Factors affecting survival of new firms in the financial crisis: the role of the local milieu

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***Abstract*— This paper investigates how the long-lasting financial crisis is affecting the survival of nascent firms. The target of this research is a sample of 64 firms that benefit from the interaction with a high-technology innovation cluster located in Barcelona (Spain). A logistic regression analysis is conducted to predict survival using a wide set of variables as predictors. The born-global and high productivity ICT firms show the best prediction of success. Financial leverage has played also a critical role in the evolution of businesses whereas milieu effects have been insufficient to overcome the difficulties of financial crisis.**

Keywords*— *entrepreneurship, innovative milieu, local growth, financial crisis.

I. INTRODUCTION

Entrepreneurship is becoming a central player of the economic growth policies because productivity improvements increasingly depend on the entrepreneurial capacity of economies. The introduction of knowledge into the economic growth models was formalized by [1] and [2], giving room for the models of endogenous growth. In these models knowledge is particularly important because of the externalities and spillovers.

Since then, investments in knowledge have been viewed as driving force of economic growth and the focus of growth policies has shifted from the investment in physical capital to the promotion of knowledge capital, involving not only R+D activities but also the upgrading of human capital, through training and education.

According to the classical knowledge production function [3], innovative opportunities are endogenously created by persistent and systematic investments and efforts by firms. Even so, the author recognizes afterwards [4] that new knowledge could spill over, as a positive externality, from the investing firm to others firms at a low or no cost.

But entrepreneurship is accelerating the production and application of knowledge. As an economic input, knowledge is inherently different from labor, land or other types of capital because it is characterized by high uncertainty, big asymmetries across people and it is costly to transact. So, the response to an economy where knowledge is the main source of comparative advantage is the entrepreneurial economy [5].

New ideas are intrinsically associated with high asymmetries, because differences in education, background or experience of economic agents can result in divergences in the expected value of a new project or idea. And as the expected economic value of a new idea or knowledge varies significantly across economic agents, it can lead to divergences in the recognition and evaluation of opportunities between economic agents and the existing decision-making processes. As reference [6] points out, such divergences will become even greater if the new idea is not consistent with the core competence and technological trajectory of a firm.

Because of these conditions of high uncertainty and asymmetries of knowledge, decision-making structures can reach the decision not to pursue and try to commercialize new ideas that individual economic agents (or teams or groups of them) think that are potentially valuable and should be sought.

References [7] and [8] incorporate the concept of knowledge filter as the gap between knowledge that has a potential commercial value and knowledge that is actually commercialized. The greater is the knowledge filter, the more pronounced is the gap between new knowledge and commercialized knowledge. Thus, the knowledge filter serves as a barrier hindering investments in new knowledge and their externalities. As a consequence, investments in new knowledge do not automatically spill over, thus dampening the impact that the investments in university research, R+D or human capital have on generating economic growth.

As a result, entrepreneurship is the response to opportunities created by investments in new knowledge that are not commercialized because of the knowledge filter. When the gap in the expected return from the potential innovation between knowledge workers and the corporate decision-maker is sufficiently large and if the cost of starting a new firm is sufficiently low, entrepreneurship becomes more attractive.

But, as reference [9] states, entry appear to be relatively easy, but survival is not. An increasing firm entry not only impacts on regional economic growth, it also affects the performance and behavior of rival incumbent firms.

The space has an active role limiting the risks and uncertainties of entrepreneurship because entrepreneurs do not drive their idea to the market in isolation. In fact, several factors play a key role in the development of entrepreneurship.

Both, the human personal characteristics and the institutional environment shape intentions of individuals into performing certain entrepreneurial behavior. The combination of all them determines the entrepreneurial environment. This environment refers, on the one hand, to the overall economic, socio-cultural and political factors that influence people's willingness and ability to undertake entrepreneurial activities. On the other, it refers to the availability of assistance and support services that facilitate the start-up process [10].

