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"Insurance Motives in Lending Relationships: Evidence from Argentina"

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Insurance Motives in Lending Relationships: Evidence from Argentina[*]

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Abstract

This paper empirically examines whether firm-bank repeated interactions benefit firms in financial distress during severe macroeconomic recessions. We take advantage of a firm-level panel dataset on 4,158 firms borrowing from local (regional) banks in Argentina. Two salient features of this dataset make it particularly valuable for our analysis. First, banks report a measure of credit risk for each customer-firm, so that we can precisely identify firms in financial distress. Second, we observe lending characteristics of the firm in other banks and, consequently, we are able to measure the effect of multiple-bank lending. When a severe recession takes place, we find that firms with deteriorated credit risk rating (distress) in especially hard-hit sectors of the economy increase their debt from their local banks. Moreover, their probability of default increases significantly with the number of bank-creditors. Single firm-bank lending relationships with local banks in our sample appear to assist firms in financial distress during aggregate recessions.

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1   Introduction

Severe recessions, typically coupled with substantial liquidity shortage, can have permanent effects on certain firms, especially those in financial distress and with poor access to credit markets. As a result, a transitory shock - a macroeconomic recession - may in fact lead a firm to considerably reduce its investment spending and, eventually, to default on its debt. Presumably, this is the case for small firms, where agency costs are particularly important. This paper presents evidence on the role of local (regional) banks in assisting firms in financial distress in especially hard-hit sectors of the economy during recessions.

Many economists have suggested that institutional creditors, through close and continued interactions, can partially overcome private information in credit markets by establishing a distinct relationship consistent with the idea of long-term commitment. In particular, as Townsend (1982) pointed out, conventional borrowing-lending schemes are dominated by longer-term financial arrangements, where repeated interactions permit contingent trades. More specifically, Green (1991) argues that, despite the superficial appearance, credit contracts are more contingent than their explicit provisions indicate, and the most important contingencies have to do with macroeconomic recessions.

We take this question to a unique firm-level dataset covering the period January 1998 - December 1999. We focus our analysis on a recent recession in Argentina, which started in the third quarter of 1998[1]. Our dataset includes information on lending characteristics, such as debt amount, collateral, etc, for each customer-firm. Two special features of our dataset make it particularly suitable for our analysis. First, banks report a measure of credit risk for each customer-firm, so that we can identify firms in financial distress. Second, we observe lending characteristics of the firm in other banks and, consequently, we are able to measure

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[1] Analysts associate the starting point of the recession with the impact of the Russian's debt moratorium in August 1998 on Brazil, the principal trade customer of Argentina. The recession intensified later with the Brazilian devaluation of January 1999.

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the effect of multiple-bank lending.

Our econometric analysis tests whether firm-bank lending relationships benefit firms in distress in especially hard-hit sectors of the economy during macroeconomic recessions. Specifically, we estimate two equations to study whether, when a severe recession takes place, firms in financial distress: 1) increase their debt from their local (regional) banks; 2) face a lower probability of default compared to those with multiple-bank financing.

We find some preliminary evidence for insurance motives in lending relationships. When a severe recession takes place, firms with deteriorated credit risk ratings (distress) in especially hard-hit sectors of the economy increase their debt from their main bank. Related, their probability of default increases significantly with the number of bank-creditors. Single firm-bank lending relationships with local (regional) banks seem to play a role in assisting firms in distress during severe macroeconomic recessions.

In Section II, we discuss the theoretical work on lending relationships and insurance together with related empirical literature. Section III describes the data we use. Empirical strategy is outlined in Section IV. Section V reviews the main features of the recession and documents summary statistics of our sample. Section VI presents the main results. Section VI concludes the paper.

2 Theory and Related Literature

Many economists - Leland and Pyle (1977), Campbell and Kracaw (1980), Diamond (1984, 1991), among others - have suggested that institutional creditors, through close and continued interactions, can partially overcome private information in credit markets. In particular, as Townsend (1982) pointed out, conventional borrowing-lending schemes are dominated by longer-term financial arrangements. Firm-bank repeated interactions permit contingent trades, consistent with the idea of long-term commitment.

