Internet Appendix for "Financial Contracting and Organizational Form: Evidence from the Regulation of Trade Credit"*

This Internet Appendix containes information and results referred to but not included in the published version of this article. The Appendix contents are organized as follows:

*Citation format: Breza, Emily, and Andres Liberman, Internet Appendix to "Financial Contracting and Organizational Form: Evidence from the Regulation of Trade Credit," Journal of Finance [DOI STRING]. Please note: Wiley-Blackwell is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing material) should be directed to the authors of the article.

A. Supplemental Figures

FIGURE IA1. Absence of bunching in sales to superstore

This graph shows the histogram of firms that sold to the Superstore in 2006 by sales to the Superstore during 2006 in UF. The vertical line represents UF 60,000, the cutoff for the Agreement.

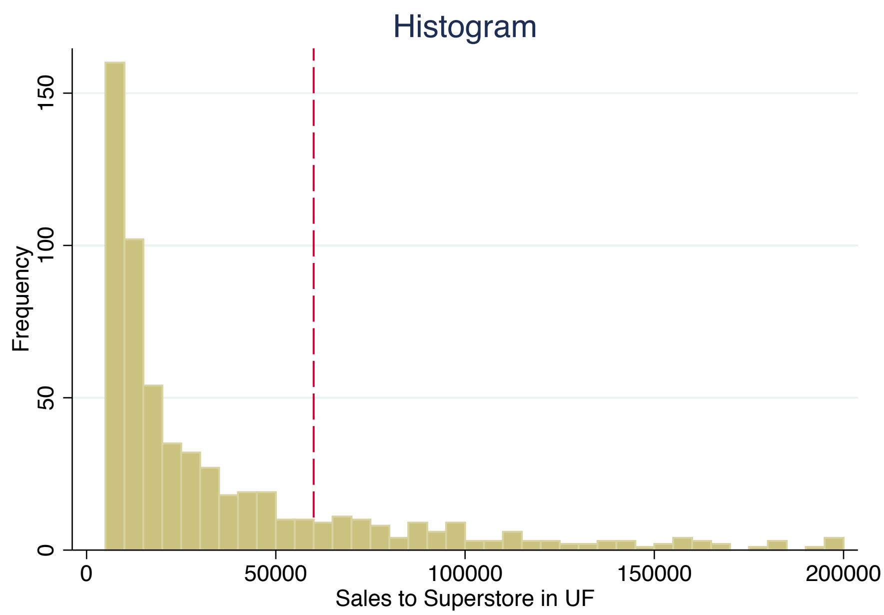
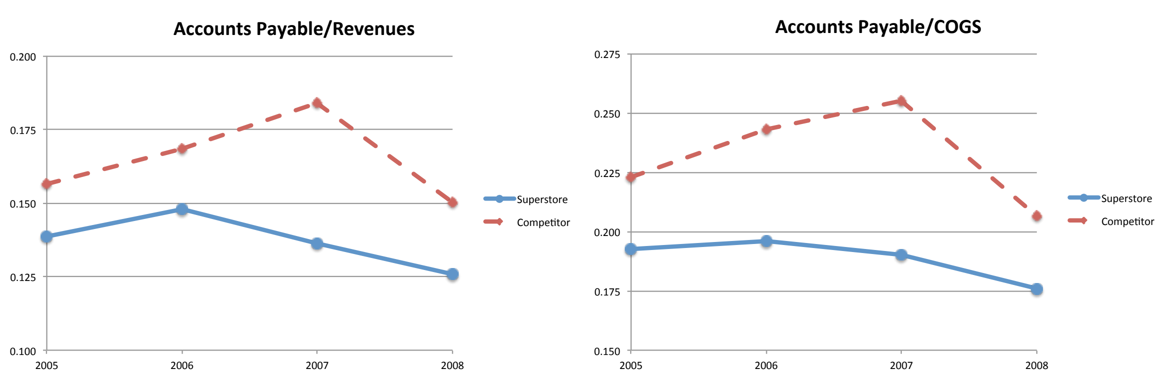


FIGURE IA2. Accounts payable for Superstore and competitor

This graph shows the end-of-year Accounts Payable divided by yearly revenues (left) and Accounts Payable divided by COGS (right) for the Superstore (solid line) and its main competitor (dashed line). Source of accounting data: Superintendencia de Valores y Seguros, FECU Consolidada, and own calculations.



