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THE DETERMINANTS OF EXPANSION OF SMES
UNDER A PARTIAL CREDIT GUARANTEE SCHEME:
THE CASE OF LEBANON

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Abstract

The aim of this paper is to assess the impact of the Lebanese credit guarantee scheme (*Kafalat*). We will test whether or not *Kafalat* is able to establish a continuous lending relationship with its clients. The study relies on an exceptional dataset of 6,888 loan guarantee applications, which we are the first to have access to. The dataset, which *Kafalat* has made available to us, contains all applications for loan guarantees received by *Kafalat* since its establishment in 2000 until December 2009. We are unable to find evidence of a continuous lending relationship between *Kafalat* and its clients. We also determine that, even among repeat customers, multiple borrowing is not due to the establishment of a continuous relationship with *Kafalat* but simply an extension of previous loans.

ملخص

الهدف من هذه الورقة هو تقييم تأثير نظام ضمان الائتمان اللبناني (كفالات). وسوف نقوم باختبار اذا ما كانت الكفالات قادرة على الاستمرار في إقراض عملائها. تعتمد هذه الدراسة على مجموعة بيانات استثنائية من 6888 طلب للحصول على ضمانات قروض ، ونحن أول من استطاع الوصول إليها. تحتوي مجموعة البيانات التي اتاحتها كفالات لنا على جميع طلبات الحصول على ضمانات قروض والتي تلقتها كفالات منذ إنشائها في عام 2000 وحتى ديسمبر 2009. نحن غير قادرين على العثور على أدلة على وجود علاقة مستمرة بين كفالات القروض وعملائه. ونقرر أيضا ، انه حتى بين العملاء الدائمين، لا يعود الاقتراض المتعدد إلى قدرة كفالات على الاستمرار في إقراض عملائها ولكن ببساطة امتدادا للقروض سابقة.

1. Introduction

Small and medium enterprises (SMEs) are seen as major players in stimulating economic growth (OECD 2004).

In Lebanon, it is difficult to assess the contribution of SMEs to the economy. There is a severe dearth of information and data concerning the subject. With SMEs dominating the Lebanese economy, it is important to assess the overall environment and underline what is being done in order to enhance their productivity and encourage investments.

One of the constraints faced by SMEs in the MENA region is the restricted access to credit, fuelled by the demanding collaterals required by financial institutions. In response to those problems, a non-profit partial credit guarantee scheme, *Kafalat*, was established, in 2000, by fifty Lebanese banks and the National Institute for the Guarantee of Deposits. The aim of the guarantee scheme was to back loans taken by small and medium enterprises and facilitate access to credit.

In this paper, we try to analyze the impact of the Lebanese credit guarantee scheme on the different sectors and regions. Our analysis is based on an exceptional dataset comprising all loan guarantee applications (6,888 observations) received by *Kafalat*, since its establishment in the year 2000.

We start by looking at the general distribution of the *Kafalat*-backed loan sizes across the various sectors and regions. We then look at the returning clients of the credit guarantee scheme. We focus on the areas and sectors where SMEs are using *Kafalat* as a constant source of funding, and are interested in continuously expanding their activities over time. Returning clients are taken as a proxy to determine if *Kafalat* is able to establish a continuous lending relationship with its clients in any of the sectors or regions in which it is operating. Finally, we look at the expansion in loan sizes of the returning SME clients. We try to determine if there is evidence of continuous lending and expansion among repeat customers.

The paper sets to determine certain patterns, which can be used as a base for future analysis. However, it cannot assess the causes of those patterns due to data restrictions. Nevertheless, we propose, in the final section, different interpretations of the observed results.

This paper is organized as follows: Section II provides an overview of the literature dealing with SMEs and credit guarantee schemes. Section III presents the general environment and financing of SMEs in Lebanon, as well as *Kafalat*'s operations. Section IV focuses on the research methodology and section V concludes the paper.

2. Literature Review

Stiglitz underlines the importance of financial institutions for development in providing capital to small and medium businesses. "What is...crucial is the ability of a country to channel capital to where it is needed- and this requires appropriately equipped...financial institutions. These financial institutions must be geared to provide capital for small businesses and micro-credit facilities." (Stiglitz 2005).

In recent years, SMEs have come to be seen as playing an important role in stimulating economic growth. SMEs increase productivity, decrease unemployment, provide jobs for low-skilled workers and reduce poverty (OECD 2004). The Organization for Economic Co-operation and Development (OECD) recommends that policies should be aimed at increasing "the capacity of financial institutions to construct profitable SME lending programs, while prioritizing the development of innovative solutions to collateral issues."

Credit guarantee programs come about to correct inefficiencies in the markets for loanable funds. The presence of informational asymmetries in these markets will lead to credit rationing. Stiglitz and Weiss (1981) postulate that even in equilibrium, there is an excess

demand for loanable funds, or what is called credit rationing, and interest rates don't always allow for the selection of credit-worthy SMEs.

Vogel and Adams (1997) show that moral hazard and the costs of monitoring are also an issue when lending to small businesses. Hodgman (1960) suggests that by not giving out loans, "the lender is not denying himself (or being denied) an advantage (higher interest rates) which he normally seeks, but is behaving rationally in the face of risk."

According to Levitsky (1997), one of the main financial constraints to small and medium enterprises is that commercial banks are cautious when it comes to lending. In fact, financial institutions' reluctance is mainly due to the risk of credit default and the lack of proper collateral when lending to SMEs. Furthermore, Beck and Demirgüç-Kunt (2006) show that SMEs not only have more restricted access to funds than large firms, but endure much more negative effects when they are unable to borrow.

For developing countries in particular, banks are usually more wary of lending to the private sector. A study conducted by USAID lists the main reasons for this reluctance. It states that in developing countries, the enforcement of contracts is usually "time-consuming and costly and the outcome is not always assured." (Freedman 2004). There are usually inefficient mechanisms to try to recover the lender's capital when there is default. Hence, the lender frequently requires high collateral that small enterprises cannot usually provide.

Also, banks are usually more inclined to invest in government bonds, which yield higher interest rates in developing countries, than to provide funding for small enterprises.

A high degree of informational asymmetries is listed as one of the main causes of low private lending. Financial statements and records are often viewed as inaccurate and unreliable, and banks cannot measure properly the ability of the borrower to repay the loan.

In this context, government-backed partial credit guarantee schemes have emerged in recent years to facilitate SMEs' access to credit. The schemes decrease the lending risk for financial institutions, through providing a loan repayment guarantee in case of default. The risk will also be diversified, as the credit guarantee scheme will guarantee loans for various regions and sectors (Honohan 2010). A credit guarantee scheme is thus seen as a "risk transfer and risk diversification mechanism," (Beck, Klapper and Mendoza, 2010). Guarantee schemes also tend to facilitate access to the borrower's information and offer SMEs a longer repayment period for their loans.

