

Financial crisis, internationalization choices and Italian firm survival.

Stefano Costa (ISTAT)*, Carmine Pappalardo (ISTAT)**, Claudio Vicarelli (ISTAT)**

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Abstract

In this paper we focus on the relationship between internationalization choices and survival of Italian firms during the financial crisis. Making use of a new database matching four firm-level datasets provided by the Italian National Statistical Institute (ISTAT), we build a detailed taxonomy of internationalization activities of Italian firms in 2007 and 2010, before and after the financial crisis. Descriptive analyses confirms that firms showing a more complex form of internationalization have higher levels of efficiency, as well as higher diversification of production, measured in terms of the variety of exported goods. Indeed, over the period 2007-2010 Italian firms have moved (on average) towards more complex forms of internationalization. These upwards changes have determined positive effects on employment dynamics and value added growth. For each class of internationalization we estimate a conditional Probit of survival according to the level of productivity and controlling for firm and industry specific variables. Our results show that multinational firms (at the top of our taxonomy) show a lower resilience during the crisis with respect “global” or “two-way traders”, playing a minor role of stabilizers with respect to domestic owner firms. These findings put more emphasis on issue of the diversification of products and markets as a goal to be pursued by firms, even in times of crisis such as the current ones, to remain competitive, make profits and survive.

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*ISTAT, Italian National Institute of Statistics, Department of National Accounts and Economic Statistics (DICS) Rome , Italy

**ISTAT, Italian National Institute of Statistics, Econometric Studies and Economic Forecasts (SEP), Rome, Italy

1. Introduction.

The competitiveness on the international markets has been a key factor in the first decade of the twenty-first century to meet the growing demand from emerging markets and it has been an important element in determining the dynamics of economic growth in all European countries. In addition, after the sharp fall of 2009, the recovery of international trade has benefited to a greater extent countries most ready to exploit this possibility, in a framework where domestic demand has been sluggish or decreasing. This is true especially for Italy, which for several years experienced low economic growth rates. The issue of the potential growth of firms associated with an increased degree of internationalization comes up again, especially in the current phase, as crucial to the chances of recovery for Italian economy.

The economic literature has highlighted the existence, at firm level, of a positive relationship between competitiveness and the degree of internationalization. Better individual firm performance, under the form of productivity and profitability, is usually associated, on average, to a more “complex” form of internationalization (see, among others, Altomonte et alii (2012)). The upgrade to the most advanced forms of presence in foreign markets could therefore be an important goal to improve firm competitiveness and, ultimately, countries’ economic growth ability. This aspect seems also more relevant during a recession. A better performance linked to the international activity could in fact cause a higher probability of firm survival.

The aim of this paper is to investigate on the relationship among internationalization choices, performance and firm survival. To do this, we make use of an innovative database resulting from the integration of a large number of statistical surveys and administrative data, including observations for over 90,000 companies in two years (2007 and 2010), before and after the first phase of the global financial crisis. For 2010, firms included in our dataset employed about 4.4 million workers and exported goods and services for about € 293 billion of euro (equivalent to over 85 per cent of the total exports of the economy). The statistical richness of this dataset allow us to build a detailed taxonomy of internationalization forms of Italian firms, using seven different measures of global engagement. After having verified the structural characteristics of Italian firms for each of the classes identified, we look at the determinants of firm survival. Our aim is to investigate how and how much the internationalization form has affected the chance of firm survival during the crisis. We estimate the probability of firm survival as a function of firm productivity, controlling for a wide set of firms’ and sector characteristics. Then we test if different form of internationalization showed different probabilities of survival (the so called “survival premia”).

The paper is organized as follow. The next section reviews the main theoretical and empirical contributions on the issue of internationalization choices, productivity and firm survival. Then, a description of the dataset (Section 3) and some descriptive evidence on performance of Italian firms during the crisis follow (Section 4). In Section 5 the econometric strategy and the empirical results are presented and commented. Section 6 contains some final remarks.

2. Literature review

In the last decade, theoretical and empirical literature on international trade and firm performance has developed very rapidly. In particular, the topic of productivity has gained a prominent position. This is due, on the one hand, to the central role played by productivity in a couple of very influential theoretical works, on the other hand to the growing availability of firm-level dataset.

On the theoretical ground, an influential paper is due to Bernard and Jensen (1995), who documents a positive exporter productivity premium (i.e. exporters are more productive than non-exporting firms of the same size from the same narrowly defined industry) in US manufacturing industries. Indeed, differences in firms productivity are at the heart of the theoretical models developed by the seminal paper of Melitz (2003) and developed in the following decade (Melitz and Ottaviano 2008, Chaney 2008, Bernard et al. 2011). In particular, in these models only more productive firms can cover entry costs (sunk costs) to sell abroad and produce profitably.

These models focus on the export behavior of firms and shoved more and more scholars to micro-level investigations of this topic. Despite the study of productivity has been a core topic in economics for a long time, empirical studies using firm-level data to investigate the determinants and consequences of productivity differentials between firms are of a more recent vintage due to the growing availability of suitable datasets.

