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# Financial Constraints on New Firms: Looking for Regional Disparities

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**Abstract:** Financial constraints affecting new firms are some of the factors most cited for impeding entrepreneurial dynamics from flourishing. This article introduces the problem of regional patterns of financial constraints. The research is conducted with regard to the French regions and the new French firms being tracked at the firm level. It refers to entrepreneurial projects that are concretized in new firms. General entrepreneurial intentions in the French population that are aborted due to financial constraints are not reported. The point is of importance as the firm financing conditions are considered. First, an assessment of the regional banking activity leads to the conclusion of a relatively homogeneous situation, the activity in the core-region Île-de-France appearing however more contrasted. Second, the financial constraints affecting new firms are distinguished according to a four-case typology of credit rationing. It appears, inter alia, that a majority of firms is not facing credit rationing, but also that a non-negligible share is “self-constrained”. The classification is, third and finally, differentiated according to the regions. Despite the relatively homogeneous banking supply, some differences may still be at work. The explanations are hypothetical at this stage but evidence suggests that the regional dimension should definitely deserve further attention.

**Résumé:** Les contraintes financières pesant sur les nouvelles firmes sont fréquemment citées parmi les facteurs faisant obstacle aux dynamiques entrepreneuriales. Cet article introduit la problématique de patterns régionaux eu égard à ces contraintes. La recherche est menée en référence aux régions françaises et aux projets entrepreneuriaux qui aboutissent à la création de firmes. Les intentions entrepreneuriales générales dans la population qui ne trouvent pas de concrétisation, notamment à la suite de contraintes financières, ne sont pas étudiées ici. Le point a son importance dès lors que les conditions de financement sont identifiées. *Primo*, une évaluation de l'activité bancaire régionale aboutit à la conclusion d'une situation relativement homogène, l'activité en l'Île-de-France apparaissant néanmoins plus contrastée. *Secundo*, les contraintes financières affectant les nouvelles firmes font l'objet d'un examen typologique. Il ressort qu'une majorité de firmes n'est pas confrontée au rationnement du crédit mais aussi qu'une part non négligeable est « autocontrainte ». *Tertio*, la classification proposée est différenciée selon les régions. Malgré une offre bancaire relativement homogène, des différences peuvent encore être à l'oeuvre. Les explications sont hypothétiques à ce stade mais l'évidence suggère que la dimension régionale mérite un examen plus approfondi.

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# 1. Introduction

Over the last fifteen years, a huge theoretical and empirical research program has been dedicated to the study of the financial system from an international standpoint. This research program deals more precisely with two questions. The first one revolves around differences in the way firms are financed in the most developed countries (Mayer, 1988, Hacketal, Schmidt, 2003). A controversial debate is in progress on this question<sup>1</sup>. A second strand of literature acknowledges the existence of an imperfectly harmonized financing system and looks for the reasons why it may differ (La Porta, Lopez-de-Silanes, Schleifer and Vishny, 1999) and for the consequences these differences may imply for economic growth (Levine, 1997). Thus, the question of how much financial systems differ from an international standpoint is clearly acknowledged as an important question and is fully integrated in the vast empirical literature on corporate governance.

Although the study of financing patterns with regard to firms within an international perspective is well established, the question of differences at the regional level has been almost completely ignored in the literature, with the exception of analyses dealing with the United-States and Italy. Until the “Riegle-Neal Interstate Banking” and the “Branching Efficiency Act” in 1994, the USA had been characterised by a very decentralised banking system as the 1927 “McFadden Act” specifically prohibited intrastate branching by allowing a national bank to branch only within the city in which it is located and prohibiting any holding company bank from owning and operating banks in more than one state. The situation is different for Italy as the legislation, and in particular the banking legislation, is perfectly unified. The argument for interregional differences here is mainly based on the importance of cultural aspects, a quite mythic cult for proximity and the importance of trust and interpersonal links. For these countries, some empirical researches have been made to know whether and how local financial patterns matter<sup>2</sup>. The authors highlight the significant contribution of local financing features.

This article deals with this question in the French context. More precisely, it introduces the issue of regional patterns of financial constraints with regard to the French regions and the new French firms *at the firm level*.

The microeconomic background of this research goes back to the seminal work of Stiglitz and Weiss (1981). Given informational asymmetries and agency problems, these authors show that an equilibrium can emerge with rationing on the credit market. The same kind of result applies for the equity market (Hellman and Stiglitz, 2000, Hellman, 1995). From a theoretical standpoint, the rationing of small firms on the market of external financing is easy to demonstrate (Binks, Ennew, 1995; Berger, Udell, 1998). The empirical treatment of this question is more difficult because available data on financing are regularly extracted from balance sheets and economists must cope with the problem of over-determination of variables.

In this article, information on new French firms, collected at the individual level, is used to build indicators on the finance gap they are confronted with. We analyse the results not only at the micro level but at the regional level as well. The main question underlying the research is indeed to assess whether local finance patterns are observable in France. This question is analysed theoretically in the following section, with a specific focus on arguments that may be useful for a better understanding of the French situation. A general empirical overview is then given that refers to the French regional banking density and activity. The third paragraph introduces the data and the method of analysis. Results are given in the fourth one.

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<sup>1</sup> On the one hand, Mayer (1988) and Corbett and Jenkinson (1996), using flows of gross data, do not find any difference in the way firms are financed. On the other hand, Hackethall and Schmidt (2003) using net data show that differences in the financing patterns of firms still remain at least for Germany, Japan, France and the United-Kingdom.

<sup>2</sup> For instance, Jayaratne and Strahan (1996) for the USA and Guiso, Sapienza and Zingales (2004) for Italy.

## **2. Should local patterns of the French financing system matter in the financing of new small firms?**

In this section, we consider the arguments *for and against* the potential influence of local financing patterns on the financing of small firms and more specifically of *new* firms (2.1.). We then give an overview of the situation of the French regional financial system (2.2.).

### **2.1. Why would local patterns of the financing system matter? The theoretical background**

#### *2.1.1. The importance of local patterns: the “pro” arguments*

Bank lending to small firms is closely linked to banks' ability to gather information on these firms. When bankers cannot collect enough information about small firms, they prefer limiting their supply of credit to using other devices such as increasing interest rates or asking for new warranties<sup>3</sup>. The solution to avoid credit rationing is thus to increase the flow of information from firms to bankers.

As bankers are outsiders, their access to the financial information of the firm is not statutory favoured. Two situations may be described: either the information is given by firms to banks or this information is “in the air” and can be integrated in a diffuse way by bankers. The former is the “hard” information and the latter the “soft” one (Stein, 2002). The “hard” information concerns all financial accounts and formalised information such as legal status, formal agreements and all other reporting devices. The “soft” information is not formalized at all and is based on the reputation of firms and owners–managers themselves.

According to Hauswald and Marquez (2003), the quality of information is decreasing with distance as soft information is supposed to vanish. Thus, informational asymmetries can be assumed to be more important when the distance between lenders and firms is greater. As a consequence, credit rationing should be higher for firms the informational system of which is more opaque and less rich in “hard” information (Stein, 2002), as is the case with new firms and, specifically, new innovative ones.

As a result, when the financing of new firms is concerned, the relevance of geographical distance in the management of credit should be emphasized. By improving the transfer of “soft” information between lenders and borrowers, proximity should allow the decrease in informational asymmetries, which are responsible for the collapse of the credit market for new firms. According to this argument, the rationing of new firms should increase with the level of centralisation in the banking sector. A high level of centralisation indeed corresponds to a low level of delegation; in this system, only hard information can be transferred from local desks to decision centres (Liberti, 2003).

To sum up, proximity should improve the financing patterns of small firms as they can be assumed to suffer from informational asymmetries: this is the “Church Tower Principle” (Carling and Lundberg, 2002). According to this principle, geographical proximity between borrowers and lenders matters in the management of credit risk. However, we must keep in mind that proximity is not always perceived as improving the financial situation of firms. Proximity can indeed build barriers to entry in the credit market so that the price of credit can be higher because of the pre-existing relationships (Sharpe, 1990, Rajan, 1992). Information

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<sup>3</sup> However, when bankers observe an increase of the risk represented by small firms, then they ask for new warranties or/and they charge a higher interest rate on credit (Cieply, Grondin, 1999).

sharing may indeed serve as a collusive device which can soften competition (Bouckaert, Degryse, 2004). As the problem of new firms is more the access to the credit market than the cost of loan, we only consider in this article the favourable effect of close relationships between banks and firms. For the moment, in our demonstration, close relationships are strictly associated with proximity. However, the revolution in information technologies which has taken place for over ten years could have softened this link.

