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Relationships and the availability of credit to New Small Firms*

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Abstract

We analyze the loans that startup firms obtain from banks by testing our predictions on a set of small, young Italian companies founded during the 1992–2004 period. According to our investigation, the amount of borrowing is determined by (1) the size of the firm, (2), the ability to offer collateral (3) perceived risk. Contrary to expectations, however, the length of the relationship with the lender has a weak influence.

1. INTRODUCTION

The dynamics of entrepreneurial activities and of the start-up firms that entrepreneurs bring to life has been a topic of interest to economic researchers for a number of years. Of course, in the end entrepreneurial success depends on the skills of the owner-managers and on the financial resources at their disposal (Becchetti and Trovato, 2002; Åstebro and Bernhardt, 2003; Hanley and Girma, 2006). With regard to the financial aspects, most part of the existing research has focused on studying the efforts to grow and obtain resources in a long-run perspective (Petersen and Rajan (1994), Berger and Udell (1998), Berger, Saunders, Scalise and Udell (1998)). By contrast, there is relatively little systematic knowledge about the borrowing needs of firms immediately after they are founded.

In this paper we aim at filling this gap by considering the short-term loans that banks extend to newly founded firms. First, we re-examine the composition of debt, the determinants of bank loans and their share in the overall financial structure of young companies. Second, and in addition

to standard determinants of credit such as size and profitability, we investigate the role of collateral, of bank-firm relationships, of sectorial differences, as well as the interaction among these variables.

With this purpose in mind, we consider a sample of small Italian companies created between 1992 and 2004 and verify whether their behaviour after birth is consistent with our conjectures on small-firm finance. In particular, in the next section we briefly survey the literature on bank lending to small firms. Sections 3 to 5 describe the small-business institutional environment in Italy, the sample of Italian newly-founded companies that form the object of our empirical investigation, the main variables taken into account in the analysis. In section 6 we present our empirical results about the determinants of capital structure. The traditional empirical model is extended in sections 7 and 8. Section 9 concludes and offers some suggestion for future research.

2. BANK LOANS TO SMALL FIRMS: A REVIEW OF THE LITERATURE

By and large, companies finance their activities from two main sources: equity and debt.[1] Equity consists of the funds invested by the owners. It is a permanent source of capital, in that there is no duty to pay it back or to remunerate it at an agreed-upon rate. It also plays a signaling role. Since asymmetric information is remarkably strong in the case of small firms, owners signal their confidence and – indirectly – the quality of their entrepreneurial endeavors by investing their wealth in their own firms. The strength and reliability of these signals, however, might not attract enough investors willing to risk their capital by becoming residual claimants. When this happens, borrowing becomes inevitable, as long as the lender is willing to take at least some risks.

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[1] The role of trade credit lies beyond the scope of these pages. Yet, although its importance is not denied, its role is ambiguous. For instance, Nilsen (2002) suggests that trade credit is a substitute for bank loans. Others, such as Berger and Udell (1998) and Burkart and Ellingsen (2004) find that they may be complements.

Consistent with this intuition, Berger and Udell (1998) argue that firms use different combinations of financing in different growth stages (this is the so-called life cycle theory of firms). When small and young, companies suffer from a high informational disadvantage, they find it hard to obtain funds from external sources and rely on 'inside financing'. Later, when they have acquired a reputation, owners eventually turn to external sources. In these cases, they prefer debt to equity, so as not to dilute ownership and control (Myers, 1984) and tend to concentrate on short-term loans, less risky for the lender, and thus cheaper for the borrower (Ortiz-Molina and Penas, 2008).

2.1 The role of relationships

Given the role of information asymmetries, during the past decade the literature on bank lending has also emphasized the importance of bank-customer relationships and the use of collateral as ways of reducing lenders' mistrust. In this context, Petersen and Rajan (1994, 1995) called attention to impersonal lending and relationship lending. The former identifies situations in which banks rely on the borrowers' balance sheets in order to assess creditworthiness. The latter applies when banks engage in acquiring additional information by interacting with their customers.[2] This is called, relationship landing.

