DETERMINANTS OF FOREIGN FIRON EXISTENCE IN VIETNAM

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Abstract

This paper studies the survival of 187 foreign invested firms in Vietnam that were newly established in 2000 and measures for how many years they stay in the market over the 2000-2011 period. By using the Cox proportional hazard model, the empirical results show that foreign firms with growing current size are more likely to stay longer in the market. We also find that foreign firms entering the market with wholly-owned subsidiaries rather than doing joint ventures with local partners can live longer. However, locating in industrial zones or export processing zones does not help foreign firms to increase their survival probabilityin the market. By contrast to our prediction, agglomeration economies have no significant effect on firm survival. Further, cultural distance is found to have a quite strong impact on the survival of foreign firms. Proximities in culture make it easier for foreign firms in cooperating with local partners; therefore increasing their success in foreign markets.

Key words: *Foreign firm; Survival; Duration; Foreign direct investment*

1. Introduction

Considerable studies on the existence or survival[1] of new firms have revealed that these firms experience of high failure rates (Dunne, Roberts, and Samuelson, 1989; Mata and Portugal, 1994) and this finding is largely shared by those studies which have focused especially on the survival of new foreign firms. However, most of these studies are empirically carried out on foreign firms in developed countries. Typical are the works of Li (1995) on the survival of foreign subsidiaries in US computer and pharmaceutical industries; Mitchell, Shaver, and Yeung (1994) on Canadian firms that entered US medical sector market; Berkema, Bell, and Pennings (2002) on entries in different countries by Dutch firms; McCloughan and Stone (1998) on

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[1] In this paper, the words "existence" and "survival" will be used interchangeably

foreign manufacturing plants in UK Northern region; Mata and Portugal (2000; 2002) on foreign entries in Portugal. By contrast, there is a remarkable lack of study on the existence of foreign entries in transition and developing countries.

This paper aims at filling the gap and contributes to the existing literatures on firm existence with the focus on the life time of foreign firms subsequent to entry in Vietnam. The empirical results can be important for managers of multinational companies in evaluating the chances of their success and implementing strategic choices for their survival in a foreign market, especially in a transition economy just like Vietnam.

Most studies have used panel data of firms in varied countries to investigate determinants of firm survival (Dunne *et al.*, 1989; Audretsch and Mahmood, 1994, 1995; Audretsch, 1991; Agarwal and Audretsch, 2001; Mata and Portugal, 1994, 2000, 2002; Mata, Portugal and Guimaraes, 1995; Li, 1995). At the firm level, these studies mostly show that firm size, number of plant firms possess, entry mode as a fully-owned subsidiary, ownership advantages, the extent of diversification, and organizational learning and experience exert a negative effect on the failure rate of firms. At the industrial level,industry life cycle, and industry growth have been proved to have a positive effect on the firm survival while minimum efficient scale, entry rate, and industry concentration are likely to decrease the chances of survival of new firms.

This paper studies the existence of 187 foreign invested firms in Vietnam that were newly established in 2000 and measures for how many years they stay in the market over the 2000-2011 period. By using the Cox proportional hazard model, the empirical results show that foreign firms with growing current size are more likely to stay longer in the market. We also find that foreign firms entering the market with wholly-owned subsidiaries rather than doing joint ventures with local partners can live longer. However, locating in industrial zones or export processing zones does not help foreign firms to increase their survival probabilityin the market. By contrast to our prediction, agglomeration economies have no significant effect on firm survival. Further, cultural distance is found to have a quite strong impact on the survival of foreign firms. Proximities in culture make it easier for foreign firms in cooperating with local partners; therefore increasing their success in foreign markets.

The study is organized as follows. Section 2 presents the hypotheses to be tested and variables. Section 3 discusses methodological issues, including the description of the data source, the methods used in computing the variables, and the statistical methodology employed. Also in this section, the study gives an overview of the sample characteristics and exit patterns. Section 4 provides empirical results. The final section is conclusions.

2. Hypotheses and variables

The goal of this section is to discuss the characteristics, industries as well as locations of firms which are likely to affect their existence and to develop a set of specific hypotheses about their expected effects.

2.1. Firm size

Many empirical studies found that the probability of firm survival increases with firm size (Evans, 1987; Dunne *et al.*, 1989;

Mata and Portugal, 1994, 2000, 2002; Mata *et al.*, 2005, Disney *et al.*, 2003). Firm size is mostly measured by number of employees, but alternative proxies such as value added and sales yield a very similar picture (Dosi, 2007). Researchers proved that both firm initial size and current size are important determinants on firm survival and have positive effect on the firm survival probability (Mata *et al.*, 1995).

According to Mata *et al.* (1995), new firms enter markets typically below the minimum efficient scale in the industry. Therefore, they are confronted by a cost disadvantage vis a vis their efficiently scaled competitors which makes their survival more difficult. Hence, entrants with small initial size should be more likely to exit than large ones, because they cannot compete with incumbents while the larger firms can. Regarding foreign entrants, Dunning (1993) showed that when entering a new foreign market, a foreign firm has to face considerably higher entry costs than local firms, for instance the costs of acquiring information about that foreign market. As small firms own less resources such as financial capital and management skills, they are naturally disadvantaged and find it difficult to compete with local and other foreign firms, and hence more likely to fail. Indeed, Evan (1987) and Audretsch (1991; 1995) found that among a cohort of new firms in U.S. manufacturing, the probability of plant exit was decreasing with initial size. This finding is consistent with the empirical result of Mata and Portugal (1994) on Portuguese manufacturing firms.

