Discussion

"Flexibility Costs of Debt: Danish Exporters During the Cartoon Crisis"

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Background

Research Question

Does LEVERAGE reduce FLEXIBILITY to respond to negative demand shocks?

What Does it Do?

- Danish firms exporting to Muslim countries were hit by the crisis. Exports to Muslim countries fell.
- How do firms respond to the sudden decline in sales precipitated by the crisis? Does leverage matter in determining how firms respond?

What Does it Find?

- Low leverage firms:
  - increase exports to other markets
  - maintain sales and employment
  - receive more trade credit from suppliers
  - increase SG&A and fixed investments
  - add new product categories
- High leverage firms:
  - make fewer product innovations
  - experience decline in sales and employment
  - increase operational flexibility by outsourcing and reducing employment
- Conclusion: Debt reduces flexibility.

How do We Interpret the Findings?

- Multiple interpretations
  - *Paper's interpretation:* Debt restricted firms' response to a negative demand shock.
  - *Alternative interpretation:* High leverage firms are not otherwise the same as low leverage firms. They face different circumstances. They are competing on different margins. Perhaps operating in the less profitable segment of the market. Relying more on trade credit.
  - It was perhaps optimal for high-leverage firms not to respond.
  - It is difficult to say that the lack of response was because of high leverage.
- All of the tests focus on the immediate response in 2006. We know the crisis dissipated by mid-2007. Was it optimal to respond?

Examining Alternatives: Is Leverage a Proxy for Other Factors?

Table 9: Alternative Explanations for Differential Adjustment of High- and Low-Leverage Firms

Each panel in the table reports results for a separate regression. All regressions are analogous to the main specification but enriched with an interaction of exposure indicator, year fixed effects, and the main additional regressor of interest. In panels A-B the additional regressor is a continuous measure of firm size, defined as total employment or total sales. In panel C, the additional regressor is the number of products exported by the firm. In panels D-E we include measures of managerial quality based on managers' average education and pay. The main independent variable is the triple interaction of exposure to the boycott (treatment), having high leverage, and post-boycott period (year 2006). Notice that coefficients for Treatment X 2006 are not reported, because after additional regressors are added, there is no single coefficient that identifies the effect for low-leverage firms. In all regressions, standard errors are clustered at the industry level.

