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ABSTRACT

Poorly performing firms need to improve their profitability through restructuring their operations. In many cases this means downsizing by means of collective layoff of employees. Based on a unique sample of Belgian firms reporting collective layoffs this paper analyzes whether a firm dismisses all employees (exit), a significant proportion of its employees (downscaling), or closes down part of its activities and moves production abroad (international relocation). It is argued and demonstrated that the choice of downsizing approach differs depending on the strategic options and characteristics of the firm. We find that firms that downscale are more sensitive to profit changes. Relocating firms are labor intensive and move production to lower wage countries to operate more capital-intensive in Belgium in line with the comparative advantage of the country.

Exiting firms are typically small and young underscoring the theory on evolutionary learning.

1. INTRODUCTION

Maximizing shareholder value forces firms with declining profits to restructure. Restructuring can take many forms, such as asset restructuring, top management replacement, and employee layoffs. This study focuses on the latter form of restructuring.

Employee layoffs follow a firm's decision to exit, downsize or relocate production in an effort to improve profitability. In an important number of cases this restructuring involves de-diversifying from less profitable activities (US evidence: Lichtenberg, 1992; EU evidence: Rondi, Vannoni and Sleuwaegen, 2002). While past empirical and theoretical studies on exit, downsizing and relocation exist, there is no overall evidence from this literature which kind of restructuring a firm will choose. This paper examines how restructuring through employee layoffs depends on firm characteristics.

Our analysis is motivated by the public concern in many European countries, and particularly in Belgium, that large numbers of job losses result from relocation by firms to other countries. The impact of international relocation of production from one country to another has gained attention within the theoretical literature. In all these studies, the wage differential between the country where production is currently located and the country to which it could move production is the most important rationale for relocation . Relocation of production is subsequently followed by increased sourcing from the foreign country (e.g. Feenstra and Hanson (1997), Slaughter (2000)). Motta and Thisse (1994) demonstrate that sunk costs have a negative impact on relocation. Cordella and Grilo (1998) consider the welfare implications, and Collie and Vandenbussche (1999) discuss the role of unions. However, empirical studies on relocation are rare. This lack of empirical evidence is due to the fact that few countries systematically collect data on relocation. One exception is Belgium, a country with a small and open economy, which receives considerable inward foreign investments, but also loses many jobs from firms leaving the country. Based on a sample of firms relocating from Belgium, Pennings and Sleuwaegen (2000) found that relocating firms are relatively large, labor-intensive, and have access to a multinational network. The significance of the latter variable underscores that the multinational firm takes advantage of its operating flexibility by producing wherever cost is lowest (Kogut and Kulatilaka, 1994).

Though job losses from relocation cannot be neglected, it appears that the majority of employee layoffs is caused by downscaling (without the subsequent transfer of production abroad). Though downsizing may occur without layoffs through voluntary buyout and early retirement programs, we mean by downsizing a reduction of the size of the firm's workforce through collective layoff, i.e. a dismissal of a significant part of the workforce. Most studies on downsizing are primarily concerned with the efficiency gains afterwards (Worrell, Davidson III and Sharma, 1991; Collins and Harris, 1999, Denis and Kruse, 2000) rather than the specifics of a firm prior to downsizing. Exceptions are Kang and Shivdasani (1997) who find in a sample of Japanese manufacturing firms that return on equity has a significant negative, and firm size a significant positive impact on downsizing. In addition, Ofek (1993) shows in a sample of US firms that restructuring measures, such as employee layoffs, are affected by capital structure. The latter finding confirms the argument by Jensen (1989) that highly leveraged firms will respond faster to a decline in firm value.

There exists a vast empirical and theoretical literature on the exit decision of a firm. In the widely acclaimed model of Jovanovic (1982), firms learn their relative efficiency and are forced to leave the industry when they cannot meet the required efficiency. As a result, most often small and young firms exit from the industry. Caves and Porter (1976) argue that capital-intensive industries and industries with a large average firm size exhibit strong barriers to exit. In a review of empirical papers on exit, Siegfried and Evans (1994) find ample evidence that, as predicted by theory, poor profitability, weak demand conditions, low capital intensity and small firm size have a significant impact on the propensity to exit.