Besides studying the effect of initial size on the firm survival, the scholars paying special attention to the post-entry evolution of new firms and its effects on survival prefer to employ the firm's current size in their models (Mata *et al.*, 1995). As mentioned above, new firms generally enter market at small scales and have to face cost disadvantages compared with incumbents, which makes it more difficult for them to survive. Therefore, for those that are able to survive, they need to reduce this cost gap. This provides them with a strong incentive to grow. This is the main argument in Audretsch (1995), who found that initial size is positively related to survival, but negatively related to post entry growth, meaning that smaller firms grow faster. Because growth reduces average costs, firms should be less likely to exit after having grown. In other words, current size should be a better predictor of failure than initial size because the current size of firms can reflect the firm's growth and the capacity of its reaction to their market success over time (Dunne *et al.*, 1988; Mata *et al.*, 1995).

Indeed, Jovanovic (1982) is the first person discussing the importance of post-entry learning and growth on firm survival. The author argues that at birth new firms do not know their true ability. They decide the entry scale based on their beliefs about their ability level, but this level is very imprecisely estimated. By going into activity and observing their outcomes in the market, firms learn about their true abilities and revise the initial estimates. They therefore have to adapt to changing environments and link changes in their strategy choices to the changing configuration of that environment so that they can shape the process of selection and survival. Those firms which experience bad outcome realise that they are inefficient and accordingly exit from the market. On the contrary, those which perform well recognize that they are efficient. These firms not only survive, but they also grow. The empirical

studies of Mata and Portugal (2000; 2002) and Mata *et al.* (1995) reveal that both domestic and foreign firms in Portugal with larger current size, being the most efficient, are less likely to exit. These results are also supported by the works of Dunne *et al.* (1989) on U.S. manufacturing plants and Disney *et al.* (2003) on manufacturing firms in the United Kingdom.

Based on the above arguments, we in this study will investigate the effects of both initial and current sizes on the survival of new foreign firms in Vietnam and propose the following hypothesis:

Hypothesis 1: *Larger foreign firms are less likely to exit from the market than smaller ones.*

2.2. Ownership structure

Hymer (1976) stated that foreign investors have a competitive disadvantage relative to local competitors due to lack of information on local market conditions and higher costs of communication and transportation. To overcome these disadvantages and to operate profitably in foreign markets, they must have some kind of firm specific advantage.

According to the resource-based view (Wernerfelt, 1984; Barney, 1991), the sources of firm specific advantages arise from "tacit knowledge" such as technical knowledge, patents, and management skills. Tacit knowledge as illustrated in the work of Nelson and Winter (1982) is an embedded component of both individual skills and organization routines. Unlike machines or blueprints, they cannot be easily transferred to other firms. They can exist and create value only in the firms in which they have evolved. Kogut and Zander (1993) find that the more tacit the technology is, the more firms prefer to set up wholly-owned subsidiaries rather than sharing the knowledge with other partners. In their views, there is a distinguishable boundary in the knowledge between the partners in the joint venture. It therefore is difficult to have a common understanding between partners by which to transfer knowledge from idea in to productions and markets efficiently.

According to transaction cost theory (Williamson, 1975), foreign firms when making joint venture with local partners might suffer from transaction costs arising from writing and enforcing contracts, haggling over terms and contingent claims, and administering transactions (Kogut, 1989). Moreover, Mata and Portugal (2000) state that a joint venture may be troubled not only by cultural differences between the partners, but also by difficulties in sharing proprietary assets. Further, by making both parties residual claimants on firm's profits, they create in both parties incentives to free-rider, which make these ventures highly unstable. And as the co-operative ventures ages, local partners may learn the firm's technology to their own advantage and become competitors in the future (Barba Navaretti and Venables, 2004). Such costs and conflicts among parties make wholly-owned subsidiaries preferable to joint ventures.

Nevertheless, in some cases, joint ventures are preferred than wholly-owned subsidiaries. From the point of view of host countries, the benefits they can expect to obtain from foreign investment are knowledge about the latest technologies as well as management skills of foreign firms. However, market failures emerge because these knowledge and skills cannot be always tradable or imitated

by the outsiders. Local firms find it difficult to acquire knowledge about the unspecified details of the technology, and foreign firms also find it difficult to buy knowledge about the local markets such as information about administrative procedures, labour skills, demand conditions and relationship with local authorities (Mata and Portugal, 2000). It thus becomes cheaper for the parties to share both assets through a joint venture than to trade them through the market. For example, joint ventures frequently assign management tasks to local partners who are better qualified than home country individuals to manage the local labour force and relationships with local suppliers, buyers, and governments.

In terms of empirical works, most researchers use transaction cost theory to study entry mode choices by foreign firms. For instance, Meyer (2001) found that foreign firms in transition economies prefer to set up wholly owned subsidiaries rather than joint ventures with local partners. In these countries, foreign firms lack information about local partners, and domestic firms lack knowledge of market mechanism and inexperience in doing business with foreign partners. Therefore, a foreign firm has to pay high transaction costs relating to searching, negotiating and monitoring local partners. Moreover, in transition economies, the diffusion of knowledge is of particular concern because the institutional framework does not provide for the efficient protection of intellectual property rights. Hence, technology-intensive firms would prefer to internalize their transactions in high-tech goods and services, including transfer of production know-how, assessment of market opportunities for innovation products, as well as the training of sales and service personnel (Oxley, 1999; Hennart 1991). Similarly, Anderson and Gatigon (1986) and Brouthers (2002) find that in a market where transaction costs associated with finding, negotiating and monitoring potential partners are perceived to be high, foreign firms tend to use wholly owned mode while firms perceiving low transaction costs tend to use joint venture mode. Moreover, Hennart (1991) and Yamawaki (1997) reveal that wholly-owned subsidiaries of Japanese multinationals were less likely to exit than joint ventures.

