 (0.0188)			-3.646 (0.0003)			-1.8656 (0.0621)	
2nd order autocorrelation	1.2619 (0.2070)			1.1521 (0.2493)			1.3762 (0.1688)	
Sargan test	77.3816 (0.1161)			65.1564 (0.1221)			64.7580 (0.1291)	
Wald	933.23 (0.0000)			4066.52 (0.0000)			539.59 (0.0000)	
Panel D: Regression results when macroeconomic conditions are determined by the inflation rate								
CPI_U*TGT	0.2544333 (0.1516) (0.093)			0.1918646 (0.1014) (0.058)			0.7683626 (0.2013) (0.000)	
CPI_D*TGT		0.2262453 (0.1574) (0.151)			0.1461538 (0.1113) (0.189)			0.7329938 (0.1915) (0.000)
			2.59(0.1078)			5.05(0.0246)		1.26(0.2615)
Number of observations	1031			1031			1031	
1st order autocorrelation	-2.2239 (0.0262)			-3.0816 (0.0021)			-1.8273 (0.0677)	
2nd order	1.4458			1.2539			2.2495	

autocorrelation	(0.1482)			(0.2099)			(0.1245)	
Sargan test	52.1965 (0.1588)			54.7338 (0.1082)			57.4385 (0.0694)	
Wald	758.37 (0.0000)			3847.22 (0.0000)			493.49 (0.0000)	
Panel E: Regression results when macroeconomic conditions are determined by the leading indicator								
LEAD_U*TGT	0.4880688 (0.1374) (0.000)			0.2486368 (0.0780) (0.001)			0.9350643 (0.1937) (0.000)	
LEAD_D*TGT		0.4396821 (0.1322) (0.001)			0.2592438 (0.0798) (0.001)			0.9771627 (0.2116) (0.000)
			5.52(0.0188)			0.47(0.4908)		1.88(0.1698)
Number of observations	1239			1239			1239	
1st order autocorrelation	-2.3793 (0.0173)			-3.6327 (0.0003)			-1.8527 (0.0639)	
2nd order autocorrelation	1.3408 (0.1800)			1.1383 (0.2550)			1.3154 (0.1884)	
Sargan test	77.6883 (0.1152)			74.8373 (0.1258)			64.2413 (0.1584)	
Wald	957.56 (0.0000)			4204.06 (0.0000)			486.68 (0.0000)	
Panel F: Regression results when macroeconomic conditions are determined by the coincident indicator								
COIN_U*TGT	0.3281098 (0.1336) (0.014)			0.2236595 (0.0815) (0.006)			0.8567013 (0.1678) (0.000)	
COIN_D*TGT		0.3926895 (0.1267) (0.002)			0.3554056 (0.0859) (0.000)			0.9010248 (0.1634) (0.000)
			10.74(0.0010)			35.68(0.0000)		1.82(0.1771)
Number of observations	1239			1239			1239	
1st order autocorrelation	-2.3517 (0.0187)			-3.6456 (0.0003)			-1.8664 (0.0620)	
2nd order autocorrelation	1.2571 (0.2087)			1.1517 (0.2494)			1.377 (0.1685)	

Sargan test	76.8168 (0.1179)	64.7185 (0.1298)	65.1231 (0.1227)
Wald	936.36 (0.0000)	4038.41 (0.0000)	544.41 (0.0000)
Panel G: Regression results when macroeconomic conditions are determined by the lagging indicator			
LAG_U*TGT	0.403012 (0.1859) (0.030)	0.2008939 (0.0894) (0.025)	1.109506 (0.3124) (0.000)
LAG_D*TGT	0.3819846 (0.1716) (0.026)	0.2576865 (0.0846) (0.002)	1.1029508 (0.2766) (0.000)
	0.83(0.3627)	5.25(0.0220)	2.87(0.0905)
Number of observations	1031	1031	1031
1st order autocorrelation	-2.2238 (0.0262)	-3.1054 (0.0019)	-1.842 (0.0655)
2nd order autocorrelation	1.4327 (0.1519)	1.2545 (0.2096)	2.05 (0.0404)
Sargan test	54.7450 (0.1080)	50.2390 (0.2085)	59.9412 (0.1455)
Wald	679.5 (0.0000)	3960.45 (0.0000)	359.98 (0.0000)