The remainder of the paper is organized as follows. In section 2 we set up the econometric model to explain the different modes of downsizing. Section 3 explains the data. Section 4 discusses the estimation results. Some alternative hypotheses about the decision making process are tested in section 5. Section 6 summarizes the findings and concludes.

2. CHOOSING THE MODE OF DOWNSIZING

Management's decision to restructure and layoff employees[1] reflects a difference in the current size of the workforce and the size of the workforce that would maximize the market value of the firm. The resulting downsizing may however take different forms and relate to different restructuring decisions. In this paper we consider exit, relocation, and downscaling as alternative modes to downsize the operations of a firm in a particular location. Distinguishing between these modes is important as they reflect alternative downsizing strategies. Relocation often involves a retrenchment strategy by which a multinational firm centralizes and specializes production in the different nodes of their supply network without necessarily reducing total output (Dewitt, 1998).

Downscaling, including downscoping with a reduction in product variety, involves the reduction of resources to match output with existing demand for the products, or as it is measured here in terms of employment, to increase capital intensity by a further automation of the production process.

Exit is the most drastic downsizing decision. Stopping all activity reflects the failure of the firm to survive profitably in the market. The adoption of one particular downsizing mode is hypothesized to depend on the past performance and current structural features of the firm, portraying its current strategy and possibilities to strategically restructure its operations (Johansson and Yip, 1994)

The decision to choose among the alternative modes of downsizing is modeled following a multinomial logit model. The log likelihood of the multinomial logit model can be written as

$$L(\beta; y, X) = \sum_{i=1}^{n} \sum_{j=1}^{m} y_{ij} \ln(P_{ij}), \tag{1}$$

where m is the reference group, β is the vector of coefficients, $y_{ij} = 1$ if the i-th firm falls in the j-th category, and 0 otherwise, X is the matrix of explanatory variables, and

$$P_{ij} = \frac{\exp(X_i'\beta_j)}{\left(1 + \sum_{k=1}^{m-1} \exp(X_i'\beta_k)\right)} \tag{2}$$

for j=1,…,(m-1), and

$$P_{im} = \frac{1}{(1 + \exp(X_i'\beta))}. \tag{3}$$

The most important factor in the decision to downsize is a lack of profitability as compared to similar firms operating in the same market. Shareholders will require clearly underperforming firms to restructure and to achieve a higher profitability. We include the return on equity (ROE) as a measure of profitability. For a precise definition of the explanatory variables and descriptive statistics we refer to the appendix.

Together with poor performance, the financing structure of the firm has been hypothesized to affect the restructuring decision. Highly leveraged firms are more likely to restructure. Especially firms in financial distress underinvest in fixed assets (Myers, 1977) and have a higher propensity to restructure. Debtholders will exert pressure to layoff employees, liquidate or sell assets when the firm fails to meet its interest payments. Moreover, debtholders, as being first on the creditors list, will fight against continued operation if the net value they receive from selling assets exceeds their expected proceeds from continued operations (Schary, 1991). The leverage ratio is defined as the ratio of the book value of debt to the sum of the value of debt and equity (D/E). Whereas the empirical studies by Ofek (1993) and Kang and Shivdasani (1997) use a sample of firms that experienced a substantial decline in operating performance, this sample consists of firms reporting a layoff regardless their profitability. In order to isolate the effect of leverage of firms in financial distress we construct a binary variable DIS which takes a value of 1 if a firm has a negative ROE in the year preceding the collective layoff and multiply it with the leverage variable.