B. Supplemental Tables

Table IAI. Industry distribution of transactions

This table shows the number of product-firm observations in 2006 for each of the 16 Departments, the broadest product category defined by the Superstore. Treated firms are those with total 2006 revenues between UF 25,000 and UF 100,000 and 2006 sales to the Superstore below UF 60,000. Control firms are those with total 2006 revenues between UF 100,000 and UF 600,000 or 2006 sales to the Superstore above UF 60,000. We restrict the sample to those firms with total 2006 revenues between UF 25,000 and UF 600,000.

	All (N=4,784)	Treated (N=1,656)	Control (N=3,128)
CLOTHING	295	84	211
BABY	180	31	149
HOME	219	68	151
PETS	37	13	24
GENERAL FOOD	1,060	321	739
PERISHABLES	499	83	416
ENTERTAINMENT	453	158	295
HARDLINES	526	212	314
IMPULSIVE SHOPPING	24	2	22
MEAT AND FISH	233	68	165
DELI	300	136	164
FRUITS & VEGETABLES	508	290	218
BREAD & BAKING	193	73	120
BUSINESS	178	93	85
RESTAURANT	53	12	41
HEALTH & WELLBEING	26	12	14

Table IAII. Supplemental summary statistics: main sample

This table provides information on the variation underlying the identification of the causal effects of trade credit on supplier outcomes. Treated firms are those with total 2006 revenues between UF 25,000 and UF 100,000 and 2006 sales to the Superstore below UF 60,000. Control firms are those with total 2006 revenues between UF 100,000 and UF 600,000 or 2006 sales to the Superstore above UF 60,000. We restrict the sample to those firms with total 2006 revenues between UF 25,000 and UF 600,000.

Analysis Sample Description	
Number of Treated Firms	342
Number of Control Firms	392
Number of Products Sold by Both T AND C Firms in 2006	618
Median # Obs Per Product Conditional on T AND C Making Sale	4
Observations	19,136
Firms	734

Table IAIII. Robustness: timing of effects

This table shows that the effects of the Agreement on the probability that Treated firms sell to the Superstore after the Agreement is in place do not manifest untill the Agreement is in place in 2007. We run the regression model:

$$trade_{i,j,t} = \omega_{i,j} + \omega_{j,t} + \sum_t \beta_t month_t \times treated_i + \varepsilon_{i,j,t}.$$

at the product×firm×month level, and present the coefficients β_t of interaction of the treatment dummy and November 2006, December 2006, and all months in 2007 (Panel A). In panel B we replace the $month_t$ by $quarter_t$ dummies, and present the interaction coefficients between the third quarter of 2006 and 2009 (Panel B). The excluded category for the interaction corresponds to products sold between January and October 2006 (Panel A) and between 2006 Q1 and 2006 Q2 (Panel B). Treated firms are those with total 2006 revenues below UF 100,000 and total 2006 sales to the Superstore below UF 60,000. We restrict the sample to firms with total 2006 revenues between UF 25,000 and UF 600,000. We exclude products that were not sold during 2006. We show interacted coefficients from November 2006 to June 2007 for the monthly regression and from 2006 Q3 to 2008 Q4 for the quarterly one. The data is at the product×firm×month level. Standard errors are clustered at the firm level. *, ** and *** represent significance at the 10%, 5%, and 1% respectively.

Panel A: monthly coefficients

Variable	trade		trade
$treated \times Nov06$	-0.0001	$treated \times Mar07$	-0.0426**
	(0.017)		(0.017)
$treated \times Dec06$	0.0045	$treated \times Apr07$	-0.0134
	(0.018)		(0.017)
$treated \times Jan07$	0.0103	$treated \times May07$	-0.0274
	(0.019)		(0.019)
$treated \times Feb07$	-0.0250	$treated \times Jun07$	-0.0367*
	(0.018)		(0.019)
R^2		0.669	
Obs.		161,016	
Firms		734	

