Departamento de Economía de la Empresa
Universidad Carlos III de Madrid
Calle Madrid, 126
28903 Getafe (Spain)
Fax (34-91) 6249607

Does downsizing improve organizational performance? An analysis of Spanish manufacturing firms [*]

Fernando Muñoz-Bullon [1] and María José Sánchez-Bueno [2]

Abstract

The objective of this study is to examine the effect of downsizing on corporate performance, considering a sample of manufacturing firms drawn from the Spanish Survey of Business Strategies during the 1993-2005 period. No significant differences in post-downsizing performance arise between companies which downsize and those that do not. Likewise, we find that substantial workforce reductions through collective dismissals do not either lead to improved performance levels. Downsizing, therefore, may not be a way for managers to increase performance, particularly in a context like the Spanish one, where the labour market is characterized by a high protection of employees' rights and substantial contract termination costs.

[1] Sección de Organización de Empresas. Universidad Carlos III de Madrid. C/ Madrid, 126. 28903 - Getafe (Madrid). SPAIN E- mail: fernando.munoz@uc3m.es
[2] Universidad de Salamanca. Facultad de Economia y Empresa. Campus "Miguel de Unamuno" 37007 Salamanca (Spain). e-mail: mjsanchez@usal.es

1. Introduction

Downsizing involves permanent and intentional reductions in the workforce (Freeman and Cameron, 1993). In spite of having been particularly used by American corporations (Budros, 1999; Cascio, 1998), it has also become a common feature both in European countries (Filatochev et al., 2000; Vicente-Lorente and Suarez-Gonzalez, 2007) and in some emerging countries (Ahmadjian and Robinson, 2001; Lee, 1997). Literature on this issue has centred not only on its causes (e.g., Mckinley et al., 2000; Vicente-Lorente and Suarez-Gonzalez, 2007), but also on the strategies implemented to reduce the labour force (Cameron, 1994; DeWitt, 1993) as well as its consequences (Cascio et al., 1997; De Meuse et al., 2004).

As regards the latter, a variety of methods and datasets have been used. While some works have provided evidence of the stock market reaction to downsizing (Lee, 1997; Worrel et al., 2001), others have focused on the effect of downsizing on profitability (Cascio et al., 1997; DeMeuse et al., 2004). On the whole, however, there is no general consensus so far on the performance implications of downsizing. While one research stream has found downsizing to improve economic performance (Espahbodi et al., 2001; Yu and Park, 2006), another has shown its effects to be either negative or null (Cascio et al., 1997; Morris et al., 1999). Therefore, as the performance implications of this widely-used practice remain an unresolved issue, more evidence on the relationship between downsizing and financial performance is needed.

The present paper contributes to amplify our knowledge on the relationship between downsizing and financial performance in Spain. Up to our knowledge, this issue has been examined scarcely in this country (e.g. Suarez, 2001) —literature has so far focused either on examining either the determinants of a firm's decision to downsize or the extent of downsizing (e.g., Magan and Cespedes, 2007; Vicente-Lorente and

Suárez-González 2007; Requejo 1996). We compare the performance of a sub-sample of downsizing companies to that of a sub-sample of non-downsizing companies over the period 1993-2005 (Cascio, 1998; Chen et al., 2001). We also investigate whether or not the implementation of collective dismissals —i.e., reductions in at least 10 percent of the permanent workforce— has any significant impact on corporate performance (Cascio et al., 1997; De Meuse et al., 2004). For this purpose, we use survey data for Spanish manufacturing firms drawn from the Survey on Business Strategies —*Encuesta sobre Estrategias Empresariales* or ESEE, hereafter— which comprises relevant corporate characteristics which might be driving corporate performance.

Exploring the relationship between downsizing and corporate performance is particularly relevant in Spain. On the one hand, in this country evidence indicates that almost 50% of companies downsized between 1989 and 1994 (Suarez, 1999) and that a substantial number of companies announced reductions of their workforce during the 1995-2001 period (Sánchez and Suarez, 2003). On the other hand, the Spanish labour market is characterized by a high protection of employees' rights. Critics of labour market regulation have claimed that strong job rights prevent employers from adjusting to economic fluctuations and secular changes in demand. It has also been alleged that, by inhibiting layoffs during downturns, strong job security provisions reduce employers' willingness to hire during upturns and thereby contribute to unemployment (OECD, 1986). However, the effects of job security regulations on corporate financial performance are still an unresolved issue. Thus, our study contributes to the downsizing literature by exploring a new institutional context (Spain), which has a markedly different labour market from other countries —particularly, compared to the United States, whose labour relations system is characterized by flexibility to hire and fire. For this reason, the specific characteristics of the Spanish labour market may lead to

insights different from the ones found by previous research focusing on other institutional settings.

The paper is organized as follows. The next section reviews the relationship between downsizing and corporate performance. Section 3 reviews the institutional context in which the present study has been undertaken. Section 4 describes the methodology and section 5 presents the empirical evidence. Finally, we indicate the main conclusions.

2. Theoretical approach: The financial impact of downsizing

Despite the growth of downsizing —this practice has been prominent in the United States (Chen et al., 2001; De Meuse et al., 2004; Morris et al., 1999), and has also recently become relevant in other contexts such as Canada (Mentzer, 1996), Japan (Lee, 1997), or Korea (Yu and Park, 2006)— controversy surrounding its benefits still persists. On the one hand, since downsizing eliminates redundancies and reduces employment costs, many executives believe that this practice helps firms to compete efficiently and improve profitability (Cascio et al., 1997; Cascio and Young, 2003; Morris et al., 1999): "The objective of downsizing is to improve the organizational efficiency, productivity and/or competitiveness" (Freeman and Cameron, 1993:12). That is, a body of research supports the idea that corporations may obtain higher post-downsizing performance through downsizing. For instance, the works by Espahbodi et al. (2000) and Chen et al. (2001) show that profitability of American firms improves subsequently to downsizing announcements. Likewise, empirical evidence in other countries supports the same conclusion (see, e.g., Yu and Park, 2006, for Korean firms).

On the other hand, however, downsizing may not result in improved profitability. "Downsizing is not enough. The reduction of staff, which could be the equivalent of corporate anorexia, can slim down a firm, but it doesn't necessarily make

it healthier" (Hamel and Prahalad, 1995: 29). Several studies support this conclusion that employee reduction does not necessarily have a positive impact on organizational performance. For instance, for the United States, Cascio et al. (1997) found that downsizing practices carried out along the 1980s and early 1990s were unable to improve corporate profitability. Cascio (1998) again found that companies which had implemented downsizing between 1981 and 1990 did not enjoy larger financial performance. In an extension of this research since 2000, Cascio and Young (2003) showed that downsizers enjoyed lower profitability than stable employers or upsizers in the two years subsequent to the announcement of layoffs. Other studies on American corporations (Krishnnan and Park, 1998; Morris et al., 1999; Vanderheiden et al., 1999) also showed that downsizing did not lead to improved financial performance. For example, De Meuse et al. (2004) finds that financial performance of companies which downsized did not significantly differed from non-downsizers. Similarly, Mentzer (1996) found that downsizing was not associated with better corporate performance among Canadian firms.

