Determinants of post-privatisation performance of Spanish divested firms*

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*** Acknowledgements**. We acknowledge SEPI, Ministry of Treasure, Mª José Rapado of the Ministry of Science and Technology, CNMV and Belen Villalonga for their assistance with the construction of the database. Laura Cabeza acknowledges the financial support provided by the Fundación para el Fomento en Asturias de la Investigación Científica Aplicada y la Tecnología (FICYT) and the Fundación de Estudios Financieros (FEF).

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Abstract

This paper analyses the factors which may explain the improvements in performance taking place after privatisations. Using a sample of 58 Spanish privatised firms within the period 1985-2000, we find no significant mean increases in industry adjusted profitability and efficiency following privatisation over a medium term horizon (three years), although the results vary according to the privatised firm. More than 50% of the firms show increases in profitability and over 45% show increases in efficiency after the first stage of the privatisation process. When we analyse how different characteristics of the privatisation processes may explain the observed performance changes, the results suggest that competition may play an important role in the success of privatisation processes. Efficiency gains seem to take place in competitive markets, not in utilities. The results also suggest some positive influence of factors such as the entrance of foreign investors, the relinquishment of control by the State over privatised firms and the firms' size on the performance of privatised firms.

Key words: privatisation, performance, determinants

JEL: L33, L32, L51

1. Introduction

Privatisation, defined as the transfer of ownership rights on State-Owned Enterprises (SOEs) to the private sector, has been an important phenomenon all over the world. The process began in the late 1970s with the Thatcher government in the United Kingdom, and spread across countries and continents. The proceeds obtained from privatisations amounted to 829.259,64 million US$ over the period 1977-2005 for all the countries of the EU-25, and they continue to grow. Actually, the second half of 2006 witnessed a surge in global privatisation, with a total value of 73.65 billion US$, which brought the full-year 2006 to a 115.95 billion US$ (Privatization Barometer, 2007).

Spain has not been an exception to this trend: 135 firms were privatised between 1985 and 2006. This large privatisation program was part of an economic reform that has lasted more than twenty years and has derived in a continuous path of economic growth. Actually, Spain is at present one of the fastest growing countries among the E.U., and shows low levels of public deficit and outstanding public debt. With a GDP growth of 3.4 per cent in 2005 (versus 1.3 and 2.7 per cent on average in the E.U. and OECD countries, respectively), Spain has continued its prolonged economic expansion, and income levels have risen to the EU-25 average. Furthermore, for the first time in 30 years, in 2005, the public accounts showed a surplus of 1.1 per cent of GDP (for the EU-25, the deficit amounted to -2.3 per cent), while public indebtedness was cut from 67 to 43 per cent (for the UE-25 the average was 64.6 per cent) (IMF, 2006).

The privatisation program in Spain, which has been one of the largest among OECD countries in terms of assets sold, raised 51.382,848 million US$ between 1986 and 2006, thereby ranking Spain fifth among the EU-25 countries in terms of revenues from privatisations. 1985 marked the beginning of this privatisation process, which has been conducted by both the

socialist and the conservative governments (between 1985-1996, 2004-until now and 1996-2003, respectively), and has not yet finished. Over this entire period, 135 firms have been privatised, and 1997 and 1998 have been the most active years both in terms of the number of privatised firms and the privatisation revenues.

Privatisation by public share offerings (PO) has had a tremendous impact on financial markets, thus becoming an important tool for governments to develop capital markets (Megginson and Netter, 2001; Megginson *et al*., 2004). This has also been the case for Spain. Privatisation through PO has helped to reduce the State's ownership in quoted companies (16.64 per cent in 1992 to 0.50 per cent in 2005), and has also resulted in the development of the Spanish Stock Markets. While the Madrid Stock Exchange's market capitalisation amounted to 49,679.61 million Euros in 1990, it had doubled to 99,689.59 million Euros in 1995, and had multiplied by five by the end of 2006, amounting to 1,134,137.08 million Euros. Actually, a significant part of the current largest listed companies in Spain were originally State-Owned Enterprises -SOEs- (i.e. Telefonica, Endesa and Repsol) or are the result of mergers of private companies with privatised companies (BBVA).

The improvement in the privatised firms' financial and operating efficiency is one of the objectives that is more frequently associated with privatisation processes. Within this context, some empirical studies have analysed whether private firms outperform SOEs, but also whether firms' performance improves after privatisation. The former studies provide systematic evidence that privately-owned firms outperform SOEs; this finding has been confirmed by studies of a single country, for example, Canada (Vining and Boardman, 1992), by studies including Central and East European countries (Frydman *et al*., 1999), or by studies including international samples (Dewenter and Malatesta, 2001). The second type of studies, those which analyse whether firms' performance improves after privatisation, do not

always provide concluding evidence. For instance, some authors document a significant increase in firms' productivity and profitability in the UK (Parker and Hartley, 1991; Martin and Parker, 1995), Chile (Meller, 1993), China (Wei *et al*., 2003), Romania (Earle and Telegdy, 2002), Poland and Bulgaria (Estrin *et al*., 2005), the Czech Republic (Claessens *et al*, 1997; Harper, 2002), or Malawi (Chirwat, 2004). The same conclusion has been reached by studies that employ samples of firms privatised in developed countries (Megginson *et al*., 1994; D´Souza *et al*., 2005), developing countries (Boubakri and Cosset, 1998; Boubakri *et al*., 2005) or East European countries (Claessens and Djankov, 2002; Brown *et a*l., 2006). However, other studies suggest that privatisation does not seem to lead to systematic improvements of allocative efficiency (Pestieau and Tulkens, 1993) or of productive efficiency (Vickers and Yarrow, 1988; Gonzalez-Paramo, 1995; Martin and Parker, 1997).

The empirical evidence on the Spanish privatisation process is scarce and non-conclusive with regard to the improvements in the performance of privatised firms (Melle, 1999; Villalonga, 2000; Romero, 2005; Farinos *et al*., 2007). Both longitudinal and case studies do not support, in general terms, a significant improvement of SOEs after privatisation in Spain. Nevertheless, we must say that previous studies focused on the Spanish context [with the exception of the one conducted by Villalonga (2000)], do not consider, apart from the change from public to private ownership, a large range of determinants that may have an influence on the firms' post-privatisation performance.

Our paper aims to contribute to the empirical evidence that analyses the privatisation processes by studying first the possible changes in the firms' performance following privatisation, and second the potential determinants that may influence the observed changes in one of the largest privatisation processes undertaken by a developed economy, such as Spain. Although from the 1980s onwards, privatisations have inspired an extensive empirical

literature that analyse the efficiency and performance improvements after privatisations, a reduced number of studies have attempted to analyse the underlying reasons or factors that may explain these changes (Boubakri *et al*., 2005; D´Souza *et al.*, 2005). In this context, we try to explain the observed changes in firms' performance using cross-sectional analysis that consider different factors that may influence the privatisation processes: the method used for the privatisation -direct sale or public share offering-, whether the insiders or a foreign investor invest in the privatised firm or the pre-privatisation firms' performance, among others. Besides, compared to previous studies focused on the Spanish market, our study presents some differential characteristics. Firstly, we use a set of proxies for firms' performance: profitability, efficiency, output, investment, leverage and employment, and we also consider additional factors that may explain the post-privatisation improvements, such as firms' sector competitiveness, the method of privatisation, the stake held by the State in the firms' capital after privatisation and its possibility to exert a golden share, among others. Secondly, we analyse a large period of time, of fifteen years, which covers from 1985 to 2000. This allows us to employ a large sample that includes approximately 50% of the firms that were divested over the period considered, and 45% of the total assets of the firms that were privatised during that period.