Guarantee schemes differ in their design across countries; the decision regarding the approval of the guaranteed loan can either be made solely by the lender, or in collaboration with the guarantor. The level of the guarantee varies according to the guarantee program under which the borrower takes the loan. Guarantee schemes usually "set fees in an attempt to recover costs of honoring defaults or to preserve the integrity of the pool of capital." Guarantors can also set certain eligibility criteria, like restricting the use of the guaranteed loans to certain activities. (Riding, Madill, Haines Jr. 2007)

On the effectiveness of guarantee schemes, Freedman (2004) states that a partial credit guarantee scheme should be able to achieve certain goals in order to be able to improve economic growth. Credit guarantee schemes should aim at reducing market imperfections. They should allow credit-worthy enterprises to have access to funds. They should also achieve "additionality", or allow for SMEs that wouldn't have been able to borrow without the scheme, to have access to credit. Furthermore, the guarantee scheme should not offer room for moral hazard. Lenders should properly screen and monitor potential clients, and borrowers should be motivated to pay back the loans. Finally, guarantee schemes should play an efficient role in providing continuous lending. "If loan guarantees...spark sustained lending to new sectors or new borrowers they can serve as a catalyst for the development of

local credit markets.” Banks will then be more willing to give out loans, after having experienced a long term, continuous relationship with returning customers under the credit guarantee scheme. This paper will focus on the concept of continuous lending in the case of the Lebanese credit guarantee scheme.

There is still no consensus about the benefits of credit guarantee schemes and their effectiveness in allowing access to credit. Some argue that guarantee schemes are costly and cause problems of financial sustainability (Vogel and Adams 1997). This can be caused by the high number of credit defaults, as well as elevated guarantee coverage ratios and fees. Others see that one of the main benefits of guarantee schemes is to allow for SMEs to take out loans that they wouldn't have had access to otherwise (Riding, Madill, Haines Jr., 2007). Guarantee schemes also improve loan conditions as they allow for more flexible collateral demands for large loans, and longer credit repayment periods (Meyer and Nagarajan 1996). However, there is still scarce evidence about the effectiveness of partial credit guarantee schemes on SMEs lending.

This paper will contribute to the existing literature, by providing evidence on the effectiveness of the Lebanese credit guarantee scheme and its impact on borrowers.

3. Small and Medium Enterprises in Lebanon

1. SMEs background

According to the Inception Report of the Ministry of Economy (Integrated SME Support Programme, 2005) the vast majority of enterprises in Lebanon can be classified as SMEs.

The report refers to a study conducted in 2003, that shows that as few as 1,365 of these SME have an annual turnover of more than €300,000, with the industrial sector showing the best performance.

The Consultation and Research Institute (2005) provides a more detailed distribution of SMEs according to industry and regions.

The survey reports that 72.6% of SMEs list trade as their main activity. According to the World Bank (2008), trade had a share of 146% in Lebanon's GDP, in 2007.

Some 8.8% of surveyed enterprises are in the industrial sector, while the tourism sector has a share of 5.1%. The report also shows that 81% of enterprises with only one worker rely on trade, while the number is reduced to 37% for enterprises with 10 to 49 employees. The industrial and tourism sectors hold the highest shares among bigger enterprises. In the industrial sector, 28.4% of enterprises had 10 to 49 employees and 5.1% have one employee.

For regions, the report highlights that larger enterprises tend to be located in more developed areas while micro enterprises dominate poorer regions with more restricted access to finance, markets, services and infrastructure. SMEs with only one worker constitute 32.7% of enterprises in the Beirut *mouhafaza*, while the number increases to 47% for the Bekaa and 56.1% for North Lebanon. Table1 shows that the share of enterprises with 5 to 9 employees, and 10 to 49 employees is significantly higher for Beirut and Mount Lebanon than for other regions.

The report finds that 93.5% of SMEs are owned by individuals, and that SMEs in the industrial and tourism sectors are more inclined to form partnerships.

The survey shows that access to initial capital for start-ups, and high taxes are listed as the principal constraints for SMEs in Lebanon. Also, 24% of SMEs have restricted access to financial services and 42% complain about a shortage of credit. Only 8.3% of SMEs had a loan at the time of the survey. Almost 69% of borrowers acquired their loans from banks, 18% from friends and relatives, and 6% from business colleagues.

Another survey conducted by the World Bank's Enterprise Surveys (2008) shows that the value of collateral demanded by financial institutions amounted to 160.59% of the value of the loan. The figure is higher than that for the MENA region (150.91%), and other selected countries (see Table 2).

2. The banking sector

The banking sector in Lebanon has been characterized as a high performer in the post-war era. It is known to be one of the most developed in the MENA region. In Lebanon, as well as in other MENA countries, with the absence of a developed financial system, the most important source of funding is banks.

In 2008, domestic credit provided by banks as a percent of GDP reached 169% which is much higher than the 43% average for the entire MENA region, and other selected countries (WDI 2008). However, Table 3 shows that domestic credit as a percent of GDP for Lebanon (at 74.36%) is closer to the MENA region average of 52.64% and lower than Morocco's (77.43%) and Jordan's (83.76%) (WDI 2008).

In 2007, bank loans reached LBP35,425,800 million and \$23,500 million¹ (BilanBanques, 2008). However, according to the OECD (2007), 75% of loans given to the private sector benefit only 3% of customers. This implies that banks are still cautious about funding small businesses.

Nevertheless, some banks have been making efforts towards improving the situation, especially with the introduction of *Kafalat* in 2000.

Due to banking secrecy laws and banks' refusal to disclose their contributions to small and medium enterprises, it is impossible to assess individual bank involvements in this area, and this limits our ability to assess and deduce recommendations.

Of the handful of banks that made public the amount of loans given to SMEs, Bank of Beirut seems to lead the way with over 40% of its total loans going to this area. The total SMEs loan amounts given by Bank of Beirut hit LBP1,022,388 million and \$678.201 million in 2008. Fransabank seems to be one of the main contributors as well, with 25.1% of loans going to SMEs. Bank Audi SAL, one of the top three banks in Lebanon falls behind with only 9.2% of its loans going to SMEs. However, the amount of loans given by Bank Audi SAL was well over that given by Fransabank, with LBP851,330.837 million and \$564.73 million (BilanBanques, 2008).

It is worth noting here that it is impossible to know how many of the loans given by banks to SMEs are backed by *Kafalat*. Therefore, we cannot know how much banks give to SMEs separately.

3. Kafalat

The Inception Report (Integrated SME Support Program 2005) shows that one of the main reasons access to credit is limited is because banks often requires SMEs to provide significant collaterals. In response to this problem, *Kafalat* was established in 2000.

Kafalat is the only credit guarantee scheme in Lebanon. It was introduced by the National Institute for the Guarantee of Deposits and fifty private banks with the collaboration of the Central Bank.

Private banks study SME loan applications, and the viable ones are passed on to *Kafalat* for guarantee approval. *Kafalat* approves the vast majority of loan guarantee applications, as they

¹ According to the Central Bank of Lebanon (2011), the US dollar/ Lebanese Pound exchange rate is set at LBP 1501.5.

are screened by the banks first. In fact, of the 6,888 loan guarantee applications received by *Kafalat* since 2000, only 217 were rejected.