The above arguments suggest a higher exit hazard for joint ventures when compared to wholly-owned subsidiaries, leading to the second hypothesis.

Hypothesis 2: *Wholly-owned subsidiaries are less likely to exit from the market than joint ventures.*

2.3. Location

The factor endowment theory of international trade developed by Heckscher and Ohlin suggests that location of international production is based on comparative advantages of factor costs. Therefore, if firms use FDI to minimize costs, they will move to the location where production costs are lowest. Location advantages can help firms reduce production costs, thereby increasing the likelihood of firms' survival compared with their competitors locating in worse conditions. The concept of location advantages as reviewed by Cave (1982), Dunning (1993) and Brainard (1997) covers many aspects, including production costs and factor endowments such as labor force and infrastructure; market size; and policies to attract FDI.

The economic open policy in transition economies creates potential business

opportunities for foreign firms. Most investors are attracted by new markets, low labor costs and favorable policies towards FDI in these countries (Meyer, 1998). One of the most important policies to attract foreign investors is establishment of industrial zones or export processing zones with priority policies mostly on taxation for foreign investors (Zhou *et al.*, 2002). For instance, in China foreign firms locating in such as Special Economic Zones and Open Coastal Cities not only receive priorities in terms of profit tax, import duties and land use fees, but also get benefit from good infrastructure conditions and supporting services such as relating to administrative procedures. In fact, these special zones have attracted a major FDI inflows to China (Cheng and Kwan, 2000; Zhou *et al.*, 2002). In Vietnam, similar zones have been established since 1991 and offer lower profit tax and other incentives, especially if at least 80% of output is exported. Besides the attraction of preferential treatments, foreign firms are likely to locate in these special zones due to the existence of agglomeration economies, which are positive externalities stemming from the geographic clustering of industries. The localization theory stipulates that firms benefit from locating in the vicinity of other firms in the same industry. They benefit from specialized labour markets, the availability of suppliers to the industry, and the exchange of knowledge with other firms in the cluster (Marshall, 1920; Krugman, 1991).

However, Shaver and Flyer (2000) shows that under the existence of agglomeration economies, many foreign firms will perform better if they do not cluster. Large foreign firms with the greatest capacity in technologies, human capital, training programs, suppliers, and distributors will try to locate away from their competitors because the benefits they gain from locating near their competitors will be less than what the competitors gain from them. The problems firms will experience when participating in an industrial cluster can be the spillover of technology, employee defection to competitors, and the sharing of distributors and suppliers with neighboring firms. Yoffie (1993) shows that semiconductor managers decide to locate far from their competitors due to their concern that their technology might spill over to the near firms. Baum and Mezias (1992) indicate that locating closer to other hotels in Manhattan increases the survival chance of a hotel, but this benefit of agglomeration diminishes when hotel districts become crowded, pushing up prices of the input resources and exacerbating competition.

In this study we suppose that in a transition economy like Vietnam, benefits that a new foreign firm locating in industrial zones gains from tax priority policies, good infrastructure conditions and agglomeration economies may higher than the loss it suffers from high competition with other proximal firms. The next hypothesis therefore is posited as follows:

Hypothesis 3: *Locating in industrial zones or export processing zones increases the likelihood of survival of foreign firms.*

However, in order to have a better understanding of the effect of agglomeration economies on firm survival, we include in the model the agglomeration economies variable proxied by the number of foreign firms in the same industry in the province where the firm locates. The following part will present a more

detailed discussion about this issue.

2.4. Control variables

Other variables need to be taken into account in the empirical analysis. At the firm level, the study includes the *cultural distance* and *profit before tax*.

Dunning (1993) suggests that one of the disadvantages of foreign firms compared with local firms is differences in culture. The differences in culture may lead foreign firms to difficulties in understanding and cooperating with local partners that can reduce their potential performance. In fact, in recent years intra-regional foreign investment has tendency to increase and plays a key role in transnational corporations-controlled international networks. During the period 2002-2004, average annual intra-Asian flows are the largest stream of foreign direct investment within the group of developing countries (The World Investment Report 2006). In addition, Barkema *et al.* (1996) find that cultural distance is a prominent factor in foreign entry, especially when this involves another firm. Because the venture requires 'double layered acculturation', and the firm has to accommodate both strange corporate and national cultures. Based on these arguments and evidence, the study suggests that cultural differences decrease the probability of foreign firm survival.

Besides factors foreign firms possess at the time of entry such as initial sizes, countries of origin and entry modes that can affect the likelihood of firm survival, the performance by firms after entry are also an important factor. Scholars have used many different indicators to measure firm performance such as sales growth, numbers of employees, turnovers, volume of export, and profit (Malmberg *et al.*, 2000; Hansen and Wernerfelt, 1989; Baum and Wally, 2003). In this study, we use profit as an indicator for firm performance and argue that a foreign firm is considered to be successful in doing business if it can consistently generate profit over time.

