



Centre de Recherche en Économie et Management
Center for Research in Economics and Management

University of Caen

University of Rennes 1



The Survival of New Firms: Do Bank Loans at Birth Matter?

Françoise Bastié,
Sylvie Cieply,
Pascal Cussy

University of Caen Basse-Normandie, CREM-CNRS

July 2011 - WP 2011-10

Working Paper

The Survival of New Firms: Do Bank Loans at Birth Matter?

Bastie F.^{*}, Cieply S.[†] and Cussy P.[‡]

Abstract: In this article, we explore the issue of whether the financial conditions into which a firm is born have an effect on its survival chances. After both correction of the omitted variables bias and introduction of time varying covariates, we show two distinctive effects of banking debt on the survival of new firms in function of the time horizon: an insignificant or negative impact of banking debt in the short term (less than 2 years) and a persistently positive effect in the medium term (more than 2 years). Founding financial conditions have long-lasting effects upon survival.

Key-words: Survival, New firms, Banking debt, Screening, Duration.

JEL Classification: M13, D82, G21

^{*} University of Caen Basse-Normandie, CREM (UMR CNRS), 19 rue Claude Bloch, 14 032 Caen, françoise.bastie@unicaen.fr.

[†] University of Caen Basse-Normandie, CREM (UMR CNRS), 19 rue Claude Bloch, 14 032 Caen, sylvie.cieply@unicaen.fr.

[‡] University of Caen Basse-Normandie, CREM (UMR CNRS), 19 rue Claude Bloch, 14 032 Caen, pascal.cussy@unicaen.fr.

1. Introduction

Despite the relative consensus on the expected role of banking debt in the external financing of new firms (see, for example, Berger and Udell, 1998), the link between this way of financing and the survival of new firms had some but far from unanimous support in prior empirical works. On the one hand, some studies stress a rather negative impact of banking debt on the lifespan of new firms. Huygheart *et al.* (2000) show, on a sample of Belgian new firms set up in 1985, that failed new firms obtained more of their funds from financial debt in comparison with non-failed firms. On a sample of American new firms set up in 1982, 1987 and 1992, Asterbro and Bernhard (2003) confirm this result only for banking debt and found a strictly reversed result for non banking debt. On the other hand, other articles find a rather positive link between the use of bank finance by new firms and their survival. Using an accelerated failure time model on a sample of British new firms, Sardakis *et al.* (2008) show that bank finance rather promotes firm survival. Lopez-Garcia and Puente (2006), on Spanish new firms, confirm this result only if the firm is not too indebted.

The theoretical analysis of the link between the access of new firms to external finance and their likelihood to survive is less controversial. As soon as the hypothesis of perfect financial market is rejected, firms with better access to external finance can have higher survival probabilities. Several arguments justify this expectation. A first explanation, directly coming from the theory of industrial economics, is based on the idea that a better access to finance may allow firms to start with a larger size. Externally financed new firms are thus more likely to be closer to the minimum efficient scale needed to operate efficiently in a market and they are more diversified than smaller new firms (Audrestch and Mahmood, 1994). Furthermore, they are less likely to be vulnerable than smaller competitors. By granting loans, bank can indeed supply new firms with an option to be financed in the future. This option makes new firms stronger at the time of tightness as they can maintain a buffer stock of cash (Zingales, 1998). When they are financed by banks, new firms could consequently endure poor performance for a longer time and be in a tougher position to survive expected temporary difficulties. According to these arguments, it might be because the banks provide finance that new firms survive. A second explanation can be given to justify the expected link between access to bank finance and survival of new firms. This explanation is based on the theory of banking applied to new firms. The expected positive link between bank finance and survival can be due to the screening process used by banks when they decide to grant a loan. Bankers indeed assess the likelihood of new firms to reimburse credits that is directly linked with their probability of survival (Blumberg and Letterie, 2008)). If bankers succeed in screening new firms that are more likely to survive, debt is only offered to those start-ups that survive longer. Finally, the probability of survival should depend on banking debt but the probability of exit conditions the access of new firms to bank finance as well.

Few papers directly cope with this issue linked to unobserved heterogeneity. For the French case, Crepon and Duguet (2004) cope with endogeneity by using a score model. They evaluated the impact of bank loans and start-up subsidies on the survival of new firms between 1994 and 1997. They show that, for formerly unemployed people, bank loans alone have no significant effect on the survival of start-up companies while the best performance is achieved by projects financed both by loans and subsidies[§]. Greffe and Simonnet (2008) focus

[§] They insist on the effect of subsidies that is stronger than the effect of the bank loans surely because the former funding is attributed to a larger number of recipients.

on a sample of French new firms (*ex nihilo* new firms and takeovers) set up in 1998 from the cultural sector. By using a multivariate probit, they show that, after instrumentation, banking loans influence no more the survival time of new firms.

The purpose of this paper is to go on studying empirically the influence of banking debt on the survival of French new firms after the correction of the endogeneity linked to unobserved heterogeneity. In this paper we propose to generalize the results of Greffe and Simonnet (2008) to all sectors. We propose to refine their results as well by focusing on *ex nihilo* new firms. Takeovers and pure new ventures are indeed very different firms (Bastié, Cieply and Cussy, 2009; Parker and Van Praag, 2010; Block et al., 2010). In particular, the way takeovers are financed is very specific, more dependent on external finance though leveraged buyouts transactions. Finally, we propose to go further by studying the duration of the effect of bank finance on survival. In this paper, we do not only explore the issue of whether the conditions into which a firm is financed at birth have an effect on its survival chances but we study as well how long this effect lasts. Geroski *et al.* (2007) show that founding effects on survival persist without much of attenuation for several years after the founding of the firms, but, in this article, the access to banking debt is not analysed. Audrestch *et al.* (2000) find that the impact of debt structure is only significant in the sixth year subsequent to entry and negative but the problem of endogeneity is not directly taken into account.

Using a large sample of French *ex nihilo* new firms created in 1998, our findings suggest that the use of banking loans by *ex nihilo* new firms at their founding influences significantly their likelihood to survive. We observe an effect of banking loans on the survival duration of new firms even after the correction of the endogenous bias and this effect is persisting over time.

The paper is organized as follows. Section 2 describes the data and the empirical method. Section 3 introduces the variables. Section 4 discusses the results and compares them to those of previous studies and section 5 ends with a discussion of the implications of our results for policy-makers and suggestions for possible future research.

2. Methodology

2.1. Database and sample selection

In this article, we have used data from the System of Information on New Enterprises (SINE) that has been produced by the French National Institute of Statistical and Economic Studies (INSEE) every four years since 1994. This system is based on a compulsory survey that analyzes the start-up and development conditions of enterprises and the problems they encounter over the first five years of their existence. In this article, we have used the cohort of new firms set up in 1998. The 1998 SINE survey scheme consists of selecting a set of new enterprises representative of new firms created in 1998. This cohort is designed to be representative of the entire population according to three criteria: regional localization, economic sector (9 areas) and mode of entry (*ex nihilo* creation or takeover). A frequency weight variable is used to make the sample fit the total population of new firms. The weight accorded to each observation in the sample corresponds to the number of enterprises that this observation represents. For this cohort of new firms, a second survey was carried out in 2001 and a third one in 2003. These surveys give information about the status of these new firms (closed down or still running) respectively three years and five years after their birth.