Banks are usually eager to grant loans under *Kafalat* as 60% of the face value of the approved loans is exempted from the Reserve Requirements. Also, the *Kafalat* guarantee provides them with the reassurance that they need in terms of default risks. *Kafalat* insists that private banks do not to ask SMEs for additional collateral. Thus, *Kafalat* acts as an intermediary between SMEs and private banks, facilitating access to finance for businesses and reducing the risks of informational asymmetries for financial institutions. Furthermore, SMEs can take advantage of a *Kafalat*-backed loan, because the interests on those credits are subsidized by the Central Bank. So, *Kafalat* does not only act as a guarantor of loans, but it also reduces the costs for borrowers under its programs.

Kafalat provides three types of loan guarantees to small and medium enterprises.

The vast majority of SME are awarded a loan guarantee under the *Kafalat* Basic program. Of the 6,888 loan guarantee applications received between 2000 and 2009, 6,073 were under *Kafalat* Basic.

Kafalat Basic guarantees loans that have a maximum amount of \$200,000 or LBP300,000,000. The value of the guarantee is equal to 75% of the loan amount, and the borrower can benefit from a grace period of 6 to 12 months. Thus, in case of default, *Kafalat* repays 75% of the loan amount and of the accumulated interest during the grace period, to the lender. However, the borrower will still be responsible for the repayment of the full amount of the loan, and not just the remaining 25%. The borrower has to repay the loan within 7 years after the guaranteed loan is approved.

Kafalat underlines the importance of borrowing for the development and expansion of the concerned enterprise, whereby the guarantee will not be approved unless the loan will be used for this purpose. The loan has to be used to establish or develop new activities, or to uphold and maintain already existing ones.

The borrower can utilize the guaranteed loan in order to buy machines and equipment, spare parts and raw materials. The loan can be also used to cover construction costs and working capital, but cannot be directed towards this purpose only. Another restriction set by *Kafalat* is that the loan should be used to pay for expenditures incurred after it has been granted.

Kafalat aims to facilitate access to credit and encourages all types of small and medium enterprises in all industries and regions to borrow under one of their programs. Approved loan guarantees are distributed between industrial, agricultural and the tourism sectors, and with a few going to handcrafts and high technologies. All regions benefit from the loan guarantees.

Kafalat supports all types of borrowers, whether it's an individual, a partnership, a limited liability company, a cooperative or a joint stock company. Also, the enterprise has to be established in Lebanon, but it does not have to be Lebanese. Under the *Kafalat* Basic program the enterprise can also be a start-up.

For those borrowing in Lebanese pounds, 89.39% (or 5,728 applications) were under *Kafalat* Basic. For borrowers in US dollars, 79.86% (or 345 applications) were under *Kafalat* Basic.

As for the cost of the guaranteed loan, the borrower is responsible for paying back the value of the loan as well as the interest accrued over the grace period and the three months after it. *Kafalat* also charges a commission of 2.5% of the value of the guarantee.

For loans taken in Lebanese pounds, the interest rates charged by the lending banks are equal to 40% of the 1-year Lebanese Treasury Bills rates. For loans taken in dollars, interest rates are equal to the 1-year LIBOR rates to which is added 5.5%.

However, the costs of *Kafalat* loans are minimized, since the Lebanese Central Bank subsidizes interest rates for a maximum of 7%. Thus, in addition to the loan guarantees, subsidized interest rates encourage small borrowers to borrow.

Another program is *Kafalat Plus*, which offers guarantees for loans ranging from LBP4,000,000 million (or approximately\$ 2,667 US) toLBP 600,000,000 (or \$400,000). In this case, *Kafalat* guarantees 85% of the loan amount and of the accumulated interest for the grace period and the three months after it.

For this program, *Kafalat* prioritizes SMEs which are able to export their products, or use local raw materials. Enterprises set in rural areas, are given preferential treatment.

This program also aims at stimulating research and development, and it is open to enterprises that use new and innovative technologies or products.

In addition, a *Kafalat Plus* loan can be used to renovate and expand establishments, to promote and publicize the SME's activities.

In order to be eligible for this type of guarantee, *Kafalat* imposes more restrictions. For an existing SME, the borrowing enterprise should not have defaulted on any type of credit taken in the last three years preceding the application, or two years in the case of a start-up, before applying for *Kafalat Plus*. *Kafalat* also requires the enterprise to present audited financial statements of its activities.

Kafalat Plus also requires the borrowing SME to cover 20% of the cost of the project, in cash or in kind. For borrowers who wish to expand, the debt to equity ratio of the SME should be 70/30.

Kafalat Plus grouped 10.39% (or 666 applications) of those who borrowed in Lebanese pounds. It also had 20.14% (or 87 applications) of all borrowers in US dollars.

Kafalat Innovative is a third type of product offered by *Kafalat*. It was designed to support innovative startups. Innovative startups are ones which develop new products or services, new production or business methods, or new forms of distribution and sales processes. *Kafalat Innovative* also encourages SMEs which offer new uses for already existing products.

Kafalat Innovative backs loans that have values between LBP4,000,000 to a maximum of LBP300,000,000. For this program, *Kafalat* guarantees 90% of the value of the loan and of the accrued interest during the grace period and the three months following. The borrowing start-up has to be a Lebanese SME, which employs a majority of Lebanese workers. The borrowers should not have defaulted on any sort of credit in the two years prior to the application for the loan.

For this type of guarantee program, the borrower will have to cover a minimum of 10% of the costs of the project. *Kafalat Innovative* held a share of 0.22% (or 14 applications) of all applicants for a loan in Lebanese Pounds. None of its applicants borrowed in US dollars.

Kafalat Innovative and *Kafalat Plus* loans are given in order to buy, maintain or expand SME properties, machines and equipment as well as working capital. They are also allowed to cover 15% of service costs and professional fees of the project.

The loans do not cover any expenses, even if related to the project, incurred before applying for the guarantee, unless a justification is given by the bank. The loans can cover costs only up to six months before applying for the guarantee.

Other than the number and values of guaranteed loans, not much is known about the performance of the credit guarantee scheme. This is mainly due to the scarcity of data related to SMEs, their performances and their financing. *Kafalat* does not disclose information about the loans given by each bank nor the size of the operations of the borrowers, and preserves the confidentiality of all of its clients.

4. Research Methodology

1. Data

Most of the past research done on SMEs in the MENA region relies on data collected from surveys. This study uses an exceptional set of administrative data to which we are the first to have access, obtained directly from *Kafalat*. It consists of all 6,888 loan guarantee applications submitted since the establishment of *Kafalat* in 2000, until the end of 2009.

Each borrower is identified by a number, allowing us to detect returning customers.

