



IMF Working Paper

Performance of Publicly Listed Chilean Firms During the 2008–09 Global Financial Crisis

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Abstract

This paper examines publicly listed Chilean firms' performance during the 2008–09 crisis. In particular, it studies the effects from changes in external financing conditions, aggregate demand, and international trade on firms' investment, sales, and profits, using firm-specific characteristics measured prior to the crisis. The evidence suggests that the crisis had a larger negative impact on firms with greater reliance on external financing, and firms with higher sensitivity to aggregate demand and exports. Firms with more foreign currency debt also had larger declines in sales, although their investment or profits did not differ significantly from other firms.

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I. INTRODUCTION

Chile—a small open economy well integrated into the global financial system—was hit hard by the 2008–2009 global financial crisis. The price of copper, Chile’s main exports, plummeted by two-thirds between July and December 2008, while the peso depreciated twenty percent against the dollar, and the stock market lost one quarter of its value. Banks tightened credit standards markedly since 2007Q4, and liquidity pressures skyrocketed after the collapse of Lehman Brothers. Economic growth declined substantially in 2008Q4, and turned negative in the first three quarters of 2009. The authorities introduced substantial monetary and fiscal stimulus which, coupled with a recovery of copper prices, helped normalize the financial markets and revive growth.

This paper studies the performance of publicly listed Chilean nonfinancial firms during the crisis, and identifies the factors that affected their performance. While it looks at a number of transmission channels, the study pays particular attention to how firms’ dependence on financing affected their performance. The 2008–2009 crisis provides a good natural experiment with an exogenous shock—funding conditions deteriorated substantially during the crisis due to spillovers from global financial conditions. The study relates to the literature that examines the linkage between financial markets and the real economy. King and Levine (1993) and Rajan and Zingales (1998) are early seminal papers showing that financial development is an important determinant of output growth. In a more recent paper, Jermann and Quanrini (2010) develop a model with debt and equity financing and show that a tightening of U.S. firms’ financing conditions contributed to the 2008–2009 recession.

A number of recent papers have studied firms’ performance during the 2008–09 crisis and how various factors propagated the shocks. Claessens, Tong, and Wei (2011) examine the performance of manufacturing firms in 42 countries and find that the crisis had a bigger negative impact on firms with greater sensitivity to aggregate demand and international trade. However, financial openness appears to have made limited difference. Also using cross-country data, Laevena and Valencia (2011) find that the growth of firms more dependent on external financing was more positively affected by bank recapitalization and stimulus fiscal policies. Aisen et al. (2011) find overall financing was a significant determinant of export contraction for Chilean exporting firms during the crisis. These results provide new evidence of a quantitatively important role of credit market frictions in influencing real economic activity.²

The impact of the crisis varied across firms. The study shows that in general the crisis had a bigger negative impact on investment and sales of Chilean firms with greater reliance on external financing for investment and higher working capital needs, and firms with higher sensitivity to aggregate demand and exports. Firms with higher foreign currency debt also had larger declines in sales, although the mismatch of foreign currency liabilities and assets before the crisis did not seem to make a difference.

² Alfaro and Chen (2012) find that multinational subsidiaries with stronger financial linkages with parent companies showed greater resilience during the 2008–2009 crisis than local firms.

The paper is organized as follows: Section II discusses the framework and data for the empirical test; Section III presents the statistical results; and Section IV provides some concluding remarks.

II. THE ANALYTICAL FRAMEWORK AND DATA

The study focuses on four channels that could affect firms' performance during the crisis: the financial channel, the aggregate demand channel, the export channel, and the foreign currency liability channel. The strategy for the statistical tests follows Claessens et al. (2011). In particular, if funding conditions are important for firms' performance, the crisis should have a more negative impact on the performance of firms that rely more on external financing for investment and working capital compared to those firms that rely less on external financing. Likewise, if the aggregate demand or the trade channel is important, then firms that rely more heavily on domestic and foreign demand would be more negatively affected during the crisis.