Among micro-econometric empirical studies developed in last years, many works focused on explanations of why exporters can be more productive than non-exporters. In particular, the self-selection (entry costs on foreign markets provide a barrier that less productive firms cannot overcome) and the learning-by-exporting hypothesis (knowledge flows from international buyers and competitors help to improve the post-entry performance of export starters) have been widely investigated. Along the same lines, the relationship between importing firms and productivity recall both arguments: a positive impact of productivity on importing (self-selection hypothesis: there are sunk costs of importing due to the learning and acquisition of customs procedures) and of importing on productivity (learning-by-importing: importing intermediate or capital goods makes a firm more productive by enabling it to access to higher quality inputs and/or to extract technology embodied in imported goods, see, among most recent, Castellani et al. 2010, Altomonte and Békés 2010, Muuls and Pisu 2009). Indeed, a large body of works, taking advantage of the richness of information contained in these new datasets, has focused on differences in productivity among firms involved at different degrees in international trade, distinguishing firms by exporters, importers, two-way traders (both importing and exporting at the same time) and firms operating only on domestic market.

From a large number of empirical studies applied to several countries, it is possible to draw some stylized facts: two-way traders are the most productive group of firms, followed by only importers and exporters, while firms operating only on the domestic market come last (see Wagner 2011a for a detailed survey). In some cases, the availability of firm-level data on foreign direct investment allowed the inclusion of a more complex category of internationalization activity, the multinational firms (i.e. firms that show a foreign participation or that are controlled by a foreign owner, see Altomonte et alii 2012). This latter group is usually at the top of the ranking in terms of productivity. As for the two main hypothesis regarding the determinants of productivity of exporters firms, an evidence of self-selection seems to emerge: only firms showing a higher productivity in the years before starting to export can afford fixed entry costs of selling abroad.

Indeed, firms of different countries tend to show common features as regards their structural characteristics: internationally active firms are usually bigger (in terms of size, proxied by number of employees), show higher turnovers, large capital stock and sell more varieties of goods with respect firms that do not have foreign activity or present less complex form of internationalization.

More recently, in addition to the relationship between trade and productivity, also other aspects of firm's performance have been investigated: in particular, the link between export and wage (exporters pay higher wage with respect to non-exporters), export and profitability (exporter firms

are more profitable than non-exporters), international trade activity and firm survival (exporters have a higher probability to survive, see Wagner 2011 for a detailed survey). This latter aspect seems of great interest when we analyze the behavior of exporting firms in a period characterized by a deep recession and a subsequent recovery, a business cycle entirely included in the time range of our dataset (2007-2010).

From a theoretical point of view, there are ambiguous predictions on the probability of exporting or importing firm survival to an economic crisis. On the one hand, we would expect a positive relationship between internationalization and firm survival (Wagner 2011b, Baldwin and Yan 2001). In fact, export activity can be considered as a form of risk diversification: when business cycle conditions in the domestic market are difficult, foreign demand can provide a chance to continue to produce, sell and make profits if business cycle conditions abroad are better than at home. *Ceteris paribus*, exporting firms should improve their survival probability with respect non-exporter countries. On the other hand, exporting firm production is more characterized by economies of scale due to the presence of higher sunk costs to sell abroad; furthermore, firms are more dependent on credit and bank lending with respect non-exporting firms. These two facts could make exporting firms less flexible in adapting to changes in the business cycle and more vulnerable to the risk of a rise in interest rates decreasing, *ceteris paribus*, their chances of survival.

Recent, but already large empirical literature investigated the relationship between internationalization (export and import) and firm survival. Among these, the majority has analyzed the survival of the home market firms. To the best of our knowledge, there are case studies for Canada (Baldwin and Yan 2011), Denmark (Eriksson et alii 2009), Japan (Kimura et Kiyota), Spain (Esteve-Perez et alii 2008), Sweden (Greenaway et alii 2008 and 2009).

As for Italy, Ferragina et alii (2012) and Amendola et alii (2012) have investigated this topic. In the first paper, authors investigate the determinants of survival for Italian firms according to their ownership status (foreign and domestic multinationals, domestic non-multinationals). The analysis is carried out over the period 2004-2008, not including the effects of global financial crisis. Controlling for several firm and industry specific characteristics, authors find that foreign multinationals are more likely to exit the market than national firms in manufacturing sectors. However, in services domestic multinationals reveals a higher probability to survive with respect to other categories. In the second paper, a longer period (2002-2010) is indeed analyzed, including also the years of financial crisis; in the same way, firms are classified depending on their involvement in international activity (exporters, foreign affiliate or investing abroad). Using a maximum likelihood probit model of the firm's survival prospects, authors estimate the probability of "failure" of a firm before 2008 and during the crisis (2008-2010) as a function of firm international engagement, controlling for a wide set of firms' and sector characteristics. Their results show that during the crisis exporters firms have lower probability to exit from the market than non exporters, while domestic and foreign multinational firms show an exit pattern not significantly different with respect to national firms. This evidence seems to support conclusions about the existence of a positive "exporting effect" and the lack of a "multinational effect" on firm exit during periods of economic crisis.