For each loan guarantee application, our dataset specifies the guarantee program, the type of borrower, the value of the loan, the value of the guarantee (in percent), the sectors and area where the SME is operating and the decision as well as the date of the decision. The variables used in the regressions are the following (see Table 4):

- Project: Each SME in the dataset is identified by a number. Of the 6,888 loan guarantee applications received, 4,977 (or 72.26%) are non-repeat customers, or applied for a *Kafalat* loan only once.
- Program: As explained earlier, *Kafalat* borrowers can apply for a loan guarantee under one of three different programs: *Kafalat* Basic, *Kafalat* Plus and *Kafalat* Innovative. The vast majority of the SME in our dataset borrowed under *Kafalat* Basic. Out of the 6,888 loan guarantee applications, 6,073 (or 88.79%) are under *Kafalat* Basic, 753 (or 11.01%) are under *Kafalat* Plus and only 14 (or 0.2%) under *Kafalat* Innovative. Indeed, *Kafalat* Plus and Innovative were only established in 2006, are more specific and put more constraints on the borrowers.
- Type: There are three types of borrowers in our dataset. Of the total loan applications, we count 3,574 (or 52.25%) individual borrowers or sole proprietorships, 2,679 (or 39.17%) enterprises (limited liability companies, joint stock companies and cooperatives) and 587 (or 8.58%) partnerships (not taking into account returning customers). Of the total 4,977 non-repeat customers, 2,902 (or 58.31%) are individuals, 1,590 (or 31.9%) are enterprises and 485 (or 9.79%) are partnerships.
- The value of the loan: depicts for each application, the total value of the loan that is covered or was intended to be covered (depending on decision) under a *Kafalat* program. This variable groups all loan values, whether in dollars or in Lebanese pounds. In total, there are 6,408 loan applications in Lebanese pounds, with a mean of LBP154,000,000 and standard deviation of LBP104,000,000, and a minimum of LBP5.6 million and a maximum of LBP300 million. We also observe 432 loan guarantee applications in dollars. These are characterized by a mean of \$117,018.1 and a standard deviation of \$65,583.3. Here, we find a minimum of \$6,000 and a maximum of \$200,000.²
- Value of the guarantee: The guarantee is given as a share of the loan value and the interests accrued during the grace period and the three months after. Since we only have

² The fact that some borrowers choose to take out loans in dollars and others in their local currencies has been widely debated. Caballero and Krishnamurthy (2003) argue that borrowers prefer foreign currency debt because of domestic financial markets might not be sufficiently developed. Jeanne (2005) attributes this to a lack of trust in the monetary policy and others focused on moral hazard problems. It might be interesting, in later studies, to assess the determinants of borrowing in dollars and Lebanese pounds for clients of *Kafalat*.

the value of the loan but do not know the interest charged on the loan, we cannot use the guarantee rate to figure out the amount of the guarantee. We have three standard values for the guarantees, depending on the program that the borrower is applying to. Hence, for borrowers under *Kafalat* Basic, the value of the guarantee is 75%, and for those under *Kafalat* Plus, it is 85%. As for SMEs under *Kafalat* Innovative, the value of the guarantee is 90%. Since both variables, program and value of the guarantee, are perfectly correlated, we are only going to use the variable program in our regressions.³

- Level1 sector: This variable represents the general sector in which the borrowing SME operates. Our dataset includes five sectors: agriculture, handcraft, industry, advanced technologies and tourism. Of the total loan guarantee applications, 43.99% (or 3,009 loan guarantee applications) are in the industrial sector, which is the biggest beneficiary of *Kafalat*. The second largest sector benefiting from the public guarantee scheme is the agricultural sector, with 38.04% (or 2,602 loan guarantee applications) of the total loan guarantee applications. *Kafalat* loans have a lower share of borrowers in the other sectors, with the tourism sector constituting 13.1% (or 896 loan guarantee applications) of all applications, 202 applications in the handcraft sector (or 2.95% of all applications), and only 131 applications in the high technologies sector (or 1.92% of all applications).
- Level2 sector: This variable represents the sub-sectors in which the SME operate. We count 23 sub-sectors in our dataset, and the loan guarantee applications are spread among those sub-sectors.
- *Mouhafaza*: This variable refers to the governorates in which the borrowing SMEs operate. There are six *mouhafazat* in Lebanon: Mount Lebanon, Bekaa, South Lebanon, North Lebanon, Beirut and Nabatiye. *Kafalat*'s loans are concentrated in Mount Lebanon, with 48.6% of all loan guarantee applications (or 3,324 loan guarantee applications). Mount Lebanon is followed by Bekaa, with 17.12% of all loan guarantee applications (or 1,171 loan guarantee applications). The North and the South constitute respectively 11.42% and 10.98% of all loan guarantee applications (with respectively 781 and 751 loan guarantee applications). At the bottom, we find Beirut and Nabatiye with respectively 6.54% and 5.35% of all loan guarantee applications (respectively 447 and 366 loan guarantee applications).⁴
- Caza: Our dataset contains a variable indicating the district that the SME is located in. There is a total of 28 Cazas in Lebanon. We control for Caza in our regressions, but the coefficients of the Caza dummies are not reported in the tables.
- Date: Our dataset specifies the date of the application for the loan guarantee. It shows the day, month and year of the guarantee application. Most of the loan guarantee applications were made in the last two years, with 15.19% and 17.22% of all loan guarantee applications for respectively 2008 and 2009. The year 2000, the first year of *Kafalat*'s operation, has by far the lowest number, with only 34 loan guarantee applications (or 0.5% of the total number). For repeat customers in our regression, we are going to take into consideration the date of the first loan guarantee application.⁵ We should note that we control for year, but ignore day and month of application in our regressions.

³ When we ran the regressions with the value of the guarantee instead of the program type, the results remained unchanged. Thus, we decided to use the program type in the regression since it allows for more interpretations.

⁴ It is interesting to note that *Kafalat*'s loans are not centralized in specific areas. Beck et al. (2009) argue that credit guarantee schemes “seek to expand lending to SMEs, sometimes focusing on specific regions or sectors through reducing lending risk for banks or other financial institutions.”

⁵ We should note that days and months will not be taken into account in our regressions.

We should note that for all the different regressions, we dropped all applications that were rejected or cancelled. Thus, a total of 232 observations were dropped.⁶ These observations were omitted as *Kafalat* only rejects or cancels an application due to administrative problems, or based on a client's request. The loan application is rejected if the client fails to provide the required information about activities. It should be noted here that *Kafalat* facilitates the procedures for small clients who cannot provide adequate financial documents. Also, the concerned commercial bank has to approve the loan application prior to *Kafalat*. Thus, rejected applications are not due to selection by *Kafalat* regarding risk of default; that screening precedes the application to *Kafalat*.

2. Loan sizes

We start by looking at the distribution of loan sizes across sectors and regions. The regressions of loan sizes only draw a picture of the general distribution of *Kafalat* loans over the sectors and regions, and are thus a starting point for our analysis.

We use Ordinary Least Squares (OLS) regressions to determine the distribution of loan sizes. The model used in the first column of the regressions with loan size as the dependent variables is as follows:⁷

$$\text{Loan value}_i = \alpha_0 + \alpha_1 \text{ year}_i + \alpha_2 \text{ number of loans}_i + \alpha_3 \text{ level1sector}_i + \alpha_4 \text{ level2sector}_i + \alpha_5 \text{ Mouhafaza}_i + \alpha_6 \text{ Cazas}_i + \alpha_7 \text{ Program}_i + \alpha_8 \text{ Type}_i + u_i$$

Where u_i : error, heteroskedasticity adjusted

We do not report the coefficients on the year dummies, the Cazas and the level2sectors. In the regressions, we omit the industrial sector dummy and the Mount Lebanon *Mouhafaza* dummy.

