Exporting, Capital Investment and Financial Constraints

By

Vlad Manole[*]

and

Mariana Spatareanu[**]

RUTGERS UNIVERSITY, NEWARK WORKING PAPER #2009-005

Abstract: Many firms cite financial constraints as some of the most important impediments to their investment and growth. Using a unique data set from the Czech Republic this paper investigates the importance of financing constraints in the context of exporters. It finds that exporters are less financially constrained than non-exporters. However, after carefully correcting for possible endogeneity and selection issues, the evidence points to less constrained firms self-selecting into exporting rather than exporting alleviating firms' financial constraints. The analysis suggests that easing firms' credit constraints may play an important role in facilitating exporting and that well-developed financial markets that would decrease firms' cost of external finance may be needed in order to benefit from selling in foreign markets.

[*] The Conference Board, 845 Third Avenue, New York, NY 10022, Tel: (212) 339 0280, Email: vlad.manole@conference-board.org
[**]Rutgers University, LICOS and HWWI, Department of Economics, 360 Dr. Martin Luther King, Jr. Blvd. Hill Hall – 804, Newark, NJ 07102-1801, Email: marianas@andromeda.rutgers.edu, Tel: 973 353 5249

Introduction

Firms in developing countries and transition economies often cite financial constraints as one of the primary impediments to their investment and growth. The inability of firms to access outside credit hinders economic development, as recent papers illustrate. In an influential paper, Rajan and Zingales (1998) show that by reducing the costs of external finance to firms, the development of the financial sector encourages economic growth. They find that industries which are relatively more in need of external finance grow faster in countries with more developed financial markets. Recent empirical papers also showed that countries with developed financial systems export relatively more in financially dependent sectors. Beck (2003) shows that financial sector development increases exports in industries that are more in need of external finance, while Becker and Greenberg (2005) find evidence of a positive relationship between higher financial development and higher exports, as access to funds help finance entry costs incurred by exporters. Manova (2008) provides support for this view by showing that countries with developed financial systems export relatively more in industries that are more in need of external funds and that have fewer collateralizable assets.

However, at the firm level, there is relatively little empirical work analyzing the relationship between access to finance, liquidity constraints and exporting and the conclusions are mixed. Campa and Shaver (2002) use a panel of Spanish manufacturing firms to test for links between firms' financial conditions and exporting. They find that cash flows are more stable for exporters than for non-exporters and that exporters' investment is less sensitive to the internal cash flow than in the case of non-exporters.

However, they do not take into account endogeneity or selection issues. Guariglia and Mateut (2005) use UK data and analyze the sensitivities of firms' inventory investment to financial variables. The results suggest that foreign owned firms and UK exporters are less liquidity constraints than the rest of domestic firms. Greenway et al. (2007) focus on the financial health of UK exporters. They measure financial health by leverage and liquidity ratios and find that exporters enjoy better financial health than non exporters; however, they find no evidence that ex-ante financial health promotes exporting.

The only theoretical contribution to this literature is Chaney (2005) who shows that if there are fixed costs associated with entry in foreign markets and if firms are constrained in their ability to finance these costs, only firms with enough ex-ante liquidity will be able to export. Even though there might be other firms that could profitably export, if they are short of enough liquidity they will not export. Nonetheless, he does not empirically test his predictions.

This paper investigates the importance of liquidity constraints in the context of exporters using unique survey and firm level data from a transition economy, the Czech Republic. In particular, we are interested to analyze whether exporting alleviates the liquidity constraints of domestic firms or whether, as Chaney (2005) conjectures, less constrained firms self-select into exporting. We differentiate between continuous exporters and starters and also account for other firms' characteristics that may impact their access to external credit. We analyze the investment-cash flow sensitivities of exporters across a wide range of manufacturing industries that are more or less in need of external finances. Finally, we carefully correct for possible endogeneity in estimation as

well as for the self-selection of the less liquidity constrained firms into exporting. Our analysis is based on a unique data set collected by the World Bank through two surveys of 365 domestic firms in the Czech Republic, which allows us to identify exporting companies along with information about the timing of exporting, details regarding firm management, etc. The survey responses are supplemented with several years of data on firms' balance sheets and profit and loss statements from the Amadeus database.[1]