In this article, we focus on the creation of *ex nihilo* independent new firms. Subsidiaries, and more generally groups of all kinds, and takeovers are excluded from the

sample because access to finance is very different for them. They benefit from specific resources that come from the group for subsidiaries^{**} or that are based on leverage buy out schemes for takeovers^{††}. In this study, we finally focus on *ex nihilo* creations which correspond to new means of production.

As we study the relationship between finance and survival, we have dropped individuals who do not declare to use a mode of financing whatever this mode can be. This situation concerns 17% of the *ex nihilo* independent new firms. Among entrepreneurs excluded, some ones do not need any mode of financing to start because their projects needs low level of capital to start. The deletion of these entrepreneurs artificially increases the proportion of projects financed by bank loans; nevertheless we cannot distinguish them from true non responses. To ensure the robustness of results, the estimations are also performed by including non responses in the sample (see part 4.2). Finally, we observe the survival time of 17 336 pure new ventures that have declared to use mode(s) of financing at birth.

2.2. *Econometric method*

Dealing with the role of bank loans on the survival of firms, we must cope with an omitted variable bias. As bankers screen applicants for credit, the use of banking loans by new firms and their survival may have common determinants. We think in particular to the human capital of entrepreneurs and to the economic characteristics of projects that conditions both the access of new firms to banking debt and their survival. Without any doubt, some of these determinants are unobservable factors (Crépon and Duguet 2004, Greffe and Simonnet 2008). Consequently the impact of bank loan upon survival can be overestimated. To solve this problem, this variable must be instrumented. The retained instrumental variable is the participation of entrepreneurs to voluntary training programs. This specific preparation of entry can directly influence the likelihood of new firms to obtain banking loans for at least two reasons. First, in situation of asymmetric information between bankers and entrepreneurs, this preparation can signal the credibility of project to outsiders. Second, nascent entrepreneurs generally prepare with training officers business plans that correspond strictly to the requirements of bankers. As a result, they can more easily access to banking debts. Nevertheless, training programs do not directly influence the survival of new firms. The effects of training programs as component of human capital are marginal in comparison with the expected influence of the formal education and the prior experiences of the entrepreneur. Moreover, in the context of training programs, the building of the business plan is not linked to intrinsic quality of founders and thus cannot directly affect the survival of new firms.

In order to investigate factors affecting the survival of new business, we use two different models. First, the causal effect of bank loans on survival at n years (conditional or not to survival at $n-1$ years) is estimated. Unobserved and correlated determinants of bank loans and survival can lead to overstate or underestimate this causal effect in a probit model. To solve this problem, a bivariate probit model is estimated. In this model, the probability of bank loans and the probability of survival at n years are simultaneously estimated. Residuals

^{**} Subsidiaries benefit from a kind of internal financial market (Cable, 1985).

^{††} Leveraged buyouts are specific financial transactions based on a high proportion of debts, most often unsecured, including bank debt, senior subordinated, junior subordinated and/or mezzanine tranches. In a leveraged buyout, a target is acquired by a specialized investment firm (the 'newco') using a relatively small portion of equity and a relatively large portion of outside debt financing. More specifically, the financial structure of buyouts typically consists of 60-80% of debt, as opposed to debt ratios of 20-30% in public firms (Rajan and Zingales, 1995).

of these two estimations follow a normal bivariate law with variance of each term normalized to 1 and covariance equals to ρ . To ensure complete identification of the model and an estimation of ρ , the instrumental variable (“the training program”) is only introduced into the equation of bank loans (Maddala, 1983). If this coefficient is not statistically significantly different from zero, the survival at n -years and the use of bank loans are statistically independent. The use of bank loans is an exogenous factor and we can identify unbiased determinant for the survival function, which is separately estimated. The selection bias linked to the estimation of the conditional survival of firms is neglected as we cannot find an instrument that impacts the survival at $n-1$ years without influencing the survival at n years (for $n=2$ to 5). Nevertheless, as the objective is to analyze the evolution of this impact and to compare the results of different models, this problem is less thorny.

Second, the life duration is analyzed. In the sample, the data are right censored. This situation is due to firms which were still alive at the time when the data were last updated. To overcome this problem we use a hazard rate approach that considers not only the potential mortality of firms but the length of survival time. This length is measured in number of months. Finally we model the conditional probability that a firm stops its activity over a specified period. In this article, two different specifications are used: the Weibull model and the semi parametric Cox model. In this article, we present the results of the Weibull model with Gamma heterogeneity. This specification was used by Greffe and Simonnet (2008) who worked with the same database but focused on the cultural sector whatever may be the entry mode of firms (*ex nihilo* creation and takeovers). This choice is justified by first the opportunity to compare our results with this prior research and secondly the quality of estimates: based on the test performed on residuals from Cox Snell, the Weibull model fits well these data (see Appendix A).

The statistical procedure is directly inspired by Heckman and Robb (1985). In a first step, a probit model is implemented to estimate access to bank loan. To control the endogeneity we introduce the instrumental variable in a second stage which concerns the survival model. Omitted variables and measurement errors in observed survival times can lead to errors in the interpretation of the effects of variables upon survival. Consequently, the unobserved heterogeneity is considered. We introduce an unobservable multiplicative effect on the hazard function. The gamma distribution is chosen for the distribution of this frailty term. To analyze the impact over time of the use of bank loans, this last variable and the others are interacted with the age of firms^{††}.

3. The predictors: definition and descriptive statistics

In this article, we construct a reduced form model of the survival likelihood of new ventures. Predictors concern the financing of new firms, the human capital of entrepreneurs and the characteristics of firms^{§§}. For each of them, descriptive statistics are reported in the tables 1, 3 and 4. These tables report for each dummy variable the percentage of entrepreneurs/projects which satisfy the positive modality. Three samples are successively introduced: bank financed firms, non bank financed firms and all firms. Two tests are

^{††} Disney *et al.* (2003) used this methodology to examine the survival of U.K. manufacturing establishments from 1986 to 1991.

^{§§} All variables are dichotomous variables, except the entrepreneur’s age. They all take the value one (and zero otherwise) for the modality that is presented in the text and in Table 1.

performed. The first is a Pearson's chi squared test that looks for the independence between bank finance and other variables (test 1). The second is a log rank test that assesses the equality of survivor function in regard with each variable. In the following tables, we only report for each test the critical probability.