Our work is placed in the wake of the work of Amendola et alii (2012). Our aim is to analyze the extent to which the probability of firm's exit from the market is related to its form of internationalization. The main differences with respect to the work of Amendola et al (2012) refer to the characteristics of the database, as we will see in details in the following section.

3. Dataset description

The focus of our analysis is to evaluate the relationship between the probability of Italian firms exit from the market during the financial crisis and its form of internationalization.

To this aim, the main structural features of firms, their exporting performance and the structure of their involvement in international trade should be considered. All these information are not completely available in a single data source. The dataset used for the empirical analysis is obtained through the integration of four firm-level datasets provided by the Italian National Institute of Statistics (ISTAT).

First of all, the reference statistical source providing information on structural firms characteristics (value of production, turnover, operating costs, wage and salary, value added, tangible and intangible fixed assets) is represented by two specific enterprises surveys (SCI census, PMI survey), which collect the most relevant balance sheet/income statements information on the Italian firms. Balance sheet/income statement data are mainly drawn by the census of Italian firms (SCI census). Currently, it covers all companies which size is larger than 100 employees (until 1998, the reference universe was represented by all firms with at least 20 employees). PMI survey collects information on the universe of small and medium enterprises (SMEs), which cover more than 98% of the total of Italian companies active across all sectors of economic activity (more than 4.1 mln of firms). As a result, PMI is built as a “rotating” sample survey and it currently covers the subset of firms which size is below 100 employees (below 20 employees in the years prior 1998, consistent with the changes of the coverage of the SCI census). PMI datasets essentially includes the variables appearing in the firms’ Income statement; the survey does not gather any information from the balance sheet statement.

Firm-level trade data are drawn from custom trade statistics (COE). COE is a census type statistics (based on information drawn from administrative data) and represents an harmonized source about imports, exports and trade balance. It tracks the value and quantity of goods traded by Italian firms with both EU (intra-EU trade) and non-EU operators (extra-EU trade). Specifically, for each firm and for each time period, COE contains information on the value and the volume of goods traded (exported, imported) by each pair of product/destination market.

We manage this information as follows. First, origin/destination markets are grouped into 11 geographical areas¹. Second, export/import flows by firm/destinations/origin are aggregated with respect to firm’s scope so that only the information on the number of products by firm/destination/origin market is retained². Overall, the revised structure of COE dataset is as follows: i) firm-level exports/imports towards/from 11 specific destination/origin area are available; ii) the number of product exported is provided for each pair of firm/destination market.

Informations about multinational firms are taken from FATS database, that reports statistics on both the foreign-controlled enterprises operating in Italy (inward FATS statistics) and on Italian non-resident foreign affiliates (outward FATS statistics). It is worth to notice that, due to the merge with COE that collect informations only on firms operating in Italy, we include in our dataset only multinational firms located within national boundaries, both Italian firms with foreign affiliates and foreign-owned branch operating in Italy.

¹ The world market has been divided into eleven areas: European Union 27; non-EU European countries, North Africa, other African countries, North America, Central and South America, Middle East, Central Asia, East Asia, Oceania, Other territories and destinations

² The number of products is computed according to the 8-digit code of the Combined Nomenclature (CN), the classification system adopted in the FT database.

Matching among these four databases is made using ISTAT “company-code”, an identifier assigned to each firm when the production unit is surveyed in the Italian business register (Statistical Register of Active Enterprises, ASIA). This register provides a unique association between the VAT code and the Istat company code for the same enterprise³.

Furthermore, the matching procedure drop out the subsample of companies entirely focused on domestic market and select a sample of exporting firms. It follows that in our database, we keep only Italian firms (both in manufacturing and services) that are involved in some form of trade activity with foreign countries.

The dataset has been built for 2007, the year before the beginning of global financial crisis, and for 2010, a year characterized by a recovery of international business cycle. Our dataset is particularly powerful from the point of view of statistical information. For each year, it includes more than 90.000 firms engaged in trade activities, employing in 2010 about 4.4 million workers and exporting about 293 billion of euro (over 85% of total national exports value).

4. Italian firms and internationalization: some descriptive evidence

4.1 A taxonomy of internationalization form

Looking at existing literature⁴, we have built a taxonomy of internationalization strategies of Italian firms drawing seven mutually exclusive classes, showing different modes of operation in foreign markets. Going from the most basic to the more complex, the first five classes are related to forms of commercial internationalization, the other two are related to internationalization of production.