Our study, compared to other multi-country studies that also analyse possible determinants of the observed post-privatisation changes in firms' profitability and performance, for privatisations implemented through PO, uses a sample of privatised firms in one specific country. This allows us to undertake a more in depth study (we can use and consider more explanatory variables) as well as to analyse not only privatisations by means of public share offerings, but also by means of direct sales.

The results of the study do not support a post-privatisation improvement in firms' profitability and efficiency, once the industry effects are considered, over a medium term horizon (three years). Nevertheless, we must say that the results vary depending on the ratio used as proxy of firms' efficiency and profitability. Overall, more than 50 percent of the firms that were privatised show improvements in their profitability after the first stage of the privatisation processes, and more than 45 percent of the firms show improvements in their efficiency. Moreover, the results suggest that industry's competitiveness may play an important role in the success of privatisation. As suggested by Sheshinski and Lopez-Calva (2003), the profitability and efficiency gains take place in competitive markets, not in utilities. The results also show some support for the positive influence on privatised firms' performance of the presence of foreign investors among the firms' large shareholders, as already reported by Brown *et al*. (2006) for Hungary, Romania, Russia and Ukraine, and of firms' size, a result already reported for the Spanish privatisation program by Villalonga (2000).

The rest of the paper is organized as follows. Section 2 refers to the theoretical background describing potential causes for firms' post-privatisation performance improvements. Section 3 presents the sample selection, methodology and the variables used in the study. The results are discussed in section 4, and section 5 presents the main conclusions of the paper.

2. Divested firms post-privatisation performance: expected improvements and determinants

Privatisation theory extols the advantages of the means of production being in private hands, pointing to the inefficiency of State-Owned Enterprises and the problems faced by them when defining their goals. SOEs may well have different objectives other than profit and shareholders' wealth maximisation (Megginson and Netter, 2001). They may, for example, pursue political goals aimed at maximising social welfare that may be inconsistent with

efficiency. Besides, public firms will tend to be more risk adverse and less free to adopt decisions because managers will need to justify their strategic decisions to the employees and the State (Frydman *et al*., 2000).

Moreover, in public firms there is a dual level of agency relations (citizens-government and government-management), the general citizens cannot sell the firms' shares, the State may have political objectives, and firms may rely on the State for funding and are thus unlikely to face bankruptcy. Given these characteristics and the lack of market discipline, the change from public to private ownership ought to spark enhanced profitability and efficiency in privatised firms (Yarrow, 1986; Boycko *et al*., 1993). This expected increase in the operating performance of divested firms is supported by different empirical studies that report an increase in the ratios of return on assets, return over sales or operating efficiency for privatised firms (Megginson *et al*., 1994; Boubakri and Cosset, 1998; Antoncic and Hisrich, 2003). Consequently, we should expect an improvement in firms' performance after privatisation process.

H1: A firm's operating performance increases after privatisation

However, the change from public to private ownership can not be considered the only determinant of divested firms' performance improvements. Other factors may also influence the post-privatisation changes in profitability, efficiency, leverage, investment and labour. Among them, we may mention the firms' economic and political environment, regulation and market competition, as well as the firms' ownership and their corporate governance structure.

The economic environment at the time of the privatisation and after it, in the post-privatisation period, may influence significantly the success of privatisations. Moreover, besides privatisation processes, other economic reforms such as price deregulation or market liberalisation may have a significant impact on firms' efficiency. In this sense, the

competitiveness of both the product and factor markets of divested firms is crucial. In the lack of a competitive environment, firms' efficiency will depend mostly on regulation, being the firm nature- private or public- not decisive (Yarrow, 1986; Vickers and Yarrow, 1988). Thus, the consequence of the change from public to private ownership on firms' performance should be larger when an increase in the markets competitiveness also takes place (Shirley and Nellis, 1991; Grosse and Yanes, 1998). For instance, competitiveness can exert changes in the technologies that the firms employ (Ramaswamy, 2001). Accordingly, the empirical evidence suggests that profitability increases more and productivity less in regulated or less competitive sectors. Firms may be exploiting, at least partially, their market power (Sheshinski and Lopez-Calva, 2003). Considering these arguments we should expect that[1]:

> H2: Firms belonging to regulated industries or to more concentrated industries will show lower post-privatisation performance improvements

The ideology of the government in place at the time of the privatisation may also influence the success of privatisations, as the objectives underlying the privatisation processes and the characteristics of privatised firms may not coincide for socialist and conservative governments. A priori, conservative governments would be expected to be more pro-business and more committed to privatisation and economic reform. Likewise, the consequences of the privatisation processes may differ depending on the commitment of the government that privatises the SOEs. For instance, the commitment of the government with the privatisation per se is expected to be lower if the main motivation underlying the privatisation process is the State's needs of cash (D´Souza *et al*., 2000). Considering these arguments and that, in the Spanish case, the conservative government initiated an explicit Modernisation Program of the Public Sector after winning the general elections of 1996, we hypothesize:

H3: Firms that are privatised within an explicit privatisation program and under conservative governments will show larger post-privatisation performance improvements

The method used to privatise the SOEs influences their post-privatisation ownership structure, and therefore may also influence the profitability and performance of privatised firms. Public share offerings imply greater transparency of information, a "market" valuation of the firm and favour the development of capital markets and of a "popular capitalism". Thus, we should expect larger benefits associated with privatisation for firms privatised through PO. Nevertheless, there exist also theoretical arguments that support larger benefits, increases in profitability and efficiency, for firms privatised through direct sales. Firms that are privatised through public share offerings are usually larger firms and present already in the pre-privatisation period a higher performance compared to firms' privatised through direct sales: they are usually the so called "crown-jewels" of SOEs. We favour the first argument and propose the following hypothesis:

H4: Firms that are privatised through public shares offerings will show larger post-privatisation increases in performance

Divested firms corporate governance and ownership structure, as well as the incentives to the management team, may also influence significantly the firms' post-privatisation performance. Divested firms controlled by the State or by the managerial team, may not have incentives to assume risk given their less wealth diversification and may pursue objectives that do not maximize firm value. In this sense, the results reported by D´Souza and Megginson (1999) for a sample of industrialised and developing countries, by Antoncic and Hisrich (2003) for Slovenia or by Boubakri *et al.* (2005) for a sample of developing countries, suggest that privatisations in which the State surrender (versus retain) voting control completely, are more

profitable and efficient as politicians will not be able to continue influencing the firm's activities[2].

The role played by the management team as large blockholder of privatised firms may increase its probability of entrenchment and opportunistic behaviour, therefore reducing the probability of the firm's restructuring and, consequently, the firm's value (Blanchard and Aghion, 1996). Besides, the theory of public election suggests that when the management team retains the control of the divested firms, given its expected link to politicians and to the government, changes in the firm's strategy, especially in those aspects related to investment and employment, should be expected to be scarce (Cuervo and Villalonga, 2000). Nevertheless, according to the agency theory, one may also argue that a larger share in the firm's ownership after privatization by employees or managers may increase their commitment with the firm and with the privatisation process (Dong *et al*., 2002) and facilitate the firm's restructuring (Bolton and Von Thadden, 1998), as well as the assumption of risks that may lead to innovation and to an increase in the firm's efficiency and performance (Smith *et al.*, 1997; Markhija and Shapiro, 2000).