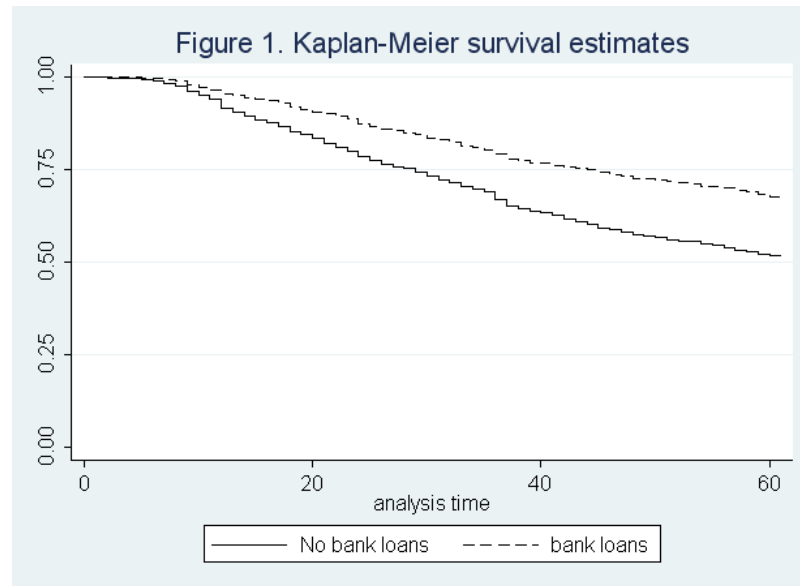
3.1. *Financial variables: bank loans and other modes of financing*

In SINE 1998, firms are questioned about not only their use of banking debts but about their use of other financial tools as well. This last category gathers heterogeneous creditors: public agencies, local private institutions, and financial companies that grant consumer credits to individuals. This heterogeneity leads us to consider them separately. Five sources of funding are finally distinguished: bank loans, other loans, private equity, subsidies (and other public aids), and personal funds. All these financial means are not exclusive and firms can use at birth several of them. The table 1 shows the dominance of two ways of financing: self-finance, that concerns quite 82% of new firms, and banking debt, that concerns quite 29% of new firms. These statistics show as well that bank loans are not independent on the others mode of financing (Test 1) and that survival is not independent on bank loans, personal funds and subsidies (Test 2).

Table 1. Modes of financing (descriptive statistics)

Modes of financing	Bank loans (%)	No bank loans (%)	All firms (%)	Test 1	Test 2
Bank Loans			28.53		<0.001
Personal funds	57.53	91.05	81.49	<0.001	<0.001
Subsidies	7.05	3.08	4.22	<0.001	0.018
Private equity	2.47	2.07	2.19	0.014	0.101
Others loans	14.26	11.59	12.35	<0.001	0.825

In a first analysis, survivor functions are plotted in the same graph for two subsamples: bank financed firms and other firms. The Figure 1 illustrates the Kaplan-Meier product limit estimator survival function for these two subsamples. Firms that are not financed by bank loans have a shorter lifespan than the others. The log rank test for equality of survivor functions confirms this result.



This impact of bank loan on lifespan appears to be persistent over time. The Table 2 presents the descriptive statistics on the links between survival at n years and the use of bank loans. The percentage of survivors at n years financed by bank loans at their start is significantly higher than the percentage of failed firms at n years financed by bank loans. This significant difference remains when we consider the conditional survival (survival at n years given survival at $n-1$ years). In the same way, the percentage of firms financed by bank loans which survive at n years is significantly higher than the percentage of survivors not financed by bank loans. This result remains valid when we use conditional survival.

Table 2. Univariate analysis

		Percentage of firms financed by bank loans	Percentage of firms financed by bank loans among survivors	Percentage of firms not financed by bank loans among deaths	Percentage of survivors	Percentage of firms financed by bank loans which survive	Percentage of firms not financed by bank loans which survive
survival at n years	One year survival	28.53	29.42	17.60	92.45	95.35	91.30
	Two years survival	28.53	30.74	19.22	80.82	87.08	78.32
	Three years survival	28.53	32.32	19.96	69.30	78.52	65.62
	Four years survival	28.53	33.56	20.45	61.59	72.46	57.25
	Five years survival	28.53	34.40	21.05	56.02	67.55	51.42
survival at n years given survival at $n-1$ years	Two years survival/one years	29.42	30.74	20.27	87.42	91.33	85.79
	Three years survival/two years	30.74	32.32	21.19	85.75	90.18	83.78
	Four years survival/three years	32.32	33.56	22.43	88.87	92.28	87.25
	Five years survival/four years	33.56	34.40	25.15	90.96	93.22	89.82

Finally, this univariate analysis stresses that bank loans affect the survival of new firms and that the effect remains over time. These results show as well that effects are not

perfectly linear in function of time and that the persistence of effect must be more deeply questioned.

3.2. Human capital proxies

Three kinds of human capital are distinguished: the general human capital, the specific human capital and the accumulated human capital. These variables and descriptive statistics are presented in the Table 3.

The *general human capital* takes into account the personal characteristics of entrepreneurs. We introduce some demographic characteristics, in particular gender, age and race. We take into account their educational background by considering three different levels of diploma (technical undergraduate, A-level and postgraduate diplomas). The founder's motivation can be expected to influence both the banker's decision and the survival of new firms (Reynolds *et al.*, 2005). In the SINE database, we indentify "opportunity entrepreneurs", who start a business in order to pursue an opportunity, entrepreneurs with a "taste for entrepreneurship", who desire to become entrepreneurs, and the "necessity entrepreneurs", who create their own employment because they cannot find any paid job on the formal labour market. The expectations of entrepreneurs concerning the future can be a proxy for over (or under) confidence and/or private information owned by the entrepreneurs on the probability of success. Two kinds of expectations are taken into account: cash flow expectations and growth expectations.

The *specific human capital* refers to prior experiences of entrepreneurs. We first consider the past professional experience of creators in the same activity of the new firms. We then precise the nature of this prior activity which can be either centred on production or on trade. On French data, Crépon and Duguet (2004) underlined the influence of the previous statute of entrepreneurs on the labour market (employed or unemployed). Prior paid experiences impact positively the access to bank loans and the lifespan of new firms. The situation of founders before starting a new business is used to proxy this experience. Entrepreneurs can be employed, short term unemployed, long term unemployed or non-worker. Approximately half of the founders in the sample have a job just before the start of new firms. The founder can improve his (her) specific human capital when he(he) exerts an effort to prepare the project like writing a business plan and/or consulting an accountant. Such commitments can signal to banks that new entrepreneurs are well-prepared (Schutjens and Wever, 2000). To take into account this preparation of projects, four variables are introduced: the participation to voluntary training activities, carrying out market researches, carrying out prospective financial accounts and receiving advices from specialists^{***}. This experience in setting up a firm can increase the entrepreneur's human capital value; this is why we consider the case of serial creators by introducing a variable equal to one when entrepreneurs answer that they already set up a firm.

Finally, Arribas and Vila (2007) introduced the concept of "*accumulated human capital*" when firms are created by several individuals. Human capital can indeed be accumulated though a community of individuals. Woo *et al.* (1989) showed that these firms are more successful than those founded by a single entrepreneur. Arribas and Vila (2007) found that they survive longer. Blumberg and Letterie (2007) stressed that applicants who

^{***} We observe in Table 3 that the entrepreneurs who prepare the entry (measured by these four last variables) are more often financed by bank loans than others. The survival function depends on these factors as well. Nevertheless, the impact of training program upon the survival is smooth. According to us, this variable does not impact directly the survival of new firms; its influence passes though banking loans. This result confirms the choice of this variable as instrumental variable.

intend to remain the single owner are more likely to face credit rationing. To proxy this *accumulated human capital* we consider both family members and other associates. We also introduce the presence of entrepreneurs in the entrepreneurs' family to take into account the influence of *social capital*.

