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banks**

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Firms' internationalization and relationships with banks

by

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Abstract

We study the determinants of the various forms of internationalization by Italy's enterprises. Specifically, we aim to highlight the role played by the length of the relationship with the main bank in molding an enterprise's choice to go international. Our empirical findings show that the length of such a relationship fosters both horizontal and vertical foreign direct investment (FDI) by firms as well as enterprises' choice to outsource production abroad. The rationale we suggest for these findings hinges on the hypothesis that a longer relationship with the main bank helps secure external financing for these firms, which have become more opaque because of their internationalization. On the contrary, we detect no impact of the length of the relationship with the main bank on firms' propensity to export, suggesting that selling abroad alters enterprises' financial set up less than shifting production across the national borders. These results are obtained controlling for a large set of accompanying variables and are robust when we introduce as a regressor the number of lending banks, an additional proxy of the intensity of the bank-firm relationship. Our evidence suggests that preexisting strong bank-firm relationships support the internationalization of production by manufacturing firms. Considering that such a move is a key step in sustaining enterprise growth, the intensity of the bank-firm relationship seems to be a strategic feature. We conjecture that this feature proves particularly important in relaxing financial constraints for firms whose assets become more opaque to lenders because they move their production abroad. The policy conclusion is that measures favoring the strengthening of relationship banking may be desirable.

JEL Classification: D21, F10 F21 F23 G21

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1. Introduction

Internationalization is perhaps the main channel through which firms' growth materializes, even more so within a relatively small economy such as Italy. This applies when

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internationalization takes its weaker form, that of export, and, even more so, when it turns to its stronger form, namely the relocation abroad of some production activities. Frequently, internationalization brings with it a change in the culture and the identity of the company in which, besides growth in size, other developments occur such as intensified innovation, employing managers external to the controlling family, using market finance, and modifying the enterprise's governance. Achieving these developments may be easier for firms entertaining strong relationships with their main bank. It goes without saying that by focusing on a single dimension – that relating to relationships with banks and internationalization – of such complex evolution, one may lose the perspective of this whole unitary process. This is a useful initial caveat for readers.

Relationships with banks may affect nonfinancial firms' internationalization choice through two different channels. Firstly, since their financial needs increase and become more difficult for external financiers to satisfy, firms choosing to go international may find relief if they have better relationships with their main bank. Secondly, firms' internationalization might benefit from the fact that their main banks have already developed an international network of their own.

Both of these channels should be analyzed. Nevertheless, while we do not have to claim a priori that the former channel might be specific to Italy, we may question whether the latter channel is effectively at work. In other words, is it true that bank and nonfinancial enterprise internationalization also interact in Italy? If this is the normal state of affairs in most industrialized countries – where the issue is, if any, whether banks follow or lead their customers abroad – the question seems appropriate in Italy, where bank and nonfinancial firm internationalization is rather recent.

Until the second half of the 1990s, Italian banks had cumulated a major gap in terms of internationalization vis-à-vis the banking systems of other main industrialized countries. Specifically, while some international activities were performed via the non trivial network of branches (and representative offices) abroad, Italian banks international presence was rather limited in terms of subsidiaries. In turn, internationalization of nonfinancial enterprises is also relatively low. On the one hand, the Italian economy has traditionally enjoyed a degree of openness to international trade as high as that of similar-sized industrialized countries: looking at the ratio between the sum of imports and exports to GDP, Italy reaches a level lower than Germany, but similar to that of France, the UK and Spain. On the other hand, in the past, production abroad was limited for Italian nonfinancial enterprises through Foreign Direct Investments (FDIs).

In recent years, instead, the internationalization drive gained speed in Italy, especially for banks, among which a top banking group ventured into several acquisitions in Central-Eastern Europe and other important acquisitions were also made by the other main banking groups. Nonfinancial FDIs were, at the same time, less dynamic, even though the FDI of medium-sized enterprises gained momentum.

In light of the pertinent literature, we will outline that the various forms of internationalization imply sunk costs for nonfinancial firms, whose size of FDI is larger than exports. In turn, those sunk costs affect, at the same time, firms' needs and ability to obtain external financing. Indeed, it is in this situation that it may be advantageous for firms to have a strong relationship with their main bank, especially when their main bank is also internationalized. Specifically, we can put forward three working hypotheses: i) nonfinancial enterprises' internationalization – both in terms of exports and FDI – is more likely when they have a stronger relationship with their main banks; ii) the beneficial impact of a stronger relationship with their main banks is larger for FDIs than for exports; iii) that impact is largest when the main banks are themselves also internationalized. As it is clear, the main task of the paper is identifying the determinants of Italian nonfinancial enterprises' activities abroad, while assigning a key role to a proxy measuring the intensity of the bank-firm relationship.

Before moving to the details of our reasoning and to the related empirical analysis, it is useful to outline the organization of the rest of the paper. Section 2 hosts a concise survey of the relevant literature, distinguishing the set of factors favoring internationalization for nonfinancial

enterprises (sub-section 2.1) from those regarding the banks (sub-section 2.2), and also discusses the possible links between the two types of internationalization (sub-section 2.3). Section 3 describes the historical trends of banks' and nonfinancial enterprises' internationalization, with a specific emphasis on the recent years. In Section 4, we perform our empirical analysis – relating to working hypotheses i) and ii) on whether relationships with banks affect nonfinancial enterprises' internationalization – and comment on the main results obtained. Finally, we recap our main results in the Conclusion.

2. Literature background on banks and nonfinancial firms' internationalization

In this section we discuss the two ways through which relationships with banks can affect the firm's choice to go international. The first way – regarding why a stronger bank-firm relationship might favor the internationalization of nonfinancial enterprises – will be addressed at the end of sub-section 2.1, pertaining to the determinants of the choice to go abroad for nonfinancial firms. In turn, we will tackle the second way – relating to the potential benefits when banks also go international – in sub-section 2.3, after spelling out – in sub-section 2.2 – the factors affecting banks' decision to go international.

Internationalization of non financial enterprises

Firms can be classified in three different categories with respect to their foreign relationships.. Firstly, and this is the case for most firms, firms may have no foreign relationships: in this case the enterprise only produces domestically and sells it entirely on the domestic market. The second case is that of the firms whose production is entirely domestic but which sells a portion of its output abroad. Finally, the third case concerns those companies which, besides exporting, choose to move some of their plants abroad.¹ Although firms that are in the second and third category are both internationalized, only the latter, the ones which transferred a significant part of their production abroad, are multinational companies. The factors determining the decision to export differ from the ones behind those of international offshore production. A firm exports to enlarge its market, while it offshores production to better serve its export markets or to lower its production costs.

To become an exporter, a company must bear some fixed sunk costs related to identifying its specific export market and undertaking the adjustment needed to make its products adequate to that market, tailoring them to the local tastes and conforming to the target country's regulations. These sunk costs – which vary depending on the nature of the exported item and of the distance to the exporting market – include, for example, R&D expenses, marketing and translation costs. Those investments are sunk in the sense that they will be wholly lost in case that the company discontinues exporting that product in that market. The literature points to those sunk costs as a key factor helping explain a series of puzzles, such as why the intensity of international trade – even though increasing – is still relatively low or why the increase in exports of countries whose exchange rate depreciates lags until depreciations become large. In this respect, using a sample of companies from Columbia, Roberts and Tybout (1997) find that the probability of exporting is 60% larger for companies which had past exporting experience. Finally, as discussed below, a firm choosing to become an exporter may find it difficult to obtain external finance to support the required investments.