This table reports regression results from the full sample. Regressions were run separately for each macroeconomic indicator. Panels A to G show the results using the various indicators. For the sake of brevity, the firm-characteristic variables are excluded from the results. Instead, the coefficients for the interaction terms between the macroeconomic indicator dummy variables and target leverage are reported. The variables are defined as follows: EQTY_U*TGT is the interaction of the "upturn" equity index dummy with the target leverage term, EQTY_D*TGT is the interaction of the "downturn" equity index dummy with the target leverage term, TERM_U*TGT is the interaction of the "upturn" term spread dummy with the target leverage term, TERM_D*TGT is the interaction of the "downturn" term spread dummy with the target leverage term, GDP_U*TGT is the interaction of the "upturn" GDP dummy with the target leverage term, GDP_D*TGT is the interaction between the "downturn" GDP dummy and the target leverage term, CPI_U*TGT is the interaction between the "upturn" CPI dummy with the target leverage term, CPI_D*TGT is the interaction between the CPI "downturn" dummy and the target leverage term, LEAD_U*TGT is the interaction between the "upturn" leading indicator dummy and the target leverage term, LEAD_D*TGT is the interaction between the "downturn" leading indicator dummy and the target leverage term, COIN_U*TGT, is the interaction between the "upturn" coincident indicator dummy and the target leverage term, COIN_D*TGT is the interaction between the "downturn" coincident indicator dummy and the target leverage term, LAG_U*TGT is the interaction between the "upturn" lagging indicator dummy and the target leverage term, and LAG_D*TGT is the interaction between the "downturn" lagging indicator dummy and the target leverage variable. The coefficients on the interaction terms yield the speed of adjustment estimates in upturns (in the case of the upturn interaction terms) and downturns (in the case of the downturn interaction terms). The GMM standard errors and p-values for the adjustment speed coefficients are reported (in this order) below the coefficients. The "difference" column reports the chi-squared statistic and p-value in brackets from a difference in means test between the

coefficients on the interaction terms. The significance of this chi-squared statistic determines whether the null hypothesis of no difference in the coefficients should be accepted or rejected. In addition, the number of observations in each regression is reported. The first and second-order autocorrelation test z-statistics are also reported. The p-values for these are reported in brackets, the significance of which determines whether or not to reject the null hypothesis of no autocorrelation. Sargan test chi-squared statistics are also reported, with p-values reported in brackets, in order to test the null hypothesis that the overidentifying restrictions are valid. Wald test chi-squared statistics are also included. The p-values (reported in brackets) related to this determines whether the null hypothesis that all the dependent variables are simultaneously equal to 0 (and therefore are not significant determinants of the dependent variable and can be excluded from the model) should be rejected. Lastly, separate columns are included for each leverage definition as separate sets of regressions were run for short-term, long-term and total leverage.

Table II: Regression results for constrained and unconstrained firms as defined by the capital expenditure coverage ratio

	Total leverage			**Long-term Leverage**			**Short-term leverage**		
	Upturn	Downturn	Difference	Upturn	Downturn	Difference	Upturn	Downturn	Difference
Panel A: Regression results when conditions are determined by the return on an equity index									
Unconstrained									
EQTY_U*TGT	0.4652141 (0.0384) (0.000)			0.2130243 (0.0165) (0.000)			1.915156 (0.0299) (0.000)		
EQTY_D*TGT		0.4926855 (0.0391) (0.000)			0.1930244 (0.0152) (0.000)			2.278726 (0.0338) (0.000)	
			62.87(0.0000)			84.42(0.0000)			1414.53(0.0000)
Number of observations	417			417			417		
1st order autocorrelation	-3.1955 (0.0014)			-2.3655 (0.0180)			-2.7005 (0.0069)		
2nd order autocorrelation	1.2038 (0.2287)			1.1282 (0.2592)			1.2619 (0.2070)		
Sargan test	48.5439 (0.6481)			60.4000 (0.2261)			55.7682 (0.3711)		
Wald	3.87e+07 (0.0000)			5.97e+06 (0.0000)			169280.98 (0.0000)		
Constrained									
EQTY_U*TGT	-0.0286779 (0.0378) (0.448)			-0.3271916 (0.0245) (0.000)			1.273943 (0.0736) (0.000)		
EQTY_D*TGT		-0.1033785 (0.0390) (0.008)			-0.3224045 (0.0242) (0.000)			1.180117 (0.0778) (0.000)	
			124.16(0.0000)			1934.47(0.0000)			33.29(0.0000)
Number of observations	342			342			342		
1st order autocorrelation	-3.3791 (0.0174)			-2.3434 (0.0191)			-1.8559 (0.0635)		
2nd order	-0.4502			-0.2520			0.3092		

autocorrelation	(0.6526)		(0.8010)		(0.7572)	
Sargan test	50.5173 (0.5714)		53.9505 (0.4378)		51.3922 (0.5370)	
Wald	29752.05 (0.0000)		4.44e+06 (0.0000)		1.19e+06 (0.0000)	
Panel B: Regression results when macroeconomic conditions are determined by the term spread						
Unconstrained						
TERM_U*TGT	0.0621421 (0.1075) (0.563)		0.3249403 (0.0182) (0.000)		0.35419 (0.0469) (0.000)	
TERM_D*TGT		0.1129302 (0.0975) (0.247)		0.2564308 (0.0176) (0.000)		0.472738 (0.0413) (0.000)
		22.36(0.0000)		819.22(0.0000)		282.69(0.0000)
Number of observations	417		417		417	
1st order autocorrelation	-3.2078 (0.0013)		-2.446 (0.0144)		-2.6605 (0.0078)	
2nd order autocorrelation	1.1944 (0.2323)		1.1999 (0.2302)		1.5704 (0.1167)	
Sargan test	47.46212 (0.6888)		64.8019 (0.1283)		52.9442 (0.4763)	
Wald	84890.67 (0.0000)		9.91e+06 (0.0000)		1.72e+06 (0.0000)	
Constrained						
TERM_U*TGT	-0.6588597 (0.0599) (0.000)		-0.494069 (0.0175) (0.000)		0.2958229 (0.1029) (0.004)	
TERM_D*TGT		-0.5882091 (0.0547) (0.000)		-0.4058464 (0.0163) (0.000)		0.5190207 (0.1021) (0.000)
		119.76(0.0000)		0.16(0.6855)		1265.90(0.0000)
Number of observations	342		342		342	
1st order autocorrelation	-2.4298 (0.0151)		-2.3377 (0.0194)		-1.8327 (0.0668)	