Although the ownership held by the management team after privatisation may, theoretically, has both a positive and a negative effect on firms performance, generally, the empirical evidence suggests larger increases in performance for divested firms controlled by external investors (Frydman *et al*., 1999; Earle and Teledge, 2002). Nevertheless, in relation to the possible influence of employees' ownership on privatised firms' performance, the empirical evidence is not conclusive. Some studies show a negative relationship between employees ownership and post-privatisation efficiency (Barberis *et al*., 1996; Boycko *et al*., 1996), while for others this relationship turns out to be positive (Smith *et al.*, 1997).

In the light of the above considerations, we propose the following two hypotheses:

H5: The lower the State's ownership or its control over privatised firms, the larger the firms' post-privatisation increase in performance

H6: Privatised firms in which an external investor acquires a significant stake will show larger post-privatisation increases in performance

Among the external investors, foreign investors should be considered specifically, as their presence can influence significantly the firm's post-privatisation performance and valuation (Sader, 1993). Foreign investors may provide new know-how and technologies to divested firms, may help to improve the quality of their products and facilitate their access to the product, factor and financial markets. This argument is supported by the results of the paper by Fahy *et al*. (2003) that reports a better and easier access to financial resources and markets of privatised firms that were acquired by foreign investors, and by the study of Artisien-Maksimenko (2001) who reports that the participation of a foreign investor in privatised firms capital leads to the acquisition of new technologies. Thus, we hypothesize:

H7: Privatised firms in which a foreign investor acquires a significant stake of the shares will show larger post-privatisation increases in performance

Finally, the divested firm's prior performance may be highly correlated to its post-privatisation performance. On the one hand, it could be argued that firms showing, pre-privatisation, higher performance would maintain that trend, but on the other hand, we should also consider that firms that have been restructured before privatisation could show lower post-privatisation performance improvements (Dewenter and Malatesta, 2001). According to the latter argument, the positive effect of privatisation should be more pronounced for firms that have not been restructured or for firms that have shown worse pre-privatisation performance:

H8: Firms showing lower pre-privatisation performance will show larger post-privatisation increases in performance

3. Sample selection, methodology and variables used in the study

3.1. Sample selection

The initial database used for the analysis comprises the sample of companies privatised in Spain during the period 1985-2000, 117 firms. We got economical and financial information about the privatised firms for a period of up to seven years covering the three years before and the three years after the last stage or block of privatisation.

The following filters were applied to the initial database:

a) Firms for which we were unable to obtain data for a period of up to seven years covering the three years before and the three years after the last stage of the privatisation process: firms for which there was a lack of accounting data, firms that began their activity in the two years prior to the privatisation and firms that closed their business around the privatisation.

b) Financial firms due to their particular characteristics.

c) Firms for which we were unable to obtain the mean industry ratio.

Once these filters were applied, the final sample comes to 58 firms (72 privatisation processes), representing approximately 50 per cent of the firms that were divested during the period of the study. 14 privatisation processes correspond to firms privatised through public share offerings (19.44 per cent of the total processes of our sample).

In comparison with previous studies dealing with the Spanish privatisation process, our sample is more representative and larger: Sanchis (1996) uses a sample of 17 firms, Villalonga (2000) uses a sample of 24 firms and Romero (2005) uses a sample of 40 firms.

Furthermore, our sample size is comparable to studies that use an international sample of firms privatised through public share offerings; for instance Megginson *et al.* (1994) use a sample of 61 firms, Dewenter and Malatesta (2001) use a sample of 63 firms and Sun and Tong (2005) use a sample of 53 firms.

Table 1 shows the industry and annual distribution of the firms included in our sample, as well as the privatisation method employed in each case. The firms belong mainly to the transport equipment industry (15.67% - SIC code 37), to the steel and iron industry and the water, electricity and gas industry (11.11% -SIC Codes 33 and 49) -Table 1, Panel A-. The privatisation processes took place mainly in year 1997 (18.05%), in year 1999 (12.5%) and in year 1989 (9.72%) (Table 1, Panel B). As it is the case for the whole Spanish privatisation process, direct sales is the main method of privatisation employed by sample firms (75% of processes). Under the socialist government (PSOE) the privatisation processes accounted to 42 (33 through direct sales and 9 through public offerings), whereas under the conservative government (PP) 30 firms were privatised (21 through direct sales and 9 through public offerings).

[TABLE 1]

The information about the Spanish privatised firms was obtained from different data sources: the Spanish State-owned Holding Company (*Sociedad Estatal de Participaciones Industriales -SEPI-*), some samples used by previous studies (Verges, 1999; Villalonga, 2000a) and the reports of the Consultative Board of Privatisations (*Consejo Consultivo de Privatizaciones - CCP-*). The accounting information was obtained: for the pre-privatisation years, from the annual reports of the formerly SOEs storied in the library of the SEPI and different ministries (Economy and Industry); for the post-privatisation years, from information provided by the Spanish Supervisory Agency (CNMV), by the Madrid Stock Exchange and the firms'

offerings prospectus; for listed companies, by the databases SABI (Sistema de Analisis de Balances Ibericos) and Informasa, and by the financial reports of the Official Mercantile Registry and by the companies. This information has been completed with the information provided by the Dicodi and the Dun's & Bradstreet directories. In addition, the aggregate data for the industries comes from the information provided by the Center of Balance of the Spanish Central Bank (Central de Balances del Banco de España). In order to estimate the industry's concentration we employed the directory "Fomento de la Producción", and inflation rates and GDP data were obtained from the National Institute of Statistics (Instituto Nacional de Estadistica) databases.

3.2. Methodology and variables

The first aim of our paper is to study whether the privatisation of SOEs leads to an increase in firms' profitability, efficiency, output and investment and to a decrease in firms' employment and leverage (hypothesis 1). For that purpose, similarly to Megginson *et al.* (1994), Boubakri and Cosset (1998) and D'Souza *et al.* (2005), we use a matched pairs (pre versus post-privatisation) methodology. Empirical proxies for each variable and each company are computed both for a period of up to seven years covering the three years before and three years after the last stage or block of privatisation (1S and LS, respectively)[3]. Thus, we estimate the performance, investment, employment and leverage achieved by each company during a period covering the three years of public ownership and the three years of private ownership. We consider these measures both as raw figures and after their adjustment to the corresponding industry, i.e., we subtract the value shown by each firm each year from the firm's industry mean for the same year as reported by the Spanish Central Bank. The mean and median of each variable for each firm over the pre- and post-privatisation windows is then calculated. For all firms, the year of privatisation is named year 0. It includes both the

public and private ownership phases of the enterprise and is therefore excluded from the calculations. Having computed pre- and post- privatisation mean and median values, we use the Student's t-test and the Wilcoxon signed- rank to test for significant changes in the variables.

We consider both stages of the privatisation process (first stage and last stage) taking into account that the implications of privatisations may differ as a consequence of the real relinquishment of the State in the firms' capital. In this sense, we should expect a higher post-privatisation performance the lower the percentage of shares retained by the State (as proposed in hypothesis 5); and thus, a larger post-privatisation improvement would be expected for the last stage of privatisation benchmark. Nevertheless, one may also argue that the first stage of the privatisation process initiates the privatisation trend signalling the commitment of the State with the firms' privatisation and that the change from public to private ownership is more actively occurring at this moment.

