Family Firms, Corporate Governance, and Export

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Abstract

This paper tests the impact of family ownership on firms' export decisions using a data set of 20,000 Italian manufacturers. We find that family ownership increases the probability that firms export, although the effect weakens as ownership concentration rises. The benefit of family owners is especially pronounced when they retain control rights (ownership is aligned with control) and seek the support of external managers (ownership is partially separated from management). The results suggest that families better internalize the long-run benefits of internationalization, but that their limited competencies attenuate this benefit in high-tech industries and in remote and unfamiliar export markets.

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1 Introduction

In a global economy, export markets are an important venue for firms to grow. For this reason, scholars and policy-makers intensely debate the determinants of firms' international expansion. There is a growing consensus that firms' corporate governance influences their ability to export. In recent editorials on the costs and benefits of public companies vis-à-vis family firms, The Economist (2012, 2013) mentions the successful experience of German and Northern European family firms in international markets, arguing that these firms have led the export boom of their countries. According to The Economist, a key benefit of family owners is their long-termism, that is, the ability to internalize the long-run benefits of expanding abroad. In line with these arguments, Ward (2006) reports the results of a survey conducted among 300 executives: 43% of the executives of non-family firms acknowledged that their companies under-invested in long-term projects, versus 8% of the executives of family firms. However, this positive view about family firms is not universally shared. For example, it is often argued that family businesses might be reluctant to abandon their initial geographical niche and that this could imply lower propensity for international expansion (Casson, 2000; Onida, 2004). Thus, the overall impact of family ownership on export is ambiguous ex ante and is ultimately an empirical question.

Although family businesses account for a large fraction of economic activity in many countries, there are very few studies on their internationalization.[1] The objective of this paper is to help fill this gap and investigate whether family firms differ from non-family ones in the probability of exporting (extensive margin) and in the volume of export (intensive margin), conditional on exporting. To address this question, we exploit a rich survey of over 20,000 Italian manufacturing firms conducted by the banking group Capitalia. The data set provides unusually detailed information on firms' export activity which is based directly on firms' responses to survey questions. This includes information on firms' export participation decisions and foreign sales. The data set also contains precise information on firms' ownership structure, such as the types and equity stakes of the largest shareholders, the alignment between ownership and control, and the involvement of shareholders in firms' management.

[1] In the United States, about one third of the S&P 500 firms are controlled by families (Anderson and Reeb, 2003). In continental Europe, the majority of publicly held firms remain family controlled (La Porta, Lòpez-de-Silanes and Shleifer, 1999; Faccio and Lang, 2002). In East Asia, a small number of families control firms that account for the majority of stock market capitalization (Claessens, Djankov and Lang, 2000).

We find that family ownership positively affects the probability that firms enter foreign markets (extensive margin of export).[2] The effect is sizable. After controlling for various firm characteristics and province fixed effects, family firms are 3.1 percent more likely to export than their non-family counterparts.[3] The estimates reveal non-linearities in the effect of family ownership: the effect on export weakens as ownership concentration increases. We also obtain that family ownership especially benefits export when families retain control rights (ownership is aligned with control) and when they hire external managers (ownership is partially separated from management).

The analysis then turns to study the mechanisms through which family ownership affects the extensive margin of trade. According to the theoretical literature, the possible channels of influence are the long-termism of families, on the positive side, and the lack of competence, the narrowness, and risk aversion (lack of diversification) of families, on the negative side. Let us first consider the channels of positive influence. When we split the sample based on firm age, we uncover evidence that family ownership increases the probability of entry into foreign markets for older businesses. This could hint at a role of families' long-termism, as older firms have typically a higher survival probability than young ones. Moreover, we find that family firms that issue equity to new investors and that plan to go public have a lower probability of exporting. Since these are the firms in which family owners appear to reduce their involvement, the evidence of reduced probability of exporting further suggests the positive impact of families' long-termism on export.

Next, let us consider the channels of negative influence. We find that risk aversion, due to lack of financial diversification, does not deter families from promoting export. However, the results suggest that families' lack of competence and skills may attenuate the positive impact of family ownership on firms' internationalization. In fact, the benefit of family owners for export appears to kick in only when export does not entail strong knowledge and skills. First, the estimates reveal that the effect of family ownership is stronger the lower the degree of sophistication and technology content in the industry. While family firms are significantly more likely to export in traditional and scale-intensive sectors, they are 9 percent less likely to participate in export activities than their non-family counterparts in high-tech industries. Second, the estimates suggest that family

[2]Family ownership appears to have no significant effect on the value of foreign sales, conditional on exporting (the "intensive margin").

[3]Italian provinces are geographical entities similar in size to U.S. counties.

ownership has a positive effect especially for firms specialized in niche markets. Third, family ownership has a positive impact on the decision to export to the European Union (EU). However, we find no significant evidence that it increases the probability of exporting to non-EU markets. Put differently, family firms are good at expanding only into easy-to-access (nearby and familiar) markets.

The above results are robust to using different estimation methods, including OLS and probit with province fixed effects as well as IV techniques (2SLS and bivariate probit). In particular, the reader may be concerned that family ownership can be endogenous. As we explain in the paper, when doing an IV estimation, we construct instruments for ownership structure employing information on past regulation of Italian local financial markets. The IV results confirm the positive effect of family ownership on export participation.

The remainder of the paper is structured as follows. In Section 2, we review the related literature. Section 3 describes the institutional background. Section 4 discusses the predictions of the theoretical literature. Section 5 illustrates the data and the empirical methodology. In Section 6, we present the results. Section 7 concludes.

2 Related Literature

This paper is related to the literature on the impact of ownership structure on firm performance. Some papers show that in the United States family firms tend to have higher profitability than non-family firms (Anderson and Reeb, 2003; Villalonga and Amit, 2006). Recent studies on European countries find that family-owned firms perform better than widely held ones (Sraer and Thesmar, 2007; Favero, Pagano and von-Thadden, 2010; Maury, 2006). These findings are often interpreted as supporting the theoretical hypothesis that family ownership reduces classic agency problems between owners and managers, such as managers' short-termism (Fama and Jensen, 1983). In contrast with these analyses, other papers question the benefits of family ownership. Perez-Gonzalez (2006) shows that family firms are less efficient than widely held firms. The theories on the dynastic transmission of management responsibility in family firms offer a possible explanation for this result. In fact, these theories suggest that external professional managers have more competence and skills than family descendants (Caselli and Gennaioli, 2012; Burkart, Panunzi and Shleifer, 2003).[4]

[4]For an analysis of the costs of family ownership, see Schulze, Lubatkin, Dino and Buchholtz (2001). For evidence on the performance of family firms in emerging markets see, e.g., Luo and Chung (2012).

Although family firms play an important role in international markets, there is very scarce evidence on their internationalization process. Analyzing about 400 businesses in five U.S. states, Zahra (2003) highlights the role of family ownership in increasing managers' willingness to expand internationally. By contrast, other papers uncover a negative impact of family ownership on firms' internationalization. Gallo and Garcia Pont (1996) study a sample of 57 companies and find that a focus on the local market and inadequate technologies are the main obstacles to the internationalization of family firms. Graves and Thomas (2006) examine the determinants of businesses' international presence and suggest that family firms tend to have a more local culture.

3 Institutional Background

Italy provides an ideal environment for investigating the impact of family ownership on firm internationalization. In 2000 (roughly the middle year of our sample), among non-state owned manufacturing firms (82% of the firms), the top shareholder was a family or an individual in 54% of cases, another company in 27% of cases, a foreign firm in 13%, and a financial holding in 5% of cases. These figures reveal the key role of family ownership. They also reveal the scanty presence of financial institutions among shareholders, which is historically due to legal prescriptions introduced in the 1930s that prevented banks from holding shares in corporations. Although in the early 1990s the legislation changed (d.lgs. 481/92 and 385/93), the limited role of financial institutions as corporate owners continues to be a feature of the Italian corporate sector. Another relevant characteristic of the Italian corporate sector is the high degree of ownership concentration (Bianchi and Bianco, 2008).

Turning to export, in the years preceding the crisis, the Italian economy displayed an increase in export activities: total export went from 17.7 billion dollars in 1995 to 44.9 billion dollars in 2008. However, the percentage of exporting firms did not change significantly between 1995 and 2008. If we focus on manufacturing, in 2000 the percentage of exporting firms was 18% (52.7% if we restrict attention to firms with more than 10 employees). In 2000, four manufacturing industries accounted for more than half of the total export value of the country: Machinery Manufacturing (19%), Motor vehicles (12%), Textiles (10%), and Electronic Equipment (10%). In 2000, 70% of total export was sold in Europe (57% in the EU-15), 14% in North and South America (11% in the United States and Canada), 11% in Asia, 4% in Africa, and 1% in Oceania.

Italy is the fourth European country in terms of value of export, after Germany, France, and the United Kingdom. The percentage of Italian manufacturing firms involved in export activities is in line with that in other European countries. Bellone, Musso, Nesta and Quere (2008) find that, over the 1990–2002 period, 73% of French firms with at least 20 employees engaged in export. For the United Kingdom, Greenaway, Guariglia and Kneller (2007) document that in a panel of 9292 manufacturing firms observed over the 1993–2003 period, almost 70% of firms exported in at least one year. For Sweden, Hansson and Lundin (2004) obtain that around 89% of manufacturing firms with more than 50 employees exported during the 1990–1999 period.

4 Theoretical Predictions

To understand the relationship between corporate governance and firm internationalization, it is crucial to keep in mind the challenges associated with export activities. First, entering foreign markets entails high fixed costs, some of which are sunk (Baldwin, 1985; Dixit, 1989; Das, Roberts and Tybout, 2007). Firms need to modify their existing product lines to satisfy foreign demand. They also need to invest (e.g., in advertising) to increase the awareness of their brand in foreign markets. And entering foreign markets also involves gathering information about such markets, which in turn requires knowledge and skills (Sullivan and Bauerschmidt, 1989). Second, firms face intense competition in foreign markets open to international trade and investment. As a result, profits generated from foreign sales can be more volatile than profits generated from domestic sales (Vannoorenberghe, 2012). Third, because it is difficult for lenders to verify foreign sales and secure collateral assets abroad, it may be hard for firms to obtain funds to finance their foreign expansion (Chaney, 2005; Minetti and Zhu, 2011).