Any company has to choose whether to keep its entire production domestic or shift part of it abroad, thus becoming a multinational enterprise. That choice depends on a series of determinants. It is useful to distinguish between two different forms of internationalization: horizontal foreign direct investments (HFDIs) and vertical FDIs (VFDIs) or international outsourcing of production.

¹ In theory, a further case exists in which a non exporting company offshores abroad some of its production but keeps its sales exclusively on the domestic market. In practice, however, only already exporting firms offshore production (Benfratello and Razzolini, 2007).

While HFDIs aim to improve export penetration in final markets and typically target industrialized countries, the primary objective of VFDIs and of international outsourcing of production is to lower production costs by shifting production to countries enjoying lower costs, generally emerging and/or developing countries.² As the aims differ between HFDIs, on the one hand, and VFDIs/international outsourcing of production, on the other, the determinants also differ (Barba Navaretti and Venables, 2004).

Some determinants pertain to firms' features and their production process: economies of scale at the firm or plant level; trade costs specific to the product; costs stemming from the disintegration of production phases; differences in factor intensity across production phases (e.g. capital vs. labor; skilled vs. unskilled labor). A priori, we expect more HFDIs in sectors where final goods have high transportation costs and more VFDIs/international outsourcing of production in sectors with low costs of trade and/or from the disintegration of production phases.

A second set of determinants instead, relates to the variables affecting the choice of target regarding where to locate FDIs: trade costs specific to the target country (e.g. distance, trade barriers etc.); market size; differences in factor cost. Here too, the impact differs between HFDIs and VFDIs/international outsourcing of production. The ideal candidates for HFDIs are rich countries which are distant and have high trade barriers, while VFDIs/international outsourcing of production is attracted by countries with low labor costs, which are close and/or may be reached with low transportation costs.

It is then worth stressing that internationalization of production is more likely for larger-sized enterprises, since it entails sunk costs which are generally higher than those implied by a lighter form of internationalization, such as simple exports (Helpman, Melitz and Yeaple, 2003). The costs entailed in the internationalization of production take various shapes. For example, investors undertake the risk that initially favorable conditions – e.g. tax exemptions and other incentives to incoming FDIs, dynamic target country – might change subsequently, to the point of causing divesting at an unfavorable time, thus inducing large losses with respect to the initial investment cost, since capital goods are not easily replaceable in the sense described by Williamson (1979).

Let's now consider the implications that internationalization – in its various forms – may have on the need of and ability to obtain external financing on the part of the internationalizing company. It seems that all the three forms of internationalization have a double impact on external financing. On the one hand, at least temporarily, the need for external financing increases. On the other hand, obtaining external financing becomes more difficult. This situation stems from the fact that the company experiences increasing financial needs while its assets become more opaque vis-à-vis external financiers, typically a bank. This situation unfolds because of sunk investments. Even in the case of exports, though less markedly, an effect like that ensues. Sunk investments must, in fact, be financed and they imply shifting some of the company's assets abroad, to the country where it starts exporting. From an accounting perspective, the goodwill capital of the firm increases and a part of it is now abroad. From the perspective of economic theory, this intensifies the company's asymmetries of information vis-à-vis its domestic banks both because the firm experiences a rising ratio of intangible capital – in its goodwill component – to tangible capital (where only the latter may be used as collateral) and, most importantly, because the increase in intangible capital takes place abroad in a distant context for the domestic bank. Accordingly, the bank's ability to classify the company's credit worthiness worsens with respect to its previous status.

The effects just described for a newly exporting company are more intense when the firm shifts its production abroad. In this case, the size of the investment is larger and, thus, also the sunk costs are larger. This implies more intense information asymmetries between the firm and its bank. In practice, we can state a priori the hierarchy among the various forms of productive

² The determinants of international outsourcing of production are similar to those for VFDIs. While, following the OECD-IMF definition, only those investments implying ownership beyond 10% of the target foreign companies are classified as FDI (OECD, 1996), there is no such requirement for international outsourcing of production.

internationalization. Sunk costs should be largest for HFDIs for two reasons: i) this type of FDI implies moving the entire production cycle abroad— by replicating the domestic plant there – rather than shifting only some of the production phases abroad, as featured by VFDIs/international outsourcing of production; ii) HFDIs target rich countries and, as such, imply larger costs than VFDIs/international outsourcing of production, which instead target emerging/developing countries. In turn, sunk costs should be somewhat smaller for international outsourcing of production than for VFDIs: *ceteris paribus*, in fact, the latter require larger outlays than the former.

The financial implications of company internationalization have attracted some attention in the literature. Various papers try to test whether internationalization is more likely for those firms active in countries enjoying more intense financial development. Most of these studies address the link between financial development and export. The underlying idea is that, against the firm's rising financial needs and in the face of the intensified asymmetry of information for the newly exporting company, better developed financial setups may help mitigate the problem. For instance, in a cross-country comparison over 30 years, Beck (2002) finds that the countries with more developed financial systems show a larger share of manufacturing exports over GDP. Extending the analysis to the industrial sector level, Becker and Greenberg (2005) find that the degree of financial development increases exports and that such an impact is stronger for those industries with larger fixed costs. Furthermore, some recent studies ask the question on firm level data. On the basis of a large sample of companies from Argentina, Espanol (2007) reports that the probability for a firm to become an exporter rises when it has better access to finance (measured through the answers the firm gives to a questionnaire). Analogously, using a large sample of Italian enterprises, Grisorio (2007) finds that the probability for a firm to start exporting increases along with the degree of financial development (measured by the number of per capita bank branches) of the province where the firm is located.

As we will discuss in more detail below, our approach to identifying the impact of the financial context on the firm's choice to internationalize differs with respect to the cited works. We introduce a measure of relationship banking – the length of the relationship between the firm and its main bank – that the literature has already proved to be a good proxy of the extent to which the firm has access to external finance (Herrera and Minetti, 2007; Ferri and Rotondi, 2006; Alessandrini, Presbitero and Zazzaro, 2008; Ferri, Minetti and Rotondi, 2007). We conjecture that as the intensity of relationship banking rises it should become easier for firms to go international without being penalized in their access to external finance because of their increased opaqueness. According to our *a priori*, we may expect that the favorable impact of relationship banking should vary along with the intensity of the problems posed by the various forms of company internationalization. Specifically, the favorable impact should be smallest for exports, a little larger for international outsourcing of production, larger still for VFDIs and largest for HFDIs.

Bank internationalization

Banks go abroad for different reasons (see Farabullini and Ferri, 2005). One is risk diversification: to be active in different countries helps dealing with idiosyncratic shocks in any specific country. Second, banks internationalize to enter profitable markets, for example economies with a high rate of growth; in emerging countries the presence of foreign banks may improve the efficiency of financial systems. According to Focarelli and Pozzolo (2001), banks buying foreign subsidiaries are usually large and come from developed credit systems: these large intermediaries enter markets where banks are less efficient, with the aim of restructuring to save costs. Third, banks' expansion abroad may be explained by the search for scale and scope economies. Fourth, banks active in high concentrated markets may be forced to go abroad because antitrust authorities may limit further national expansion. Fifth, when firms go abroad, banks follow suit in order to maintain the links built within the national borders. Many papers show how commercial integration between countries is one of the determinants of bank foreign growth. In studying the determinants

of Italian banks' foreign expansion, Paladino (2007) emphasizes the issue of quality of foreign institutions and infrastructure; the author also confirms the role of parent bank size and commercial integration.