To examine the impact of privatisation on operating performance we rely on six aspects of firm performance: profitability, efficiency, output, investment, leverage and employment. We measure profitability using three ratios: return on assets (ROA), return on equity (ROE) and return on sales (ROS). We test for changes in operating efficiency by analysing four ratios: real sales-to-employees (SALES/EMP), net profit-to-employees (NP/EMP), operating profit-to-employees (OP/EMP) and added value-to-employees (AV/EMP). Besides, we use real sales -in million euros- (sales deflated by the index of retail prices, SALES) as a proxy for output[4]. Investment is defined as the increase of the firm's fixed assets each year (INV). Finally, as proxies of the firms' capital structure we use the ratio of total leverage (LEV) and the ratio of long-term leverage (LLEV), and as proxy of the changes in employment the number of the firms' employees (EMP) (Table 2, Panel A)

[TABLE 2]

Once we have computed the performance change brought about by privatisations, we study what factors may explain these changes (hypotheses 2 to 8). For that purpose, we perform a multivariate OLS analysis where the dependent variables are the changes (post-versus-pre-privatisation) in the proposed proxies of firms' performance and the independent variables are different proxies of the firms' political, regulatory and economic environment, their prior performance and firms' ownership and corporate governance related factors.

The dependent variable is defined as the change in the mean value of the proxy variable of firms' performance over the three years after the firm's privatisation minus the mean value of the proxy variable over the three years before the firm's privatisation. The independent variables are the factors that we have identified in section 2 as potential determinants of post-privatisation performance improvements (Table 2, Panel B). These variables include: a) proxy variables for the level of privatised firms competitiveness (REGIND, CONCENT); b) a proxy variable for the type of government in place when the firm was privatised (TGOV); c) a proxy variable that reflects the method of privatisation (METHOD); d) proxy variables for the post-privatisation firms' ownership (STATEOWN, GSHARE, INSIDEROWN, INVFOR); and e) a proxy variable that indicates the firm's pre-privatisation performance (PPER).

REGIND is a dummy variable that adopts value one in case that the firm belongs to a regulated industry and zero otherwise, and CONCENT is also defined as a dummy variable that adopts value one when the industry concentration of the divested firm increases after privatisation and zero otherwise. TGOV and METHOD are dummy variables that take value one when, respectively, the firms are privatised under a conservative government and through public share offerings, and zero otherwise. STATEOWN is defined as the percentage of shares held by the State in the firm's capital after privatisation[5], and GSHARE adopts value

one when the State issues a golden share at the moment of the firm's privatisation. INSIDEROWN denotes the firms' managers or employees' stake in the firms after privatisation, and INVFOR takes value one when a foreign investor invests in the privatised firm and zero otherwise. The firm's prior performance (PPER) is measured as the firm's mean net profit over the pre-privatisation period (years -3 to -1)[6].

Besides, the following control variables are included in the analyses: firm's size defined as the firm's total sales (LSALES)[7] and the country's economic situation in the year the firm was privatised (CYCLE).

Thus, the regression models we run are as follows:

$$VPERFORMANCE = a_0 + a_1\, REGIND + a_2\, CONCENT + a_3\, TGOV + a_4\, METHOD + a_5\, STATEOWN + a_6\, GSHARE + a_7\, INSIDEROWN + a_8\, INVFOR + a_9\, PPER + a_{10}\, LSALES + a_{11}\, CYCLE + eit$$

Where VPERFORMANCE denotes the changes, post-versus-pre privatisation (-3+3), in the divested firms measures of profitability, operating efficiency, output, investment, leverage and employment.

Table 3 presents the summary statistics (median, maximum, minimum and standard deviation) of the variables included in the study for the first stage of privatisation[8]. All variables representing the firms' performance changes present median negative values, with the exception of the output (VSALES). Thus, the results tend to suggest a post-privatisation decrease in performance. Regarding the explanatory variables, the State's stake in privatised firms ranks between zero and 70 percent, with a mean value of 12.68 percent (median value of zero), showing that after the first stage of the privatisation process the State still retains, as a mean, a large stake of privatised firms shares, but that this behaviour is highly asymmetric. While in some firms, mainly in those privatised through public share offerings, the State retains a relatively high percent of the firms' shares, in others it retains zero percent. Actually,

in 65 per cent of firms the State relinquishes control completely after privatisation; 92 per cent of these firms were privatised by direct sales.

The variable representing the firm's prior performance (PPER) presents a mean positive value of 24.256 million Euros. However, the median value is negative, -0.252 million Euros, as the majority of the firms have negative results before the privatisation. 38.60 percent of the firms were privatised by the conservative government (PP, 1996-2000) and the main method used in the privatisation processes was the direct sale (82.46 percent). Regarding the firms' ownership, in 36.36 per cent of the firms a foreign investor bought a significant stake, and for just 17.54 percent of the firms the insiders invested in the firms' capital. 25.56 per cent of the privatised firms belong to a regulated industry. Besides, the variable CYCLE reveals that firms were mainly privatised during periods of economic growth (the mean value of the variation in GDP is 3.992 and the median value is 4.419). The firm's mean size in terms of total sales amounts to 661.286 million Euros, although the sample is very asymmetric (maximum value of 10,460.958 million Euros and minimum value of 0.439 million Euros).

[TABLE 3]

The variables' bivariate correlations for the first stage of privatisation are presented in Table 4. Variable LSALES is significantly and positively correlated with the variable CYCLE, revealing that larger firms are privatised in expansive economic cycles[9]. Furthermore, the method of privatisation (METHOD) is positively correlated with the State's stake in privatised firms (STATEOWN), revealing that for firms that were privatised through public share offerings the State retained a stake. Variable METHOD is also positively correlated with variable REGIND showing that firms that were privatised through public offerings belong more frequently to regulated industries. Actually, 73 per cent of the firms privatised by PO belong to regulated industries, while only 11 per cent of the firms privatised by direct

sales belong to regulated industries. METHOD is also positively correlated with variable PPER. Firms privatised through public share offerings present better prior performance. The type of government (TGOV) is also positively correlated with variable CYCLE, reflecting that the privatisations undertaken by the conservative government coincided with a period of high economic growth in Spain. Over the years 1996-2000 Spain experienced a growth in GDP of 41 per cent, one of the highest within the EU (CESifo, 2007). Finally, the variable INSIDEROWN is positively correlated with PPER. Insider investors held a larger stake after privatisation in more profitable firms, mainly due to the stake reserved to employees in PO. While in 64 percent of privatisations through PO employees hold shares in privatised firms, this percentage amounts to zero for firms privatised through direct sales.

[TABLE 4]

4. Empirical results

4.1. Post-privatisation changes in financial and operating performance

The results of the analysis related to whether the firm's performance improves after privatisation are presented in Table 5 (mean and median pre versus post-privatisation firms' performance). When industry effects are considered and over the window (-3+3), although the majority of the median profitability and efficiency ratios[10] seem to be larger after privatisation (except the return on assets, sales-to-employees and operating profit-to-employees ratios), differences observed are not statistically significant; nor are variations in the proxies of output, investment, leverage and employment. Over the (-3+3) window, we only observe a statistically significant increase for the proxy of the firms' profitability (ROS, return on sales) and only during the first stage of the privatisation process. There is a significant decrease in the proxy for firms' efficiency, sales-to-employee, and a significant increase in net profit-to-employee (significant at 10 per cent level) during the final and initial stages of privatisation,

respectively. In this sense, our results are similar to those reported by earlier studies of the Spanish privatisation process that without considering the possible influence of industry effects and using the same temporal horizon (-3+3) do not find an improvement in firms' performance after privatisation (Sanchis, 1996; Melle, 1999; Villalonga, 2000; Romero, 2005). Nevertheless, our results show significant differences depending on the firm that was privatised, the stage of the privatisation process -first versus last stage- and the measure used as proxy of firms' performance. While 54% of the firms show increases in ROA (return on assets ratio) both when using as benchmark the first stage of the privatisation process and when using the last stage, and 62% show increases in ROS (return on sales) after the first stage of the privatisation process (53% of the firms for the last stage of the privatisation process); just 40% of the firms show improvements in firms' efficiency proxy SALES/EMP (both for the first and the last stage of the privatisation process), and 59% show increases in the ratio NP/EMP after the first stage of the privatisation process (48% after the last stage of the privatisation process).