How would selling in foreign markets affect firms' financial constraints? There are several ways in which exporting may impact domestic firms' dependence on internal funds. Exporters are likely to benefit from a diversification effect associated with selling in foreign markets whose business cycles are not perfectly correlated: these firms have more stable sales and cash flows, thus more easily financing long term investments. More stable cash flows makes it less likely that exporters default on their debt, thus increasing their creditworthiness in the eyes of the lending institutions and easing their access to external credit (Campa and Schaver, 2002). Exporters also tend to be larger, more productive, have larger cash flows and therefore may have an easier time getting access to external finance, or get preferential terms on their outside funds (Bernard and Jensen, 1999; Clerides et al. 1998; Delgado et al. 2002). Therefore we would expect exporting firms' investments to be less sensitive to internal funds than their domestic counterparts'.

However, the existence of fixed costs to enter foreign markets (see Roberts and Tybout 1994, Chaney, 2005) implies that only firms that have enough liquidity to finance these costs are able to export. If this is the case, then firms that are ex-ante less financially constrained may self-select into exporting.

The empirical results indicate that Czech exporters are different from the rest of domestic firms. Exporters have higher value added, liquidity ratios and cash flow levels. The analysis shows that they face less liquidity constraints than non-exporters, even after accounting for differences in firm size and the level of external debt. Moreover, we find that exporting eases firm liquidity constraints precisely in those sectors that are relatively more in need of external financing.[1]   Finally, after carefully correcting for possible endogeneity as well as for the selection of the less liquidity constrained firms into exporting we find no evidence that the exporters are different than non-exporters in terms of the sensitivity of their investment to internal funds. Rather, the evidence is consistent with unconstrained firms, which have easier time securing financing, self-selecting into exporting. The results are in line with the theoretical findings of Chaney (2005), which shows that if there are fixed costs associated with exporting only less liquidity constrained firms will enter foreign markets.

This study is structured as follows.   The next section discusses financial constraints and presents the estimation strategy. Section 3 describes the data and the summary statistics. Section 4 presents the empirical specification and the results. Section 5 concludes.

Financial Constraints and Estimation Issues

---

[1] We use several measures of "external financing dependence" at the industry level, as defined by Rajan and Zingales (1996), Beck and Levine (2002), etc.

Ever since the influential paper by Fazzari et al. (1988) a large number of studies have examined the effects of liquidity constraints on investment.[2] These papers challenged the neoclassical theory of investment which suggests that the decision to invest is driven exclusively by relative prices and that firm's financial structure is irrelevant to investment since external and internal funds are perfect substitutes. Or, as Modigliani and Miller (1958) show, with perfect capital markets, a firm's investment decision is independent of its financial condition. Fazzari et al. (1988) showed that, if there are informational asymmetries, external funds may be more costly and therefore provide an imperfect substitute for internal capital. The gap arises to compensate lenders for the adverse selection and moral hazard problems associated with the borrowers. If this is the case, investment should respond positively to increases in internal funds available for investment.

The primary way of testing for financial constraints is to estimate an investment equation that includes a measure of the expected profitability of the firm along with a measure of internal funds, usually proxied by cash flow. If capital markets were perfect, investors and lenders would be indifferent between using internal of external capital, thus investment should show no sensitivity to internal funds. If, however, cash flow impacts investment behavior, firms are deemed as being financially constrained. For these firms it is difficult or expensive to obtain external finance, and they invest only if they have sufficient internal funds. Investment will be larger, the more cash flow firms have.

We therefore estimate the investment accelerator model (see also Gelos and Werner 2002, Konings et al. 2003) that links investment to the rate of growth of sales, which is the accelerator variable and proxies for short-term changes in the expected profitability. Following the previous literature, we also include cash flow in the regression in order to capture financial constraints. To examine whether exporters are subject to different liquidity constraints than non-exporters we also include the interaction of cash flow with an exporter dummy. The estimated equation is:

$$I_{it}/K_{it-1} = \alpha_0 + \alpha_1 \, \Delta S_{it}/S_{it-1} + \alpha_2 \, l.CF_{it}/K_{it-1} + \alpha_3 \, l.CF_{it}/K_{it-1} * Exporter_{it} + \alpha_4 \, Exporter_{it} +$$

$$+\alpha_5 \ln(Size_{it}) + \alpha_6 \, Debt_{it}/K_{it-1} + \alpha_i + \alpha_t + \varepsilon_{it} \qquad (1)$$