Panel B: quarterly coefficients

Variables	trade		trade
$treated \times 2006Q3$	0.0126	$treated \times 2007Q4$	-0.0216
	(0.014)		(0.024)
$treated \times 2006Q4$	0.0060	$treated \times 2008Q1$	-0.0368
	(0.018)		(0.023)
$treated \times 2007Q1$	-0.0148	$treated \times 2008Q2$	-0.0326
	(0.018)		(0.024)
$treated \times 2007Q2$	-0.0216	$treated \times 2008Q3$	-0.0341
	(0.019)		(0.025)
$treated \times 2007Q3$	-0.0221	$treated \times 2008Q4$	-0.0499*
	(0.021)		(0.027)
R^2		0.635	
Obs.		322,032	
Firms		734	

TABLE IAIV. Robustness: dynamic effect

This table documents the dynamic effects of the Agreement on the probability that Treated firms sell to the Superstore after the Agreement is in place. We run the regression model:

$$trade_{i,j,t} = \omega_{i,j} + \omega_{j,t} + \sum_t \beta_t month_t \times treated_i + \varepsilon_{i,j,t}.$$

at the product×firm×month level, and present the coefficients β_t of interaction of the treatment dummy and all months in 2007 (Panel A). In panel B we replace the $month_t$ by $quarter_t$ dummies, and present the interaction coefficients between 2007 and 2009 (Panel B). The excluded category for the interaction corresponds to products sold in 2006. Treated firms are those with total 2006 revenues below UF 100,000 and total 2006 sales to the Superstore below UF 60,000. We restrict the sample to firms with total 2006 revenues between UF 25,000 and UF 600,000. We exclude products that were not sold during 2006. The data is at the product×firm×month level. Standard errors are clustered at the firm level. *, ** and *** represent significance at the 10%, 5%, and 1% respectively.

Panel A: monthly coefficients

Variable	trade		trade
$treated \times Jan07$	0.0100	$treated \times Jul07$	-0.0204
	(0.018)		(0.020)
$treated \times Feb07$	-0.0254	$treated \times Aug07$	-0.0293
	(0.017)		(0.019)
$treated \times Mar07$	-0.0429***	$treated \times Sep07$	-0.0304
	(0.015)		(0.020)
$treated \times Apr07$	-0.0138	$treated \times Oct07$	-0.0428**
	(0.017)		(0.020)
$treated \times May07$	-0.0278	$treated \times Nov07$	-0.0232
	(0.018)		(0.021)
$treated \times Jun07$	-0.0371**	$treated \times Dec07$	-0.0126
	(0.018)		(0.022)
R^2	0.669		
Obs.	161,016		
Firms	734		

Panel B: quarterly coefficients

Variables	trade		trade
$treated \times 2007Q1$	-0.0195	$treated \times 2008Q3$	-0.0388*
	(0.014)		(0.022)
$treated \times 2007Q2$	-0.0262*	$treated \times 2008Q4$	-0.0545**
	(0.015)		(0.024)
$treated \times 2007Q3$	-0.0267	$treated \times 2009Q1$	-0.0340
	(0.018)		(0.026)
$treated \times 2007Q4$	-0.0262	$treated \times 2009Q2$	-0.0327
	(0.020)		(0.025)
$treated \times 2008Q1$	-0.0415**	$treated \times 2009Q3$	-0.0380
	(0.020)		(0.028)
$treated \times 2008Q2$	-0.0372*	$treated \times 2009Q4$	-0.0445
	(0.021)		(0.030)
R^2	0.635		
Obs.	322,032		
Firms	734		

Table IAV. Summary statistics: placebo sample

This table shows the mean, standard deviation and median of variables for Treated-Placebo and Control-Placebo firms. Panel A shows variables at the firm-level, while Panel B shows variables at the product-firm level. Treated-placebo firms are those with total 2006 revenues between UF 100,000 and UF 600,000. Control-placebo firms are those with total 2006 revenues above UF 600,000. We restrict the sample to those firms with total 2006 revenues above UF 100,000. * denotes that the difference in the Mean of Treated and Control groups is statistically different from zero at the 10% level.

