

# **Online Appendix**

“Firm Leverage and  
Employment Dynamics”

by

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**Table A.1**

Employment growth of publicly listed and unlisted firms.

The dependent variable,  $\Delta \log(\text{Emp})(\text{unlisted})(-3,0)$ , is the county-level employment growth of unlisted firms from  $t - 3$  to  $t$ , and  $\Delta \log(\text{Emp})(\text{listed})(-3,0)$  is the county-level employment growth of publicly listed firms from  $t - 3$  to  $t$ . Unlisted and publicly listed firms are described in Table 1. Observations are weighted by county-level employment. Standard errors are double clustered at the county and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	$\Delta \log(\text{Emp})(\text{unlisted})(-3,0)$
	(1)
$\Delta \log(\text{Emp})(\text{listed})(-3,0)$	0.064*** (0.003)
County fixed effects	Yes
Year fixed effects	Yes
R-squared	0.26
Observations	99,300

**Table A.2**

Firm-level bin scatterplot regressions.

This table presents variants of the regressions in columns (1) and (5) of Table 2 without controls or fixed effects. Observations are weighted by firm-level employment. Standard errors are double clustered at the state (using the firm's home state) and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	$\Delta \log(\text{Emp})$ (-3,0) (1)	$\Delta \log(\text{Emp})$ (1,4) (2)
$\Delta \text{Lev}(-3,0)$	0.285*** (0.030)	-0.262*** (0.031)
Firm fixed effects	No	No
Year fixed effects	No	No
R-squared	0.01	0.01
Observations	145,600	85,100

**Table A.3**

Baseline specification without regional control.

This table presents variants of the regressions in Table 2 without the regional control. Observations are weighted by firm-level employment. Standard errors are double clustered at the state (using the firm's home state) and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	$\Delta \log(\text{Emp})$ (-3,0)	$\Delta \log(\text{Emp})$ (-2,1)	$\Delta \log(\text{Emp})$ (-1,2)	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Lev}(-3,0)$	0.157*** (0.028)	-0.056* (0.030)	-0.168*** (0.031)	-0.226*** (0.032)	-0.170*** (0.031)	-0.103*** (0.031)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Regional Control	No	No	No	No	No	No
R-squared	0.40	0.38	0.37	0.35	0.35	0.34
Observations	145,600	127,600	111,100	98,900	85,100	74,700

**Table A.4**

Share repurchases and dividend increases.

This table presents variants of the regressions in columns (4) to (6) of Table 2 in which  $\Delta \text{Lev}(-3,0)$  is interacted with contemporaneous changes in share repurchases,  $\text{Rep}(-3,0)$ , or dividend increases,  $\Delta \text{Div}(-3,0)$ . Share repurchases in a given year is the purchase of common and preferred stock (Compustat item PRSTKC) minus the reduction in the value of the net number of preferred shares outstanding (item PSTKRV) (e.g., Bliss, Cheng, and Denis, 2015).  $\text{Rep}(-3,0)$  is a dummy that equals one if the sum of share repurchases from  $t - 3$  to  $t$ , scaled by the firm's assets (item AT) in  $t - 3$ , lies in the top quartile across all firms in the sample.  $\Delta \text{Div}(-3,0)$  is a dummy that equals one if the change in the firm's dividend-to-asset ratio (item DVC divided by item AT) from  $t - 3$  to  $t$  lies in the top quartile across all firms in the sample. Observations are weighted by firm-level employment. Standard errors are double clustered at the state (using the firm's home state) and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	Share repurchases			Dividend increases		
	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Lev}(-3,0)$	-0.158*** (0.039)	-0.125*** (0.039)	-0.074* (0.038)	-0.167*** (0.037)	-0.134*** (0.035)	-0.077** (0.036)
$\Delta \text{Lev}(-3,0) \times \text{Rep}(-3,0)$	-0.091* (0.051)	-0.078* (0.046)	-0.049 (0.045)			
$\text{Rep}(-3,0)$	0.011 (0.013)	0.005 (0.010)	0.003 (0.010)			
$\Delta \text{Lev}(-3,0) \times \Delta \text{Div}(-3,0)$				-0.050 (0.056)	-0.051 (0.049)	-0.043 (0.049)
$\Delta \text{Div}(-3,0)$				0.012 (0.009)	0.010 (0.008)	0.007 (0.009)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Regional Control	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.44	0.44	0.44	0.44	0.44	0.44
Observations	98,900	85,100	74,700	98,900	85,100	74,700

**Table A.5**

Local projections without regional control.

This table presents variants of the regressions in Table 4 without the regional control. Observations are weighted by firm-level employment. Standard errors are double clustered at the state (using the firm's home state) and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	$\Delta \log(\text{Emp})$ (-3,0)	$\Delta \log(\text{Emp})$ (-3,1)	$\Delta \log(\text{Emp})$ (-3,2)	$\Delta \log(\text{Emp})$ (-3,3)	$\Delta \log(\text{Emp})$ (-3,4)	$\Delta \log(\text{Emp})$ (-3,5)
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Lev}(-3,0)$	0.157*** (0.028)	0.042 (0.029)	-0.016 (0.033)	-0.098** (0.037)	-0.113*** (0.042)	-0.099** (0.048)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Regional Control	No	No	No	No	No	No
R-squared	0.40	0.45	0.50	0.53	0.57	0.60
Observations	145,600	127,600	111,100	98,900	85,100	74,700

**Table A.6**

Mean-reverting employment growth: Alternative controls.