The most basic one (“only exporter”) includes firms exporting to EU markets and/or to a maximum of four extra-EU areas. In the second and third class firms carrying on only import activity have been considered, distinguishing those that import intermediate goods exclusively (“importers of intermediate goods”) from those importing all the other types of assets (“importers of other goods/services”). The fourth class includes firms that import and export (“two-way traders”); the fifth ones firms exporting at least to 5 non-European areas (“global”). The last two classes, finally, are related to internationalization of production, including firms that have foreign subsidiaries (“MNE”) and those located on the Italian territory but, in turn, controlled from abroad (“foreign control”). For each reference year, each firm is assigned to a single class. If a firm has more than one characteristic among those selected for the allocation along the scale of internationalization, it is attributed to the higher class.

On the basis of the taxonomy described above, in the next section we look at the relationship between participation in foreign markets and the performance of domestic firms, verifying the effect of any changes occurred in the internationalization strategies of companies between 2007 and 2010.

³ A set of production units common to SCI, PMI and COE database is obtained as follows. First, ASIA and COE databases are matched using the VAT code in order to obtain pairs of VAT-Istat codes for each trader. Secondly, COE, PMI and SCI are then matched using the “company-code” as common information. It should be considered that the relation between PMI, SCI and COE is of the type one-to-many, since for any record in SCI-PMI (firm *i* in year *t*) it is possible to identify more than one correspondence in COE, due to the greater detail of export flows (for firm *i* in year *t*) by destination markets.

⁴ See Altomonte et alii (2012)

4.2 Internationalization form and performance during the crisis

Different forms of internationalization are related to different performance. In 2010, the internationalized firms in our sample are mostly “two-way traders” (30.8%) or “only exporters” (26.4%), while most advanced form of internationalization include a very limited amount of firms: the enterprises controlled by a foreign owner (“inward”) and the Italian MNEs accounts for only 4.7% and 3.4% of the total, respectively. These latter, however, show a much larger average size in terms of employees: 206.6 and 219.8 respectively, with respect to the 13.4 employees on average for the only exporters (Table 1). Furthermore, the MNEs export a wider range of goods, while the “global” firms serve on average a larger number of markets (Table 3). It can also be noted that the labour productivity – measured in terms of value added per employee – increases as we move from the simplest forms of internationalization to the most complex ones (this occurs also within size classes, cfr. Table 2), but the share of export turnover – proxy for the firm’s degree of openness to the international activity – is higher for the global firms than for MNEs.

Moreover, the internationalization strategies of the Italian firms changed during the crisis, and also the effects of such changes on firms’ performance need to be assessed. A first clue of the movement between internationalization classes can be observed in the transition matrix reported in Table 4. The main diagonal indicates the permanence of the forms of internationalization between 2007 and 2010, while the values below and above the diagonal show the movements towards less complex and more complex forms respectively. In particular, out of the over 57,000 firms present in the sample both in 2007 and in 2010, about 70% kept their type of internationalization, with higher percentages among the most advanced forms. However, also the changes of status were significant: 18.2% of the sample (about 10,500 firms) moved upwards, especially from the “only exporters” and “importers of intermediate goods” classes to the “two-way traders” one (about 3,300 and 2,000 units respectively). Some 7,000 firms (12.3% of the sample), on the contrary, shifted downwards, mostly changing from the “global” to the “two-way trader” status. As a consequences, in the years of the “great recession” among the Italian internationalized firms a “net movement” towards more complex forms of presence on international markets took place.

Shifts between, and permanence in, the various forms of internationalization are associated with different performance. To capture this aspects, we measured the effects of shifts and permanence on firm performance, measured in terms of employment dynamics and value added growth. For the sake of simplicity we aggregated the previous seven forms of internationalization in four classes, on the basis of the homogeneity in the average firm’s productivity: MNEs (including previous “MNEs” and “Foreign control”), “Global” (aggregating the previous “Global” and “Two-way trader”), Only importer (aggregating previous “importer of intermediate goods” and “importer of other goods/services”), and Only exporter. Then we estimated two OLS models as follows:

$$Y_i = \alpha_i X_i + \beta_{ij} Z_{ij} + \gamma_{ik} W_{ik} + \delta_{ir} Q_{ir} + \vartheta_{is} R_{is} + \varepsilon_i, \quad (1)$$

Where:

Y_i is the performance measure: percentage change in employees, value added and value added per employee;

X_i is the (logarithm of) the level of the independent variable in 2007;

Z_{ij} ($j = 1 \dots 16$) are dummies indicating every possible change or persistence in the firm’s internalization model (e.g. one dummy taking value one whether the firm shifted from global to MNE status, one taking value one whether the firm remained MNE, and so on);

Wik ($k = 1, 2$) are two dummy variables indicating respectively whether the firm is medium- or large-sized;

Qir ($r = 1, 2, 3$) are dummies for the location of the firm (North-East, Centre, South-Islands);

Ris ($s = 1 \dots 42$) are industry-specific dummies (Nace.Rev.2, 2-Digit).

The results are reported in table 5. Basically, two main effects emerge: firstly, shifts upwards have positive and significative effects on both measures of performance. Secondly, the larger the shift, the stronger the effect tends to be. In other terms, we have a first insight about the possibility that for a firm keep showing a positive performance even during the harsh 2007-2010 period, progress towards more complex models of participation in international markets may be needed.