One possible explanation for the observed non-significant mean improvement in firms' profitability and efficiency after privatisation could be the time horizon of the analyses. Some firms may need more than three years to be restructured, to improve their post-privatisation performance and to be more competitive than their industry counterparts. In this sense, Cabeza and Gomez (2007) over a long time horizon, five years after and before privatisation, find significant improvements in firms' profitability and efficiency. Their results are similar to those obtained in other studies, which even analysing the effect of privatisation over a relatively short time (a (-3+3) horizon) find a improvement, such as Boubakri and Cosset (1998), for a sample of firms' privatised in developing countries, D´Souza and Megginson (1999), for a sample of firms' privatised in industrialized countries, and Wei *et al.* (2003), for China.

[TABLE 5]

4.2. Determinants of post-privatisation performance changes

We next analyse whether different factors in addition to the change from public to private ownership may have influenced the post-privatisation profitability, efficiency, investment, output, capital structure and employment of divested firms. To this end, we relate the post-privatisation variation of these measures to the set of proxies variables of privatised firms' economic, political and regulatory environment, their prior performance and their ownership structure and corporate governance after privatisation. The results, considering the first and the last stage of the privatisation processes, are reported in Tables 6 and 7, respectively[11]. We just show the results of the models using as dependent variables the changes in the ratios sales to employees, added value to employees, real sales and long term leverage, as no models turn out to be significant for the variables return on assets, return on equity, return on sales, net profit to employees, operating profit to employment, employment and investment.

For the first stage of privatisation REGIND seems to influence negatively the firms' post-privatisation efficiency ratios, real sales to employees and added value to employees. Firms belonging to regulated industries, to utilities, tend to experience lower increases in efficiency after privatisation. This result supports hypothesis 2 and it is in line with the evidence provided by Boubakri and Cosset (1998) and by D'Souza and Megginson (1999) who report that profitability of privatised firms increases more in regulated (or non-competitive) industries, whereas operating efficiency increases less. Firms belonging to regulated sectors, usually monopolistic or oligopolistic industries, would not have enough incentives to improve their innovation and performance, as, in these industries, the risk of losing market share is minimum. On the contrary, firms operating in competitive industries would have more incentives to improve their performance as, after privatisation, they would not be able to

receive the political and financial support of the State and would have to compete with their industry's peers.

REGIND also holds a positive and significant relationship with the change in privatised firms' level of output, suggesting that utilities seem to experience larger increases in output. Perhaps, their oligopolistic situation leads to larger sales increases. As shown in Table 6 an increase in the level of the firms' industry concentration (CONCENT) leads to a lower level of firms' post-privatisation efficiency (sales to employees and added value to employees' ratios). These results are similar to those reported by Li and Xu (2004), who show that competitiveness do influence post-privatisation performance of firms operating in the telecommunication industry, and to those reported by Boubakri *et al.* (2005), who find a positive effect of liberalisation on privatised firms' investment and output for a sample of firms privatised in developing countries.

The method of privatisation (METHOD) turns out to influence significantly the change in the ratio added value to employees, suggesting that firms privatised through public shares offerings and under a conservative government may show larger increases in efficiency, as proposed in hypothesis 3. These firms are mainly the so called "crown jewels" of SOEs, and would just continue to show larger performance after privatisation.

The results also suggest that privatised firms' sales may increase more for those firms where a foreign buyer acquires a significant stake in the privatised firms' capital. Foreign investors may provide their knowledge and experience to the privatised firm enhancing that way the firm's efficiency, as proposed in hypothesis 7. This result supports the one reported by Villalonga (2000) who points out that the type of buyer, national or foreign, is an important factor for explaining the consequences of the privatisation process in Spain. Likewise, Wei *et*

al. (2003), D´Souza *et al*. (2005) and Brown *et al.* (2006) also report higher improvements in performance when a foreign investor holds a stake in the privatised firm.

Regarding the participation of the State in the firms' capital after privatisation, the proxy of this factor (STATEOWN) only turns out to present a significant coefficient for the output variation variable, being the significance of the coefficient just 10 per cent. The higher the State's stake in post-privatisation firms' capital, the larger the output increases. Although this result is, in principle, contrary to what was proposed in hypothesis 5, one possible explanation for this result would be that when using the first stage of the privatisation process as benchmark, 35 per cent of firms are still partially privatised, so the State may still exercise its control power, i.e., governments may incentive managers via subsidies with the purpose of attaining inefficient levels of output or employment or protecting economically or socially distressed regions or areas.

Moreover, firms that show better performance in the pre-privatisation period (PPER) show lower increases in the efficiency (added value to employees), probably because they had already been restructured before privatisation and consequently the positive effect of privatisation could be less remarkable (Dewenter and Malatesta, 2001). Firms showing a better pre-privatisation performance also experience larger increases in leverage. Their performance history probably allows them to assure the interest and principal payments, and to have access to debt in more favourable terms. Finally, larger firms show a larger increase in the post-privatisation efficiency (added value to employees) and sales, but a lower increase in leverage. Larger firms are usually privatised though public share offerings, so they can obtain resources and finance in the Stock Markets and do not have to rely on debt financing.

For the last stage of privatisation (Table 7), the results we obtain are similar. Firms belonging to regulated industries show a lower increase in efficiency and a larger increase in output after

privatisation. The higher the pre-privatisation firms' performance, the lower the increase in efficiency and the larger the firms' leverage. Larger firms show a larger increase in efficiency and output and a lower increase in leverage. Foreign investors not only have a positive effect on output, but also seem to reduce firms' leverage. The presence of foreign investors may facilitate the presence of privatised firms in new product and financial markets and their access to new sources of finance, reducing firms' cost of capital (Stulz, 1999; Henry, 2000). Moreover, foreign investors may monitor managerial opportunistic behaviour impeding non-maximizing diversification and acquisition adventures, and contributing with their experience and knowledge to firms' performance (Pivovarsky, 2001).

Finally, for the last stage of privatisation the results suggest a negative influence of the State's presence on firms' performance, as already suggested by Megginson *et al*. (1994), Wei *et al.* (2003), Sun and Tong (2005). Firms in which the State holds a golden share (GSHARE) show a lower increase in efficiency, and the higher the State's stake in the privatised firm's capital, the lower the post-privatization increase in firm's output. When firms are completely or almost completely privatised the control exercised by the State seems to be negative, as proposed in hypothesis 5.

Summing up, the results show that other factors in addition to the change from public to private ownership may help explaining the firms' performance changes after privatisation. The industry regulation and its concentration (H2), the State's relinquishment of control (H5), the ownership held, post- privatisation, by a foreign investor (H7) or the firms' size may be relevant. However, we do not find enough evidence of a significant influence on divested firm's performance of the ideology of the government or the participation of insiders in the firm's capital after privatisation.