where I_{it} stands for gross investment undertaken by firm i at time t. K_{it} stands for real capital stock and is proxied by deflated tangible fixed assets. S_{it} represents real sales, and CF_{it} is the real cash flow. The cash flow variable is reported in the Amadeus database where it is defined as the sum of profit (loss) after taxation, extraordinary profit (loss) and depreciation. We use lag of cash flow, as we would expect the investment decision to take place after observing the cash flow. We normalize investment and cash flow variables by the capital stock in order to control for the size effect. We deflate sales and cash flow by wholesale price deflators specific to 3-digit NACE sectors, obtained from the Czech Statistical Office (CSO). Tangible fixed assets were deflated using a deflator obtained from the CSO. $Exporter_{it}$ is a time-varying dummy variable taking the value of one if firm i is an exporter at time t and zero otherwise. It is based on the information obtained from the enterprise surveys.

The coefficient α_2 captures the sensitivity of firms' level investment to internal funds. If capital markets were perfect, the α_2 coefficient would equal zero. If however, firms are liquidity constrained that is, if the desired investment level is constrained by the availability of internal finance, the coefficient should be positive and statistically significant.

The goal of our analysis is to examine the link between liquidity and the exporter status, thus our coefficient of interest is α_3. *A priori* one would expect that selling in different markets would have a stabilizing effect on sales and cash flow compared to firms that only sell domestically. More stable cash flows should make it easier to invest in long-term durable investment goods. It should also increase the creditworthiness of exporters in the eyes of the lending institutions and make it easier for them to obtain outside funds, thus easing the liquidity constraints of exporters compared to non-exporters. Therefore, we would expect exporters to be less dependent on their internal cash flow than non-exporters. If that is the case, then α_3, the coefficient of the interaction term between cash flow and the exporter dummy, should be negative and statistically significant.

The estimated equation also includes several firm-specific time-varying factors that might influence the level of investment. We control for firm's size, measured by employment and expressed in log form, and the level of the long-term debt normalized by

capital stock. The latter variable controls, especially in developing countries, for access to external capital.

To control for the unobserved heterogeneity across firms we estimate a model using firm fixed effects (α_i). We also include year fixed effects (α_t) which capture aggregate conditions affecting the cost of capital in a particular year, so it is not necessary to control for interest rates or tax rates.

There is nevertheless an additional concern. The explanatory variables may not be entirely exogenous. Firm investment shocks may be contemporaneously correlated with sales and cash flow. In addition, we have to account for the possible self-selection of less liquidity constrained firms into exporting. If there are fixed costs associated with selling in foreign markets, and if firms are financially constrained, then only firms with enough liquidity will be able to finance those costs. That is, it may be the case that exporting firms were better performers and less liquidity constrained even before starting serving foreign markets. A problem like this calls for instrumental variables estimation. We rely on our unique survey data and use instruments that are best suited to account for endogeneity and possible selection bias in estimation.

Data and Summary Statistics

The data we use for this study come from two enterprise surveys conducted by the Foreign Investment Advisory Services of the World Bank, in the Czech Republic in 2003

and 2004. The surveys were conducted by a professional polling company by means of face-to-face interviews taking place at respondents' workplaces. All respondents were guaranteed full anonymity. The data was collected for 657 Czech manufacturing firms. The focus of the surveys was on manufacturing firms, i.e. firms operating in sectors 15-36 according to NACE classification. About one fifth of the firms are located in the capital city of Prague, while the rest was distributed across all regions in the country.

The data allows us to identify exporting firms, as well as information about the duration of the exporting contracts, details regarding company management, ISO certifications, etc. The results of the survey were supplemented with financial information on interviewed firms, which was taken from the Amadeus database. The additional financial information is available for approximately 2/3 of firms in the sample. This remarkably rich database comprises detailed firm level information for the period 1994-2003. After deleting incomplete or inconsistent data and extreme outliers[3] we are left with 1725 firm year observations, pertaining to 365 firms, out of which 92 are exporters observed both before and after they started exporting.

Table 1 presents exporter premia, calculated following Bernard and Jensen (1999). The advantage of using exporter premia, rather than simple statistics, is that they account for the sectoral distribution of exporters. To compute the exporter premia we regress variables capturing different firm characteristics (age, sales growth, liquidity ratio, investment ratio, value added, etc.) on an exporter dummy, industry and year dummies. We also account for the size of the firm. The exporter dummy coefficients,

which represent the exporter premia are presented in Table 1. Several observations emerge: exporters are older, grow faster, and invest more. They also have higher value added, higher liquidity ratios and higher cash flow levels.