The main empirical challenge is the endogeneity problem. For example, during the crisis a firm's sales could have declined along with a contraction of the aggregate demand. This would suggest that aggregate demand is important, but the reason for the decline in sales could be a lack of working capital. Our empirical strategy is therefore to check whether ex ante characteristics of firms—their dependence on external financing and domestic and foreign demand, and liabilities in foreign currency—help explain the cross-sectional variation in firms' performance during the crisis. To be specific, we estimate the following equation:

$$\Delta \text{Performance}_i = \beta * \text{Financial Dependence}_i + \gamma * \text{Demand Sensitivity}_i + \lambda * \text{Export Sensitivity}_i + \theta * \text{FX Liabilities}_i + \varepsilon \quad (1)$$

where i stands for firm. $\Delta \text{Performance}_i$ is the change in firm i 's performance as measured by the average value over 2008 and 2009 minus the value in 2007. The analysis uses three measures of performance: investment, sales, and profit, all scaled by firms' asset. The substantial devaluation of the peso during the crisis could have caused detrimental balance sheet effects for firms with high foreign currency liabilities, which could more than offset the expansionary competitiveness effect, changing their investment decision and/or sales and profit. The inclusion of firms' foreign currency liabilities in the regressions is made possible by a newly constructed dataset.

The study uses annual data from two datasets for publicly listed nonfinancial Chilean firms. The first dataset is *Worldscope*, from where data are available for firms' cash flow, investment, total assets, as well as sales and profit. The sample contains a total of 123 nonfinancial Chilean firms. Manufacturing firms account for the largest share (see the Annex table), followed by transportation, communications and utilities firms. The second dataset is a new dataset compiled by Kamil (2012) from different sources including individual companies' financial reports. This dataset (where data are only available up to 2007) contains firms' exports and their foreign-currency assets and liabilities, neither available in *Worldscope*. The sample size is reduced to 84 when the two datasets are merged. To reduce the impact of outliers, top and bottom 1 percent observations for each variable are excluded. The firms in the sample are publicly listed, thus tend to be larger firms. As a result, they may not be representative of all Chilean firms. Smaller firms probably would have encountered tighter financing conditions during the crisis than larger firms.

Figure 1 plots the density distribution of firm-level investment, sales, and profit (all scaled by asset) from 2007 to 2009, showing lower investment, sales, and profit as a result of the global crisis. For investment, the distribution shifts to the left in both 2008 and 2009. The decline seems to have mostly happened in 2009 for sales and in 2008 for profit. These patterns are also confirmed by Table 1a, which reports summary statistics.

All explanatory variables are pre-determined before the crisis to reduce endogeneity, and measured at firm level.

- *Dependence on external financing for investment*

This measure is constructed following Rajan and Zingales (1998):

$$\text{Dependence on external financing for investment} = \frac{\text{capital expenditure} - \text{cash flow}^3}{\text{capital expenditure}} \quad (2)$$

Following the convention, the word “external financing” refers to financing from outside a firm’s own cash flow. The variable is constructed using the median value over the period of 2000 to 2006 for each firm.

- *Working capital needs*

The second measure of firms’ financing needs is the cash conversion cycle (see Raddatz, 2006). This is a measure of the time elapsed between the moment a firm pays for its inputs until it is paid for the goods it sells:

$$\text{Cash conversion cycle} = 365 * \left(\frac{\text{inventories} - \text{account payables}}{\text{cost of goods sold}} + \frac{\text{account receivables}}{\text{total sales}} \right) \quad (3)$$

This measure is commonly used in financial analysis to measure the liquidity position of a firm. Again the measure is constructed using the median value over the period of 2000 to 2006 for each firm.

- *Aggregate demand sensitivity*

The analysis also includes a firm-specific measure of aggregate demand elasticity. The impact a recession has on the demand for a firm’s product is likely to depend on the types of products a firm produces. For example, the demand for necessities would be more inelastic compared with demand for luxury goods. To measure the demand elasticity, for each firm we regress its (log) real sales (nominal sales deflated by inflation) on Chile’s (log) real GDP over the period of 1999 and 2007 using annual data, and use the coefficient as the (firm-specific) measure of the firm’s

³ Cashflow consists of two components: (i) income before extraordinary items and preferred and common dividends, but after taking into account the operating and non-operating income and expense, reserves, income taxes, minority interest and equity in earnings; and (ii) depreciation, depletion and amortization.

sensitivity to aggregate demand. One would expect that firms with higher demand elasticity be more affected during the crisis.