Relationships benefit both parties. As the assessment of risk becomes more reliable, the quality of the bank portfolio improves and the willingness to lend increases. Likewise, the length of the relationship reduces the likelihood of collateral requests for the establishment of credit lines. Thus, the need to offer collateral becomes less stringent and the cost of borrowing declines. Chakraborty and Hu (2006) documented it. These results were also confirmed by Elsas and Krahnen (2004) for Germany; by Peltoniemi (2004) for Finland; and by Scott and Dunkelberg (2003) for the US.

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[2] See the important contributions by Black and Strahan (2002), Berger and Udell (2002), Bodenhorn (2003), Cetorelli and Strahan (2006), Hanley and Girma (2006).

Not surprisingly, small companies benefit from relationship banking more than large firms,[3] especially when firms do not produce information that can be processed in a standardized way.

2.2   *Information problems and lending technology*

The finance literature distinguishes between two ways (or two 'technologies') in which small businesses are financed by banks, depending on the type of information which they can provide. On one hand, there is a transaction – based lending and on the other relationship lending. The second technology is more common in the case of small businesses. In general, the academic literature views the "relationship lending" as more relevant to the relatively opaque firm that suffers from more intense asymmetric information. However, Berger and Udell (2006) claim that banks often lend to opaque small businesses using the transaction – based approach. Uchida Udell and Watanabe (2008), using data from Japan, found that there is a high degree of complementarity among these two approaches[4]. So, bank maybe using various lending "technologies" at the same time. In this study we adopt this approach and do not differentiate between the two technologies. Specifically, the two technologies co-exist. The lending bank would use hard information when available and supplement it with customer - specific information that is gathered through multiple interactions with the same customer over time and across products.

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[3] See Peterson and Rajan (1994), as well as Craig and Hardee (2007).

[4] Uchida Udell and Watanabe (2008) using survey-macro data on Japanese SME's test the importance of various "lending technologies" and consider for lending technologies: "financial statement lending", "real estate lending", "fixed assets lending" and "relationship lending". Using firm's responses to survey questions they analyze the determinants of each index and find that there is complementarity among the four "technologies".

2.3   The role of collateral

It has been noted in the literature that in the presence of information asymmetries between lenders and borrowers collateral may mitigate the problem of adverse selection. Two possible affects are considered. Lenders may use collateral either as a substitute for (Manove, Padilla and Pagano, 2001) or complement (Longhofer and Santos, 2000) to screening and monitoring efforts. Ono and Uesugi (2009) using a firm-level data set of the small and medium size enterprise loan market in Japan find that collaterals are used supplements to other documented information. Collateral is viewed as effecting in raising the quantity of credit granted.

Thus, the presence of collateral affects company financing. Since it limits moral hazard and adverse selection, it contributes to reducing the assessment costs incurred by the lender. As noted by Riding and Haines (2001) and others, the use of costly collateral creates a signaling mechanism about the quality of the debt and encourages the borrower to operate efficiently. As a result, the amount of credit that the lender is willing to provide increases. The empirical evidence supports the theory.

3. BANKS AND SMALL BUSINESSES IN ITALY

Compared to many other Western countries, Italy exhibits a large share of the working population categorized as self-employed or as business owners. In Italy, small businesses represent some 95% of the total number of firms; they provide almost 47% of total employment and have a significant impact on the economic growth of the country (Istat, 2006). Not surprisingly, lending to small business has thus been an important area of interest for both large and small banks.

Earlier research offered some explanations for this unusual situation. For example, some authors have mentioned the diminishing role of scale economies and the increasing role of non-standardized

production. Others have drawn attention to the tax benefits that accrue to autonomous workers and entrepreneurs. Rapiti (1997) added the relative advantage of small firms in managing turbulent industrial relations. Government policy has also played an important role. Since the 1950s, self-employment and small business ownership have been benefitting from subsidies, tax exemptions, privileged pension schemes and further *ad hoc* legislation.