### *2.1.2. The irrelevance of local patterns: the “contra” arguments*

With the pervasive use of new information technologies, the cost for transferring information has decreased so that “information is available at substantially lower costs now than it used to be” (Buch, 2002, p.2). The result might be an increase in the distance between bankers and their customers.

In the international banking lending area, Buch (2002) demonstrates the declining importance of distance in the United-States. Petersen and Rajan (2002) find quite the same result when the domestic banking lending is analysed: the geographical distance between banks and their borrowers has indeed been increasing over time in the U.S.A. The case of the United-States is specific insofar as the “Riegle-Neal Interstate Banking and Branching Efficiency Act” of 1994 has allowed full nation-wide banking across the country, regardless of state law<sup>4</sup>. Yet Carling and Lundberg (2002) bring into light quite the same result for Sweden. At a sensibly different geographical scale, Degryse and Ongena (2005) underline this trend result for Belgium as well. To sum up, banks in these countries have recently tended to lend across larger distances.

Moreover, Petersen and Rajan (2002) underline the fact that small firms use new tools to communicate and transfer messages in a more impersonal way. According to these results, small firms cannot be too closely associated with soft information as they have started using the same impersonal information as large firms do. These authors demonstrate that this increase in distance in banking relationships cannot be associated with a fall in credit to small firms. On the contrary, they appear to favour a better access to credit for small firms: “Our findings also suggest that the natural credit market faced by small firms may be growing steadily in size” (Petersen, Rajan 2002, p. 2535). With the development of new cheaper ways of communication, the American banking system has seen its productivity increased and the ability of employees to treat information increased as well. Quite the same result is obtained by Carling and Lundberg (2002). These authors find no support for the existence of the “Church Tower Principle” in the Swedish corporate banking system between 1994 and 2000; they could not find “any evidence that the information asymmetry increased with distance” nor did they find “any evidence that the bank acted as if it was the case”, that is to say decided to reduce its supply of credit to small firms. What was the situation in France in the middle of the nineties?

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<sup>4</sup> This Act has radically modified the legal environment of the American banking sector. Before it was passed, the McFadden Act, signed in 1927, specifically prohibited intrastate branching by allowing a national bank to branch only within the city in which it is located. Prior to 1994, the banking legislation had limited the ability of a holding company bank to own and operate banks in more than one state. The “Riegle-Neal Interstate Banking and Branching Efficiency Act” has resulted in increased consolidation and concentration in the banking industry. While the United States had 14,399 banks in 1940, the country has fewer than 9,000 banks today. However, while consolidation among banks has certainly been the trend, the number of branches in the U.S. has steadily increased.

## 2.2. The French banking system under review

The question of the influence of proximity (or distance) on the access of small firms to credit has not yet been studied in the French context. This question could even be considered devoid of any interest as the French banking system appears to have been built under the principle of an equal access of French citizens to banking services, in particular after the 1945 banking law which enforced the nationalisation of a significant part of the French banking sector.

However, the French financial system has radically changed over the last twenty years. On the one hand, French banks have largely become private since 1986. On the other hand, mergers and some other restructuring measures have the local banking sector disappearing. Almost all banks are now integrated into networks of large banks. In this context, some keep a regional approach for their activities; this is mainly the case of the mutual banks and of some commercial banks as for example the *Credit Industriel et Commercial* (CIC) which bought lots of local or regional banks. Some others, in particular the “three old ones” (BNP, Société Générale and Crédit Lyonnais) have developed a more centralized approach; for example they organise the turnover of bankers within a national program (Quack, Hildebrandt, 1996) and they use rating tools more and more to decide to distribute credit or not. Thus, the concentration of the French banking system has significantly increased. How could this evolution influence the nature of relationships between banks and borrowers? Has the distance between them rather increased or decreased?

To answer this question, three points at least may be considered:

1. The use by bankers and firms of electronic tools to communicate with each other.
2. The importance of proximity for banks when the decision to lend (or not to) is at stake.
3. The analysis of statistics available on the density of banking activity in France.

### 2.2.1. *The use of electronic tools by bankers and small firms*

Petersen and Rajan (2002) bring into light, for the nineties in the United-States, the fact that bankers and customers were using electronic tools to communicate with each other more and more and that there was an increase in distance. In France, customers have been using these tools since the beginning of the new century. Nowadays in banking groups, selling these new tools has indeed become a new source of profit. However this trend and its impact on banking relationships, if it exists in France, is relatively new. In a survey carried out in 1998 on a sample of French bankers, new electronic tools were not mentioned as being intensively used (Carluer, Cieply, Grondin, 2000). The way to communicate was rather traditional and was essentially based on the phone, except at the beginning of relationships or when difficulties arose. In these two cases, appointments in firms and in banks are common. So, as we study the situation of French new firms between 1994 and 1999, we cannot retain the hypothesis of an increasing use of electronic tools entailing a decrease in the importance of proximity when the financing of small firms is concerned.

### 2.2.2. *The importance of proximity for the French banking system*

Although mergers increase the concentration in the French banking sector, banks still appear to be looking for proximity. Mutual banks, which represent a highly significant part of the market of credit to small firms, are organised with few hierarchical levels thus ensuring

that the decisions concerning credit are taken locally<sup>5</sup>. Moreover, the decision-making system in mutual banks associates customers, who are members of the credit committee; this situation can create an intellectual proximity between banks and firms. Finally, mutual banks organise the turnover of employees at a regional level so that soft information can always be kept in mind. Admittedly commercial banks tend to be more centralised than mutual banks, with a national organisation of labour and a hierarchical organisation, but they are trying to decentralise themselves. They are creating new tools to manage risk credit at a decentralised level and, like mutual banks, they tend to delegate power more. Carlier, Cieply and Grondin (2001) underline the existence of 2 to 6 levels of delegation in French banks and the fact that, for each level, the range of power may be very different. However the survey shows that delegation of power has significantly increased over the last ten years.

Thus, except for new firms which need a large amount of funds, like, for example, buyouts or new technological firms, the decision to lend to small firms remains a local decision. However are French firms located in different regions equals when they need loans?

### *2.2.3. Regional banking: an appraisal of density and activity*

This section presents an appraisal of the French regional banking intensity and activity through the examination and discussion of a brief selection of statistical indicators. The French National Institute for Statistics and Economic Studies<sup>6</sup> and the French Central Bank (Banque de France) were the providers of the data. All refer to the year 1994. The first semester of this year also corresponds with the period during which information about new firms has been collected for the SINE database that is exploited in sections 3 and 4.

The density of the regional banking supply is assessed through the number of counters (“guichets bancaires de plein exercice” – “fully operating bank counters”) referred to five regional variables: the regional surface (in square kilometres), the number of inhabitants, the number of inhabitants in urban municipalities<sup>7</sup>, the number of urban municipalities and the regional domestic product (in value, base: 1995).

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<sup>5</sup> To sum up, we can in general distinguish between three hierarchical levels: the local one for most decisions concerning customers, whatever their nature (firms or consumers), the regional one for the riskiest decisions and the national level which is a political representation level and a refinancing structure for the banks.

<sup>6</sup> Insee (Institut National des Statistiques et des Etudes Economiques).

<sup>7</sup> As estimated by the proportion of inhabitants living in urban municipalities in 1990 times the population in 1994. Urban municipalities are regularly listed by INSEE according to criteria relating to the agglomeration of the local population. The data are collected through the Census.