- *Dependence on exports*

The ratio of a firm's exports to its total sales is used as the measure of its dependence on external demand. The median value over 2000 and 2005 is used, as exports data are only available up to 2005.

- *Foreign currency liabilities*

The ratio of a firm's foreign currency liability to total asset in 2006 is included in the regression. Using the 2007 ratio yields similar results.

For the explanatory variables the analysis focuses on firm-specific measures. Claessens et al. (2011) instead focus on sector-specific measures to address endogeneity. They use sector characteristics of U.S. firms before the crisis, and assign the same value to all the firms in the same sector across all countries. The concept is that these are intrinsic characteristics of the sectors. However, among firms in the same industry there could also be substantial differences. In particular, there is a life cycle in the pattern of financing for firms: firms are more dependent on external financing early in their life than later (Rajan and Zingales, 1998). As a result, a mature firm in an industry that is usually more dependent on external financing could be less dependent on financing than a new firm in an industry that is in general less dependent on external financing. In addition, the characteristics of U.S. firms may not apply to Chilean firms. This analysis therefore focuses on firm-specific measures, and using the pre-crisis values would help reduce the endogeneity problem. Nevertheless, as a robustness check the study also includes analysis using sector-specific measures of financing needs.

It is noteworthy that the standard deviations of the explanatory variables are quite large (Table 1b), suggesting diversified firm characteristics. In addition, most firms in the sample do not export. Table 1c reports bilateral correlations. The three dependant variables are positively correlated with each other. Their correlations with the explanatory variables are however mixed. These are only simple correlations and the next section reports multivariable regression results.

III. EMPIRICAL RESULTS

Baseline Results

Baseline results (Table 2) suggest that the investment of firms with higher financial dependence was more negatively affected during the crisis. Column (1) has the change in investment (capital expenditure), scaled by asset, as the independent variable and includes the three explanatory variables from Worldscope. Dependence on external financing for investment is negative as expected, and significant at the 15 percent level (p-value is 0.11). This suggests that firms that were more dependent on external finance for their investment experienced larger declines (or smaller increases) in investment during the crisis, as funding condition deteriorated. In addition, firms with higher working capital needs also on average experienced larger declines

in capital expenditure during the crisis (significant at the 10 percent level). On the other hand, the aggregate demand sensitivity does not seem to affect investment.

Including reliance on exports and foreign currency liabilities in the regression produces similar results. Column (2) adds the export dependence measure from the second dataset, which reduces the sample size from 110 to 84. Dependence on external financing remains negative and is now significant at the 10 percent level, while the working capital needs remain negative and significant. However, both demand and trade sensitivity are insignificant. Column (3) further adds foreign exchange liabilities. Dependence on external financing remains negative, although now again only significant at the 15 percent level (p-value is 0.11), while working capital needs remain negative and significant. The other three independent variables are insignificant.

The impact of external financing needs is quantitatively significant. Using the coefficient values from Column (3), a one standard deviation increase in the dependence on external financing for investment will reduce the investment/asset ratio by 0.95 percentage point, or 13.6 percent of the average investment/asset ratio in 2007. A one standard deviation increase in the working capital needs would reduce investment by 0.83 percentage point, or 11.9 percent of the average 2007 level.

Firms with higher working capital needs and demand elasticity experienced larger decline in sales during the crisis. Column (4) of Table 2 reports the results using sales (scaled by asset) as the dependent variable, with only the explanatory variables from Worldscope. Dependence on external financing becomes positive, although barely significant at the 15 percent level (p-value is 0.15). Working capital needs remain negative and is significant at the 5 percent level. The economic impact however seems to be limited: a one standard deviation increase in the working capital needs would reduce the sales/asset ratio by 0.02 percentage point, or 2.4 percent of the average sales/asset ratio in 2007. The demand sensitivity is now also negative and significant, suggesting that firms with higher demand elasticity were hit harder during the crisis, as expected. In particular, a one standard deviation increase in the demand sensitivity would reduce the sales/asset ratio by 0.05 percentage point, or 6.4 percent of the average level in 2007.