In terms of the form of the foreign presence, branches are mainly active in wholesale markets, especially in the interbanking segment, while the subsidiaries are more focused on retail markets. Branches tend to be more localized in large financial centres, with London in first place, while the subsidiaries are more present in emerging markets (Focarelli and Pozzolo, 2005).

Links between bank and firm internationalization

A traditional question asked in the literature is whether bank internationalization follows firm internationalization or not. The general answer to such a question used to be positive³. However, recent studies find more complex answers.

Seth, Nolle and Mohanty (1998) are probably among the first to observe that the hypothesis "follow the customer" was becoming too restrictive. These authors note that the largest part of loans granted abroad by banks did not finance national firms on foreign markets. Similarly Focarelli and Pozzolo (2005) underline that banks' motivation to go abroad is to achieve higher profits rather than to follow their national customers. Yamori (1998) finds that Japanese banks' FDIs were influenced originally by the FDIs of the country's multinational but are also sensible to the conditions of the destination markets. In examining the Japanese firms' FDIs in Europe, von der Ruhr and Ryan (2005) shows how initially industrial FDIs attract the banking ones; subsequently the banking FDIs attract new industrial FDIs. In analysing the Chinese case, He and Gray (2001) find that non financial FDIs increase strongly in those regions where banks previously invested. Even if this paper does not contain information on the country origin of banking and industrial FDIs, it is plausible to think that there is a casual link going from the first to the latter also on a national base.

The predominantly smaller size of Italian enterprises has potentially important consequences for the nexus between banks and firms internationalization. It is reasonable to imagine that banks' support of firm internationalization is particularly important in the Italian system which is characterized by small and medium-sized firms⁴. Therefore, in the Italian case the traditional principle "follow the customer" would not only be true but also the suggestion of von der Ruhr and Ryan (2005) of "follow the customer and then gain new ones". According to Roberto Nicastro (2007) the process has been guided by the goals of growth and profit opportunities; this strategy would be coherent with the idea of "anticipating the customer". However, as recognized by Nicastro, even if the original goals were different, bank internationalization is today an important competitive aspect for the entire Italian economic system. Accordingly, the foreign retail network of the most important Italian banks could be a launching pad towards the foreign markets for those small and medium firms which, otherwise, would be not able to launch their internationalization.

3. The Presence of Italian firms and banks in foreign markets

If one looks at exports, the Italian economy shows a good degree of internationalization, but if one considers the shifting of production across the national borders, i. e. the weight of the Italian multinationals, this is no longer the case. Below we survey the developments that took place over the last 15 years, a period when the banking system recovered the delays accumulated in the past, while non financial firms registered both successes and delays.

Export and offshoring on non financial firms

Various indicators confirm that Italian exports are in line with those of the main industrialized countries. The ratio of exports to GDP in Italy is around 25% (ICE, 2007). Therefore,

³ It is sufficient to quote Buch and Lapp (1998), Buch (2000), Miller and Parkhe (1998).

⁴ On this subject see Farabullini and Ferri, (2005). The growth of the "Italy desk" inside the Italian banks clearly testifies to the demand coming from small-medium firms and of the correspondent profit opportunities for banks.

Italy ranks behind Germany (45%) but close to France, the UK and Spain, which all have a ratio around 30%. Italy also surpasses Japan (14%) and the US (12%). In 2006, Italy ranked 8th in the world for volumes of exports, with a market share of 3.4% of total world exports; Italy ranked 6th in the world in terms of service exports, holding a market share of 3.7%. In 2006, there were approximately 200,000 export firms in Italy, with an increase of 9.4% with respect to 1996. There are signs of a consolidation among export firms: between 1996 and 2006, the unit value of exports of each firm increased by 32.8%, while the average number of national markets served by every enterprise rose from 5.1 to 5.8. Notwithstanding these developments, according to ICE statistics, the small average size of Italian companies is such that around 44.0% of exporting firms are present only in one foreign market. Moreover, enterprises active in four or less markets make up around 31.0% of the total while only 10.0% of exporting firms are operative in at least twenty national markets.

Italian FDIs are less important than exports. With regard to FDI stocks, in 2005 Italy ranked 11th in the world, with a market share of about 2.8%. Mariotti and Mutinelli (2007) note that the small increase of Italian FDI in recent years is more a reflection of the problems of the large enterprises, while medium firms were much more active, to the extent that they were referred to as “pocket multinationals” (Bonomi, 2006). This is a relevant issue for the goals of our paper, as the need to increase external financing and the greater opaqueness of firms going abroad are problems for small and medium enterprises, not for large enterprises. The former are the ones that need a more solid link with the reference bank, especially when the bank is already present abroad.

As already mentioned in Section 2 it is useful to distinguish between different forms of productive offshoring: horizontal foreign direct investments (HFDIs), vertical FDIs (VFDIs) and the international outsourcing of production. The Survey of Manufacturing Firms of Capitalia provides some descriptive statistics (see Section 4 for details). While the international outsourcing of production is captured through a specific question in the survey, there is just one question on FDIs which needs to be broken down between HFDIs and VFDIs. In order to distinguish between HFDIs and VFDIs, one needs to refer to the country where the investment takes place (see Section 4 for further details)⁵. Following this criterion, the firms undertaking HFDIs account for 1.9% of the sample, while those investing in VFDI make up 0.8%; the share of firms outsourcing the production abroad is much larger (4.7%). In line with our *a priori*, the average value of HFDIs in the Capitalia survey is 9 million euro; this is much greater than the VFDIs (1 million euro). Using the OECD-IMF classification of international outsourcing of production and FDIs (see note 2) it is possible to assume that the average value of VFDIs is larger than the average value of international offshoring: this is a conjecture because the Capitalia Survey does not provide information on the value of international offshoring.

Do Italian banks go abroad ?

Just like firms, Italian banks go abroad using different strategies. One way is through the business activity of the Italian branches. This activity remains low by international standards. At the end of 2005, loans to euro area residents were around 0.6 per cent of total assets, close to Spain but

⁵ An alternative criterion to classify FDIs as HFDIs or VFDIs – using the information available in the Capitalia survey – is that utilized by Benfratello and Razzolini (2007). They concentrate on the destination of goods produced by the plants localized abroad, but are not able to distinguish the contracting with foreign producers (or foreign outsourcing) from the effective ownership of the plant. According to their criterion, two conditions are necessary to define FDIs as HFDIs: (i) the goods must be sold in the foreign country where the plant is located, or exported in a third country or re-imported in Italy to be sold in the Italian market or to be newly exported; (ii) the percentage of goods re-imported in Italy to be re-introduced in the production cycle must be smaller than 50% of the total production made abroad. The FDIs that do not satisfy these two prerequisites are classified as VFDI. Unfortunately, the criterion of our paper – based on the geographical destination of the FDIs – and the Benfratello and Razzolini’ choice, summarised in (i) and (ii), are both partly arbitrary; therefore the classifications are only proxies of HFDIs and VFDI. For this reason, the empirical results must be interpreted with caution.

smaller than France and Germany. The delay of Italian banks is greater for loans to the rest of the world, which also include interbank operations: in Italy these loans account for only 2.7 per cent of total assets, against 3.4 per cent of Spain, 9.7 per cent in France and 11.9 per cent in Germany. Also non resident deposits collected by branches in Italy are lower than those collected in the other three large euro area countries. In 2005, the international business of branches located in Italy was even lower, as a percentage of total assets, than in 1998, when Italy became a member state of the euro area countries. However, we must recognise that in all the European countries, with the exception of Luxembourg and Ireland, the network of national branches has limited contact with foreign customers.