2nd order autocorrelation	-0.4897 (0.6244)			-0.1927 (0.8472)			0.3443 (0.7306)	
Sargan test	50.4011 (0.5760)			55.4476 (0.3826)			51.7112 (0.5244)	
Wald	33407.64 (0.0000)			292061.04 (0.0000)			674150.61 (0.0000)	
Panel C: Regression results when macroeconomic conditions are determined by real GDP growth rate								
Unconstrained								
GDP_U*TGT	0.2732545 (0.0323) (0.000)			0.2271024 (0.0162) (0.000)			0.682474 (0.0593) (0.000)	
GDP_D*TGT		0.3506769 (0.0312) (0.000)			0.1794173 (0.0163) (0.000)			1.023708 (0.0481) (0.000)
			211.73(0.0000)			520.39(0.0000)		506.24(0.0000)
Number of observations	417			417			417	
1st order autocorrelation	-3.2369 (0.0012)			-2.3809 (0.0173)			-2.7273 (0.0064)	
2nd order autocorrelation	1.2281 (0.2194)			1.1257 (0.2603)			1.3724 (0.1699)	
Sargan test	51.8319 (0.5197)			61.4011 (0.2003)			58.6677 (0.2755)	
Wald	35403.94 (0.0000)			2.00e+07 (0.0000)			7.14e+07 (0.0000)	
Constrained								
GDP_U*TGT	0.0978633 (0.0365) (0.007)			-0.5520307 (0.0342) (0.000)			1.607878 (0.0923) (0.000)	
GDP_D*TGT		0.0495421 (0.0337) (0.141)			-0.3882705 (0.0365) (0.000)			1.551803 (0.0790) (0.000)
			13.86(0.0002)			1123.00(0.0000)		7.15(0.0075)
Number of observations	342			342			342	
1st order	-2.3024			-2.4592			-1.8428	

autocorrelation	(0.0213)			(0.0139)			(0.0654)	
2nd order autocorrelation	-0.4790 (0.6319)			-0.1447 (0.8850)			0.3059 (0.7597)	
Sargan test	52.2643 (0.5028)			52.1125 (0.5087)			52.2384 (0.5038)	
Wald	15743.36 (0.0000)			55877.07 (0.0000)			677008.29 (0.0000)	
Panel D: Regression results when macroeconomic conditions are determined by the inflation rate								
Unconstrained								
CPI_U*TGT	0.3853463 (0.0671) (0.000)			-0.0266894 (0.0270) (0.323)			0.1675878 (0.0938) (0.074)	
CPI_D*TGT		0.4179321 (0.0750) (0.000)			-0.1549043 (0.0274) (0.000)			0.3167489 (0.0918) (0.001)
			9.13(0.0025)			1106.63(0.0000)		161.30(0.0000)
Number of observations	345			345			345	
1st order autocorrelation	-3.1788 (0.0015)			-2.0003 (0.0455)			-2.5819 (0.0098)	
2nd order autocorrelation	0.90495 (0.3655)			1.0493 (0.2940)			1.5955 (0.1106)	
Sargan test	47.9664 (0.2784)			44.8004 (0.3962)			48.3897 (0.2644)	
Wald	41476.04 (0.0000)			1.54e+06 (0.0000)			9112.04 (0.0000)	
Constrained								
CPI_U*TGT	-0.4642473 (0.0400) (0.000)			0.0839249 (0.0230) (0.001)			0.6530745 (0.0821) (0.000)	
CPI_D*TGT		-0.5010796 (0.0443) (0.000)			0.1723545 (0.0234) (0.000)			0.5795948 (0.0765) (0.000)
			29.38(0.0000)			706.66(0.0000)		73.53(0.0000)
Number of observations	290			290			290	