These properties of export (high fixed costs, riskiness, and low verifiability) are crucial for understanding the impact of ownership structure. Family firms have advantages and disadvantages over non-family firms in facing the challenges associated with international expansion. On the positive side, they tend to have a longer horizon (Sraer and Thesmar, 2007). Their links with future generations can lead family owners to focus on long-run returns and pursue investment opportunities that widely held firms may neglect (Bertrand and Schoar, 2006). Since export involves high fixed costs of entry, the long-termism of family firms may make them more likely than non-family ones to pursue international expansion.

On the negative side, in family firms dynastic transmission of management may induce shortage of skills necessary for entering foreign markets (Burkart, Panunzi and Shleifer, 2003). The family may appoint family members to positions of responsibility instead of recruiting external professional managers (Bertrand, Johnson, Samphantharak and Schoar, 2008). A second disadvantage of family firms is that they are often niche firms that tend to protect their niche position sticking to the same activities over time (Sraer and Thesmar, 2007). International expansion implies, instead, dealing with new customers, competitors and markets that may be weakly connected to the original activity. The narrowness of family businesses tends to inhibit internationalization.

Finally, a third negative factor is that family firms tend to be more risk averse than non-family firms because families generally have a large share of their wealth invested in their company (Bolton and von-Thadden, 1998; Villalonga and Amit, 2006). Thus, family firms may be less likely to take risk by expanding internationally.

5 Data and Empirical Strategy

5.1 Empirical Model

We analyze the differences between family firms and their non-family counterparts in export decisions. We first examine the extensive margin of trade, that is, the probability of exporting. Let π_i^* denote the difference between firm i's operating profits when exporting and its operating profits when not exporting. This difference is determined by firm ownership and characteristics. Therefore, we parameterize π_i^* as

$$\pi_i^* = \alpha_1 + O_i\beta_1 + Z_i\gamma_1 + \varepsilon_{1i},$$

where O_i is a measure of firm i's ownership structure (e.g., a binary variable that equals one if the main shareholder of firm i is an individual or family, zero otherwise); Z_i is a vector of controls for firm characteristics that may affect firm i's differential operating profits π_i^* (e.g., productivity, size, age), as well as controls for regional differences and dummy variables indicating the year when firm i was surveyed; and ε_{1i} captures the unobserved firm attributes and any other unknown factor that may also affect π_i^*.

Firm i will export if $\pi_i^* > 0$. Under the assumption that ε_{1i} is a normally distributed random error with zero mean and unit variance, the probability that firm i exports can

be written as

$$\mathrm{P}(Export_i = 1|O_i, Z_i) = \mathrm{P}\left(\alpha_1 + O_i\beta_1 + Z_i\gamma_1 + \varepsilon_{1i} > 0\right) = \Phi\left(\alpha_1 + O_i\beta_1 + Z_i\gamma_1\right), \quad (1)$$

where $\Phi(\cdot)$ is the standard normal cdf. In the empirical analysis, we also adopt a linear probability model to characterize the export participation decision as follows:

$$\mathrm{P}(Export_i = 1|O_i, Z_i) = \alpha_1 + O_i\beta_1 + Z_i\gamma_1. \quad (2)$$

We use the following specification to study the intensive margin of trade, i.e., the value of exports, conditional on exporting:

$$y_i = \alpha_2 + O_i\beta_2 + Z_i\gamma_2 + \varepsilon_{2i}, \quad (3)$$

where y_i is the logarithm of firm i's value of exports; ε_{2i} is the error term that captures the unobserved firm characteristics and any other unknown factor that may affect y_i; and all the independent variables are the same as in equation (1) or (2).

One might be concerned that firm internalization can trigger changes in firm ownership structure, that is, the causality may be reversed. However, a distinct feature of family ownership is its persistence over time, that is, to a large extent family ownership is a structural characteristic of a firm. Moreover, in Italy this persistence is particularly pronounced (Bianco, 2003; Bianchi and Bianco, 2008). In addition to this, our empirical specification controls for a rich set of factors that may affect export decisions, including firm-level characteristics and province fixed effects. This should minimize the risk of omitting factors correlated with both family ownership and export decisions. In spite of these considerations, it remains possible that there exist unobserved factors that simultaneously affect ownership structure and such decisions. To assuage this possible concern, we complement OLS and Probit estimates with an instrumental variable approach. The set of instruments include province-level proxies for the tightness of the banking regulation introduced in Italy in 1936. As it will be detailed, we expect these variables to be correlated with the ownership structure but to affect the export decision only through the ownership channel. We will further elaborate on the instrumental variable approach in Section 6.5.

5.2 Data

Our main data source is the "Indagine sulle Imprese Manifatturiere", a survey carried out by the Italian banking group Capitalia. We use four waves of the Capitalia survey, which cover three-year periods ending respectively in 1997, 2000, 2003, and 2006. The data set, directed to manufacturing firms within Italy, includes a representative sample of manufacturing firms with 10 to 500 employees (about 94% of firms in the sample) and the universe of manufacturing firms with more than 500 employees. Overall, approximately 4,500 firms were interviewed in each survey wave. The firms analyzed in the survey represent about 9% of the population in terms of employees and 10% in terms of value added. Collected data include: data on export activities, such as markets for the firm's products and the percentage of export in total sales; information on the largest shareholders, including their type and equity shares, as well as other rich details on the ownership structure. The survey also contains details about balance sheet data, company characteristics, including demographics, data on management and workforce at various organizational levels, participation in groups and consortia; data on relationships with customers, suppliers and banks, and on sources of finance. Some of these variables are available for each year covered by the survey; some refer to the time of interview; others refer to the three-year period covered by the survey.

Table 1 displays summary statistics. The firms are largely located in the North of Italy (68% of the total), while 18% of the firms are in the Center and 14% in the South. Using Pavitt's taxonomy (Pavitt, 1984), the distribution among sectors shows the predominance of businesses operating in traditional manufacturing sectors (almost half of the sample). The portion of high-technology firms is relatively low, less than 5%. The average size of firms is small to medium (with an average of 105 employees and a median of 31). We compared the demographic statistics for the firms in our sample with those for the pooled 1998 and 1993 waves of the National Survey of Small Business Finances (NSSBF) conducted by the U.S. Board of Governors of the Federal Reserve System and the Small Business Administration. On average, the businesses in the pooled NSSBF waves have 30 employees (with a median of 6). Thus, the businesses in our sample are slightly larger than those in the NSSBF, although they are still small or medium-sized. As for firms' legal structure, this is not reported in the early waves of the survey. When unavailable, we performed web searches and obtained this information from firms' web-sites. Then, we hand-matched this information with the surveys using the VAT identification number.

94 percent of the firms have limited liability. Among them, 57% are private limited companies (SRL; *societa' a responsabilita' limitata*), 36% are public limited companies (SPA; *societa' per azioni*).

To complement the survey, we employ data made available by the Bank of Italy on the presence of banks in local markets. We use data from the Italian National Statistics Office (ISTAT) on the value added and population of provinces. Finally, we employ the index of external financial dependence put forward by Rajan and Zingales (1998).

5.3 Measurement

5.3.1 Ownership Structure

The survey asks each firm to report the characteristics of the main shareholders of the firm, such as their types and equity shares. Our first measure of family ownership is a binary variable that equals one if the main shareholder is an individual or a family, zero otherwise (see the Data Appendix for a detailed definition of all the variables). A second measure is a continuous variable that captures the equity share held by the family. The data confirm the relevance of family firms in the Italian manufacturing sector. In our sample, in 75 percent of the firms the main shareholder is an individual or a family; in 9 percent it is a bank or a financial institution; in 16 percent it is another manufacturing firm or a holding company. The data also reveal that on average ownership concentration is high: conditional on a family being the main shareholder, the family owns 40 percent of equity on average. The data further inform us about the alignment between ownership and control and between ownership and management. In our sample, in 93 percent of family firms the family has control rights; 41 percent of family firms have external managers on the board of directors.

5.3.2 Export

The survey provides us with information about whether a firm exported or not in the year of each survey wave, and about foreign sales if the firm exported. On average 66% of the firms in the sample exported. In particular, 64% of family firms and 71% of non-family firms exported over the sample period. Conditional on exporting, family firms exported less and had a smaller share of foreign sales in total sales (42% vs. 44%).

The survey also asks the firms about the geographical area(s) where they exported their products. The most popular destination is the EU-15: 62.2% of the businesses

export to the European Union. As for the other markets, 24.5% of the firms export to Russia and Central-Eastern Europe, 23.3% to the United States and Canada, 20.8% to Asia excluding China, 12.5% to Central and South America, 10.7% to Africa, 7.1% to Australia and Oceania, and 6.4% to China. A cross-tabulation between firms' sector of activity and export decisions reveals that the majority of firms in traditional and high-tech sectors engage in export (63.4% and 67.7%, respectively). Moreover, the propensity to export (the ratio between the number of exporters and the total number of firms) is higher in the North than in the Center or South.

Regarding the intensive margin of export, on average foreign sales were 1.23 million euro, accounting for 42% of the total sales of a firm. Only a few firms engage in FDI or outsourcing (with the large majority of them concentrated among exporters). This is not surprising given that the sample median firm size is 31 employees and typically only large firms can sustain the sizeable fixed costs associated with FDI or outsourcing.