Firms that were more dependent on exports and with higher foreign currency liabilities also had larger decline in sales during the crisis. Column (5) of Table 2 adds the two additional explanatory variables. Working capital needs now become insignificant, which is actually due to the smaller sample size. Demand sensitivity remains negative and highly significant. Dependence on exports is also negative and is significant at the 5 percent level. A one standard deviation increase in the export-to-asset ratio would reduce the sales/asset ratio by 0.05 percentage point, or 5.9 percent of the average ratio in 2007. Finally, debt in foreign currency is also negative and is significant at the 1 percent level. A one standard deviation increase in the foreign currency debt/asset ratio would reduce the sales/asset ratio by 0.06 percentage point, or 6.9 percent of the average 2007 level. The explanatory variables altogether could explain almost half of the variation in sales.

In comparison, demand sensitivity seems to be factor that affects profits. Columns (6) and (7) of Table 2 report the results for return on assets. Demand sensitivity is negative in both regressions, although only significant when only financing needs are included in the regression (its insignificance in Column (7) is due to the smaller sample size). The economic impact is

significant: a one standard deviation increase in the demand sensitivity would reduce profits by 1.1 percentage points, or 15 percent of the average profits in 2007. Dependence on external financing for investment is positive but only significant in Column (7). Its turning into significance also results from the smaller sample in Column (7). Nevertheless, the positive coefficient on dependence on external financing may suggest that firms that have borrowed more before the crisis are generally “stronger” firms, and thus were able to better sustain their profits during the crisis. This could imply that the negative coefficient for the dependence on external financing in the investment regressions is not driven by endogeneity. Overall, the results for the dependence on external financing for investment seem intuitive: while the investment of firms that relied more on external financing was more negatively affected during the crisis, lower investment does not necessarily lead to lower sales or profit in the short run.

Interestingly foreign currency debt does not seem to affect Chilean firms’ investment or profit. Bleakley and Cowan (2008) also find that firms in five Latin American countries (including Chile) that held more dollar debt did not invest less than their peso-indebted counterparts following a currency depreciation. They find that this is because the dollarization of liabilities is higher in firms whose income is likely to be more positively correlated with an exchange rate depreciation (firms with tradable products, for example). Another possible explanation of the muted impact is that Chilean firms are usually well hedged, with limited currency mismatch. For example, as of the third quarter of 2008, the corporate sector’s total net currency mismatch was only 0.23% of total assets (The Central Bank of Chile, 2008). Foreign currency liability does seem to negatively affect firms’ sales as Column (5) shows. One possible explanation is that firms with high foreign currency debt are mostly exporters, and the negative impact may simply capture the decline in their exports amid weakening external demand. However, the correlation of foreign currency debt and sensitivity to exports is only 0.3, suggesting this would only be a partial explanation.

Robustness Checks

Using alternative measures of foreign currency liabilities and demand sensitivity yields similar results. As a robustness check, foreign currency liabilities are replaced with short-term foreign currency liabilities in Columns (1) to (3) of Table 3. The results are pretty close to the baseline results. Columns (4) to (6) report the results using an alternative measure of aggregate demand elasticity, where the elasticity is estimated using the growth rate of firms’ sales and Chile’s GDP instead of levels. The correlation between the two elasticity measures is 0.41, and the results are again broadly similar with the baseline results. Using foreign currency asset and liability mismatch (instead of foreign currency liabilities) also yields broadly similar results, both for total and for short-term assets/liabilities. The results are not reported to save space. This is probably not too surprising—while the peso value of dollar liabilities increased during the crisis as a result of peso’s depreciation, the peso value of foreign assets could have either increased (due to peso’s depreciation) or declined. For example, firms’ foreign assets could include U.S. assets, whose value has declined during the crisis.