The second and more relevant way of going abroad is through foreign branches and subsidiaries. In last few years, Italian banks undertook a large expansion in the creation and the acquisition of subsidiaries. These developments helped overcome the delays accumulated in the past (on banking internationalization in the Nineties see De Bonis, Farabullini and Piazza, 2000). In June 2007, there were 115 subsidiaries of Italian banks in the world, versus 67 in 2000 and 50 in 1994. According to the literature, subsidiaries have been regarded as much more effective than branches in overcoming the entry barriers existing in foreign banking systems. In June 2007, Italian banks had 74 foreign branches, compared with 103 in 2000 and 117 in 1994. The decrease in the number of branches has been influenced by the wave of mergers and acquisitions in the Italian banking market which forced banks to rationalise their foreign network. The increase in Italian bank subsidiaries abroad in the years 2005-2007 is in line with the general growth, of cross-border mergers and acquisitions in Europe (ECB, 2006). Moreover, foreign banking groups increased their presence in Italy.

In 1994, 50 percent of the foreign subsidiaries of Italian banks were operative in euro area countries. From the end of the 1990s and particularly, from the start of the new millenium, Italian banks increased their presence in other European countries (Table 1). These include EU countries still outside the euro area, where 22 subsidiaries are active, and other non EU countries, with 23 subsidiaries. Therefore, today only 44 percent of the foreign subsidiaries of Italian banks are located in the euro area.

In lieu of these developments, in 2007 almost 25 percent of the total assets of the Italian banking groups were managed by foreign branches and subsidiaries. For the five largest Italian banking groups, foreign branches and subsidiaries carry out about 40 percent of the total activity of the groups. The largest volumes are of course in the euro area countries, given the size of the banking systems in these countries. However, it must be pointed out that the activity in the EU noneuro area countries is approaching that of the UK. Overall, the presence of Italian banking groups is very important in Central–Eastern Europe: in Croatia the market share of Italian banking groups is around 50 percent of the total (Tarantola, 2007); in Slovakia, Bulgaria and Poland the market share is about 20 percent.

4. Empirical evidence on the nexus between banks and the internationalization of firms

Statistics

The data on firms is taken from the Survey of Manufacturing Firms (SMF) of Capitalia (previously carried out by Mediocredito Centrale and now, after the merger between UniCredit and Capitalia, by UniCredit). Our analysis is based on the surveys carried out in 2002 (with reference to the period 1998-2000) and in 2004 (with reference to the years 2001-03). The SMF considers the universe of firms with more than 500 employees and a stratified sample of firms with less than 500 – but more than 10 – employees. To ensure the statistical representativeness of the smallest firms, the sample is stratified on the basis of firm size (number of employees), sector (four sectors according to the Pavitt classification) and geographical area (North and Center-South). Each survey

takes into account more than 4,000 firms; around 50% of the firms are replaced with other firms in every survey (*rotating panel*)⁶.

Table 2 shows the definitions and the sources of the statistics used in the paper. Table 3 contains some descriptive statistics.

In our analysis, the endogenous variable is binary: it is equal to 1 if the firm made an horizontal or a vertical foreign direct investment, if it offshored the whole or part of the production abroad or if it exported; otherwise (i.e., if the firm did not internationalise), the variable is zero. The exogenous variables include some indicators of the relationship between the bank and the firm: the length of the credit relationship with the principal bank and the number of banks granting loans to the enterprise (to capture multi-banking relationships).

Moreover, we took into account some of the variables on the company's financial structure: the logarithm of total assets, the return on equity, the leverage, the share of the largest shareholder, the participation to a mutual loan guarantee consortia or to an export consortia. The data on firm balance sheets are taken from AIDA. We also included some variables on the efficiency and quality product of the firms in the regressions, approximated by the ISO9000 certification, and on firm competitiveness, measured by the presence of international competitors.

We also considered some variables on bank presence in local credit markets during the years 1991-98: the number of provincial branches per 1,000 citizens; the Herfindahl-Hirschman index (HHI) for loans in each province; the new branches for 1,000 citizens created by new entrants or incumbents in each province. This data is taken from Banca d'Italia's statistics and have been reported by Herrera and Minetti (2007).

Other variables considered come from Guiso *et al.* (2004a,b). A set of indicators describing the banking market structure in 1936 in each region per 10,000 citizens: the market share of local bank branches; the number of saving banks; the number of cooperative banks; the total number of branches. We also considered social capital, measured as the average percentage of the eligible 1 voters per province for all the referendum proposed in the period between 1946 and 1987.

We also included some variables on industrial districts (see Ferri and Rotondi, 2006, for further details). Finally, some dummies (not included in Tables 2 and 3) served as controls for the possible effects of the business cycle and the firm sector (in the latter case using the two digit ATECO classification).

4.2 Methodology

In our empirical analysis we estimate regressions on the pooled firm level data covering the 1998-2003 period and we compute heteroskedastic-robust standard errors.

Following Herrera and Minetti (2007) and Ferri, Minetti and Rotondi (2007), we consider the length of the credit relationship (between a firm and its main bank), as the key explanatory variable. This variable, in fact, can be interpreted as a proxy for the intensity of the bank-firm relationship (*informational tightness*).⁷ To check the robustness of the link between firm's internationalization and the length of its banking relationship, we introduce further regressors. Namely some other features of the firm as well as some territorial variables describing the local economy.

The choice of moving production abroad or exporting can be modeled in the following way:

$$y_i = \alpha_1 x_i + z_i \delta_{11} + u_i, \quad (1)$$

⁶ The reasons that justify the replacement of firms in subsequent surveys are various: some firms may leave the manufacturing sector; other enterprises may lower the number of employees under the threshold of eleven; other companies have closed their business.

⁷ Actually, an equal duration of the relationship could be associated with a different degree of informational tightness, depending on the organizational distance between the bank's headquarters and its branches. In fact organizational frictions within the bank may affect the firm-bank relationship and the SME's access to credit (cfr. Alessandrini, Croci and Zazzaro, 2005).

where y_i is the choice of internationalization (export vs. other kinds of offshore production) of firm i ; x_i is a vector of control variables and z_i measures the intensity of the bank-firm relationship.

In the literature, the method of Instrumental Variables (IV) is applied in order to take into account endogeneity problems among regressors. In our case, we account for the possible presence of endogeneity problems in the key relationship between the choice of internationalization and the length of the bank-firm relationship. Considering the interpretation of instrumental variables given by Two Stages Least Squares (TSLS), we first define a vector of instrumental variables w_i correlated with the endogenous explanatory variable z_i , but uncorrelated with the stochastic error u_i in regression (1). The effect of these instrumental variables is captured by the vector of parameters δ_{21} in the following auxiliary regression:

$$z_i = w_i \delta_{21} + v_i, \quad (2)$$

where z_i is the endogenous explanatory variable in (1), w_i is the vector of instrumental variables and v_i is white noise. After estimating regression (2) at the first stage, z_i is substituted with its estimated values in regression (1). This last equation is then estimated at the second stage.

The instruments applied here are similar to those used by Herrera and Minetti (2007) and Ferri, Minetti and Rotondi (2007). In particular, we have a variable describing the banking market in 1936, when a restrictive regulation was introduced: the number of saving banks permitted per 10,000 citizens in each region. Moreover, a set of variables describing the structure of local banking markets during the period 1991-1998 is available, when the Italian banking sector was deregulated and became more concentrated: the total number of branches and the number of branches opened by new entrants in each province per 1,000 citizens.