Table 1: Regional banking density in France, 1994

| Region             | Counters /sqkm (*100) | Counters/inhab. (*100) | Counters/inhab in urban municipalities (*100) | Counters/urban municipalities | Counters/RDP in hundred millions € |
|--------------------|-----------------------|------------------------|---|-------------------------------|------------------------------------|
| ALSACE             | 16.75                 | 0.08                   | 0.11  | 6.22                          | 4.11                               |
| AQUITAINE          | 2.84                  | 0.04                   | 0.06  | 3.81                          | 2.41                               |
| AUVERGNE           | 2.09                  | 0.04                   | 0.07  | 4.24                          | 2.61                               |
| BOURGOGNE          | 2.26                  | 0.04                   | 0.08  | 4.93                          | 2.56                               |
| BRETAGNE           | 5.36                  | 0.05                   | 0.09  | 7.76                          | 3.18                               |
| CENTRE             | 2.59                  | 0.04                   | 0.06  | 4.02                          | 2.36                               |
| CHAMPAGNE-ARDENNE  | 1.92                  | 0.04                   | 0.06  | 3.84                          | 2.10                               |
| CORSE              | 0.90                  | 0.03                   | 0.05  | 5.20                          | 2.11                               |
| FRANCHE-COMTE      | 2.94                  | 0.04                   | 0.07  | 3.31                          | 2.55                               |
| ILE-DE-FRANCE      | 37.19                 | 0.04                   | 0.04  | 7.57                          | 1.36                               |
| LANGUEDOC          | 3.28                  | 0.04                   | 0.06  | 4.10                          | 2.74                               |
| LIMOUSIN           | 1.94                  | 0.05                   | 0.09  | 8.00                          | 2.90                               |
| LORRAINE           | 4.73                  | 0.05                   | 0.07  | 3.29                          | 2.92                               |
| MIDI-PYRENEES      | 2.28                  | 0.04                   | 0.07  | 4.47                          | 2.48                               |
| NORD-PAS-DE-CALAIS | 10.84                 | 0.03                   | 0.04  | 2.56                          | 2.22                               |
| BASSE-NORMANDIE    | 3.39                  | 0.04                   | 0.08  | 4.03                          | 2.57                               |
| HAUTE-NORMANDIE    | 4.88                  | 0.03                   | 0.05  | 3.18                          | 1.89                               |
| PAYS DE LOIRE      | 4.80                  | 0.05                   | 0.08  | 6.64                          | 2.93                               |
| PICARDIE           | 3.14                  | 0.03                   | 0.05  | 2.34                          | 2.05                               |
| POITOU-CHARENTES   | 2.68                  | 0.04                   | 0.08  | 5.41                          | 2.71                               |
| P.A.C.A.           | 6.06                  | 0.04                   | 0.05  | 7.64                          | 2.43                               |
| RHONE-ALPES        | 5.63                  | 0.04                   | 0.06  | 3.98                          | 2.33                               |
| Mean               | 5.84                  | 0.04                   | 0.07  | 4.84                          | 2.52                               |
| Standard deviation | 7.47                  | 0.01                   | 0.02  | 1.66                          | 0.51                               |

Sources: Banque de France and INSEE; authors' computations. P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

The examination of the first indicator in Table 1, relating counters to the regional surface, might lead to the conclusion that there are huge regional differences in terms of banking density. The number of counters by square kilometre reaches a maximum of 0.372 (the Ile-de-France core region, incl. the city of Paris) and a minimum of 0.009 (the Corsican island; see also the high value of the standard deviation compared to the mean). This is a very rough and most likely misleading outcome as population and economic activities are hardly ever dispersed on the whole regional district, including large portions of forests and fields, but are more often organized in agglomeration of different sizes (from small villages to major cities and megalopolis areas) and we may expect that counters locate where the market demand actually is.

The next four indicators give the number of counters in relation with proxies for potential market demand. Two indicators, out of these four ones, are corrected to take into account the more or less urbanized dimension of the region. A completely different picture emerges now as it may be observed that the French banking system is quite homogeneous. Statistics thus suggest that the banking supply is rather well consistently developed according to regional potential demand and economic activity.

Tables 2 and 3 present indicators of the regional banking activity. The numbers of credits granted by the banking system to self-employed people as well as to partnerships and corporations are referred to the same regional variables as counters in Table 1.



Table 2: Regional banking activity in France: number of credits to self-employed people, 1994

| Region             | # Credits to Self-employed people /sqkm (*100) | # Credits to Self-employed people /inhab. (*100) | # Credits to Self-employed people /inhab in urban municipalities (*100) | # Credits to Self-employed people /urban municipalities | # Credits to Self-employed people /RDP in hundred millions € |
|--------------------|--|--|---|---|--|
| ALSACE             | 135.80   | 0.67   | 0.90  | 50.42   | 33.32  |
| AQUITAINE          | 56.34  | 0.81   | 1.24  | 75.57   | 47.84  |
| AUVERGNE           | 44.70  | 0.88   | 1.51  | 90.84   | 55.95  |
| BOURGOGNE          | 47.41  | 0.92   | 1.61  | 103.26  | 53.59  |
| BRETAGNE           | 138.16   | 1.32   | 2.31  | 199.96  | 81.95  |
| CENTRE             | 53.67  | 0.87   | 1.34  | 83.38   | 49.05  |
| CHAMPAGNE-ARDENNE  | 59.05  | 1.12   | 1.80  | 118.13  | 64.41  |
| CORSE              | 31.15  | 1.04   | 1.78  | 180.27  | 73.30  |
| FRANCHE-COMTE      | 51.44  | 0.75   | 1.29  | 57.88   | 44.47  |
| ILE-DE-FRANCE      | 498.31   | 0.55   | 0.57  | 101.44  | 18.16  |
| LANGUEDOC          | 59.97  | 0.74   | 1.02  | 74.96   | 50.16  |
| LIMOUSIN           | 35.90  | 0.85   | 1.65  | 148.37  | 53.83  |
| LORRAINE           | 57.81  | 0.59   | 0.82  | 40.15   | 35.66  |
| MIDI-PYRENEES      | 53.49  | 0.97   | 1.60  | 105.00  | 58.33  |
| NORD-PAS-DE-CALAIS | 171.48   | 0.53   | 0.62  | 40.55   | 35.08  |
| BASSE-NORMANDIE    | 84.51  | 1.05   | 1.98  | 100.43  | 63.94  |
| HAUTE-NORMANDIE    | 99.79  | 0.69   | 1.01  | 65.04   | 38.68  |
| PAYS DE LOIRE      | 92.11  | 0.94   | 1.51  | 127.37  | 56.28  |
| PICARDIE           | 73.76  | 0.77   | 1.27  | 55.03   | 48.06  |
| POITOU-CHARENTES   | 64.30  | 1.03   | 2.02  | 129.66  | 65.04  |
| P.A.C.A.           | 80.39  | 0.57   | 0.64  | 101.37  | 32.23  |
| RHONE-ALPES        | 82.44  | 0.65   | 0.85  | 58.29   | 34.11  |
| Mean               | 94.18  | 0.83   | 1.33  | 95.79   | 49.70  |
| Standard deviation | 92.55  | 0.20   | 0.47  | 40.81   | 14.47  |

Sources: Banque de France and INSEE; authors' computations. P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

Once again, a very contrasted France comes into view when the number of credits is considered in relation to the geographical size of the region; Ile-de-France, Alsace, Nord-Pas-de-Calais and Rhône-Alpes appear as the top four regions and Corse, Auvergne and Limousin are at the bottom. This contrasted image almost disappears as soon as the observed banking activity is put into relation with the regional population or the regional domestic product.

The Île-de-France region deserves a specific comment having the three lowest relative values (out of four indicators) as regard the number of credits to self-employed people and the highest ones for credits to partnerships and corporations.