The Table 3 shows that banks loans are not independent on human capital proxies (except proxies concerning prior activities) and that survival is not independent on these variables as well (except training program and management with associates)

Table 3. The characteristics of entrepreneur (descriptive statistics)

		<i>Bank loans (%)</i>	<i>No bank loans (%)</i>	<i>All founders (%)</i>	<i>Test 1</i>	<i>Test 2</i>
General Human Capital and demographic characteristics	Gender (ref. man)	74.40	73.10	73.47	0.007	<0.001
	Entrepreneur's age (continue)	36.46	37.31	37.07	<0.001	<0.001
	Nationality (ref. native)	93.45	87.25	89.02	<0.001	<0.001
	Education					
	No diploma	15.43	18.10	17.34		
	Technical undergraduate diploma	41.86	29.84	33.27	<0.001	<0.001
	Secondary school level	17.88	17.94	17.92		
	Postgraduate diploma	24.83	34.12	31.47		
	Personal goal , motivations					
	Taste for entrepreneurship	63.20	53.35	56.16	<0.001	<0.001
	Catching opportunity	28.88	26.30	27.04	<0.001	<0.001
	Expectations					
	Growth	55.77	52.76	53.62	<0.001	<0.001
	Cash flow problems	19.99	18.64	19.03	0.002	<0.001
Specific human capital	<i>Situation of the entrepreneur before creation</i>					
	Employed	51.47	46.45	47.88		
	Short term unemployed	24.44	19.04	20.58	<0.001	<0.001
	Long term unemployment	14.35	18.29	17.17		
	Non-worker	9.74	16.22	14.37		
	<i>Experience in the main activity</i>	58.80	54.94	56.04	<0.001	<0.001
	<i>Prior activity experience</i>					
	Production	28.89	21.97	23.94	<0.001	<0.001
	Trade and marketing	32.25	32.77	32.62	0.310	<0.001
	<i>Serial creator</i>	20.94	23.95	23.09	<0.001	<0.001
	<i>Preparation of entry</i>					
	Prospective financial accounts	74.39	48.47	55.86	<0.001	<0.001
	Market researches	44.93	33.10	36.48	<0.001	<0.001
	Professional advices	26.20	19.61	21.49	<0.001	<0.001
	Training program	16.39	12.24	13.42	<0.001	0.019
Social capital	<i>Entrepreneurial network</i>	73.28	69.30	70.44	<0.001	<0.001
	<i>Management of firm</i>					
	With members of family	23.55	16.50	18.51	<0.001	<0.001
	With other associates	11.08	12.82	12.32	<0.001	0.063

3.3. The characteristics of project and firm

Post-entry performance of new firms and their access to banking debt not only depend on the entrepreneurs' characteristics but on the quality of projects too. Environmental conditions and strategic choices at birth are determinant in the survival function of new firms (Geroski *et al*, 2007). The table 4 presents the descriptive statistics upon these variables.

Environmental factors refer to the firm's sector that may involve specific conditions on concentration and entry rates. Kaniovski and Peneder (2008) found, on a sample of Austrian firms, differences in hazard rates among different types of manufacturing industries distinguished according to the nature of their sunk costs, their reliance on human resources and inputs from external services. As sectors influence significantly new firm's survival, it is not surprising that bankers introduce information on sector affiliation in their screening device. Very early, Altman (1968) showed indeed that corporate bankruptcy was highly

sector-dependent. Consequently, we introduce dummy variables to take into account the activity *sector* of the firm.

Firms' strategies correspond to the choice of size at birth and the introduction of innovative activities. The choice of entry size is a strategic variable as it allows either to reach the minimum efficiency scale or to stay small enough to escape predation from potential rivals. Empirical studies showed both the positive influence of size on the life duration of new firms (Dunne *et al.*, 1989; Bates, 1990; Audretsch and Mahmood, 1994, 1995; Mata and Portugal, 2004) and the negative impact of size on financial constraints (Galéotti *et al.*, 1994; Himmelberg and Petersen, 1994; Gilchrist and Himmelberg, 1995; Brito and Mello, 1995). To proxy the *size of firm* we introduce five levels of financial needs at start and the number of new jobs. More than a half of *ex nihilo* creations need less than 80 000 €. The number of jobs is a continuous variable. On average, an *ex nihilo* creation creates 1.75 jobs. The choice to develop innovative activities is a strategic variable too that influence positively firm growth (Hall, 1987; Mansfield, 1962) and life expectancy (Hall, 1987; Cefis and Marsili, 2004; Esteve-Pérez and Manéz-Castillejo, 2008). Innovative activities might influence the access of new firms to banking debt as innovations exacerbate all the drawbacks new firms have to cope with when they look for external finance (Egeln *et al.*, 1997; Westhead and Storey, 1997; Freel, 2007). In particular, banks are unable to use innovative assets as collaterals when they finance innovative firms because these assets are by definition highly specific (Williamson, 1988). However, the existence of collateralized assets is determinant in the decision of bankers to grant credit, in particular to new firms. Collaterals signal indeed the quality of firms and mitigate inefficiencies that arise when borrowers hold *ex ante* private information (Bester, 1987; Besanko and Thakor, 1987; Chan and Thakor, 1987). To take into account innovative activities we can use in the SINE database questions on the potential introduction of new products or/and new methods of production (process) or/and the opening of new markets (marketing). Collateral can be based on the personal assets of the entrepreneur and/or assets owned by the firm. To take into account collaterals given by entrepreneurs to bankers, we consider the real estate of the entrepreneur, in particular the premises where the activity takes place. Blumberg and Letterie (2007) found indeed that credit denial is less likely to occur when the applicant owns a house.

The Table 4 shows that access to banks loans and survival are not independent on the characteristics of firms.

Table 4. The characteristics of firms (descriptive statistics)

		Bank loans (%)	No bank loans (%)	All founders (%)	Test1	Test 2
Sector	Trade	29.30	28.43	28.68		
	Agribusiness	2.10	0.71	1.11		
	Industry	8.85	7.17	7.65		
	Building	18.70	16.88	17.40	<0.001	<0.001
	Transportation	5.38	3.68	4.17		
	Real estate	2.52	3.30	3.08		
	Enterprise services	12.09	25.69	21.81		
	Private person services	15.83	9.87	11.57		
	Education	5.22	4.27	4.54		
Size of enterpr ise	<i>Number of jobs level of financial need</i>	1.85	1.67	1.72	<0.001	<0.001
	Less than 1500€	3.52	21.42	16.32	<0.001	<0.001
	[1500€ , 3800€[	7.99	14.66	12.76		

	[3800€ , 8000€[	12.01	11.15	11.39		
	[8000€, 16000€[	27.92	38.26	35.31		
	[16000€, 38000€[	24.71	9.88	14.11		
	[38000€ , 76000€[	12.24	3.00	5.64		
	>76000€	11.62	1.62	4.47		
Innovation	Process	3.65	4.54	4.28	<0.001	0.003
	Product	12.94	13.62	13.43	0.065	<0.001
	Marketing	7.85	5.74	6.34	<0.001	<0.001
Inter firm relationships	<i>Subcontracting</i>	28.17	36.13	33.86	<0.001	0.047
	<i>Franchising, concession, leading agent</i>	8.95	6.80	7.41	<0.001	<0.001
Collateral	<i>Ownership of premises</i>	26.74	22.62	23.79	<0.001	<0.001

4. Results

4.1. The medium term effect of bank loans on the survival of new firms

The results of the bivariate probit analysis and those of the duration model are given respectively in the Tables 5 and 6. The results concerning the use of banking debt are exposed in the Appendix B. As expected, banking debt depends on lots of determinants that influence the survival of new firms as well^{†††}. These results confirm the choice of the participation of entrepreneurs to training programs as instrumental variable. This variable influences significantly and positively the use of banking debt whereas it does not exert any significant impact on the survival of new firms.