In the knowledge-driven economies, firms are usually engaged in cooperative processes with other local firms, economic agents and the public administration for the conception and provision of specific resources and external assets that cannot be easily obtained via market developments [11].

This process of strategic cooperation is facilitated by specific territorial conditions. When a particular richness of interfirm interactions of untraded interdependencies exists, they generate cumulative learning processes enhancing the innovativeness and competitiveness of a local territorial system [12].

The endogenous development literature has promoted a more cognitive approach to innovation and local growth processes. This approach illustrates innovation and entrepreneurship as the consequence of collective leaning processes and the existence of common rules, codes and norms of behavior. The most prominent feature of this cognitive approach is that space becomes a source of knowledge creation, since it embeds channels of knowledge transfer and thus collective learning provides local firms with positive external effects on factor productivity.

So, literature on regional economics is increasingly giving attention to intangible, atmosphere-type, local synergy and governance factors, as social capital [13] [14], relational capital [15] [16] or knowledge assets [17] [18].

Recently, the concept of territorial capital is emerging. According to reference [19], each area has a specific capital — its *territorial capital* — that is distinct from that of other areas and is determined by many factors. These factors may include the area's geographical location, size, inputs endowment, climate, traditions, natural resources, quality of life or the agglomeration economies provided by its cities. They may also include its business incubators and industrial districts or other business networks that reduce transaction costs. And other factors may be *untraded interdependencies* such as understandings, customs and informal rules that enable economic actors to work together under conditions of uncertainty. Lastly, there is an intangible factor —the *environment* — which is the outcome of a combination of institutions, rules, practices, producers, researchers and policy-makers that make a certain creativity and innovation possible.

Therefore, this concept goes far beyond a specific space and it refers to a system of:

- Pecuniary and technological externalities
- Localized production activities, skills and know-how
- Localized proximity relationships that enhance the productivity of local factors
- Cultural elements and values that determine local structures and define local identities.
- Rules, norms and practices that define a local governance model

This new approach is based in the complex relationships which influence how economic agents perceive economic reality, are receptive to external stimuli, react creatively and are able to cooperate. Local trust and creativity, a sense of belonging, creativity and connectivity are more and more interpreted as key factors for local growth [20].

The seed of this approach was in the GREMI approximation to local innovative environments [21] [22] [23] [24] [25] [26]. The innovative milieu consists of shared values, common representations and codes, a strong sense of belonging, trust, common professional background and economic specialization that help firms and entrepreneurs to achieve a better economic performance. The distinctive factor of an innovative milieu is the significance of social capital on the innovation process. In particular, the development of relational networks based on confidence, formalized in cooperative innovation projects and geared towards generating and disseminating knowledge.

In the innovative milieux, knowledge and information are transferred by a high level of labor market mobility, by intense innovative interactions between customers and suppliers and by firm spin-offs. So, through strategic alliances and non-equity cooperation agreements, firms learn through this kind of network cooperation.

Moreover, the local milieu acts as an uncertainty-reducing operator which works through cooperation, sharing and collective learning [27]. The functions of information-gathering, the codification of knowledge and the selection of decision-making routines are undertaken in a more socialized and collective way than in the case of the R&D departments in isolated firms, because information rapidly circulates and productivity rises because of geographical proximity.

Learning in a milieu takes place in a spontaneous and socialized manner within the local labor market through forms of stable and enduring collaboration between customers and suppliers based on loyalty and trust. These relations produce a transfer of codified and tacit knowledge between them which triggers processes of innovation and specific technological trajectories.

In a turbulent environment characterized by difficulty in information collection, processing and assessment, strong interdependence between the decisions of different actors and great complexity in the external environment, economic actors fins in the local milieu the necessary support for coping with uncertainty [28].