More specifically, Green (1991) and Green and Oh (1991) apply this idea to credit mar-

kets and find that the optimal allocation systematically deviates from borrowing-lending equilibrium. Moreover, Green and Oh (1991b) show that the optimal allocation can be decentralized if intermediaries compete with one another to offer "ex ante" incentive-compatible contracts for state-contingents trades. Green (1991) also argues that, despite the superficial appearance, contracts are more contingent than their explicit provisions indicate, and the most important contingencies have to do with macroeconomic recessions, when economies experience widespread distress. In this paper we focus on the extreme case of firms in financial distress operating in sectors of the economy particularly affected during an aggregate recession and study whether those firms with more intense lending relationships receive funds to overcome liquidity constraints and avoid bankruptcy.

There exists a rapidly growing empirical literature on the benefits of lending relationships for firms in financial distress, originating with the work of Hoshi, Kashyap and Scharfstein (1991). They report that investment sensitivity to fluctuations in cash flows is lower for firms with long-standing relationships with a main bank. Conigliani, Ferri and Generale (1997) studied a dataset on corporate borrowers in Italy during the episode of sharp monetary tightening in 1992, and found that firms with a larger number of lending banks faced more stringent credit constraints and superior lending rates. Examining banks' internal credit data in Germany, Elsas and Krahnen (1998) document that housebanks provide liquidity insurance in situations of unexpected deterioration of borrower ratings. Finally, and probably most related to our work, Ferri, Kang and Kim (2001) analyze credit bureau microdata for the period that covers the Korean 1997-1998 financial crisis. They found that relationship banking reduced the extent of liquidity constraints and diminished the probability of unwarranted bankruptcy.

Our empirical approach has three important contributions with respect to existing empirical work. First, we focus our analysis on firms in financial distress. We measure distress using firm's credit risk rating, which is not internal to the bank, but expressly regulated by

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the Central Bank (CB) of Argentina, better ensuring consistency of rating criteria among different banks. Second, we are able to identify especially hard-hit sectors of the economy by employing an independent survey to construct sector-specific indicators of economic performance. Third, banks know the lending information - debt, collateral, risk rating, etc - of each customer-firm on other banks. Consequently, it is possible for banks to make credit contract terms dependent on whether a customer-firm has access to other creditors.

3   Data

Our dataset includes all corporate borrowers[2], for which we observe the following information: 1) total debt outstanding, 2) amount of collateral, 3) credit risk rating, 4) SIC industrial code and 5) number of lending banks and debt, collateral and risk rating in each of them. We collected monthly information covering the period January 1998 - December 1999 and identify lending relationships as time-series observations of a firm borrowing from a given bank.

Our data has a number of advantages for analyzing bank responses to firms in distress. First, we use firms' credit risk rating to evaluate the financial situation of firms, rather than external risk proxies, such as leverage, monitoring frequency or type of loan. Second, the data consists of a cross-section of firms over time, which enables us to control for dynamic effects of the bank-customer relationship. In particular, we control for time-variant lending characteristics, such as changes in collateral requirements or access to other banks. Finally, by focusing on regional banks we respect the local variation that might characterize region-specific, indigenous systems (which are less distorted by national policies or events). More important, these banks have many more branches and substantially higher administration costs compared to non-regional banks, what make them more apt to develop "close" inter-

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[2]All borrowers with outstanding debt greater than 200,000 US dollars are reported in the data files. We exclude consumers, government branches and financial corporations from our analysis.

actions with their customer-firms as they are nearer them physically and have the staff to monitor.

Despite its details on credit relations, we still face some shortcomings. First, CB does not collect information on bank lending rates. Consequently, we cannot evaluate whether lending relationships benefit firms in distress in terms of the cost of credit. Second, we only observe relationship banking along one of its two dimensions: the number of lending banks. Given the short time span of our dataset, it is difficult to obtain a precise measure of relationship duration. However, we do control for those firms with short-term credit relationships (less than 20 months) in our estimations. Third, we do not have access to balance sheet information for individual firms and, as a consequence, we do not observe firms' access to other sources of borrowing. Finally, the firm's geographical location is not reported in the dataset. As a result, we are bound to employ banks that lend exclusively to a particular region.

4 Empirical Strategy

Our econometric analysis tests whether firm-bank lending relationships benefit firms in distress in especially hard-hit sectors of the economy during macroeconomic recessions. Specifically, we estimate two equations to study whether, when a severe recession takes place, exclusive customer-firms in financial distress 1) increase their debt from their regional banks and/or 2) face a lower probability of default compared to those with multiple-bank financing.