Clearly, not all firms have the same option to relocate capacity to another country, especially when setting up a foreign plant involves substantial sunk costs. We therefore expect those firms that already operate a multinational network to benefit from this location flexibility in reducing costs and to prefer relocation to downscaling or exit. The fact that they compare costs comparatively across the different plants makes also reported profitability of one production unit in a particular location, often influenced by transfer pricing techniques, a less good performance measure (Kogut and Kulatilaka, 1994; Pennings and Sleuwaegen, 2000) The dummy variable MUL, distinguishes multinational firms from firms without a multinational production network.

The firm's life cycle is also an important factor influencing the firm to downsize. The learning theory as discussed in the introduction argues that young and small firms grow faster if they learn through the market forces that their efficiency compares well

[1] It is assumed that managers act in the equityholders' best interest even if it is optimal to exit and to put themselves out of a job.

with the competitors. However, many small firms find out the contrary and therefore show relatively high exit rates. Older and larger firms facing more competition pressure and operating in mature markets have to focus on cost reduction and will be forced to downscale or relocate part of their activity. As a consequence, we expect firm size to have a negative impact on exit and a positive impact on downscaling and relocation. We include the firm's value added (VA) as a proxy of the size of the firm, as well as the firm´s age (AGE).

The life cycle may also contribute to a mismatch in the allocation of production factors. Due to changing factor prices, output prices and endowments, the optimal allocation of capital and labor may change over time. For example, through its proximity to a mass market and its relatively high wage costs Belgium has established a comparative advantage in capital-intensive industries (Tharakan and Waelbroeck, 1988; Sleuwaegen and De Backer, 2001). The variable C/L is a measure of the capital to labor ratio. Moreover, high capital intensity also constitutes a barrier to exit and relocation, because of the important costs that are sunk in specific plant and equipment and intangible investments (Caves and Porter, 1976; Pennings and Sleuwaegen, 2000). The latter aspect may be better reflected by the variable RINV, measuring recent investments in capacity through the acquisitions of tangible assets. RINV has been hypothesized to limit the firm's ability to downsize. The more recently the firm has invested in resources, the less depreciated the resource base, and thus the higher the resale price required to make the downsizing more attractive than continued operation (Harrigan, 1980). Especially investment in plant and equipment involving important sunk costs would render the downsizing or exit decision less attractive (Hopenhayn, 1992; Lambson, 1994). More recently, Dixit (1989) and Dixit and Pindyck (1994) demonstrated that in exploiting the option value of waiting the extent and timing of exit depends crucially on sunk costs and the degree of uncertainty about future profit opportunities. Lacking good alternative opportunities, firms will persist to operate even if profitability is low, causing a special type of hysteresis.

Table 1 reports the total number of job losses for the different modes of employee layoffs across major sectors for Belgium during the period 1990-1999. The table suggests that manufacturing industries differ in the mode of restructuring from service industries. Across the different manufacturing sectors no significant variation between the modes of downsizing occurs. As compared to manufacturing firms, firms in service sectors experienced large growth rates between 1990 and 1999. Moreover

service sectors are primarily market oriented and need a close connection with customers and hence will show a smaller probability to relocate. Variable MAN takes a value equal to one if the firm is in the manufacturing industry.

Insert Table 1 About Here

3. DATA

In Belgium every firm with more than twenty employees needs to report a dismissal of more than 10% of the employees (a so-called collective lay-off) at the Federal Government. Subsequently, the Federal Planning Bureau (FPB) in Belgium sends a questionnaire to the three Belgium unions. In the questionnaire it is asked if the layoff is motivated by relocation. This way there is a very good sample of all restructuring firms, the mode of restructuring, and the number of job losses involved. Between 1990 and 1999 a total number of 861 firms reported an amount of 1218 collective lay-offs. At least one questionnaire was answered by 659 firms reporting a total of 827 collective lay-offs. These numbers induce a 77% response rate at firm level and a 68% response rate for each collective layoff.

Within the sample exit, relocation, and downsizing account for 10%, 21%, and 69% of total job destruction, respectively. Though the figures do not include all restructuring within the sample period, it gives some intuition of the relative importance of the different modes of restructuring. The table also indicates that the average number of job losses after restructuring is relatively small for exiting firms, but relatively large for relocating firms.