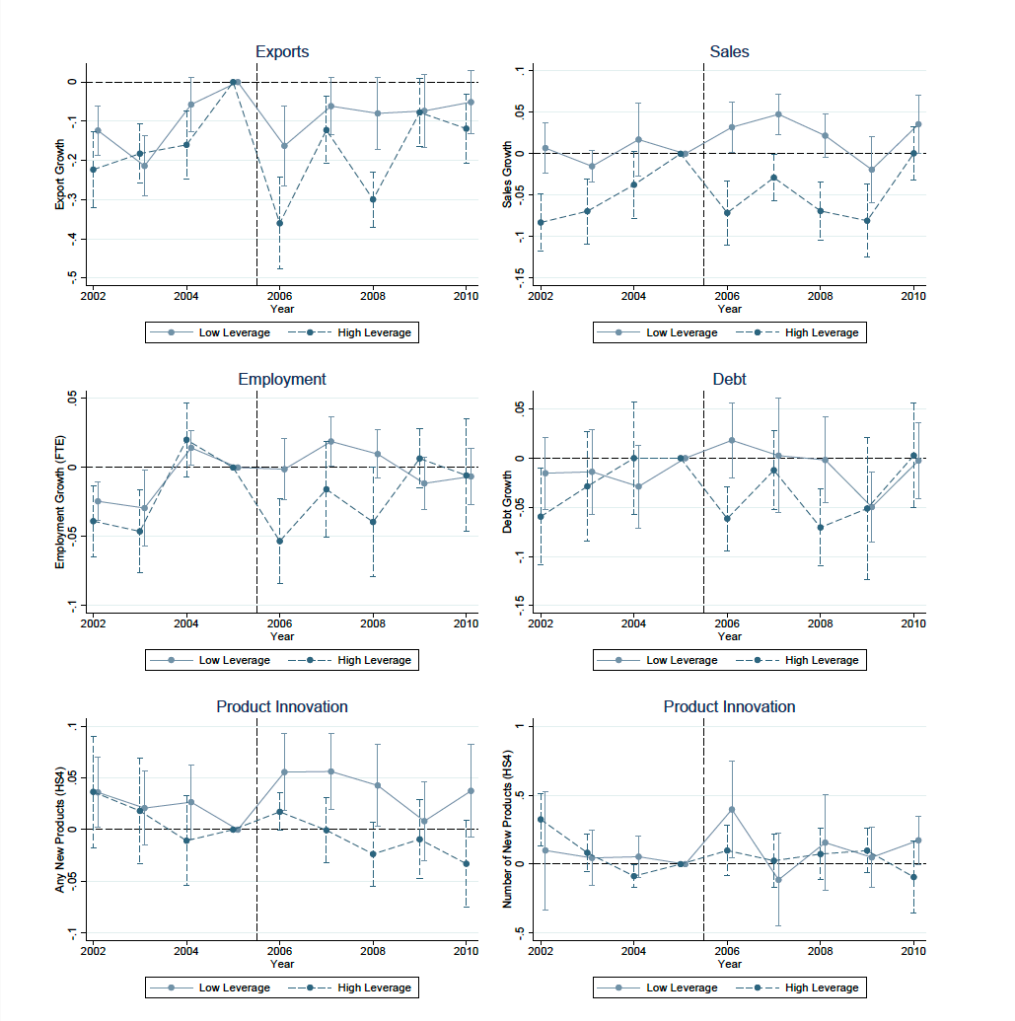
	(1)	(2	(3)	(4)	(5)	(6)
Model Extension	Δln(Export) (Muslim)	Δln(Sales)	Δln(Debt)	ΔNew Exp Prod (HS6)	ΔNew Prod (HS6)	Δln(FTE Empl)
Panel A: Employment X Year FE X Exposed						
Treated X 2006	0.0676	-0.0661**	-0.0719**	-0.2686*	-0.3463*	-0.0522***
X High Leverage	(0.100)	(0.025)	(0.030)	(0.131)	(0.176)	(0.016)
Panel B: Sales X Year FE X Exposed						
Treated X 2006	0.0811	-0.0736**	-0.0771**	-0.2493**	-0.3179*	-0.0516***
X High Leverage	(0.098)	(0.028)	(0.029)	(0.118)	(0.162)	(0.016)
Panel C: Number of Export Products X Year FE X Exposed						
Treated X 2006	0.1084	-0.0679**	-0.0748**	-0.2788*	-0.3808**	-0.0572***
X High Leverage	(0.089)	(0.027)	(0.030)	(0.143)	(0.181)	(0.016)
Panel D: Manager Education X Year FE X Exposed						
Treated X 2006	-0.0335	-0.0648***	-0.0663**	-0.3830**	-0.5055**	-0.0462***
X High Leverage	(0.127)	(0.016)	(0.028)	(0.156)	(0.208)	(0.016)
Panel E: Manager Pay X Year FE X Exposed						
Treated X 2006	-0.0292	-0.0540**	-0.0657*	-0.4489**	-0.5870**	-0.0443**
X High Leverage	(0.124)	(0.019)	(0.036)	(0.171)	(0.217)	(0.017)