[TABLE 6]

[TABLE 7]

5. Conclusions

Privatisation processes constitute an important phenomenon in many countries, particularly during the last two decades. They are seen as a mean to modernize a country's economy and to reduce political and governmental interference in economic activity. Besides, in a significant part of these countries, e.g. Spain and other E.U. countries, privatisation processes have contributed significantly to reduce the countries' public deficit.

The empirical evidence supports the superior performance of private firms, and some studies suggest a post-privatisation performance improvement. In Spain, the studies of Cuervo (1989), Azofra *et al.* (1991) and Argimon *et al*. (1999) support the superior performance of private firms; however, the empirical evidence regarding the potential post-privatisation performance improvements is not conclusive (Melle, 1999; Villalonga, 2000). Moreover, other factors such as the firms' prior restructurings (Bosch and Verges, 2002) or the type of buyer and the firms' size (Villalonga, 2000) should be considered when trying to explain the changes in the firms' performance after privatisation.

Our study constitutes one additional step in the understanding of one of the largest privatisation programs among developed countries, the Spanish one. We have analysed for a broad database whether the privatisation process in Spain has led to improvements in firms' performance. Although, we do not find evidence of significant post-privatisation improvements in the profitability and efficiency of the firms, once the industry effects are accounted for, over a medium term horizon (three years after versus three years before privatisation), some firms do experience performance improvements, while others do not.

By using a multivariate analysis, we attempt to identify the most important determinants of the observed performance changes after privatisation. The results do suggest that competition, the presence of a foreign investor that holds a significant stake in the divested firms and the absence of the State as a shareholder, or as an active player -no golden share- may play an important role in the post-privatisation firms' performance. Non-utilities firms, firms belonging to non-concentrated industries and firms in which a foreigner has invested a substantial stake will show larger post-privatisation performance improvements. On the contrary, when the State does not relinquish control the divested firm post-privatisation increase in performance is lower. Consequently, this study reveals and reinforces the importance of both the economic environment and the firm's ownership structure for the success of the privatisation processes.

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Table 1: Sample industry and annual distribution, classification according to privatisation method

The sample consists of 58 companies privatised in Spain during the period 1985-2000. The number of privatisation processes amounts to 72.

Panel A: Sample industry classification		
Industry (SIC Codes)	Number of observations	Percentage of observations
10	1	1.39%
14	1	1.39%
20	3	4.17%
21	1	1.39%
22	1	1.39%
26	3	4.17%
28	3	4.17%
29	3	4.17%
30	1	1.39%
32	2	2.78%
33	8	11.11%
34	4	5.55%
35	2	2.78%
36	2	2.78%
37	12	15.67%
41	1	1.39%
44	2	2.78%
47	1	1.39%
48	4	5.55%
49	8	11.11%
50	2	2.78%
54	1	1.39%
55	2	2.78%
70	1	1.39%
73	3	4.17%
Total	72	100%
Panel B: Sample annual distribution		
Year	Number of observations	Percentage of observations
1986	6	8.33%
1987	5	6.94%
1988	2	2.78%
1989	7	9.72%
1990	3	4.17%
1991	2	2.78%
1992	5	6.94%
1993	2	2.78%
1994	4	5.55%
1995	6	8.33%
1996	2	2.78%
1997	13	18.05%
1998	5	6.94%
1999	9	12.5%
2000	1	1.39%
Total	72	100.00%
Panel C: Classification by the method of privatisation		
Number of public offerings	18	25%
Number of direct sales	54	75%
Privatisation processes	72	100%

Table 2: Variables of the study

Panel A: Dependent variables		
Variables	**Description**	**Predicted relationship**
Profitability		
Return on assets (ROA)	Operating profit divided by total assets	$ROA_A > ROA_B$
Return on equity (ROE)	Net profit divided by total equity	$ROE_A > ROE_B$
Return on sales (ROS)	Operating profit divided by sales	$ROS_A > ROS_B$
Operating efficiency		
SALES/EMP	Real sales divided by the number of employees	$SALES/EMP_A > SALES/EMP_B$
NP/EMP	Net profit divided by the number of employees	$NP/EMP_A > NP/EMP_B$
OP/EMP	Operating profit divided by the number of employees	$OP/EMP_A > OP/EMP_B$
AV/EMP	Added value divided by the number of employees	$AV/EMP_A > AV/EMP_B$
Output		
Real sales (SALES)	Nominal sales/ index of retail prices	$SALES_A > SALES_B$
Investment		
In fixed assets (INV)	Increase of fixed assets	$INV_A > INV_B$
Leverage		
Total leverage (LEV)	Liabilities / assets	$LEV_A < LEV_B$
Leverage LR (LLEV)	Liabilities LR / assets	$LLEV_A < LLEV_B$
Employment (EMP)	Number of employees	$EMP_A < EMP_B$
Panel B: Explanatory and control variables		
Explanatory variables		
REGIND	Dummy variable that takes value 1 if company belongs to utilities sector and 0 otherwise	-
CONCENT	Dummy variable that takes value 1 if the industry's concentration increases after privatisation and 0 otherwise	-
TGOV	Dummy variable that takes value 1 if privatisation took place under the conservative government and 0 otherwise	+
METHOD	Dummy variable that takes value 1 if privatisation took place by public shares offering and 0 otherwise	+
STATEOWN	Percentage that the State holds in firm capital after privatisation	-
GSHARE	Dummy variable that takes value 1 if the State has a golden share in the firm and 0 otherwise	-
INSIDEROWN	Dummy variable that takes value 1 if an internal investor (managers and/or employees) holds participation in firm capital and 0 otherwise	-
INVFOR	Dummy variable that takes value 1 if there is a foreign buyer and 0 otherwise	+
PPER	Mean of net profit in the three years before privatisation	-
Control variables		
LSALES	Logarithm of the firm total sales	
CYCLE	Variation of the gross domestic product at the moment of privatisation	

A and B denote after and before privatisation

Table 3: Summary Statistics

The sample consists of 58 privatised firms in Spain during the period of 1985-2000. VSALES/EMP denotes the variation of real sales-to-employees. VAV/EMP denotes the variation of the added value-to-employees. VSALES denotes the variation of real sales. VLLEV denotes the variation of the leverage (long-run). REGIND denotes if it is a utilities sector or not. CONCENT denotes if the industry's concentration increases after privatisation. TGOV is the type of government at the moment of the firm's privatisation. METHOD is the method of privatisation. STATEOWN is the percentage that the State holds in the firm's capital after privatisation. INSIDEROWN denotes the participation of the management and/or employees in the firm's capital after the privatisation. INVFOR denotes if there is a foreign buyer. PPER is the mean of net profits before privatisation. LSALES is the logarithm of total sales at the moment of privatisation. CYCLE denotes the variation in the gross domestic product at the moment of privatisation.