5.3.3 Control Variables

In this section, we discuss the other explanatory variables. To account for the fact that more productive, larger, and more capital intensive firms are more likely to export (see, e.g., Bernard and Jensen, 2004), we include labor productivity, measured as the value added per worker, firm size (the log of total assets), and capital intensity (fixed assets per worker). We also include dummy variables indicating whether a firm is a corporation, and whether it belongs to a consortium. A consortium may allow a firm to share the distribution network with other firms and thus reduce the cost for entering foreign markets.

The literature suggests that the probability of export depends on a firm's ability to cover entry costs (Das, Roberts and Tybout, 2007). For this reason, we add controls for firm financial conditions, including the leverage ratio (the firm's ratio of total liabilities to equity) and the index of external financial dependence proposed by Rajan and Zingales (1998), which captures the different degree of dependence of industrial sectors on external sources of finance. We also include an interaction term between the leverage ratio and the index of financial dependence to capture the possibility that the effect of external finance dependence on export decisions may be stronger for more leveraged firms.[5] In addition, we include industry dummy variables to account for other sources of comparative advantage and for the pattern of global demand for goods. We also construct two dummy

[5] Both variables are expressed as deviations from the sample mean.

variables equal to one when the firm is classified in a four- or five-digit ATECO sector, zero otherwise. Firms that produce goods in a four- or five-digit ATECO sector are more likely to be specialized in niche markets compared to firms producing in a three-digit ATECO sector.

Finally, we control for local socio-economic conditions using province fixed effects. Alternatively, we control for province-level heterogeneity using provincial GDP growth and area dummies indicating whether a firm is headquartered in the South or Center of Italy (the main geographical areas of Italy differ substantially in infrastructure and institutions). The inclusion of area dummies is also useful because the North of Italy is closer to the EU markets where Italian firms mostly export.

6 Empirical Results

6.1 Baseline Results

Table 2 reports the baseline results. In all the regressions, family ownership is defined as a dummy variable that equals one if the main shareholder is an individual or a family, zero otherwise. Column 1 shows the OLS estimates of the linear probability model in equation (2). We find that after controlling for various firm characteristics and for province fixed effects, family firms are 3.1 percent more likely to export than non-family firms. Column 2 displays the probit marginal effects of equation (1). The marginal effect of family ownership is 0.037, which is slightly higher than the OLS estimate, although the difference is statistically insignificant.

As for the control variables, columns 1–2 illustrate that bigger firms are significantly more likely to export. The coefficient on total assets suggests that a doubling of firm size increases the probability of exporting by more than 10 percent. The coefficient on capital intensity (defined as the ratio of total assets to the number of employees) is significantly negative. This probably stems from the fact that we use total assets to measure firm size; the coefficient turns positive when firm size is measured using the number of employees. Being a corporation and belonging to a consortium appear to increase the likelihood of export. Firms in industries with higher dependence on external finance (measured by the Rajan and Zingales index) are less likely to export. Interestingly, we find that the negative effect of external finance dependence is significantly stronger for more leveraged firms. This is in line with the theoretical predictions that exporting involves high entry

costs and, since entry costs must be paid up front, only firms with sufficient liquidity can cover them (Manova, 2012; Chaney, 2005). Further, we find that firms that specialize in a 5-digit ATECO sector are significantly more likely to export, which suggests that producing in a niche market increases the probability of export. As expected, firms in the South and the Center are less likely to export than those in the North.

In addition to influencing corporate governance, family ownership can have an impact on firm size, productivity, capital accumulation, and other aspects of a firm which in turn affect the firm's decision to export. Thus, in columns 1–2, we have controlled for various firm characteristics to isolate the effect of corporate governance from the effect of other aspects of a firm. We experimented with dropping controls for firm characteristics one by one, and obtained that the results on family ownership are largely unchanged. The only exception is when we exclude firm size. In columns 3–4, we show the results when total assets are excluded: now the estimated coefficients on family ownership turn into negative.

Columns 5–6 of Table 2 display the OLS estimates of equation (3) for the intensive margin of trade. As shown in column 5, conditional on exporting, family ownership has no significant effect on the value of export. However, our estimate could be biased due to firms' self-selection into the export market: we can only observe positive foreign sales for exporters, while for non-exporters foreign sales are zero. To deal with this selection problem, we use a Heckman-type sample selection model by adding an inverse Mills ratio to equation (3) (see Wooldridge, 2002, page 567). The inverse Mills ratio is estimated from a probit model of export participation decision on the controls included in columns 1–2 and discussed in Section 5.3.3, as well as a dummy variable indicating whether the firm distributed its products through specialized intermediaries (i.e., the excluded instrument). We find that firms that had access to specialized intermediaries for distributing products are significantly more likely to export: the estimated coefficient in the probit model is 0.362 with a standard error of 0.038. On the other hand, we find no difference in foreign sales between firms that had access to this marketing channel and those that did not. Thus, the indicator of whether a firm distributed its products through specialized intermediaries is excluded from the regression of foreign sales, which helps identify the effect of family ownership on foreign sales. We then estimate (3) by adding the inverse Mills ratio computed using the probit estimates. As reported in column 6, the estimated effect of family ownership on foreign sales is 0.041, which is almost identical to the estimate reported in column 5. On the other hand, the inverse Mills ratio is not

statistically significant, which suggests that the null hypothesis of no sample selection bias cannot be rejected.[6]

In columns 7–8, we exclude total assets and find that family firms export significantly less than non-family firms. However, as discussed above, since family firms are significantly smaller than non-family firms, and larger firms export substantially more than smaller firms, excluding controls for firm size may prevent us from disentangling the effect of corporate governance from that of firm size on export decisions. Therefore, in the following we always control for firm size and other firm characteristics.

6.2 Nonlinear Effects

In column 1 of Table 3, we study the effect of family ownership concentration on the export participation decision. Instead of using a binary measure of family ownership, we include the share of equity held by the family owner and a quadratic term of the equity share. The result suggests a significant nonlinear effect of ownership concentration on the export participation decision. In particular, the coefficients imply that the probability of exporting initially increases in the equity share held by the family. However, when the family holds the majority of the firm (i.e., above 50 percent), the probability of exporting starts to decrease in the main equity share. This finding is in line with previous results of the corporate governance literature (see, e.g., Claessens, Djankov and Lang, 2000). One interpretation is that when its share of equity grows too large, a family could start pursuing its own immediate interests (for example, through the expropriation of minority shareholders) rather than the long-run maximization of the firm's value. This could be detrimental to export decisions, which require a long-term horizon. A second interpretation is that when its equity share grows too large, the family could have too much of its own wealth at stake in the firm and, hence, become reluctant to undertake risky export activities.[7]

6.3 Family Control and Management

We expect the incentive and the ability of family owners to internalize the long-run benefits of export activities to be stronger when family owners have control rights, that is, firm

[6] Columns 5–6 show that the value of exports is higher for bigger and more productive firms. By contrast, older firms export less.

[7] The effect on the intensive margin is not significant (see column 4 of Table 3).

ownership is aligned with control. By contrast, the alignment of ownership with management has an ambiguous impact ex ante. On the one hand, when families are directly involved in management, classic agency problems between owners and managers should be milder, and this could benefit international expansion. On the other hand, it is often argued that families lack competence and skills which are crucial for internationalization. Thus, hiring external professional managers could benefit export.

In Table 3, we investigate the impact of family control and management on export decisions. For this purpose, we first examine the consequences of separation between ownership and control and then turn to the effects of separation between ownership and management. In column 2, we distinguish family firms in which the main shareholder has control over the firm and family firms in which the main shareholder has no control rights (thus, the omitted group is firms in which the main shareholder is not a family). We find that firms in which families have control rights have a significantly higher probability of exporting than their non-family counterparts. However, those in which families do not retain control rights are not significantly different from non-family counterparts in their export participation decisions. This result shows that the alignment of families' control rights with their cash-flow rights benefits export. Separating control rights from cash-flow rights increases agency costs and, in particular, it can distort project selection (Shleifer and Vishny, 1997). Claessens, Djankov, Fan and Lang (2002) argue that the agency problems of entrenchment and value extraction by a large shareholder are more severe when there is a divergence between control rights and cash-flow rights, because the large shareholder does not fully internalize the consequences of his decisions. Grossman and Hart (1988) show that separating ownership from control can lower shareholders' value.

Next, we turn to study the effect of separation between ownership and management. The last two waves of the Capitalia survey ask each firm whether it has external managers on its board. In column 3, we restrict the analysis to these two waves and examine the impact that outside managers have on the extensive margin of export.[8] We find that family firms with external managers are 4.5 percent more likely than non-family firms to export, whereas those without external managers are not significantly different from non-family firms in the probability of export participation. This result corroborates the idea that family ownership is especially beneficial to export when families rely on the skills and competence of external managers (The Economist, 2012).

[8] The rate of response to this question is around 40 percent of the sample.

In columns 5–6, we examine the role of family control and management in determining the value of export. The signs of the coefficients are consistent with those for export participation decisions, although the estimated coefficient turns out to be significant only for firms with external managers.

6.4 Disentangling the Ownership-Export Links

In what follows, we study the channels through which family ownership affects export. As noted, the possible channels of influence are the long-termism of families, on the positive side, and the lack of competence, the narrowness, and risk aversion of families, on the negative side. The data set provides rich information on firm and industry characteristics that are suitable for isolating these channels. To ease the interpretation of the results, in Table 4 we summarize these channels, the way we test for their presence, and the results of the tests.