To study the causal effect of banking debt on survival and its persistence over time, we estimate the joint probability of obtaining a bank loan and being still alive at n years (conditional or not to the survival of new firms at $n-1$ years). In table 5 we only present, the results concerning the coefficient of bank loans in the equation of survival at n years for the probit model and the bivariate probit model. This analysis shows that the causal effect of bank loans on the survival of new firms is not constant over time. After instrumentation, the use of bank loans does no more positively affect the survival of new firms at birth. When we observe unconditional results, bank loan is not significant in the bivariate probit model during the first year of new firms and the causal effect of banking debt becomes negative during the second year. We observe the same negative coefficient for the conditional result when the firm survives at least two years. The screening of banks can explain this result. Bankers indeed select firms with a rather high expected probability of survival. At the beginning of life, once the banking screening has been controlled, firms with identical characteristics (in terms of probability of success) do not have significantly different lifespan because of their use of banking debt. This result may be due to the financial burden linked with debt that can compensate the positive effect of debt in terms of entry size.

In the Table 5, an interesting result is the medium term effect of bank loans on survival.

^{†††} We find rather classic results concerning the determinants of banking debt by new firms (Appendix 2). The use of banking debt is more frequent when entrepreneurs have technical undergraduate diploma, when they decide to start up a new business to catch an opportunity or because they desire to enter into entrepreneurship, when they follow training programs and build prospective financial accounts, when the capital needed to start is rather high and when entrepreneurs own the buildings where new firms are established. The use of banking debt decreases as soon as new firms can use other funds, except subsidies, when entrepreneurs are not French, when new firms create jobs, when entrepreneurs declare process innovation and when new firms develop close relationships with other firms, through for example subcontracting.

In the third survival year, the causal effect is significant and positive for all models (probit and bivariate probit) and all kinds of probability of survival (conditional and unconditional). This effect is particularly high for conditional likelihoods. The analysis of the confidence intervals show that the effect of bank loans increases between two and three years after birth; at a level of 90%, few values of the confidence intervals are common for unconditional survival and no value at all for conditional. Furthermore the coefficient of correlation between the residues affecting the use of banking loan and the survival of new firms is not statistically different from zero for unconditional probability of survival. The bank loan is consequently exogenous and coefficients obtained in the simple probit are unbiased. This result means that bank loans exerts a positive influence on the survival of new firms independently on the screening of bank. We can explain this result by a minimum size effect. Bank financed firms can indeed reach the minimum efficient size more rapidly than the other firms. This situation makes them more resistant to shocks after two years of activity. An element in favor with this interpretation concerns the year 2001 that witnessed the bursting of the dotcom bubble. This crisis has weakened all businesses in particular the youngest ones, yet it is during that year (survival at three years) that the positive causal effect is the highest for the conditional probability of survival.

Table 5: Results of the bivariate analysis - survival at n years and access to bank loans

Estimated model		Probit		Bivariate probit	
	<i>Lifespan</i>	<i>Bank loans</i>	<i>CI for bank loans*</i>	<i>Bank loans</i>	<i>CI for bank loans[†]</i>
<i>Unconditional probability of survival</i>	One year	0.241***	[0.191;0.292]	0.023	[-0.162; 0,207]
	Two years	0.206***	[0.169;0.242]	-0.248***	[-0.407,-0.089]
	Three years	0.279***	[0.247;0.312]	0.195*	[0,027;0.363]
	Four years	0.293***	[0.262;0.324]	0,302***	[0,138; 0.465]
	Five years	0.277***	[0.247;0.307]	0,409***	[0,255; 0.564]
<i>Conditional probability of survival</i>	Two years /one years	0.152***	[0.111;0.194]	-0.329***	[-0.516; -0,143]
	Three years /two years	0.274***	[0.233;0.316]	0,704***	[0,516; 0.892]
	Four years /Three years	0.203***	[0.156;0.251]	0,675***	[0,420; 0,930]
	Five years /Four years	0.094***	[0.042;0.146]	0,572***	[0,327; 0,818]

[†]CI: Confidence Interval at 90% . Coefficient significant at 1%(***), 5%(**), 10%(*)

To confirm the results given by the bivariate probit model, we have estimated a Weibull model with Gamma heterogeneity. In the Table 6, we only present the results concerning the influence of banking debt on the likelihood of new firms to exit. The results concerning the other variables are given in the Appendix C. Four models are summed up in the Table 6. In the models 1 and 2, all explanatory variables are exogenous. These two models differ by the introduction in the model 2 of time varying covariates. In this model, all financial variables are indeed crossed with time. The previous analysis showed that the effect over time was not linear but it is difficult to choose a specification of the time dependence that is not arbitrary. The choice of this dependence function implies that the initial effect is either insignificant (previous analysis has highlighted the absence of causal effect of banking debt in the first survival year) or negative (coefficient is greater than one and significant). In the models 3 and 4, the use of bank loan has been instrumented. The difference between these

two models is equivalent to the difference between the models 1 and 2: in the model 4, all financial variables are crossed with time.

Table 6: The impact of banking debt on the exit rate of new firms

	Exogeneous bank loans		Endogeneous bank loans	
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<i>Bank debt</i>	0.482 ^{***}	0.956	0.786	3.200 ^{***}
<i>Bank debt</i> × <i>age</i>		0.974 ^{***}		0.947 ^{***}

Legend: coefficient significant at 10% (⁺), 5% (*), 1% (**), 1 per thousand (***)

When the analysis is static, i.e. it does not take into account covariates times (Models 1 and 3), results are relevant with those given by Greffe and Simmonet (2008). Before instrumentation (Model 1), bank debt influences significantly and negatively the rate of exit of new firms. Once instrumented (Model 3), bank debt no longer influences survival. The authors explain this result because bankers only offer loans to the best new firms. Once corrected for this bias linked to a screening effect, bank financed new firms do not survive longer than the others. This first result should lead at first glance to reject the hypothesis of a pure impact of bank debt on the survival of new firms. However, once the analysis become more dynamic, this interpretation must be amended. As soon as time is introduced into the models explaining the exit rate of new firms, we observe a radical change concerning the effect of bank loans on lifespan. Results given by the instrumented model with covariates times (Model 4) stress a negative initial impact of bank debt on survival and a significant positive effect as soon as time is taken into account (the estimated coefficient of bank loans × age is inferior to one). Our results show that the effect of debt is not immediate but appears as soon as time is running. This effect appears to be persistently positive over time. Finally, our results suggest that the impact of bank loans should not be studied as an average effect but must take into account the horizon of time. The pure effect of banking debt is indeed not instantaneous but appears with time. This major result does not undermine the results given by other studies on short-term impact of banking debt but it stresses the existence of a more complex relation between the use of banking debt and the survival of new firms.