Besides firm-specific characteristics that are supposed to have impact on the firm survival, we also analyze the effects of the environment in which entry occurs. The characteristics of industries, locations and effects of agglomeration economies will be considered.

At the industry level, this study analyzes the influences of *entry rate and industry size* on the survival of firms. Mata and Portugal (1994; 2002) indicate that the extent of entry in a market increases the competitiveness in that market. So in markets with high entry rate, the firms' lifetime is expected to be shorter. We also control for the growth rate in the industry. Industries which are quickly growing are likely to be environments in which the probability of exit of new foreign firms is lower. Audretsch and Mahmood (1994), Mata and Portugal (1994; 2000; 2002), and Mata *et al.* (1995) find a positive and statistically significant effect of industry growth on the survival of new firms, and Li (1995) and Shaver (1995) find this effect to hold specially for foreign firms.

As discussed in the previous section, foreign firms have tendencies to locate in places where required factors of their production are relatively abundant to reduce production and transportation costs. This study thus supposes that locating in regions with high income per capita, development in human capital, and advantages in infrastructures and

transportation will decrease the likelihood of failure of foreign firms. Fotopoulos and Louri (2000) when studying the survival of newly-created Greek manufacturing firms find that firms located in the country's largest urban environment, Athens, face better survival prospects. This result suggests that 'centripetal' forces such as agglomeration economies and other market-pull factors remain a strong determinant in location choices by foreign firms.

Moreover, the region with good conditions attracts more and more new foreign investments. Then at a certain level, the cumulative number of foreign firms will create positive agglomeration externalities and make that region more attractive.Many empirical studies have found that benefits from agglomeration economies motivate foreign firms in the same industries to locate in a specific place. For example, Head, Ries and Swenson (1995; 1999) find that new Japanese firms prefer to locate near both Japanese and US firms in the same industries, and Crozet, Mayer and Mucchielli (2004) also find a similar evidence about the industrial concentrations of foreign firms in France. It is thus possible to expect a positive relationship between agglomeration economies and the likelihood of foreign firm survival.

3. Methods

3.1. Data

The dataset used in this study is obtained from enterprise surveys conducted by the General Statistics Office of Vietnam since 2000. These are comprehensive surveys covering all state enterprises, non-state enterprises that have equal or greater than 10 employees, 20% of sampled non-state enterprises with fewer than 10 employees, and all foreign enterprises across 63 provinces and cities in Vietnam. Moreover, its longitudinal capacity, i.e., each firm is identified through a unique tax code, allows a firm to be followed over time. In this study, existence is defined as the continued presence of the foreign firms in Vietnam, and failure as the firms' exit. To identify the changes of the foreign firms created in 2000, the study implemented a three-step procedure. First, we merge all surveyed foreign firms over six years from 2000 to 2005 by using their tax codes. It is noted that numbers of foreign firms that are surveyed in a particular year include foreign firms that already started their operations and still exist until the day of survey and new foreign entrants of that year. After merging, we can obtain the longitudinal information of all foreign firms during the six years. Second, by using the information about the year of starting operation, we can keep all foreign firms that were created in 2000 and have their history records during the period 2000-2011. In 2000, we have 187 newly-created foreign firms. Finally, we measure the life span of each new foreign firm.

The dataset also has several limitations. First, we do not know the identity of the foreign owners. This prevents us from using the parents' characteristics to explain the exit of subsidiaries. Second, we are not able to distinguish greenfield and acquisition foreign entrants. So the study cannot analyze how the entry mode affects the probability of firm survival. Third, we cannot tell mergers and acquisitions from true exits. This can happen when a foreign firm after a period of operation decides to merge with or to acquire another foreign firm. So the identifiers (tax code) of the merging firm or the acquired firm disappear,

and they are thus counted as exits in the dataset while they are in fact still surviving. Furthermore, there are some foreign firms that appeared in one survey and disappeared in the next survey and then reappeared after that. This can be due to mistakes when conducting the surveys, or because the firm did not want to answer the questionnaire, or many other reasons. For these cases, the study uses the last time the foreign firms appeared during the period 2000-2005 to calculate their life time.

3.2. Statistical model

Conventional statistical methods, such as the method of ordinary least squares, are ill-suited to deal with duration analysis. The main reason is that information in duration analysis is typically incomplete. At the time of the survey, the observations that do not fail are called right-censored because their durations in fact exceed a given (known) threshold. (see Mata and Portugal, 1994). We need, therefore, to employ models especially designed to take this problem into account, which lead us naturally to the hazard model. The key concept in the hazard model is the hazard rate which gives the probability that a unit exits the initial state within a particular time interval, given that it survived up until then.

Following Wooldridge (2002), the hazard function $h(t)$ without covariates that is the instantaneous rate of leaving per unit of time is written:

$$h(t) = \lim_{\Delta t \to 0} \frac{P(t \le T < t + \Delta t \mid T \ge t)}{\Delta t} = \frac{f(t)}{S(t)}$$

where T is the firm's life duration, $f(t)$ is probability density function of T and $S(t)$ is the survivor function that is the probability of "surviving" past time t. Empirical estimates of either survival or hazard rates can easily be computed employing respectively the Kaplan-Meier estimator or the life-table methodology.