II. CONTEXT ANALYSIS

Despite the ubiquitous existence of policies promoting entrepreneurship, the rates differ widely among places because, as far as economic activity tends to cluster geographically,

entrepreneurship also tends to concentrate. And some cities are increasingly becoming competing actors on the global scene, given their nature of clusters of public goods and externalities and enhancers of interaction and local synergies. Entrepreneurship is becoming a local affair because the location of an agent matters for the decision to start a firm and the local level of current start-up activity has a positive effect on the likelihood to become an entrepreneur [29]. In addition, the local social environment is also highly significant for entrepreneurship [30].

We have seen that the economic literature on innovative environments identifies the presence of a set of elements that are decisive in improving the competitive performance of the firms that belong to it: a particular geographical area, a set of actors, several tangible, intangible and institutional common elements; and even more important, the ability to share an organizational logic, a learning system and a relational culture.

We focus our research in the city of Barcelona (Spain), one of the smartest European cities, with a high entrepreneurship rate. In a previous research [31], we detected the presence and intensity of those strategic elements among the entrepreneurs that develop their new firms with the support of Barcelona Activa (BA), the local development agency of the Barcelona City Council.

The fieldwork consisted of a combination of complementary techniques, both qualitative and quantitative, and was carried out over a one-year period (April 2005 to April 2006). From a qualitative point of view, we conducted 22 in-depth interviews with entrepreneurs belonging to the core network of BA. Six of them were subsequently used in the questionnaire design, while the rest served for confirmatory purposes. Moreover, the research team held seven interviews with different key staff members of BA. Finally, a total of three different focus groups were held. In them, entrepreneurs and experts discussed financing entrepreneurship, innovation and training, and networking and e-commerce.

For the quantitative analysis we conducted a survey among the population of entrepreneurs who lead a company that usually interacts with BA, a group that we define as the core network (256 individuals); that is, those that could be considered part of the environment created by BA. The questionnaire was administrated by e-mail, with a 52.4% response rate of the population under study (136 questionnaires). This response rate falls within the usual limits of online surveys [32] and, under the hypothesis of a random sample, this would mean a precision of +/–4.87% for a situation of maximum uncertainty (p=q =0.5) and a confidence level of 95%.

In order to better appreciate the scope of the innovative environment, we built two variables that gather, on the one hand, the entrepreneur's perception of the innovative environment; and, on the other, the innovative behavior of the firm he or she owns.

In order to build the Perception of the Innovative Environment indicator (PIE), five subjective considerations were taken into account. By adding them we obtain an indicator with values from 0 to 5, as all of them were dummy variables – taking the value of 1 when the characteristic is present and 0 otherwise. These five components were:

- The entrepreneur regards BA staff as an agent of innovation
- The entrepreneur considers that cooperative network created and managed by BA favors the development of strategic alliances
- The entrepreneur considers that cooperative network created and managed by BA is a mechanism for knowledge dissemination
- The experience of cooperation with BA allows an entrepreneurial environment to be shared with other firms
- This interaction generates a common shared culture.

Following the same methodology, the Innovative Behavior indicator (IB) also takes values from 0 to 5. In this case, the dummy variables were:

- The firm develops ICT-based innovations
- The firm has established strategic alliances with other firms located in BA's facilities
- There are knowledge generation and dissemination links with these firms
- The firm has established cooperation agreements in order to develop innovations with suppliers, clients or scientific institutions
- The firm develops economic activities with competitors.

The combination of these two categories leads us to identify the three different profiles of firms that will allow the scope and effects of the innovative milieu to be evaluated. The names we have given to these profiles are the following: Milieu Effect, Milieu Seeker and Milieu Unaware.

Two indicators were used as a proxy to highly successful companies. The first corresponds to the High Business Success (HBS) Indicator, which is a dummy variable taking the value of one when the next conditions are met:

- The company expects profits in the year of the survey.
- Both the expected turnover and the number of full-time employees increase with respect to the previous year, or one of the two increases while the other remains constant.