Two other features deserve to be underscored. First, in Italy the average company interacts with one lead bank and 3.9 other banks at the same time (3.0 other banks in the case of companies employing less than 20 people according to Capitalia, 2005).[5] Rajan and Winton (1995) argue that this might point to low risk, since one could figure out that the borrower passed several screenings successfully. From a different standpoint, however, one might also suggest that multiple lenders are evidence of high risk: so high, in fact, that each bank offers funds only as long as other banks are willing to share the risk. Second, Italian small companies are characterized by no sharp distinction between ownership and control. As noted by Bianco and Casavola (1999), in most Italian companies ownership is highly concentrated. This may be both a blessing and a curse: it might constrain future expansion, as output growth often requires a significant amount of outside equity, which is unlikely to come from the founder's pockets; but it might also contribute to reducing conflicts and internalizing the outcome of the decision-making process.

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[5] It may also be interesting to compare the Italian context with Norway, where the vast majority of firms do business with one bank only (Ongena and Smith, 2001).

4. SAMPLE SELECTION AND VARIABLE DEFINITION

We use data collected through a survey conducted in three Northern-Italian regions in 2005-06. It includes information about size and industry, as well as on equity and debt. In particular, the data on equity are broken up into owner's savings (including equity positions held by the owner's family) and external funding. For debt we have separate information about bank loans, trade credit and government loans. We use bank loans as the depended variable in this study.

The sample was selected as follows. First, we gathered information on 828 new firms that entered the 'Registro delle Imprese'[6] in Lombardia, Piemonte and Veneto during the 1992-2004 period. We subsequently narrowed our interest on the 286 firms which met two requirements: they provided satisfactory accounting data, they employed no less than 5 workers in 2004 if they belonged to the service or construction sectors and no less than 10 workers if they were in manufacturing. The entrepreneurs heading these firms were then contacted for a personal interview. 187 of these entrepreneurs made themselves available and provided adequate information.[7]

We have listed in **Table 1** the variables we use in order to analyze the determinants of the capital structure.

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[6] The major source of information on the demography of Italian firms is the 'Registro delle Imprese' (Business Register), managed by the provincial Chambers of Commerce. It lists all existing firms by legal status and also includes some information about the owners and the members of their boards of directors. All new firms are required by law to register and all firms that cease to be active are de-listed.

[7] However, only 24 owners accepted to disclose information about the interest rates paid on their debt.

More generally, this survey suffers from the standards shortcomings that affect most surveys. For instance, we cannot be sure that the respondents understood all the questions and if they did, that they answered all of them truthfully. Second, there is the problem of a non-response bias. One can never be sure that the answers of those who responded are indeed representative of the general population. Finally, since the information that we use is drawn from the successful firms, we might be victim to the survivorship bias: firms that opened during 1992-2004 but closed before the survey was conducted were not interviewed.

TABLE 1 – Definition of the Variables

COLL	A 0-1 variable. One if collateral of any sort is pledged according to notes in the financial reports

FUNDS	All funding sources are expressed as percentage of total assets, using the first financial documentation following registration.
	
	  1. Personal equity out of the owners' own funds
	  2. Equity investment obtained from other family members
	  3. Equity investment by a family-related firm
	  4. External equity from institutions, including venture capital
	  5. Loans made by banks or bank subsidiaries (mortgage, leasing)
	  6. Government loans and assistance programs (all levels of government)
	  7. Other loans such as trade credits, factoring and customer advances

IND	the industry to which the startup firm belongs:
	
	  MAN, manufacturing
	  CON, construction
	  BUS, business services, including maintenance, cleaning, printing
	  HOS, hospitality, including catering and restaurants
	  COM, retail trade
	  PES, personal services, including education, health, beauty, repairs
	  TRA, transportation, including packaging and storage
	  MIS, miscellaneous

LOAN	Ratio of debt outstanding to total assets
PRF	Income from ownership and management in 2004 (thousand Euros)
REL	Number of years during which the firm borrows from the lead bank
RISK	Failure rate of small firms in the year prior to the establishment of the firm.
SIZE	Number of salaried employees in the firm (excluding the owner's family members)

However, a few key definitions merit attention. Risk is described by the actual rate

of failure of firms with five or more workers during the year before the firm was established.