Panel A: Firm level average monthly variables

	All (N=619)			Placebo Treated (N=389)			Placebo Control (N=230)		
	Mean	p50	St. Dev.	Mean	p50	St. Dev.	Mean	p50	St. Dev.
log(revenues)*	19.13	19.58	2.71	18.62	19.18	2.32	19.98	20.82	3.09
# Departments*	1.73	1.00	1.20	1.62	1.00	1.09	1.92	1.50	1.35
# Products*	10.55	4.00	28.51	7.93	3.00	14.13	14.98	7.00	42.71
factoring (%)*	20.52	0.00	40.42	23.39	0.00	42.39	15.65	0.00	36.41

Panel B: Product-firm level 2006 monthly average

	All (N=6,531)			Placebo Treated (N=3,085)			Placebo Control (N=3,446)		
	Mean	p50	St. Dev.	Mean	p50	St. Dev.	Mean	p50	St. Dev.
log(price)	7.05	6.90	1.50	7.02	6.91	1.45	7.08	6.88	1.55
log(units)*	7.11	7.19	2.77	6.49	6.48	2.56	7.67	7.83	2.83
log(revenues)*	14.16	14.37	2.51	13.50	13.78	2.38	14.75	14.96	2.47
mark-up (%)	31.42	28.33	17.69	31.41	29.13	15.42	31.43	27.73	19.48
supplier market share (%)*	20.65	6.79	28.73	13.87	3.30	23.79	26.72	12.52	31.31

Table IAVI. Supplier procurement and vertical integration: alternative specifications

This table shows two margins of adjustment to the Agreement, vertical integration by the Superstore and reduced total procurement, as well as Superstore (log) gross profits. The table presents the estimated coefficient of interest β of regression:

$$outcome_{j,t} = \alpha_j + \delta_t + \beta post_t \times exposure_j + \epsilon_{j,t},$$

which measures the relative change in the outcome for products with varying exposure to the Agreement, measured by the fraction of 2006 sales to the Superstore made by affected firms, before and after the reduction in days payable. Affected firms are those with total 2006 revenues below UF 100,000 and total 2006 sales to the Superstore below UF 60,000. We restrict the sample to firms with total 2006 revenues between UF 25,000 and UF 600,000. In columns 1 through 6 we place no further restriction on the sample. In Columns 7 through 12 we restrict to products sold either by a Treated firm or by a Control firm, as defined in the text. The outcomes are "*subsidiary*": incidence of procurement from a Superstore subsidiary, "*unitsprocured*" the overall number of units procured of good j in month t, standardized by the sample mean and standard deviation, and "*grossprofits*", the product-level average Superstore gross profits, defined as sales to final customers minus purchases from suppliers. In columns 2, 4, 6, 8, 10, and 12 we replace the interaction variable $exposure_j$ with $highexposure_j$, a dummy that equals one if the 2006 product market share of affected firms is higher than the cross-sectional average market share across products. Data is a panel at the product × year level. $post = 0$ represents the year 2006 and $post = 1$ includes all years up to 2011. Standard errors are clustered at the product level. *, ** and *** represent significance at the 10%, 5%, and 1% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample selection	All products		All products		All products	
Dependent variable	*subsidiary*	*subsidiary*	*unitsprocured*	*unitsprocured*	*grossprofits*	*grossprofits*
$post \times exposure$	0.0665***		-0.0492***		-48.58	
	(0.015)		(0.019)		(29.99)	
$post \times highexposure$		0.0474***		-0.0305**		-33.87
		(0.011)		(0.013)		(23.75)
R^2	0.837	0.837	0.969	0.969	0.948	0.948
Obs.	7,068	7,068	7,068	7,068	7,068	7,068
Products	1,178	1,178	1,178	1,178	1,178	1,178

	(7)	(8)	(9)	(10)	(11)	(12)
Sample selection	Products sold by T or C firms		Products sold by T or C firms		Products sold by T or C firms	
Dependent variable	*subsidiary*	*subsidiary*	*unitsprocured*	*unitsprocured*	*grossprofits*	*grossprofits*
$post \times exposure$	0.0539***		-0.0549**		-81.91**	
	(0.017)		(0.021)		(37.29)	
$post \times highexposure$		0.0428***		-0.0321**		-54.45*
		(0.011)		(0.014)		(27.75)
R^2	0.845	0.846	0.969	0.969	0.948	0.948
Obs.	6,045	6,045	6,045	6,045	6,045	6,045
Products	1,009	1,009	1,009	1,009	1,009	1,009