The results concerning loan sizes seem to be related to the nature of the sector or region. The results in Table 5 show that the coefficients of both agriculture and the handcraft sectors are negative and significant. The loan sizes in the agricultural sector are, on average, LBP12 million (\$8,000) smaller than those in the industrial sector, whilst in the handcraft sector the figure is as large as LBP65 million (\$43,333). These results are significant across all regressions that include the sectors in which the SMEs operate, except for the agricultural sector when we drop the program in regression 4 (Table 5). The sector that borrowed the largest loans is the high technologies, with LBP30 million (\$20,000) more than the industrial sector, on average.

The results can be associated with the nature of the sectors. Even with the relatively considerable sample size of the agricultural sector (2,602 observations), the loan sizes are much smaller than in other sectors, which is expected considering that SMEs in the industrial or high technologies sector usually need more funds for their activities. In fact, individuals and partnerships borrow significantly smaller loans than enterprises in all the regressions (see Table 5). Furthermore, when we drop the types of borrowers from the regression in regression 5 (Table 5), the coefficients for loan sizes in the agricultural and handcraft sectors become even smaller and more significant.

Concerning the regions, Mount Lebanon has the highest share of the loan guarantee applications (with 3,324 applications). When comparing the loan sizes, we can see that Beirut, receives *Kafalat* loans that are about LBP40 million (\$26,666) higher than those in

⁶ Of the dropped observations, 217 were cancelled, 13 were rejected and 2 were suspended.

⁷ In the other columns of this type of regression, we drop respectively *Mouhafazat*, then level1sectors, then programs, then types (see Table 5).

Mount Lebanon. The South of Lebanon also exhibits the same pattern, but with an average of LBP25 million (\$16,666), in excess of Mount Lebanon.

The results in this set of regressions seem to be region and sector specific. The results remain unchanged across all regressions where we control for sectors or drop them (regression 3 in Table 5). The results concerning loan sizes across sectors are also unchanged when we control for or drop *Mouhafazat* and *Cazas* (regression 2 in Table 5). This shows that the reason why some sectors have bigger loans is independent of the regions in which these sectors are mostly concentrated. Also, the fact that some regions have significantly higher loans is independent of the sectors to which the SMEs, in those areas, belong.

We can thus say that SMEs in the South and Beirut are able to borrow more loans than other sectors, regardless of the sectors they belong to. The same can be inferred for high technologies and the agricultural sectors, where SMEs overall in those sectors seem to be attracted to much bigger/smaller loans regardless of where they are located.

Another concern might be the fact that the reason why those sectors and regions are exhibiting certain patterns, is because they might be benefiting more from programs under which the sizes of the given loans are initially bigger (*Kafalat Plus* loans are bigger than *Kafalat Basic*). The results remain the same, except for the agricultural sector,

when we control for and drop the programs in regression 4 (Table 5).

The patterns observed in Mount Lebanon, South of Lebanon and high technologies are independent of the *Kafalat* programs. The agricultural sector may be exhibiting the negative pattern, due to the fact that it is borrowing under programs which offer smaller loans to their clients (*Kafalat Basic*).

The type of borrowers can also have an effect on the observed patterns (for example, enterprises are generally able to borrow bigger loans than individuals). The results do not change when we drop types in regression 5 (Table 5).

An interesting variable to look at here would be the number of loans taken per client. The coefficients for this variable show that with the increase in the number of loans taken, loan sizes tend to significantly decrease on average by LBP15 million (\$10,000). This may mean that repeat clients are not using their loans to solely and significantly expand their activities. Multiple loans for the same client may not necessarily be taken out to undertake several projects. They may be taken out to complete other parts of the same project, and are thus extensions of the first loan.

3. Returning clients

We look at a logit regression of repeat customers to determine if certain sectors or areas significantly encourage continuous lending (or if *Kafalat* is becoming a source of constant funding for SMEs wanting to expand their activities). Among repeat customers, we will investigate whether any sector or area is experiencing substantial expansion of its repeat borrowers.

In the logit regression, we are concerned with the sectors and regions that show customers returning multiple times to borrow under *Kafalat*. Repeat customers are clients who are not just interested in using *Kafalat* loans to improve their situation in the short run, but are relying on *Kafalat* to continuously expand their activities over time. The determinants of *Kafalat's* repeat customers can inform our assessment of the efficacy of the credit guarantee scheme in stimulating expansion and growth in particular sectors or regions. We will be testing the continuous lending relationship that *Kafalat* is supposed to establish with its clients. We will take repeat customers as a proxy for continuous expansion, and to test continuous lending. If a certain region or sector is exhibiting a significant positive pattern,

then *Kafalat* is providing continuous lending and establishing a solid relationship with the clients in this sector or region, relative to others. This will have a significant impact in terms of stimulating SMEs and continuous growth in those sectors.

We ran two sets of logit regressions. The explanatory variables are similar to those used in the regressions for loan sizes. However, in the first set (Table 6), we include as an explanatory variable the mean value of loans for each SME. In the second set (Table 7), we use instead, the first loan taken by each SME. For both of these variables the results are similar. Here, we used dummy variables for the years that the first loan was taken. As for programs, *Kafalat* Innovative was dropped as it is for start-ups and does not allow a client to take out multiple loans.

The regressions seem to indicate that the continuous lending relationship does not hold in the case of *Kafalat*. The regressions (in both Tables 6 and 7) show insignificance across most sectors and regions. The results remain unchanged when dropping type (regression (2) in Tables 6 and 7), regions (regression (3) in Tables 6 and 7) and sectors (regression (4) in Tables 6 and 7).

The only observed significances are for the high technologies and handcraft sectors. For the handcraft industry, the coefficients in all the regressions are negative and significant. The log odds of being a repeat customer decrease by 1.2, on average, relative to the industrial sector, if the SME is in the handcraft sector. This might not be a surprising result considering the nature of the sector.

For the high technologies, the regressions show a significant negative correlation. The results from the logit regression show that even though SMEs in the high technologies sector are able or willing to take out much bigger loans than in other sectors, those SMEs don't seem to be willing to come back for more loans. The vast majority of the results point out that the log odds of being a repeat customer decrease on average by 0.85 relative to the industrial sector, when the SME is in the high technologies sector. The results remain the same when isolating the effect of regions (regressions (3) in Tables 6 and 7). The only regression where high technologies are not significant is when we use the mean of loans and drop the type of borrowers (regression (2) in Table 6).

The result pertaining to the high technologies sector is backed by another observation. The regressions concerning loan sizes indicate that there is a significant negative correlation between loan sizes and the number of loans taken out by each client. The regressions here all point out to a negative correlation between being a repeat customer and the size of the loans taken out by the clients. This pattern is observed when we use the mean value of the loans for each project (Table 6) and the initial value of the loan of each project (Table 7). This result emphasizes the fact that there is no continuous lending relationship between *Kafalat* and its clients.