4.1 Loan Assistance

To determine whether regional banks permit access to funds during recessions we regress debt amount - *debt* - for firm k in sector s at time t against borrower's characteristics (proprietor or corporation, industry dummies, collateral), relationship variables (credit relation duration, access to other banks' funds) and a measure of sector-specific shock. We estimate an ordinary

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least squares regression of the form:

$$debt_{kst} = \alpha_0 + \alpha_1(\text{firm characteristics})_{kt} + \alpha_2(\text{relationship variables})_{kt}$$
$$+ \alpha_3(\text{firm shock})_{kst} + \alpha_4(\text{firm shock})(\text{relationship variables})_{kst} + e_{kst} \tag{1}$$

Our main interest is to test the following hypothesis: regional banks assist firms in financial distress in especially hard hit sectors during aggregate recessions. A negative correlation, i.e. $\alpha_3 < 0$, between sector-specific shock and debt amount will be in line with this story. Conversely, $\alpha_5 > 0$ is consistent with the so-called "flight to quality" idea, where lower quality firms are rationed from credit markets. See Bernanke and Gertler (1994) for a theoretical discussion and empirical evidence of this idea.

4.2 Probability of default

We estimate a probit model to study whether exclusive customer-firms in distress - rated 3 - face a greater probability of default during recessions compared to those firms with multiple-bank lending. A maximum likelihood procedure is employed to estimate the conditional transition probability of default. The estimated equation, where F stands for standard normal cumulative distribution function (CDF), is

$$probit(1 \text{ if default}_{t+1}|rating_t = 3) = F[\beta_0 + \beta_1(\text{firm characteristics})_{kt}$$
$$+ \beta_2(\text{relationship variables})_{kt}] \tag{2}$$

Our interest here is to test the following hypothesis: firms in distress in especially hard hit sectors in the economy with intensive relationships with regional banks face a lower probability of default. An estimate of $\beta_2 < 0$ would imply that multiple-bank lending enables distressed firms in hard-hit sectors of the economy to reduce their probability of default. On the contrary, if $\beta_2 > 0$ those exclusive clients of local (regional) banks are benefited in the unfortunate event of financial distress during macroeconomic recession.

4.3 Instrumental Variable: Sector-Specific Shocks

Because of comprehensible restrictions, we do not have access to balance sheet information of corporate borrowers. Consequently, we only observe a limited number of borrower's characteristics. Omitted firms' characteristics (i.e. size of the firm, for example) may be correlated to firm's specific shock, which lead to biases in our estimations. We perform an Instrumental Variable procedure using a measure of sector-specific economic performance.

We use a representative Survey (Encuesta Permanente de Hogares - EPH) carried out three times a year in main urban areas to measure sector-specific shocks. EPH interviews a representative sample of individuals in each of the 23 provinces and extract information on residential patterns, household composition, employment, income, education and migration. Following Katz and Murphy (1992) we obtain a measure of production conditions for each SIC economic sector in every region. We employ information on employment status, hours worked and income for each specific SIC activity code. EPH is run three times a year: April/May, August and October. After seasonality adjustment, a linear trend is estimated for each sector. An indicator for sector-specific shock is calculated as the percentage deviation from estimated trend, where a positive/negative number indicates "above/below trend".

4.4 Credit Risk Ratings

A central variable used in this paper is the credit risk rating of the firm, which identifies corporate borrowers in financial distress. CB requires banks to rate borrowers, not loans, in terms of their "financial situation" using common criteria. More specifically, a firm's rating depends on its "repayment capacity", which is measured as the difference between "expected future cash flows" and debt commitments. Credit Risk Ratings are assignments of one of six numbers (1, 2, 3, 4, 5, 6), where increasing numbers indicate deteriorated financial situation.

Table 1 briefly describes risk ratings categories. In general, risk ratings primarily depend on the present value of expected cash flows. In this sense, firms with sound financial situations

Table 1 - Debtor Classification

Rating	Description
1	Normal repayment
2	With potential risk of repayment problem
3	With repayment problems (distress)
4	High risk of default
5	Default
6	Firms client of liquidated banks

and expected cash flows that allow them to repay their debt commitments with no trouble are rated as 1. Rating 2 corresponds to firms with gradual deterioration in future cash flows and occasional repayment delays. Firms are rated 3 when their expected cash flows are insufficient to repay the principal (needing loan renewals or new loans), even though it is possible to repay interest costs. We identify these firms as financially distressed. Firms that also default on interest payments or are *unable* to repay possible debt restructures are assigned rating 4. This category also includes firms whose banks have demanded that they file for bankruptcy. Rating 5 invokes legal procedure to liquidate. A tiny number of firms that are clients of liquidated banks - rated 6 - were excluded from our analysis.