6.4.1 Firm Characteristics

In Table 5, we report the results on subsamples based on financial diversification, age, and size of a firm. Panels A and B display estimates for the extensive and the intensive margin, respectively. We first split the sample based on a firm's financial diversification. This can help shed light on the problem of family owners' risk aversion: if the financial portfolio of a family firm is not diversified, the family owner could be reluctant to engage in risky projects, like export (Bolton and von Thadden, 1998). Our measure of financial diversification is based on a question asking firms about the allocation of their financial investments among equity participation in Italian companies, equity participation in foreign companies, short-term Italian bonds, medium- and long-term Italian bonds, foreign bonds, other financial instruments. The rate of response to this question is about 35%. We measure the diversification of firms' financial portfolio using the Herfindahl-Hirschman index of the various asset shares. Firms with an index of one are considered as less diversified, while firms with an index lower than one are considered as more diversified. We report the results separately for these two groups of firms in columns 1–2. Interestingly, although family ownership has a positive effect on export participation for both groups, the effect is statistically significant only for less diversified firms. This would suggest that risk aversion, due to lack of financial diversification, does not deter families from promoting export.

A possible concern is that we observe the degree of diversification of the financial portfolio of the firm, but not of the portfolio of the main shareholder. As suggested by Onida (2004), for example, for small and medium-sized Italian firms the distinction between the two portfolios is very often blurred. Thus, we check whether the results in columns 1–2 carry through for smaller firms. Columns 3–4 report the results for firms with total assets less than 17.8 million euros (the 80 percentile of the sample). The results suggest that family ownership has no significant effect on export participation for smaller and less diversified firms.

The data set does not include a precise proxy for the length of firms' horizon. However, the literature on firms' survival consistently finds that older firms have a higher probability of survival and, hence, a longer-term horizon. In columns 5–6, we split the sample based on firm age. The results show that family ownership has a positive effect on export participation for older firms, i.e., those with more than 21 years of operation (the sample median). The coefficient on family ownership is 0.034 and significant at the 1% level. By contrast, although family ownership has a positive coefficient for younger firms, the effect is statistically insignificant. Thus, the estimated positive effect of family ownership on export could be picking up the fact that family owners have a relatively bigger incentive to undertake long-term export projects in old firms.[9]

Finally, in columns 7–8, we split the sample based on whether firms invested in human capital. Our proxy for human capital investment is the decision of the firm to hire workers with a college degree in the year of the survey. We find that family ownership has a positive effect on export only in firms that did not invest in human capital. This may suggest that the benefit of family owners for export has a somewhat unsophisticated nature. We will explore this hypothesis with further tests.[10]

6.4.2 Industry Characteristics

As noted, together with their lack of diversification, a possible disadvantage of family firms is that family owners could lack the competence and knowledge necessary to inter-

[9] As shown in panel B, although family ownership has a positive effect on the value of exports, the effect is largely statistically insignificant. However, we find that older family firms export significantly more than their non-family counterparts by 7 percent.

[10] We also split the sample based on total assets. As displayed in columns 9-10, the impact of family ownership is significant only for smaller firms. The coefficient on family ownership indicates that the probability of exporting is 5.4 percent higher for family firms in the subsample of smaller firms. By contrast, there is no significant effect for larger firms. These results are qualitatively similar when we split the sample using the median number of employees.

nationalize their business. The results on the benefit of external managers suggested that the lack of competence of family owners could indeed hinder export activities. To further disentangle such a disadvantage of family firms, we examine whether the positive impact of family owners on export is weaker in sectors and markets characterized by a higher level of sophistication and complexity. In Table 6, we split the sample into four types of industries based on the Pavitt taxonomy (Pavitt, 1984). The four types of industries can be ranked according to the level of sophistication and technological content of production. (*i*) Traditional or supplier dominated sectors (such as textiles, food, tobacco, paper) are characterized by highly standardized processes and established technologies. Most of their innovations are acquired from external sources. (*ii*) Scale-intensive sectors (e.g., iron, glass, car manufacturing, metal products) are characterized by a level of sophistication somewhat higher than traditional industries. They typically import innovations from external sources but sometimes also develop them internally. (*iii*) Specialized industries (such as mechanical machinery, electronics, telecommunication appliances) can be positioned on an even higher level of sophistication and technological content. Firms in these industries typically produce machinery and software for other industries; their innovations often arise from complex interactions with the users of their products. (*iv*) Finally, high-tech industries (e.g., chemical and bioengineering) feature the highest degree of sophistication, technological content, and R&D intensity. Notice that, although these four categories of industries have different distributions of firm size, this should not have a confounding effect because we control for firm size in all the regressions.

The results in columns 1–4 of panel A show that the positive impact of family ownership on export participation is stronger the lower the degree of sophistication and technological content in the industry. Specifically, the coefficients on family ownership are 0.038 and 0.049 for the traditional and the scale-intensive sectors, respectively. By contrast, the coefficient on family ownership for the specialized sectors is much smaller (0.017) and statistically insignificant. And for the high-tech sectors, family firms are significantly less likely to export: the probability of exporting is 9 percent lower for family firms. These results thus support the hypothesis that family owners are beneficial to export especially in sectors in which internationalization does not require high competence and skills. In order to further investigate this point, we tested whether family ownership has any benefit on activities of cooperation abroad that involve technological know-how. We found no evidence of a positive impact of family ownership on technical or commercial cooperations abroad, or on joint ventures (the results are gathered in Supplementary Table A.1,

available from the authors).

The theoretical literature predicts that, besides lack of diversification and lack of competence, a third disadvantage of family firms can be their tendency to defend conservatively their position in niche markets. In columns 5–6, we study whether family firms underperform in niche markets. We split the sample according to whether or not firms are classified in a five- or four-digit ATECO sector. A firm active in a five- or four-digit ATECO sector is more specialized than a firm that produces in a three-digit ATECO sector. The estimates reveal that the effect of family ownership on export participation is positive and significant for firms that produce in niche markets, but not for firms that span their production in multiple sectors. Thus, we find no evidence of an excess narrowness of family firms.

As shown in panel B, consistent with the results for export participation, the positive effect of family ownership on the intensive margin of trade is stronger for the traditional and scale-intensive sectors, but much weaker for the high-tech sectors. Except for the scale-intensive sectors, the estimated effect of family ownership is largely statistically insignificant.

6.4.3 Entry into Multiple Markets

In addition to the tests performed above, another possible way to investigate whether families' lack of competence dilutes their positive impact on export is to examine firms' entry into unfamiliar markets. If families have relatively limited skills and competence, they should have little advantage in entering such markets. The survey provides information on export destinations in terms of broad geographical areas. In our sample, 36 percent of exporters sell to a single foreign market, 93 percent of which choose the EU market. Another 27% of exporters serve two foreign markets, and the remaining 37% export to at least three markets.

We first examine the choice between exporting to a single market and selling to the domestic market only (see column 1 of Table 7). The positive effect of family ownership is confirmed. The coefficient on family ownership is equal to 0.041 and significant at the 1% level. In column 2, we present the results for the choice between exporting to multiple markets and selling to the domestic market only (the estimation excludes firms that export to a single market). Entering multiple markets may allow exporters to diversify demand risk, but in principle may involve extra entry costs in terms of acquisition of knowledge and competence. We find that family ownership still has a statistically positive effect on

export participation. However, the magnitude of the effect is smaller than that for single-market exporters as shown in column 1. Therefore, consistent with our expectation, family ownership has a stronger impact on single-market exporters than on multiple-market exporters.

The vast majority of Italian exporters use the EU market as a stepping stone toward non-EU markets. In column 3, we look at how the presence of a family as the main shareholder may affect the decision whether or not to enter non-EU markets by firms that have already exported to the EU. The estimate shows that among firms that have already exported to the EU, family ownership does not seem to promote the entry into a second foreign market. This result is further confirmed when we examine the effect of family ownership across various destinations as shown in columns 4–9. The only statistically significant finding is that family firms are 1.4 percent more likely to export to Oceania than their non-family counterparts.

Finally, we investigate whether family firms have any advantage in establishing export platforms abroad. Such platforms can be especially useful for penetrating into difficult markets (e.g., for Italian firms, non-EU markets). We find no evidence of such an advantage, which is consistent with the result that family firms outperform other firms only in well-known EU markets.

6.4.4 Ownership Changes

We finally turn to study whether changes in ownership structure that shorten the decision horizon of family owners trigger changes in export decisions – entry into new markets or exit from old markets. This can be interpreted as a test of the role of long-termism in the link between family ownership and export. The survey provides information on whether in the years prior to the survey financial institutions subscribed new shares of the firm and on whether the firm intended to go public in the following years. The decision of a family owner to sell shares to a financial institution can be interpreted as a sign that the family owner is progressively reducing his involvement in the firm. Indeed, financial institutions that subscribe shares often consist of equity funds and other institutions whose main objective is to help the firm progressively make the transition from the original family founders to a broader pool of shareholders and, eventually, be listed on the stock market. Similarly, the intention to go public is likely to signal a plan of the family owner to progressively reduce his involvement in the firm. Thus, both variables indicate that family owners have a shorter horizon in their decisions.

In practice, we exploit the panel dimension of our data set focusing on the last two waves of the survey (2001–2003 and 2003–2006) and examine the impact of changes in ownership structure on market switching between these two periods. The independent variables are measured using the 2001–2003 wave of the survey. The results are reported in Table 8. As shown in column 1, family firms are more likely to expand into new markets. The coefficient on family ownership is 0.05 and is significant at the 10% level. In columns 2–3, we study the impact of changes in ownership structure that tend to shorten the horizon of family owners. Column 2 shows that firms in which financial institutions subscribed new shares in 2001–2003 are 17.8 percent less likely to expand into new markets in 2003–2006. Columns 3 reports that firms with an intention to go public in 2001–2003 are 9.1 percent less likely to expand into new markets in 2003–2006, although the effect is not statistically significant. Both of these results support the hypothesis that the positive effect of family ownership on export is driven by the long-term horizon of family owners.

In columns 4–6, we examine the decision about exiting from old markets. The coefficients on family ownership are negative, indicating that family firms are less likely to exit from old markets. In addition, firms in which financial institutions subscribed new shares in 2001–2003 are more likely to exit from existing markets in 2003–2006. However, the coefficients are statistically insignificant.