Usually in economics, we are interested in hazard functions conditional on a set of covariates. When the covariates do not change over time, the conditional hazard is:

$$h(t; x) = \lim_{\Delta t \to 0} \frac{P(t \le T < t + \Delta t \mid T \ge t, x)}{\Delta t}$$

And when the covariates change over time, the conditional hazard is:

$$h\left[t; x(t)\right] = \lim_{\Delta t \to 0} \frac{P\left[t \le T < +t + \Delta t \middle| \ge t, x(t + \Delta t)\right]}{\Delta t}$$

However, this study aims at not only evaluating either survival or hazard rates but also investigating the influence of the covariates on the probability of failure. In other words, the study will implement a multivariate model of the survival of foreign firms. For this purpose, the proportional hazard model proposed by Cox (1972) will be applied. The proportional hazard that a foreign firm j faces can be written as:

$$h_j(t; x) = h_0(t) \exp(\beta_x X_j)$$

where $h_0(t)$ is the baseline hazard function that is common to all foreign firms in the population, X is a vector of explanatory variables for the j^{th} firm that can be time-invariant or time-variant covariates, and β is a vector of parameters. Negative coefficients equivalent to risk ratios $\exp(\beta X)$ less than one implies that the hazard rate decreases and the probability of survival increases, while positive coefficients and risk ratio greater than one imply an increase in the hazard rate and a decreases in the probability of survival.

Clearly, the baseline hazard function equals the hazard function for $X = 0$. Accordingly, the effect of a unit change in a covariate is to produce a constant proportional change in the hazard rate. In other words, the hazard subject j faces is multiplicatively proportional to the baseline hazard, and the function exp(βX) was chosen simply to avoid the problem of $h(t; x)$ ever turning negative. Parametric procedures require that $h_0(t)$ assumes a specific form, but an improper choice of the baseline hazard function can produce unreliable or unstable estimates. However, this problem can be solved since the β vector can be estimated with unspecified hazard baseline function via the definition of the proper partial likelihood function (Cox, 1972). Thus, a non-parametric procedure can be used to estimate the effects of covariates.

Estimation is performed by maximum likelihood methods. The lifetime variable is an increasing count of the years that a foreign firm survives and will be right censored if it still survives until the end of the period 2000-2005. The hazard rate (dependent variable) is the probability that a firm exits its lifetime period, given that it survives up till the last year of the period.

Following the discussions of the hypotheses, the explanatory variables are computed mostly based on the works of Mata and Portugal (1994; 2000; 2002) and Head *et al.* (1995) as follows:

- *Initial size*: the number of employees when foreign firms started operation in 2000.
- *Current size*: the current number of employees over years.
- *Ownership structure*: Dummy variable which takes the value 1 if foreign firms are wholly owned by foreign investors, 0 if they are joint ventures.
- *Location*: Dummy variable which takes the value 1 if foreign firms are located in an industrial zone or an export processing zone, 0 otherwise.
- *Cultural distance*: Dummy variable which takes the value 1 if foreign investors are from the Asian countries, 0 otherwise.
- *Firm performance*: Profit before tax.
- *Entry rate*: the number of new foreign firms created in 2000 in the same 2-digit industry.
- *Industry size*: the number of all kinds of firms in the industry; and the number of employees in all kinds of firms in the same 2-digit industry.
- *Location-specific characteristics:* income per capita by province, human capital development measured by the number of undergraduate students, and infrastructure conditions proxied by the distance to the nearest big harbor.
- *Agglomeration economies:* the number of foreign firms in the same 2-digit industry by province.

With the exception of initial size and entry rate which refer to the conditions at the time of the firm's entry and the distance to the nearest big harbors that does not change over time, all variables are time-varying. It means that they can have different values over the life time of foreign firms. In some cases, these variables reflect post-entry decisions and in other cases they simply reflect the evolution of the environment. The study specifies exit between moment t-1 and t as a function of the independent variables observed at moment t.

3.3. Sample

The sample includes 187 foreign firms that entered in Vietnam in 2000. These new foreign firms are identified by using the procedures previously discussed in section 3.1. Table 1 and Table 2 present some descriptive statistics of the sample and the correlations of the variables.

Table 1 shows the statistic descriptions in 2000, except the values of the variable *current size*.The figures show that 83.4% of the total numbers of entrants are wholly-owned by foreign investors. This is consistent with the argument of Meyer (2001) that foreign entries in transition economies where institutional frameworks are only partially reformed, and therefore inconsistent and unstable prefer to establish wholly-owned subsidiaries to reduce transaction costs. Over the 12 years of operation from 2000 to 2005, the ownership structure of foreign firms is quite stable. Regarding the nationalities of foreign investors, around 83% are Asian investors. Around 50% of new foreign firms are located in industrial zones or export processing zones, and most of them are operating in manufacturing sector. On average, foreign entrants employed 139 employees at the first year of operation. However, there is a big gap between the minimum and maximum number of employees. At the minimum level, entrants employed only 1 employee while the maximum number is 2627. Over the twelve years of operation, the firm size that is measured by the number of employees increased. In 2011, the average number of employees was 479, increasing more than three time as large as the average start-up size.

Sample correlations between the independent variables are shown in Table 2. In general, the correlation coefficients are low and no serious collinearity problems are detected in the regression estimation.

3.4. Patterns of exit

The study estimates the probability of firm survival at the different ages by using the Kaplan-Meier estimator. Table 3 shows that the overall survival rate is 90% in the year foreign firms were created, but around 34% of them died before they reach the age of thirteen. The highest numbers of foreign firms exited the market in the year of entry (19 firms) compared with the later years implying that the first year of operation is the most difficult time for new entrants.