-- Table 1 about here –

Estimation Results

We estimate equation (1) and present the results in Table 2.

-- Table 2 about here --

In the first column we report the estimates that capture the direct effect of cash flow on firm's investment decision regardless of the exporter status. The coefficient of cash flow is positive and highly statistically significant, indicating that internal funds are indeed an important determinant of the investment decision of firms operating in Czech Republic. The findings are in line with Konings et al. (2003) and Lizal and Svejnar (2002) who find evidence for the existence of liquidity constraints on a sample of Czech firms. As expected, the sales growth coefficient is also positive and statistically significant.

We next test whether exporters are less credit constrained than the rest of domestic firms by interacting the cash flow with a dummy that takes the value 1 if the

firm exports during the current year and zero otherwise. The results suggest that being an exporter eases domestic firms' liquidity constraints. The interaction coefficient is negative and highly statistically significant. The magnitude of the coefficient is equal to more than a third of the cash flow coefficient suggesting that exporters find it much easier to finance their investments than non-exporters. The exporter dummy itself is not statistically significant, suggesting that exporters do not differ in their investment behavior from other firms.[4]

We also account for other variables that might impact exporters' liquidity constraints, like the size of the firm and the volume of debt. While the coefficient of the size variable is insignificant, the volume of debt has a positive impact on investments. Even with these controls added to the regression, the coefficient of the interaction term between cash flow and exporter dummy remains negative and statistically significant.

In order to make sure that the effects we capture are not due to Czech firms being exporters throughout the whole period they are in the sample, we re-estimate the above regressions and exclude continuous exporters. The results, presented in the last 6 columns of Table 2 suggest that indeed the effect we observed so far is due to *new* exporters, which are firms that we observe both before and after they start exporting. They are less liquidity constrained than the rest of the Czech firms.

Next, we account for possible macroeconomic shocks, including changes in interest rates, which may affect industries differently. We include in the regressions

industry-year fixed effects and again exclude firms that were exporters throughout the sample period. The results shown in Table 3 confirm the earlier pattern, that exporting alleviates investment cash flow sensitivities.

-- Table 3 about here --

We also drop firms with negative cash flows since, as Fazzari et al. (2000) point out, not accounting for them may introduce a censored regression bias in the estimated investment-cash flow sensitivities. Negative cash flows represent situations in which investment is at its lowest level, and cannot be reduced any more if cash flows decline. We therefore drop the negative cash flow observations and re-estimate the regressions. The results are presented in Table 4. The exercise does not affect our results. Exporting firms' investment is less dependent on cash flow than the rest of the manufacturing firms.

-- Table 4 about here --

Finally, we test whether being an exporter matters more in industries that are more dependent on external finance, or that have less collateralizable assets. We thus separate industries in those that are "more in need of external finance" and the rest of the manufacturing. We use various measures of "external financing dependence": the measure used by Rajan and Zingales (1998) where an industry's dependence on external capital is given by the ratio of capital expenditures minus cash flow from operations to capital expenditures for the median firm in each industry. In their paper, sectors are more

in need of external financing if the above ratio is greater than 0.5. We use the same definition here. Beck and Levine (2002) argue that R&D intensity may also lead to higher reliance on financial intermediaries. Thus, we calculate a proxy for industry R&D intensity as the mean (respectively, median) of intangible assets for all industries in 1995. The R&D intensity dummy takes the value 1 if the value of intangibles assets is above the mean (median). As yet another measure of dependence on financial sector, we use the Czech input output matrix for the year 1995 to calculate an index of sector's financial dependence as the share of inputs of each manufacturing industry that comes from the financial sector. We define external finance dependent industries as those for which the index is higher than the mean (changing it to the median does not affect the results). The results are presented in Table 5. The regressions are run separately for the "financially dependent sectors" (defined as above) and for the rest of the manufacturing industries. Interestingly, the results suggest that the exporter status matters only for those industries that are more in need of external funds. The interaction between the cash flow and the exporter dummy is negative and statistically significant in all these regressions. Exporter status eases liquidity constraints in precisely those sectors that are more dependent on external financing.