As reference group, a total number of 2999 firms was randomly selected from a large sample of firms with a VAT number in Belgium[2] and –like the group of firms that need to report a collective layoff- with at least 20 employees. Needless to say, firms that are within the group of restructuring firms are not in the reference group.

Firm specific data are taken from the financial statements of the companies. Detailed data are available for 105 out of the 122 firms that relocated activities, for 97 out of the 123 that exited, and for 339 out of the 616 that downscaled through collective

[2] This database is maintained by the National Institute of Statistics (NIS) in Belgium.

layoff[3]. The same data are available for 2068 non-restructuring firms. For the group of restructuring firms, the explanatory variables refer to the balance sheet prior to the year of restructuring.

4. ESTIMATION RESULTS

Table 2 presents the regression results for the multinomial logit model. Considering the estimated parameter values, manufacturing firms are more likely to layoff employees. The positive effect of the manufacturing variable is most prominent for downsizing firms. Multinational firms tend to layoff employees more frequently than firms without a multinational network. However, consistent with the multinational investment literature, the variable is only strongly significant for firms that internationally relocate production.

Insert Table 2 About Here

The variables measuring the firm's profitability both indicate that firms which layoff employees are not among the most profitable ones (table 2). The coefficient measuring the sensitivity of downsizing to profitability losses is not significant for exiting firms. The rationale for this finding lies in the hysteresis phenomenon, described above. On the contrary, downscaling and relocation are sensitive to deteriorating profitability. Relocating firms having this restructuring option respond if wage or other costs become unfavorably high in a particular location (Kogut and Kulatilaka, 1994 , Slaughter, 2000) . Consistent with this reasoning, the capital to labor ratio is significant and has the expected sign for relocating firms. Labor-intensive firms do not exploit Belgium's comparative advantage in capital-intensive industries and are forced to exit or, if possible, to relocate part of its labor-intensive activities abroad. Downscaling firms likewise try to increase their profitability by increasing the ratio of fixed capital to the number of employees through layoffs. This way they profit more from Belgium's revealed comparative advantage.

[3] We consider the year prior to the largest downsizing or relocation in cases where a firm reported several restructurings. Firms reporting both relocation and downsizing within the sample period are omitted from the sample.

The effect of stickiness of capital, RINV, on the decision to downsize is most apparent through its effect on exit and downscaling. The marginal effect of RINV on the probability to relocate is small , notwithstanding the higher rate of recent investments made by relocating firms(see appendix). This finding suggest that in being able to reemploy investment goods in another location, relocating firms are less constrained in their downsizing decisions than other firms.

The results show a clear distinction in the effect of firm size and firm age on the form of layoff. Consistent with the theory of selection effects associated with passive learning about initial conditions, the impact of firm size and age on exit is negative. In line with previous empirical results on downsizing and relocation, large firms have a higher propensity to relocate or to downscale (Pennings and Sleuwaegen, 2000). This result suggests that the need for restructuring and a retrenchment strategy grows as firms become larger. The effect of age on downscaling and relocation is less significant.

Finally, employee layoffs seem to be affected by financial leverage. In an empirical study of firm exits in the cotton industry between 1924 and 1940 Schary (1991) finds to her surprise a positive sign of leverage. For downsizing there are mixed empirical results for firms that experienced a substantial decline in operating performance. Using a sample of US firms Ofek (1993) reports a positive effect of leverage, while Kang and Shivdasani (1997) find a negative sign for a group of Japanese firms. In our study the estimated parameter for the interaction variable LEV*DIS provides evidence in line with the theoretical hypothesis that employee layoffs by poorly performing firms are positively linked to financial leverage.