5. Firm survival and internationalization during the crisis

To sum up the evidences showed in the previous section, Italian firms seem to confirm the existence of a relationship between internationalization modes and firm performance. In 2010, firms showing a more complex form of internationalization had higher levels of efficiency, as well as a more pronounced diversification of production, measured in terms of the variety of exported goods. At the same time, these companies were not the most profitable, nor those with the greatest degree of openness to international trade. In terms of numbers, the multinational production units (Italian or foreign) are a distinct minority. However, small and medium size firms appear well positioned in the scale of internationalization: in fact, a large number of companies of this type lie in the intermediate category, the two-way traders class. It is also assumed that, as a consequence of the implementation of the strategies to contain the real effects of the crisis, over the period 2007-2010 firms have moved (on average) towards more complex forms of internationalization. These upwards changes have determined positive effects on employment dynamics and value added growth.

However, a considerable number of firms operating on foreign markets in 2007 is not presented in 2010 in any class of internationalization. Note that it is not possible to say whether these companies have temporary stopped their trade activities, have failed, or simply have continued to operate on the domestic market. However, it seems plausible to attribute this lack of presence in 2010 to the effects of the crisis. For this reason, it seems of some interest to investigate on the relationship between internationalization forms and firm survival. In particular, we want to tackle this issue: during the crisis, how and how much the internationalization form has affected the chance of firm survival?

5.1 Empirical analysis: econometric strategy

To answer to this question, we follow this two-step procedure. First, for each class of internationalization, we estimate the probability of firm survival as a function of firm productivity, controlling for a wide set of firms' and sector characteristics taken at 2007. Then, in a second step, we calculate the so called "survival premia" (see Wagner 2011b), defined as the difference of the probability to survive between firms belonging to the class under observation and firms included in the "only exporter" class, the simplest form of internationalization taken as a benchmark.

In line with previous studies (see Greenaway et al. 2008, Wagner 2011b, Amendola et alii 2012) we use a probit model.

After having excluded from the dataset all the firms that are present only in 2010, we build our dependent variable (“survive”) as a dummy that take value 1 if a firm is present in our dataset both in 2007 and 2010, 0 if it is present only in 2007.

Among the explanatory variables we include labor productivity. We would expect a positive relationship between firm productivity and probability of survival. From a theoretical point of view, in some models looking at dynamics of industries with heterogeneous firms (Jovanovic 1982, Hopenhayn 1992), productivity differentials is crucial for entry and exit of firms. Output is a function of inputs and a random variable that models a firm specific productivity shock. These models assumes that the higher is the shock at the time t , the higher is the probability of an higher shock at $t+1$; firms will exit the market if this shock, for given prices of output and inputs, is higher than a critical value, and production is no longer profitable. From this models, it has been tested that firms that exit in year t are in $t-1$ less productive than firms that continue to produce in t . Farinas and Ruano (2005) and Wagner (2009) have verified this hypothesis for Spain and Germany, finding a positive relationship between productivity and survival.

We include as regressors also the number of goods exported (imported) and the number of export (import) destination (origin) areas as proxies of product and markets diversification. A sectorial or country specific demand shock would affect, *ceteris paribus*, much more single-product than multi-product firms. These latter can reduce the risk by diversifying its sales (purchases) in terms of goods and/or different markets. We would expect a positive relationship between product and market diversification and probability of survive.

Furthermore, we include firm’s size, proxied by the number of employees, as regressor. Small firms show usually greater difficulty in achieving economies of scale and credit access. Higher restrictions on capital market lead to higher risk of insolvency and illiquidity, increasing risk of failure. We expect an increasing probability of survive associated to increasing size.

In addition, our estimates include location dummies and a full set of industry to control for fixed effects across industries.

Our estimated equation is the following:

$$\text{Survive}_i = \alpha + \beta_1 \ln(\text{valadd2007})_i + \beta_2 \ln(\text{prod_exp2007})_i + \beta_3 \ln(\text{area_exp2007})_i + \beta_4 (\text{size2007})_i + \beta_5 (\text{region})_i + \beta_6 (\text{Ateco})_i + \epsilon_{it} \quad (2)$$

Where: \ln is the natural logarithm, i is the firm, t is time (2007 and 2010); valadd is firm-level labor productivity (proxied by the ratio between value added and the number of employee); prod_exp2007 is the number of product sell or purchased by firm in 2007; area_exp the number of geographical areas of export (import) destination (origin); size2007 is an ordered variable taking value 1 for firms up to 50 employees (small), 2 for firms from 51 to 100 employee (medium), 3 for firms over 101 employees (large); region is a variable indicating the geographical location of firm on Italian territory, shared in four macro-regions (north-west, north-east, center, south); Ateco is an industry dummy calculated at the Ateco 2-digit level.