5 A Review of the Recession

Argentine economy was significantly affected by two international events: Russian debt moratorium in August 1998 and Brazilian devaluation in January 1999. It was generally held that a loss of confidence in the Argentine economy led to asset markets (stocks, real estate and bonds) deteriorations, together with sharp interest rates increases. The economy suffered reductions in total deposits and credit to non-financial corporate sector plunged, which lead to a marked liquidity shortage. Figure 1 presents the impact of these events
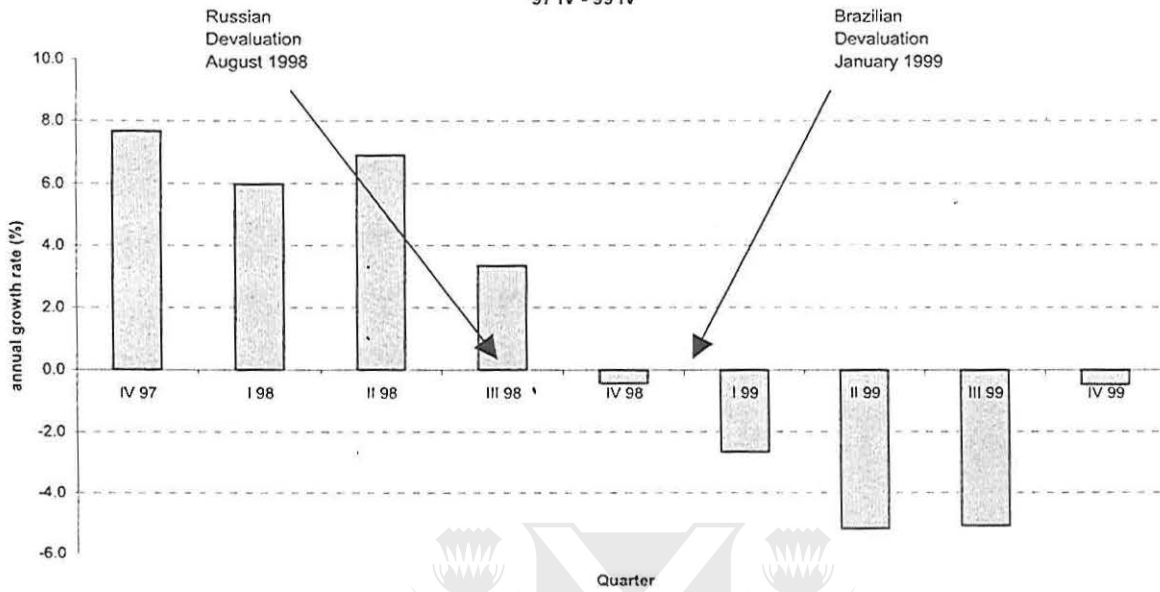
Figure 1
Real GDP
97 IV - 99 IV

Table 2: Sector-Specific Indicators

Province	Oct-97	May-98	Aug-98	Oct-98	May-99	Aug-99	Oct-99
Chaco		7	8	15	8		
Corrientes		11	12	11	NA		13
Formosa	7		9	9	NA		
Misiones	12		10				
Catamarca		9	10	9			
Jujuy	7			10		9	
La Rioja			15	16	14		
Salta	12					10	
Sgo Estero	9		13	8	7		11
San Juan	14		8	9			
Tucuman	9				13	11	6
Cordoba		8	10	10			
Entre Rios	10					11	
La Pampa			13	14	15		
Mendoza			9	10			
Santa Fe	13		14				10
Buenos Aires		10	16	9			15
San Luis	15		11				
Chubut	10				10	11	
Neuquen	9		14		7		13
Santa Cruz		12	11	12	11		13
Tierra del F	8		11	NA	15		
# of provinces with recessions	13	6	17	14	9	5	7
(mean) # of below trend	10.4	9.5	11.4	10.9	11.1	10.4	11.6

on the real economy. After a strong recovery from former Mexico crisis in 1994, real GDP decreases substantially in the third quarter of 1998 and continued its negative growth until the end of our sample period, December 1999.