1st order autocorrelation	-2.1961 (0.0281)			-2.3165 (0.0205)			-1.6627 (0.0964)	
2nd order autocorrelation	0.0328 (0.9738)			0.15047 (0.8804)			0.4752 (0.6346)	
Sargan test	43.8778 (0.4341)			46.2356 (0.3402)			46.6892 (0.3233)	
Wald	185243.67 (0.0000)			176985.77 (0.0000)			151705.67 (0.0000)	
Panel E: Regression results when macroeconomic conditions are determined by the leading indicator								
Unconstrained								
LEAD_U*TGT	0.3795526 (0.0420) (0.000)			0.2212304 (0.0192) (0.000)			1.591673 (0.0854) (0.000)	
LEAD_D*TGT		0.3561738 (0.0424) (0.000)			0.2188799 (0.0182) (0.000)			1.77597 (0.0992) (0.000)
			12.15(0.0005)			1.31(0.2529)		157.49(0.0000)
Number of observations	417			417			417	
1st order autocorrelation	-3.168 (0.0015)			-2.3756 (0.0175)			-2.692 (0.0071)	
2nd order autocorrelation	1.2133 (0.2250)			1.1377 (0.2552)			1.4055 (0.1599)	
Sargan test	47.7059 (0.6798)			60.7379 (0.2171)			50.6561 (0.5659)	
Wald	73277.96 (0.0000)			2.10e+07 (0.0000)			43014.58 (0.0000)	
Constrained								
LEAD_U*TGT	-0.0940658 (0.0540) (0.081)			-0.4259484 (0.0239) (0.000)			1.131883 (0.0939) (0.000)	
LEAD_D*TGT		-0.2518342 (0.0585) (0.000)			-0.3737355 (0.0238) (0.000)			0.9995133 (0.1062) (0.000)
			251.91(0.0000)			2135.86(0.0000)		63.09(0.0000)
Number of observations	342			342			342	

1st order autocorrelation	-2.6262 (0.0086)			-2.3091 (0.0209)			-1.8314 (0.0670)	
2nd order autocorrelation	-0.2805 (0.7791)			-0.2799 (0.7796)			0.3741 (0.7084)	
Sargan test	47.9599 (0.6703)			53.6765 (0.4482)			51.0962 (0.5486)	
Wald	47396.10 (0.0000)			5.58e+06 (0.0000)			2.82e+06 (0.0000)	
Panel F: Regression results when macroeconomic conditions are determined by the coincident indicator								
Unconstrained								
COIN_U*TGT	0.2357776 (0.0296) (0.000)			0.2075688 (0.0168) (0.000)			0.6801817 (0.0608) (0.000)	
COIN_D*TGT		0.3351689 (0.0283) (0.000)			0.1835155 (0.0167) (0.000)			1.034343 (0.0492) (0.000)
			494.22(0.0000)			40.75(0.0000)		500.12(0.0000)
Number of observations	417			417			417	
1st order autocorrelation	-3.226 (0.0013)			-2.3752 (0.0175)			-2.7363 (0.0062)	
2nd order autocorrelation	1.2334 (0.2174)			1.1259 (0.2602)			1.3779 (0.1682)	
Sargan test	52.0293 (0.5120)			61.4490 (0.1991)			58.0926 (0.2932)	
Wald	41745.66 (0.0000)			1.09e+06 (0.0000)			6.99e+06 (0.0000)	
Constrained								
COIN_U*TGT	0.0978633 (0.0365) (0.007)			-0.5520307 (0.0342) (0.000)			1.607878 (0.0923) (0.000)	
COIN_D*TGT		0.0495421 (0.0377) (0.141)			-0.3882705 (0.0365) (0.000)			1.551803 (0.0790) (0.000)
			13.86(0.0002)			1123.00(0.0000)		7.15(0.0075)
Number of observations	342			342			342	

1st order autocorrelation	-2.3024 (0.0213)			-2.4592 (0.0139)			-1.8428 (0.0654)	
2nd order autocorrelation	-0.4790 (0.6319)			-0.1147 (0.8850)			0.3059 (0.7597)	
Sargan test	52.2643 (0.5028)			52.1125 (0.5087)			52.2384 (0.5038)	
Wald	15743.36 (0.0000)			55877.07 (0.0000)			677008.29 (0.0000)	
Panel G: Regression results when macroeconomic conditions are determined by the lagging indicator								
Unconstrained								
LAG_U*TGT	0.3434707 (0.0346) (0.000)			0.1574254 (0.0232) (0.000)			0.5355764 (0.0889) (0.000)	
LAG_D*TGT		0.3503501 (0.0373) (0.000)			0.0373095 (0.0168) (0.026)			0.5470384 (0.0805) (0.000)
			6.46(0.0110)			206.70(0.0000)		0.77(0.3803)
Number of observations	345			345			345	
1st order autocorrelation	-3.1911 (0.0014)			-2.0808 (0.0374)			-2.578 (0.0099)	
2nd order autocorrelation	0.90754 (0.3641)			1.1248 (0.2607)			1.4886 (0.1366)	
Sargan test	47.3364 (0.3001)			48.0612 (0.2753)			45.4964 (0.3685)	
Wald	48004.33 (0.0000)			361640.52 (0.0000)			9068.12 (0.0000)	
Constrained								
LAG_U*TGT	-0.5500841 (0.0468) (0.000)			-0.2430693 (0.0357) (0.000)			0.8004601 (0.1687) (0.000)	
LAG_D*TGT		-0.5238975 (0.0434) (0.000)			-0.067291 (0.0330) (0.010)			0.7740797 (0.1590) (0.000)
			29.86(0.0000)			15.01(0.0001)		5.69(0.0170)
Number of	290			290			290	

observations			
1st order autocorrelation	-2.2414 (0.0250)	-2.2687 (0.0233)	-1.6266 (0.1038)
2nd order autocorrelation	0.0081 (0.9935)	0.1326 (0.8945)	0.41607 (0.6774)
Sargan test	39.5027 (0.6238)	47.9307 (0.2796)	47.0753 (0.3093)
Wald	761444.78 (0.0000)	1.22e+07 (0.0000)	775040.20 (0.0000)