-- Table 5 about here --

Instrumental Variables approach

The results so far suggest that exporters are different than non-exporters with respect to the degree of liquidity constraints. However, a drawback of our estimate thus

far is the inability to account for endogeneity in estimation or for selection bias. As stated by Hubbard (1998) in order to estimate the sensitivity of investment to cash flow one needs to control for the investment opportunities since the firm's cash position may contain information about its investment opportunities. Endogeneity occurs if firms tend to accumulate cash when they are unusually profitable. Also, as Chaney (2005) shows in his theoretical model, less liquidity constrained firms may self-select into exporting. In order to account for these possible biases we use the system GMM instrumental variables approach, proposed by Blundell and Bond (1998). We instrument for sales, cash flow, the exporter status and their interaction. We make use of the unique survey data and instrument for the interaction between cash flow and the possibility of being an exporter with the interaction between the second lag of cash flow and the following variables that come from the survey: dummies for managers' proficiency in foreign language knowledge, foreign experience, and foreign education, and as well as dummies for firms having ISO certifications. The level of proficiency was determined by whether the manager is able to conduct business negotiations in this language or able to understand a business agreement written in the language. It is likely that firms whose managers have foreign education, work experience or speak foreign languages are better positioned to establish contacts with foreign customers and thus export. Similarly, having an ISO certification may play an important role in getting access to foreign markets. Exporters are often required to have ISO certification, and the certification process is quite costly, as it usually involves services of specialized consulting firms, that only firms that are less liquidity constrained may be able to afford.

We also use as instruments the interaction of cash flow with industry level proxies for the presence of multinationals in the same industry. The later would account for the likelihood that proximity to multinationals may facilitates business relationships; or that the knowledge and expertise that foreign firms bring may spill over to domestic firms, increase their productivity and competitiveness, thus increasing the likelihood of their entry into foreign markets. The proxy for the presence of foreign firms in the same sector is calculated as the share of foreign output in total industry output. It is calculated by weighting the output of each firm in sector k (Y_{ft}) by the share of the firm's equity owned by foreigners (*Foreign Share$_{ft}$*) and then dividing it by the total output of sector k:

$$\text{Horizontal}_{jt} = \frac{\sum\limits_{f \text{ for all } f \in j} \text{Foreign Share}_{ft} * Y_{ft}}{\sum\limits_{f \text{ for all } f \in j} Y_{ft}}$$

We again exclude from the regressions firms that are continuous exporters throughout the duration of our sample. Based on the reported specification tests listed in Table 6 we conclude that our instruments are reasonable predictors of the endogeneous variables. The Hansen test for overidentification shows that one cannot reject the null at conventional significance levels. The Arellano-Bond test shows that one cannot reject the null of no second-order serial correlation.

-- Table 6 about here --

We find that the exporter status does not have a significant impact on firm's liquidity constraints once endogeneity and selection are taken into account. In none of the

regressions is the interaction term between cash flow and the exporter status statistically significant.

Therefore, once we account for the possible endogeneity of the less liquidity constraints firms into exporting, we find no evidence that the exporting status eases firms' liquidity constraints. Rather, the results suggest that less liquidity constrained firms or firms that have access to financing self-select into becoming exporters.

Conclusions

This paper uses a unique data set from the Czech Republic to study the link between financial constraints and exporting status. We find that exporters are less liquidity constrained than the rest of the Czech firms. The effect is present in the full sample of exporters and remains after we drop continuous exporters and focus on *new* exporters only. Moreover, we find that exporting eases firms' liquidity constraints precisely in those sectors that are relatively in more need of external financing. The effect is present even after accounting for firm size and debt, which may impact firms' access to external credit.

The empirical finding that exporters are less liquidity constrained could be explained by two hypotheses: that exporting decreases the financial constraints of previously constrained firms, or, alternatively, that unconstrained firms self-select into exporting. After carefully correcting for possible endogeneity and selection issues we find evidence in favor of the second hypothesis. The results are in line with the

theoretical paper by Chaney (2005), which shows that only firms that ex-ante have sufficient liquidity will export.

These findings have policy implications. The analysis suggests that easing firms' credit constraints may play an important role in facilitating exporting and that well-developed financial markets that would decrease firms' cost of external finance may be needed in order to take full advantage of the benefits associated with selling in foreign markets.