The results in Table 3 demonstrate that larger foreign firms are likely to live longer than small foreign firms in both initial size and current size. Foreign firms are defined large if they have equal or more than 100 employees, otherwise they are considered small. It seems that the effect of current size on the survival of foreign firms is stronger than initial size. Firms with small current size are more likely to exit than firms with small initial size, and firms with larger current size have higher survival rates than firms with larger initial size after five years of operation. It is noted that in the first year, only 33% of the entrant had large size but after twelve years, large firms accounted for 71% of the total surviving firms. This result indicates that post-entry evolution is an important determinant of firm performance (Mata *et al.*, 1995).

As expected, foreign firms that entered under wholly-owned mode are likely to live longer than joint ventures. After twelve years of operation, only 52% of joint ventures survive while 69% of wholly-owned foreign firms can continue their thirteenth year. In terms of the firm location, the results also support the hypothesis that locating in industrial zones or export processing zones increases the likelihood of survival

of foreign firms. While only 24% of foreign firms located in industrial zones died before reaching the thirteenth year, this number is 44% for firms located outside industrial zones. Moreover, Kaplan-Meier estimator shows that foreign firms belonging to Asian investors can live longer than firms owned by the other countries. Whereas 69% of Asian firms can survive until the thirteenth year, only 48% of foreign firms owned by other investors can do that. In addition, the results and the graphs also show that ownership structure has the strongest and immediate effect on the firm survival compared with the other indicators. It seems that being a wholly-owned foreign firm creates super advantages and increases its competitiven ess compared with being a joint venture.

Table1: Descriptive statistics

	Variables	Obs	Description	Average	Min	Max
1.	Initial size	187	The no. of employees when foreign firms started operation in 2000	138.80	1	262
2.	Current size	123*	The current number of employees over years	479.382	2	6388
3.	Ownership structure	187	Dummy variable which takes the value 1 if foreign firms are wholly owned by foreign investors, 0 if they are joint ventures	Dummy variable		
4.	Location	187	Dummy variable which takes the value 1 if foreign firms are located in an industrial zone or an export processing zone, 0 otherwise			
5.	Cultural distance	187	Dummy variable which takes the value 1 if foreign investors are from Asian countries, 0 otherwise			
6.	Profit	187	The profit before tax of foreign firms in mill. VND	4448.266	1	2205
7.	Entry rate	187	The number of new foreign firms created in 2000 in the same 2-digit industry.	10.165	1	20
8.	Number of all firms	187	The number of all kinds of firms in the same 2-digit industry	963.738	12	7528
9.	Number of all employees	187	The number of employees in all kinds of firms in the same 2-digit industry.	98453.1	1781	529351
10.	Income per capita	187	Income per capita (VND/person) in the province where firms locate	7081.034	1940.26	27174.09
11.	Student	187	Number of undergraduate students in the province where firms locate	52146.81	226	150461
12.	Distance to harbor	187	The distance in km to the nearest big harbors by province	37.902	0	313.2
13.	Agglomeration economies	187	The no. of foreign firms in the same 2-digit industries in the province where firms locate	14.475	0	56

(*) values in the year of 2011

Table 2: Correlations in the dataset

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Initial size	1														
2. Current size	0.65	1													
3. Ownership structure	-0.05	0.01	1												
4. Location	0.08	0.15	0.20												
5. Cultural distance	0.07	0.07	0.09												
6. Profit	0.06	0.10	-0.03	-0.03	-0.12										
7. Entry rate	0.03	0.01	0.20	0.14	0.20	-0.05	1								
8. Number of all firms	0.004	-0.005	0.02	-0.06	-0.11	0.15	0.06	1							
9. Number of all employees	0.21	0.16	0.15	0.03	0.07	0.027	0.21	0.54	1						
10. Income per capita	-0.06	0.09	-0.09	-0.03	-0.06	0.12	-0.12	0.19	0.20	1					
11. Student	-0.15	0.006	-0.10	-0.23	-0.06	0.08	-0.18	0.11	0.07	0.54	1				
12. Distance to harbor	0.11	-0.004	-0.15	-0.25	-0.03	0.02	0.14	0.17	0.09	-0.20	-0.18	1			
13. Agglomeration economies	-0.008	0.01	0.09	0.10	0.009	0.03	0.01	0.06	0.10	0.23	0.08	-0.			

Table 3: Kaplan-Meier estimator for survival function of foreign firms by different indicators