6.5 Endogeneity of Family Ownership

The OLS and probit estimates might be affected by reverse causality problems. One may wonder whether internationalization triggers changes in firm ownership structure. However, ownership structure is stable for 70–80 percent of the family firms in our sample. Another concern is that, although our empirical specification controls for various factors that may affect firm export decisions, it is possible that there exist some unobserved factors that simultaneously affect ownership structure and firm export. The direction of this bias is unclear a priori. To deal with the possible endogeneity of family ownership, we construct instruments that influence directly firm ownership structure, but have no direct impact on firm export.

6.5.1 Instruments for Ownership Structure

Following Guiso, Sapienza and Zingales (2003, 2004) and Herrera and Minetti (2007), our instrument set consists of provincial data on the number of savings banks and the number

of cooperative banks in 1936 (per 1,000 inhabitants). To understand the choice of these instruments, we need to discuss the Italian banking regulation. In 1936 the Comitato Interministeriale per il Credito e il Risparmio (CICR) enacted strict norms for the entry of banks into local credit markets: from 1938 each credit institution could only open branches in an area of competence (one or multiple provinces) determined on the basis of its presence in 1936. Banks were also required to shut down branches outside their area of competence. While the regulatory prescriptions were uniform across Italy, the constrictiveness of regulation varied across provinces and depended on the relative importance of different types of banks in the local market in 1936. For example, savings banks were less constrained by the regulation, while cooperative banks were more constrained. Thus, in provinces with a higher share of savings banks, access to external funds was easier. Guiso, Sapienza and Zingales (2003, 2004) demonstrate empirically that the 1936 regulation had a profound impact on the local supply of banking services (creation and location of new branches) and, hence, on the ability to obtain credit.

We expect that the 1936 regulation had a long-lasting impact on family ownership, leading to substantial variation in firm ownership across Italian provinces. We have in mind three possible mechanisms through which this could have occurred. First, when restrictions on the local supply of credit are more severe, it could be more difficult for potential acquirers to obtain the liquidity necessary to purchase shares of firms. Caselli and Gennaioli (2012) demonstrate theoretically that less efficient credit markets prevent investors from borrowing and acquiring firms' equity. Second, a strand of literature suggests that the credit market offers signals to potential shareholders. For example, Shockley and Thakor (1992) find that the existence or renewal of a loan is a positive signal to potential shareholders. For this reason, regulatory restrictions on the local supply of loans may affect a firm's ability to issue new equity. These two mechanisms imply that in provinces where the regulation was tighter, a family owner could have been forced or induced to retain the main share of the firm with a higher probability. Finally, tighter restrictions on the local supply of credit may force a firm to tap into alternative sources of external finance by issuing equity. Myers (1984) argues that if external financing is required, firms issue the safest security first (debt). When the credit market conditions limit the access to bank credit, firms may resort to equity. This mechanism implies that in provinces where the regulation was tighter a family owner could have been forced to dilute his equity stake in the firm.

The ownership structure is a highly persistent firm characteristic, and indeed in Italy

its persistence is very pronounced (Bianco, 2003; Bianchi and Bianco, 2008). Thus, we expect that the constrictiveness of the regulation in a province, as determined by the relative importance of the different types of banks in the province, shaped firms' ownership structure during the decades in which it was in place and that this impact persisted for several years after the deregulation at the end of the eighties. We then expect the 1936 regulation to be correlated with the current ownership structure. On the other hand, as shown by Guiso, Sapienza and Zingales (2003, 2004), the distribution of types of banks across provinces in 1936, and hence the constrictiveness of regulation in a province, stemmed from "historical accident" and in particular reflected the interaction between previous waves of bank creation and the history of Italian unification.[11] In addition, the different limits on different types of banks stemmed from different connections of the various types of banks with the Fascist regime, and thus were not correlated with structural characteristics of the provinces. Therefore, the regulation is unlikely to have any direct impact on the more recent export decisions by firms. A further concern is that the regulation could have affected export decisions in the 1980s and, in turn, this could have had an impact on export decisions in the years covered by our data set. However, this argument hinges on the degree of persistence of export. As documented by Roberts and Tybout (1997), while export experience in the previous year increases the probability of exporting, the export history three years earlier has no predictive power for current export. Finally, the 1936 banking law is unlikely to have affected credit supply conditions for long after its complete removal in the late eighties. For example, consider a firm seeking credit in 2000. We do not expect that its probability of obtaining funds or its collateral requirement were significantly affected by a regulation that was removed more than ten years earlier. Therefore, our instruments are unlikely to pick any direct effect on innovation of credit market conditions.

To address the possible endogeneity and identify the effect of family ownership on export decisions, we use the provincial data on the number of savings banks in 1936 as an instrument for family ownership. Because cyclical variations in the economic activity of a province after deregulation could be correlated with our instrument and with firms' export decisions, we also control for the average growth rate of the value added of the province in 1991–1998. Because the instrument is at the province level, we replace province

[11] For instance, the strong presence of savings banks in the North East and the Center stemmed from the fact that this institution originated in Austria and started to operate first in the provinces dominated by the Austrian Empire (Lombardia and the North East) and in close-by states (especially Tuscany and the Papal States).

fixed effects with area dummies and provincial GDP growth to control for province-level socio-economic conditions.

6.5.2 IV Estimates

Column 1 of Table 9 reports the OLS estimates of the baseline specification in equation (2) when province fixed effects are replaced by area dummies and provincial GDP growth. The estimated coefficient on family firms is 3.3 percent, which is almost identical to the estimate reported in column 1 of Table 2. In column 2 of Table 9, we report the 2SLS estimates of the linear probability model. To conserve space, the bottom of column 2 only reports the coefficient on the number of savings banks from the first-stage regression. Consistent with our expectation, the probability that the main shareholder is a family decreases in the number of savings banks in the province in 1936. Based on the prescriptions of the 1936 Italian banking regulation (see, e.g., Guiso, Sapienza and Zingales, 2003), provinces with a larger number of savings banks should have suffered less from the regulatory freeze. Our result supports the hypothesis that less binding regulation implies lower probability that the main shareholder is a family, which is in line with the theoretical predictions in Caselli and Gennaioli (2012). Further, column 2 shows that in the second-stage regression, family ownership has a negative but statistically insignificant impact on a firm's export participation decision. The insignificant result for family ownership likely arises from the relatively weak partial correlation between the number of savings banks and family ownership in the first-stage regression.

Since the linear probability model does not account for the fact that both export participation decision and family ownership are binary variables, we take an alternative approach and estimate a bivariate probit model. The ownership equation can be modelled using the following probit

$$\mathrm{P}(O_i = 1|I_p, Z_i) = \mathrm{P}(I_p\delta + Z_i\lambda + \nu_i > 0) = \Phi\left(I_p\delta + Z_i\lambda\right), \tag{4}$$

where O_i is a binary variable that equals one if the main shareholder of firm i is an individual or family, zero otherwise; I_p is the set of instruments that capture the tightness of the 1936 banking regulation at the provincial level; Z_i are control variables in equation (1); and ν_i is a normally distributed random error with zero mean and unit variation. Equations (1) and (4) constitute a recursive bivariate probit model. The effect of ownership on the probability of exporting can be identified under the assumption that the

set of instruments I_p are excluded from equation (1). Although O_i enters equation (1) as an endogenous variable, we can estimate (1) and an equation of family ownership using standard bivariate probit software (Greene, 2002, pages 715–716). Moreover, since the instruments are at the province level, we cluster standard errors by province.

For the purpose of comparison, in column 3 we report the estimated marginal effects of equation (1) in which area dummies and provincial GDP growth are used to control for province-level socio-economic conditions. The marginal effect of family ownership is 0.039, which is very close to that displayed in column 2 of Table 2. Column 4 displays the results for the bivariate probit model of export participation and family ownership. Unlike the 2SLS estimate, the estimated coefficient on family ownership is now significantly positive. The marginal effect of family ownership is 0.188, which is substantially larger than the probit marginal effect of 0.039 in column 3. Unlike the 2SLS estimate, identification of the effect of family ownership in the bivariate probit model can also be based on the nonlinearity of the functional form. Thus, although the bottom of column 4 shows a relatively weak correlation between the excluded instrument (the number of savings banks) and family ownership, we obtain a significantly positive coefficient on family ownership.[12]

In columns 5–6, we report the OLS and 2SLS estimates of the intensive margin of trade equation (3). Both estimates suggest that family ownership has no significant effect on the intensive margin. Overall, Table 9 shows that the IV estimates are largely consistent with the baseline results reported in Table 2.

7 Conclusion

This paper investigates the impact of family ownership on firms' internationalization using an unusually rich sample of Italian firms. The theoretical literature yields ambiguous predictions on whether family firms have more incentives and ability to export than non-family ones. We find that family firms are significantly more likely to export than non-family firms, and that this positive effect is especially pronounced when family owners retain control rights and hire external managers. The analysis also reveals that family ownership benefits firm export particularly in traditional sectors characterized by unsophisticated and established technologies, while it hinders export in high-tech industries. Further, we find that family owners especially promote export in mature,

[12] We also experimented with using both the number of savings banks and the number of cooperative banks as instruments for family ownership. The results are very similar to those reported in Table 9.

established firms. Once we distinguish across export markets, we obtain that family ownership promotes entry into multiple markets, while there is no evidence of an advantage of family firms in entering farther markets. All these results are robust to using a variety of estimation approaches, and also survive when we account for possible endogeneity of ownership structure by using an instrumental variable approach. We argue that collectively the results support the hypothesis that family owners promote export because they have a longer-term horizon and better internalize the long-run benefits of internationalization. At the same time, they also suggest that lack of competence and skills of family owners could attenuate this positive effect for companies that export products with high technological content and that operate in unfamiliar foreign markets.

The analysis represents a first step in a potentially fruitful line of research. While there is established evidence that corporate governance significantly affects firms' performance, we still know little on the channels through which this influence unfolds. This paper uncovers a key role of corporate governance in firms' internalization.