This table reports regression results for constrained and unconstrained samples as defined by the capital expenditure coverage ratio. Regressions were run separately for each macroeconomic indicator. Panels A to G show the results using the various indicators. For the sake of brevity, the firm-characteristic variables are excluded from the results. Instead, the coefficients for the interaction terms between the macroeconomic indicator dummy variables and target leverage are reported. The variables are defined as follows: EQTY_U*TGT is the interaction of the "upturn" equity index dummy with the target leverage term, EQTY_D*TGT is the interaction of the "downturn" equity index dummy with the target leverage term, TERM_U*TGT is the interaction of the "upturn" term spread dummy with the target leverage term, TERM_D*TGT is the interaction of the "downturn" term spread dummy with the target leverage term, GDP_U*TGT is the interaction of the "upturn" GDP dummy with the target leverage term, GDP_D*TGT is the interaction between the "downturn" GDP dummy and the target leverage term, CPI_U*TGT is the interaction between the "upturn" CPI dummy with the target leverage term, CPI_D*TGT is the interaction between the CPI "downturn" dummy and the target leverage term, LEAD_U*TGT is the interaction between the "upturn" leading indicator dummy and the target leverage term, LEAD_D*TGT is the interaction between the "downturn" leading indicator dummy and the target leverage term, COIN_U*TGT, is the interaction between the "upturn" coincident indicator dummy and the target leverage term, COIN_D*TGT is the interaction between the "downturn" coincident indicator dummy and the target leverage term, LAG_U*TGT s the interaction between the "upturn" lagging indicator dummy and the target leverage term, and LAG_D*TGT is the interaction between the "downturn" lagging indicator dummy and the target leverage variable. The coefficients on the interaction terms yield the speed of adjustment estimates in upturns (in the case of the upturn interaction terms) and downturns (in the case of the downturn interaction terms). The GMM standard errors and p-values for the adjustment speed coefficients are reported (in this order) below the coefficients. The "difference" column reports the chi-squared statistic and p-value in brackets from a difference in means test between the coefficients on the interaction terms. The significance of this chi-squared statistic determines whether the null hypothesis of no difference in the coefficients should be accepted or rejected. In addition, the number of observations in each regression is reported. The first and second-order autocorrelation test z-statistics are also reported. The p-values for these are reported in brackets, the significance of which determines whether or not to reject the null hypothesis of no autocorrelation. Sargan test chi-squared statistics are also reported, with p-values reported in brackets, in order to test the null hypothesis that the overidentifying restrictions are valid. Wald test chi-squared statistics are also included. The p-values (reported in brackets) related to this determines whether the null hypothesis that all the dependent variables are simultaneously equal to 0 (and therefore are not significant determinants of the dependent variable and can be excluded from the model) should be rejected. Lastly, separate columns are included for each leverage definition as separate sets of regressions were run for short-term, long-term and total leverage.

Table III: Regression results for constrained and unconstrained firms as defined by the debt coverage ratio

	Total leverage			**Long-term Leverage**			**Short-term leverage**		
	Upturn	Downturn	Difference	Upturn	Downturn	Difference	Upturn	Downturn	Difference
Panel A: Regression results when conditions are determined by the return on an equity index									
Unconstrained									
EQTY_U*TGT	-0.1992259 (0.0220) (0.000)			-0.0824984 (0.0078) (0.000)			0.0665584 (0.0186) (0.000)		
EQTY_D*TGT		-0.1882705 (0.0208) (0.000)			-0.1015824 (0.0072) (0.000)			0.1922054 (0.0231) (0.000)	
			6.72(0.0095)			553.58(0.0000)			388.59(0.0000)
Number of observations	226			226			226		
1st order autocorrelation	-1.9479 (0.0514)			-2.6721 (0.0075)			-1.6678 (0.0954)		
2nd order autocorrelation	1.3611 (0.1735)			-0.08842 (0.9295)			1.0494 (0.2940)		
Sargan test	41.9147 (0.8636)			37.5740 (0.9461)			42.7356 (0.8423)		
Wald	38850.51 (0.0000)			1.60e+07 (0.0000)			66442.56 (0.0000)		
Constrained									
EQTY_U*TGT	0.8771967 (0.1416) (0.000)			-0.021699 (0.0867) (0.802)			1.124309 (0.1619) (0.000)		
EQTY_D*TGT		0.8305182 (0.1439) (0.000)			-0.059175 (0.0833) (0.478)			1.133161 (0.1815) (0.000)	
			5.92(0.0149)			7.26(0.0071)			0.06(0.8086)
Number of observations	737			737			737		
1st order autocorrelation	-2.9934 (0.0028)			-2.7527 (0.0059)			-3.312 (0.0009)		
2nd order	0.95196			1.1954			1.0522		