The last observed pattern is related to the type of the SME. Individuals, across all regressions (Tables 6 and 7), are significantly less likely to be repeat customers than enterprises. This result probably relates to the fact that enterprises are, by nature, more able to take out more loans than sole proprietorships.

Finally, *Kafalat* does not seem to be establishing a continuous lending relationship with clients of any specific sector or region relatively to others, even in the sectors or regions which are benefiting from a significant number of *Kafalat* loans (Mount Lebanon, Bekaa, Agriculture and Industry), or are taking out bigger loans than others (high technologies or Beirut).

4. Expansion of returning borrowers

We take our analysis further by taking a closer look at only repeat customers in the dataset. The last set of regressions (Table 8) takes the ratio of the value of the last loan over the first loan acquired by each repeat customer. The goal of this set of regressions is to try and determine some sort of pattern in the evolution of loans sizes among repeat customers. Repeat customers are initially assumed to be the clients who find the terms of *Kafalat* loans suitable for them, and who are interested in constantly expanding their activities. We argue that if the ratio of last loan over first loan increases, it indicates that repeat customers are not only coming back for more loans, but they are also interested in acquiring bigger loans, or that they are interested in expanding their activities maybe even more than they have when they first borrowed under *Kafalat*. This can indicate that since acquiring their first loan from *Kafalat*, repeat customers may have had a successful expansion and are now in a better financial position to borrow even bigger loans. It can also indicate that those repeat customers have been more motivated since their first loan to significantly develop their activities. The aim of this set of regressions is to determine if, among repeat clients, a continuous lending relationship is being established with *Kafalat*, or if multiple loans are just extensions of previous loans (i.e. are multiple loans taken out by the same client in order to undertake different projects, or are they taken out to complete different parts of the same project?).

The set of regressions in Table 8 generally takes into account the values of the first loan acquired by each repeat customer, the duration between the last and the first loan acquired, the number of loans taken by each repeat client, the program, the types of borrowers as well as all sectors and regions.

The first observation here is that as the duration between the first loan and the last loan taken by the same client increases, the ratio of the last loan over the first loan increases as well. This duration between the last and the first loan is positive and significant, with an average increase of 0.1 in the ratio of last loan over first loan, with every increase of one year in the duration. This result is expected, as the more time has elapsed between the first and the last loan, the less likely the last loan is an extension of the first one.

For individuals and partnerships, the coefficients are negative and significant across all regressions. However, the ratio goes down even more when the borrower is initially a partnership (on average by 0.45), than if the client is initially an individual (on average by 0.25) relative to enterprises.

For programs, the ratio decreases on average by a significant 1.05 when a client initially borrows under *Kafalat* Basic as opposed to *Kafalat* Plus. Again, *Kafalat* Innovative here is dropped, as it only deals with start-ups. The results concerning programs are somewhat expected, considering that *Kafalat* Plus offers bigger loans and loan guarantees, and the difference in the nature of the borrowers under those two programs. In fact, all individual and partnership repeat clients borrow initially under *Kafalat* Basic, while *Kafalat* Plus is initially used by only repeat enterprises clients.

When looking at sectors and regions, the only significance is seen at the level of the Beirut *mouhafaza*. The ratio of last loan over first loan is, on average, 0.8 higher for Beirut, relatively to Mount Lebanon *mouhafaza*. Repeat customers in Beirut *mouhafaza* are thus not only taking out multiple loans, but are also increasing the sizes of the loans and the sizes of their expansions and their activities. The correlation is fully attributed to the program and type of the clients in the Beirut area.

The coefficient for Beirut *mouhafaza* is not significant when we drop the type of borrowers and significant when controlling for it, suggesting that the significance in Beirut *mouhafaza* is mainly due to the fact that the vast majority of repeat Beirut clients are enterprises. In fact,

out of the 62 repeat customers in Beirut, 53 are enterprises, while only 7 are individuals and 2 are partnerships.

Beirut *mouhafaza* is also insignificant when the program under which the first loan is acquire, is dropped, and significant when controlling for it. In fact, half of Beirut repeat customers take their first loan under *Kafalat* Plus, while most of the first loans of repeat customers in Mount Lebanon are under *Kafalat* Basic (321 repeat clients borrow initially under *Kafalat* Basic, while 180 borrow initially under *Kafalat* Plus).

We can argue here that Beirut repeat clients borrow significantly bigger loans than in other regions, when it comes to their last loans. Repeat clients in Beirut area seem to be establishing more of a continuous lending relationship with *Kafalat* than those in other regions. However, this is attributed to the fact that Beirut clients are initially in a better financial position than in other regions, and thus able to undertake bigger loans and more expansion over time, through relying on *Kafalat*.

Other than Beirut area, there doesn't seem to be any evidence suggesting that certain regions or sectors have significantly bigger ratios of last loan over first loan, even in the regions and sectors that receive a higher number of loans or bigger loan sizes in general. This leads us to think that most of the repeat clients are not borrowing multiple times because they are in the process of establishing a continuous lending relationship with *Kafalat*. Most of the multiple borrowing is probably extensions of previous loans.

5. Conclusion

The aim of this paper was to add to the scarce literature existing on Lebanese credit guarantee scheme. Our paper first starts by painting a picture of the general distribution of loans, backed by the Lebanese credit guarantee scheme. We show that the regions and sectors receiving the highest number of loans are not the ones benefiting from the biggest loan sizes. We find that SMEs in the high technologies sector and Beirut *mouhafaza* are inclined to borrow the biggest loans, while the agricultural sector falls behind. These results can be seen as an indicator of the ability of SMEs to borrow in the different regions and sectors.

We then proceed by running a set of logit regressions, in an attempt to determine the sectors and regions that have clients which borrow multiple times under *Kafalat*. We assume that repeat clients are the ones who use *Kafalat* to continuously expand their activities, and we test the existence of a continuous lending relationship.

We find that SMEs in the high technologies sector take out or are able to borrow more than other sectors, but for some reason, this sector exhibits a negative pattern for returning clients. For all other sectors and regions, *Kafalat* is also not a constant source of funding for its clients. We find no evidence of a continuous lending relationship between *Kafalat* and its clients, in areas and sectors in which it operates.

Finally, we take our analysis one step further by studying the patterns across regions and sectors of the ratio of last loan over the first, taken by each repeat client. Among returning clients, only Beirut *mouhafaza* shows significance. The results indicate that even among repeat customers, there is no evidence of a continuous lending relationship. Repeat clients seem to be borrowing multiple times in order to complete different parts of the same project. Repeat borrowing here is probably an extension of previous loans and not undertaken in order to continuously expand the activities in the long run.

These results give us a basis for further analysis later on. Although we are not able to determine the causes of these results, we propose a few interpretations.

First, the problem can be due to a certain selection process adopted by the commercial banks and/or *Kafalat*⁸; *Kafalat* and/ or commercial banks may not be very encouraging when it comes to lending the same clients more than once. They may also not be interested in lending to clients in certain sectors, such as high technologies, multiple times.