The sharp decline in the stock market and the rise in interest rates weakened the corporate sector, as these factors affected firms' financial situation. We report a summary of sector-specific conditions in all provinces in Table 2. A month where measured economic condition in a given province was good is left blank in the table. The number in each cell represents the number of SIC sectors operating below trend in each province. We can observe that, in August 1998, 17 out of 22 provinces were measured to be in a recession. Moreover, on average, more than 2/3 of the sectors were particularly affected during August 1998. However, as observed in Table 2, the impact of the crisis was not evenly spread across the regions. We take this heterogeneity into account since we focus our analysis only on those particularly affected sectors during regional recessions.

5.1 Sample Description

Since we cannot observe firms' geographical location we are bound to employ banks that lend exclusively to a particular region. We now describe some characteristics of our sample. The main features of regional banks can be summarized as follows (See Cristini and Moya (1999) for a detailed discussion). On average, regional banks concentrate the bulk - 87 percent - of their credit operations within the region, and their share in local credit markets is 1/3. Moreover, only a few (between 3 and 7) other banks have significant participation in lending operations in each particular region. Regional banks make a larger proportion of their loans in local currency than the rest of the financial system, particularly by means of personal loans. They are heavily funded out of current account deposits and borrow less money from abroad than the remainder. They require fewer guarantees in their lending transactions and their irregular loan portfolios are large. Their administration expenses are greater than

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average, and total assets per branch are smaller than their peers. The businesses they serve are smaller on average and are concentrated in sectors typical for small-medium sized firms: agriculture, retail trade and services. Our sample contains 7 public banks out of a total of 22.

We identify lending relationships as observations in our panel dataset of a firm borrowing from a local bank. Our sample includes 4,158 firms, mostly composed of corporations (79.1 percent). Unfortunately, we do not have information on firms' other sources of borrowing[3]. In light of this restriction, we will limit our analysis to those small-medium sized firms to exclude medium-large firms with likely access to financial markets. Table 3 shows debt distribution together with firms' other borrowing characteristics. We observe that large debt amounts are associated with lower collateral, better credit risk ratings and more access to other banks' funds. Any chosen threshold in the debt amount to exclude firms with likely access to other sources of funding will result arbitrary. Consequently, we decided to perform our analysis with three alternative samples with debt amount not exceeding 0.3, 0.5 and 1.0 million US dollars.

I.*Relationship Duration*

Provided the short time span of our panel (2 years), it is difficult to obtain a precise measure of firm-bank relationship duration. However, we observe that 95 percent of the firms keep an ongoing relationship with their bank during our sample period. We also observe those firms who have been related for less than 20 months and identify those firms as maintaining a short-term lending relationship with their banks. We can compute "long-run" relationship duration based on observed monthly average exit rate. Approximately, 30 firms terminate a relationship every month. Given the initial number of borrowers during

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[3]Evidence for small firms in the US documented by Petersen-Rajan (1994) suggests that firms tend to concentrate their borrowing from one source, though this concentration decreases as firm size increases. The cohort of firms in their study that correspond to our sample shows that firms obtain approximately 80 percent of their loans from banks.

Table 3: Distribution of firms' Total Debt (in thousands $)

Firms' borrowing characteristics	Total Debt				
	200-300	300-500	500-1m	1m-2.5m	>2.5m
I. Local (regional) Banks					
Number of firms	514	850	906	658	509
(Mean) Debt amount ($)	248	354	558	1031	2220
(Mean) Collateral (%)	56	55	50	40	31
(Mean) risk rating	2.3	2.1	2.0	1.7	1.5
Firms with access to other banks (%)	33	55	73	82	100
Corporations (%)	56	68	80	90	98
II. With Access to other banks					
Number of firms	172	469	661	538	509
(Mean) number of lending banks	1.4	1.8	2.4	3.1	4.5
(Mean) debt in other banks ($)	14	45	112	270	1332
(Mean) collateral in other banks (%)	40	58	47	41	26
(Mean) risk rating in other banks ($)	2.1	1.8	1.8	1.7	1.5

Table 4: Multiple Bank Lending

Number of banks	Number of Firms	As %	Debt ($)	Collat. (%)	Rating	In other banks		
						Debt ($)	Collat. (%)	Rating
1	723	53.0	319.1	53	2.2			
2	432	31.7	313.7	60	2.2	37.2	64	1.8
3	164	12.0	302.0	55	2.1	38.2	41	1.8
4	38	2.8	278.4	52	2.5	32.9	35	2.4
5	7	0.5	304.2	81	2.2	24.7	38	1.9
	1364		314.1	56	2.2	37.1	56	1.8

January 1998 and assuming a common and constant probability of relationship termination, we determine that firms in the sample spend 7-9 years with some relation to their banks.