**Table 3: Regional banking activity in France: number of credits to partnerships and corporations, 1994**

| Region             | # Credits to Corporation/sqkm (*100) | # Credits to Corporation/inhab. (*100) | # Credits to Corporation/in hab in urban municipalities (*100) | # Credits to Corporation/urban municipalities | # Credits to Corporation/RDP in hundred millions € |
|--------------------|--------------------------------------|--|--|---|--|
| ALSACE             | 447.66                               | 2.20                                   | 2.97   | 166.22  | 109.85   |
| AQUITAINE          | 96.72                                | 1.40                                   | 2.13   | 129.72  | 82.13  |
| AUVERGNE           | 53.88                                | 1.07                                   | 1.82   | 109.51  | 67.44  |
| BOURGOGNE          | 69.68                                | 1.36                                   | 2.36   | 151.77  | 78.76  |
| BRETAGNE           | 168.83                               | 1.62                                   | 2.82   | 244.35  | 100.14   |
| CENTRE             | 84.84                                | 1.37                                   | 2.11   | 131.81  | 77.53  |
| CHAMPAGNE-ARDENNE  | 127.71                               | 2.42                                   | 3.89   | 255.48  | 139.32   |
| CORSE              | 38.16                                | 1.28                                   | 2.18   | 220.80  | 89.78  |
| FRANCHE-COMTE      | 89.71                                | 1.31                                   | 2.25   | 100.94  | 77.56  |
| ILE-DE-FRANCE      | 6236.11                              | 6.84                                   | 7.10   | 1269.52                                       | 227.21   |
| LANGUEDOC          | 88.98                                | 1.10                                   | 1.51   | 111.22  | 74.42  |
| LIMOUSIN           | 41.01                                | 0.97                                   | 1.88   | 169.46  | 61.49  |
| LORRAINE           | 118.26                               | 1.20                                   | 1.67   | 82.14   | 72.95  |
| MIDI-PYRENEES      | 75.96                                | 1.38                                   | 2.27   | 149.13  | 82.84  |
| NORD-PAS-DE-CALAIS | 376.06                               | 1.17                                   | 1.36   | 88.92   | 76.93  |
| BASSE-NORMANDIE    | 98.74                                | 1.23                                   | 2.32   | 117.34  | 74.70  |
| HAUTE-NORMANDIE    | 168.87                               | 1.17                                   | 1.70   | 110.06  | 65.46  |
| PAYS DE LOIRE      | 160.71                               | 1.65                                   | 2.63   | 222.24  | 98.19  |
| PICARDIE           | 108.43                               | 1.14                                   | 1.86   | 80.90   | 70.65  |
| POITOU-CHARENTES   | 106.67                               | 1.70                                   | 3.35   | 215.08  | 107.89   |
| P.A.C.A.           | 186.37                               | 1.33                                   | 1.48   | 235.02  | 74.72  |
| RHONE-ALPES        | 240.59                               | 1.89                                   | 2.48   | 170.12  | 99.56  |
| Mean               | 417.45                               | 1.67                                   | 2.46   | 205.99  | 91.34  |
| Standard deviation | 1245.60                              | 1.16                                   | 1.15   | 233.05  | 33.76  |

Sources: Banque de France and INSEE; authors' computations. P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

Tests on Pearson's pairwise and Spearman's rank correlation coefficients between indicators have been performed. They globally show significant and positive interrelationships inside each of the three blocks of indicators (counters, credit to self-employed people and corporate credit indicators)<sup>8</sup>. That means, for example, that the number of counters (credits) per capita is positively correlated with the number of counters (credits) referred to the Regional Domestic Product.

The results as we cross indicators from different blocks reveal no significant interrelationships that might be convincingly and univocally interpreted (Table 4). In some cases, the Spearman rank test allows to correct some spurious Pearson outcomes<sup>9</sup>. The adequate comment, expressed in general terms, would be that regional banking with regard to its density and activity appears almost homogeneous, after some standardization of the data has been completed.

<sup>8</sup> Indicators associating counters and credits with the regional surface being taken out of the database. Significance is at the 10% level at least, with only one exception. The detailed results are available on request to the authors.

<sup>9</sup> Pearson being sensitive to extreme values, in contrast with the Spearman rank correlation coefficient.

**Table 4: Regional banking density and activity: tests on Pearson and Spearman coefficients**

| PEARSON   |                           |   |                                  |                                       |
|---|---------------------------|---|----------------------------------|---------------------------------------|
|   | Counters/inhab.<br>(*100) | Counters/inhab in<br>urban municipalities<br>(*100) | Counters/urban<br>municipalities | Counters/RDP in<br>hundred millions € |
| # Credits to Self-employed people /inhab. (*100)                        | -0.0602<br>(0.7902)       | 0.4302<br>(0.0457)                                  | 0.1814<br>(0.4191)               | 0.1864<br>(0.4063)                    |
| # Credits to Self-employed people /inhab in urban municipalities (*100) | -0.0680<br>(0.7636)       | 0.5047<br>(0.0166)                                  | 0.1588<br>(0.4804)               | 0.2142<br>(0.3384)                    |
| # Credits to Self-employed people /urban municipalities                 | -0.0933<br>(0.6795)       | 0.2465<br>(0.2688)                                  | 0.6548<br>(0.0009)               | 0.0503<br>(0.8242)                    |
| # Credits to Self-employed people /RDP in hundred millions €            | -0.1610<br>(0.4741)       | 0.3646<br>(0.0953)                                  | 0.0847<br>(0.7079)               | 0.2105<br>(0.3471)                    |
| SPEARMAN  |                           |   |                                  |                                       |
| # Credits to Self-employed people /inhab. (*100)                        | 0.0344<br>(0.8791)        | 0.5347<br>(0.0103)                                  | 0.2580<br>(0.2463)               | 0.2253<br>(0.3134)                    |
| # Credits to Self-employed people /inhab in urban municipalities (*100) | 0.1045<br>(0.6436)        | 0.6183<br>(0.0022)                                  | 0.3043<br>(0.1685)               | 0.2976<br>(0.1786)                    |
| # Credits to Self-employed people /urban municipalities                 | 0.1022<br>(0.6509)        | 0.3089<br>(0.1619)                                  | 0.7222<br>(0.0001)               | 0.1350<br>(0.5493)                    |
| # Credits to Self-employed people /RDP in hundred millions €            | -0.0514<br>(0.8204)       | 0.4625<br>(0.0302)                                  | 0.2388<br>(0.2844)               | 0.2603<br>(0.2420)                    |

Prob-value in parentheses.

**Table 4: Regional banking density and activity: tests on Pearson and Spearman coefficients (cont.)**

| PEARSON   |                           |  |                                  |                                       |
|---|---------------------------|--|----------------------------------|---------------------------------------|
|   | Counters/inhab.<br>(*100) | Counters/inhab in<br>urban<br>municipalities<br>(*100) | Counters/urban<br>municipalities | Counters/RDP in<br>hundred millions € |
| # Credits to<br>Corporation /inhab.<br>(*100)                           | 0.0895<br>(0.6922)        | -0.2038<br>(0.3631)                                    | 0.3786<br>(0.0823)               | -0.3860<br>(0.0760)                   |
| # Credits to<br>Corporation /inhab in<br>urban municipalities<br>(*100) | 0.1164<br>(0.6059)        | -0.0209<br>(0.9264)                                    | 0.4043<br>(0.0620)               | -0.3055<br>(0.1668)                   |
| # Credits to<br>Corporation /urban<br>municipalities                    | -0.0162<br>(0.9428)       | -0.2552<br>(0.2517)                                    | 0.4934<br>(0.0196)               | -0.4430<br>(0.0390)                   |
| # Credits to<br>Corporation /RDP in<br>hundred millions €               | 0.1037<br>(0.6461)        | -0.1435<br>(0.5240)                                    | 0.3781<br>(0.0827)               | -0.3248<br>(0.1402)                   |
| SPEARMAN  |                           |  |                                  |                                       |
| # Credits to<br>Corporation /inhab.<br>(*100)                           | 0.2953<br>(0.1821)        | 0.1440<br>(0.5226)                                     | 0.2919<br>(0.1874)               | -0.0503<br>(0.8242)                   |
| # Credits to<br>Corporation /inhab in<br>urban municipalities<br>(*100) | 0.3077<br>(0.1635)        | 0.4444<br>(0.0383)                                     | 0.4026<br>(0.0632)               | 0.0875<br>(0.6985)                    |
| # Credits to<br>Corporation /urban<br>municipalities                    | 0.2580<br>(0.2463)        | 0.1090<br>(0.6293)                                     | 0.7504<br>(0.0001)               | 0.0152<br>(0.9463)                    |
| # Credits to<br>Corporation /RDP in<br>hundred millions €               | 0.1824<br>(0.4166)        | 0.1350<br>(0.5493)                                     | 0.3405<br>(0.1210)               | -0.0232<br>(0.9185)                   |

Prob-value in parentheses.