5. ALTERNATIVE MODELS OF THE DECISION MAKING PROCESS.

Thus far we assumed that firms are considering downscaling, exit and relocation as distinguished restructuring options to improve performance. Given the strategy space of the firm coupled with its particular structure, the firm in distress will prefer one option to the other. Alternatively, it may be argued that firms do not distinguish between the downsizing modes in making their restructuring decision, with as a consequence that one single regime for all downsizing modes would fit the data better. In order to test the validity of the chosen modeling structure table 2 presents the regression results also for the multinomial logit model where the parameters, apart from

the intercept, are restricted to be equal. The restricted model can be interpreted as a logit model for the restructuring firms with a different intercept for the modes of restructuring. So whereas a multinomial logit model explicitly explains differences within all categories, the logit model explains only differences between the reference group and the other groups. The hypothesis that the parameter values are equal for the different modes of restructuring is rejected at the 95% level of significance.[4]

Another hypothesis about the decision making process would hold that a firm takes the restructuring decision in a two-step sequential way. In a first step the firm decides on the need to restructure, while the actual mode of downsizing is only chosen in the second step. Modeling this type of behavior necessitates us to model the decision in a hierarchical way and use a sequential logit procedure to estimate the model. In the sequential specification, the probability of non-restructuring can be written as

$$P_{im} = \frac{1}{1+\exp(X_i'\delta)}, \tag{4}$$

whereas the probabilities of downscaling, exit and international relocation of production are given by

$$P_{ij} = \frac{\exp(X_i'\delta)}{(1+\exp(X_i'\delta))}\frac{\exp(X_i'\varsigma_j)}{\left(1+\sum_{k=1}^{m-2}\exp(X_i'\varsigma_k)\right)}, \tag{5}$$

and

$$P_{i(m-1)} = \frac{\exp(X_i'\delta)}{(1+\exp(X_i'\delta))}\frac{1}{\left(1+\sum_{k=1}^{m-2}\exp(X_i'\varsigma_k)\right)}. \tag{6}$$

Table 3 reports the results of the sequential logit estimation. In order to compare the goodness of fit for the sequential and the multimomial logit model, we use the Vuong (1989) test statistic for non-nested competing models. This test states that under the null hypothesis of both models performing equally well, the test statistic converges in distribution to a standard normal distribution. The Vuong likelihood ratio statistic indicates that there is no evidence that the sequential logit outperforms the multinomial logit specification.[5] This result suggests that firms do not choose between exiting, relocation, and downscaling after having identified the need to restructure. On the

[4] The LR-statistic is 106.86 and the critical value is the 95-the percent percentile of a χ^2-distribution with 16 degrees of freedom (26.30).
[5] The LR-statistic is 2.49.

contrary, the choice between the restructuring modes seems to be independent and affected by firm's characteristics.

Insert Table 3 About Here

6. CONCLUSIONS

This paper provides evidence that there are important differences between firms in the form of downsizing they choose in reaction to a decline in performance. Among the structural features characterizing the strategic possibilities of a firm, the sector of activity, the size of its operations, its age, the multinational network, the capital to labor ratio, financial leverage, and its most recent history with respect to the acquisitions of tangible capital, show up as the most prominent decisive factors in the choice between relocation, downscaling or exit to downsize the operations of a firm.

In terms of their strategic profiles, relocating firms are more profitable, have invested more in the recent past, belong dominantly to a multinational group than firms opting for downscaling or exit. Downscaling firms, on the other hand, are more capital intensive than relocating firms. Exiting firms are less profitable, smaller, younger and more labor intensive than downscaling or relocating firms. Taking into account these differences, the econometric results suggest, however, that exiting and relocating firms are less sensitive to profit declines. Relocating firms are most profitable among the restructuring firms and react most strongly to differences in comparative cost conditions across countries. Exiting firms are characterized by production hysteresis, lacking good restructuring options. Downscaling occurs most likely in manufacturing for poorly performing larger firms and firms that failed to make recent capital investments. Exiting is more likely for unprofitable young and small firms that are highly financially leveraged.