Using alternative timing intervals for firm performance also yields broadly similar results. Columns (1) to (3) of Table 4 report the results using changes in firm performance from 2007 to 2008, and Columns (4) to (6) report corresponding regressions using changes from 2007 to 2009. The investment of firms with higher reliance on external financing for investment and working

capital needs was again more negatively affected during the crisis, although the coefficient is only significant for the 2007–2008 sample. The sign on foreign currency liabilities turns out to be positive in the 2007–2009 regression for investment and is significant at the 10 percent level, which is somewhat puzzling (although it becomes insignificant if short-term foreign currency liabilities are used). The results for the sales regression are similar to the baseline results across the two periods, except that the demand elasticity is only significant in the 2007–2009 regression, probably reflecting the smaller declines in sales from 2007 to 2008. Demand sensitivity and foreign currency liabilities are negative in the two profits regressions, although only significant in one of them.

The baseline results still broadly hold when additional explanatory variables are added to the regression. Table 5 reports the results with three more additional control variables: firm size (as measured by total assets) and cash holdings to asset ratio, both using the 2006 value; and the change in the dependent variables from 2000 to 2006. Larger firms seem to manage weathering through the crisis better on all three measures of performance. Firms with more cash at hand at the onset of the crisis were also able to invest more during the crisis. Interestingly, firms with higher investment and sales growth before the crisis experienced larger declines. On the original explanatory variables, the baseline results still broadly hold although working capital needs now become insignificant.

Results are also broadly similar when sectoral level measures for financial dependence are used, although dependence on external financing becomes insignificant. Table 6 reports the results using sectoral level measures for the dependence on external financing for investment and working capital needs. The correlation between the sector-specific and firm-specific measures for the two variables is 0.11 and 0.56, respectively. Dependence on external financing is negative in all regressions, but insignificant. This probably reflects the fact that using sectoral measures for individual firms could introduce substantial measurement errors, which would bias the coefficients toward zero (“attenuation”). Working capital needs are negative and significant in the investment and sales regressions. Other results are broadly similar with the baseline results. Adding more control variables as in Table 5 also yield broadly similar results (not reported).

IV. CONCLUDING REMARKS

This paper examines Chilean publicly listed nonfinancial firms’ performance during the 2008–2009 crisis and the factors that affected their performance. It finds that the investment and sales of firms with higher financial dependence were more negatively affected during the crisis. Sales of firms with higher sensitivity to aggregate demand and exports, and firms with higher foreign currency liabilities were also more negatively affected. In addition, the profits of firms with higher demand sensitivity declined more during the crisis.

The analysis helps identify specific channels of spillover from financial conditions to the real economy. The results suggest that measures to support bank lending during a financial distress would be important to help sustain firms’ investment and sales. Such measures would be especially helpful for firms relying more on external financing for investment and firms with higher working capital needs.

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Figure 1. Density Distribution of Firm Performance During the 2007–09 Crisis