Variables	**Mean**	**Median**	**Maximum**	**Minimum**	**Stand. Dev.**
Dependent variables					
VSALES/EMP n: 47	0.003	-0.001	0.120	-0.073	0.033
VAV/EMP n: 22	-0.009	-0.001	0.073	-0.208	0.053
VSALES n: 54	38.816	1.148	680.346	-208.333	134.942
VLLEV n: 40	0.313	-1.160	26.672	-30.139	13.978
Explanatory variables					
STATEOWN n:56	12.681	0	70	0	21.846
PPER n:55	24.256	-0.252	653.564	-217.438	107.658
Control variables					
LSALES n:55	661.286	48.797	10460.958	0.439	1763.129
CYCLE n:57	3.922	4.419	7.624	-0.045	1.935
Other explanatory and control variables		Percentage/(number) or observations			
REGIND		25.56% (14)			
CONCENT		51.02 (25)			
TGOV		38.60% (22)			
METHOD		17.54% (10)			
INSIDEROWN		17.54 % (10)			
INVFOR		36.36% (20)			

Table 4: Correlation matrix for the dependent and explanatory variables

The sample consists of 58 privatised firms in Spain in the period 1985-2000. VSALES/EMP denotes the variation of sales-to-employees. VAV/EMP denotes the variation of the added value-to-employees. VSALES denotes the variation of real sales. VLLEV denotes the variation of the leverage (long-run). REGIND denotes if it is a utilities sector or not. CONCENT denotes if the industry's concentration increases after privatisation. TGOV is the type of government at the moment of the firm's privatisation. METHOD is the method of privatisation. STATEOWN is the percentage that the State holds in the firm's capital after privatisation. INSIDEROWN denotes the participation of the management and/or employees in the firm's capital after the privatisation. INVFOR denotes if there is a foreign buyer. PPER is the mean of net profits before privatisation. LSALES is the logarithm of total sales at the moment of privatisation. CYCLE denotes the variation in the gross domestic product at the moment of privatisation.

Variables	VSALES/EMP	VAV/EMP	VSALES	VLLEV	REGIND	CONCENT	TGOV	METHOD	STATEOWN	INSIDEROWN	INVFOR	PPER	LSALES
VAV/EMP	0.185												
	(0.419)												
VSALES	-0.000	-0.001											
	(0.998)	(0.993)											
VLLEV	0.268	-0.249	0.029										
	(0.239)	(0.276)	(0.899)										
REGIND	-0.089	0.241	0.188	-0.059									
	(0.700)	(0.292)	(0.412)	(0.797)									
CONCENT	0.303	0.201	-0.214	-0.138	0.083								
	(0.206)	(0.408)	(0.379)	(0.570)	(0.569)								
TGOV	0.283	0.196	-0.135	-0.002	-0.033	-0.141							
	(0.212)	(0.393)	(0.557)	(0.989)	(0.803)	(0.330)							
METHOD	-0.117	-0.135	0.618***	-0.062	0.486***	-0.009	-0.176						
	(0.612)	(0.559)	(0.002)	(0.788)	(0.000)	(0.951)	(0.189)						
STATEOWN	-0.165	-0.043	0.234	-0.244	0.216	-0.049	-0.150	0.424***					
	(0.473)	(0.852)	(0.307)	(0.288)	(0.108)	(0.740)	(0.268)	(0.001)					
INSIDEROWN	-0.166	-0.103	0.028	-0.089	0.2726**	0.211	0.108	0.514***	0.261*				
	(0.471)	(0.656)	(0.901)	(0.701)	(0.040)	(0.1438)	(0.423)	(0.000)	(0.051)				
INVFOR	-0.259	-0.207	0.458***	-0.244	-0.030	0.164	-0.077	0.074	0.193	0.133			
	(0.268)	(0.379)	(0.042)	(0.298)	(0.809)	(0.269)	(0.576)	(0.589)	(0.161)	(0.330)			
PPER	-0.147	-0.107	0.804***	0.028	0.464***	0.199	-0.043	0.479***	0.195	0.543***	0.174		
	(0.523)	(0.643)	(0.000)	(0.903)	(0.000)	(0.179)	(0.751)	(0.000)	(0.156)	(0.000)	(0.215)		
LSALES	0.194	-0.333	-0.077	0.018	0.045	-0.064	-0.019	0.113	0.103	0.169	-0.021	0.063	
	(0.397)	(0.886)	(0.738)	(0.936)	(0.741)	(0.665)	(0.886)	(0.407)	(0.268)	(0.217)	(0.876)	(0.651)	
CYCLE	0.316	0.200	0.001	0.002	0.030	-0.112	0.223*	0.113	-0.085	-0.006	0.113	-0.079	0.231*
	(0.162)	(0.382)	(0.996)	(0.991)	(0.802)	(0.439)	(0.094)	(0.399)	(0.530)	(0.964)	(0.407)	(0.562)	(0.089)

(P-value)
* Statistically significant at the 10% level
** Statistically significant at the 5% level
*** Statistically significant at the 1% level

Table 5: Industry-adjusted mean and median differences (-3+3)

Variable	Pre- privatisation		Post- privatisation		Difference		Z	
	Mean	*Median*	*Mean*	*Median*	*Means*	*Medians*	*t-student*	*Wilcoxon*
PROFITABILITY								
ROA -3+3 (1S) N=39	-3.533	-1.070	-3.016	-2.102	0.517	-1.032	0.344	-1.005
ROA -3+3 (LS) N=39	-3.533	-1.070	-1.611	-0.376	1.922	0.694	1.329	-1.270
ROE -3+3 (1S) N=39	-21.421	0.855	3.667	4.845	25.088	3.990	0.478	-0.391
ROE -3+3 (LS) N=39	8.847	1.485	-3.678	2.911	-12.525	1.426	-1.161	-1.312
ROS -3+3 (1S) N=36	-4.547	-3.524	-0.648	-0.798	3.899	2.726	1.752 *	-1.995 **
ROS -3+3 (LS) N=37	-5.729	-3.938	-4.228	-1.349	1.501	2.589	0.834	-0.696
EFFICIENCY								
SALES/EMP -3+3 (1S) N=47	0.002	-0.006	2.09-04	-0.004	-0.002	0.002	-0.259	-0.529
SALES/EMP -3+3 (LS) N=47	-0.007	-0.007	-0.024	-0.012	-0.017	-0.005	-1.225	-1.852 *
NP/EMP -3+3 (1S) N=38	-0.003	-1.477-04	0.003	6.269-04	0.006	7.74-04	1.698 *	-1.791 *
NP/EMP -3+3 (LS) N=39	-0.004	-6.248-04	-0.002	-0.006	0.002	-0.005	0.199	-0.112
OP/EMP -3+3 (1S) N=37	-0.005	-0.001	0.011	-0.002	0.016	-0.001	1.723 *	-1.003
OP/EMP -3+3 (LS) N=37	-0.005	-0.001	-0. 026	-0.006	-0.021	-0.005	-0.964	-0.551
AV/EMP -3+3 (1S) N=22	0.040	0.017	0.031	0.023	-0.009	0.006	-0.830	-0.243
AV/EMP -3+3 (LS) N=22	0.040	0.017	0.023	0.022	-0.017	0.005	-1.842 *	-1.1477
OUTPUT								
SALES -3+3 (1S) N=54	54.978	0.650	64.434	2.336	9.456	1.686	0.428	-1.038
SALES -3+3 (LS) N=53	44.143	0.580	59.041	2.248	14.898	1.668	0.618	-0.766
INVESTMENT								
INV -3+3 (1S) N=30	2.772	-2.157	8.176	7.223	5.404	9.380	0.887	-1.224
INV -3+3 (LS) N=30	3.239	-1.227	6.539	6.727	3.300	7.954	0.590	-0.915
LEVERAGE								
LEV -3+3 (1S) N= 41	9.619	2.305	7.452	-0.857	-2.167	-3.162	-0.483	-0.665
LEV -3+3 (LS) N=40	9.084	1.786	7.193	-1.106	-1.891	-2.892	-0.412	-0.659
LLEV -3+3 (1S) N=36	-5.633	-5.640	-3.727	-5.380	1.906	0.260	0.837	-0.424
LLEV -3+3 (LS) N=36	-5.633	-5.640	-4.139	-5.380	1.494	0.260	0.646	-0.330
EMPLOYMENT								
EMP -3+3 (1S) N=51	1417.355	42.505	1887.555	109.010	470.200	66.505	1.440	-0.291
EMP -3+3 (LS) N= 51	1417.355	42.505	2626.320	109.010	1208.965	66.505	1.956 *	-1.322