References

Beck, T. (2003). Financial Dependence and International Trade. *Review of International Economics* 11, p.296-316.

Beck, T.& R. Levine. 2002. "Industry growth and capital allocation: Does having a market–or bank–based system matter?" *Journal of Financial Economics*. 64: 147 – 180

Becker, B. and D. Greenberg (2005). "Financial Development and International Trade." *University of Illinois at Urbana-Champaign mimeo*.

Bernard A.B., Jensen B.J. (1999): "Exceptional Exporter Performance: Cause, Effect or Both?," *Journal of International Economics,* Vol. 47 (1), pp. 1-25.

Blundell, R., and S. Bond, 1998. "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, 87: 115-43.

Campa, J. M. and J. M. Shaver, 2002. "Exporting and capital investment: On the strategic behavior of exporters", IESE Research Papers, No D/469

Chaney, T., 2005. "Liquidity Constrained Exporters," Working Paper, University of Chicago, Dept. of Economics.

Clerides, S. K. , S. Lach. and J. R. Tybout. 1998. "Is Learning by Exporting Important? Micro-Dynamic Evidence from Colombia, Mexico and Morocco", *The Quarterly Journal of Economics*, Vol. 113 (3): 903-947

Delgado, M., Farinas, J.C., Ruano, S. 2002. "Firm Productivity and Export Markets: A Nonparametric Approach", *Journal of International Economics* 57: 397-422.

Fazzari, S. M., R.G. Hubbard, and Petersen, B. C., 1988. "Financing Constraints and Corporate Investment," *Brookings Papers on Economic Activity*, 1: 141-195.

Fazzari S. M., G. R. Hubbard, and B. C. Petersen, 2000. "Financing Constraints and Corporate Investment: Response to Kaplan and Zingales", *Quarterly Journal of Economics*, 115(2), 695-705.

Gelos, R. G. and A. Werner, 2002. "Financial Liberalization, Credit Constraints, and Collateral: Investment in the Mexican Manufacturing Sector", *Journal of Development Economics,* 67: 1-27.

Greenaway, D. A. Guariglia and R.A. Kneller.2007. "Financial factors and exporting decisions" Journal of International Economics, 73(2), 377-395

Guariglia, A., Mateut, S., 2005. "Inventory investment, global engagement and financial constraints in the UK: evidence from micro data", GEP Research Paper No. 05/23. Leverhulme Centre for Research on Globalization and Economic Policy, University of Nottingham.

Hubbard R. G., 1998, "Capital-Market Imperfections and Investment", *Journal of Economic Literature*, 36(1), 193-225

Konings, J., M. Rizov and H. Vandenbussche. 2003. "Investment and Credit Constraints in Transition Economies: Micro Evidence from Poland, the Czech Republic, Bulgaria and Romania," *Economic Letters,* 78*:* 253 - 258.

Lizal, L. and J. Svejnar, 2002. "Investment, Credit Rationing, And The Soft Budget Constraint: Evidence From Czech Panel Data," *Review of Economics and Statistics,* 84(2): 353-370.

Manova, K., 2006. "Credit Constraints in Trade: Financial Development and Export Composition," mimeo, Harvard University. Modigliani, Franco and Merton Miller, 1958. "The Cost of Capital, Corporation Finance and the Theory of Investment," *American Economic Review*, 48(3): 261-297.

Modigliani, F.and Miller, M. (1958). "The Cost of Capital, Corporation Finance and the Theory of Investment". *American Economic Review* 48 (3): 261–297.

Rajan, Raghuram and Luigi Zingales, 1998. "Financial Development and Growth," *American Economic Review*, 88(3): 559-586.

Roberts, M. and J. Tybout, 1994. "An Empirical Model of Sunk Costs and the Decision to Export," *American Economic Review*.

Table 1. Exporter Premia – Czech firms, starters only

	with control for firm size (%)
Age	92.5
Sales growth	5.2
Cash Flow	25.9
Liquidity ratio	3.10
Leverage ratio	n.s.
Gross Investment	32.8
Value added	12.5
Long term debt/Total assets	n.s.

The premia are the coefficients of the Exporter dummy in the following regressions:

$ln\ X_{it} = \alpha\ +\ \beta\ Exporter_{it}\ +\ \delta\ ln\ Employment_{it}\ +\ \mu_j\ +\mu_t\ +\ \varepsilon_{it}$

where μ_j stands for industry and μ_t for year fixed effects.