Second, *Kafalat* clients could just not be interested or able to continuously expand their activities. SMEs in Lebanon seem to be hesitant when it comes to borrowing more than once, or to expand their activities, which may imply that the Lebanese economy may not be providing the right environment for the development of these SMEs.

Third, *Kafalat* may not be the only source of funding for its clients. *Kafalat* clients could be using personal funds or relying on other programs that help SMEs. This could be due to the fact that borrowing SMEs did not find the terms of the *Kafalat* loans convenient and/or may prefer to rely on other institutions that provide better conditions.

It should be noted here that one of the limitations, of the dataset and this paper, is that we are unable to determine the exact reasons of the observed patterns.

Our results put into question the efficiency of the credit guarantee scheme in terms of becoming a constant and continuous source of funding for its clients in the long run, as opposed to just helping SMEs develop their activities only once. They also allow us to question the general economic situation in Lebanon and whether or not the government is motivating and providing SMEs with a secure environment for them to be willing and able to develop their activities even further.

⁸ If there is a selection problem here, it does not seem to be coming from *Kafalat*; looking at the dataset, *Kafalat* seems to have a very low denial rate.

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Table 1: Size Distribution of SME Per *Mouhafazat* (Comparison of the Results of the Central Administration of Statistics and the Consultation and Research Institute)

Mohafazat Size	Preliminary field survey results				CAS results			
	<5	5-9	10-49	Total	<5	5-9	10-49	Total
Beirut	83%	12%	5%	100%	85%	9%	6%	100%
Mount-Lebanon	89%	7%	4%	100%	90%	6%	4%	100%
North	96%	3%	1%	100%	94%	4%	2%	100%
Bekaa	94%	3%	2%	100%	95%	3%	2%	100%
South	96%	3%	1%	100%	94%	4%	2%	100%
Nabatieh	95%	4%	1%	100%	95%	3%	1%	100%
Total	93%	5%	2%	100%	92%	5%	3%	100%

Mohafazat Size	Preliminary field survey results				CAS results			
	<5	5-9	10-49	Total	<5	5-9	10-49	Total
Beirut	83%	12%	5%	100%	85%	9%	6%	100%
Mount-Lebanon	89%	7%	4%	100%	90%	6%	4%	100%
North	96%	3%	1%	100%	94%	4%	2%	100%
Bekaa	94%	3%	2%	100%	95%	3%	2%	100%
South	96%	3%	1%	100%	94%	4%	2%	100%
Nabatieh	95%	4%	1%	100%	95%	3%	1%	100%
Total	93%	5%	2%	100%	92%	5%	3%	100%

Source: Consultation and Research Institute, Micro and Small Enterprises in Lebanon, 2005

Table 2: Value of Collateral Needed for a Loan (% of Loan Amount) for Selected Countries

	Value of collateral needed For a loan (% of loan amount)
Lebanon (2009)	160.59
Egypt (2008)	85.47
Jordan (2006)	127.99
Syria (2009)	124.05
Morocco (2007)	171.24
MENA region	150.91

Source: Enterprise Surveys, The World Bank Group

Table 3: Domestic Credit Indicators

	Domestic credit provided by banking sector as % of GDP	Domestic credit to private sector as % of GDP
Lebanon	169.42	74.36
Egypt	77.69	42.79
Jordan	114.919	83.76
Syria	37.35	15.82
Morocco	95.54	77.43
Tunisia	72.04	65.77
MENA region	43.78	52.64

Source: World Bank Development Indicators, 2008

Table 4: Summary of Data

		Number of observations	Mean value of loans (U.S. Dollars)	Standard deviation	Min	Max
Program	Kafalat Basic	6,073	94,226	66017.46	3715.992	199071
	Kafalat Plus	753	171,864	49897.45	3981.42	199071
	Kafalat Innovative	14	159,256	52933.8	43795.62	199071
Type	Enterprises	2,679	143874.6	61645.38	3981.42	199071
	Individuals	3,574	73408.15	58684.94	3715.992	199071
	Partnerships	587	94017.37	63283.54	7299.27	199071
Level/sector	Agriculture	2602	77141.46	62112.49	3715.992	199071
	Handcraft	202	54289.64	52464.38	4479.098	199071
	Industry	3009	117931.6	67273.96	3981.42	199071
	High Technologies	131	132407.1	64431.97	9953.55	199071
	Tourism	896	132975.9	66343.31	6635.7	199071
Mouhafaza	Beirut	447	133414.5	65173.26	6635.7	199071
	Bekaa	1171	92153.18	63814.69	3782.349	199071
	Mount Lebanon	3324	109300.2	70167.38	3715.992	199071
	Nabatiye	366	78864.49	63868.37	6635.7	199071
	North Lebanon	781	98448.24	67907.24	4479.098	199071
	South Lebanon	751	89038.12	66583.13	3981.42	199071

Source: Kafalat database.

Table 5: Regressions with Loan Sizes as Dependent Variable

	(1)	(2)	(3)	(4)	(5)
Number of Loans	-8177.733*** (1639.953)	-8490.171*** (1640.421)	-8047.741*** (1642.017)	-1384.029 (1578.784)	-7284.788*** (1758.699)
Agriculture	-8248.623** (3592.816)	-9447.95** (3588.748)		-6781.929* (3610.755)	-20794.02*** (3737.733)
Handcraft	-43694.62*** (4797.881)	-43609.13*** (4803.865)		-43218.45*** (4801.901)	-55114.02*** (5025.658)
High technologies	19481.34* (7574.233)	23988.73** (7454.003)		19515.66** (7522.468)	26199.58*** (7566.947)
Tourism	11941.74 (15458.3)	9304.311 (15984.78)		10930.35 (15461.67)	15139.26 (14851)
Beirut	25872.7** (9819.222)		27882.53** (10755.84)	26976.78** (9892.133)	27505.16** (10028.67)
Bekaa	19310.69 (14704.25)		27238.81 (14476.64)	17397.62 (14667.46)	6174.082 (16876.3)
Nabatiye	-7053.84 (8381.157)		-3605.028 (9940.128)	-8607.741 (8442.52)	-21324.73* (8887.153)
North Lebanon	5497.9 (10734.5)		6527.367 (10995.04)	5427.861 (11013.25)	-5035.321 (10447.45)
South Lebanon	15521.25** (5767.755)		20499.61*** (5964.369)	15155.95** (5783.956)	9512.996 (6209.807)
Innovative Start ups	16668.03 (17039.89)	12835.27 (16394.99)	12282.83 (14251.87)		31590.51 (17150.64)
Kafalat Plus	35626.7*** (3404.929)	35212.69*** (3351.085)	38063.51*** (3321.779)		56532.71*** (3458.119)
Individual	-52203.37*** (2251.645)	-53736.91*** (2139.099)	-59566.75*** (2076.783)	-56585.3*** (2187.192)	
Partnership	-33952.98*** (3373.432)	-35994.24*** (3312.445)	-35839.18*** (3356.585)	-38216.93*** (3343.95)	
constant	-5618379*** (774289.2)	-5798495*** (767999)	-5900628*** (636437.9)	-7664902*** (739271.8)	-6047816*** (809847.5)
R-sqr	0.317	0.298	0.276	0.307	0.248
dfres	5634	5634	5634	5634	5634