4.2. Robustness check

The robustness of these results is confirmed by using the Cox specification. This semi-parametric approach specifies the baseline hazard very flexibly. The most important assumption of this model is the proportional hazard assumption. In this context, four models are estimated. The differences between these new models are the same than those described for the Weibull specification. In the dynamic model based on the Cox specification, we cross with time not only financial variables but all variables whose effects are time-dependent. The impact of bank loans on new firms' lifespan is qualitatively the same with the Cox specification than with the Weibull one. This complementary analysis confirms the robustness of our result.

To test the robustness of results, we also analyze the impact of dropping the non-responses on the mode of financing. The bivariate probit shows a positive effect of the use of bank loans upon survival at n years (for all n from 1 to 5) and this effect is significantly increasing during the third year. The duration models always exhibit a positive effect of the use of bank loans on survival. This effect diminishes slowly over time. With all data, the initial effect is more important because non-respondents are often very small firms. Their start does not require external financing and they survive a very short time. 24.95% of these non-respondents indeed need less than 1500 € to start against 16.32% of respondents.

Furthermore, 16.80% of non-respondents survive less than one year against 7.55% of respondents.

5. Conclusion

Financial constraints are among the most cited impeding factors for new firms to survive. However, finding the proof of credit rationing is a very difficult empirical task. In this article, we go beyond this issue and we directly question the effects of banking loans on the survival of French new firms. More precisely, we explore the issue of whether the financial conditions into which a firm is born have an effect on its survival chances. We test empirical models that incorporate not only financial factors but all the variables linked with the entrepreneurs and their firm according to the results of prior research on entrepreneurship. We take into account the screening process used by bankers too. With this correction of the omitted variables bias, we deal with the endogeneity between bank loans and the other variables and we prevent from the overestimation of the impact of bank loans on the survival of new firms.

In this article we use the SINE database that gives information on new firms at birth, and successively three years and five years after their beginning. Although banking debt is, with trade credit, the sole external financial means available for small firms, we observe that less than 30% of French new firms set up in 1998 used bank finance at their birth. New firms used above all internal finance; quite 80% of entrepreneurs declared to self finance their project. However, banking debt is by far the most frequent way to externally finance new firms. This study shows, like Greffe and Simmonet (2008) how dealing with endogeneity modifies results concerning the effect of banking debt on survival. After instrumentation and within a static analysis, banking debt is no more significant in the survival function of new firms. This study underlines as well how taking into account time can modify results. By implementing both bivariate probit and duration models with time varying covariates, we find different results concerning the influence of banking finance on the survival in function of time (that corresponds to the age of firms). More precisely, we observe both an insignificant or negative impact of banking debt in the short term (less than 2 years) and a persistently positive effect in the medium term (more than 2 years). Founding financial conditions have long-lasting effects upon survival. We can explain the negative effect of banking debt at short term by the costs linked to indebtedness. This financial burden can sometimes push new firms to exit if they are not enough profitable. We finally empirically observe a kind of disciplining effect of banking debt for new firms. The positive influence of banking debt in the medium term can be explained by the pure effect of banking debt that allows new firms to start larger and to be more resistant to shocks thanks to banking commitments. We indeed observe a strong effect of banking debt at birth when new firms had to cope with the dotcom crisis in 2001.

Our study shows as well that the screening of banks on the population of new firms allows them to distinguish (however not perfectly) among “good” firms and “bad” ones. The coefficient of banking debts in the survival function of new firms is indeed lower after the correction of the omitted-variables bias. Banks cannot perfectly identify the future successful new firms and those that will default but their screening must be taken into account both by academic studies and by policy makers. Our results show that bankers assess rather well the chances of new firm’s success despite the lack of track record. Our study supports the idea that banks can be used as a rather interesting channel to distribute public aids to new firms. Granting banking loans to new firms is indeed a factor of longevity for them and the

screening process of banks seems to be rather efficient as first it pushes the “worst” new firms to exit through a disciplining mechanism and the “best” to survive a longer time. Our results finally promote all state-financed measures that associate banks in their screening process. This is particularly the case in France for loan guarantee schemes and for specific loans for new firms (“Prêts à la Création d’Entreprise”) which are distributed at least partly by commercial banks.

6. References

- Altman, E., 1968, "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", *The Journal of Finance*, 23(4), pp. 589-609.
- Arribas, I., and J., Vila, 2007, "Human Capital Determinants of the Survival of Entrepreneurial Service Firms in Spain", *International Entrepreneurship and Management Journal*, 3(3), pp. 309-322.
- Asterbro, T., and I., Bernhardt, 2003, “Start-up Financing, Owner Characteristics, and Survival”, *Journal of Economics and Business*, 55, 303-319.
- Audrestch, D., and T., Mahmood, 1994, "Firm Selection and Industry Evolution: The Post-Entry Performance of New Firms", *Journal of Evolutionary Economics*, 4, pp. 243-260.
- Audrestch, D., and T., Mahmood, T., 1995, "New Firms Survival: New results using a Hazard Function", *Review of Economics and Statistics*, 77, pp. 97-103.
- Audrestch, D., Houweling, P., and A.R., Thurik, 2000, “Firm Survival in the Netherlands”, *Review of Industrial Organization*, 16, pp. 1-11.
- Bates, T., (1990), "Entrepreneur Human Capital Inputs and Small Business Longevity", *Review of Economics & Statistics*, 72, pp. 551–559.
- Berger, A., and G., Udell, 1998, “The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets In the Financial Growth Cycle”, *Journal of Banking and Finance*, 22, pp. 613-673.
- Besanko, D., and A., Thakor, 1987, "Collateral and Rationing: Sorting Equilibria in Monopolistic and Competitive Credit Market", *International Economic Review*, 28, pp. 671-690.
- Bester, H., 1987, "The Role of Collateral in Credit Markets with Imperfect Information", *European Economic Review*, 31(4), pp. 887-899.
- Blanchflower, D., and A., Oswald, 1998, “What Makes and Entrepreneur?”, *Journal of Labor Economics*, 16, 26-60.
- Block, J., Thurik, A., and P., Van der Zwan, 2010, Business takeover or new venture? Individual and environmental determinants from a cross-country study (February), Erasmus Research Institute of Management (ERIM) Research Paper No number ERS-2010-042-ORG, Available at SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1703303.
- Blumberg, B. and W., Letterie, 2008, "Business Starters and Credit Rationing", *Small Business Economics*, 30(2), pp. 187-200.
- Brito, P., and A., Mello, 1995, "Financial Constraints and Firm Post-Entry Performance", *International Journal of Industrial Organisation*, 13(4), pp. 543-565.
- Cable, J., 1985, “Capital Market Information and Industrial Performance: the Role of West German Banks“, *Economic Journal*, 95, pp. 118-132.
- Cefis, E., and O., Marsili, 2004, "A Matter of Life and Death: Innovation and Firm Survival", ERIM Report Series Reference No. ERS-2004-109-ORG.
- Chan, Y., and A., Thakor, 1987, " Collateral and Competitive Equilibria with Moral Hazard and Private Information", *Journal of Finance*, 42(2), pp. 345-63.
- Crépon, B., and E., Duguet, 2004, "Bank Loans, Start-up Subsidies and the Survival of the New Firms: an Econometric Analysis at the Entrepreneur Level", Working Paper, EconWPA series Labor and Demography, n°0411004, <http://ideas.repec.org/p/wpa/wuwpla/0411004.html>.