The second corresponds to the High Quality Job Creation (HQJC) Indicator, which is also a dummy variable taking the value of one when:

- The company pays medium-high salaries, that is, the gross wage per employee equals or exceeds the average salary in Spain (18,000 EUR per year).
- The company shows a positive one-year evolution in the total number of full-time employees.

To be included in the Milieu Effect category, a firm must show a medium-high level of innovative behavior and its leader must show a medium-high perception of innovative environment. This group represented 22,1% of the whole

population under study. The Milieu Seeker category encompasses those cases with medium-low innovative behavior and medium-high innovative perception. It had a similar importance in the whole population (21.3%). Finally, the Milieu Unaware category groups those cases in which innovative behavior is medium-high whereas perception remains medium-low. Its weighting is low (14.0%). In turn, these profiles identify three different types of companies (Table I).

TABLE I. USE OF THE INNOVATIVE ENVIRONMENT AND FIRM DEVELOPMENT

Characteristics of the firm[a]	**Percentage of firms (%)**			
	Milieu Effect	***Milieu Seeker***	***Milieu unaware***	***Total Sample***
Performance				
High Quality Job Creation (HQJC)	43.3	17.2	31.6	33.1
High Business Success (HBS)	63.3	24.1	47.4	46.3
Market openess				
Developing export activities	43.3	24.1	47.4	41.2
Sales in non-local markets	63.3	55.2	63.2	63.2
E-commerce sales	43.3	17.2	21.1	30.9
Competitive strategy				
Cost leadership	20.0	28.6	5.3	20.7
Product differentiation	50.0	17.9	52.6	40.7
Specialization	30.0	53.6	42.1	38.5
Growth strategy				
New products and new markets	33.3	31.0	5.3	27.2
Strategic aliances	20.0	24.1	0.0	17.4
Group creation	20.0	6.9	0.0	7.4
Network organisation	20.0	6.9	5.3	8.1

[a] Source: Lladós et al. (2009)

Firms with a Milieu Effect profile were the most likely to show innovative forms of growth, both within a group or in a network. Their most common strategy was based on product differentiation, whereby they were the most frequent users of the internet for commercial purposes. Indeed, better use of the environment is distinctly related to the presence of good performance levels, as long as both the HQJC and the HBS indicators stay above the total population average and above the rest of the profiles under study.

Companies with a Milieu Seeker profile were in a consolidation stage. They faced some difficulties in developing their business as well as in their competitive position. Their low presence in international markets was accompanied by lower success levels as well as product differentiation weaknesses. They almost never use the internet for commercial purposes; nor have they manifested any innovative forms of growth. All these facts lead to very discrete global performance indicators (HQJC and HBS).

However, they rate interaction with BA's environment very highly. And what is most important, given their weaknesses, they expect to improve their market success possibilities by taking the most advantage of the networking and knowledge transfer mechanisms provided by the environment.

Finally, the Milieu Unaware profile encompassed a group with a very low propensity to interact with BA's environment. Conversely, these firms show a high performance, good market position, significant innovation levels supported by ICT use, and, in some cases, high export rates. However, they did not develop innovative growth strategies while their performance indicators remained rather average. Despite the fact that a significant number of them were part of the incubator, firms in this group did not take advantage of BA's environment opportunities, probably because, in their present situation, they did not perceive any benefit.

The main objective of this research is to identify the key factors that explain the survival or failure of the firms created with the support of in the BA's environment and policies. As far as the financial crisis has dramatically impacted on the evolution of Spanish firms during recent years, our research could also provide information about the consequences of financial leverage on the probability of endurance of new firms.

For this purpose it is necessary to analyze the economic and financial information of new firms. As a consequence, it has been investigated, in this second stage of the research, the business evolution during the period 2006-2011 of a sample of firms that in 2006 were located in the incubation spaces or were benefited from BA's policies. In particular, we have examined the behavior of 64 new firms in the worst period of financial crisis and economic downfall in Spain.