The presumption is that those who plan to start a new firm are informed about the actual average

failure rate (which is therefore assumed to be highly correlated with the expected failure rate).

Bank-customer relationship is described by the number of years during which the firm worked with

its lead bank.[8] The figure was rounded in the usual way. The size of the firm is proxied by the

number of employees, considered more accurate than financial measures such as sales or size of

assets: It is more difficult to under-report the number of employees than the amount of revenues.

Finally, the data regarding loans are taken from the firm's balance sheets and include all

outstanding debt: spot loans, revolving credit, equipment loans, bridge loans, motor vehicle loans,

capital leases. The dependent variable (LOAN) is however calculated as the ratio of loans to total

assets, as in Giannetti (2003) and Rajan and Zingales (1995).

5. DESCRIPTIVE STATISTICS

Tables 2 to 4 report the main features of the sample. Our companies are fairly small (the average

number of employees is 16) and have a limited number of owners (4.7 on average, 1.5 of whom

take an active role in management).

As noted earlier, small firms tend to rely on personal and family funds for equity, on lending

from banks and on trade credit for debt. On average, equity constitutes 64% of total financial

resources, debt 36%. In both cases the standard deviations are almost 16%, bearing witness to the

heterogeneity of firms, especially when it comes to debt. The share of equity in total funding is the

highest in the transportation sector (73%), whereas manufacturing scores the highest marks in

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[8] Small firms in Italy appear to be rather loyal to their lead bank.

attracting outside equity funds (about 13% of total funds) and government loans (5% of total resources).[9]

Table 2 – Descriptive statistics of the owner and of the firm

	N obs	Mean	Std dev.	Median
Years as an employee (previous experience)	193	8.11	3.75	8
Years with the lead bank	193	6.74	3.88	6
Hours worked per week by the owner	193	45.56	19.06	50
Number of employees	192	15.67	14.03	11
Age of the lead owner	189	45.83	11.65	49
Number of active owners	193	1.47	0.75	1
Income of the owner (thousand euro, p.a.)	193	58.20	27.76	50.69

Table 3 – Descriptive statistics of the financial structure (as a percent of total assets)

		N	Mean	Std dev.	Median
Total equity		187	64.09	15.86	64
Sources of equity:	Management ownership	187	43.58	18.59	40
	Family equity	187	14.70	14.07	14
	Outside investors	187	5.81	10.50	0
Total debt		187	35.94	15.85	36
Sources of debt:	Bank loans	187	20.95	12.94	20
	Government loans	187	2.33	3.67	0
	Trade credits	187	12.67	10.07	10

**Table 4 – Financial structure by source of funds and industry
(Means, percent of total assets)**

	N	Total equity	Outside equity funds	Total debt	Gov loans	Bank loans	Trade credit
Lodging and restaurants	28	58.75	1.07	41.25	2.46	20.82	17.96
Business services	20	61.55	8.80	38.60	1.85	24.65	12.10
Retail	31	68.90	4.71	31.13	2.32	17.65	11.16
Building and real estate	20	67.30	1.45	32.70	1.30	15.25	16.15
Manufacturing	27	58.30	12.56	41.70	5.19	26.07	10.44
Miscellaneous	24	62.33	8.58	37.67	2.00	23.21	12.46
Personal services	20	65.80	0.50	34.20	1.75	22.85	9.60
Transportation	17	72.94	8.82	27.12	0.47	15.94	10.71
Total	187	64.09	5.81	35.94	2.33	20.95	12.67

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[9] In other European countries only 5%-10% of all industrial start-ups have received capital contributions from third parties.