Table IAVII. Heterogeneous effects: large goods

The table reports how the estimated effects of the change in days payable on the extensive margin and supplier revenues (Columns 1 and 2, respectively), as well as vertical integration at the product level (Column 3), vary whether a product is *large*, defined as products whose size attribute, as per the Nielsen consumer data, is larger than the median. The table reports the coefficients β and γ of regression:

$$outcome_{i,j,t} = \beta post_t \times treated_i + \gamma post_t \times treated_i \times large_j + \omega post_t \times interaction_{i,j} + \alpha_{j,t} + \omega_{i,j} + \epsilon_{i,j,t},$$

and the vertical integration result at the product level,

$$subsidiary_{j,t} = \alpha_j + \delta_t + \beta post_t \times highexposure_j + \gamma post \times highexposure_j \times large_j + \delta post_t \times large_j + \epsilon_{j,t}.$$

Treated firms are those with total 2006 revenues below UF 100,000 and total 2006 sales to the Superstore below UF 60,000. We restrict the sample to firms with total 2006 revenues between UF 25,000 and UF 600,000. Post covers the years after 2006 until 2009 for columns 1 and 2, and all years up to 2011 for column 3. Standard errors are clustered at the firm level. *, ** and *** represent significance at the 10%, 5%, and 1% respectively. The sample is restricted to product categories included in the Nielsen consumer dataset. Post covers the years after 2006. Standard errors are clustered at the firm level. *, ** and *** represent significance at the 10%, 5%, and 1% respectively.

	(1)	(2)	(3)
Interaction var.	large goods		
Dependent var.	trade	$log\,(revenues + 1)$	subsidiary
$post \times treated$	-0.0615	-0.7938	
	(0.045)	(0.566)	
$post \times treated \times large$	-0.0137	0.2585	
	(0.057)	(0.711)	
$post \times highexposure$			-0.0063
			(0.025)
$post \times highexposure \times large$			0.0350
			(0.031)
R^2	0.649	0.735	0.863
Obs.	15,100	15,100	3,702
Firms / Products	573	573	617

C. Framework

We present a simple framework that illustrates how trade credit may help provide incentives to suppliers to increase the value of the good procured.

A. Set-Up

We consider the market for a good g. In this market there are two risk neutral firms: a supplier, which produces the good, and a buyer, which sells the good to end consumers.

We first consider cases where the buyer does not produce the good in-house and instead procures from an independent supplier. The good may be of high or low value, depending on an unobservable investment e made by the supplier. A good of high value sells in the consumer market for V. However, with probability $q_g(e)$, the good is of low value and is worth $V - L$. The key friction in our model is that the value of the product is not observable at the time the supplier sells the good to the buyer. To obtain closed form solutions, we let $q_g(e) = \bar{q}_g - e$, where $e \leq \bar{q}_g$ and $\bar{q}_g > 0$. The supplier bears the cost $c(e) = \frac{1}{2}e^2$ of investment. We characterize the first best solution by the choice of investment that maximizes total surplus:

$$\max_{0 \leq e \leq \bar{q}_g} V - q_g(e) L - c(e). \tag{C1}$$

The first-best choice of investment derived from the first order condition is $e^{FB} = \min\{L, \bar{q}_g\}$.

We study the competitive equilibria obtained under three contracting regimes: (1) Trade Credit contracts, (2) No Trade Credit Spot contracts, and (3) No Trade Credit Relational contracts. We also relax the assumption that the buyer cannot produce the good itself and explore when vertical integration may be optimal.

B. Trade Credit Spot Contracts

The buyer can only verify the good's value with a time lag. For example, the buyer can observe demand for the good some time after the supplier delivers it, or it can monitor the incidence of returns from the end customer. Further, the supplier's unobserved investment could consist of marketing research, or a marketing campaign or of supply-chain management activities, all of which affect the value of the good and are not perfectly observed by the buyer. We model trade credit, which delays payment, as a contracting technology that allows buyers and suppliers to condition payments upon value.