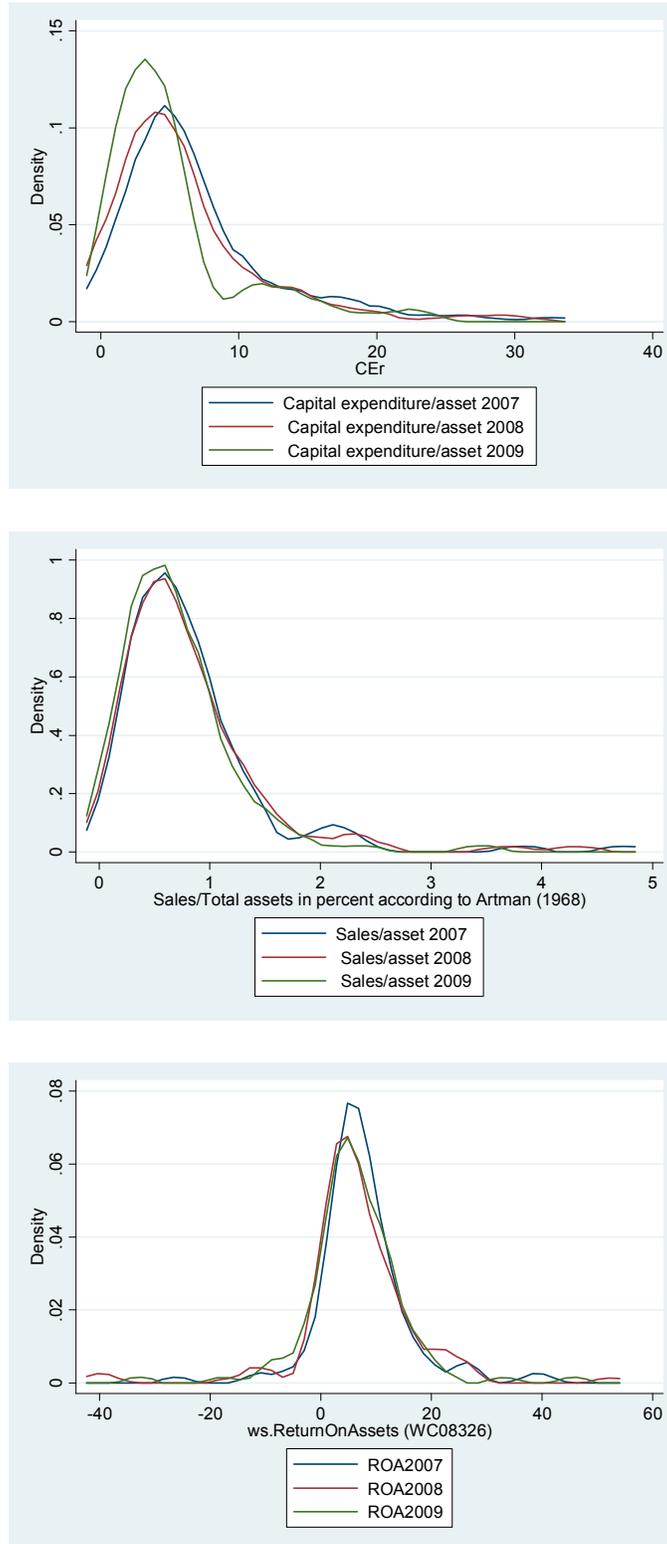


Table 1a. Firm Summary Statistics Before and During the 2008-09 Crisis

	Year	Obs	Mean	Std. Dev	Min	Max	p25	Median	p75
Capital exp./assets	2007	123	7.0	5.8	0	32.6	3.5	5.2	8.7
	2008	118	6.2	5.6	0	30.3	2.5	4.6	8.3
	2009	118	5.2	4.9	0	23.7	2.0	3.9	6.1
Sales/assets	2007	119	0.81	0.7	0.001	4.7	0.42	0.68	0.97
	2008	115	0.80	0.6	0.001	4.3	0.40	0.69	1.01
	2009	115	0.69	0.5	0.002	3.5	0.40	0.60	0.92
Return on assets	2007	120	7.5	8.1	-26.1	40.7	3.2	6.4	10.7
	2008	116	6.5	10.4	-40.8	52.6	2.3	5.7	11.4
	2009	116	6.2	8.7	-32.8	45.8	2.7	5.3	10.1

Table 1b. Summary Statistics for Dependent and Explanatory Variables

Variable	Obs	Mean	Std. Dev	Min	Max	Median
Change in investment/assets	123	-1.5	4.6	-27.5	12.6	-0.7
Change in sales/assets	119	0.0	0.2	-0.6	0.2	0.0
Change in return on assets	120	-1.4	6.0	-25.4	22.2	-0.8
Dependence on external finance for investment	113	-1.0	1.8	-8.4	5.6	-0.9
Working capital needs	121	104.0	88.1	-57.5	359.9	82.7
Demand sensitivity	119	1.6	2.5	-8.9	12.9	1.5
Dependence on exports	92	0.1	0.2	0	0.9	0.0
Foreign currency liabilities	89	0.1	0.1	0	0.6	0.0