An explanation for these findings is that downsizing may not be managed effectively. Indeed, learning how to downsize effectively is important not only for companies experiencing difficulties, but also as a proactive strategy for healthy organizations (Bruton, Keels and Shook, 1996; Cameron, Freeman and Mishra, 1991; Greengard, 1993; Hitt et al., 1994). Embarking on downsizing without learning how to do it well leads to several kinds of problems. The loss of vital organizational memory is one of the negative and expensive effects firms have suffered in downsizing. If managers do not think and plan ahead, their companies risk losing key skills and experiences as well as valuable knowledge when employees are moved out of their working units or leave the organization entirely (Hitt et al., 1994:25)[i].

A further typical negative effect of downsizing reported in the research is that "it can foster an organization so preoccupied with bean counting, so anxious about where the ax will fall next, that employees become narrow minded, self-absorbed, and risk averse" (Henkoff, 1990:26). The ability of employees to continue to work well is likely to be severely curtailed in such stressful situations (Heckscher, 1995; Hitt et al., 1994:24), and they tend to be even less able to innovate and learn (Brockner, 1988).

Therefore, the most significant conclusion drawn by studies of experiences in U.S. corporations is that downsizing must be regarded as something firms have to actively learn how to do well. Instead of conceiving downsizing to be "a one-time, quick-fix solution" (Cascio, 1993:103), a comprehensive framework is required, a whole process of grappling with the underlying problems and developing a range of activities to both restructure the organization and enable employees to make the transition to different jobs within or outside the organization (Applebaum, 1991; Bruton, Keels and Shook, 1996; Cameron, Freeman and Mishra, 1991). For instance, the literature reports that a frequent mistake is to overlook the effects on "survivors" of the downsizing process, particularly of layoffs (Rubach, 1995). These employees have been found to experience fear of losing their job, guilt for still having it while former colleagues may be unemployed, anger at the organization that did this to them, and exhaustion from overload (Caplan and Teese, 1997).

In sum, firms who fail to manage the downsizing process appropriately are less likely to make poor or incorrect decisions that lead to letting the wrong people go or failing to make significant enough cuts to have an effect.

3. The Spanish institutional background

Recent works have witnessed that contextual conditions may influence the adoption of different types of human resource management practices in general, and employment

strategies in particular (Gooderham et al., 1999; Nickell, 1997). Therefore, as Yu and Park (2006: 231) addressed "it would be interesting to see how different institutional settings affect the performance effect of the downsizing practices differently".

In this section we briefly review the procedures for employee reductions by employers in Spain. The costs of reducing employment are affected by the institutional setting and legislation introduced to protect workers against unfair dismissals. Thus, the rules regarding individual and collective dismissals[ii] and the use by firms of both early retirement and voluntary severance programmes are important in explaining the costs of adjustment for firms.

Worker dismissals

There are two basic ways through which any employer may adjust its workforce: (i) not renewing temporary contracts; and (ii) dismiss, either individually or collectively, some of its permanent workers. As regards the latter, a contract for an indefinite period may only be terminated, under Spanish law, according to legally defined causes and an unfair dismissal can be very expensive for the employer in comparison to the European average. Indeed, if an employer terminates such contract without good cause (see below) the employee will be entitled to receiving a severance compensation based on 45 days of salary per year of service in the company capped at 3 and ½ years of salary (which corresponds to more than 28 years of service).

On the one hand, if the size of the adjustment is large enough —meaning roughly 10 percent of the workforce— it may initiate a procedure called *Expediente de regulacion de empleo*. This procedure has to be negotiated between the firm and the workers, including the amount of severance pay (for which the law only establishes a minimum). Redundancy payments in Spain are calculated at 20 days' pay per year of service, up to a maximum of 12 months' pay. Likewise, when a collective (or objective)

dismissal is found to be unjustified, the compensation amounts to 45 days' pay —except for "promotion contracts" when the unfairly dismissed worker receives the equivalent of 33 days' pay.

On the other hand, if the size of the required adjustment does not meet the criteria to be considered collective, firms may initiate an individual dismissal procedure which may take the form of (i) an "objective" dismissal —meaning a dismissal on the grounds of economic or technological circumstances; i.e., objectively justified— or (ii) a disciplinary dismissal. Disciplinary dismissals are usually preferred by firms because there are fewer requirements involved (no advance notice is required and no initial severance payment has to be deposited; however, the employer faces a financial risk in case of a disciplinary dismissal to be unfair of 45 days of salary per year of service). In objective dismissals, if the motives for dissolving the contract are accredited, the severance paid to the employee should be equivalent to 20 days' salary per year worked, up to a maximum of one year's pay—otherwise, if the company can not accredit the reason for the termination, or breaches the formal and procedural communication requisites, it will have to opt to either pay the employee severance pay equivalent to 45 days' salary per year worked, up to a maximum of 42 monthly payments, or to readmit the employee under the conditions in place prior to dismissal.

Early retirement and voluntary severance packages

Early retirement is currently observed in a number of European countries, not all: the average rate of activity in the age group 55-64 ranges from 24 percent in Belgium to 88 percent in Iceland (Pestian et. al., 2006). In Spain, the Law contemplates two early retirement formulae: early retirement at the age of 52 and reduced-rate early retirement — while others form the subject of collective bargaining.

As a means to adjust employment, early retirement is rather widespread nowadays. It is only scarcely the result of a voluntary decision by the worker; instead, it is a frequent consequence of employment adjustment processes. Pensions are usually reduced in an extent dependent on both workers' labour market experience and their distance to the statutory retirement age (65 years-old). However, these agreements cover the possibility that in the event of crisis accords or "social plans" —created in order to manage and cushion the consequences of collective dismissals or in the case of collective contracts involving firms affected by over-manning— the employer may agree to pay a sum equivalent to the old age pension, until the worker reaches the age of 65, a system quite common in Spain (Toharia and Ojeda, 1999). Thus, these incentives induce elderly workers to exit the labour force before they reach the age of 65, and serve to protect workers who get jobless when firms implement collective dismissals. In fact, it is frequent for dismissed individuals in case of being above 52 years-old and after the exhaustion of contributory unemployment benefits, to be entitled to receiving assistance benefits up to the early retirement age[iii].

Apart from early retirement programmes (which are frequently offered in restructuring, since employers are obliged by law to offer measures designed to alleviate its social effects), negotiated alternatives between companies and work councils may include part-time work programmes, transfers to other locations of the same firm and "voluntary severance programmes". The use of voluntary departures as a means to cushioning redundancy is extremely widespread (there is no age limit established). Voluntary severance incentives are offered to reduce head count through self-selection. These incentives can include continuation of compensation for a specified period of time, a one time lump-sum payment or maintenance of certain benefits paid for by the

company. Benefits often consist of life or health insurance, memberships, educational assistance and so on.

4. Methods

4.1. Data

The present study utilizes a large firm-level panel of data compiled by the Spanish Ministry of Science and Technology since 1990: the Survey of Business Strategies (ESEE) for the years 1993 to 2005. The ESEE covers a wide range of Spanish manufacturing firms operating in all industries. The sample is representative of Spanish manufacturing firms having from 10 to 200 employees; it is probabilistic, and stratified by industry and firm size (in terms of the number of employees). In addition, the ESEE provides relevant corporate parameters that might be driving corporate performance. Most importantly, as of 1992, several questions regarding changes in workforce size were included in the survey. From the original sample, a number of firms have been eliminated, most of them for the lack of relevant data (in particular, if employment data were unavailable for the year of the analysis and the prior year, we excluded the company from the sample for that year). Finally, every independent variable is one-year-lagged with respect to the dependent variable to control for simultaneity and endogeneity. Consequently, the sample size is reduced owing to missing data for the first year (1993). Thus, our final dataset is an unbalanced panel of data of 17,645 (firm-year) observations (and 2,053 companies).