Table 2. Fixed Effects Regressions

	All Suppliers				Excluding continuous suppliers			
ΔSales	0.167***	0.169***	0.171***	0.171***	0.137**	0.142**	0.146**	0.139**
	[0.034]	[0.034]	[0.035]	[0.034]	[0.059]	[0.059]	[0.059]	[0.059]
l.CF_k	0.239***	0.334***	0.337***	0.339***	0.235***	0.324***	0.327***	0.329***
	[0.025]	[0.054]	[0.054]	[0.054]	[0.043]	[0.060]	[0.061]	[0.060]
l.CF_k*Exporter		**-0.118****	**-0.122****	**-0.120****		**-0.156****	**-0.160****	**-0.162****
		[0.059]	**[0.059]**	**[0.058]**		**[0.075]**	**[0.075]**	**[0.075]**
Exporter		-0.031	-0.029	-0.028		-0.003	-0.003	-0.006
		[0.076]	[0.076]	[0.076]		[0.088]	[0.088]	[0.088]
Size			0.021				0.019	
			[0.031]				[0.042]	
Debt_k				0.333***				0.408*
				[0.108]				[0.215]
Constant	0.105***	0.130*	0.043	0.098	0.051	0.055	-0.032	0.038
	[0.026]	[0.067]	[0.181]	[0.067]	[0.076]	[0.090]	[0.222]	[0.090]
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1725	1725	1719	1725	697	697	695	697
Number of firms	365	365	365	365	164	164	164	164
R-squared	0.08	0.08	0.08	0.09	0.08	0.09	0.09	0.09

Table 3. Accounting for industry*year effect

ΔSales	0.139**	0.144**	0.146**	0.141**	0.143**
	[0.059]	[0.059]	[0.059]	[0.059]	[0.059]
l.CF_k	0.220***	0.306***	0.307***	0.311***	0.313***
	[0.043]	[0.061]	[0.061]	[0.061]	[0.061]
l.CF_k*Exporter		**-0.149****	**-0.151****	**-0.154****	**-0.156****
		[0.075]	**[0.075]**	**[0.075]**	**[0.075]**
Exporter		0.001	0.001	-0.003	-0.003
		[0.088]	[0.088]	[0.087]	[0.088]
Size			0.011		0.01
			[0.042]		[0.042]
Debt_k				0.365*	0.365*
				[0.215]	[0.215]
Industry*year	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Constant	153.977**	148.242**	148.376**	139.093**	138.636**
	[61.196]	[61.136]	[62.516]	[61.261]	[62.666]
Observations	697	697	695	697	695
Number of firms	164	164	164	164	164
R-squared	0.09	0.1	0.1	0.1	0.1

Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4. Excluding firms with negative cash flow

ΔSales	0.167**	0.174***	0.177***	0.172***	0.176***
	[0.066]	[0.066]	[0.066]	[0.066]	[0.066]
l.CF_k	0.306***	0.388***	0.390***	0.391***	0.394***
	[0.048]	[0.067]	[0.067]	[0.067]	[0.067]
l.CF_k*Exporter		**-0.148***	**-0.150***	**-0.151***	**-0.153***
		[0.083]	**[0.084]**	**[0.083]**	**[0.084]**
Exporter		0.012	0.011	0.009	0.008
		[0.096]	[0.097]	[0.096]	[0.096]
Size			0.01		0.011
			[0.046]		[0.046]
Debt_k				0.271	0.274
				[0.232]	[0.232]
Constant	0.007	0.003	-0.039	-0.008	-0.054
	[0.082]	[0.097]	[0.242]	[0.097]	[0.242]
Year dummies	yes	yes	yes	yes	yes
Observations	615	615	613	615	613
Number of firms	160	160	160	160	160
R-squared	0.11	0.12	0.12	0.12	0.12

Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Fixed effects regressions - Financial dependence