Trade credit contracts have two parts, (τ_N, ρ). τ_N is the price the buyer pays to the supplier for a good of standard quality, and ρ represents the discount for a low quality good. We assume that the parties can agree to share the surplus through Nash Bargaining, where λ represents the supplier's bargaining power and b_S is the supplier's outside option. We normalize the buyer's outside option to 0.[1] The timing is as follows: (1) the buyer offers the supplier a contract, (2) given that contract, the supplier chooses its optimal level of investment e and produces the good, (3) the buyer receives the good, (4) the good's quality is revealed and the buyer pays the supplier. We assume throughout that buyers cannot renege on their trade credit contracts ex post by paying only the reduced price.

To characterize the equilibrium, note that the supplier will have the incentive (at an interior solution) to make the first best investment, e^{FB}, if $\rho = L$. Then, under Nash bargaining, τ_N will be chosen optimally such that the expected payoff of the supplier (S) under trade credit contracts (TC), Π_S^{TC}, equals a share λ of the net surplus,[2]

$$\Pi_S^{TC} = \lambda \left(V - \bar{q}_g L + \frac{L^2}{2} - b_S \right) + b_S. \tag{C2}$$

C. No Trade Credit Spot Contracts

We assume that in the absence of trade credit, payments are made before product value becomes observable. Because the parties cannot contract on quality, the buyer cannot provide the supplier with incentives, and no investment will be made.[3] Total surplus equals $V - \bar{q}_g L - b_S$, and payment to the supplier (S) in the No Trade Credit Spot contract (NT, S) equals:

$$\Pi_S^{NT,S} = \max\left\{\lambda\left(V - \bar{q}_g L - b_S\right) + b_S, b_S\right\}. \tag{C3}$$

Equations (C2) and (C3) imply that buyers (and suppliers) are strictly worse off in the No Trade Credit Spot market equilibrium than in the Trade Credit Spot market equilibrium. In this equilibrium, buyers will pay a lower price to suppliers. If the value of the surplus is sufficiently low (i.e. $V - \bar{q}_g L < b_S$), no trade may be a preferred choice by the contracting parties. Note that trade is more likely for goods with V large and for suppliers with b_S small.

D. No Trade Credit Relational Contracts

In reality, buyers and suppliers may engage in long-term relationships, which may strengthen supplier incentives. Following Baker, Gibbons, and Murphy (2002), we explore the degree to which relational contracts, can substitute for trade credit. We follow the literature and look for equilibrium contracts $\{\tau_N, \rho\}$ paid each period that are sustained by grim-trigger punishment threats. We assume that the buyer pays τ_N to the supplier upon receipt of the goods, expecting a high value good. However, if the value is later revealed to be low, the seller is requested (but not contractually obligated) to refund a portion ρ of the procurement price.

The timing of the model is as follows: (1) the buyer offers the supplier a contract, (2) given the contract terms, the supplier chooses its optimal level of investment e and produces the good, (3) the buyer receives the good and pays τ_N, and (4) the good's value is revealed and the supplier refunds ρ. Between contracting periods, supplier firms discount the future at an interest rate r.

In an equilibrium, if the supplier ever defaults on a punishment payment ρ, then the supplier is forced to contract in the spot market at every period in the future. Then, under a grim-trigger punishment threat, the supplier will be willing to make a positive punishment payment in case the good is of low value as long as this payment is sufficiently small.[4] As discussed above, the maximal punishment value in the spot market is $\rho = 0$. Hence, as long as the relational contract is more valuable to the supplier than the spot market contract, the supplier will be able to commit to a strictly positive level of investment. Moreover, the first best level of investment (at an interior solution, $\bar{q}_g > L$) is achievable under relational contracting when setting $\rho = L$ is incentive-compatible. This occurs when:

$$r \leq \frac{L\lambda}{2}. \tag{C4}$$

Condition (C4) characterizes the parameter space where first best investment can be sustained by the value of the future relationship even when the ability to extend trade credit is taken away.