4.2. Variables

Dependent variable: financial performance

Different measures of economic performance may be used. For instance, stock prices (Hallock, 1998; Worrel et al., 1991), or financial accounting outcomes (Cascio et al., 1997; De Meuse et al., 1994). Recently, Yu and Park (2006: 236) indicated that "it is

difficult to nail down the downsizing effect form stock market reactions because too many external variables other than downsizing affect capital market performance in firms. Also, since some downsizing practices tend to be implemented by firms in financial difficulty, the stock market would react negatively to downsizing as a sign of bad performance in those firms". Therefore, we decided to use financial accounting outcomes. In particular, we use both the return on assets (ROA) and the return on sales (ROS), consistent with most prior literature on downsizing (Cascio et al., 1997; DeMeuse et al., 2004; Krishnan and Park, 1998). ROA is computed by dividing operating income before depreciation, interest and taxes by assets (Cascio and Young, 2003; Morris et al., 1999), whereas ROS is measured as profits divided by sales. Finally, the value added per employee (value added/total number of employees) was used as an additional performance measure. This allows us to examine the impact of downsizing on organizational performance (i.e., employee productivity), apart from financial performance (profitability) —see, in this respect, Yu and Park (2006: 238).

Independent variable: downsizing

Downsizing is defined as the reduction in the number of employees under open-ended contracts from one year (year of dowsizing or year 0) to the following year (year 1), in line with the approach of previous works (e.g., Cascio et al., 1997). We exclude reductions in temporary workers because we regard downsizing as a permanent reduction in the company's workforce, which distinguishes this practice from temporary job fluctuation (see Freeman and Cameron, 1993). Therefore, we consider that a firm downsizes during a given year if the number of employees under open-ended contracts decrease from the previous year to the current year. Since our dataset collects the size of permanent work force at the end of each year, it is straightforward to operationalize the latter's percent variability from year *t-1* to year t^{iv}.

As an assessment of the robustness of our findings, we also repeated the estimations defining downsizing as reductions of at least 10 percent of the permanent workforce during any given year (De Meuse et al., 2004). This threshold helps distinguish between individual and collective dismissals in Spain (see Section 2 above) and ensures that downsizing implies a significant reduction in employment (Bruton et al., 1996; Freeman and Cameron, 1993).

Control variables

We include several control variables which may influence the relationship between downsizing and corporate performance.

Size. Firm size affects the association between downsizing and performance (Chadwick et al., 2004; Yu and Park, 2006). For example, Cascio and Young (2003: 132) indicated that small companies, especially small manufacturers, tend to resist layoffs because they are trying to project the substantial investments they made in finding and training workers. Total firm sales are included to control for any size effects (Krishnan and Park, 1998).

Diversification and internationalization. Several studies have examined the relationship between diversification and performance, obtaining contradictory results. Some authors find a linear association between both variables (Hamilton and Shergill, 1993; Hoskisson et al., 1993; Mayer and Whittington, 2003), whereas others suggest a curvilinear model (Palich et al., 2000). We use a dummy variable to indicate if firm diversifies (it equals 1 if the firm diversifies, either through related or unrelated diversification). In addition, as internationalization may affect firm performance (see, e.g., Hitt et al., 1997; Lu and Beamish, 2004; Ruigrok et al., 2007), we have included a dummy variable which takes on the value 1 if the firm has expanded its activities towards foreign markets (and 0 otherwise).

Liquidity. We use a standard measure of liquidity —the current ratio; i.e., the ratio of current assets to current liabilities. Prior literature has shown liquidity to have some effects on firm performance (Chang, 1996).

Leverage. Since prior evidence suggests that leverage affects performance (Hamilton and Shergill, 1993; Mayer and Whittington, 2003), we take the firm's long-term debt-to-assets ratio as an indication of its leverage (Hoskisson et al., 1994).

Research and development. The efforts by the firm in research and development (R&D) are captured through a dummy variable which takes the value 1 if the firm makes or contracts R&D activities during the year (and 0 otherwise). Several studies support the conclusion that R&D influences corporate performance (e.g., Hoskisson et al., 1994; Lantz and Sahut, 2005; Morbey and Reithner, 1990).

Capacity utilization and market demand. In times of weak capacity utilization, employers will naturally achieve worse performance (Greenhalgh et al., 1988). Thus, we include the firm's average use of capacity utilization. In addition, we measured the trend of demand through a set of dummy variables collecting whether the market addressed by the company has enlarged, remained constant or decreased. We also include a dummy variable which collects whether the market addressed by the firm is in recession.

Temporality rate. Firms may use fixed-term contracts to adjust to demand fluctuations and decrease the turnover of permanent workers simultaneously. This way, firms would be taking advantage of the lower dismissal costs associated with the discharge of temporary workers when no longer needed (OECD, 2004; Cappelli and Neumark, 2004; Kalleberg, 2001). The firm temporality rate is computed by dividing the number of workers with temporary workers over the total number of employees.

Industry. Differences between trade unions may exist among industries, which may lead to larger or smaller levels of profitability. Thus, we control the industry by including dummies for twenty categories (see Table 2).

Year of downsizing. A series of thirteen dichotomous variables were used to control the years (1993-2005) associated to each observation. This allows for isolating the effects on performance arising from any particular year.

4. Empirical analysis: The determinants of corporate performance

To gain confidence in the association between downsizing and corporate performance, it is necessary to isolate the effects of downsizing on the firm's sub-sequent performance. This will allow us to check whether or not downsizing in the previous year impacts negatively or positively on performance at the current year. The simplest approach to address this issue is to estimate the effect that downsizing may have on the performance variables. Thus, we regress the three performance measures on the downsizing dummy variable and the set of control variables above referred.

However, unobserved organization attributes lead to bias in the estimation of the impact from downsizing. For instance, management decisions will affect corporate efficiency. In addition, estimates of the coefficient on the downsizing variable will be biased if the error term is correlated with the downsizing variable. Firms with high profitability due to unobservables —such as unmeasured inputs, differences in input (or output) quality, differences in technology and management decisions— may show a larger tendency to downsize, because such intermediaries may be better able to assume downsizing costs. The converse might also be true. Companies with low profitability due to unobserved characteristics may decide to downsize, given that the downsizing may serve to raise corporate performance. As a result, Ordinary Least Squares estimation may generate biased parameters. It is therefore necessary to model

unobserved attributes statistically. Given that several sequential (yearly) observations of the same company are recorded, unobserved variables can be eliminated by specifying a fixed effects or a random effects model[v]. More especifically, given the longitudinal data on firm's corporate performance, the effects of downsizing observed for firm *i* at moment *t-1* on performance at moment *t* can be modelled as follows:

$$\text{Ln}(P_{it}) = Z_{it-1}\,\alpha + \lambda_i + \varepsilon_{it} \tag{1}$$

where P_{it} is the firm's i's performance associated with the current year; and Z_{it-1} is a vector of observable variables associated with the previous year, which may influence firm's performance at the current year; λ_i is a time invariant firm specific error that captures the effects of unobservable characteristics; and ε_{it} is assumed to have constant variance and to be uncorrelated across individuals and time. The above model is estimated using the within-group (WG) technique, which is equivalent to a simple least squares estimation of the model in which the variables are defined as deviations from their means. This is the generalisation of the "differences-in-differences" estimation that will enable us to recover the effect of downsizing by removing the unobservable firm specific effects. The possible correlation between the unobservables and the observables is thus accounted for in the estimation of the parameter of interest, α.