*** p<0.01, ** p<0.05, * p<0.1

Comments on Alternatives

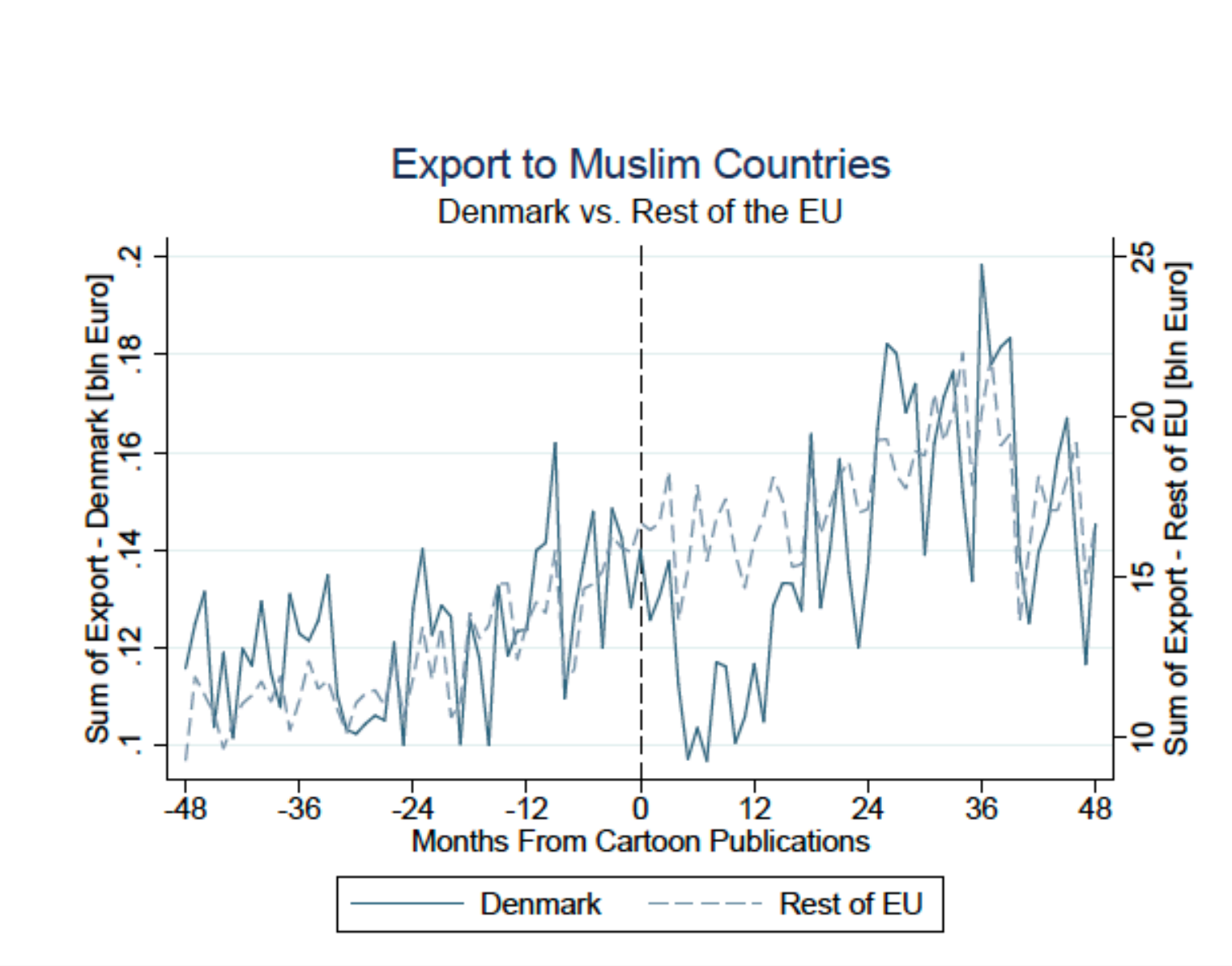
- Table 9 is presented to address the possibility that leverage is a proxy for other factors that really matter in defining the response of high leverage group.
- First, the paper does not present the coefficient on whether small and large firms differed in their response to the boycott. Or, firms with greater number of export products behave differently.
- Second, the list of missing factors that leverage could proxy for is fairly large.