Duration	Sample			Survival rates										
	Beg. Total	*Fail*	*Nest Lost*	*All firms*	*Initial Size (0-100)*	*Initial Size (100+)*	*Cur. Size (0-100)*	*Cur. Size (+100)*	*Owner-ship (equal 0)*	*Ownership (equal 1)*	*Unlocate in IZ*	*Locate in IZ*	*Not Asian country*	*Asian country*
Year 2000	187	19	0	0.90	0.89	0.92	0.89	0.92	0.77	0.92	0.88	0.92	0.	
After 1 year	168	2	0	0.89	0.87	0.92	0.87	0.92	0.74	0.92	0.86	0.92	0.76	0.92
After 2 years	166	5	0	0.86	0.83	0.92	0.81	0.92	0.71	0.89	0.80	0.92	0.76	0.88
After 3 years	161	3	0	0.84	0.82	0.90	0.79	0.91	0.71	0.87	0.78	0.91	0.76	0.86
After 4 years	158	9	0	0.80	0.76	0.87	0.70	0.89	0.68	0.82	0.72	0.88	0.70	0.82
After 5 years	149	6	0	0.76	0.73	0.84	0.64	0.88	0.68	0.78	0.67	0.87	0.70	0.78
After 6 years	143	3	0	0.75	0.71	0.82	0.63	0.86	0.68	0.76	0.66	0.84	0.70	0.76
After 7 years	140	2	0	0.74	0.70	0.81	0.60	0.86	0.65	0.76	0.65	0.83	0.67	0.75
After 8 years	138	7	0	0.70	0.66	0.77	0.52	0.85	0.58	0.72	0.60	0.81	0.58	0.73
After 9 years	131	5	0	0.67	0.64	0.74	0.49	0.83	0.55	0.70	0.57	0.79	0.52	0.71
After 10 years	126	3	0	0.66	0.62	0.73	0.47	0.81	0.52	0.69	0.56	0.76	0.48	0.69
After 11 years	123	0	123	0.66	0.62	0.73	0.47	0.81	0.52	0.69	0.56	0.76	0.48	0.69

4. Empirical results

Table 4 presents the empirical results with the risk ratios and their *p*-value. We recall that negative coefficients equivalent to risk ratios $\exp(\beta X)$ less than one implies that the hazard rate decreases and the probability of survival increases, while positive coefficients and risk ratio greater than one imply an increase in the

hazard rate and a decreases in the probability of survival. The estimated result show that the hazard ratios of the variables *current size*, *ownership structure*, l*ocation*, and *cultural distance* are less than one and strongly statistically significant and the hazard ratios of the variable *initial size* is greater than one and also statistically significant.

The risk ratio on the variable *current size* indicates that foreign firms with large current size will face a lower probability of exit. However, compared with the variables *ownership structure* and *location*, the risk ratio of the variable *current size* is much higher, almost equals one. It shows that although current size has effect on the hazard rate of foreign firms, but the effect is not strong. However, Table 3 shows a big difference in survival rates estimated by Kaplan-Meier estimators between firms with current size less and greater than 100 employees. After twelve years of operations, 81% of large foreign firms can continue their sixth year while this number is 47% for small ones. However, the *initial size* has the opposite but very small effect on the survival of foreign firms compared with *current size*. This result indicatesthe importance of post-entry growth to firm performance on their survival probability.

As expected, the *ownership structure* has a strong effect on the exit hazard of foreign firms in Vietnam. Wholly-owned foreign firms face hazard of exit of 43% less than joint ventures. Consistent with the estimates by Kaplan-Meier estimator, the ownership has the strongest effect compared with firm size and firm location. To understand this result more clearly, it is important to summarize some stylized facts about the structure of foreign investments in Vietnam.

During 1990s, joint ventures were the most common form of foreign investment, often with state-owned enterprises (SOEs) as the Vietnamese partner. In this period, two-thirds of total foreign investment commitments were made with SOEs and only 2% in joint ventures with private sectors. Because in the early years after the economic reformation in 1986 SOEs were the only legal partners for foreign firms desiring to enter as joint ventures. At that time, private enterprises not only accounted for a small share of the economy but also they were too small to meet the requirements of large foreign investors. Moreover, SOEs with their privileged positions could help foreign firms a smooth entry into the Vietnamese market (Kokko *et al.*, 2003). However, since 2000, the licensed capital for wholly-owned projects has been larger than that of joint ventures. One explanation is the amendment to the Law on Foreign Investment in 1992 which gave wholly-owned firms the same status as joint ventures. Further, it becomes easier for foreign investors to access information about investment environment in Vietnam, leading to a reduction in the role of local partners. As a result, by 2011 wholly-owned foreign firms accounted for about 75% of foreign investment in Vietnam (The MPI).

In the context of Vietnam, both the transaction cost theory and the resource-based view are suitable to explain the entry mode choices by foreign investors. As a transition economy, the institutional framework of Vietnam is still in the process of changing and only partially reformed, therefore unstable, inconsistent and inefficient. Several important legal documents, such as the law on the protection of intellectual property right, were issued but of low enforcement. Foreign firms

in Vietnam are therefore concerned about the knowledge diffusion and prefer to internalize their transactions. Further, Vietnam has been characterized by a lack of transparency and a service sector to support business development (The PCI 2006 Report). Foreign firms have difficulties in access to information about local economic agents, and domestic firms lack knowledge of market mechanism and inexperience in doing business with foreign partners. Hence, by setting a wholly owned subsidiary rather than a joint venture, a foreign firm can avoid transaction costs relating to searching, negotiating and monitoring local partners.

These arguments suggest that being a wholly-owned foreign firm in a transition country like Vietnam brings foreign firms advantages, thereby increasing the survival probability compared with setting up joint ventures with local partners. However, we should note that given the dataset, we do not have information about merger or acquisitions from true exits. For instance, as joint ventures often end with one of the partners acquiring the commonly owned venture, this may lead to conclude that failure is more likely in case of a joint venture although the firm has not really exit, but it has been bought by one of the partners. This problem might distort the empirical result if most joint ventures disappear with this way.

Opposite to our expectation, the *location* of foreign firms also has no effect on the survival of foreign firms in Vietnam. However, Table 4.3 shows a big difference in survival rates estimated by Kaplan – Meier estimators between foreign firms located and unlocated in industrial zone. After twelve years of operation, 76% of foreign firms located in industrial zones can continue their thirteenth year while this number is 56% for the ones unlocated in industrial zones. It seems that the policies such as tax priority cannot help foreign firms to survive in the market.