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Data Appendix: Data sources and variable definitions

This table describes the definitions of the variables used in the paper. Three main data sources are used in the empirical analysis: (*i*) four waves of the Capitalia Survey of Italian Manufacturing Firms (SIMF), which cover three-year periods ending respectively in 1997, 2000, 2003 and 2006; (*ii*) the province-level database of the Italian National Statistics Office (ISTAT); and (*iii*) the book "Struttura funzionale e territoriale del sistema bancario italiano 1936-1974" (SFT) by the Bank of Italy.

Variable	Definition and source (in parentheses)
Main dependent variables	
Export participation	Dummy that takes the value of one if the firm exports in the year of the survey, zero otherwise. (SIMF)
Log(export)	Logarithm of foreign sales. (SIMF)
Ownership structure	
Family	The survey asks each firm to report the characteristics of the main shareholder of the firm. Family is a dummy that takes the value of one if the main shareholder is a family or an individual. (SIMF)
Share family	Equity share held by the main shareholder, if the main shareholder is a family or an individual. (SIMF)
Financial institution	The survey asks each firm to report the characteristics of the main shareholder of the firm. Financial institution is a dummy that takes the value of one if the main shareholder is a financial institution. (SIMF)
Corporate governance	
Family with control	Dummy that takes the value of one if a family is the main shareholder and reports to have control over the firm; zero otherwise. (SIMF)
Family without control	Dummy that takes the value of one if a family is the main shareholder and reports to have no control over the firm; zero otherwise. (SIMF)
External managers	The percentage of external managers on the board of the firm. (SIMF)
Control variables	
Total assets, sales, current assets and inventories	These variables are balance sheet data. They are available for each year covered by the survey. We use the average over the three years of the survey. (SIMF)
Number of employees	Total number of employees in the year of the survey. (SIMF)
Age of the firm	Number of years since inception. (SIMF)
Corporation (business type)	The survey asks each firm whether it is publicly listed. In the survey, the information on whether the firm is a private limited company (LTD) or a public limited company (PLCs) is available only for the 2003 and 2006 surveys. For the other years, the information, which is publicly available on firms' websites, has been imputed by hand using the VAT identification number. Corporation is a dummy that takes the value of one if the firm is a LTD or PLC. (SIMF)
Consortium	The survey asks each firm to report whether it belongs to a consortium. The dummy for participation in a consortium takes the value of one if the firm answers "yes" to this question, zero otherwise. (SIMF)
Leverage	For each firm and year of the survey, we calculate the ratio of total liabilities to equity; then we compute the average over the three years for the survey. (SIMF)
Financial concentration	Concentration of the firm's financial portfolio, measured as the Herfindahl-Hirschman index of the various asset shares. The survey asks each firm to report the allocation of its financial investments among equity participation in Italian companies, equity participation in foreign companies, short-term Italian bonds, medium- and long-term Italian bonds, foreign bonds, other financial instruments. (SIMF)
Human capital investment	Dummy that takes the value of one if the firm hired workers with a bachelor's degree in the year of the survey. (SIMF)
North	Dummy that takes the value of one if the firm is located in a northern province; zero otherwise. (SIMF)
Center	Dummy that takes the value of one if the firm is located in a central province; zero otherwise. (SIMF)
South	Dummy that takes the value of one if the firm is located in a southern province; zero otherwise. (SIMF)
Ateco *n*-digit	Dummy that takes the value of one if the firm reports its ATECO classification as an *n*-digit number; 0 otherwise. (SIMF)
Sector of activity	The survey reports the sector of activity of firms (ATECO code). Based on this information, firms are classified as traditional, scale intensive, specialized, and high tech using the Pavitt taxonomy. Traditional sectors include producers of apparel and textiles, food and beverages, tobacco and leather, among others. Scale-intensive firms include producers of paper and allied products, petroleum and coal, stone, clay, glass and concrete products, among others. Specialized sectors include producers of electric and electronic equipment, mechanical machinery, radio & TV equipment, among others. High-tech sectors include producers of medical and orthopedic appliances, pharmaceuticals and agricultural chemicals, among others. (SIMF)
Rajan and Zingales index	We use the measure of external financial dependence proposed by Rajan and Zingales (1998). This captures the different dependence of industrial sectors on external sources of finance.
Provincial GDP growth	Average growth rate of the value added of the province where the firm is located over the years 1985-1994. (SBBI)
Instrumental variables	
Savings banks in 1936	Number of savings banks in the year 1936 in the province, per 100,000 inhabitants. (SFT)
Cooperative banks in 1936	Number of Cooperative banks in the year 1936 in the province, per 100,000 inhabitants. (SFT)
Other variables	
Financial institution subscriber 2003	Dummy that takes the value of one if a financial institution underwrote new shares of the firm in the years 2001-2003; zero otherwise. (SIMF)
Intention to go public 2003	Dummy that takes the value of one if in 2003 the firm plans to go public in the following year; zero otherwise. (SIMF)
Foreign Patents	The survey asks each firm: "In the last three years, did the firm acquire or sell patents abroad?". The dummy for patents takes the value of one if the firm acquired patents abroad in the year of the survey, zero otherwise. (SIMF)
Technical cooperations	Dummy that takes the value of one if the firm has activities of technical cooperation with foreign partners. (SIMF)
Commercial cooperations	Dummy that takes the value of one if the firm has activities of commercial cooperation with foreign partners. (SIMF)

Table 1 Summary statistics

	All firms		Ownership			Export status		
	Mean	Std. Dev.	Family	Non-family	*t* -test	Exporter	Non-exporter	*t* -test
Export participation and sales								
Export participation	0.66	0.47	0.64	0.71	-9.06			
Export / Sales	42.22	27.80	41.67	43.54	-2.95			
Log(Export)	12.62	1.71	12.33	13.33	-24.19			
Ownership structure								
Family	0.75	0.43				0.73	0.79	-9.04
Share_family			0.52			0.40	0.42	-3.83
Financial institution	0.09	0.29				0.11	0.06	12.07
Corporate governance								
Family with control			0.93			0.68	0.73	-6.67
Family without control			0.07			0.05	0.06	-3.54
External managers	0.48	0.50	0.41	0.66	-26.50	0.54	0.34	21.59
Firm characteristics								
Log(Total assets)	8.79	1.37	8.52	9.55	-38.97	9.02	8.32	31.56
Log(Number of employees)	3.72	1.11	3.52	4.31	-37.10	3.92	3.33	38.45
Log(Capital intensity)	5.17	3.01	4.93	5.83	-14.57	5.18	5.15	0.44
Log(Labor productivity)	5.38	2.84	5.18	5.92	-12.53	5.41	5.30	2.09
Age	24.30	17.67	24.09	24.97	-2.68	25.26	22.52	10.14
Corporation	0.93	0.25	0.93	0.94	-1.68	0.95	0.91	10.07
Consortium	0.09	0.28	0.09	0.08	2.49	0.10	0.07	5.76
Leverage	0.00	0.01	0.00	0.00	0.56	0.00	0.00	-1.97
Financial concentration	0.92	0.18	0.93	0.91	3.59	0.91	0.95	-9.49
ATECO 5-digit	0.31	0.46	0.32	0.27	6.47	0.33	0.27	9.51
ATECO 4-digit	0.42	0.49	0.42	0.43	-1.67	0.39	0.49	-12.53
North	0.68	0.47	0.67	0.72	-7.04	0.72	0.61	15.20
Center	0.18	0.38	0.19	0.16	4.20	0.17	0.19	-2.92
South	0.14	0.35	0.14	0.12	4.57	0.11	0.20	-16.40
Pavitt's taxonomy								
Traditional sector	0.49	0.50	0.51	0.42	10.53	0.47	0.52	-6.53
Scale-intensive sector	0.21	0.40	0.19	0.24	-6.76	0.17	0.27	-15.12
Specialized sector	0.26	0.44	0.26	0.27	-2.12	0.31	0.16	23.11
High-tech sector	0.05	0.21	0.04	0.06	-5.53	0.05	0.04	1.20

Note : (*a*) This table reports summary statistics of the variables used in the empirical analysis. Family is a binary variable that equals one if the main shareholder is an individual or a family, zero otherwise. Share_family is the equity share held by the family, which is a continuous measure of ownership structure. Financial institution is a binary variable that equals one if the main shareholder is a bank or a financial institution. (*b*) Capital intensity is measured as fixed assets per worker. Labor productivity is calculated as value added per worker. Corporation and Consortium are binary variables indicating whether a firm is a corporation, or belongs to a consortium. Leverage is defined as a firm's ratio of total liabilities to equity. Financial concentration is calculated as the Herfindahl-Hirschman index of shares of financial assets invested by a firm. ATECO is the Italian Classification of Economic Activity, which is the national version of the European nomenclature, NACE. North, South and Center are binary variables indicating whether a firm is headquartered in the North, South or Center of Italy. (*c*) Pavitt's taxonomy categorizes industrial firms into four types: traditional, scale-intensive, specialized, and high-tech. More detail is given in Section 6.4.2. (*d*) See Section 5.3 for more detail about measurement.