Medium Run Analysis: Extending to 2010

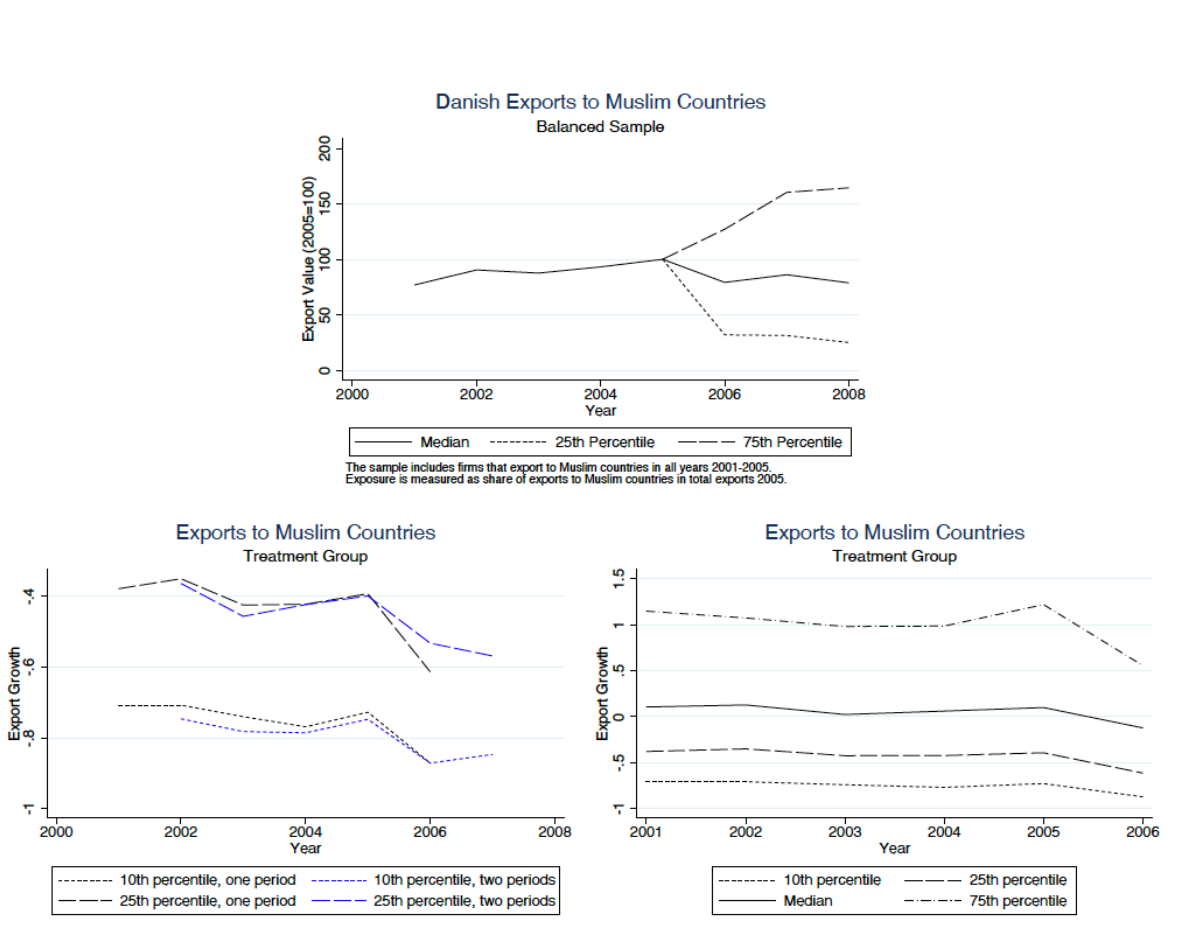


- Financial crisis should have magnified the differences. However, we see the opposite.

Danish Exports to Muslim Countries Recovered by mid-2007



However, Many Pre-Boycott Exporters Retrenched Permanently



- If the shock is temporary, why do existing exporters not recover fully? Even low leverage exporters don't fully recover exports to

Measuring Exposure

- Most treatment firms have little exposure to the Crisis.
  - Median firm has relatively small exposure to boycott. The median exports to Muslim countries is low. The exposure as % of sales is even lower.
  - Boycott had a large effect on firms with high exposure and little effect on firms with low exposure.
- Should we examine high and low exposure firms separately?