In order to assess the validity of the chosen instruments, we needed to perform a diagnostic test. A good instrument must be correlated with the endogenous explanatory variable, to be instrumented, and orthogonal to the error term. As shown in Table 4, the first stage regression of the TSLS method supports the hypothesis that instrumental variables are correlated to the endogenous explanatory variable. This hypothesis is verified using a Wald test on the joint exclusion of the given instruments based on an F-statistic.

As for the control variables used in the regressions, we took into consideration some variables that capture important firm characteristics: demography, financial structure (total assets, ROE, leverage, membership to a mutual guarantee scheme or to an export consortium) and some characteristics of its activity related to industrial districts and to the degree of competitiveness. We also included some variables which capture regional or provincial characteristics: a dummy variable for the South, per capita value added at the provincial level, social capital and HHI.

An important limit of the analysis thus far described is that IV estimation implicitly assumes a linear probability model for the firm's choice to go international. For this reason, consistently with Ferri, Minetti and Rotondi (2007), we preferred using an IV-Probit estimation, following the methodology of Wooldridge (2002). In fact, this methodology does not require the assumption of a linear probability model and uses maximum conditional likelihood to estimate a Probit model with an endogenous explanatory variable. Tables 5-8 show the results obtained from this kind of estimation. A test on the endogeneity of the instrumented variable is also shown in these tables, with the test statistic distributed as a chi-squared.

4.3 Results

The four columns in Tables 5-8 show the results of the Probit and IV-Probit estimations, along with the robust standard errors aside each estimated coefficient.

Table 5 examines the determinants of horizontal FDI. Given the aim of the current analysis to explore the interaction between the choice of going international and the intensity of the bank-firm relationship, our main interest is to explain the estimations obtained from the length of the bank-firm relationship. Column 1 shows the Probit estimates. As we can see, the impact of the length of the bank-firm relationship is not statistically significant. Column 2 shows the IV-Probit estimates and, as we can see, the endogeneity test does not reject the null hypothesis that the instrumented regressor can be treated as an endogenous variable in the estimation. In this new estimation, the impact of the length of the relationship on the probability that the firm undertakes horizontal FDI is statistically significant (at the 1% confidence level) and is economically relevant (the marginal effect on the mean value is equal to 0.404).

In Table 6, the determinants of vertical FDI are analyzed. Column 1 reports the Probit estimates again. As we can see, the impact of the length of the bank-firm relationship is statistically significant at the 5% confidence level. But the impact does not seem to be economically relevant (the marginal effect on the mean value is equal to 0.002). Column 2 shows the IV-Probit estimates, and, as we can see, the test for endogeneity rejects the hypothesis that the instrumented variable can be considered an endogenous variable in the estimation. In this new estimation, the impact of the length of the relationship on the probability that the firm undertakes vertical FDI is not statistically significant.

In Table 7, the factors determining offshoring are examined. As we can see, in the Probit estimates (Column 1) the impact of the length of the bank-firm relationship is statistically significant, although at the 10% confidence level. Nevertheless, the impact does not seem to be economically relevant (the marginal effect on the mean value is equal to 0.004). Column 2 reports the IV-Probit estimates and, as we can see, the test for endogeneity rejects the hypothesis that the instrumented regressor can be treated as an endogenous variable in the estimation. In this new estimation, the impact of the duration of the relationship on the probability that the firm delocalizes is not statistically significant.

Finally, the factors determining the decision to export are examined in Table 8. As we can see, in this case, the length of the bank-firm relationship is not significant in either the Probit estimation (Column 1) or the IV-Probit estimation (Column 2). If we define thresholds for ‘export turnover’ and then we take into consideration only the “big exporters”, it is possible to obtain a weakly significant (at the 10% confidence level) estimated coefficient. In any case, the results of this exercise are not reported here in as much as they are not particularly robust using the available data and also due to the arbitrariness in the choice of the threshold value for export turnover.⁸

To verify the robustness of our estimates, we re-estimated the previous equations using additional regressors (in the tables are reported only the most significant). In particular, we include the number of banks with which the firm has a credit relationship. This robustness check is important in order to take into account the phenomenon of multi-banking, which is a stylized fact of the Italian banking market. Columns 3 and 4 of Tables 5-8 provide the new Probit and IV-Probit estimates, with robust standard errors next to each estimated coefficient. As we can see, this exercise confirms the robustness of the results previously obtained.

A further robustness analysis that would be interesting to implement, but unfortunately is not possible due to the lack of available data, entails interacting the length of the bank-firm relationship with a measure of bank internationalization. In fact, it is likely that the impact of the bank-firm informational tightness on the firm’s internationalization is even more pronounced when the firm’s main bank goes international. If the above hypothesis were correct, the weak, though significant, marginal effect on vertical FDI and on offshoring obtained in the present analysis would be explained.

⁸ In our empirical analysis, defining a “big exporter” as a firm with export turnover greater than 35% delivers a significant impact for the relationship between the probability to export and the length of the bank-firm relationship. However, if the threshold value is changed slightly, the results are no longer statistically significant.

5. Conclusions

Using data on Italian firms, this paper addressed the factors behind the various forms of enterprise internationalization focusing, in particular, on the possible role played by the length of the relationship between the firm and its main bank. Our empirical results show that Foreign Direct Investment – both horizontal and vertical – as well as international outsourcing of production are both positively affected by the length of that relationship. Since these forms of internationalization tend to make firms more opaque, a situation in which a strong relationship between the bank and the firm may prove extremely beneficial for overcoming informational asymmetries. On the contrary, bank relationships do not seem to influence the firm's decision to export or not, indicating that this form of internationalization is perhaps so simple that a firm may undertake it even without the support of its main bank.

We obtained these results considering a wide range of control variables: they are also robust even when we introduce the number of banks lending to the firm as an independent variable, a further proxy of the intensity of the bank-firm relationship.

Thus, our evidence suggests that the internationalization of production by manufacturing firms is favored by the existence of a strong bank-firm relationships. Considering that the internationalization of production is a key step in increasing the growth of firms (Giovanetti et al., 2007) or even a leap frogging in firm size (Costa and Ferri, 2005), the intensity of the bank-firm relationships seems to be a strategic feature. The fundamental channel through which this impact is felt is by relaxing the barriers to the growth choices of the firm, especially when these choices lead to an increase in the opaqueness of the firm's activities such as shifting (some) production abroad.

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Area	June 1994			June 2000		
	Branches	Subsidiaries	Groups	Branches	Subsidiaries	Groups
Euro area countries	42	25	20	31	30	18
EU non euro countries	2	1	1	3	1	1
Non EU European countries	-	6	6	-	13	12
United Kingdom	15	3	15	17	1	12
North America	23	3	12	16	2	9
Off-shore countries (a)	13	8	12	13	7	9
Far East	18	-	9	21	-	7
Latin America	-	2	1	-	6	2
Others	4	2	4	2	7	5
TOTAL (b)	117	50	26	103	67	25

Area	June 2006			June 2007		
	Branches	Subsidiaries	Groups	Branches	Subsidiaries	Groups
Euro area countries	21	50	16	27	48	14
EU non euro countries	11	23	5	12	22	6
Non EU European countries	-	25	16	-	23	13
United Kingdom	11	-	8	10	-	7
North America	7	1	7	7	1	6
Off-shore countries (a)	3	4	5	3	4	4
Far East	15	1	6	14	1	5
Latin America	-	-	-	-	-	-
Others	1	11	5	1	16	7
TOTAL (b)	69	115	25	74	115	24

(a) *Off-shore* countries consist of Netherlands Antilles, Bahamas, Cayman Islands, Guernsey, Lebanon, Madeira. Differently from the usual classification, Hong Kong and Singapore are included in the Far East and not in the *off-shore* countries.