If investment is not first best, then the buyer will choose ρ so that it is not profitable to deviate to the No Trade Credit Spot contract. Given supplier's optimal choice of investment $e = \rho$, total net surplus is split according to Nash bargaining.[5] Thus, when $(V - \bar{q}_g L - b_S) > 0$, the optimal effort level satisfies$\rho^* = 2\left(L - \frac{r}{\lambda}\right)$. This $\rho^\star$ will only be an equilibrium if investment is both positive and strictly less than first best. These conditions are jointly satisfied if:

$$\frac{L\lambda}{2} < r < L\lambda \tag{C5}$$

When condition (C5) holds, relational contracting is better than spot contracting but strictly worse than trade credit contracts. However, for firms with $r \geq L\lambda$, the buyer is unable to use the threat of terminating the relationship to incentivize the firm to produce any non-zero level of investment. This leads to the No Trade Credit Spot contract equilibrium as long as the parties have an incentive to trade.

If $(V - \bar{q}_g L - b_S) < 0$, then under no trade credit spot contracting, trade breaks down and $\Pi_S^{NT,S} = b_S$. This changes the payoff in the punishment phase of the grim trigger equilibrium. It can be shown that in this case $\rho^* = \left(L - \frac{r}{\lambda}\right) + \sqrt{\left(L - \frac{r}{\lambda}\right)^2 + 2\left(V - \bar{q}L - b_S\right)} < 2\left(L - \frac{r}{\lambda}\right)$. Also, note that here, ρ^* is increasing in V and decreasing in b_S. When a relational contract is unable to sustain positive levels of effort, then trade will again break down.[6]

E. Vertical Integration

We end our examination of the equilibria induced by the different contractual regimes by relaxing the restriction that the buyer cannot produce the good in-house. Many authors have discussed the costs of vertical integration (e.g., see Bresnahan and Levin (2013)). Our goal is not to provide a new theory of vertical integration, but rather to provide simple intuition in a reduced form fashion for why a firm may choose to vertically integrate.

We follow Williamson (1973) in assuming that firms are not able to provide very strong incentives to workers (e.g., because of ex post hold-up by the buyer as in Grossman and Hart (1986)). However, as suggested by Holmstrom (1999), we assume that control over productive assets gives firms the ability to monitor workers or incentivize them in a manner that internalizes some of the contractual externalities present in market based relationships. In particular, we assume that the firm has a monitoring technology such that a strictly positive minimum investment level e^{VI}, where $L > e^{VI} > 0$, can be guaranteed if the firm pays a monitoring cost C_m (note that if $e^{VI} > \bar{q}_g$, then the firm will only enforce an investment of $\bar{q}_g$). If the firm does not pay for the monitoring technology, then the workers do not invest.

Under this contract when $e^{VI} < \bar{q}_g$, the buyer's profits are:

$$\Pi_B^{VI} = \max\left\{\Pi_B^{NT,S}, \Pi_B^{NT,S} + (1-\lambda)\left(e^{VI}L - \frac{1}{2}\left(e^{VI}\right)^2 - C_m\right)\right\} \tag{C6}$$

Hence, the buyer will prefer to vertically integrate in the No Trade Credit Spot equilibrium if the cost of monitoring is sufficiently low relative to the employee's level of investment. This may also happen when the parties can enter into relational contracts where the level of investment is below first best and below e^{VI}.

Notes

[1]This assumption can be relaxed without altering the results.

[2]The below expression holds for an interior solution where $L \leq \bar{q}_g$. If $L > \bar{q}_g$ then $\Pi_S^{TC} = \lambda \left(V - \frac{1}{2}\bar{q}_g^2 - b_S\right) + b_S$.

[3]Alternatively, a contracting scheme where the buyer pays a high price up front and the supplier reimburses the buyer in case the good is of low value is, again, not enforceable ex post (see the No Trade Credit Relational contract below). In the same spirit, third-party insurance is infeasible due to moral hazard.

[4]In particular, if Π_S^R denotes the per period expected profits to the supplier (S) from the relational contract (R), then feasible punishments satisfy $\rho \leq \frac{\Pi_S^R - \Pi_S^{NT,S}}{r}$.

[5]From equation (C3), there is a set of parameters such that there is no trade in the No Trade Credit Spot contract. Relational contracts may sustain trade in the absence of trade credit whenever the value of the relationship is sufficiently high (high V or low b_S).

[6]This occurs when $r < \left(L - \sqrt{-2\left(V - \bar{q}L - b_S\right)}\right)\lambda$