The econometric results also underscore the importance of the right functional modeling of the decision making process. In particular, the model that explicitly models layoff strategies as resulting from exit, downsizing or relocation performs better than the consolidated model. A sequential logit model where the firm decides in a first step

about the need to restructure, while in the second step chooses the actual downsizing mode appears not superior to the multinomial logit model.

The results also suggest that the differentiated restructuring behavior of firms in reaction to declining profitability should become more central in research and policy debates concerning retrenchment strategies of firms.

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TABLE 1:
Number of restructuring firms and layoffs across different sectors.

Industry Sectors (NACE-code)	Exit # firms (%) # of layoffs (%)	Relocation # firms (%) # of layoffs (%)	Downsizing # firms (%) # of layoffs (%)	Totals
Energy and Water (0&1)	1 (11%) 192 (23%)	0 (0%) 0 (0%)	8 (89%) 658 (77%)	9 (1%) 850 (1%)
Steel and non-metallic mineral products Industry (22,23&24)	14 (19%) 1344 (10%)	5 (7%) 685 (5%)	56 (75%) 11338 (85%)	75 (9%) 13367 (16%)
Chemical Industry (25)	5 (9%) 300 (8%)	13 (25%) 1428 (37%)	35 (66%) 2103 (55%)	53 (6%) 3831 (5%)
Metallurgic Industry (3)	18 (10%) 2119 (8%)	23 (13%) 6854 (27%)	140 (77%) 16537 (65%)	181 (21%) 25510(31%)
Other Industry: primarily Food, Textile, Paper, and Rubber (4)	30 (12%) 1640 (11%)	52 (21%) 6641 (43%)	164 (67%) 7296 (47%)	246 (29%) 15577 (19%)
Construction (5)	4 (15%) 131 (8%)	0 (0%) 0 (0%)	22 (85%) 1465 (92%)	26 (3%) 1596 (2%)
Distribution (6)	23 (16%) 1112 (9%)	22 (15%) 1266 (10%)	97 (68%) 10492 (82%)	142 (16%) 12870 (16%)
Transport, communication and financial and other services (7,8&9)	28 (22%) 1259 (15%)	7 (5%) 383 (5%)	94 (73%) 6649 (80%)	129 (15%) 8291 (10%)
Total	123 (14%) 8097 (10%)	122 (14%) 17257 (21%)	616 (72%) 56538 (69%)	861 (100%) 81892 (100%)

TABLE 2:
Results from multinomial logit regression†

	Relocating	Exiting	Downscaling	Consolidated
Intercept	-5.03*** *-0.337*	7.43*** *0.900*	-2.76*** *-0.447*	
	(-4.13)	(5.34)	(-3.52)	
MAN	0.39* *0.008*	0.79*** *0.057*	0.67*** *0.082*	0.64*** *0.110*
	(1.82)	(3.32)	(5.12)	(5.80)
AV	0.37*** *0.024*	-0.45*** *-0.057*	0.22*** *0.034*	0.16*** *0.024*
	(4.40)	(-4.34)	(4.02)	(3.36)
MNO	1.01*** *0.070*	0.23 *0.013*	0.07 *-0.011*	0.29** *0.041*
	(4.14)	(0.92)	(0.56)	(2.47)
C/L	-0.29*** *-0.019*	-0.37*** *-0.035*	-0.02 *0.008*	-0.14*** *-0.090*
	(-3.51)	(-4.31)	(-0.48)	(-3.30)
ROE	-0.19** *-0.004*	-0.15 *-0.003*	-0.35*** *-0.048*	-0.28*** *-0.090*
	(-2.04)	(-1.44)	(-6.31)	(-6.01)
RINV	-1.49*** *-0.048*	-2.89*** *-0.229*	-1.84*** *-0.204*	-2.02*** *-0.356*
	(-2.89)	(-5.16)	(-5.95)	(-7.91)
LEV*DIS	2.07*** *0.099*	2.11*** *0.150*	1.63*** *0.173*	1.82*** *0.314*
	(6.00)	(6.14)	(7.41)	(9.58)
AGE	-0.21 *-0.006*	-0.83*** *-0.078*	-0.21* *-0.015*	-0.34*** *-0.025*
	(-1.13)	(-4.76)	(-1.83)	(-3.48)
Log Lik		-1553.21		-1616.64

*significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level. †T-values are between brackets. Marginal effects on the probability are in italics.