Response of Liabilities

Table 3: Response of Liabilities

All regressions include firm fixed effects, industry-year fixed effects, and binary variables for each year interacted with indicators for high leverage. The main independent variable is triple interaction of exposure to the boycott (treatment), having high leverage, and post-boycott period (year 2006). Dependent variables are the log-changes in total debt (column 1), short-term debt to suppliers (column 2), other short-term debt (column 3), and long-term debt (column 4-5). All columns consider the log of debt, except column 5, which measures log(1 + long-term debt). The bottom row presents the mean level of the dependent variables in the pre-boycott period (in millions of DKK). In all regressions, standard errors are clustered at the industry level (53 industries). Joint p-val row presents a p-value from the F-test for significance of the high-leverage firms' response (the sum of baseline coefficient for low-leverage firms and differential effect for high-leverage firms).

	(1)	(2)	(3)	(4)	(5)
	Δln(Debt)	Δln(Short-Term Debt)		Δln(Long	Δln(1+Long
		To Suppliers	To Other	-Term Debt)	-Term Debt)
Treatment	0.0447**	0.0893***	0.0023	0.0224	0.2411**
X 2006	(0.019)	(0.029)	(0.034)	(0.069)	(0.114)
Treatment	-0.0796**	-0.1085***	-0.1015**	-0.0974**	-0.1565
X High	(0.029)	(0.031)	(0.044)	(0.047)	(0.141)
X 2006					
Obs	58,996	58,530	58,610	39,364	59,011
R-squared	0.015	0.023	0.016	0.030	0.046
Firms	13,649	13,636	13,643	12,214	13,650
Joint p-val	0.0745	0.558	0.00944	0.166	0.471
Sample	31320	6204	17664	11427	7434
Avg 01-05					

*** p<0.01, ** p<0.05, * p<0.1

- Trade credit is an operational liability. It expands and shrinks with sales.
- If it tracks sales, then what do we make of the results on liabilities?

SG&A and Investments

Table 6: Investment Response

All regressions include firm fixed effects, industry-year fixed effects, and binary variables for each year interacted with indicators for high leverage. The main independent variable is triple interaction of exposure to the boycott (treatment), having high leverage, and post-boycott period (year 2006). Dependent variables are the log of SG&A expenditures (column 1), log of investment and log of 1 + total investment (columns 2 and 3), and the log of equipment purchases and log of 1 + equipment purchases (columns 4 and 5).. Equipment purchases are a subset of total investment. The bottom row presents mean of the levels of dependent variables in the pre-boycott period in 1,000s of DKK. In all regressions, standard errors are clustered at the industry level. Joint p-val row presents a p-value from the F-test for significance of the high-leverage firms' response (the sum of baseline coefficient for low-leverage firms and differential effect for high-leverage firms).

	(1) ln(SG&A Expenditures)	(2) ln(Inv)	(3) ln(1+Inv)	(4) ln(Equip)	(5) ln(1+Equip)
Treatment X 2006	0.0640***	0.0763*	0.3444***	0.1004*	0.3447***
	(0.019)	(0.039)	(0.054)	(0.051)	(0.061)
Treat X High X 2006	-0.0540	-0.0552	-0.2496***	-0.0655	-0.2532***
	(0.035)	(0.044)	(0.072)	(0.051)	(0.071)
Observations	57,830	53,248	59,019	52,920	59,019
R-squared	0.025	0.014	0.058	0.016	0.055
Firms	13,641	13,465	13,650	13,447	13,650
Joint p-val	0.718	0.621	0.172	0.583	0.197
Sample Avg 01-05	8222	3117	2888	1752	1613

*** p<0.01, ** p<0.05, * p<0.1

Other Financial Variables

- Are low leverage firms more profitable? Do they hold more cash?
- How do cash holdings respond to the shock?
- Do firms adjust their payout policies?

Conclusion

- Very clean natural experiment: Exogenous shock to demand for firms' products.
- Important question: How does debt affect flexibility? Does leverage determine how firms respond to negative demand shocks?
- *Challenge:* Isolate the role of debt from those of other factors that determine a firm's response to shocks.