**Table 4: Regional banking density and activity: tests on Pearson and Spearman coefficients (cont.)**

| PEARSON   |  |   |   |  |
|---|--|---|---|--|
|   | # Credits to Self-employed people /inhab. (*100) | # Credits to Self-employed people /inhab in urban municipalities (*100) | # Credits to Self-employed people /urban municipalities | # Credits to Self-employed people /RDP in hundred millions € |
| # Credits to Corporations /inhab. (*100)                        | -0.2235<br>(0.3173)                              | -0.2945<br>(0.1834)   | 0.0534<br>(0.8134)                                      | -0.4230<br>(0.0498)  |
| # Credits to Corporations /inhab in urban municipalities (*100) | 0.0406<br>(0.8577)                               | -0.0167<br>(0.9412)   | 0.2210<br>(0.3230)                                      | -0.1808<br>(0.4206)  |
| # Credits to Corporations /urban municipalities                 | -0.1841<br>(0.4122)                              | -0.2432<br>(0.2755)   | 0.1991<br>(0.3745)                                      | -0.3556<br>(0.1043)  |
| # Credits to Corporations /RDP in hundred millions €            | -0.0590<br>(0.7943)                              | -0.1520<br>(0.4995)   | 0.1626<br>(0.4697)                                      | -0.2605<br>(0.2416)  |
| SPEARMAN  |  |   |   |  |
| # Credits to Corporations /inhab. (*100)                        | 0.1395<br>(0.5359)                               | 0.0446<br>(0.8437)  | 0.2456<br>(0.2705)                                      | -0.0367<br>(0.8712)  |
| # Credits to Corporations /inhab in urban municipalities (*100) | 0.4512<br>(0.0351)                               | 0.4173<br>(0.0533)  | 0.4602<br>(0.0312)                                      | 0.2942<br>(0.1839)   |
| # Credits to Corporations /urban municipalities                 | 0.3089<br>(0.1619)                               | 0.2739<br>(0.2175)  | 0.7391<br>(0.0001)                                      | 0.2230<br>(0.3184)   |
| # Credits to Corporations /RDP in hundred millions €            | 0.2242<br>(0.3159)                               | 0.1417<br>(0.5293)  | 0.3337<br>(0.1291)                                      | 0.1101<br>(0.6257)   |

Prob-value in parentheses.

### 3. Setting up the empirics at the individual level of the firm

We rely on the SINE data to try to ascertain and empirically test the influence of local financing patterns on the probability to be more or less financially constrained. These data give us information on the financing policy of young firms when they are created and possibly when they face financial problems in the following two years. The SINE dataset does not refer to the general entrepreneurial intention in the French population but to entrepreneurial projects that are concretized in new firms. As a consequence, entrepreneurial intentions that are aborted due to financial constraints are not reported. The point is of importance as the firm financing conditions are considered. For the purpose of the research we construct classes that are representative of credit rationing.

#### 3.1. Data

The survey (Sine 94-1) was conducted by the French National Institute of Statistical and Economic Studies in 1994 and takes into account 30 778 firms which had been set up or taken over during the first half of 1994 and which had survived at least for one month. The sample<sup>10</sup> is originally representative of the total population of entrepreneurs which was of

<sup>10</sup> The sample was built by randomly drawing out samples from the 416 (2x8x26) elementary strata. These strata are classified according to the origin (start-up or takeover: 2 modalities), the branch (8 modalities) and the

96 407 new firms (it is a compulsory survey which obtained a 98,8 % rate of reply). In this survey, new firms are identified on the basis of their registration in the "Système d'Informations et de Répertoire des Entreprises et des Etablissements" (SIRENE repertory<sup>11</sup>). The units belong to the private productive sector in the fields of industry, building, trade and services. This survey identifies qualitative data surrounding entrepreneurship and, more precisely, it contains variables related to the entrepreneur, to the context and to the environment of entrepreneurship.

A second survey carried out in 1997 (Sine 94-2) gives us information about the status of the same firms (closed down or still running). In 1997, 16 039 firms were still running and replied to the second survey. They represent, after correction<sup>12</sup>, 44 962 firms. For the firms that are still running, this survey also explores the financial behaviour of the firm during the last two years and the financial problems they faced. On the basis of this second survey, we construct classes of credit rationing. For a more appropriate homogeneity of our data basis we consider only new firms without legal change (firms which are transformed from sole proprietorship into limited partnership), set up by a man or a woman (without subsidiaries) in the metropole area (overseas *département* excluded). At this stage we obtain 12681 units which represent 36509 firms.

Classes that are representative of credit rationing are constructed combining questions extracted from both the first survey of 1994 and the additional survey of 1997. The first questions, extracted from Sine 94-1, give us information about requests for bank loans by firms prior to the setting-up and the decision of banks (either to lend or not to lend). The other questions are extracted from the second 1997 survey and take into account the financial problems the firm faced over the last two years.

By considering the survey of 1997, we only consider the situation of firms which were established in 1994 and which were still alive in 1997. What appears as problematic from a methodological viewpoint leads us however not to consider as rationed firms that were "lame ducks" and that were identified as bad firms by bankers. A good discrimination process which consists in not lending to bad firms (firms that will quickly die) should not be considered as a rationing process<sup>13</sup>.

Four modalities of the "financial constraint" variable can be distinguished:

1. The "No rationing" modality is made up of two kinds of firms. The first ones asked for bank loans and were granted them. The second ones did not ask for bank loans and did not face any financial problems during 1996-1997.
2. The "Self constraint" modality concerns firms that did not ask for bank loans but should have asked for some as they faced financial constraints during 1996-1997.
3. The "Weak constraint" modality groups together firms that did ask for bank loans and were granted them but they faced financial problems during 1996-1997.
4. The "Strong rationing" modality gathers firms that did ask for bank loans and were refused them in 1994.

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localization (22 French regions plus 4 overseas *départements*). The data basis must be used with the correction of a weight variable (the reverse of the draw rate per branch, per region and per origin).

<sup>11</sup> Yet economic "activations" and "reactivations" are excluded from the surveyed sample. Economic "activations" correspond to units which do not have any activity and which decide to exercise one. Economic "reactivations" correspond to units which have stopped their activity and which start up again. They only deal with individual entrepreneurs -craftsmen or shopkeepers-. Financial and agricultural activities and the French units established abroad are set aside, as well.

<sup>12</sup> From now on, we shall only reason about corrected firms.

<sup>13</sup> Note that rationed firms represent only 5.20% of the firms that ceased their activities before 1997. They represent 3.26% of the firms that are still alive in 1997.

Because of the lack of information about the building of the credit rationing variable, the data basis is now restrained to 12231 units which represent 35115 firms.

### **3.2. Methodology**

To study the importance of financial constraints, we refer to the descriptive analysis of the results we obtain for the modalities of the “financial constraint” variable. The difference in financial constraints between French regions is analysed with logit models. These models estimate the probability to be financially constrained. Endogenous variables are each modality of the “financial constraint” variable. The exogenous variables are dummy variables representative of the French regions. Considering the heterogeneity of our population, we take into account control variables that are representative of the new firm and of the profile of the entrepreneur (Annex 1).

Several sub-samples of firms are moreover distinguished. First, there is the sub-sample of innovative firms which belong to the classification of innovative branches given by the OECD and used in the French system of statistics (Annex 2). The situation of innovative firms is specifically analysed as informational problems and risk exposure for lenders are more acute when borrowers are innovative. Second, the origin of the firm (start-up or takeover) is also to be taken into account because the renewal of the productive system may be different at the local level in France. Moreover the informational gap is important between these two types of firms as new firms, in the contrary of buyouts, cannot produce any track record. Third, we consider two branches of activity, the residential branch which gathers catering, services for households and trade and the professional branch which gathers industry, food industry, transports, construction and services for enterprises. The two branches of activity refer, for the first one, to activities mainly driven by the demand of households (residential activity) and, for the second one, to activities mainly driven by the demand of enterprises (professional activity). This split is justified by the development of the tertiary branch and by the important migratory flows that affect some French regions. Regional development is thus partly linked to the expenses of households and, to some extent, to the attractiveness of locales and the mobility of the population, which are not only linked to jobs (tourism, retired people)<sup>14</sup>. Moreover, at the financial level the professional sector is used to benefit from a wider financial supply thanks to private equity and for the residential sector thanks to favourable terms of trade credit.

## ***4. Looking for regional disparities in new firms’ financial constraints***

The empirical research leads to two main results. Firstly, financial constraints exist at the firm level and are, above all, induced by firms themselves which do not anticipate their financial needs or which are afraid of asking banks for credit (4.1.). Secondly, we observe average differences concerning the intensity of financial constraints that firms are facing as they belong to one French region or another (4.2.).