Table 1c. Bilateral Correlations

	Δ inv.	Δ sales	Δ profit	Dep. on ext. fin.	Dep. on work. cap.	Demand elas.	Dep. on exports
Δ sales	0.12						
Δ profit	0.05	0.16					
Dep. on ext. fin. for inv.	-0.16	0.12	0.09				
Dep. on working cap.	-0.13	-0.10	0.15	-0.04			
Dom. demand elas.	-0.005	-0.24	0.0001	0.02	-0.12		
Dep. on exports	-0.003	-0.42	0.11	0.04	0.43	0.03	
FX liabilities	0.07	-0.52	-0.02	-0.11	-0.09	0.24	0.31

Table 2. The Impact of Crisis on Firm Performance: Baseline Results

Dependent variable	(1) Δ investment	(2) Δ investment	(3) Δ investment	(4) Δ sales	(5) Δ sales	(6) Δ profits	(7) Δ profits
Dependence on external finance for investment	-0.366# (0.225)	-0.516* (0.300)	-0.518# (0.319)	0.011# (0.008)	0.007 (0.006)	0.334 (0.247)	0.492** (0.210)
Working capital needs	-0.008** (0.004)	-0.009* (0.005)	-0.010* (0.005)	-0.0002** (0.0001)	0.00005 (0.0002)	0.008 (0.006)	0.005 (0.007)
Demand sensitivity	-0.003 (0.103)	0.069 (0.143)	0.063 (0.152)	-0.021** (0.008)	-0.018** (0.006)	-0.452* (0.245)	-0.457 (0.361)
Exports/total sales		1.128 (2.519)	0.969 (2.412)		-0.207** (0.087)		1.819 (2.431)
FX liabilities/total assets			0.925 (2.858)		-0.432** (0.108)		-0.015 (5.843)
R-squared	0.06	0.08	0.09	0.11	0.45	0.07	0.09
No. of obs	110	84	79	107	78	108	78

Note: Dep. var. is calculated as average 2008/09 value minus 2007 value. Standard errors in parenthesis. #, *, and ** denotes significant at 15, 10, and 5% respectively.

Table 3. The Impact of Crisis on Firm Performance: Robustness Checks (1)

Dependent variable	(1) Δ investment	(2) Δ sales	(3) Δ profits	(4) Δ investment	(5) Δ sales	(6) Δ profits
Dependence on external finance for investment	-0.528# (0.320)	0.007 (0.006)	0.436** (0.217)	-0.514# (0.317)	0.006 (0.006)	0.464** (0.205)
Working capital needs	-0.010* (0.005)	0.0001 (0.0002)	0.004 (0.008)	-0.010** (0.005)	0.0001 (0.0002)	0.007 (0.007)
Demand sensitivity	0.081 (0.142)	-0.016** (0.006)	-0.364 (0.368)			
Demand sensitivity (alt. measure)				-0.0005 (0.064)	-0.007** (0.002)	-0.037 (0.101)
Exports/total sales	1.201 (2.576)	-0.204** (0.095)	3.045 (2.666)	0.952 (2.459)	-0.195** (0.086)	1.918 (2.388)
Short-term FX liabilities/total assets	-0.182 (2.473)	-0.601** (0.130)	-8.106 (10.003)			
FX liabilities/total assets				1.220 (2.808)	-0.490** (0.129)	-1.457 (5.926)
R-squared	0.09	0.48	0.10	0.09	0.44	0.06
No. of obs	79	78	78	79	78	78

Note: Dep. var. is calculated as average 2008/09 value minus 2007 value. Standard errors in parenthesis. #, *, and ** denotes significant at 15, 10, and 5% respectively.