For each class of internationalization we estimated equation (2); for simplicity reasons, firms in “Foreign control” and “MNE” groups of Table 1 has been collapsed in a unique class. In the case of only importing firms (intermediate and other goods), in equation 1 we included as a regressor the number of imported product (instead of exported) and the areas of origin (instead of destination). For groups including firms involved in exporting and importing activity (Global, two way traders, Foreign control/MNE), both regressors are included.

5.2 Empirical analysis: results and comments

For each of the six class of internationalization, in Table 6 we reported results of estimated coefficient of equation (2). In general, all the regressors are statistically significant and show the expected sign.

As for labor productivity, a positive relationship between the initial level of productivity and probability of firm survival is confirmed for each class of internationalization; these results seem to confirm previous evidence found for other European countries.

Product differentiation is another important determinant of firm survival. As for exported goods, firms included in less evolved classes of internationalization (“only exporters” and “two-way traders”) have higher probability to survive if they sell more varieties of goods. However, for global and multinational firms, this determinant is not statistically significant. As for import, goods diversification is relevant in particular for “only importers” firms; magnitude of their estimated coefficients is considerably higher with respect those of “two-way traders” and “multinationals”.

As well as for goods, also geographical diversification is an important determinant of the probability of survival. Again, the magnitude of the coefficient is higher for firms classified in the less advanced forms of internationalization.

As for firm size, two interesting results have to be highlighted. First, especially for medium class firms, the sensitivity of survival to firm size is higher in the two classes of “only importers” firms (intermediate and other goods).⁵ Second, in all classes the magnitude of coefficient increase significantly in the case of large firms, confirming increasing probability of survive associated to increasing size.

Finally, our results confirm that firm location in the Italian territory is not neutral with respect to chances of survival. In fact, for firms located in the southern regions of Italy, the chances of survival are lower (the sign of the coefficient is negative) than those located in the northeast of the country, regardless of the form of internationalization; such “negative premium” is also much larger than that related to the location in the center or in the northeast of the country.

Table 7 shows the “survival premia”, the survival probability estimated for each class of internationalization, in the period 2007-2010. The results are expressed as the difference with respect to the reference class represented by “only exporting” group, the lowest grade in the scale of internationalization. All these differences are highly statistically significance. The results show how the taxonomy identified in Table 1 does not reflect exactly the chances of survival of Italian firms in the observed period. “Global” firms show, compared to “only exporters” class, the higher probability of survival, followed by the “two-way traders” and “importers of intermediate goods”.

⁵ In the case of size and region controls, the sign and the magnitude of the coefficients have to be interpreted as the difference compared to the reference category, respectively class 1 (small firms) and northwest.

Instead, “Importers of other goods” have marginally lower probability of survival. However, the exception is represented by the companies with the most evolved form of internationalization: multinational firms, including Italian firms that have foreign subsidiaries (“MNE”) and those controlled from abroad (“foreign control”). For this group of firms, the estimated probability of survival is positive with respect the control group, but the magnitude is only marginally higher, also lower than that of “importers of intermediate goods” firms.

This latter result seems to highlight a major role played by Italian owned firms (“Global” and “two-way traders”) as a stabilizer of economic business cycle during the first period of global financial crisis. Of course, as we mentioned earlier, we cannot interpret the “disappearance” of a firm between 2007 and 2010 as an indication of end of the trading activity. Especially in the case of multinational companies, it is possible that the lack of presence in 2010 is, however, an indication of the decision to exit the Italian market. Moreover, this kind of firms show higher productivity (see Table 1), enabling it to cover a wider range of products (see Table 3) and marked specific fixed export costs. These characteristics make multinational corporations more ready to position in different markets, in particular when a country is hit hard by a crisis such as that experienced during the period under observation. Baldwin and Yan (2011) noticed that multinational (in particular, foreign owner firms) are less rooted in the host country economy so that they can shift their activities to another country when local economy deteriorates.

Our results seems partially in line with previous findings on Italy (Amendola et alii (2012), Ferragina et alii (2010)). Lower resilience of MNE can be compared with findings in Ferragina et alii (2012) (foreign multinationals are more likely to exit the market than national firms in manufacturing sectors) also if these latter are related to the period 2004-2008, not including the effects of global financial crisis.

However, we have to consider the differences about the dataset and the taxonomy of internationalization classes. On the one hand our dataset takes into account only internationalized companies, not including therefore those operating solely on the domestic market. The chances of survival of firms, with respect to their form of internationalization, are then calculated with respect to a different reference group (“only exporting” firms in our case, the non-exporting firms in Amendola et al (2012)). On the other hand, the greater information of our dataset allows us to specify in more detail the forms of internationalization, where in Amendola et al (2012) there were only 3 types of firms operating abroad.

6. Concluding remarks

This work lies in the wake of the recent empirical literature that has analyzed the relationship between internationalization form and firm performance. In particular, we make use of a new database that covers the universe of Italian firms having trading activities abroad; the observation period (2007 and 2010) includes the real effects of the global financial crisis. Following suggestions coming from literature, we reproduce a taxonomy of different classes of internationalization, from the most basic (only exporting firms) to the more complex (internationalization of production).