According to economic activity, 39.1% of firms are developing activities in the ICT sector and the rest are included in different categories of the tertiary sector (mainly, personal or business services).

Table II shows the distribution of the sample according to the described categories.

TABLE II. DISTRIBUTION OF THE SAMPLE

Percentage of firms (%)			
Milieu Effect	***Milieu Unaware***	***Milieu Seeker***	***Rest***
26.56	20.31	17.19	35.94

Depending on the values of the PIE and IB indicators, it can be observed that, in the sample of new firms, innovative behavior is slightly higher than the perception of innovative milieu (see Table III) whereas the medium-high level is a minority in both cases (46.9% and 43.8%, respectively).

TABLE III. INNOVATIVE PERCEPTION AND INNOVATIVE BEHAVIOR

Level	Percentage of firms (%)	
	Perception of innovative environment	*Innovative behavior*
Medium-high level (3-5)	43.8	46.9
Medium-low level (0-2)	56.2	53.1

III. METHOD AND RESULTS

Data collection was performed by means of the described web-based survey to entrepreneurs and also from the SABI database, which contains information about company accounts, ratios, activities, ownership and management of a wide sample of Spanish firms.

Tests of the model were performed through a binomial logistic regression model (Logit). This type of regression analysis is used for predicting the outcome of a categorical dependent variable, based on a set of predictor variables. Model estimation was done with the maximum likelihood approach.

With the logistic regression we try to determine the impact of multiple independent variables presented simultaneously to predict the success or failure of the new firms.

Consequently, the dependent variable is SE (Successful Evolution). It takes value 1 when the turnover has increased in last five years and the net wealth is positive in 2011. The net wealth is calculated as the subtraction between assets and liabilities. The rate of success was 54.7% (Table IV).

It takes value 0 when the firm has leaved the market, the income has decreased or the net wealth is negative at the end of the period. In particular, six of the firms included in the sample failed before their third year of life because of a poor business plan.

TABLE IV. FIRMS' PERFORMANCE (2006-2011)

Category	*Percentage of firms (%)*		*Number of firms*
	SE = 1	*SE = 0*	
Milieu Effect	52.9	47.1	17
Milieu Unaware	76.9	23.1	13
Milieu Seeker	36.4	63.6	11
Rest	52.2	47.8	23
Total	54.7	45.3	64

The independent variables in the model are the following:

- LPROD: Level of labor productivity in 2011, determined as the quotient between sales and employment in the firm.
- DEBT: Level of indebtedness in 2011, determined as the quotient between debts and assets in the firm.
- MFA: Value of Material Fixed Assets in 2011. It includes the investments of the firm in equipments, machinery, buildings and other assets.
- IFA: Value of Immaterial Fixed Assets in 2011. It includes the investments of the firm in non-tangible assets, as patents, goodwill or royalties.
- FTA: Foreign trade activity. It takes value 1 when sales in foreign markets meant more than one-third of the commercial activity in 2006.
- ECA: E-commerce activity. It takes value 1 when firm was using internet as a sales channel in 2006.
- ICT: It takes value 1 when firm develops its activity in this economic sector.

The model also includes binary variables (dummies) to identify if the belonging of the firm to the MILIEU, UNAWARE or SEEKER groups influences the chances of survival.

We predict the outcome variable SE using all these continuous and categorical variables. The categorical option specifies that rank is a categorical. The output is shown in sections, each of which is discussed below.

Table V shows the overall test for the model that includes the predictors. The chi-square value of 34.98 with a p-value of less than 0.0005 tells us that the model as a whole fits significantly better than a model with no predictors.