- Disney, R., Haskel, J., and Y., Heden, 2003, "Entry, Exit and Establishment Survival in UK Manufacturing", *Journal of Industrial Economics*, 51(1), pp. 91-112
- Dunne, T., Roberts, M. J., and L., Samuelson, 1989, "The Growth and Failure of Manufacturing Plants", *Quarterly Journal of Economics*, 104, pp. 671-698.
- Egeln, J., Licht, G., and Steil, F., 1997, "Firm Foundations and the Role of Financial Constraints", *Small Business Economics*, 9, pp. 137-150.
- Esteve-Pérez, S. and J., Mañez-Castillejo, 2008, "The Resource-Based Theory of the Firm and Firm Survival," *Small Business Economics*, 30(3), pp. 231-249.
- Freel, M., 2007, "Are Small Innovators Credit Rationed?", *Small Business Economics*, 28, pp. 23-35.
- Galeotti, M., Schiantarelli, F., and F., Jaramillo, 1994, "Investment Decisions and the Role of Debt, Liquid Assets and Cash Flow: Evidence from Panel Data," *Applied Financial Economics*, 4(2), pp. 121-132.
- Geroski, P., Mata, J., and P., Portugal, 2007, "Founding Conditions and the Survival of New Firms," DRUID Working Papers 07-11, Copenhagen Business School, Department of Industrial Economics and Strategy/Aalborg University, Department of Business Studies.
- Gilchrist, S., and C., Himmelberg, 1995, "Evidence on the Role of Cash Flow for Investment", *Journal of Monetary Economics*, 36(3), pp. 541-572.
- Greffé, X., and V., Simonnet, 2008, "La survie des nouvelles entreprises culturelles : le rôle du regroupement géographique, *Recherches Economique de Louvain*, 74, pp. 327-357
- Hall, B., 1987, "The Relationship between Firm Size and Firm Growth in the US Manufacturing Sector", *Journal of Industrial Economics*, 35(4), pp. 583-606.
- Heckman, J-J., and R., Robb, 1985, "Alternatives Methods for Evaluating the Impact of Interventions: an overview", *Journal of Econometrics*, 30, pp. 239-267
- Himmelberg, C., and B., Petersen, 1994, "R&D and Internal Finance: A Panel Study of Small Firms in High-Tech Industries," *Review of Economics and Statistics*, 76(1), pp. 38-51.
- Huyghebaert, N., Gaeremynck, A., Roodhooft, F., and L., Van de Gucht, 2000, "New Firm Survival: The Effects of start-up Characteristics", *Journal of Business Finance & Accounting*, 27(5) & (6), pp. 627-651.
- Kaniovski, S., and M., Peneder, 2008, "Determinants of Firm Survival: a Duration Analysis Using the Generalized Gamma Distribution," *Empirica*, 35(1), pp. 41-58.
- Lopez-Garcia P., and S, Puente, 2006, "Business Demography in Spain: Determinants of firm Survival", Banco De Espana, Working paper n°0608, 47 pages.
- Maddala, G. S. (1983), *Limited-Dependent and Qualitative Variables in Economics*, New York: Cambridge University Press, pp. 257-291.
- Mansfield, E., 1962, "Entry, Gibart's Law, Innovation, and the Growth of Firms", *American Economic Review*, 52(5), pp.1023-1051.
- Mata, J., and & P., Portugal, 2004, "Patterns of Entry, Post-Entry Growth and Survival: A Comparison Between Domestic and Foreign Owned Firms," *Small Business Economics*, 22(3-4), pp. 283-298.
- Parker, S., and M., Van Praag, 2010, The entrepreneur's mode of entry: business takeover or new venture start, *Journal of Business Venturing*, 25(6), article in press.
- Rajan, R., and L., Zingales, 1995, "What do we know about capital structure? Some evidence from international data", *Journal of Finance*, 50(5), 1421-60.
- Reynolds, P., Bosma, N., Autio, E., Hunt, S., Bono, N., Servais, I., Lopez-Garcia, P. and N. Chin. (2005). "Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003", *Small Business Economics*, 24, pp. 205-231.
- Saridakis, G., Mole, K., and D., Storey, 2008, "New Small Firm Survival in England", *Empirica*, 35, pp. 25-39.

Schutjens, V. and E. Wever, 2000, "Determinants of New Firms Success", Papers in Regional Science, 79(2), pp.135-153.

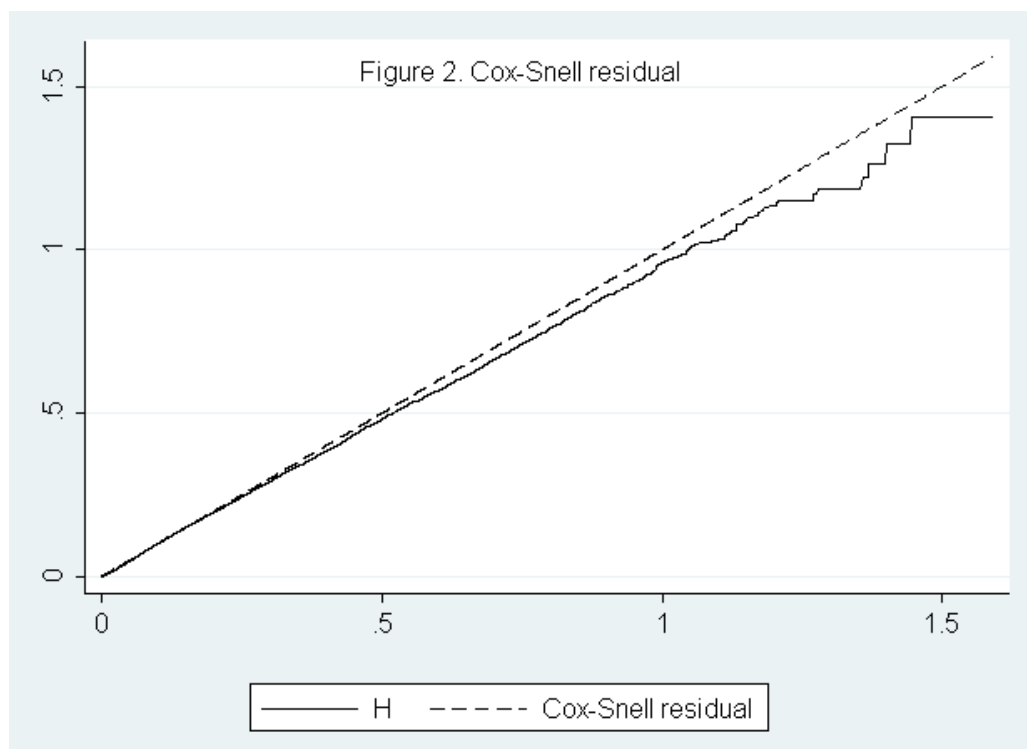
Westhead, P., and D., Storey, 1997, Financial Constraints on the Growth of High-Technology Small Firms in the United Kingdom, Applied Financial Economics, 7, pp. 197–201.