This table presents variants of the regressions in Table 7 in which firm-level employment growth from  $t-3$  to  $t$  as a control is replaced with firm-level employment growth from  $t-4$  to  $t-1$  (Panel A),  $t-5$  to  $t-2$  (Panel B), or  $t-6$  to  $t-3$  (Panel C). Observations are weighted by firm-level employment. Standard errors are double clustered at the state (using the firm's home state) and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

*Panel A: Controlling for  $\Delta \log(\text{Emp})(-4,-1)$*

	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.148*** (0.031)	-0.122*** (0.030)	-0.076** (0.030)
$\Delta \log(\text{Emp})(-4,-1)$	0.010** (0.004)	0.008** (0.004)	0.007* (0.004)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Regional control	Yes	Yes	Yes
R-squared	0.44	0.44	0.44
Observations	86,900	76,300	67,100

Panel B: Controlling for  $\Delta \log(\text{Emp})(-5,-2)$

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	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.170*** (0.033)	-0.146*** (0.033)	-0.090*** (0.032)
$\Delta \log(\text{Emp})(-5,-2)$	0.008** (0.004)	0.006 (0.004)	0.005 (0.004)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Regional control	Yes	Yes	Yes
R-squared	0.44	0.44	0.45
Observations	76,300	67,100	59,200

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Panel C: Controlling for  $\Delta \log(\text{Emp})(-6,-3)$

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	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.176*** (0.034)	-0.164*** (0.034)	-0.095*** (0.034)
$\Delta \log(\text{Emp})(-6,-3)$	0.007* (0.004)	0.005 (0.004)	0.003 (0.004)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Regional control	Yes	Yes	Yes
R-squared	0.44	0.45	0.45
Observations	67,100	59,200	52,200

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**Table A.7**

County-level bin scatterplot regressions.

This table presents variants of the regressions in columns (1) and (5) of Table 10 without fixed effects. Observations are weighted by county-level employment. Standard errors are double clustered at the county and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

	$\Delta \log(\text{Emp})$ (-3,0) (1)	$\Delta \log(\text{Emp})$ (1,4) (2)
$\Delta \text{Lev}(-3,0)$	0.097*** (0.026)	-0.069*** (0.021)
County fixed effects	No	No
Year fixed effects	No	No
R-squared	0.03	0.01
Observations	99,300	86,500

**Table A.8**

Industry sectors.

This table presents variants of the regressions in columns (4) to (6) of Table 10 in which the sample is divided into tradable industries (Panel A), non-tradable industries (Panel B), and “other” industries (Panel C). Industries are classified as tradable if imports plus exports exceed \$10,000 per worker or \$500M in total. Retail industries and restaurants are classified as non-tradable. Industries that are neither tradable nor non-tradable are classified as “other.” All variables are industry-specific. For example, in Panel A, county leverage is the weighted average leverage ratio across all publicly listed firms with *tradable* establishments in the county, and weights are based on firms’ shares of *tradable* county-level employment. Likewise, employment growth is the growth rate of *tradable* county-level employment. Observations are weighted by county-level employment. Standard errors are double clustered at the county and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

*Panel A: Tradable industries*

	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.039* (0.021)	-0.040** (0.020)	-0.055** (0.025)
County fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R-squared	0.23	0.23	0.24
Observations	88,300	85,200	82,000

*Panel B: Non-tradable industries*

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	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.034** (0.015)	-0.044** (0.017)	-0.038** (0.017)
County fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R-squared	0.35	0.36	0.36
Observations	89,700	86,500	83,300

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*Panel C: Other industries*

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	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.037* (0.020)	-0.063*** (0.022)	-0.060*** (0.021)
County fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R-squared	0.29	0.30	0.31
Observations	89,700	86,500	83,300

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**Table A.9**

Broader definitions of regions.

This table presents variants of the regressions in columns (4) to (6) of Table 10 in which regions are based on MSAs (Panel A) or states (Panel B) in lieu of counties. Observations are weighted by region-level employment. Standard errors are double clustered at the region and year level. The sample period is from 1976 to 2011. \*, \*\*, and \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

<i>Panel A: MSAs</i>			
	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.071* (0.042)	-0.110*** (0.036)	-0.097*** (0.035)
MSA fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R-squared	0.46	0.46	0.49
Observations	11,300	11,000	10,600
<i>Panel B: States</i>			
	$\Delta \log(\text{Emp})$ (0,3)	$\Delta \log(\text{Emp})$ (1,4)	$\Delta \log(\text{Emp})$ (2,5)
	(1)	(2)	(3)
$\Delta \text{Lev}(-3,0)$	-0.129* (0.073)	-0.183*** (0.054)	-0.128** (0.048)
State fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R-squared	0.60	0.60	0.63
Observations	1,500	1,500	1,400