autocorrelation	(0.3411)			(0.2319)			(0.2927)	
Sargan test	60.8896 (0.2132)			61.1678 (0.2061)			55.8257 (0.3691)	
Wald	947.17 (0.0000)			13157.81 (0.0000)			739.71 (0.0000)	
Panel B: Regression results when macroeconomic conditions are determined by the term spread								
Unconstrained								
TERM_U*TGT	0.0713476 (0.0332) (0.032)			-0.0507725 (0.0164) (0.002)			-0.1292089 (0.0482) (0.007)	
TERM_D*TGT		0.0254467 (0.0304) (0.403)			-0.1174272 (0.0162) (0.000)			-0.1551099 (0.0408) (0.000)
			139.82(0.0000)			8158.90(0.0000)		11.72(0.0006)
Number of observations	226			226			226	
1st order autocorrelation	-2.0501 (0.0404)			-2.577 (0.0100)			-1.6491 (0.0991)	
2nd order autocorrelation	1.5302 (0.1260)			-0.5844 (0.5589)			1.1839 (0.2364)	
Sargan test	35.9673 (0.9647)			39.4719 (0.9126)			43.6862 (0.8154)	
Wald	256769.05 (0.0000)			5.90e+06 (0.0000)			203097.40 (0.0000)	
Constrained								
TERM_U*TGT	0.9111116 (0.2045) (0.000)			-0.0035554 (0.0799) (0.964)			0.931981 (0.2399) (0.000)	
TERM_D*TGT		0.9115281 (0.1895) (0.000)			0.02684 (0.0825) (0.745)			0.9770185 (0.2114) (0.000)
			0.00(0.9843)			2.42(0.1201)		1.42(0.2331)
Number of observations	737			737			737	
1st order autocorrelation	-2.977 (0.0029)			-2.7373 (0.0062)			-3.3492 (0.0008)	

2nd order autocorrelation	0.91385 (0.3608)			1.1864 (0.2355)			1.0892 (0.2671)	
Sargan test	59.8263 (0.2418)			61.5377 (0.1970)			53.3282 (0.4615)	
Wald	964.95 (0.0000)			11951.35 (0.0000)			684.28 (0.0000)	
Panel C: Regression results when macroeconomic conditions are determined by real GDP growth rate								
Unconstrained								
GDP_U*TGT	-0.1510795 (0.0370) (0.000)			-0.0839858 (0.0174) (0.000)			-0.3182941 (0.0219) (0.000)	
GDP_D*TGT		-0.1760196 (0.0325) (0.000)			-0.1627606 (0.0174) (0.000)			-0.2720527 (0.0263) (0.000)
			13.93(0.0002)			4747.74(0.0000)		12.80(0.0003)
Number of observations	226			226			226	
1st order autocorrelation	-2.0253 (0.0428)			-2.8094 (0.0050)			-1.6641 (0.0961)	
2nd order autocorrelation	1.4386 (0.1503)			-0.0879 (0.9299)			1.2387 (0.2155)	
Sargan test	41.5834 (0.8717)			38.8424 (0.9271)			43.3387 (0.8255)	
Wald	80898.67 (0.0000)			6.86e+06 (0.0000)			318746.54 (0.0000)	
Constrained								
GDP_U*TGT	0.8748299 (0.1736) (0.000)			-0.0774713 (0.0864) (0.370)			1.049991 (0.1447) (0.000)	
GDP_D*TGT		0.87998722 (0.1629) (0.000)			-0.0166081 (0.0816) (0.839)			1.102148 (0.1444) (0.000)
			0.08(0.7834)			13.48(0.0002)		2.25(0.1339)
Number of observations	737			737			737	
1st order	-3.0053			-2.7584			-3.343	

autocorrelation	(0.0027)			(0.0058)			(0.0008)	
2nd order autocorrelation	0.92025 (0.3574)			1.1761 (0.2396)			1.0529 (0.2924)	
Sargan test	60.9559 (0.2115)			62.0744 (0.1842)			53.9247 (0.4388)	
Wald	905.79 (0.0000)			12836.07 (0.0000)			733.91 (0.0000)	
Panel D: Regression results when macroeconomic conditions are determined by the inflation rate								
Unconstrained								
CPI_U*TGT	-0.2796326 (0.0580) (0.000)			-0.1579568 (0.0185) (0.000)			-0.5357274 (0.0514) (0.000)	
CPI_D*TGT		-0.3039001 (0.0633) (0.000)			-0.1781354 (0.0218) (0.000)			-0.538231 (0.0491) (0.000)
			15.84(0.0001)			36.19(0.0000)		0.47(0.4943)
Number of observations	189			189			189	
1st order autocorrelation	-1.9175 (0.0552)			-2.5327 (0.0113)			-1.5716 (0.1160)	
2nd order autocorrelation	1.1781 (0.2387)			0.3175 (0.7509)			1.0113 (0.3119)	
Sargan test	35.0080 (0.8020)			34.8597 (0.8070)			37.8970 (0.6918)	
Wald	74665.84 (0.0000)			1.05e+07 (0.0000)			352780.26 (0.0000)	
Constrained								
CPI_U*TGT	0.7754788 (0.1096) (0.000)			0.4208927 (0.1172) (0.000)			0.921462 (0.2020) (0.000)	
CPI_D*TGT		0.7195413 (0.1971) (0.000)			0.4118867 (0.1259) (0.001)			0.783582 (0.1887) (0.000)
			7.59(0.0059)			0.27(0.6016)		17.84(0.0000)
Number of observations	615			615			615	