(b) Groups present in more than one area are counted only once.

Table 2 – Variables: definition and source

	Definition	Source
Relationship length	Log of the number of years of the relationship between the firm and its main bank	Capitalia Survey
Banks	Log of the number of banks with which the firm entertains credit relationships	Capitalia Survey
Branches	Average number of branches per 1,000 citizens in the province during the 1991-1998 period	Herrera-Minetti (2007)
HHI	Average Herfindahl-Hirschman Index on bank loans in the province during the 1991-1998 period	Herrera-Minetti (2007)
Total assets	Log of total assets	AIDA
ROE	Return on equity	AIDA
Leverage	Ratio of financial debt to financial debt plus net capital	AIDA
Major owner	Share of equity of the largest owner	Capitalia Survey
Credit consortium	Dummy that takes the value 1 if the firm belongs to a credit consortium; 0 otherwise	Capitalia Survey
Export consortium	Dummy that takes the value 1 if the firm belongs to a export consortium; 0 otherwise	Capitalia Survey
Corporation	Dummy that takes the value 1 if the firm is a corporation; 0 otherwise	Capitalia Survey
Group	Dummy that takes the value 1 if the firm belongs to a group; 0 otherwise	Capitalia Survey
Age	Log of the number of years of the firm from its foundation	Capitalia Survey
Size	Log of the number of employees	Capitalia Survey
Social Capital	Social capital is measured by average voter turnout at the province level for all referenda in the period between 1946 and 1987	Guiso <i>et al.</i> , 2004b
Value added	Per capita value added in the province in 1991	ISTAT
Bank branches owned by local banks in 1936	Share of bank branches owned by local banks in the region in 1936	Guiso <i>et al.</i> , 2004a
Saving banks in 1936	Number of saving banks per 10,000 citizens in the region in 1936	Guiso <i>et al.</i> , 2004a
Bank branches in 1936	Bank branches per 10,000 citizens in the region in 1936	Guiso <i>et al.</i> , 2004a
Cooperative banks in 1936	Number of cooperative banks per 10,000 citizens in the region in 1936	Guiso <i>et al.</i> , 2004a
New branches entrants	Average number of new branches created by entrants per 1,000 citizens in the province during the 1991-1998 period	Herrera-Minetti (2007)
New branches incumbents	Average number of new branches created by incumbents per 1,000 citizens in the province during the 1991-1998 period	Herrera-Minetti (2007)

Table 2 – Variables: definition and source (continued)

	Definition	Source
Offshoring	Dummy that takes the value 1 if the firm has offshored abroad part of the (or the whole) production; 0 otherwise	Capitalia Survey
HFDI	Dummy that takes the value 1 if the firm has made horizontal FDI; 0 otherwise	Capitalia Survey
VFDI	Dummy that takes the value 1 if the firm has made vertical FDI; 0 otherwise	Capitalia Survey
Export	Dummy that takes the value 1 if the firm has exported products abroad; 0 otherwise	Capitalia Survey
International competitors	Dummy that takes the value 1 if the firm has international competitors; 0 otherwise	Capitalia Survey
ISO9000 certified	Dummy that takes the value 1 if the firm is ISO9000 certified; 0 otherwise	Capitalia Survey
South	Dummy that takes the value 1 if the firm is located in a region South of Rome, with Lazio excluded; 0 otherwise	Capitalia Survey
Located in an industrial district and same industry of the district	Dummy that takes the value 1 if the firm is located in an industrial district and belongs to the same industry of the district; 0 otherwise	Capitalia Survey
Located in an industrial district	Dummy that takes the value 1 if the firm is located in an industrial district but not necessarily belongs to the same industry of the district; 0 otherwise	Capitalia Survey
Located in an industrial district of the made-in-Italy	Dummy that takes the value 1 if the firm is located in an industrial district of the made-in-Italy but not necessarily belongs to the same industry of the district; 0 otherwise	Capitalia Survey

Table 3 – Summary statistics

	Median	Mean	1st Percentile	99th Percentile	Standard Deviation
Relationship length	2.773	2.684	1.099	4.025	0.683
Banks	1.609	1.512	0	2.996	0.613
Branches	0.473	0.460	0.202	0.795	0.118
HHI	0.064	0.070	0.036	0.196	0.028
Total assets	6.693	6.792	5.801	8.662	0.615
ROE	4.728	5.204	-54.318	53.517	17.936
Leverage	0.923	0.885	0.467	0.998	0.118
Major owner	0.5	0.579	0.02	1	0.281
Credit consortium	0	0.030	0	1	0.170
Export consortium	0	0.017	0	1	0.130
Corporation	1	0.959	0	1	0.198
Group	0	0.261	0	1	0.439
Age	3.135	3.069	1.386	4.585	0.676
Size	3.466	3.767	2.398	7.179	1.111
Social capital	0.86	0.840	0.660	0.910	0.062
Value added	2.663	2.613	1.997	3.000	0.235
Bank branches owned by local banks in 1936	0.886	0.811	0.507	0.972	0.143
Saving banks in 1936	0.032	0.029	0	0.102	0.027
Bank branches in 1936	2.219	2.452	0.828	5.305	1.190
Cooperative banks in 1936	0.060	0.087	0	0.217	0.059
New branches entrants	0.002	0.003	0	0.009	0.002
New branches incumbents	0.024	0.024	0.008	0.042	0.009
Offshoring	0	0.047	0	1	0.212
HFDI	0	0.019	0	1	0.136
VFDI	0	0.008	0	1	0.091
Export	1	0.709	0	1	0.454
International competitors	0	0.344	0	1	0.475
ISO9000 certified	0	0.473	0	1	0.499
South	0	0.154	0	1	0.361
Located in an industrial district and same industry of the district	0	0.135	0	1	0.342
Located in an industrial district	0	0.480	0	1	0.500
Located in an industrial district of the made-in-Italy	0	0.307	0	1	0.461

Table 4 – Determinants of the duration of the bank-firm relationship

	OLS	
	Coeff.	S.E.
New branches entrants	-13.9143***	5.1163
Saving banks in 1936	-0.0177	0.2977
Branches	-0.3463***	0.1017
HHI	0.8383**	0.3503
Leverage	0.0162	0.0711
Total assets	-0.0809***	0.0284
ROE	0.0002	0.0004
Major owner	-0.1154***	0.0297
Credit consortium	-0.0402	0.0465
Export consortium	0.0909*	0.0540
Corporation	0.0275	0.0434
Group	-0.1085***	0.0215
Age	0.5095***	0.0121
Size	0.0309**	0.0149
International competitors	-0.0233	0.0166
ISO9000 certified	0.0038	0.0167
Value added	0.1020*	0.0588
Social capital	0.8037***	0.2909
South	0.0032	0.0436
Located in an industrial district and same industry of the district	-0.0079	0.0279
Located in an industrial district	0.0311	0.0231
Located in an industrial district of the made-in-Italy	0.0071	0.0229
<i>Observations</i>	6431	
<i>R²</i>	0.269	
<i>Wald test of excluded instruments, F-statistic</i>	7.770***	

Notes: Pooled regressions using the last two waves of the Capitalia survey (1998-2000 and 2001-2003). The endogenous variable is the log of the number of years of the relationship between the firm and its main bank. For the definition of the regressors see Table 2. See the section on the methodology for the definition of the test statistics reported in the table. The regression includes constant, industry and time dummies. Robust standard errors are reported. (*): coefficient significant at 10 percent; (**): coefficient significant at 5 percent; (***): coefficient significant at less than 1 percent.