TABLE 3:
Results from sequential logit regression†

	1st step	2nd step: relocation	2nd step: exiting
Intercept	-0.60 *-0.107*	-1.48 *-0.456*	6.36*** *1.156*
	(-0.92)	(-1.20)	(4.78)
MAN	0.64*** *0.110*	-0.31 *-0.054*	0.04 *0.019*
	(5.80)	(-1.29)	(0.16)
AV	0.16*** *0.024*	0.09 *0.029*	-0.42*** *-0.080*
	(3.36)	(1.01)	(-4.15)
MNO	0.29** *0.041*	0.89*** *0.148*	0.16 *0.018*
	(2.47)	(3.04)	(0.57)
C/L	-0.14*** *-0.090*	-0.25*** *-0.031*	-0.36*** *-0.053*
	(-3.30)	-2.62***	-3.76
ROE	-0.28*** *-0.090*	0.17 *0.022*	0.20* *0.027*
	-6.01	1.63	1.77
RINV	-2.02*** *-0.356*	0.11 *0.039*	-0.65 *-0.117*
	(-7.91)	(0.31)	(-1.50)
LEV*DIS	1.82*** *0.314*	0.47 *0.057*	0.72* *0.107*
	(9.58)	(1.21)	(1.92)
AGE	-0.34*** *-0.025*	-0.02 *0.007*	-0.33* *-0.056*
	(-3.48)	(-0.09)	(-1.65)
Log Lik		-1569.34	

†In the second regression downscaling firms are taken as the reference group. T-values are between brackets. Marginal effects on the probability are in italics.
*significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

APPENDIX

DEFINITION OF EXPLANATORY VARIABLES

Variable	Definition
MAN	Dummy variable, which is 1 for manufacturing industries.
AV	The logarithm of the added value.
MNO	Dummy variable, which is 1 if the firms belongs to a group of multinationals with more than one foreign subsidiary.
C/L	The logarithm of the ratio of fixed capital to the number of employees in full time equivalents.
ROE	The return on equity (x) before taxes in five classes (1: x<-0.16, 2: -0.16<x<-0.08, 3: -0.08<x<0.08, 4: 0.08<x<0.16, 5: 0.16<x).
RINV	The logarithm of the sum of 1 and the ratio of the acquisition of tangible assets to the tangible assets at the end of the preceding period.
DIS	Dummy variable which is 1 if return on equity is smaller than –0.08.
LEV	The ratio of debt to the sum of debt and equity.
AGE	The logarithm of the age of the firm measured in years up to 1999.

DESCRIPTIVE STATISTICS OF EXPLANATORY VARIABLES

Variable	Exit Mean (St.Dev.)	Relocation Mean (St.Dev.)	Downscaling Mean (St.Dev.)	Non-Restructuring Mean (St.Dev.)
MAN	0.56 (0.50)	0.64 (0.48)	0.68 (0.47)	0.48 (0.50)
AV	11.07 (1.26)	12.70 (1.79)	12.42 (1.49)	12.20 (1.12)
MNO	0.38 (0.49)	0.74 (0.45)	0.52 (0.50)	0.49 (0.50)
C/L	6.05 (1.69)	6.70 (1.43)	7.10 (1.28)	7.00 (1.36)
ROE	2.77 (0.96)	2.92 (1.31)	2.54 (1.35)	3.39 (1.18)
RINV	0.20 (0.58)	0.30 (0.41)	0.23 (0.26)	0.38 (0.36)
DIS*LEV	0.13 (0.32)	0.23 (0.36)	0.30 (0.37)	0.12 (0.29)
AGE	3.11 (0.25)	3.45 (0.23)	3.45 (0.24)	3.38 (0.19)