5. Results

Table 1 shows descriptive statistics (mean and standard deviation) of all the variables in the study. The first two columns represent descriptive statistics using the full sample (downsizers and non-downsizers). The following four columns show descriptive statistics distinguishing between companies that downsize and corporations which do not (Table 1 in Appendix summarizes main descriptive statistics considering firms which reduce the number of employees in at least 10 per cent or more and firms which do not).

Insert Table 1 about here

According to Table 1, non-downsizers enjoy higher profitability than companies which reduce personnel. However, companies which carry out downsizing enjoy the largest productivity per employee. Furthermore, firms which do not decide to cut employees have a larger proportion of temporary contracts. However, it is the largest firms and those with high liquidity ratios the ones that adopt downsizing. We also observe that on average around half of the companies in the sample embark on R&D activities (especially those that do not reduce employees) and operate in foreign markets, and that firms have low levels of diversification.

Table 2 displays estimation results. As can be observed, neither ROS nor valued-added per employee are significantly affected by downsizing in the previous year, in line with other studies which also address that workforce reductions do not influence performance (see, e.g., Krishnan and Park, 1998). However, when measuring performance through ROA, downsizing exerts a negative impact on corporate profitability at the current year —which is analogous to findings in previous works (e.g., Cascio and Young, 2003).

Insert Table 2 about here

As regards control variables, in the model which includes ROS as the dependent variable (Model 1), the coefficients for sales and capacity utilization are significantly and positively associated with the performance indicator. On the contrary, the coefficient for R&D activities is significantly and negatively associated with ROS.

Furthermore, the existence of a non-increasing market for the company is also associated with lower performance (as expected). In Model 2, capacity utilization is related with performance improvements. However, when firms adopt geographic dispersion for their activities and when the market remains constant or decreases, performance eventually deteriorates.

As regards Model 3 (where the value-added per employee is taken as the dependent variable), coefficients for sales and capacity utilization are also significantly and positively associated with corporate performance. Likewise, in contrast to the previous two models, the coefficient for internationalization presents a statistically positive significant link with employee productivity. As regards the remainder of variables, leverage, R&D activities, diversification and a recessive market are associated with reductions in performance.

Finally, Table 3 presents estimation results concerning the impact of the magnitude of workforce reduction on performance. As previously explained, the independent variable of interest in this case is whether or not companies reduce permanent employment in a magnitude above 10 per cent. As can be observed, no statistical significant relationships appears between downsizing and the performance indicators. This result is in line with findings from other studies (Cascio et al., 1997; Cascio, 1998; De Meuse et al., 1994). As regards control variables, results similar to those from Table 2 are obtained (Tables 2 and 3 in the Appendix shows results considering the second year following the personnel reduction).

Insert Table 3 about here

----

6. Conclusions

Firms should search for ways to increase their corporate performance. One route to achieve this might be through employment downsizing. The assumption is that companies seek to save costs with the adjustment of the number of workers. However, the downsizing literature has reported inconclusive results with respect to whether or not this practice leads to better corporate performance. Using a sample of manufacturing Spanish firms, the present study has investigated the financial consequences of downsizing (i.e., reductions in the workforce under permanent contracts). This research question is a compelling one grabbing the researchers and managers's attention, because the debate about the consequences of employee cuts is unclear, in spite of being a widely-used practice by corporations. In order to gain more clarity on the overall effectiveness of downsizing, we have considered a new context (Spain) which offers some new insights into the international implications of this phenomenon: the Spanish labour market is characterized by a high protection of employee's rights, compared to other labour markets.

We conclude that downsizing does not lead to improved corporate performance, since our analysis have shown either null or negative effects of this practice on the performance at the first year following the downsizing, which is in line with other studies (Cascio and Young, 2003; Morris et al., 1999). Thus, no consistent relationship between personnel reductions and performance measures (profitability and productivity) is found. In addition, by examining the magnitude of downsizing, we have considered the effects on performance arising from substantial changes in permanent employment. In this case, our results indicate that by carrying out a deep cut, no significant improvements of performance originate either on profitability or on productivity.

Therefore, corporations that downsize do not necessarily outperform companies which prefer maintaining their workforce levels. Our interpretation of this finding is that although downsizing has been encouraged by managers with the purpose of decreasing labour cost and improving firm's performance (Cascio and Young, 2003; Morris et al., 1999), a dismissal can be very expensive for the employer in Spain in comparison to the other countries (e.g. US, UK) average. For example, data reveals that at the end of the 1990s, an indicator on dismissal costs in Spain amounted to 2.6 in comparison to 0.2 in the United States or 0.8 in the United Kingdom (see Layard et al., 1996). Moreover, the attitude of "survivors" to downsizing may mitigate the benefits which managers want to attain with downsizing (Brocker et al., 1992, 1993; Leana and Feldman, 1992; Mishra and Spreitzer, 1998). Therefore, organizational and human costs of insufficiently well-planned downsizing may be high. Thus, an implication for both academics and practitioners is that in managing downsizing companies must conduct a solid analysis of the situation and build a shared need to change before engaging in cutbacks of any kind. In particular, since downsizing might become aggressive and traumatic for human resources, before implementing it firms should evaluate costs saving and be cautious in adopting practices that originate also negative feelings to employees.

References

American Management Association (1998). *1997 AMA Survey on Job Creation, Job Elimination, and Downsizing*. AMA: New York.

Appelbaum S.H., Simpson R. and Shapiro B.T. (1987). The tough test of downsizing. *Organizational Dynamics,* 16: 68-79.

Applebaum, Steven (1991). How to slim successfully and ethically. *Leadership and Organization* Development *Journal*, 12/2: 11-16.

Brockner, J. (1988). The effects of work layoffs on survivors: Research, theory, and practice. In: *Research in organisational behavior*, Staw BM, Cummings LL (eds.). JAI Press: Greenwich, Conn; vol. 10, 213-25

Brockner, J., Grover, S., Reed, T. F., and DeWitt, R. L. (1992). Layoffs, job insecurity, and survivors ' work effort: Evidence of and inverted-U relationship. *Academy of Management Journal*, 35: 413-425.

Brockner, J. Grover, S. O 'Malley, M. N. Reed, T. F. and Glynn M.A. (1993). Threat of future layoffs, self-esteem, and survivors ' reaction: Evidence from the laboratory and the field. *Strategic Management Journal*, 14: 153-166.

Bruton, G. D., Keels, J. K. and Shook, C. L. (1996). Downsizing the firm: Answering the strategic questions. *Academy of Management Executive*, 10: 38-45.

Budros, A. (1999). A conceptual framework for analyzing why organizations downsize. *Organization Science*, 10: 69-82.

Cameron, K. S. (1994). Strategies for successful organizational downsizing. *Human Resource Management*, 33: 189-211.

Cameron, K. S., Freeman, S. J. and Mishra, A. K. (1991). Best practices in white-collar downsizing: managing contradictions. *Academy of Management Executive*, 5/3: 57 73.