6. EMPIRICAL ANALYSIS

It is common practice to explain loan volume in terms of characteristics such as relationship, size, profitability, and risk (see also the appendix):

$$LOAN = a + b_1 SIZE + b_2 REL + b_3 PRF + b_4 RISK + e \qquad (1)$$

To begin with, we therefore follow the literature by running an OLS regression on equation (1). The results are reported in **Table 5**. As expected, the SIZE variable is positively correlated with the volume of loans (in relative terms): larger new firms do tend to have a higher component of debt in their liability structure.

With regard to profitability (PRF), figures are often unreliable for a variety of reasons, including tax avoidance. We thus prefer to focus on the annual income that the owner-manager takes out from the firm. We conjecture that since retained earnings are indeed a form of financing, their presence could lessen the need to borrow. Table 5 confirms the prediction, but only in part: the coefficient is rather small and generally not significant.

The RISK variable in Table 5 is the actual failure rate of firms in the three regions during the year that preceded registration. We expect this variable to be negatively associated with the role of debt: riskier firms find few lenders when they begin operations. This variable behaves in the expected way, but is not significant.

**Table 5 – Determinants of bank landing: OLS regressions
– (Dependent variable: bank loans)**

	1	2	3	4	5	6
Firm's size (# employees)	0.421***					
	(3.23)					
Log of firm's size		6.898***	8.519***	7.205***	7.216***	8.955***
		(2.66)	(3.29)	(2.81)	(2.75)	(3.54)
Profitability measure	-0.069	-0.032	-0.068	0.030	-0.008	-0.007
	(-1.01)	(-0.46)	(-0.97)	(0.46)	(-0.12)	(-0.10)
Risk year	-0.556	-0.780	-0.799	-0.457	-0.669	-0.465
	(-0.79)	(-1.08)	(-1.07)	(-0.67)	(-0.94)	(-0.67)
Length of bank relationship	0.318	0.164	-2.861*	0.115	0.184	-3.129**
	(0.89)	(0.46)	(-1.94)	(0.34)	(0.53)	(-2.23)
Length of bank relationship squared			0.215**			0.231**
			(2.23)			(2.53)
Outside equity as % of total assets				-0.374***		-0.388***
				(-4.96)		(-5.30)
Outside equity (dummy)					-4.017**	
					(-2.03)	
Constant	18.724***	7.947	14.449**	4.121	6.123	10.947
	(3.59)	(1.30)	(2.09)	(0.70)	(1.00)	(1.60)
N obs	163	163	163	163	163	163
R-Squared	0.131	0.119	0.156	0.192	0.136	0.234
Adj. R-Squared	0.109	0.097	0.129	0.166	0.108	0.204

Heteroschedasticity-consistent (White, 1980) t-statistics are reported below the coefficient estimates

We define relationship (REL) as the number of years during which the company had "service relations" with the lead bank. These include not only borrowing relations, but also covers commercial activities such as managing a checking account. Consistent with the literature, one would expect that REL enhances the debt component of small companies. The results put forward in the first and second columns of Table 5, however, seem to suggest that this variable has no influence on the firms' financial structure.

One might speculate that Italian banks are fast learners, or that bank-firm relationships in Italy are easier than elsewhere. Or perhaps that competition is so intense that nobody cares about relationships: "[…] firms with multiple bank relationships have more than one potential source of inside bank financing and should therefore face lower switching costs and be less susceptible to hold up threats by any one bank." (Ongena and Smith, 2001). Another possibility is that relationships are not linear. This hypothesis actually finds some support in column 3, where REL^2 shows the possible existence of a U-shaped curve: when banks rely on relationships, the length of the relationship would reveal the trustworthiness of the borrower as the banker perceives it. Hence, when the relationship does not last, it means that the bank deems the potential borrower as 'dangerous' and is therefore reluctant to finance him; on the other hand, when the relationship extends over a long period of time, it signals confidence and thus justifies substantial lending.

Finally, we also make two attempts to take into account outside-equity, i.e. the funds that non-family investors add to the capital of the firm. These are usually institutional investors, such as subsidiaries of larger corporations, financial institutions and venture capitalists. Their overall contribution to the financial structure of small firms in Italy is less than 6%, but is statistically significant and seems to be a substitute for bank loans (see columns 4 and 5 in table 5).