TABLE V. OMNIBUS TEST OF MODEL COEFFICIENTS

		Chi-square	*df*	*Sig.*
Step 1	Step	34.979	10	0.000
	Block	34.979	10	0.000
	Model	34.979	10	0.000

The fit of the model is shown in tables VI and VII. The Model Summary table shows the results of the -2*log likelihood-ratio test (53.18). Small test values indicate a good fit as the fitted model deviates less from the saturated model. This result is confirmed by the two different measures of pseudo R-square. Both of them evidence the goodness-of-fit, indicating a moderately strong relationship between the predictors and the prediction.

TABLE VI. MODEL SUMMARY

Step	*-2 Log likelihood*	*Cox & Snell R Square*	*Nagelkerke R Square*
1	53.181[b]	0.421	0.563

[b.] Estimation terminated at iteration number 10 because parameter estimates changed by less than .001

As well as the goodness-of-fit statistics we want to look also at the proportion of cases the model classifies correctly. The Classification table tells us how many of the cases where the observed values of the dependent variable were 1 or 0 respectively have been correctly predicted. The 69.0% were

correctly classified for the failure group and 85.7% for the success group. Overall 78.1% were correctly classified.

TABLE VII. CLASSIFICATION TABLE[c]

Observed			Predicted		
			SE		*Percentage Correct*
			0	*1*	
Step 1	SE	0	20	9	69.0
		1	5	30	85.7
Overall Percentage					78.1

c. The cut value is .500

Finally, Table VIII shows the Hosmer & Lemeshow test statistic. As the p-value is much greater than .05, the model prediction fits the observed data at an acceptable level, because well-fitting models show non-significance on this test.

TABLE VIII. HOSMER & LEMESHOW TEST

Step	*Chi-square*	*df*	*Sig.*
1	2.942	8	0.938

In Table IX we see the coefficients (B), the standards errors (S.E.), the Wald test statistic with associated degrees of freedom (df) and p-values (Sig.), and the exponential coefficient (Exp(B)) –also known as an odds ratio.

The Wald statistic and associated probabilities provide information about the significance of each predictor in the equation and the Exp(B) column presents the extent to which raising the corresponding measure by one unit influences the odds ratio. If the value exceeds 1 then the odds of an outcome occurring increase and if the result is less than 1, any increase in the predictor leads to a drop in the odds of the outcome occurring. Therefore, the odds ratio is a measure of effect size.

TABLE IX. VARIABLES IN THE EQUATION

Step		*B*	*S.E.*	*Wald*	*df*	*Sig*[e]	*Exp(B)*
Step 1[d]	LPROD	0.005	0.002	4.095	1	0.043	1.005
	DEBT	-0.035	0.015	5.343	1	0.021	0.966
	ICT	2.155	0.839	6.604	1	0.010	8.628
	MFA	0.003	0.002	1.297	1	0.255	1.003
	IFA	-.004	0.002	6.975	1	0.008	0.996
	FTA	2.874	1.401	4.207	1	0.040	17.706
	ECA	-1.008	1.298	0.603	1	0.437	0.365
	MILIEU	1.096	0.997	1.208	1	0.272	2.992
	UNAWARE	1.577	1.050	2.256	1	0.133	4.842
	SEEKER	0.678	1.066	0.405	1	0.524	1.971
	Constant	0.656	1.120	0.343	1	0.558	1.928

d. Variables entered on step 1: LPROD, DEBT, ICT, MFA, IFA, FTA, ECA, MILIEU, UNAWARE and SEEKER

e. p-values are obtained according to Student's t-distribution.

According to the Wald criterion, the results demonstrated that some variables have a significant contribution to the prediction. In particular, the success of the new firms included in the sample seems to be associated to the fulfillment of high levels of labor productivity and the development of commercial activities in the foreign markets.

Not surprisingly, the financial leverage has also played a crucial role in the economic performance of firms. The context of recession and credit restriction has handicapped the evolution of the most indebted firms.

Although physical capital investment does not affect the probabilities of success, those firms which stand out from the rest because their expenditure in intangible assets perform a less satisfactory evolution during the economic crisis.