II. *Multiple-Bank Lending*

Another interesting aspect of the dataset is that it allows us to identify firms borrowing from other banks. Table 4 describes the patterns of multiple-bank lending of firms with total debt amount below 0.5 million dollars. The point is to have an idea of how concentrated is bank financing in our sample. We found that 53 percent of firms have outstanding debt with non-regional banks. This is a small percentage compared to evidence for other countries. See Degryse and Ongena (2000), Norway; Ongena and Smith (2000), some European countries and Petersen and Rajan (1994) for the US.

We divide the sample into those firms related to only one bank and those related to more than one bank. We then search for differences between the two samples. We find statistically significance differences in debt amount and collateral requirement. In particular, firms borrowing from a single bank have larger debt amount and post less collateral. This result is also consistent with evidence in other countries. For example, Petersen and Rajan (1994), Cole (1998) and more recently Scott (2000) find that a close relationship with a singular institutional creditor increases the availability of credit for US firms. Analogously, Harhoff-Korting (1998) and Angelini, Di Salvo and Ferri (1998) document, respectively, that credit availability for small German and Italian firms decreases with the number of relationships, while Weinstein-Yafeh (1998) also find that Japanese main bank clients enjoyed superior access to capital resources. However, we find no statistical differences in credit risk ratings. Finally, we note that, on average, firms in the sample borrow a small proportion from non-regional banks (12 percent). Nevertheless, those funds could play an important role if they were available during situations of financial distress. This is the central hypothesis investigated below.

Table 5 presents summary statistics of the variables used in the econometric analysis

Table 5: Summary Statistics

Description	# of Obs.	Mean	St.Dev	Min.	Max.
Debt amount (thousand $) in regional bank	11872	327.7	80.7	200	499.9
Collateral as a share of total debt	11872	0.545	0.423	0	1
Dummy for collateral. 1 if Collat > 0, 0 otherwise	11872	.621	.252	0	1
Credit risk rating assigned by the bank	11872	1.972	1.277	1	5
Type of firm dummy. 1 if a corporation, 0 if proprietor	11872	0.708	0.454	0	1
Access to other banks dummy. 1 if the firm has access to other non-regional banks, 0 otherwise	11872	0.503	0.500	0	1
1 if the firm has access to more than 1 non-regional bank	11872	0.212	0.408	0	1
Relationship Duration dummy. 1 if credit relation is lower than 20 months, 0 otherwise	11872	0.213	0.409	0	1
Credit Risk rating deterioration dummy. 1 if deterioration in firm's credit rating, 0 otherwise	11872	0.046	0.210	0	1
Percentage deviation in specific-sector conditions from linear trend	10107	-3.787'	20.807	-64.491	58.150
Percentage deviation in region conditions from linear trend	10107	-3.348	12.963	-30.199	30.886

below.

6 Results

In this section we test whether lending relationships help firms in financial distress to insure themselves against transitory macroeconomic recessions. We report results for small-medium firms with total debt amount below 0.3, 0.5 and 1.0 million US dollars respectively. We also explored (but did not report) two other alternative samples. First, we consider only those firms "mainly" related - highest share in total debt - to their regional banks and exclude those with debt above 0.5 million US dollars in its main bank. Second, we use the sample of main customer-firms of regional banks and only exclude firms with debt greater than 1 million US dollars in their main bank. We found that results did not change substantially.

6.1 Loan assistance

We present results in Table 6. We find some evidence that single lending relationships with regional banks benefit firms in financial distress - rated 3 - in especially hard-hit sectors of the economy during macroeconomic recessions. This is particularly true for the case of small-medium sized firms with total debt amount below 0.5 million US dollars (left and middle column). We observe a negative correlation between debt amount and sector-specific shock for firms with single relationships with their banks. In particular, and for the case of firms with debt amount lower than 0.5 million US dollars, point estimate implies that a 10 percent fall in largely affected sectors is associated with a debt increase in the order of 8,640 US dollars from their regional banks. Access to other banks' funds and short-term credit relations do not seem to help firms in financial distress.