7. THE IMPACT OF COLLATERAL AND INDUSTRY COMPOSITION

As observed in section 2, there are good theoretical reasons to believe that the presence of collateral does affect the interaction between small firms and banks. Thus, in this section the traditional analysis is enriched by considering two extra variables. COLL is a dummy that takes value one if the firm posts a collateral, zero otherwise. On the other hand, IND takes into account possible

industrial irregularities and is equal to one for each of the industry groups listed in columns 2 to 6 in **Table 6**.

$$LOAN = a + b_1 SIZE + b_2 PRF + b_3 RISK + b_4 REL + b_5 COLL + b_6 IND + e \qquad (2)$$

The regression run on (2) presents the expected positive sign for COLL: collateral does seem to reduce agency costs and lead to larger loans. On the other hand, the results regarding IND suggest that sectorial differentiation is relevant in two cases only: Firms in the building and transportation industries appear to obtain significantly smaller amounts of loans from banks, while personal and business services get considerably more. Perhaps the latter case is due to the presence of 'work under contract' situations, which are typical of the service sector and are frequently mentioned in the pre-loan documentation. By doing so, potential borrowers bear witness to a stable demand for their services and thus to the availability of the future cash flow required to serve their debts.

Table 6 – Determinants of bank landing – Dependent variable: bank loans

	1	2	3	4	5	6	7
Log of firm's size	6.345**	6.109**	5.748**	7.413***	6.514**	5.732**	6.767**
	(2.53)	(2.37)	(2.30)	(2.94)	(2.37)	(2.15)	(2.30)
Length of bank relationship	-2.352*	-2.441*	-2.303*	-2.603**	-2.351*	-2.411*	-2.542**
	(-1.76)	(-1.85)	(-1.79)	(-2.00)	(-1.76)	(-1.79)	(-2.04)
Bank relationship squared	0.175**	0.181**	0.172**	0.195**	0.174*	0.176**	0.191**
	(1.98)	(2.07)	(2.01)	(2.27)	(1.98)	(1.99)	(2.31)
Profitability measure	-0.069	-0.069	-0.073	-0.098	-0.068	-0.046	-0.112
	(-1.06)	(-1.05)	(-1.11)	(-1.51)	(-1.05)	(-0.61)	(-1.50)
Risk year	-0.705	-0.717	-0.721	-1.091	-0.753	-0.664	-1.124
	(-0.99)	(-1.00)	(-1.02)	(-1.58)	(-1.03)	(-0.91)	(-1.59)
Collateral	10.097***	10.167***	9.624***	10.052***	10.151***	10.149***	9.869***
	(6.01)	(5.99)	(5.89)	(6.22)	(6.02)	(6.01)	(6.08)
Industry class: Retail		-1.538					-4.359
		(-0.66)					(-1.56)
Building and transportation			-7.297***				-8.714***
			(-4.04)				(-3.79)
Business and personal services				5.853***			1.765
				(2.95)			(0.71)
Industry class: Manufacturing					-0.636		-2.616
					(-0.24)		(-0.85)
Lodging Catering Restaurants						1.813	-2.316
						(0.70)	(-0.77)
Constant	13.680**	14.812**	16.951***	14.114**	13.590**	13.611**	20.642***
	(2.19)	(2.34)	(2.76)	(2.37)	(2.15)	(2.16)	(3.49)
N obs	163	163	163	163	163	163	163
R-Squared	0.310	0.312	0.365	0.347	0.310	0.312	0.390
Adj. R-Squared	0.283	0.281	0.336	0.317	0.279	0.281	0.346

Heteroschedasticity-consistent (White, 1980) t-statistics are reported below the coefficient estimates

8. HANDLING POSSIBLE ENDOGENEITY

Although the empirical analysis put forward in the previous sections seems to generate better, more significant results than the traditional literature, it may suffer from two potential weaknesses. One regards the quality of the data, which are derived from a survey that is vulnerable to the standard

problems of most surveys (see section 4). A second one relates to endogeneity, since it could be argued that loans (the dependent variable) are indeed determined by the size of the borrower, but that at the same time firms might grow larger as a result of the loans they are able to obtain.