	Financially dependent sectors		Financially dependent sectors		Financially dependent sectors		Financially dependent sectors		Financially dependent sectors	
ΔSales	0.014	0.202***	0.193*	0.06	0.247***	0.037	-0.273	0.218***	0.003	0.317***
	[0.189]	[0.058]	[0.109]	[0.066]	[0.085]	[0.083]	[0.224]	[0.054]	[0.083]	[0.088]
l.CF_k	0.766***	0.174***	0.450***	0.128*	0.228***	0.462***	2.311***	0.218***	1.430***	0.301***
	[0.221]	[0.058]	[0.114]	[0.068]	[0.071]	[0.109]	[0.417]	[0.052]	[0.190]	[0.073]
l.CF_k*Exporter	**-0.489****	-0.006	**-0.317****	0.128	**-0.164***	-0.154	**-1.868****	-0.071	**-1.318****	-0.072
	[0.231]	[0.076]	**[0.130]**	[0.095]	**[0.087]**	[0.137]	**[0.509]**	[0.065]	**[0.221]**	[0.087]
Exporter	0.421	-0.067	0.154	-0.078	-0.134	0.099	0.263	-0.061	0.223*	-0.077
	[0.316]	[0.080]	[0.199]	[0.080]	[0.117]	[0.131]	[0.286]	[0.086]	[0.128]	[0.127]
Size	0.072	0.029	0.034	0.018	-0.025	0.042	0.148	0.01	0.025	0.003
	[0.183]	[0.037]	[0.106]	[0.036]	[0.062]	[0.058]	[0.224]	[0.037]	[0.064]	[0.057]
Debt_k	-0.173	0.539***	-0.241	0.735***	0.508	0.381	0.644	0.540***	-0.012	0.967***
	[1.171]	[0.182]	[0.497]	[0.193]	[0.357]	[0.274]	[0.884]	[0.199]	[0.336]	[0.308]
Constant	-0.494	-0.01	-0.195	0.009	0.283	-0.292	-0.785	0.043	-0.07	0.074
	[0.843]	[0.194]	[0.514]	[0.192]	[0.294]	[0.303]	[1.393]	[0.193]	[0.366]	[0.262]
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	118	577	263	432	292	403	110	585	346	349
Number of firms	28	136	65	99	73	91	37	144	103	106
R-squared	0.2	0.1	0.13	0.13	0.12	0.13	0.46	0.1	0.26	0.17

Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Instrumental Variables regressions

l.I_k	0.028	0.049	0.051	0.027	0.043
	[0.097]	[0.106]	[0.105]	[0.095]	[0.100]
ΔSales	0.149*	0.146*	0.148*	0.149*	0.149*
	[0.079]	[0.085]	[0.083]	[0.079]	[0.080]
l.CF_k	0.343***	0.348***	0.339***	0.351***	0.341***
	[0.126]	[0.125]	[0.119]	[0.121]	[0.122]
l.CF_k*Exporter	-0.149	-0.155	-0.149	-0.160	-0.165
	[0.170]	[0.182]	[0.173]	[0.169]	[0.175]
Exporter	0.273*	0.406**	0.407**	0.310**	0.369**
	[0.141]	[0.162]	[0.158]	[0.125]	[0.145]
Size	-0.058	-0.073	-0.056	-0.049	-0.045
	[0.042]	[0.047]	[0.051]	[0.040]	[0.049]
Debt_k	0.690***	0.692**	0.678**	0.668**	0.731***
	[0.245]	[0.312]	[0.289]	[0.263]	[0.266]
Year dummies	yes	yes	yes	yes	yes
Observations	528	528	528	528	528
Number of firms	140	140	140	140	140
Additional IVs	l2.CF_k-*Manager's foreign language; l2.(CF_k *Horizontal)	l2.CF_k *Manager's foreign experience; l2.(CF_k *Horizontal)	2.CF_k *Manager's foreign experience; l2.CF_k*ISO	l2.CF_k *Manager's foreign language; l2.CF_k*ISO	l2.CF_k *Manager's foreign education; l2.CF_k*ISO
AR(2) test p-value	0.69	0.72	0.74	0.68	0.69
Hansen J statistic	0.47	0.40	0.45	0.55	0.48

Robust standard errors in brackets * significant at 10%; ** significant at 5%; *** significant at 1%

Endnotes:

---

[1] Amadeus is a commercial database compiled by Bureau van Dijk.

[2] See Hubbard (1998) for an excellent review of the literature.

[3] Negative values of tangible fixed assets, sales, depreciation were replaced with missing. We also dropped the 1% tails of the following variables: sales growth, tangible fixed assets growth and CF_K1 from the sample.

[4] Some differences may be captured by the firm fixed effects included in the model.