Table 2 Baseline estimates

	Extensive margin				Intensive margin			
	OLS	Probit	OLS	Probit	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family	0.031***	0.037***	-0.040***	-0.043***	0.043	0.041	-0.654***	-0.662***
	(0.011)	(0.013)	(0.010)	(0.011)	(0.030)	(0.030)	(0.043)	(0.042)
Log(Total assets)	0.101***	0.124***			1.070***	1.049***		
	(0.007)	(0.009)			(0.015)	(0.027)		
Log(Capital intensity)	-0.025***	-0.029***	0.024***	0.026***	-0.229***	-0.223***	0.351***	0.340***
	(0.009)	(0.010)	(0.007)	(0.007)	(0.026)	(0.027)	(0.038)	(0.036)
Log(Labor productivity)	0.009	0.004	0.042***	0.047***	0.220***	0.219***	0.458***	0.434***
	(0.012)	(0.014)	(0.012)	(0.013)	(0.033)	(0.032)	(0.063)	(0.062)
Age	0.0003	0.000	0.001***	0.002***	-0.004***	-0.004***	0.006***	0.006***
	(0.0003)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Corporation	0.129***	0.144***	0.126***	0.133***	0.096	0.075	0.136	0.071
	(0.027)	(0.029)	(0.026)	(0.027)	(0.066)	(0.078)	(0.108)	(0.134)
Consortium	0.055***	0.062***	0.052***	0.056***	0.043	0.026	-0.028	-0.063
	(0.016)	(0.016)	(0.016)	(0.017)	(0.038)	(0.039)	(0.052)	(0.059)
ATECO 5-digit	0.045***	0.052***	0.032**	0.036**	0.033	0.023	-0.165**	-0.183***
	(0.014)	(0.016)	(0.015)	(0.016)	(0.042)	(0.044)	(0.066)	(0.067)
ATECO 4-digit	0.005	0.009	-0.003	-0.002	-0.015	-0.017	-0.078	-0.077
	(0.014)	(0.015)	(0.015)	(0.016)	(0.042)	(0.042)	(0.071)	(0.072)
Leverage	1.357**	3.249	1.218*	3.875	16.774	17.836	13.767	14.254
	(0.637)	(3.473)	(0.719)	(3.439)	(15.097)	(15.384)	(27.164)	(27.094)
Leverage*Rajan-Zingales index	-14.649***	-38.707***	-13.504***	-37.432**	-33.66	-29.17	-29.728	-10.74
	(4.265)	(14.181)	(4.854)	(16.882)	(42.367)	(43.243)	(63.624)	(70.589)
Rajan-Zingales index	-0.059***	-0.063***	-0.051**	-0.044*	0.002	0.016	0.008	0.031
	(0.019)	(0.024)	(0.020)	(0.023)	(0.079)	(0.082)	(0.128)	(0.129)
Inverse Mill's ratio						-0.161		-0.351
						(0.140)		(0.262)
Province fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Survey year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	12,368	12,367	12,368	12,367	5,876	5,834	5,876	5,834
R^2	0.181		0.133		0.679	0.679	0.212	0.212

Note: (*a*) All the regressions include province, industry and survey year fixed effects. In columns 1-4 the dependent variable is a binary variable that equals one if the firm exports, zero otherwise. In columns 5-8 the dependent variable is the logarithm of the value of exports. The Rajan-Zingales index (1998) captures the degree of dependence of industrial sectors on external finance. See the notes to Table 1 and Section 5.3 for more detail about other variables. (*b*) Columns 2 and 4 report the Probit marginal effects. (*c*) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 3 Family control and management

	Extensive margin			Intensive margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Share_family	0.144***			0.075		
	(0.051)			(0.120)		
Share_family^2	-0.144***			0.059		
	(0.051)			(0.117)		
Family with control		0.033***			0.043	
		(0.011)			(0.030)	
Family without control		0.008			0.039	
		(0.020)			(0.049)	
Family with external managers			0.045***			0.085**
			(0.010)			(0.037)
Family without external managers			-0.016			0.017
			(0.015)			(0.036)
Observations	11,672	12,368	8,600	5,529	5,876	4,954
R^2	0.180	0.181	0.197	0.680	0.679	0.692

Note: (*a*) All of the OLS regressions include province, industry and survey year fixed effects and control for firm characteristics including log(total assets), log(capital intensity), log(labor productivity), age, corporation, consortium, ATECO 5-digit, ATECO 4-digit, leverage, the Rajan-Zingales index, and the interaction of leverage and the Rajan-Zingales index. In columns 1-3 the dependent variable is a binary variable that equals one if the firm exports, zero otherwise. In columns 4-6 the dependent variable is the logarithm of the value of exports. See the notes to Table 1 and Section 5.3 for more detail about the control variables. (*b*) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 4 Family ownership and export: channels of influence

Channel	Expected impact on export	Test	Support hypothesis?
Long-termism	+	Firm age	Y
		Financial institutions subscribing shares and intention to go public	Y
Risk aversion	–	Financial diversification	N
Lack of competence and knowledge	–	Presence of external managers	Y
		Human capital investment	Y
		Industry sophistication	Y
		Export market sophistication	Y
		International high-tech activities	Y
Excess of narrowness	–	Niche markets	N

Table 5 Financial diversification, firm age, and size

	Financial diversification				Age		Human capital investment		Size	
	All firms		Total assets < €17.8 million		Old	Young	High	Low	Big	Small
	Fin. Conc = 1	Fin. Conc < 1	Fin. Conc = 1	Fin. Conc < 1	Age > 21 yrs	Age <= 21 yrs	Investment > 0	Investment = 0	Total assets > €5.4 million	Total assets <= €5.4 million
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Panel A. Extensive margin					
Family	0.043**	0.011	0.036	0.014	0.034***	0.026	-0.015	0.056***	0.014	0.054**
	(0.017)	(0.027)	(0.022)	(0.053)	(0.011)	(0.016)	(0.019)	(0.017)	(0.011)	(0.021)
Observations	3,307	887	2,390	411	6,754	5,614	1,609	6,817	6,746	5,622
R^2	0.210	0.303	0.223	0.373	0.209	0.175	0.219	0.187	0.163	0.182
					Panel B. Intensive margin					
Family	0.062	0.056	0.043	0.004	0.070*	0.028	-0.007	0.072	0.044	0.055
	(0.055)	(0.091)	(0.073)	(0.221)	(0.039)	(0.041)	(0.057)	(0.051)	(0.031)	(0.061)
Observations	1,881	548	1,148	200	3,437	2,439	976	2,879	4,161	1,715
R^2	0.615	0.746	0.433	0.699	0.690	0.682	0.767	0.607	0.631	0.322

Note: (*a*) All of the OLS regressions include province, industry and survey year fixed effects and control for firm characteristics including log(total assets), log(capital intensity), log(labor productivity), age, corporation, consortium, ATECO 5-digit, ATECO 4-digit, leverage, the Rajan-Zingales index, and the interaction of leverage and the Rajan-Zingales index. In panel A the dependent variable is a binary variable that equals one if the firm exports, zero otherwise. In panel B the dependent variable is the logarithm of the value of exports. See the notes to Table 1 and Section 5.3 for more detail about measurement of the control variables. (*b*) Financial concentration is calculated as the Herfindahl-Hirschman index of the shares of financial assets invested by firms. Firms with an index of one are considered as less diversified, and firms with an index less than one are considered as more diversified. (*c*)In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 6 Industry characteristics

	Pavitt's taxonomy				Industry specialization	
	Traditional	Scale-intensive	Specialized	High-tech	5- or 4-digit ATECO	3-digit ATECO
	(1)	(2)	(3)	(4)	(5)	(6)
				Panel A. Extensive margin		
Family	0.038*	0.049**	0.017	-0.090**	0.033***	0.023
	(0.020)	(0.020)	(0.016)	(0.041)	(0.012)	(0.019)
Observations	6,064	2,554	3,183	546	8,985	3,383
R^2	0.171	0.262	0.164	0.299	0.196	0.202
				Panel B. Intensive margin		
Family	0.010	0.158**	0.008	0.001	0.032	0.040
	(0.046)	(0.076)	(0.048)	(0.209)	(0.040)	(0.070)
Observations	2,683	1,101	1,840	237	4,161	1,715
R^2	0.622	0.772	0.727	0.819	0.675	0.719

Note: (*a*) All of the OLS regressions include province, industry and survey year fixed effects and control for firm characteristics including log(total assets), log(capital intensity), log(labor productivity), age, corporation, consortium, ATECO 5-digit, ATECO 4-digit, leverage, the Rajan-Zingales index, and the interaction of leverage and the Rajan-Zingales index. In panel A the dependent variable is a binary variable that equals one if the firm exports, zero otherwise. In panel B the dependent variable is the logarithm of the value of exports. See the notes to Table 1 and Section 5.3 for more detail about measurement of the control variables. (*b*) Pavitt's taxonomy categories industrial firms into four types: traditional, scale-intensive, specialized, and high-tech. See Section 6.4.2 for more detail. (*c*) A firm that is active in a five- or four-digit ATECTO industry is more specialized than a firm that produces in a three-digit ATECO industry. (d) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 7 Entry into multiple markets