In order to tackle the endogeneity problem, we run a two-stage least-squares regression. In the first stage we consider firm size as the dependent variable and use two industries (manufacturing and hospitality) as instrumental variables. **Table 6** shows that both variables are uncorrelated with LOAN (conditional on the other covariates), but that they are significantly and positively correlated with size, the endogenous variable. The validity of the instruments is further supported by the F and Sargan tests reported at the bottom of **Table 7**, where the TSLS results are detailed.

Table 7 – Two-stage Least Squares – Dependent variable: bank loans

	1	2	3	4	5	6
Log of firm's size	9.904**	12.275**	9.930**	10.484**	12.438**	8.447*
	(1.97)	(2.34)	(2.07)	(2.09)	(2.48)	(1.82)
Profitability measure	-0.089	-0.140	-0.021	-0.069	-0.072	-0.040
	(-0.85)	(-1.28)	(-0.21)	(-0.66)	(-0.69)	(-0.42)
Risk year	-0.802	-0.828	-0.474	-0.687	-0.486	-0.400
	(-1.01)	(-1.07)	(-0.62)	(-0.87)	(-0.65)	(-0.60)
Length of bank relationship	0.120	-3.315**	0.075	0.138	-3.554***	-2.824**
	(0.34)	(-2.52)	(0.22)	(0.39)	(-2.82)	(-2.47)
Length of bank relationship squared		0.244***			0.258***	0.203***
		(2.75)			(3.04)	(2.64)
Outside equity as % of total assets			-0.378***		-0.394***	-0.373***
			(-3.84)		(-4.09)	(-4.32)
Outside equity (dummy)				-4.234*		
				(-1.82)		
Collateral						9.677***
						(5.85)
Constant	4.336	11.061	0.813	2.117	7.757	8.912
	(0.56)	(1.49)	(0.11)	(0.27)	(1.09)	(1.39)
N obs	163	163	163	163	163	163
Adj. R-Squared	0.089	0.117	0.159	0.099	0.194	0.350
F test of excluded instruments	26.78	24.24	26.64	26.29	24.10	22.46
Sargan test (over-identification of the instruments)	0.010	0.006	0.128	0.065	0.123	0.120
Sargan test p-value	0.922	0.940	0.721	0.798	0.726	0.729

Heteroschedasticity-consistent (White, 1980) t-statistics are reported below the coefficient estimates

To conclude, by comparing the results of table 7 – in which the reverse causality mechanism is removed – with those of tables 5 and 6, we observe that the effect of the covariates on the volume of bank loans remains by and large the same: The risk and profitability variables work in the same direction and are still not significant. The effect of relationship is also unchanged. In particular, firm size continues to have a positive impact on the volume of bank loans and confirms the intuition that the impact is exogenous.

9. CONCLUSIONS

The main findings of this paper about bank lending to newly founded firms can be summarized as follows. Despite the limitations of our sample, we note that the borrowing capacity of young firms depends on their size and on the collateral their owners can offer. By contrast, the role of relationship seems rather weak.

More generally, this paper also shows that exploring and formulating a general theory about the determinants of capital structure in small firms remains a difficult job. Deeper study in this area is surely necessary, so as to incorporate other potentially relevant elements. For instance, future research might focus on the innovative content of the firm activities, a variable that our dataset did not allow to explore. Furthermore, not all small businesses are equally small when it comes to capital requirements: Capital-intensive firms probably need more financing and have longer time horizons than labor-intensive companies, thereby altering the bargaining power of the founder, both with potential lenders and with potential equity contributors. The dynamics of credit markets should also be taken into account, for both borrowers and lenders may alter their behavior in accordance with the monetary cycle and the institutional context (e.g. tolerable taxation, effective judiciary).

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