1st order autocorrelation	-2.9044 (0.0027)			-2.5698 (0.0102)			-3.1296 (0.0018)	
2nd order autocorrelation	0.8302 (0.4064)			1.3749 (0.1692)			1.0587 (0.2897)	
Sargan test	55.2660 (0.0994)			53.4737 (0.1315)			57.8388 (0.0647)	
Wald	793.28 (0.0000)			8180.21 (0.0000)			454.20 (0.0000)	
Panel E: Regression results when macroeconomic conditions are determined by the leading indicator								
Unconstrained								
LEAD_U*TGT	-0.1458389 (0.0349) (0.000)			-0.0281592 (0.0040) (0.000)			0.2249193 (0.0386) (0.000)	
LEAD_D*TGT		-0.1392617 (0.0312) (0.000)			-0.0824764 (0.0036) (0.000)			0.3857715 (0.0504) (0.000)
		2.07(0.1506)			6301.27(0.0000)			159.67(0.0000)
Number of observations	226			226			226	
1st order autocorrelation	-1.8566 (0.0634)			-2.6281 (0.0086)			-1.7627 (0.0780)	
2nd order autocorrelation	1.3443 (0.1788)			0.4156 (0.6777)			1.0733 (0.2831)	
Sargan test	37.3195 (0.9494)			32.5521 (0.9879)			43.6893 (0.8153)	
Wald	6577.42 (0.0000)			8.83e+06 (0.0000)			593865.95 (0.0000)	
Constrained								
LEAD_U*TGT	0.858555 (0.1412) (0.000)			-0.0136516 (0.0818) (0.867)			1.076137 (0.1844) (0.000)	
LEAD_D*TGT		0.8202861 (0.1417) (0.000)			-0.0273425 (0.0798) (0.732)			1.074474 (0.2054) (0.000)
		3.93(0.0474)			0.76(0.3845)			0.00(0.9572)
Number of observations	737			737			737	

1st order autocorrelation	-2.965 (0.0030)			-2.7531 (0.0059)			-3.3734 (0.0007)	
2nd order autocorrelation	0.9803 (0.3269)			1.1837 (0.2351)			1.0814 (0.2795)	
Sargan test	61.3069 (0.2027)			60.9997 (0.2104)			51.2617 (0.5421)	
Wald	911.52 (0.0000)			12978.17 (0.0000)			722.98 (0.0000)	
Panel F: Regression results when macroeconomic conditions are determined by the coincident indicator								
Unconstrained								
COIN_U*TGT	-0.2521679 (0.0336) (0.000)			-0.1135195 (0.0119) (0.000)			-0.3283399 (0.0216) (0.000)	
COIN_D*TGT		-0.2316217 (0.0295) (0.000)			-0.1396523 (0.0124) (0.000)			-0.2404878 (0.0237) (0.000)
			12.59(0.0004)			1061.48(0.0000)		35.68(0.0000)
Number of observations	226			226			226	
1st order autocorrelation	-1.9517 (0.0510)			-2.7073 (0.0068)			-1.6686 (0.0952)	
2nd order autocorrelation	1.3587 (0.1742)			-0.1828 (0.8549)			1.2453 (0.2130)	
Sargan test	42.9624 (0.8361)			34.9755 (0.9735)			41.8476 (0.8652)	
Wald	64659.66 (0.0000)			1.51e+07 (0.0000)			307870.45 (0.0000)	
Constrained								
COIN_U*TGT	0.8748299 (0.1736) (0.000)			-0.0774713 (0.0864) (0.370)			1.049991 (0.1447) (0.000)	
COIN_D*TGT		0.8799722 (0.1629) (0.000)			-0.0166081 (0.0816) (0.839)			1.102148 (0.1444) (0.000)
			0.08(0.7834)			13.48(0.0002)		2.25(0.1339)
Number of observations	737			737			737	