Caplan G. and Teese M. (1997). *Survivors: How to keep your best people on board after downsizing*, Davies-Black Publishing: Palo Alto, CA.

Cappelli, P. and Neumark, D. (2004). External churning and internal flexibility: Evidence on the functional flexibility and core-periphery hypotheses. *Industrial Relations,* 43/1: 148-182.

Cascio, W. F. (1993). Downsizing: What do we know? What have we learned? *Academy of Management Executive*, 7/1: 95-104.

Cascio, W. F., Young, C. E. and Morris, J. R. (1997). Financial consequences of employment-change decisions in major U. S. corporations. *Academy of Management Journal*, 40: 1175-1189.

Cascio. W. F. (1998). Learning from outcomes: financial experiences of 311 firms that have downsized. In Marilyn K. Gowing, John D. Kraft and James Campbell Quick (dir), The New Organizational Reality. Downsizing, restructuring, and revitalization. American Psychological Association,Washington.

Cascio, W. F. and Young, C. E. (2003). Financial consequences of employment-change decisions in major U.S. corporations, 1982-2000. In DeMeuse, K.P. and Marks,L. (dir). *Resizing the Organization: Managing Layoffs, Divestitures and Closings*. Ed. Jossey Bass, San Francisco.

Chadwick, C., Hunter, L. W. and Walston, S. L. (2004). Effects of downsizing practices on the performance of hospitals. *Strategic Management Journal*, 25: 405-427.

Chang, S. J. (1996). An evolutionary perspective on diversification and corporate restructuring: Entry, exit, and economic performance during 1981-89. *Strategic Management Journal*, 17: 587-611.

Chen, P., Mehrotra, V., Sivakumar, R. and Yu, W. W. (2001). Layoffs, shareholders' wealth, and corporate performance. *Journal of Empirical Finance*, 8: 171-199.

De Meuse, K. P., Vanderheiden, P. A. and Bergmann, T. J. (1994). Announced layoffs: Their effect on corporate financial performance. *Human Resource Management*, 33: 509-530.

De Meuse, K. P., Bergmann, T. J., Vanderheiden, P. A. and Roraff, C. E. (2004). New evidence regarding organizational downsizing and a firm's financial performance: a long-term analysis. *Journal of Managerial Issues*, 16: 155-177.

DeWitt, R. L. (1993). The structural consequences of downsizing. *Organization Science*, 4: 30-40.

DeWitt, R. L. (1998). Firm, industry, and strategy influences on choice of downsizing approach. *Strategic Management Journal*, 19: 59-79.

Espahbodi, R., John, T. A. and Vasudevan, G. (2000). The effects of downsizing on operating performance. *Review of Quantitative Finance and Accounting*, 15: 107-126.

Filatotchev, I.; Buck, T. and Zuckov, V. (2000). Downsizing in Privatized firms in Russia, Ukraine, and Belarus. *Academy of Management Journal*, 43: 286-304.

Freeman, S. J. and Cameron, K. S. (1993). Organizational Downsizing: A convergence and reorientation framework. *Organization Science*, 4: 10-29.

Gooderhman, L., Lawrence, T. and Sutton, R. I. (1999). Institutional and rational determinants of organizational practices: Human resource management in European firms. *Administrative Science Quarterly*, 44: 507-531.

Greengard S. 1993. Don't rush downsizing: Plan, plan, plan. *Personnel Journal*, November: 64-76.

Greenhalgh, L.; Lawrence, A. T. and Sutton, R. I. (1988). Determinants of workforce reduction strategies in declining organizations. *Academy of Management Review*, 13: 241 -254.

Halloc. K. F. (1998). Layoffs, top executive pay, and firm performance. *The American Economic Review*, 88: 711-723.

Hamel, G. and Prahalad, C. K. (1995). *Competing for the Future*. Massachussets: Harvard University School Press.

Hamilton, R. T. and Shergill, G. S. (1993). Extent of diversification and company performance: the New Zealand evidence. *Managerial and Decision Economics*, 14: 47-52.

Heckscher Ch. 1995. *White Collar Blues*. Basic Books: New York, NY.

Henkoff R. 1990. Cost cutting: How to do it right. *Fortune,* 121 (8):26-33.

Hitt MA, Keats BW, Harback HF, Nixon RD. 1994. Rightsizing: Building and maintaining strategic leadership and long-term competitiveness. *Organizational Dynamics* 23 (2): 18-32.

Hitt, M., Hoskisson, R. and Kim, H. (1997). International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40: 767-798.

Hoskisson, R. E.; Hitt, M. A.; Johnson, R. A. and Moesel, D. D. (1993). Construct validity of an objective (entropy) categorical measure of diversification strategy. *Strategic Management Journal*, 14: 215-235.

Hoskisson, R. E., Johnson, R. A. and Moesel, D. D. (1994). Corporate divestiture intensity in restructuring firms: Effects of governance, strategy, and performance. *Academy of Management Journal*, 37: 1207-1251.

Kalleberg, Arne L. (2001). Organizing flexibility: The flexible firm in a new century. *British Journal of Industrial Relations,* 39/4: 479-504.

Krishnnan, H. A. and Park, D. (1998). Effects of top management team change on performance in downsized US companies. *Management International Review*, 38: 303-319.

Lantz, J.S. and Sahut, J. M. (2005). R&D investment and the financial performance of technological firms. *International Journal of Business*, 10: 251-270.

Layard, R., Nickell, S. and Jacknam, R. (1996). *La Crisis del Paro*. Ed. Alianza Editorial, Madrid.

Leana, C. R. and Feldman, D. C. (1992). *Coping with Job Loss: How Individuals, Organizations, and Communities Respond to Layoffs*. Ed. New Lexington Press: San Francisco.

Lee, P. M. (1997). A comparative analysis of layoff announcements and stock price reactions in the United States and Japan. *Strategic Management Journal*, 18: 879-894.

Lu, J. W. and Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal*, 47: 598-609.

Magan Diaz, A. and Céspedes Lorente, J. (2007). Difusión del downsizing en la empresa española: Análisis del modelo de dos etapas. *Revista Europea de Dirección y Economía de la Empresa*, 16: 55-72.

Mayer, M. and Whittington, R. (2003). Diversification in context: A cross-national and cross-temporal extension. *Strategic Management Journal*, 24: 773-781.

Mckinley, W., Zhao, J. and Rust, K. (2000). A sociocognitive interpretation of organizational downsizing. *Academy of Management Review*, 25: 227-243.

Mentzer, M. S. (1996). Corporate downsizing and profitability in Canada. *Canadian Journal of Administrative Sciences*, 13: 237-250.

Mishra, A. K. and Spreitzer, G. M. (1998). Explaining how survivors respond to downsizing: The roles of trust, empowerment, justice, and work redesign. *Academy of Management Review*, 23: 567-588.

Morbey, G. K. and Reithner, R. M. (1990). How R&D affects sales growth, productivity and profitability. *Research Technology Management*, 33: 11-14.

Morris, J. R.; Cascio, W. F. and Young, C. E. (1999). Questions and Answers about who did it, how many did it, and who benefited from it. *Organizational Dynamics*, 27: 78-87.

Nickell, S. (1997). Unemployment and labor market rigidities: Europe versus North America. *Journal of Economic Perspectives*, 11: 55-74.

Organisation for Economic Co-Operation and Development (1986). *Flexibility in the Labour Market: The Current Debate*. Paris: OECD.