When we only use firms with debt amount lower than 0.3 million US (left column) we find that debt of financially distressed firms plunge more when the firm is involved in multiple-bank lending and short credit relationships. Point estimate indicates that a 10 percent fall in

Table 6: Loan Assistance results

Dependent Variable: Debt amount (thousand $) of firms rated 3.

Explanatory Variables	If debt<300	If debt<500	If debt<1000
No. of observations	131	407	649
Constant	225.399***	277.756***	391.445***
	(0.000)	(0.000)	(0.000)
Firm characteristics			
Dumcollat	5.369	18.849	4.045
	(0.625)	(0.150)	(0.866)
Dumtype	14.880**	17.277*	25.325
	(0.046)	(0.058)	(0.132)
Relationship variables			
Short relation	14.854	15.756	-33.231
	(0.292)	(0.483)	(0.452)
Multiple-bank relation	35.591***	52.753***	64.551***
	(0.000)	(0.000)	(0.006)
Interaction Term with Sector Conditions (i)			
Single-bank relation	-0.392	-0.864**	0.555
	(0.146)	(0.047)	(0.520)
Multiple-bank relation	0.981**	0.592	0.521
	(0.027)	(0.246)	(0.601)
Short relation	1.107*	1.592*	2.143
	(0.098)	(0.096)	(0.270)
R-squared	0.1398	0.1995	0.2376
Prob > F	0.0154	0.0000	0.0000

Notes:

(i)   Percentage Deviation from trend: "positive" if above trend; "negative" if below trend

(ii) 16 industry dummies in accordance with two-digit SIC codes are included but not reported.

(iii) A significant regional recession is measured as a negative deviation from trend of at least 5%.

especially affected sectors is associated with a debt decrease of 9,810 and 11,070 US dollars respectively. However, we find that firms related to more than one bank systematically keep larger debt amount. This is also the case for corporations.

Results for firms with larger total debt amount (right column) show no significant effects of single lending relationships. Presumably, firms with larger debt amount have likely access to financial markets to smooth temporary shocks. Similar results were obtained when we run these regressions for firms with largest debt amount (above 1.0 million US dollars).

These findings, at least for the case of regional (local) banks during periods of severe economic contractions, are not consistent with "flight to quality" ideas discussed, among others, in Bernanke and Gertler (1994). In contrast, single lending relationships with regional banks seem to be valuable for small-medium sized firms with restricted access to financial markets, especially in the unfortunate case of severe macroeconomic recessions. We interpret this result as preliminary evidence for insurance motives in lending relationships.

However, a caveat applies. A debt increase may be associated with "delay repayments", and not with insurance provision. Additionally, greater interest rates observed in recessions would increase the burden of the debt and that could also explain firms' debt increases. Unfortunately, our dataset does not differentiate between a debt increase coming from interest accumulations or new loans. Nor can we observe firms' interest rates. A way out of this problem will be discussed in next section, where we estimate whether firms in financial distress with single relationships with regional banks face a greater probability of default during recessions.

6.2   Probability of default

Table 7 presents "marginal effects" of explanatory variables calculated from probit model coefficient estimations. P-value is reported in parenthesis below. We find that financially distressed firms with access to other banks face a greater probability of default during re-

Table 7: Transition Probability of Default

Dependent Variable: 1 if default at t+1, given that firm is rated 3 at t.

Explanatory Variables	If debt<300		If debt<500		If debt<1000	
	(a)	(b)	(a)	(b)	(a)	(b)
No. of Observations	105	105	400	400	637	637
Firm characteristics						
Debt amount	-0.001	-0.001	0.000	-0.000	0.000	0.000
	(0.252)	(0.294)	(0.783)	(0.909)	(0.571)	(0.401)
Collateral dummy	0.055*	0.055*	-0.043	-0.043	-0.036	-0.029
	(0.059)	(0.057)	(0.409)	(0.391)	(0.365)	(0.442)
Type of firm	-0.048	-0.028	-0.033	-0.030	-0.023	-0.021
	(0.250)	(0.438)	(0.359)	(0.370)	(0.404)	(0.425)
Relationship variables						
Short relation	-	-	-0.016	-0.026	0.035	0.030
	-	-	(0.763)	(0.594)	(0.469)	(0.521)
Multiple-bank relation	0.002	0.163	0.059*	0.218***	0.023	0.122***
	(0.961)	(0.146)	(0.066)	(0.000)	(0.346)	(0.001)
R-squared	0.2066	0.2440	0.0514	0.0999	0.0268	0.0535
Prob > F	0.2317	0.1296	0.6457	0.0622	0.8247	0.1799
Obs. Prob.	0.0760	0.0760	0.0900	0.0900	0.0848	0.0848
Pred. Prob.	0.0250	0.0250	0.0807	0.0744	0.0800	0.0758