Table 5 – Determinants of horizontal FDI

	Probit		IV-Probit		Probit		IV-Probit	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Relationship length	0.0239	0.0662	1.6292***	0.0865	0.0206	0.0664	1.6366***	0.0761
Banks					0.1861**	0.0733	0.0580	0.0404
HHI	-1.2763	2.2763	-2.2899**	1.0423	-0.9567	2.2678	-2.1483**	1.0105
Leverage	-0.0540	0.3853	-0.0335	0.1796	-0.1835	0.3854	-0.0675	0.1778
Total assets	0.5477***	0.1370	0.3274***	0.0960	0.4657***	0.1415	0.2929***	0.0863
ROE	0.0045**	0.0023	0.0016	0.0013	0.0051**	0.0024	0.0017	0.0013
Major owner	-0.2689	0.1694	0.1010	0.0855	-0.2386	0.1691	0.1130	0.0803
Credit consortium	0.0879	0.2193	0.1060	0.1118	0.0676	0.2230	0.0985	0.1103
Export consortium	0.0430	0.2914	-0.1309	0.1296	0.0280	0.2953	-0.1384	0.1278
Corporation	-0.2966	0.2407	-0.1455	0.1103	-0.3096	0.2409	-0.1434	0.1081
Group	0.3509***	0.1102	0.2917***	0.0635	0.3449***	0.1095	0.2830***	0.0603
Age	0.0366	0.0674	-0.8191***	0.0588	0.0271	0.0679	-0.8263***	0.0525
Siza	-0.0479	0.0691	-0.0655*	0.0334	-0.0503	0.0698	-0.0670**	0.0332
International competitors	0.2449***	0.0864	0.1194**	0.0501	0.2457***	0.0868	0.1175**	0.0478
ISO9000 certified	0.0556	0.0953	0.0041	0.0436	0.0406	0.0951	-0.0012	0.0422
Value added	-0.3448	0.3443	-0.3052*	0.1572	-0.2719	0.3438	-0.2788*	0.1505
Social capital	-3.5418**	1.5318	-1.7692**	0.8180	-3.9237**	1.5582	-1.8497**	0.8158
South	-0.9029***	0.3216	-0.3177*	0.1842	-0.9038***	0.3269	-0.3115*	0.1741
Located in an industrial district and same industry of the district	0.0106	0.1313	0.0161	0.0653	0.0315	0.1309	0.0242	0.0641
Located in an industrial district	0.1416	0.1273	-0.0003	0.0632	0.1313	0.1276	-0.0075	0.0607
Located in an industrial district of the made-in-Italy	-0.0318	0.1208	-0.0135	0.0563	-0.0326	0.1214	-0.0124	0.0553
<i>Observations</i>	5712		6375		5694		6356	
<i>Pseudo R²</i>	0.146				0.152			
<i>Wald test, χ^2-statistic</i>	163.720***		4148.110***		167.770***		4322.260***	
<i>Endogeneity test, χ^2-statistic</i>			16.410***				19.610***	

Notes: Pooled regressions using the last two waves of the Capitalia survey (1998-2000 and 2001-2003). The endogenous variable is a dummy that takes the value 1 if the firm has made horizontal FDI; 0 otherwise. IV-Probit estimation uses as instruments a set of variables that describe the banking market as of 1936 (see Guiso *et al.*, 2004a) and a set of variables that describe shocks to the local supply of banking services for the 1991-1998 period (see Herrera and Minetti 2007). For the definition of the regressors see Table 2. See the section on the methodology for the definition of the test statistics reported in the table. The regressions include constant, industry and time dummies. Robust standard errors are reported. (*): coefficient significant at 10 percent; (**): coefficient significant at 5 percent; (***): coefficient significant at less than 1 percent.

Table 6 – Determinants of vertical FDI

	Probit		IV-Probit		Probit		IV-Probit	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Relationship length	0.2466**	0.1043	-0.5727	1.2099	0.2389**	0.1041	-0.5438	1.2669
Banks					0.1722*	0.0915	0.1561*	0.0945
HHI	-2.8615	2.7864	-1.7284	3.0313	-2.4594	2.7316	-1.4279	2.9677
Leverage	0.9577**	0.4122	0.8489*	0.4880	0.9002**	0.4276	0.8032	0.4922
Total assets	0.4353**	0.1924	0.3252	0.2915	0.3593*	0.2026	0.2640	0.2859
ROE	-0.0005	0.0031	-0.0005	0.0027	-0.0004	0.0032	-0.0004	0.0029
Major owner	0.0215	0.2149	-0.0735	0.2313	0.0457	0.2129	-0.0461	0.2389
Credit consortium	0.4871**	0.2254	0.3991	0.2901	0.4540**	0.2277	0.3755	0.2868
Export consortium	-0.1690	0.3806	-0.0800	0.3779	-0.2005	0.3833	-0.1122	0.3899
Corporation	-0.6506***	0.2504	-0.5546*	0.3313	-0.6800***	0.2512	-0.5896*	0.3402
Group	0.4589***	0.1384	0.3190	0.2881	0.4517***	0.1385	0.3225	0.2881
Age	-0.1160	0.1089	0.3034	0.6332	-0.1219	0.1096	0.2797	0.6653
Siza	-0.0038	0.1057	0.0192	0.1002	-0.0028	0.1088	0.0196	0.1044
International competitors	0.4191***	0.1130	0.3549*	0.2054	0.4234***	0.1122	0.3635*	0.2073
ISO9000 certified	-0.2338*	0.1246	-0.2010	0.1300	-0.2492**	0.1252	-0.2175	0.1340
Value added	-0.7567*	0.4095	-0.5901	0.5117	-0.6680*	0.4042	-0.5185	0.4993
Social capital	-0.2388	1.8673	0.1393	1.9082	-0.4896	1.9067	-0.1079	2.0148
South	-0.2719	0.3186	-0.2290	0.3424	-0.2444	0.3186	-0.2051	0.3437
Located in an industrial district and same industry of the district	0.0503	0.2137	0.0398	0.1884	0.0670	0.2154	0.0544	0.1918
Located in an industrial district	-0.0932	0.1703	-0.0566	0.1675	-0.1045	0.1688	-0.0680	0.1703
Located in an industrial district of the made-in-Italy	0.0168	0.1744	0.0163	0.1564	0.0132	0.1754	0.0130	0.1589
<i>Observations</i>	5821		6375		5804		6356	
<i>Pseudo R²</i>	0.176				0.181			
<i>Wald test, χ^2-statistic</i>	228.840***		2724.470***		239.530***		2859.470***	
<i>Endogeneity test, χ^2-statistic</i>			0.360				0.310	

Notes: Pooled regressions using the last two waves of the Capitalia survey (1998-2000 and 2001-2003). The endogenous variable is a dummy that takes the value 1 if the firm has made vertical FDI; 0 otherwise. IV-Probit estimation uses as instruments a set of variables that describe the banking market as of 1936 (see Guiso *et al.*, 2004a) and a set of variables that describe shocks to the local supply of banking services for the 1991-1998 period (see Herrera and Minetti 2007). For the definition of the regressors see Table 2. See the section on the methodology for the definition of the test statistics reported in the table. The regressions include constant, industry and time dummies. Robust standard errors are reported. (*): coefficient significant at 10 percent; (**): coefficient significant at 5 percent; (***): coefficient significant at less than 1 percent.