Organisation for Economic Co-Operation and Development (2004), *Employment Outlook 2004*, OECD, Paris.

Palich, L. E., Cardinal, L. B. and Miller, C. (2000). Curvilinearity in the diversification-performance linkage: An examination of over three decades of research. *Strategic Management Journal*, 21: 155-174.

Pestian, P., Cremmer, H. and J. Marie (2006). Recent work on the theory of early retirement. *Hacienda Pública Española/Revista de Economía Pública*, 179: 9-24.

Requejo, A. (1996). Reducción de plantilla y problemas de viabilidad financiera: El papel de la estructura de capital. *Investigaciones Económicas*, 20: 43-70.

Rubach L. 1995. Downsizing: How quality is affected as companies shrink. *Quality Progress,* April: 23-28.

Ruigrok, W., Amann, W. and Wagner, H. (2007) . The internationalization-performance relationship at Swiss firms: A test of the S-shape and extreme degrees of internationalization. *Management International Review*, 47: 349-368.

Sanchez-Bueno, M. J. and Suarez, I. (2005). Los procesos de reducción de plantilla in el ámbito español: motivos y modalidades utilizadas. *Revista Europea de Dirección and Economía de la Empresa*, 14: 81-96.

Suárez, I. (1999). Decisiones de reducción de la plantilla en la gran empresa española. *Investigaciones Europeas de Dirección y Economía de la Empresa*, 5: 79-100.

Suarez-Gonzalez, I. (2001). Downsizing strategy: does it really improve organizational performance. *International Journal of Management*, 19: 301-307.

Tang LP, Fuller RM. 1995. Corporate downsizing: What managers can do to lessen the negative effects of layoffs. *SAM Advanced Management Journal* 60: 1-5.

Toharia, L. and Ojeda, A. (1999). The management of redundancies in Europe: the case of Spain. *Labour*, 13: 1-31.

Vanderheiden, P. A., De Meuse, K. P., and Bergmann, T. J. (1999). Response to Haar 's comment-And the beat goes on: corporate downsizing in the twenty-first century. *Human Resource Management*, 38: 261-267.

Vicente-Lorente, J. D. and Suarez-Gonzalez, I. (2007). Ownership traits and downsizing behaviour: Evidence for the largest Spanish firms, 1990-1998. *Organization Studies*, 28: 1613-1638.

Worrel, D. L.; Davidson III, W. N. and Sharma, V. M. (1991). Layoff announcements and stockholder wealth. *Academy of Management Journal*, 34: 662-678.

Yu, G. and Park, J. (2006). The effect of downsizing on the financial performance and employee productivity of Korean firms. *International Journal of Manpower*, 27: 230-250.

Table 1. Main Descriptive statistics. Whole sample and sub-samples (downsizers versus non-downsizers)

	Whole sample		Non-donwsizers		Downsizers	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
ROS	9.263	17.123	9.958	13.485	8.169	21.603
ROA	15.914	90.332	17.411	113.772	13.556	24.817
Added value per employee	41.866	55.404	40.836	65.098	43.487	35.008
Sales	250.129	1270.229	176.668	898.876	365.843	1691.357
Leverage	0.119	0.151	0.120	0.147	0.117	0.157
Liquidity	15.597	180.141	13.530	36.139	18.852	285.480
Average degree of capacity utilization	82.165	14.554	82.908	14.182	80.995	15.049
Temporality ratio	0.166	0.208	0.179	0.213	0.147	0.199
Market addressed by firm is (dummy variables):						
Increasing	0.265	0.441	0.279	0.449	0.243	0.429
Constant	0.597	0.490	0.597	0.491	0.598	0.490
Diminishing	0.138	0.345	0.124	0.330	0.159	0.366
Market in recession (dummy variable)	0.181	0.385	0.161	0.368	0.211	0.408
R&D (dummy variable)	0.614	0.487	0.644	0.479	0.565	0.496
Diversification (dummy variable)	0.210	0.408	0.203	0.402	0.222	0.416
Internationalization (dummy variable)	0.461	0.499	0.436	0.496	0.501	0.500
Sample size	17,645		10,793		6,852	
Number of firms	2,503		1,449		1,054	

Notes: "Sales" are measured in millions of euros. "Added value per employee" is measured in thousands of euros
Source: Spanish Survey of Business Strategies (ESEE, 1993-2005)

Table 2. Estimation results on performance measures (downsizers versus non-downsizers)

Determinants	Model 1: Return on sales			Model 2: Return on assets			Model 3: Added value per employee		
	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
Constant	-1.169	4.969		10.011	5.587	*	53.800	3.281	***
Sales	0.000	0.000	*	0.001	0.001		0.004	0.000	***
Downsized in previous year (1=yes)	-0.045	0.220		-3.136	1.427	**	0.336	0.838	
Liquidity	-1.608	0.999		-7.826	4.565	*	0.001	0.002	
Leverage	0.000	0.001		0.000	0.004		-14.981	2.680	***
Average degree of capacity utilization	0.149	0.011	***	0.127	0.049	***	0.144	0.029	***
Temporality rate	0.697	0.716		3.133	3.419		-29.458	2.007	***
Market addressed by firm is (dummy variable):									
Increasing									
Constant	-0.523	0.267	*	-4.885	1.613	***	-0.975	0.947	
Diminishing	-0.856	0.413	**	-6.799	2.561	***	-2.718	1.504	*
Market in recession (1=yes)	-1.195	0.339	***	-3.099	2.082		-3.966	1.223	***
R&D (dummy variable)	-0.866	0.383	**	-0.472	1.580		-10.664	0.928	***
Diversification (dummy variable)	-0.671	0.442		-2.699	2.025		-2.239	1.189	*
Internationalization (dummy variable)	0.494	0.391		-2.918	1.506	*	5.769	0.884	***
Industry									
Meat Products	-7.662	6.026		-2.700	4.530		-10.808	2.660	***
Tobacco and Food									
Drinks	-2.255	5.397		1.450	5.257		27.690	3.086	***
Textile Products	5.978	6.510		-3.011	3.067		-14.065	1.801	***
Leather and Shoes	-6.056	9.055		5.320	4.590		-15.752	2.695	***
Wood Products	-0.475	7.892		-2.347	4.766		-11.480	2.798	***
Paper Products	-8.262	7.258		-2.625	4.450		2.564	2.612	
Publishing and Graphic Arts	-5.029	6.269		1.772	3.719		0.044	2.183	
Chemical Products	-0.917	4.676		7.962	3.380	**	9.593	1.985	***
Plastic materials and Rubber	-3.745	5.871		-0.252	3.613		-5.876	2.121	***
Non-metallic minerals	-5.263	15.559		-1.844	3.357		0.316	1.971	
Metallurgy	-4.285	6.748		-2.124	4.268		6.750	2.506	***
Metallic Products	-4.872	6.180		-0.520	3.095		-4.596	1.817	**
Machinery & mechanical equipment	-2.471	6.194		-1.346	3.341		-7.986	1.962	***
Office machinery & computing equipment	0.328	6.862		-0.780	5.972		-11.654	3.506	***
Electric machinery & equipment	-7.417	6.554		-1.730	3.612		-7.883	2.121	***
Motor vehicles	-4.478	6.348		-2.994	3.871		-11.225	2.273	***
Other transportation equipment	0.562	8.189		-8.859	5.341	*	-6.863	3.136	**
Furniture	-1.532	6.514		-2.209	3.780		-15.099	2.219	***
Other manufacturing industries	-1.501	7.236		2.798	5.001		-9.359	2.936	***
σ_u	25.759								
σ_v	12.353								
ρ; F-test for $\rho=0$	0.813	6.84	***						
F	---			1.960		***	39.520		***
Number of observations	17,645			17,645			17,645		
Number of firms	2,503			2,503			2,503		