Notes:
(i)   *, ** and *** indicate statistical significant at 0.10, 0.05 and 0.01 levels respectively. P-values appear in parentheses.
(ii)   16 industry dummies in accordance with two-digit SIC codes are included but not reported.
(iii)   A significant regional recession is measured as a negative deviation from trend of at least 5%.

cessions. This is especially true for firms with debt amount below 0.5 million US dollars. Point estimate in column (a) indicates that the probability of default increases 73 percent with respect to the predicted probability of firms with single lending relationships (0.0807). Column (b) shows estimation results for the case of firms borrowing from more than one other non-regional bank. Point estimate - 0.218 - now reveals that probability of default almost triplicates! Even firms with debt amount up to 1.0 million US dollars with more than one non-regional bank lending relationship face a substantial increase in their probability of default. Results for firms with largest debt amount show no statistically significant effect of more intense lending relationships.

These findings are consistent with the idea that intensive credit relationships with regional (local) banks helped customer-firms in financial distress to weather the temporary effect of severe macroeconomic recessions. Regional banks seem to play an important role in insuring that firms are not liquidity constrained during economic contractions.

Our results show no significant effect of relationship duration on probability of default. However, only a few observations of firms in distress with short credit relationship durations were found for the case of small-medium sized firms. This situation may explain why we obtain statistically insignificant results. We also find, surprisingly, that larger collateral increases the probability of default for financially distressed small-sized firms (debt amount below 0.3 million US dollars).

In general, our results are consistent with Ferri, Kang and Kim (2001), who argue that for many viable Korean small-medium enterprises relationship banking reduce the extent of liquidity constraints and, thus, diminished the probability of unwarranted bankruptcy.

7   Final Remarks

Do lending relationships benefit firms in financial distress? Is this also true when severe macroeconomic recessions take place? This paper studied the impact of two exogenous events

that particularly affected the Argentine economy to assess the role of local (regional) banks - and multiple-bank lending - in assisting firms in financial distress during recessions. We found that financially distressed firms in especially hard-hit sectors of the economy increased their debt from their regional banks. Moreover, our results show that their probability of default increases substantially when they access multiple banks' funds. These findings, at least for the case of regional (local) banks during severe economic contractions, are not consistent with "flight to quality" ideas discussed, among others, in Bernanke and Gertler (1994). In contrast, lending relationships with regional banks seem to be compatible with the idea of an insurance component on loan contracts, probably based on close and repeated interactions between regional banks and customer-firms, especially in the unfortunate case of severe macroeconomic recessions. We interpret these results as preliminary evidence for insurance motives in lending relationships.

Regulators are usually concerned about "throwing money after bad". Their main concern may be the impact of potential loan losses on bank capital assets, especially during macroeconomic recessions, usually accompanied with liquidity shortages. Our empirical work suggests that local banks play an important role in preventing financial distress, and eventual bankruptcy, for many viable small-medium sized firms. Results in this paper advocate for improved supervision and close monitoring of provisions for loan losses, in particular for local (regional) banks.

Thus far, we have discussed the benefits of lending relationships for firms in financial distress. A natural extension of this work is to exploit available information on financial accounts and profit/loss statements of regional banks to study the cost of insurance provision. In future work we will explore how regional banks financed debt increases to firms in financial distress during the recession. In particular, our interest will rely on assessing whether "liquidity" insurance provision is correlated to lower bank profits, as Berlin and Mester (1998) suggested. An evaluation of how provisions for eventual default are managed

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- how banks price for risk - is indispensable.

A related issue we did not explore in this paper is the role of collateral in lending relationships. Besanko and Thakor (1994) construct a repeated moral hazard model and suggest that intense lending relationships should require lower collateral as repeated firm-bank interactions help to overcome private information. Our findings are not consistent with this result. A possible explanation would be that here we focus on small-medium sized firms, where commitment problems are particularly important and greater collateral seems to be use as a device to enforce repayment. Relatedly, we find that collateral increases as credit risk rating deteriorates, although it is significantly lower for firms in default (rated 4 or 5). In future work I will further investigate these issues to assess both theoretically and empirically the role of collateral in lending relationships.

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