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<sup>14</sup> By way of example, for the Provence-Alpes-Côte d’Azur region, migratory flows made up of retired people are often put forward to account for the setting-up of new firms in the households’ services and trade sectors. The migration of working families to Languedoc-Roussillon and Midi-Pyrénées regions entailing the loss of a job for one member of the family cell and leading in return to the setting-up of new activities may also be observed (Thireau, 1993). Ashcroft et alii (1991), Keeble and Walker (1993), Guesnier (1994), among others, also point to the fact that the appearance of new firms is facilitated by the concentration of activities, in particular with a demand effect arising in large agglomerations. This effect is particularly strong in the households’ services, the manufacturing service industry and less importantly in the trade industry and in the craft activities.

## 4.1. The diversity of financial constraints

Table 5 highlights the diversity of the financial constraints new firms may suffer from.

Table 5: Cross table of credit rationing with innovative firms in the population of firms still running in 1997

|                                     |                            | Not innovative | Innovative | Total  |
|-------------------------------------|----------------------------|----------------|------------|--------|
| Frequency                           | <b>No credit rationing</b> | 20647          | 691        | 21338  |
| Cell Chi-Square                     |                            | 0.02           | 0.56       |        |
| Percent                             |                            | 58.79          | 1.97       | 60.77  |
| Row percent                         |                            | 96.76          | 3.24       |        |
| Col percent                         |                            | 60.82          | 59.06      |        |
|                                     | <b>Self-constraint</b>     | 7129           | 322        | 7451   |
|                                     |                            | 0.75           | 21.90      |        |
|                                     |                            | 20.30          | 0.91       | 21.22  |
|                                     |                            | 95.68          | 4.32       |        |
|                                     |                            | 21.00          | 27.52      |        |
|                                     | <b>Weak constraint</b>     | 5088           | 95         | 5183   |
|                                     |                            | 1.20           | 34.95      |        |
|                                     |                            | 14.49          | 0.27       | 14.76  |
|                                     |                            | 98.17          | 1.83       |        |
|                                     |                            | 14.98          | 8.11       |        |
|                                     | <b>Strong rationing</b>    | 1081           | 62         | 1143   |
|                                     |                            | 0.52           | 15.02      |        |
|                                     |                            | 3.08           | 0.18       | 3.26   |
|                                     |                            | 94.58          | 5.42       |        |
|                                     |                            | 3.18           | 5.29       |        |
|                                     | <b>Total</b>               | 33945          | 1170       | 35115  |
|                                     |                            | 96.67          | 3.33       | 100.00 |
| <b>Three degrees of freedom</b>     |                            |                |            |        |
| <b>Pb(0,05)(Chi2&gt;74.93=0.00)</b> |                            |                |            |        |

More than 60% of the firms are not constrained<sup>15</sup>. The rationing hypothesis concerns 39.24% of the sample. More precisely, only 3.26% suffered from a strong credit rationing; only 1143 firms, relative to the global sample of 35115 firms, had been redlined. 14.76% did not get all the loans they had asked for; these 5183 new firms suffered from a weak credit rationing. Finally, 21.22% did not ever asked for a loan although they needed external financing; these firms are supposed to auto constrain themselves.

This hierarchy is maintained when innovative sectors only are taken into account, represented by 1170 firms in our sample. 40.94% of the sample is concerned with credit rationing. At this global level, the situation of innovative firms appears to be very similar to the situation of all new firms. When we distinguish among banking constraints, we observe

<sup>15</sup> But remember that the SINE dataset refers to entrepreneurial projects that are concretized in new firms and not to entrepreneurial intentions among the labor force. As a consequence, entrepreneurial intentions that are aborted due to financial constraints are not reported.



that strong rationing is significantly higher for innovative firms (5.29%) whereas weak rationing is less prevalent (8.11%). Self-constraint is also more important (27.52%).

These results, in particular the higher rates of strong credit rationing and self constraint, can be explained by the pressure of uncertainty which affects both bankers and innovative firms. As soon as innovative firms are financed, their quality, which is linked to their innovative behaviour, can explain the lower frequency of weak rationing for these firms.

Table 6: Cross table of credit rationing for start-ups and takeovers in the population of firms still running in 1997

|  |                            | Start-up | Takeover | Total  |
|--|----------------------------|----------|----------|--------|
| Frequency  | <b>No credit rationing</b> | 13962    | 7376     | 21338  |
| Cell Chi-Square  |                            | 0.07     | 0.14     |        |
| Percent  |                            | 39.76    | 21.01    | 60.77  |
| Row percent  |                            | 65.43    | 34.57    |        |
| Col percent  |                            | 60.91    | 60.50    |        |
|  | <b>Self-constraint</b>     | 5646     | 1805     | 7451   |
|  |                            | 125.65   | 236.28   |        |
|  |                            | 16.08    | 5.14     | 21.22  |
|  |                            | 75.78    | 24.22    |        |
|  |                            | 24.63    | 14.81    |        |
|  | <b>Weak constraint</b>     | 2469     | 2714     | 5183   |
|  |                            | 247.22   | 464.87   |        |
|  |                            | 7.03     | 7.73     | 14.76  |
|  |                            | 47.64    | 52.36    |        |
|  |                            | 10.77    | 22.26    |        |
|  | <b>Strong rationing</b>    | 847      | 296      | 1143   |
|  |                            | 13.62    | 25.61    |        |
|  |                            | 2.41     | 0.84     | 3.26   |
|  |                            | 74.10    | 25.90    |        |
|  |                            | 3.69     | 2.43     |        |
|  | <b>Total</b>               | 22924    | 12191    | 35115  |
|  |                            | 65.28    | 34.72    | 100.00 |
| <b>Three degrees of freedom</b><br><b>Pb(0,05)(Chi2&gt;1113,46=0.00)</b> |                            |          |          |        |

The frequency of “no rationing” is quite the same for start-ups and takeovers (approximately 60%) (Table 6). The nature of financial constraints is however very different. As expected takeover firms are significantly less strongly constrained than start-ups. Informational asymmetries which induce credit rationing are less important for takeovers as track records exist and can be analysed to study the quality of firms. They display less “self-constraint”; the existence of a previous activity seems to encourage managers to ask for bank loans. They are, however, more frequently weakly constrained, or in other words, according to our definition and hypotheses, they did not obtain a sufficient amount of credit. This situation can be explained by the banking risk management as financing takeovers still remain a risky operation (Abdesselam, Bonnet, Le Pape, 2004, a).

Table 7: Cross table of credit rationing with branches of activity in the population of firms still running in 1997

|                                      |                            | Residential   | Professional  | Total  |
|--------------------------------------|----------------------------|---------------|---------------|--------|
| Frequency                            | <b>No credit rationing</b> | 10793         | 10545         | 21338  |
| Cell Chi-Square                      |                            | <i>17.82</i>  | <i>19,88</i>  |        |
| Percent                              |                            | 30.74         | 30.03         | 60.77  |
| Row percent                          |                            | 50.58         | 49.42         |        |
| Col percent                          |                            | 58.35         | 63.46         |        |
|                                      | <b>Self-constraint</b>     | 3675          | 3776          | 7451   |
|                                      |                            | <i>15.93</i>  | <i>17.73</i>  |        |
|                                      |                            | 10.47         | 10.75         | 21.22  |
|                                      |                            | 49.32         | 50.68         |        |
|                                      |                            | 19.87         | 22.72         |        |
|                                      | <b>Weak constraint</b>     | 3410          | 1773          | 5183   |
|                                      |                            | <i>169.20</i> | <i>188.35</i> |        |
|                                      |                            | 9.71          | 5.05          | 14.76  |
|                                      |                            | 65.79         | 34.21         |        |
|                                      |                            | 18.43         | 10.67         |        |
|                                      | <b>Strong rationing</b>    | 620           | 523           | 1143   |
|                                      |                            | <i>0.53</i>   | <i>0.59</i>   |        |
|                                      |                            | 1.77          | 1.49          | 3.26   |
|                                      |                            | 54.24         | 45.76         |        |
|                                      |                            | 3.35          | 3.15          |        |
|                                      | <b>Total</b>               | 18498         | 16617         | 35115  |
|                                      |                            | 52.68         | 47.32         | 100.00 |
| <b>Three degrees of freedom</b>      |                            |               |               |        |
| <b>Pb(0,05)(Chi2&gt;429.98=0.00)</b> |                            |               |               |        |

The frequency of “no rationing” is superior in the professional branch of activity (Table 7) and the residential branch shows a higher level of weakly constrained firms. These results may be explained by a higher quality, in particular in terms of the human capital of the entrepreneur in the professional sector. We show a lower level of “self-constraint” for the residential branch. This result may be explained by the lower financial needs of these firms which do not suffer from unfavourable terms of trade credit. Finally, the two branches do not differ for the class of strongly rationed firms.