Notes: Estimation also includes dummies for the years (1993-2005). p<0.10; ** p<0.05; *** p<0.01

Table 3. Estimation results on performance measures (firms that downsize at least 10% versus firms that do not)

Determinants	Model 1: Return on sales			Model 2: Return on assets			Model 3: Added value per employee		
	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
Constant	-1.216	4.967		8.616	5.552		54.140	3.259	***
Sales	0.000	0.000	*	0.001	0.001		0.004	0.000	***
Downsized 10% in previous year (1=yes)	0.134	0.294		-1.006	1.947		-1.090	1.143	
Liquidity	0.000	0.001		0.000	0.004		0.001	0.002	
Leverage	-1.619	0.999		-7.772	4.570	*	-14.877	2.682	***
Average degree of capacity utilization	0.149	0.011	***	0.131	0.049	**	0.142	0.029	***
Temporality rate	0.682	0.716		3.727	3.418		-29.404	2.006	***
Market addressed by firm is (dummy variable):									
Increasing									
Constant	-0.521	0.267	*	-4.979	1.613	***	-0.955	0.947	
Diminishing	-0.858	0.413	**	-6.938	2.562	***	-2.649	1.504	*
Market in recession (1=yes)	-1.195	0.339	***	-3.174	2.082	0.127	-3.952	1.222	***
R&D (dummy variable)	-0.870	0.383	**	-0.271	1.582		-10.624	0.929	***
Diversification (dummy variable)	-0.672	0.442		-2.754	2.025		-2.224	1.189	*
Internationalization (dummy variable)	0.493	0.391		-3.097	1.506	**	5.750	0.884	***
Industry									
Meat Products	-7.685	6.026		-2.700	4.531		-10.802	2.660	***
Tobacco and Food									
Drinks	-2.249	5.397		1.076	5.255		27.735	3.085	***
Textile Products	5.969	6.510		-3.091	3.067		-14.015	1.801	***
Leather and Shoes	-6.023	9.054		5.382	4.591		-15.719	2.695	***
_ord Products	-0.433	7.893		-2.215	4.766		-11.470	2.798	***
Paper Products	-8.250	7.258		-2.673	4.451		2.529	2.613	
Publishing and Graphic Arts	-5.017	6.269		1.824	3.720		-0.004	2.184	
Chemical Products	-0.922	4.676		7.962	3.381	**	9.559	1.985	***
Plastic materials and Rubber	-3.726	5.871		-0.200	3.613		-5.895	2.121	***
Non-metallic minerals	-5.371	15.560		-2.012	3.356		0.321	1.970	
Metallurgy	-4.280	6.748		-2.342	4.268		6.739	2.506	***
Metallic Products	-4.867	6.180		-0.461	3.095		-4.614	1.817	**
Machinery & mechanical equipment	-2.459	6.193		-1.342	3.342		-7.980	1.962	***
Office machinery & computing equipment	0.331	6.861		-0.654	5.973		-11.622	3.506	***
Electric machinery & equipment	-7.407	6.554		-1.763	3.612		-7.856	2.121	***
Motor vehicles	-4.475	6.348		-3.059	3.872		-11.239	2.273	***
Other transportation equipment	0.599	8.189		-9.237	5.339	**	-6.785	3.134	**
Furniture	-1.498	6.514		-2.184	3.781		-15.089	2.219	***
Other manufacturing industries	-1.502	7.236		2.952	5.001		-9.341	2.936	***
σ_u	25.766								
σ_v	12.353								
ρ; F-test for ρ=0	0.813	6.850	***						
F	---			1.860		***	39.540		***
Number of observations	17,645			17,645			17,645		
Number of firms	2,503			2,503			2,503		

Notes: Estimation also includes dummies for the years (1993-2005). * $p<0.10$; ** $p<0.05$; *** $p<0.01$

APPENDIX.

Table 1. Main descriptive statistics. Whole sample and sub-samples (firms that downsize at least 10% and firms that do not)

	Do not downsize at least 10%		Downsize at least 10%	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
ROS	9.648	14.690	7.081	26.952
ROA	16.145	97.024	14.603	32.478
Added value per employee	43.080	58.576	34.983	31.082
Sales	270.952	1354.550	132.148	585.905
Leverage	0.116	0.147	0.136	0.173
Liquidity	13.725	36.550	26.204	456.819
Average degree of capacity utilization	82.661	14.184	79.354	16.215
Temporality ratio	0.160	0.200	0.204	0.246
Market addressed by firm is (dummy variables):				
Increasing	0.270	0.444	0.237	0.425
Constant	0.601	0.490	0.577	0.494
Diminishing	0.129	0.335	0.187	0.390
Market in recession (dummy variable)	0.173	0.378	0.226	0.418
R&D (dummy variable)	0.593	0.491	0.731	0.444
Diversification (dummy variable)	0.210	0.407	0.213	0.410
Internationalization (dummy variable)	0.480	0.500	0.355	0.479
Sample size	14,998		2,647	
Number of firms	1,991		512	

Notes: "Sales" are measured in millions of euros. "Added value per employee" is measured in thousands of euros
Source: Spanish Survey of Business Strategies (ESEE, 1993-2005)

Table 2. Estimation results on performance measures in the second year following downsizing

Determinants	Model 1: Return on sales			Model 2: Return on assets			Model 3: Added value per employee		
	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
Constant	-4.210	4.569		10.048	6.311		54.122	3.659	***
Sales	0.000	0.000		0.001	0.001		0.004	0.000	***
Downsized two years before (1=yes)	-0.024	0.231		-2.546	1.631		0.045	0.946	
Liquidity	-0.267	1.088		-7.711	5.300		0.001	0.002	
Leverage	0.001	0.002		0.000	0.004		-17.410	3.073	***
Average degree of capacity utilization	0.147	0.012	***	0.123	0.057	**	0.149	0.033	***
Temporality rate	0.135	0.781		3.161	3.992		-31.007	-2.315	***
Market addressed by firm is (dummy variable):									
Increasing	-	-		-	-		-	-	
Constant	-0.368	0.282		-5.488	1.841	***	-0.747	1.067	
Diminishing	-0.793	0.443	*	-7.250	2.969	**	-2.330	1.721	
Market in recession (1=yes)	-0.744	0.370	**	-2.783	2.439		-4.700	1.414	***
R&D (dummy variable)	-0.819	0.413	**	-0.686	1.800		-11.252	-1.043	***
Diversification (dummy variable)	-1.058	0.468	**	-3.047	2.320		-2.503	1.345	*
Internationalization (dummy variable)	0.288	0.419		-3.381	1.717	**	6.032	0.995	***
Industry									
Meat Products	-4.921	6.185		-2.097	5.149		-10.987	2.985	***
Tobacco and Food	-	-		-	-		-	-	
Drinks	-2.165	5.591		2.579	6.031		30.159	3.496	***
Textile Products	2.359	6.921		-1.808	3.495		-13.561	2.026	***
Leather and Shoes	-0.773	9.262		5.139	5.376		-17.347	3.117	***
Wood Products	3.994	8.208		-0.501	5.486		-11.527	3.181	***
Paper Products	-3.615	7.408		-1.635	5.053		2.754	2.930	
Publishing and Graphic Arts	-1.618	6.374		2.618	4.240		0.095	2.458	
Chemical Products	-0.476	4.718		10.018	3.847	***	9.797	2.230	***
Plastic materials and Rubber	1.498	5.967		0.797	4.120		-6.348	2.388	***
Non-metallic minerals	-	-		-0.703	3.804		0.371	2.205	
Metallurgy	1.336	6.951		-1.236	4.850		7.595	2.812	***
Metallic Products	0.009	6.323		0.390	3.536		-4.332	2.050	**
Machinery & mechanical equipment	3.675	6.329		-0.266	3.792		-7.655	2.198	***
Office machinery & computing equipment	-2.284	7.110		0.499	6.844		-12.546	3.968	***
Electric machinery & equipment	-2.419	6.733		-0.892	4.119		-8.451	2.388	***
Motor vehicles	1.134	6.479		-1.846	4.413		-11.205	2.559	***
Other transportation equipment	5.814	8.260		-8.094	6.078		-5.874	3.524	*
Furniture	3.422	6.808		-1.503	4.298		-15.253	2.492	***
Other manufacturing industries	1.198	7.375		2.426	5.698		-9.495	3.303	***
σ_u	12.463								
σ_v	12.055								
ρ; F-test for $\rho=0$	0.517	3.62	***						
F	---			1.60			32.89		
Number of observations	15,364			15,364			15,364		
Number of firms	2,284			2,284			2,284		