Descriptive analysis shows that, in line with previous findings related to other countries, firms showing a more complex form of internationalization has larger and higher levels of productivity, as well as a more pronounced diversification of production, measured in terms of the variety of exported goods. Indeed, the internationalization strategies of the Italian firms changed during the crisis to implement defensive strategies aimed at curbing the real effects of the crisis itself. Over

the period 2007-2010 firms have changed their choices in terms of presence on foreign markets, moving (on average) towards more complex forms of internationalization. These upwards changes have determined positive effects on employment dynamics and value added growth.

Nevertheless, global crisis hit hard the Italian economy, forcing a large number of firms to exit from foreign markets. For this reason, it seems of some interest to investigate on the relationship between internationalization forms and firm survival.

Our results suggest that firm productivity is an important determinant of firm survival, for all classes of internationalization. Product and market differentiation, together with firms and sector characteristics, also mattered to increase firm survival during the crisis.

This “survival premia”, however, is not distributed among internationalization classes following our taxonomy: multinational firms (at the top of our taxonomy) show a lower resilience during the crisis with respect “global” or “two-way traders”.

The issue of the potential growth of Italian firms associated with an increased degree of internationalization comes up again, especially in the current phase, as central to the chances of recovery for Italian economy. The diversification of products and markets, therefore, should be an objective to be pursued. Be "global" offers, even in times of crisis such as the current ones, more likely to remain competitive, make profits and survive.

Table 1 - Forms of internationalization and firms' characteristics (2010)

Forms of internationalization	Number of firms	Number of employees	Average turnover (thousands euros)	Average size (employees)	Average productivity (value added per employee)	Average profitability (Ebitda/value added)	Average degree of openness (Export/turnover)
Foreign control	4,261	936,749	95,817	219.8	103.9	34.8	23.3
MNE	3,133	647,232	81,524	206.6	86.0	34.8	39.1
Global	10,467	933,482	29,853	89.2	65.5	35.4	47.8
two-way traders	28,176	992,827	12,375	35.2	62.7	40.3	20.9
importers of intermediate goods	13,608	412,095	10,758	30.3	60.9	43.6	0.0
importers of other goods/services	7,605	143,983	5,183	18.9	54.3	50.0	0.0
Only exporters	24,168	323,776	3,520	13.4	46.6	41.4	17.7
Total	91,418	4,390,145	17,455	48.0	60.5	40.9	19.0

Table 2 - Forms of internationalization and labour productivity by firm's size (value added per employee, 2010)

Forms of internationalization	Average size			
	1 - 49 employees	50 - 249 employees	250+ employees	Total
Foreign control	112.8	96.7	90.1	103.9
MNE	99.6	74.2	82.0	86.0
Global	63.8	69.0	73.4	65.5
two-way traders	62.4	64.4	71.8	62.7
importers of intermediate goods	60.2	69.6	76.2	60.9
importers of other goods/services	53.7	65.1	78.6	54.3
Only exporters	46.4	55.4	57.7	46.6
Total	58.6	71.2	80.2	60.5

Table 3- Forms of internationalization and firms' product diversification (2010)

Forms of internationalization	Product diversification					
	Number of sectors where the firms export	Number of sectors from which the firms import	Number of countries where the firms export	Number of countries from which the firms import	Number of exported goods	Number of imported goods
Foreign control	3.4	6.8	13.4	7.5	18.8	45.3
MNE	5.9	5.8	27.6	9.0	33.9	28.2
Global	4.5	3.8	29.6	6.0	24.6	16.0
two-way traders	2.5	3.3	6.2	4.1	8.9	13.3
importers of intermediate goods	0.0	3.3	0.0	2.8	0.0	12.6
importers of other goods/services	0.0	1.3	0.0	1.9	0.0	4.4
Only exporters	1.7	0.0	3.2	0.0	4.3	0.0
Total	2.1	2.6	7.7	3.2	8.7	11.2

Table 4 - Transition matrix: shifts in the forms of internationalization between 2007 and 2010 (number of firms and percentages)

Forms of internationalization (2007)	Forms of internationalization (2010)							
	Foreign control	MNE	Global	two-way traders	importers of intermediate goods	importers of other goods/services	Only exporters	Total
Foreign control	3,096	8	46	51	25	12	17	3,255
%	95.1	0.3	1.4	1.6	0.8	0.4	0.5	100
MNE	32	2,139	293	286	37	23	75	2,885
%	1.1	74.1	10.2	9.9	1.3	0.8	2.6	100
Global	99	322	6,789	1,439	6	3	523	9,181
%	1.1	3.5	74.0	15.7	0.1	0.0	5.7	100
two-way traders	136	248	1,332	12,932	1,169	423	1,725	17,965
%	0.8	1.4	7.4	72.0	6.5	2.4	9.6	100
importers of intermediate goods	53	35	14	1,963	4,058	409	231	6,763
%	0.8	0.5	0.2	29.0	60.0	6.1	3.4	100
importers of other goods/services	17	12	10	839	632	1,666	219	3,395
%	0.5	0.4	0.3	24.7	18.6	49.1	6.5	100
Only exporters	28	67	569	3,336	389	236	8,943	13,568
%	0.2	0.5	4.2	24.6	2.9	1.7	65.9	100
Total	3,461	2,831	9,053	20,846	6,316	2,772	11,733	57,012
%	6.1	5.0	15.9	36.6	11.1	4.9	20.6	100