1st order autocorrelation	-3.0053 (0.0027)			-2.7584 (0.0058)			-3.343 (0.0008)	
2nd order autocorrelation	0.92025 (0.3574)			1.1761 (0.2396)			1.0529 (0.2924)	
Sargan test	60.9559 (0.2115)			62.0744 (0.1842)			53.9247 (0.4388)	
Wald	905.79 (0.0000)			12836.07 (0.0000)			733.91 (0.0000)	
Panel G: Regression results when macroeconomic conditions are determined by the lagging indicator								
Unconstrained								
LAG_U*TGT	-0.175557 (0.0277) (0.000)			-0.098304 (0.0084) (0.000)			-0.7766356 (0.0448) (0.000)	
LAG_D*TGT		-0.1886169 (0.0278) (0.000)			-0.1256468 (0.0114) (0.000)			-0.7216747 (0.0414) (0.000)
			2.52(0.1124)			67.17(0.0000)		66.01(0.0000)
Number of observations	189			189			189	
1st order autocorrelation	-1.8921 (0.0585)			-2.4867 (0.0129)			-1.5724 (0.1159)	
2nd order autocorrelation	1.1793 (0.2383)			0.2721 (0.7856)			1.0484 (0.2945)	
Sargan test	34.5882 (0.8162)			35.5889 (0.7815)			34.9407 (0.8043)	
Wald	165284.88 (0.0000)			2.96e+06 (0.0000)			1.50e+06 (0.0000)	
Constrained								
LAG_U*TGT	0.9666392 (0.2053) (0.000)			0.3241878 (0.1036) (0.002)			1.016538 (0.3012) (0.001)	
LAG_D*TGT		0.9439127 (0.1956) (0.000)			0.3388585 (0.0979) (0.001)			0.9575542 (0.2666) (0.000)
			1.02(0.3129)			0.27(0.6046)		1.80(0.1795)
Number of	615			615			615	

observations			
1st order autocorrelation	-2.9269 (0.0034)	-2.5502 (0.0108)	-3.1108 (0.0019)
2nd order autocorrelation	0.80645 (0.4200)	1.3727 (0.1698)	0.9108 (0.3624)
Sargan test	53.7316 (0.1264)	52.7274 (0.1470)	56.1511 (0.0861)
Wald	827.61 (0.0000)	8413.45 (0.0000)	557.16 (0.0000)

This table reports regression results for constrained and unconstrained samples as defined by the debt coverage ratio. Regressions were run separately for each macroeconomic indicator. Panels A to G show the results using the various indicators. For the sake of brevity, the firm-characteristic variables are excluded from the results. Instead, the coefficients for the interaction terms between the macroeconomic indicator dummy variables and target leverage are reported. The variables are defined as follows: EQTY_U*TGT is the interaction of the "upturn" equity index dummy with the target leverage term, EQTY_D*TGT is the interaction of the "downturn" equity index dummy with the target leverage term, TERM_U*TGT is the interaction of the "upturn" term spread dummy with the target leverage term, TERM_D*TGT is the interaction of the "downturn" term spread dummy with the target leverage term, GDP_U*TGT is the interaction of the "upturn" GDP dummy with the target leverage term, GDP_D*TGT is the interaction between the "downturn" GDP dummy and the target leverage term, CPI_U*TGT is the interaction between the "upturn" CPI dummy with the target leverage term, CPI_D*TGT is the interaction between the CPI "downturn" dummy and the target leverage term, LEAD_U*TGT is the interaction between the "upturn" leading indicator dummy and the target leverage term, LEAD_D*TGT is the interaction between the "downturn" leading indicator dummy and the target leverage term, COIN_U*TGT, is the interaction between the "upturn" coincident indicator dummy and the target leverage term, COIN_D*TGT is the interaction between the "downturn" coincident indicator dummy and the target leverage term, LAG_U*TGT s the interaction between the "upturn" lagging indicator dummy and the target leverage term, and LAG_D*TGT is the interaction between the "downturn" lagging indicator dummy and the target leverage variable. The coefficients on the interaction terms yield the speed of adjustment estimates in upturns (in the case of the upturn interaction terms) and downturns (in the case of the downturn interaction terms). The GMM standard errors and p-values for the adjustment speed coefficients are reported (in this order) below the coefficients. The "difference" column reports the chi-squared statistic and p-value in brackets from a difference in means test between the coefficients on the interaction terms. The significance of this chi-squared statistic determines whether the null hypothesis of no difference in the coefficients should be accepted or rejected. In addition, the number of observations in each regression is reported. The first and second-order autocorrelation test z-statistics are also reported. The p-values for these are reported in brackets, the significance of which determines whether or not to reject the null hypothesis of no autocorrelation. Sargan test chi-squared statistics are also reported, with p-values reported in brackets, in order to test the null hypothesis that the overidentifying restrictions are valid. Wald test chi-squared statistics are also included. The p-values (reported in brackets) related to this determines whether the null hypothesis that all the dependent variables are simultaneously equal to 0 (and therefore are not significant determinants of the dependent variable and can be excluded from the model) should be rejected. Lastly, separate columns are included for each leverage definition as separate sets of regressions were run for short-term, long-term and total leverage.

Table IV: VIF estimates from fixed effects estimation of target

Variable (all variables lagged one period)	VIF
CPI	4.68
Prime rate	3.54
Equity Index	2.74
Price-to-book ratio	1.07
Profitability	1.07
Industry median leverage	1.06
Size	1.06
Tangibility	1.05
Mean VIF	2.03

Table V: VIF estimates from GMM regressions (interaction terms are excluded as multicollinearity is naturally expected between the two)

Variable (all variables lagged 1 period)	VIF
Profitability	1.06
Industry median leverage	1.04
Size	1.04
Tangibility	1.05
Price-to-book ratio	1.03
Mean VIF	1.05