Technology and sectoral specialization contribute also to the model, as the firms developing ICT activities exhibit a higher prediction of success. However, the use of internet as a sales channel has not been a certain protection against the economic recession for nascent firms.

Firms with more innovative behavior or greater perception of innovative milieu in 2006 do not show statistically significant values in the prediction model. This is the case of firms included in the MILIEU, UNAWARE or SEEKER categories. Therefore, the interaction with the local environment has not been enough to improve the probabilities of success.

We conduct an analysis of variance (ANOVA) to test if differences in levels of productivity, indebtedness, sectoral specialization, intangibles endowment or foreign trade between MILIEU and the other categories could explain the non-significance of milieu effects in the logistic regression. The results are shown in Table X. Since differences in all the economic and financial variables among groups are not statistically significant, the poor influence of the milieu effects is confirmed.

TABLE X. ANOVA ANALYSIS

Step	*F value*[f]	*Sig.*
LPROD*MILIEU	0.054	0.817
DEBT*MILEU	0.571	0.453
ICT*MILIEU	0.134	0.715
IFA*MILIEU	2.258	0.138
FTA*MILIEU	0.255	0.616

f. Since Snedecor's F distribution derives from independent random variables with Chi-Squared distribution, F-value is asymptotically equivalent to a Chi-Squared test.

IV. CONCLUDING DISCUSSION

Although from the point of view of a productive local system, BA cannot be identified as a GREMI-style innovative milieu, from its actions and interactions with entrepreneurs it can be deduced that BA was contributing to the emergence of an important innovation cluster. Additionally, its institutional support was also a crucial element for improving the absorptive

capacity of the new companies and their access to strategic cooperative networks [33].

The goal of this investigation is to understand how things have changed during the recent crisis. From a sample of 64 firms, a logistic regression analysis was conducted to predict success of nascent firms in the financial crisis using a wide set of variables as predictors. There is a moderately strong relationship between prediction and grouping and the Wald criterion demonstrated that some economic and financial variables made a significant contribution to prediction.

In particular, the born-global and high productivity ICT firms show the best prediction of success. However, milieu variables do not contribute to explain economic development of firms. Although firms with better initial performance and high innovative behavior (both categories MILIEU and UNAWARE) show higher logistic coefficients in the equation, the B values are not statistically significant.

The variable of foreign trade specialization has the bigger influence on the odds ratio. As the stagnation of demand and incomes persists, the external markets are becoming the main source of growth and business opportunities for firms in Spain. This result would confirm that export orientation makes a significant additional contribution to economic growth [34]. Since there is a lack of local markets for advanced technology from start-ups, the propensity to *born global* is higher [35].

On the other hand, a high rate of capital intensity does not guarantee success. As big capital investments in new firms are usually financed with external funding, firms are facing strong difficulties to balance assets and liabilities and to generate incomes enough to meet the debt service. So much the worst is the prediction for companies with big investments in intangibles assets.

Firms developing technology-intensive activities evidence a much better performance than nascent firms in other tertiary activities. Probably, the strategic use of ICT provides firms with more organizational flexibility and more adaptive capacity to turbulent environments. Creative use of ICT would also encourage local cooperation [36] and the emergence of communities of enterprise that create value [37].

Even so, firms based on e-commerce have not made the difference in the financial crisis. Viability has been also challenged if they do not fulfill high levels of productivity.

This investigation contributes to realize how the long-lasting financial crisis is affecting the survival of nascent firms that benefit from the membership or interaction with a high-technology innovation cluster.

In the case of BA, milieu effects have been insufficient to confront the damages of financial crisis, since to a great extent the successful evolution of start-up businesses seems to be linked to internationalization, productivity and adequate funding policies. If the interaction with the milieu does not motivate this response, the prospect of success would be less favorable. Adaptation and change are becoming key processes in the development and resilience of local economies [38]. In any case, the influence of plausible milieu effects should be tested in other environments.

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