Source: authors' calculations on ISTAT data

Table 5 – Effects of shifts and permanence in the forms of internationalization on firm's performance

Status		Effects on performance (marginal effects)	
		Employment	value addedd
From (2007)	to (2010)	% Changes in employees	(% change)
Only importer	MNE	0.21 ***	0.28 ***
Only exporter	MNE	0.13 ***	0.10 *
Global	MNE	0.09 ***	0.13 ***
Only importer	Global	0.08 ***	0.12 ***
Only exporter	Global	0.07 ***	0.08 ***
Global	Global	0.06 ***	0.06 ***
MNE	MNE	0.05 ***	0.08 ***
Only exporter	Only importer	0.05 ***	0.02
MNE	Global	0.03 **	0.04 ***
MNE	Only importer	0.02	0.06
Only importer	Only importer	0.00	-0.01 **
Only importer	Only exporter	-0.02	-0.05 **
Only exporter	Only exporter	-0.04 ***	-0.10 ***
Global	Only importer	-0.05 ***	-0.09 ***
Global	Only exporter	-0.11 ***	-0.18 ***
MNE	Only exporter	-0.17 **	-0.13 *

Source: authors' calculations on ISTAT data

Table 6 - Probit estimates. Determinants of firms survival: Average Marginal effects.

	Only exporters	importers of other goods/services	importers of intermediate goods	two-way traders	Global	For.control/MNE
ln(valadd2007)i	0.072875*** (0.004741)	0.058509*** (0.007096)	0.06823*** (0.006695)	0.063757*** (0.00512)	0.048377*** (0.009505)	0.06268*** (0.009619)
ln(prod_exp2007)i	0.071226*** (0.004181)			0.005799* (0.003609)	-0.0112 (0.006015)	0.001376 (0.00635)
ln(prod_imp2007)i		0.05322*** (0.007373)	0.046873*** (0.004617)	0.00962** (0.003435)	0.00961 (0.006465)	0.012395** (0.006309)
ln(area_exp2007)i	0.065829*** (0.004709)			0.024479*** (0.003939)	0.026269*** (0.008793)	0.02381*** (0.006912)
ln(area_imp2007)i		0.095408*** (0.011271)	0.084912*** (0.007821)	0.030445*** (0.005077)	0.006449 (0.008387)	0.000808 (0.009476)
(size2007)i class2	0.057591*** (0.015321)	0.09236*** (0.028992)	0.08045*** (0.019738)	0.020229** (0.009454)	0.00528 (0.010851)	0.078679*** (0.014118)
(size2007)i class3	0.211135*** (0.05822)	0.191808** (0.064099)	0.189113*** (0.038723)	0.190612*** (0.019253)	0.099181*** (0.019172)	0.181205*** (0.016296)
(region)i NE	-0.01735 (0.007116)	-0.00977 (0.014819)	0.007566 (0.010975)	-0.02315*** (0.006732)	-0.02013** (0.009647)	-0.0132 (0.012102)
(region)i CENTRE	-0.05336*** (0.008085)	-0.07139*** (0.01457)	-0.04128*** (0.012194)	-0.05735*** (0.008232)	-0.04284*** (0.012147)	-0.01609 (0.016496)
(Ateco)i SOUTH	-0.1387*** (0.009263)	-0.12525*** (0.014685)	-0.11605*** (0.012976)	-0.10874*** (0.010414)	-0.08839*** (0.020977)	-0.06352*** (0.028638)
n.obs.	27411	7808	11884	25720	9611	5998
Log pseudolikelihood	-17265.632	-4858.8894	-7385.801	-15075.334	-4806.5714	-2884.5316

Source: authors' calculations on ISTAT data

Notes: Standard errors in brackets. The reference category for class and region are class1 (smaller firms) and North-west, taken as benchmark. Sign and magnitude of class and regions coefficients have to be considered as a difference with respect the reference category. *** = statistically significant at 1%; ** = statistically significant at 5%; * = statistically significant at 10%. All models include a constant term plus a full set of 2-digit level industry dummy variables (Ateco2)

Table 7 -Estimated probability of survive for firms with different form of internationalization. Differences with “only exporters” group

	difference	s.e.	t
Foreign control/MNE	0.045394	0.002901	15.6482
Global	0.284511	0.001272	223.6065
two-way traders	0.203351	0.001232	165.0607
importers of intermediate goods	0.072706	0.001878	38.7159
importers of other goods/services	-0.06141	0.002183	-28.1331

Note: the estimated probability of survive is based on estimates of model (2).

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