## 4.2. Regional differences in financial constraints

The results of the logit models show that significant differences exist between French regions. All the comparisons are made in reference to the situation of the Île-de-France region (Paris and its area) and take into account two variables of partition, the origin of the firm (start-up versus takeover) and the branch of activity (residential versus professional activities, as defined above).

**Table 8: Regional differences in financial constraints, Start-ups**

|                    | No rationing | Self-constraint | Weak rationing | Strong rationing |
|--------------------|--------------|-----------------|----------------|------------------|
| ALSACE             | 0.31***      | -0.76***        | 0.82***        | -0.90***         |
| AQUITAINE          | 0.03         | -0.20***        | 0.45***        | -0.14            |
| AUVERGNE           | 0.33***      | -0.46***        | 0.06           | 0.09             |
| BOURGOGNE          | 0.25**       | -0.46***        | 0.26*          | 0.12             |
| BRETAGNE           | 0.45***      | -0.84***        | 0.30**         | 0.09             |
| CENTRE             | 0.26***      | -0.55***        | 0.49***        | -0.27            |
| CHAMPAGNE-ARDENNE  | -0.04        | -0.12           | 0.62***        | -0.58            |
| CORSE              | -1.01***     | 0.48***         | 0.99***        | 0.59*            |
| FRANCHE-COMTE      | 0.22*        | -0.79***        | 0.67***        | 0.49*            |
| LANGUEDOC          | 0.08         | -0.19**         | 0.35***        | -0.22            |
| LIMOUSIN           | -0.33**      | -0.07           | 0.87***        | 0.15             |
| LORRAINE           | 0.17*        | -0.60***        | 0.60***        | 0.37*            |
| MIDI-PYRENEES      | -0.00        | -0.20**         | 0.57***        | -0.37*           |
| NORD-PAS-DE-CALAIS | 0.46***      | -0.65***        | 0.23*          | -0.25            |
| BASSE-NORMANDIE    | 0.32***      | -0.92***        | 0.66***        | 0.07             |
| HAUTE-NORMANDIE    | 0.13         | -0.29*          | 0.49***        | -0.32            |
| PAYS DE LOIRE      | 0.21***      | -0.81***        | 0.80***        | 0.18             |
| PICARDIE           | 0.14         | -0.08           | -0.06          | -0.24            |
| P.A.C.A.           | 0.25***      | -0.27***        | -0.30***       | 0.21             |
| POITOU-CHARENTES   | 0.23**       | -0.64***        | 0.63***        | 0.08             |
| RHONE-ALPES        | 0.21***      | -0.23***        | -0.00          | -0.04            |

**Table 9: Regional differences in financial constraints, Takeovers**

|                    | No rationing | Self-constraint | Weak rationing | Strong rationing |
|--------------------|--------------|-----------------|----------------|------------------|
| ALSACE             | 0.49***      | -0.49***        | -0.02          | -1.68***         |
| AQUITAINE          | 0.11         | -0.53***        | 0.49***        | -1.03***         |
| AUVERGNE           | 1.22***      | -1.40***        | -0.60***       | -1.30***         |
| BOURGOGNE          | 0.36***      | -0.64***        | 0.18           | -0.75*           |
| BRETAGNE           | 0.59***      | -1.03***        | 0.09           | -1.02***         |
| CENTRE             | 0.30***      | -0.83***        | 0.39***        | -0.93**          |
| CHAMPAGNE-ARDENNE  | 0.60***      | -0.73***        | -0.09          | -1.02*           |
| CORSE              | 0.08         | 0.17            | -0.75*         | -0.10            |
| FRANCHE-COMTE      | 0.39***      | -1.19***        | 0.43**         | -2.36**          |
| LANGUEDOC          | 0.07         | -0.24*          | 0.27**         | -0.71**          |
| LIMOUSIN           | -0.11        | -0.31           | 0.68***        | -0.77            |
| LORRAINE           | 0.25**       | -0.76***        | 0.40***        | -0.95**          |
| MIDI-PYRENEES      | 0.26***      | -0.37***        | 0.18           | -0.97***         |
| NORD-PAS-DE-CALAIS | 0.13         | -0.31**         | 0.22*          | -0.45*           |
| BASSE-NORMANDIE    | 0.10         | -0.70***        | 0.54***        | -0.42            |
| HAUTE-NORMANDIE    | 0.94***      | -0.86***        | -0.35**        | -14.91           |
| PAYS DE LOIRE      | 0.36***      | -0.99***        | 0.36***        | -1.36***         |
| PICARDIE           | 0.28**       | -0.02           | -0.14          | -1.71***         |
| P.A.C.A.           | 0.29***      | -0.13           | -0.08          | -0.93***         |
| POITOU-CHARENTES   | 0.20*        | -0.49***        | 0.28*          | -0.57            |
| RHONE-ALPES        | 0.36***      | -0.48***        | 0.21**         | -2.04***         |

Reading of the Tables 8 & 9: a positive and significant coefficient indicates that the probability not to be constrained (first column) for the considered region is more important than for the reference region (Île-de-France).

\*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

Considering Tables 8 and 9, the probability to be unconstrained is superior (or equal for a few regions) in all the French regions in comparison to the referent region (Île-de-France) for the population of start-ups. Limousin and Corse are the sole significant exceptions. The probability to be self-constrained is inferior in all regions except in Picardie and Limousin where results are not significant in the two sub-populations and Provence-Alpes-Côte d'Azur and Corse for the takeover firms only. We can notice that, for start-ups, Champagne-Ardenne is not more self-constrained than Île-de-France. The probability to suffer from a weak financial constraint is superior in all regions in reference to Île-de-France except in Picardie and Rhône-Alpes and Auvergne for the start-ups; and Picardie, Champagne-Ardenne, Bourgogne, Alsace, Bretagne, Midi-Pyrénées and Provence-Alpes-Côte d'Azur for the takeover firms.

Finally, for the takeover firms, the probability to be rationed (strong financial constraint) is inferior in 16 French regions in comparison with Île-de-France but only in two regions regarding the population of start-ups.

Our interpretation of these results is that financial constraints are differentiated within French regions. In the Île-de-France region new firms suffer rather greatly from strong rationing and self-constraint except for the population of start-ups where the strong rationing is not so discriminating among regions. Despite the relative homogeneous nature of the banking sector that has been emphasized in the second section, it appears that some regional differences may still be at work. An explanation for this fact could lie in the organization of the sector. The banking screening process for takeover firms in the capital region may indeed be more intensive since buyouts are less numerous. As competition is high for this kind of customers, which are less risky than *ex nihilo* new firms, banking margins should decrease. As credit management is a portfolio management in each banking business center, bankers cannot share risks between takeovers; in this case, the solution for bankers is to ration credit to buyouts. For start-up firms, the situation is very different as competition is less fierce.

It could be noticed here that Île-de-France, Rhône-Alpes and the southern regions of France (Languedoc-Roussillon, Provence-Alpes-Côte d'Azur, Aquitaine, Midi-Pyrénées) display a strong entrepreneurship propensity among their population. It is globally accounted for by a high number of start-ups by inhabitant and by a high weight of start-ups versus takeovers in the total population of new firms. This is especially the case of Île-de-France where a very strong entrepreneurship intensity with regard to the single population of start-ups may be observed (Abdesselam, Bonnet, Le Pape, 2004, b).