Notes: Estimation also includes dummy for the years (1993-2005); $p<0.10$; ** $p<0.05$; *** $p<0.01$

Table 3. Estimation results on performance measures in the 2nd year following downsizing (firms that downsize more than 10%)

Determinants	Return on sales			Return on assets			Added value per employee		
	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
Constant	-2.240	1.191	*	8.934	6.282		54.454	3.642	***
Sales	0.000	0.000		0.001	0.001		0.004	0.000	***
Downsized 10% two years before (1=yes)	0.032	0.297		-0.207	2.220		-1.638	1.287	
Liquidity	0.000	0.001		0.000	0.004		0.001	0.002	
Leverage	-1.814	0.923	**	-7.754	5.307		-17.222	3.076	***
Average degree of capacity utilization	0.134	0.010	***	0.125	0.057	**	0.148	0.033	***
Temporality rate	0.499	0.680		3.674	3.982		-30.911	2.308	***
Market addressed by firm is (dummy variable):									
Increasing	-	-		-	-		-	-	
Constant	-0.553	0.266	**	-5.583	1.840	***	-0.732	1.067	
Diminishing	-1.334	0.419	***	-7.368	2.968	**	-2.297	1.721	
Market in recession (1=yes)	-1.089	0.348	***	-2.829	2.439		-4.681	1.414	***
R&D (dummy variable)	-1.059	0.338	***	-0.556	1.802		-11.172	1.044	***
Diversification (dummy variable)	-0.758	0.408	*	-3.053	2.320		-2.500	1.345	*
Internationalization (dummy variable)	0.328	0.334		-3.487	1.718	**	5.969	0.996	***
Industry									
Meat Products	-3.108	1.520	**	-2.102	5.149		-10.993	2.985	***
Tobacco and Food	-	-		-	-		-	-	
Drinks	8.055	1.697	***	2.253	6.028		30.148	3.494	***
Textile Products	-1.871	1.018	*	-1.859	3.495		-13.536	2.026	***
Leather and Shoes	-1.076	1.514		5.204	5.376		-17.324	3.117	***
Wood Products	0.171	1.510		-0.461	5.487		-11.472	3.181	***
Paper Products	1.086	1.474		-1.640	5.054		2.679	2.930	
Publishing and Graphic Arts	2.385	1.201	**	2.703	4.241		0.025	2.459	
Chemical Products	1.303	1.083		10.021	3.848	***	9.741	2.230	***
Plastic materials and Rubber	1.465	1.144		0.821	4.120		-6.351	2.388	***
Non-metallic minerals	3.258	1.137	***	-0.817	3.803		0.361	2.205	
Metallurgy	0.285	1.371		-1.416	4.849		7.545	2.811	***
Metallic Products	0.289	0.988		0.424	3.536		-4.348	2.050	**
Machinery & mechanical equipment	-0.518	1.061		-0.298	3.792		-7.656	2.198	***
Office machinery & computing equipment	-1.490	1.782		0.641	6.845		-12.490	3.968	***
Electric machinery & equipment	-1.052	1.156		-0.900	4.119		-8.442	2.388	***
Motor vehicles	-0.480	1.212		-1.913	4.414		-11.239	2.559	***
Other transportation equipment	-9.814	1.758	***	-8.481	6.074		-5.784	3.521	
Furniture	-1.020	1.202		-1.443	4.298		-15.254	2.492	***
Other manufacturing industries	1.449	1.637		2.540	5.698		-9.476	3.303	***
σ_u	9.575								
σ_v	12.055								
ρ	0.387								
F	---			1.55			32.93		
R^2				0.0042			0.0828		
Number of observations	15,364			15,364			15,364		
Number of firms	2,284			2,284			2,284		

Notes: Estimation also includes dummy for the years (1993-2005); $p<0.10$; ** $p<0.05$; *** $p<0.01$

[i] The American Management Association, which has conducted a series of large scale studies on downsizing, found that most companies fell short of the objectives they had originally established, and that nearly half of the firms were "badly" or "not well" prepared for the process (reported in Cascio, 1993:97-99; see also De Meuse et al., 1994).

[ii] We must take into account that these constraints on the hiring and firing of workers are not entirely transparent, since, in addition to national laws, collective agreements between employers and workers organization also are very important in regulating the adjustment of the labour factor —these agreements may differ across industries and workers (depending upon age, tenure, etc.).

[iii] These complements for the pension negotiated within the collective dismissal process may explain, for instance, that in the year 2001, 55 percent of the newly retired individuals in the General Regime of the Social Security were below 65 years-old, and 29 percent were below 60 years-old. In fact, for such a year, 21,712 individuals took up early retirement before the age of 65 after exhausting unemployment benefits —Spanish Labour Force Survey, fourth quarter, 2001 (INE).

[iv] This definition conveys the usual idea of intentionality found in the downsizing literature, since (i) it excludes temporary employees (which is the convention) and (ii) includes layoffs, redundancies and early retirements. Thus, if despite implementing layoffs of permanent workers in a particular year the company ends up with an increase in the size of the permanent workforce (due to hiring new permanent workers), this situation is not considered as downsizing, according to our definition. Defining downsizing as the (net) reduction in the permanent work force is coincident with that used, among others, by Tang et al. (1995), Appelbaum et al. (1987), Lewis et al. (1996) or American Management Association (1998).

[v] According to the Hausman test, the fixed-effects panel estimation was preferred to the random-effects estimation in one of the models (Model 1 in Tables 2, 3 and Table 1 in the Appendix), while the random-effects model was preferred versus the fixed-effects model in Model 1 in Table 3 in the Appendix. In the remainder of the models, the pooled estimation (i.e, where no consideration for the panel nature of the dataset is done) was preferred.