Williamson, O., 1988, "Corporate finance and corporate governance", Journal of Finance, 43(3), pp. 567-91.

Zingales, L., 1998, "Survival of the Fittest or the Fattest? Exit and Financing in the Trucking industry", Journal of Finance, 53, pp. 905-938.

Woo

Appendix A. Cox Snell Residual



Appendix B. Probit estimation of the use of bank loans

<i>Variables</i>		<i>Variables</i>	
Personal funds	-1.655***	Entrepreneurial network	0.088***
Subsidies	0.139***	Management (ref. manage alone)	
Private equities	-1.081***	Management with family members	0.136***
Others loans	-0.784***	Management with associates	-0.066**
Demographic characteristics		Sector activity (ref. Trade sector)	
Gender (ref. man)	-0.035*	Agribusiness	0.508***
Entrepreneur's age	-0.005***	Industry	0.120***
Nationality (ref. native)	0.340***	Building	0.135***
Education (ref. no diploma)		Transportation	0.196***
Technical undergraduate diploma	0.113***	Real estate	-0.249***
Secondary school level	0.017	Enterprise services	-0.138***
Postgraduate diploma	-0.131***	Private person services	0.244***
Motivations		Education	0.357***
Taste for entrepreneurship	0.241***	number of jobs (continue)	-0.014***
Catching an opportunity	0.111***	financial need (ref. less than 1500€)	
Expectations		[1500€ , 3800€[	0.545***
Growth	-0.048***	[3800€ , 8000€[	0.912***
Cash flow problems	0.078***	[8000€ , 16000€[	1.215***
Situation before creation (ref. employed)		[16000€ , 38000€[	1.964***
Short-term unemployment	0.036*	[38000€ , 76000€[	2.365***
Long-term unemployment	-0.194***	>76000€	2.821***
Non-workers	-0.240***	Innovation	
Experience in the main activity	0.061***	Process	-0.251***
Previous activity experience		Product	0.028
Experience in production	0.146***	Marketing	0.090
Experience in trade and marketing	-0.020	Subcontracting relationships	-0.119***
Serial creator	-0.122***	Franchising, concession, leading agent	-0.015
Preparation of entry		Ownership of premises	0.150***
Financial prospective	0.475***	Localization (ref. near of residence)	-0.092***
Market researches	-0.037**	Legal statute (ref. society)	0.436***
Professional advices	0.020		
Training program	0.137***		

Legend: coefficient is significant at 1% (***), 5% (**), 10% (*) .

Quality of regression : Pseudo R2 =0.36; correctly classified : 83.35%

Appendix C. Survival analysis (Weibull specification with Gamma heterogeneity)

Variables	Model 1	Model 2	Model 3	Model 4
Bank loans	0.482***	NS	NS	3.200***
Personal funds	0.794***	1.452***	NS	2.177***
Subsidies	NS	1.322**	NS	NS
Private equities	NS	NS	NS	1.441*
Others loans	0.711***	0.731***	0.805***	NS
Bank loans × age		0.974***		0.947***
Personal funds × age		0.975***		0.969***
Subsidies × age		NS		NS
Private equities × age		NS		NS
Others loans × age		NS		NS
Gender (ref. man)	0.820***	0.831***	0.825***	0.840***
Entrepreneur's age	0.977***	0.979***	0.978***	0.980***
Nationality (ref. native)	0.612***	0.610***	0.600***	0.590***
Education (ref. no diploma)				
Technical undergraduate diploma	NS	NS	NS	0.930*
Secondary school level	0.815***	0.824***	0.819***	0.822***
Postgraduate diploma	0.859***	0.857***	0.871***	0.867***
Motivations				
Taste for entrepreneurship	0.742***	0.751***	0.724***	0.740***
Catching an opportunity	0.908***	0.911***	0.891***	0.897***
Expectations				
Growth	0.471***	0.500***	0.478***	0.532***
Cash flow problems	1.970***	1.879***	1.956***	1.822***
Situation before creation (ref. employed)				
Short-term unemployment	1.143***	1.110***	1.129***	1.085**
Long-term unemployment	1.380***	1.325***	1.395***	1.336***
Non-workers	1.197***	1.177***	1.226***	1.215***
Experience in the main activity	0.674***	0.680***	0.674***	0.685***
Previous activity experience				
Experience in production	0.856***	0.862***	0.828***	0.842***
Experience in trade and marketing	1.287***	1.270***	1.272***	1.241***
Past experience(s) in setting up a firm	1.223***	1.215***	1.236***	1.218***
Preparation of entry				
Financial prospective	0.885***	0.899***	0.838***	0.845***
Market researches	1.271***	1.256***	1.273***	1.237***
Professional advices	0.916**	0.901***	0.898***	0.884***
Training program	NS	NS		
Entrepreneurial network	0.889***	0.901***	0.895***	0.905***
Management (ref. manage alone)				
Management with family members	0.854***	0.873***	0.844***	0.872**
Management with associates	1.211***	1.201***	1.223***	1.206***
Agribusiness	NS	NS	NS	NS
Industry	0.602***	0.640***	0.602***	0.659***
Building	0.415***	0.443***	0.419***	0.471***
Transportation	0.631***	0.676***	0.619***	0.697***
Real estate	0.731**	0.754***	0.770***	0.805***
Enterprise services	0.920*	0.917*	NS	NS

Private person services	0.786***	0.782***	0.754***	0.750***
Education	0.253***	0.274***	0.250***	0.285***
Proxy 1 : number of jobs (continue)	1.109***	1.106***	1.111***	1.103***
Proxy 2: financial need (ref. less than 1500€)				
[1500€ , 3800€[	NS	0.878**	0.899*	0.834***
[3800€ , 8000€[	0.719***	0.712***	0.677***	0.636***
[8000€, 16000€[	0.620***	0.605***	0.560***	0.522***
[16000€, 38000€[	0.469***	0.471***	0.384***	0.373***
[38000€, 76000€[	0.395***	0.409***	0.305***	0.317***
>76000€	0.251***	0.273***	0.187***	0.217***
Innovation				
Process	1.483***	1.400***	1.514***	1.418***
Product	1.331***	1.313***	1.335***	1.299***
Marketing	1.132**	1.127**	1.119*	1.137**
Subcontracting relationships (ref. no relation)	1.192***	1.186***	1.209***	1.190***
Franchising, concession, leading agent	1.255***	1.232***	1.255***	1.225***
Ownership of premises	0.682***	0.688***	0.674***	0.681***
Use of a computer	0.783***	0.801***	0.779***	0.819***
Localization (ref. far of residence)	1.121***	1.101***	1.134***	1.112***
Legal statute (ref. society)	2.019***	1.865***	1.894***	1.679***