Table 7 – Determinants of offshoring

	Probit		IV-Probit		Probit		IV-Probit	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Relationship length	0.0975*	0.0511	-0.5390	0.8943	0.0883*	0.0510	-0.1862	1.0367
Banks					0.0827	0.0559	0.0825	0.0556
HHI	0.5643	1.7687	1.1351	1.7882	0.6213	1.7757	0.8904	1.9778
Leverage	0.6073**	0.3089	0.5749*	0.3139	0.6332**	0.3173	0.6299**	0.3190
Total assets	0.5905***	0.1109	0.5005**	0.2112	0.5425***	0.1143	0.5146***	0.1740
ROE	0.0002	0.0017	0.0002	0.0016	0.0004	0.0017	0.0004	0.0017
Major owner	-0.0943	0.1261	-0.1615	0.1482	-0.0779	0.1260	-0.1081	0.1691
Credit consortium	0.4872***	0.1406	0.4317**	0.1840	0.4767***	0.1417	0.4607***	0.1623
Export consortium	-0.2754	0.2557	-0.2006	0.2746	-0.2835	0.2574	-0.2557	0.2810
Corporation	-0.0906	0.2174	-0.0668	0.2117	-0.1014	0.2179	-0.0927	0.2215
Group	0.3347***	0.0812	0.2412	0.1778	0.3383***	0.0813	0.3042*	0.1615
Age	-0.0803	0.0545	0.2476	0.4654	-0.0819	0.0546	0.0590	0.5353
Siza	0.0148	0.0554	0.0317	0.0573	0.0192	0.0559	0.0268	0.0632
International competitors	0.3486***	0.0674	0.3092***	0.1109	0.3420***	0.0677	0.3313***	0.0887
ISO9000 certified	0.0171	0.0762	0.0202	0.0718	0.0225	0.0766	0.0246	0.0759
Value added	-0.0680	0.2654	0.0092	0.2689	-0.0618	0.2648	-0.0268	0.2869
Social capital	1.9897*	1.1770	2.0526*	1.1018	1.7457	1.1955	1.7998	1.2081
South	-0.0350	0.2092	-0.0286	0.1973	-0.0641	0.2117	-0.0609	0.2104
Located in an industrial district and same industry of the district	0.0261	0.1058	0.0238	0.0997	0.0265	0.1057	0.0253	0.1046
Located in an industrial district	-0.0174	0.0996	0.0076	0.1011	-0.0129	0.0992	-0.0020	0.1066
Located in an industrial district of the made-in-Italy	-0.0040	0.0984	-0.0058	0.0927	-0.0061	0.0987	-0.0070	0.0976
<i>Observations</i>	6369		6395		6349		6375	
<i>Pseudo R²</i>	0.246				0.249			
<i>Wald test, χ^2-statistic</i>	363.740***		944.390***		358.210***		894.230***	
<i>Endogeneity test, χ^2-statistic</i>			0.430				0.070	

Notes: Pooled regressions using the last two waves of the Capitalia survey (1998-2000 and 2001-2003). The endogenous variable is a dummy that takes the value 1 if the firm has offshored abroad part of the (or the whole) production; 0 otherwise. IV-Probit estimation uses as instruments a set of variables that describe the banking market as of 1936 (see Guiso *et al.*, 2004a) and a set of variables that describe shocks to the local supply of banking services for the 1991-1998 period (see Herrera and Minetti 2007). For the definition of the regressors see Table 2. See the section on the methodology for the definition of the test statistics reported in the table. The regressions include constant, industry and time dummies. Robust standard errors are reported. (*): coefficient significant at 10 percent; (**): coefficient significant at 5 percent; (***): coefficient significant at less than 1 percent.

Table 8 – Determinants of export

	Probit		IV-Probit		Probit		IV-Probit	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Relationship length	0.0318	0.0327	0.4762	0.5321	0.0298	0.0328	0.5380	0.5281
Banks					0.1742***	0.0377	0.1670***	0.0400
HHI	-2.5573***	0.8312	-2.9237***	0.8653	-2.3341***	0.8325	-2.7434***	0.8572
Leverage	-0.0465	0.1797	-0.0405	0.1773	-0.1309	0.1808	-0.1197	0.1780
Total assets	0.6192***	0.0796	0.6380***	0.0777	0.5276***	0.0818	0.5479***	0.0791
ROE	0.0003	0.0011	0.0003	0.0011	0.0009	0.0011	0.0008	0.0011
Major owner	0.0754	0.0741	0.1241	0.0918	0.0876	0.0744	0.1412	0.0894
Credit consortium	0.2121*	0.1112	0.2181**	0.1072	0.1938*	0.1103	0.2003*	0.1053
Export consortium	1.1247***	0.2297	1.0494***	0.2656	1.1150***	0.2308	1.0223***	0.2719
Corporation	0.5349***	0.0956	0.5035***	0.1116	0.5094***	0.0955	0.4713***	0.1131
Group	-0.2379***	0.0543	-0.1832*	0.0936	-0.2245***	0.0546	-0.1621*	0.0936
Age	0.0253	0.0359	-0.2046	0.2772	0.0244	0.0357	-0.2381	0.2751
Siza	0.0959**	0.0403	0.0785*	0.0458	0.0904**	0.0398	0.0696	0.0457
International competitors	0.9408***	0.0479	0.9196***	0.0797	0.9434***	0.0481	0.9137***	0.0893
ISO9000 certified	0.1037**	0.0417	0.0986**	0.0422	0.0953**	0.0418	0.0889**	0.0423
Value added	-0.0106	0.1433	-0.0619	0.1504	0.0426	0.1438	-0.0191	0.1526
Social capital	-0.1472	0.6465	-0.2968	0.6685	-0.4934	0.6490	-0.6559	0.6576
South	-0.2895**	0.1143	-0.2820**	0.1134	-0.2946**	0.1144	-0.2869**	0.1130
Located in an industrial district and same industry of the district	0.0245	0.0778	0.0274	0.0764	0.0251	0.0781	0.0293	0.0761
Located in an industrial district	0.0927*	0.0572	0.0715	0.0624	0.1002*	0.0575	0.0747	0.0634
Located in an industrial district of the made-in-Italy	0.0288	0.0578	0.0311	0.0569	0.0245	0.0581	0.0269	0.0568
<i>Observations</i>	6391		6388		6371		6368	
<i>Pseudo R²</i>	0.220				0.223			
<i>Wald test, χ^2-statistic</i>	1178.080***		1303.010***		1211.140***		1366.890***	
<i>Endogeneity test, χ^2-statistic</i>			0.640				0.820	

Notes: Pooled regressions using the last two waves of the Capitalia survey (1998-2000 and 2001-2003). The endogenous variable is a dummy that takes the value 1 if the firm has exported products abroad; 0 otherwise. IV-Probit estimation uses as instruments a set of variables that describe the banking market as of 1936 (see Guiso *et al.*, 2004a) and a set of variables that describe shocks to the local supply of banking services for the 1991-1998 period (see Herrera and Minetti 2007). For the definition of the regressors see Table 2. See the section on the methodology for the definition of the test statistics reported in the table. The regressions include constant, industry and time dummies. Robust standard errors are reported. (*): coefficient significant at 10 percent; (**): coefficient significant at 5 percent; (***): coefficient significant at less than 1 percent.