**Table 10: Regional differences in financial constraints, Professional**

|                    | No rationing | Self-constraint | Weak rationing | Strong rationing |
|--------------------|--------------|-----------------|----------------|------------------|
| ALSACE             | 0.61***      | -1.19***        | 0.68***        | -0.60            |
| AQUITAINE          | 0.21***      | -0.36***        | 0.38***        | -0.43*           |
| AUVERGNE           | 0.50***      | -0.83***        | 0.46**         | -0.59            |
| BOURGOGNE          | 0.32***      | -0.61***        | 0.31*          | 0.06             |
| BRETAGNE           | 0.81***      | -1.20***        | 0.24*          | -0.40            |
| CENTRE             | 0.19*        | -0.80***        | 0.85***        | 0.26             |
| CHAMPAGNE-ARDENNE  | 0.08         | -0.40**         | 0.83***        | -0.80*           |
| CORSE              | -1.17***     | 0.69***         | 0.50           | 1.20***          |
| FRANCHE-COMTE      | 0.32**       | -0.84***        | 0.68***        | -0.03            |
| LANGUEDOC          | 0.24***      | -0.47***        | 0.46***        | -0.37            |
| LIMOUSIN           | -0.23        | -0.48**         | 1.42***        | -0.27            |
| LORRAINE           | 0.12         | -0.60***        | 0.80***        | -0.01            |
| MIDI-PYRENEES      | 0.02         | -0.14           | 0.38***        | -0.03            |
| NORD-PAS-DE-CALAIS | 0.49***      | -0.93***        | 0.46***        | 0.30             |
| BASSE-NORMANDIE    | 0.38***      | -1.25***        | 0.86***        | 0.23             |
| HAUTE-NORMANDIE    | 0.27**       | -0.34**         | 0.33*          | -1.11**          |
| PAYS DE LOIRE      | 0.32***      | -0.94***        | 0.70***        | 0.35*            |
| PICARDIE           | 0.04         | -0.07           | 0.18           | -0.02            |
| P.A.C.A.           | 0.64***      | -0.71***        | -0.23*         | -0.41**          |
| POITOU-CHARENTES   | 0.29**       | -0.69***        | 0.73***        | -0.68*           |
| RHONE-ALPES        | 0.29***      | -0.44***        | 0.39***        | -0.39**          |

P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

**Table 11: Regional differences in financial constraints, Residential**

|                    | No rationing | Self-constraint | Weak rationing | Strong rationing |
|--------------------|--------------|-----------------|----------------|------------------|
| ALSACE             | 0.17*        | -0.32***        | 0.39***        | -1.85***         |
| AQUITAINE          | -0.08        | -0.21**         | 0.58***        | -0.59***         |
| AUVERGNE           | 0.84***      | -0.63***        | -0.71***       | -0.53*           |
| BOURGOGNE          | 0.25***      | -0.48***        | 0.20           | -0.50*           |
| BRETAGNE           | 0.33***      | -0.69***        | 0.18*          | -0.30            |
| CENTRE             | 0.32***      | -0.50***        | 0.26**         | -1.72***         |
| CHAMPAGNE-ARDENNE  | 0.26**       | -0.21           | -0.05          | -0.68*           |
| CORSE              | -0.38**      | 0.24            | 0.56**         | -0.60            |
| FRANCHE-COMTE      | 0.21*        | -0.91***        | 0.52***        | -0.43            |
| LANGUEDOC          | -0.11        | 0.09            | 0.28***        | -0.88***         |
| LIMOUSIN           | -0.21        | -0.01           | 0.49***        | -0.32            |
| LORRAINE           | 0.24***      | -0.77***        | 0.37***        | -0.25            |
| MIDI-PYRENEES      | 0.05         | -0.22**         | 0.45***        | -1.39***         |
| NORD-PAS-DE-CALAIS | 0.15*        | -0.18*          | 0.19*          | -0.80***         |
| BASSE-NORMANDIE    | 0.10         | -0.49***        | 0.46***        | -0.57*           |
| HAUTE-NORMANDIE    | 0.51***      | -0.55***        | -0.11          | -1.13***         |
| P.A.C.A.           | -0.05        | 0.15**          | -0.13          | -0.14            |
| POITOU-CHARENTES   | 0.12         | -0.47***        | 0.31**         | 0.02             |
| PAYS DE LOIRE      | 0.19**       | -0.82***        | 0.53***        | -1.24***         |
| PICARDIE           | 0.34***      | -0.07           | -0.25          | -2.13***         |
| RHONE-ALPES        | 0.20***      | -0.14*          | 0.00           | -0.67***         |

P.A.C.A., PROVENCE-ALPES-COTE D'AZUR.

Regarding the two branches of activity, financial constraints are more heterogeneous between regions. However, results globally reflect the same behaviour that is to say that the Île-de-France region is characterized by strongly rationed and self-constrained firms. For the professional branch of activity, regions that are less strongly rationed than Île-de-France are only six, Corse and Pays de la Loire showing a greater strong rationing constraint. If we combine the

two partitions together, we can only observe results for start-ups because we have an insufficient number of observations for takeover firms. The probability to be strongly rationed is less important in Champagne-Ardenne but more important in Pays de la Loire and Corse for the professional branch of activity. If we consider the residential branch of activity, six regions exhibit a less important “strong rationing” constraint than in Île de France : Picardie, Centre, Alsace, Pays de la Loire, Midi-Pyrénées and Languedoc-Roussillon; and two regions are significantly more strongly rationed, Bretagne and Provence-Alpes-Côte d’Azur.

## **5. Conclusion**

To conclude, the assessment of the global situation of the banking density and activity within and between the French regions supports the argument of a relatively homogeneous banking supply and banking activity, with the activity of the core-region Île-de-France appearing however more contrasted. As regard the demand side, it appears that, even if a majority of the entrepreneurial projects, concretized in new firms, are not facing credit rationing, there are still quite a lot of them that significantly suffer from a lack of access to finance. The research has shown that the constraint is above all induced by firms themselves which do not anticipate their financial needs or which are afraid of asking banks for credit. In contrast, strong rationing, that corresponds to credit refusal by banks, only matters for a very small part of financial constraints. Moreover these financial constraints have been differentiated according to the regions. The Île-de-France region appears to be specific in regard to the renewal of the productive system and the associated financial constraints. In this region, the strong financial constraint is superior for buyouts whereas in the other regions the weak financial constraint is more frequent. According to us, these results could be at least partially explained by the different nature of the competition in the banking sector but maybe also by the economic structures and characteristics of the region, in terms of entrepreneurial dynamics and creation of value. In further research, we will try to test this hypothesis. The theoretical background would stress as well the lack of coordination that is to be found in metropolitan areas due to the complex superposition of several different networks, leading to institutional inefficiencies and administrative inconsistencies, i.e. extending the classical phenomenon of congestion.

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# ANNEXES

## Annex 1: Control Variables

To take into account the observed heterogeneity of the population of new French firms, we also include several variables (control variables) representing the firm and the context of its setting-up: origin of the firm, branch of industry, financial public aid, start-up size, initial investment at the setting-up of the firm. The other variables which have been retained to characterize the entrepreneur are: sex, age, nationality, previous status, previous occupation, level of diploma, skills acquired during previous activity, length of the experience in the same branch of activity, size of the firm in which it was acquired, the belonging to an entrepreneurial “milieu”, the main motive for the creation, the present managing experience and the number of new firms setting up before.

## Annex 2: Definition of Innovative Sectors

They gather branches from information and communication technologies, and from the fields of pharmaceutical products, biotechnology and new materials. The definition of branches relative to the ICT given by the OECD encompasses:

The branches producing information technologies: computers and other computer equipment manufacturing (NAF 300C), equipment receiving, recording or reproducing sound and image manufacturing (323Z) and hertz emitting and transmitting equipment and phoning equipment manufacturing (322 A and B), navigational equipment manufacturing, apparatuses of scientific and technical instrumentation manufacturing (332 A et B and 333Z), connector industry (313Z) and passive components and condensators manufacturing, electronic components (321 A, C and D).

The branches distributing information technologies: wholesale computers and computers' equipment; wholesale office equipment (NAF 518 G and H).

The services of information technologies: telecommunications services (NAF 642), data processing services, consulting in computer systems, software production, computer and office equipment hiring, data banks activities, computer and office equipment maintenance and fixing, other activities related to computers (NAF 72 and 713 E),

The audio-visual services: TV films production, institutional and advertising films production, movies production, technical services for TV and cinema, movies distribution, videotapes production and distribution, movies broadcasting, radio activities, TV programs production, TV programs broadcasting (921, 922 A, B, D, E and F).

The other branches encompass several sub-branches in chemistry (industrial gases production, other basic inorganic chemical products, other basic organic chemical products, basic plastic materials production and basic pharmaceutical products) (NAF 241 A, E, G, L and 244 A). They gather branches with a significant level of innovation technology measured by the number of patent registered by technological fields according to the study «Key technologies for the French industry at the 2000 horizon». This study published by the DiGITIP -Direction Générale de l'Industrie, des Technologies de l'Information et des Postes- has been realized on the basis of works of well known experts in their field of competencies and results of several surveys related to the innovation theme realized by Insee -Institut national des statistiques et des études économiques- and the DiGITIP.