	One market	Multiple market	Non-EU markets	Russia	Africa	Asia	China	America	Oceania
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family	0.041***	0.029**	0.000	0.010	0.004	-0.010	-0.005	0.002	0.014*
	(0.015)	(0.013)	(0.011)	(0.014)	(0.011)	(0.014)	(0.008)	(0.014)	(0.007)
Log(Total assets)	0.087***	0.124***	0.065***	0.068***	0.044***	0.067***	0.041***	0.089***	0.042***
	(0.010)	(0.008)	(0.005)	(0.006)	(0.006)	(0.006)	(0.004)	(0.007)	(0.004)
Log(Capital intensity)	-0.011	-0.034***	-0.028***	-0.016*	-0.012**	-0.031***	-0.015***	-0.044***	-0.019***
	(0.009)	(0.010)	(0.005)	(0.008)	(0.006)	(0.009)	(0.004)	(0.008)	(0.004)
Log(Labor productivity)	-0.000	0.009	0.003	0.001	0.005	0.017	0.001	0.006	0.010
	(0.015)	(0.013)	(0.013)	(0.017)	(0.009)	(0.013)	(0.006)	(0.014)	(0.010)
Age	-0.000	0.000	0.000**	0.000	0.000	0.001***	0.000	0.001**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Corporation	0.095***	0.142***	0.016	0.058*	0.010	0.058**	-0.002	0.002	0.012
	(0.026)	(0.030)	(0.033)	(0.031)	(0.025)	(0.026)	(0.017)	(0.037)	(0.023)
Consortium	0.012	0.071***	0.055***	0.059***	0.032**	0.069***	0.010	0.072***	0.039***
	(0.026)	(0.016)	(0.015)	(0.019)	(0.016)	(0.017)	(0.014)	(0.020)	(0.012)
ATECO 5-digit	0.034	0.057***	0.018	0.023	0.006	0.015	0.015	0.018	0.013
	(0.021)	(0.016)	(0.015)	(0.019)	(0.009)	(0.015)	(0.010)	(0.014)	(0.012)
ATECO 4-digit	0.002	0.010	0.002	0.010	0.026**	0.010	0.001	-0.027*	0.011
	(0.021)	(0.015)	(0.016)	(0.015)	(0.012)	(0.013)	(0.010)	(0.016)	(0.012)
Leverage	1.376**	1.169**	-6.059	0.006	-0.905	0.833	0.766	-2.777	-0.261
	(0.637)	(0.525)	(4.313)	(5.544)	(2.313)	(3.439)	(1.729)	(4.326)	(2.176)
Leverage*Rajan-Zingales index	-11.459**	-13.346***	25.590*	6.494	-14.969	-23.563	-14.172**	14.092	-5.487
	(4.416)	(3.134)	(13.799)	(15.814)	(10.212)	(14.213)	(6.378)	(15.374)	(10.34)
Rajan-Zingales index	-0.075**	-0.064**	-0.021	-0.077*	-0.058*	0.012	-0.055***	0.029	0.019
	(0.034)	(0.026)	(0.036)	(0.045)	(0.033)	(0.035)	(0.017)	(0.038)	(0.023)
Observations	6,445	9,818	8,168	8,168	8,168	8,168	8,168	8,168	8,168
R^2	0.16	0.245	0.161	0.148	0.093	0.129	0.072	0.135	0.071

Note: (*a*) All of the OLS regressions include province, industry and survey year fixed effects. See the notes to Table 1 and Section 5.3 for more detail about measurement of the control variables. (b) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 8 Switch in export markets between 2003-2006

	Entering new markets$_{2003\text{-}06}$			Exiting from old markets$_{2003\text{-}06}$		
	(1)	(2)	(3)	(4)	(5)	(6)
Family$_{2003}$	0.055*	0.058**	0.053*	-0.033	-0.037	-0.039
	(0.028)	(0.028)	(0.029)	(0.047)	(0.047)	(0.047)
Fin. institution subscribe$_{2001\text{-}2003}$		-0.178***			0.118	
		(0.044)			(0.137)	
Intention go public$_{2001\text{-}2003}$			-0.091			-0.235
			(0.093)			(0.189)
Log(Total assets)$_{2003}$	0.013	0.016	0.010	0.065***	0.062***	0.070***
	(0.012)	(0.012)	(0.013)	(0.016)	(0.016)	(0.019)
Log(Capital intensity)$_{2003}$	-0.037*	-0.038*	-0.037*	0.006	0.007	0.006
	(0.021)	(0.021)	(0.021)	(0.028)	(0.029)	(0.029)
Log(Labor productivity)$_{2003}$	0.012	0.011	0.015	0.010	0.010	0.011
	(0.039)	(0.039)	(0.040)	(0.048)	(0.048)	(0.051)
Age$_{2003}$	0.001**	0.001**	0.002**	-0.001	-0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Corporation$_{2003}$	-0.042	-0.040	-0.043	0.000	-0.001	-0.017
	(0.063)	(0.064)	(0.065)	(0.084)	(0.084)	(0.079)
Consortium$_{2003}$	0.014	0.018	0.011	-0.059	-0.061	-0.056
	(0.042)	(0.042)	(0.046)	(0.053)	(0.052)	(0.057)
ATECO 5-digit$_{2003}$	0.039	0.037	0.044	-0.004	-0.000	-0.016
	(0.046)	(0.045)	(0.045)	(0.068)	(0.067)	(0.067)
ATECO 4-digit$_{2003}$	-0.097***	-0.097***	-0.088**	0.115**	0.116**	0.122**
	(0.036)	(0.037)	(0.034)	(0.052)	(0.053)	(0.051)
Leverage$_{2003}$	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage$_{2003}$*Rajan-Zingales index	0.001	0.001	0.001	-0.001	-0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rajan-Zingales index	-0.041	-0.047	-0.052	-0.069	-0.064	-0.045
	(0.085)	(0.084)	(0.091)	(0.118)	(0.118)	(0.120)
Observations	778	776	745	778	776	745
R^2	0.127	0.131	0.136	0.199	0.201	0.217

Note: (*a*) In this table we examine whether changes in ownership structure could trigger changes in export decisions in terms of entry into new markets or exit from old markets. Changes in ownership structure are captured by variables indicating whether financial institutions subscribed new shares of a firm in 2001-2003, or whether a firm has an intention to go public in 2001-2003. (*b*) All of the OLS regressions include province and industry fixed effects. See the notes to Table 1 and Section 5.3 for more detail about measurement of the control variables. (*c*) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

Table 9 IV estimates

	Extensive margin				Intensive margin	
	OLS	2SLS	Probit	Biv Probit	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Family	0.033***	-0.678	0.039***	0.188***	0.042	1.609
	(0.011)	(0.816)	(0.013)	(0.062)	(0.030)	(1.496)
Log(Total assets)	0.100***	0.016	0.120***	0.025***	1.064***	1.256***
	(0.007)	(0.098)	(0.009)	(0.008)	(0.014)	(0.185)
Log(Capital intensity)	-0.027***	-0.014	-0.031***	0.013***	-0.235***	-0.273***
	(0.009)	(0.019)	(0.010)	(0.008)	(0.028)	(0.053)
Log(Labor productivity)	0.016	0.014	0.011	0.006	0.245***	0.253***
	(0.012)	(0.012)	(0.014)	(0.011)	(0.037)	(0.049)
Age	0.000	0.001	0.000	0.001	-0.004***	-0.007***
	(0.000)	(0.001)	(0.000)	(0.0003)	(0.001)	(0.003)
Corporation	0.138***	0.126***	0.150***	0.117***	0.087	0.058
	(0.027)	(0.033)	(0.029)	(0.023)	(0.065)	(0.093)
Consortium	0.055***	0.063***	0.060***	0.054***	0.049	-0.012
	(0.015)	(0.021)	(0.015)	(0.017)	(0.038)	(0.077)
ATECO 5-digit	0.044***	0.048***	0.050***	0.049***	0.044	0.042
	(0.014)	(0.018)	(0.014)	(0.016)	(0.044)	(0.043)
ATECO 4-digit	0.002	0.000	0.006	0.004	-0.008	-0.005
	(0.013)	(0.018)	(0.015)	(0.016)	(0.043)	(0.043)
Leverage	1.106*	1.335***	1.833	1.255	15.873	6.969
	(0.633)	(0.382)	(2.753)	(8.879)	(12.211)	(16.142)
Leverage*Rajan-Zingales index	-14.262***	-11.551***	-35.133***	-53.895**	-27.071	-69.74
	(4.163)	(3.816)	(13.451)	(12.091)	(38.504)	(54.572)
Rajan-Zingales index	-0.057***	-0.060*	-0.062***	-0.044***	0.005	0.092
	(0.019)	(0.031)	(0.022)	(0.029)	(0.079)	(0.126)
Center	-0.056**	-0.039	-0.067**	-0.033***	0.013	-0.043
	(0.024)	(0.027)	(0.027)	(0.023)	(0.077)	(0.086)
South	-0.127***	-0.095**	-0.144***	-0.094***	-0.327***	-0.423***
	(0.019)	(0.039)	(0.020)	(0.022)	(0.045)	(0.097)
Provincial GDP growth	0.014	0.066	-0.018	0.004	-0.001	-0.153
	(0.127)	(0.134)	(0.139)	(0.109)	(0.329)	(0.405)
Instrumental Variable						
Number of savings banks in 1936		-0.034**		-0.104*		-0.044**
		(0.016)		(0.062)		(0.019)
Province fixed effects	N	N	N	N	N	N
Industry fixed effects	Y	Y	Y	Y	Y	Y
Survey year fixed effects	Y	Y	Y	Y	Y	Y
Observations	12,368	12,368	12,368	12,368	5,876	5,876
R^2	0.163				0.666	

Note: (*a*) All the regressions include industry and survey year fixed effects. In columns 1-4 the dependent variable is a binary variable that equals one if the firm exports, zero otherwise. In columns 5-6 the dependent variable is the logarithm of the value of exports. See the notes to Table 1 and Section 5.3 for more detail about measurement of the control variables. (*b*) Because the instrument (the number of savings bank in 1936) is at the province level, we replace province fixed effects with provincial GDP growth and area dummy variables (Center and South) to control for province-level socio-economic conditions. (*c*) Columns 3-4 report the marginal effects. (*d*) In parentheses are robust standard errors which are clustered by province. *** p<0.01, ** p<0.05, * p<0.1

SUPPLEMENTARY TABLE (FOR ONLINE PUBLICATION ONLY)

Table A1 Family ownership and international high-tech activities

	Joint venture	Foreign patents	Technical cooperations	Commercial cooperations
Family	-0.001	0.002	0.009	-0.001
	(0.008)	(0.003)	(0.008)	(0.008)
Observations	4,113	12,249	7,185	9,327
R^2	0.615	0.036	0.052	0.052

Note: (*a*) All of the OLS regressions include province, industry and survey year fixed effects and control for firm characteristics including log(total assets), log(capital intensity), log(labor productivity), age, corporation, consortium, ATECO 5-digit, ATECO 4-digit, leverage, the Rajan-Zingales index, and the interaction of leverage and the Rajan-Zingales index. See the notes to Table 1 and Section 5.3 for more detail about the control variables. (*b*) In parentheses are robust standard errors which are clustered by province.