Table 4: The determinants of exit hazard of foreign firms in Vietnam

Independent Variables	Risk ratio
Initial size	1.00242 (0.017)**
Current size	0.99511 (0.000)***
Ownership structure	0.57562 (0.098)*
Location	0.65431 (0.177)
Cultural distance	0.53056 (0.038)**
Profit	1.00000 (0.339)
Entry rate	1.00751 (0.775)
Number of all firms	0.99991 (0.177)
Number of all employees	1.00000 (0.284)
Income per capita	0.99998 (0.450)
Student	1.00000 (0.325)
Distance to harbor	1.00310 (0.133)
Agglomeration economies	1.00256 (0.431)
Number of obs.	1672
Number of firms	187
Number of exit	64

Note: + p-value is in the bracket
+ ***p< 0.01, **p< 0.05, *p<0.10. p-values are in parentheses.

In the previous part, we have supposed that besides tax priority and other incentives foreign firms are also attracted to locate in industrial zones due to benefits stemming from agglomeration economies. However, the statistical insignificance of the control variable *agglomeration economies* seems to contradict to our prediction. This contradiction can be explained by using the works of Shaver and

Flyer (2002) and Alcacer and Chung (2007). These authors argue that firms not only capture benefits from agglomeration economies but also contribute to agglomeration economies. Firms would therefore strategically choose location to gain exposure to others' localized knowledge while reducing leakage of their own knowledge to their competitors. Hence, once a firm locates in a certain place where other firms already established, the firm may obtain benefits from agglomeration economies, therefore increasing its probability of survival. However, the firm's specific knowledge can be spilled over and it benefits the proximal firms, therefore increasing the competition and reducing firm survival probability. Particularly, if agglomerating firms are in the same industries, the competition is much higher as input resources become scarce and their prices are bid up. For example, Baum and Mezias (1992) show that locating closer to other hotels in Manhattan increases the survival chance of a hotel, but this benefit of agglomeration diminishes when hotel districts become crowded, exacerbating competition. The opposite effects of firm localization make the variable *agglomeration economies* statistically insignificant.

With respect to other control variables, except *cultural distance*, all other variables reflecting firm-specific characteristics, industry-specific characteristics, and location advantages have no statistically significant effects on the foreign firm survival. As predicted, cultural distance has an effect on the survival of foreign firms. Foreign firms owned by Asian investors face a hazard of exit of 47% less than foreign firms from other countries. Similarities in culture make foreign investors easier to understand and cooperate with local partners, therefore reducing transaction costs in negotiating or monitoring local partners. This finding is consistent with the pattern of foreign investors in Vietnam. For example, up to the end of 2005, there were seventy five countries and territories investing in Vietnam. Among them, the number of investors from Asian countries accounted for 78.7%, Europe 11.6%, and America and Caribbean 5% of the total foreign enterprises. The top five investors were Taiwan, South Korea, Japan, Singapore, and China (The GSO, 2012).

5. Conclusions

This study examines the survival of 187 new foreign firms that have been established since 2000 in Vietnam over the period 2000-2011. We find that more than 10% of new foreign firms died during the year of entry and more than 34% cannot reach the age of thirteen. Moreover, the survivors become larger in side over time. Twelve years after having started, the average size of new foreign firms is more than three times as large as their start-up size.

The Cox proportional hazard model is used to estimate the effects of firm size, ownership structure and firm location on the survival of new foreign firms. The empirical results show that foreign firms with growing current size are more likely to stay in the market for a longer time. This finding is consistent with the studies of Dunne *et al.* (1989) and Mata *et al.* (1995). This result confirms that the ability to adapt to new environments and post-entry growth are important for the survival of new foreign firms. We also find that by setting up wholly-owned subsidiaries rather than doing joint ventures with local partners, foreign entrants can increase their survival probability because they can avoid high transaction

costs arising from searching, negotiating and monitoring local partners.

However, the study indicates that preferential polices on taxation and other incentives could not decrease the failure hazard of foreign firms locating in industrial zones or export processing zones. In contrast to our prediction, agglomeration economies have no significant effect on firm survival. Our explanation to this result is that firms are not only the receivers but also the source of knowledge spillovers. These opposite effects make the variable *agglomeration economies* statistically insignificant. Moreover, cultural distance is found to have a strong impact on the survival of foreign firms. Proximities in culture make it easier for them in cooperating with local partners; therefore increasing their success in doing business in a foreign market.

This study contributes to the existing literature on the firm survival, especially the survival of foreign subsidiaries in a transition country just like Vietnam. The empirical results are important for managers of multinational companies in evaluating the chances of their success and implementing strategic choices for the survival of their subsidiaries in a foreign market. The study suggests that foreign firms should establish wholly-owned subsidiaries rather than joint ventures to avoid transaction costs arising from imperfect market. The empirical findings could be also useful for the provincial authorities in Vietnam in designing policies to attract more foreign direct investment. Institutions shape the efficiency of markets and influence firms' strategies and organizational forms (North, 1990). So it is important to have a stable, efficient and consistent institutional framework that can reduce or eliminate transaction costs, and under this framework, foreign and local firms are treated equally. This creates a fair playing field for all firms so that they can apply the best strategies when doing business without being concerned about transaction costs or costs caused by a weak institutional framework.❑

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