Table 4. The Impact of Crisis on Firm Performance: Robustness Checks (2)

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	Δ investment	2007-2008 Δ sales	Δ profit	Δ investment	2007-2009 Δ sales	Δ profit
Dependence on external finance for investment	-0.829** (0.411)	0.005 (0.007)	0.356 (0.260)	-0.379 (0.292)	0.006 (0.008)	0.497* (0.272)
Working capital needs	-0.012** (0.006)	0.000 (0.000)	0.009 (0.009)	-0.008 (0.006)	0.000 (0.000)	0.000 (0.011)
Demand sensitivity	-0.018 (0.166)	-0.009 (0.007)	-0.716* (0.399)	0.097 (0.196)	-0.028** (0.011)	-0.570 (0.520)
Exports/total sales	1.040 (2.585)	-0.152** (0.066)	1.800 (3.544)	0.503 (2.936)	-0.306** (0.153)	4.032 (3.760)
FX liability/total asset	-4.234 (3.243)	-0.375** (0.120)	-2.996 (10.127)	5.522* (3.276)	-0.534** (0.188)	-16.712# (11.002)
R-squared	0.14	0.38	0.13	0.08	0.35	0.13
No. of obs	74	75	75	77	77	77

Note: Dep. var. is calculated as average 2008/09 value minus 2007 value. Standard errors in parenthesis. #, *, and ** denotes significant at 15, 10, and 5% respectively.

Table 5. The Impact of Crisis on Firm Performance: Robustness Checks (3)

	(1)	(2)	(3)
Dependent variable	Δ investment	Δ sales	Δ profit
Dependence on external finance	-0.425# (0.285)	0.0001 (0.006)	0.363 (0.254)
Working capital needs	-0.007 (0.005)	0.000 (0.0002)	0.003 (0.007)
Demand sensitivity	-0.076 (0.177)	-0.009# (0.006)	-0.231 (0.305)
Exports/total sales	0.812 (2.238)	-0.166** (0.081)	2.645 (2.586)
FX liability/total asset	0.607 (3.138)	-0.301** (0.112)	-0.650 (4.226)
Firm size	0.384# (0.248)	0.016** (0.006)	0.713** (0.273)
Cash holding/total asset	7.761* (4.177)	-0.174 (0.128)	-16.523 (13.530)
Change of dep. variable, 2000-06	-0.205** (0.091)	-0.116** (0.047)	-0.138 (0.102)
R-squared	0.22	0.55	0.25
No. of obs	78	77	77

Note: Dep. var. is calculated as average 2008/09 value minus 2007 value. Standard errors in parenthesis. #, *, and ** denotes significant at 15, 10, and 5% respectively.

Table 6. The Impact of Crisis on Firm Performance: Using Sectoral Level Measures

Dependent variable	(1) Δ investment	(2) Δ investment	(3) Δ investment	(4) Δ sales	(5) Δ sales	(6) Δ profits	(7) Δ profits
Dependence on external finance for investment (sectoral measure)	-0.371 (0.637)	-0.385 (0.780)	-0.353 (0.780)	-0.001 (0.012)	-0.005 (0.009)	-0.610 (0.447)	-0.602 (0.692)
Working capital needs (sectoral measure)	-0.014# (0.009)	-0.017# (0.012)	-0.015 (0.012)	-0.001** (0.0003)	-0.001* (0.000)	-0.005 (0.011)	-0.022 (0.017)
Demand sensitivity	0.017 (0.078)	0.084 (0.090)	0.043 (0.103)	-0.014** (0.006)	-0.010** (0.005)	-0.127 (0.426)	0.041 (0.575)
Exports/total sales		0.703 (2.303)	0.052 (2.213)		-0.153* (0.078)		4.706* (2.464)
FX liabilities/total assets			3.996 (3.197)		-0.517** (0.105)		-1.416 (6.311)
R-squared	0.02	0.02	0.03	0.10	0.44	0.01	0.05
No. of obs	117	89	84	113	82	114	82

Note: Dep. var. is calculated as average 2008/09 value minus 2007 value. Standard errors in parenthesis. #, *, and ** denotes significant at 15, 10, and 5% respectively.

Annex Table: Firms in the Sample by Industry

Type	No. of firms
Agriculture, forestry, and fishing	9
Mining	4
Construction	2
Manufacturing	46
Transportation, communications, electric, gas, and sanitary services	37
Wholesale trade	6
Retail trade	7
Services	12