Notes: *p<0.05, ** p<0.01, *** p<0.001

Table 6: Logit Regressions for Repeat Clients Using the Mean of Loans by Project

	(1)	(2)	(3)	(4)
Mean of loans	-3.55e-06***	-2.95e-06***	-2.70e-06***	-3.11e-06***
By project	(8.05e-07)	(7.61e-07)	(7.36e-07)	(7.77e-07)
Agriculture	-0.156 (0.18)	-0.218 (0.17)	-0.205 (0.17)	
Handcraft	-1.213** (0.42)	-1.245** (0.41)	-1.181** (0.41)	
High technologies	-0.850* (0.43)	-0.838 (0.43)	-0.928* (0.42)	
Tourism	-0.003 (0.79)	-0.004 (0.79)	0.113 (0.78)	
Beirut	0.847* (0.43)	0.915* (0.43)		0.720 (0.42)
Bekaa	1.168 (0.81)	1.096 (0.81)		1.180 (0.79)
Nabatiye	-0.437 (1.06)	-0.508 (1.06)		-0.431 (1.05)
North Lebanon	-0.443 (0.78)	-0.477 (0.77)		-0.353 (0.78)
South Lebanon	0.411 (0.39)	0.372 (0.39)		0.202 (0.38)
Kafalat Basic	-4.810*** (0.20)	-4.918*** (0.20)	-4.740*** (0.20)	-4.673*** (0.20)
Individual	-0.324* (0.13)		-0.369** (0.12)	-0.4493*** (0.12)
Partnership	-0.328 (0.18)		-0.403* (0.18)	-0.468** (0.18)
constant	550.045*** (47.34)	549.233*** (47.21)	531.440*** (46.49)	516.147*** (38.48)

Notes: Pseudo R2: 0.2410, 0.2396, 0.2286, 0.2320. * p<0.05, ** p<0.01, *** p<0.001. The results (not reported here but available from author) are qualitatively similar when probit or a linear probability model is used, instead of logit.

Table 7: Logit Regressions for Repeat Clients Using the Value of the First Loan Taken by Each Client

	(1)	(2)	(3)	(4)
Initial loan	-2.92e-06*** (7.79e-07)	-2.39e-06** (7.36e-07)	-2.86e-06*** (7.61e-07)	-2.51e-06*** (7.51e-07)
Values				
Agriculture	-0.138 (0.18)	-0.193 (0.17)	-0.190 (0.17)	
Handcraft	-1.187** (0.41)	-1.214** (0.41)	-1.155** (0.41)	
High technologies				
	-0.842* (0.43)	-0.841* (0.43)	-0.926* (0.42)	
Tourism	0.041 (0.67)	0.030 (0.67)	0.147 (0.66)	
Beirut	-0.650 (0.77)	-0.699 (0.77)		0.706 (0.42)
Bekaa	1.203 (0.37)	1.137 (0.81)		1.088** (0.36)
Nabatiye	1.351* (1.06)	1.294 (1.06)		1.232 (0.68)
North Lebanon	-0.428 (0.78)	-0.461 (0.78)		-1.487 (0.78)
South Lebanon	0.344 (0.40)	0.297 (0.40)		0.228 (0.40)
Individual	-0.296* (0.13)		-0.337** (0.12)	-0.417*** (0.12)
Partnership	-0.336 (0.18)		-0.403* (0.18)	-0.472** (0.18)
Kafalat Basic	-4.820*** (0.20)	-4.922*** (0.20)	-4.753*** (0.20)	-4.706*** (0.20)
constant	556.588*** (47.39)	554.957*** (47.25)	537.668*** (46.55)	528.869*** (38.72)

Notes: Pseudo R2: 0.2422, 0.2409, 0.2299, 0.2335; * p<0.05, ** p<0.01, *** p<0.001. The results (not reported here but available from author) are qualitatively similar when probit or a linear probability model is used, instead of logit.

Table 8: Regression with the Ratio of the Values of the Last Loan over the First Loan Taken by Each Returning Client

	(1)	(2)	(3)	(4)	(5)	(6)
Initial loan values	-0.000115*** (7.39e-07)	-0.000115*** (7.31e-07)	-0.000114*** (7.27e-07)	-0.000103*** (7.45e-07)	-0.000111*** (6.97e-07)	-9.33e-06*** (6.87e-07)
Duration between first and last loan	0.103*** (0.03)	0.107*** (0.03)	0.101*** (0.03)	0.075** (0.03)	0.103*** (0.03)	0.068** (0.03)
Number of loans	0.014 (0.09)	0.048 (0.09)	0.027 (0.09)	-0.010 (0.09)	0.022 (0.09)	0.025 (0.09)
High technologies	0.649 (0.38)	0.727 (0.38)		0.467 (0.38)	0.641 (0.37)	0.415 (0.38)
Handcraft	-0.097 (0.40)	0.004 (0.40)		-0.012 (0.40)	0.103 (0.39)	0.001 (0.41)
Agriculture	-0.112 (0.15)	-0.166 (0.15)		-0.004 (0.15)	-0.136 (0.14)	-0.056 (0.15)
Tourism	0.023 (0.74)	0.012 (0.74)		-0.606 (0.60)	-0.102 (0.59)	-0.764 (0.61)
Beirut	0.887** (0.33)		0.800* (0.33)	-0.225 (0.33)	0.025 (0.32)	-0.114 (0.33)
Bekaa	-0.480 (0.76)		-0.635 (0.75)	-1.022 (0.75)	-0.468 (0.74)	-0.991 (0.76)
Nabatiye	1.254* (0.64)		0.874 (0.63)	1.192 (0.64)	1.073 (0.61)	0.953 (0.64)
North Lebanon	0.149 (0.64)		0.124 (0.62)	-0.011 (0.64)	0.168 (0.62)	0.003 (0.64)
South Lebanon	-0.135 (0.35)		-0.301 (0.35)	-0.039 (0.35)	-0.090 (0.34)	-0.047 (0.35)
Kafalat	-1.049*** (0.14)	-1.042*** (0.14)	-1.172*** (0.13)		-1.086*** (0.14)	
Basic Individual	-0.226* (0.12)	-0.259* (0.11)	-0.250* (0.11)	-0.408*** (0.11)		
Partnership	-0.450* (0.18)	-0.430* (0.17)	-0.468** (0.17)	-0.666*** (0.18)		
constant	-140.327* (61.14)	-145.106* (61.12)	0.848 (52.89)	-319.302*** (54.61)	-130.914* (59.41)	-350.564*** (54.75)

Notes: R-sqr : 0.355 ; 0.312 ; 0.322 ; 0.309 ; 0.344 ; 0.292. dfres : 813 ; 841 ; 834 ; 814 ; 815 ; 816. * p<0.05, ** p<0.01, *** p<0.001