* Statistically significant at the 10% level
** Statistically significant at the 5% level
*** Statistically significant at the 1% level
1S denotes the first stage of the privatisation process
LS denotes the last stage of the privatisation process

Table 6: Determinants of post-privatisation performance (first stage)

VSALES/EMP denotes the variation of sales-to-employees. VAV/EMP denotes the variation of the added value-to-employees. VSALES denotes the variation of real sales. VLLEV denotes the variation of the leverage (long-run). REGIND denotes if it is a utilities sector or not. CONCENT denotes if the industry's concentration increases after privatisation. TGOV is the type of government at the moment of the firm's privatisation. METHOD is the method of privatisation. STATEOWN is the percentage that the State holds in the firm's capital after privatisation. INSIDEROWN denotes the participation of the management and/or employees in the firm's capital after the privatisation. INVFOR denotes if there is a foreign buyer. PPER is the mean of net profits before privatisation. LSALES is the logarithm of total sales at the moment of privatisation. CYCLE denotes the variation in the gross domestic product at the moment of privatisation.

Variable	Reg. 1 (VSALES/EMP)	Reg. 2 (VAV/EMP)	Reg. 3 (VSALES)	Reg. 4 (VLLEV)
Constant	0.005	-0.009	99.943	9.779
	(0.762)	(0.736)	(0.123)	(0.243)
REGIND	-0.049***	-0.057**	93.044**	-0.683
	(0.001)	(0.020)	(0.046)	(0.908)
CONCENT	-0.018*	-0.030**	13.823	-1.457
	(0.077)	(0.032)	(0.646)	(0.741)
TGOV	0.002	0.050***	24.429	-3.917
	(0.819)	(0.003)	(0.382)	(0.466)
METHOD	-0.019	0.122**	-56.016	-11.170
	(0.313)	(0.016)	(0.423)	(0.167)
STATEOWN	-2.477-03	-5.02-04	1.899*	-0.056
	(0.314)	(0.117)	(0.077)	(0.590)
INSIDEROWN	-0.005	-0.009	28.754	-1.433
	(0.711)	(0.661)	(0.485)	(0.830)
INVFOR	-0.012	0.012	80.855**	5.985
	(0.218)	(0.384)	(0.038)	(0.173)
PPER	-8.32-05	-9.203-04***	0.042	0.144***
	(0.339)	(0.000)	(0.641)	(0.001)
LSALES	0.001	0.007**	15.345*	-2.212**
	(0.663)	(0.041)	(0.034)	(0.043)
CYCLE	-0.002	-0.008	-15.972	1.170
	(0.922)	(0.195)	(0.196)	(0.385)
F	2.78**	17.65***	2.04**	2.93**
R^2	0.506	0.904	0.505	0.594
N	39	20	41	31

* Statistically significant at the 10% level
** Statistically significant at the 5% level
*** Statistically significant at the 1% level

Table 7: Determinants of post-privatisation performance (last stage)

VSALES/EMP denotes the variation of sales-to-employees. VAV/EMP denotes the variation of the added value-to-employees. VSALES denotes the variation of real sales. VLLEV denotes the variation of the leverage (long-run). REGIND denotes if it is a utilities sector or not. CONCENT denotes if the industry's concentration increases after privatisation. TGOV is the type of government at the moment of the firm's privatisation. METHOD is the method of privatisation. STATEOWN is the percentage that the State holds in the firm's capital after privatisation. GSHARE denotes if the State has a golden share in the firm. INSIDEROWN denotes the participation of the management and/or employees in the firm's capital after the privatisation. INVFOR denotes if there is a foreign buyer. PPER is the mean of net profits before privatisation. LSALES is the logarithm of total sales at the moment of privatisation. CYCLE denotes the variation in the gross domestic product at the moment of privatisation.

Variable	Reg. 1 (VSALES/EMP)	Reg. 2 (VAV/EMP)	Reg. 3 (VSALES)	Reg. 4 (VLLEV)
Constant	-0.005	-0.069**	-122.720**	-3.800
	(0.895)	(0.016)	(0.045)	(0.591)
REGIND	-0.034	-0.048*	103.262*	3.348
	(0.536)	(0.068)	(0.081)	(0.535)
CONCENT	-0.044	-0.020	50.131*	-2.771
	(0.332)	(0.197)	(0.095)	(0.474)
TGOV	0.033	0.067**	34.808	2.801
	(0.455)	(0.011)	(0.236)	(0.573)
METHOD	0.009	0.120**	24.861	-6.112
	(0.824)	(0.034)	(0.718)	(0.496)
STATEOWN	-6.32-04	-4.47-04	-4.997**	-1.296***
	(0.541)	(0.356)	(0.041)	(0.004)
GSHARE	-0.385***	-0.050	(1)	-0.946
	(0.001)	(0.756)		(0.941)
INSIDEROWN	-0.032	-0.004	97.197	4.578
	(0.288)	(0.843)	(0.104)	(0.653)
FORINV	-0.038	-0.007	64.005**	-9.168**
	(0.242)	(0.677)	(0.122)	(0.044)
PPER	-6.76-04*	-8.34-04***	-0.954	0.130***
	(0.052)	(0.010)	(0.176)	(0.006)
LSALES	0.004	0.008*	16.871**	-2.616**
	(0.380)	(0.057)	(0.018)	(0.019)
CYCLE	0.003	0.001**	-2.019	2.922**
	(0.612)	(0.035)	(0.816)	(0.028)
F	6.84***	7.58***	1.57	6.45***
R^2	0.529	0.922	0.531	0.771
N	39	19	40	33

(1) This variable disappears because all the firms that have a golden share are eliminated due to extreme values in performance

* Statistically significant at the 10% level

** Statistically significant at the 5% level

*** Statistically significant at the 1% level

[1] We also considered the possible influence of the liberalisation of the privatised firm's industry by defining three alternative variables that measured the industry's liberalisation in the year of privatisation, both before and after privatisation. Due to the high correlation between these variables and the variable representing whether the firm belonged to a regulated or non-regulated industry, we decided not to include these variables in the cross-sectional analyses. It is worth noting that most of the liberalisation processes took place after privatisation.

[2] In Spain, for a significant number of firms that were privatised through public share offerings, the State retained a golden share. In order to retain control over the firms' strategies and operations, governments may employ those golden shares. Because in the first stage of the privatisation process the majority of firms did not have golden shares, we considered the possible influence of the issuance of golden shares on privatised firms' performance only in the last stage of the privatisation process by defining a dummy variable that took value one when a golden share was issued and zero otherwise.

[3] The first stage of the privatisation process -1S- refers to the first sale, while the last stage of the privatisation process -LS- refers to the last sale or privatisation. For those firms that were privatised through a single privatisation, 1S and LS coincide. The results are always shown using both benchmarks.

[4] Sales have been deflated to year 1980.

[5] Alternatively, we consider a dummy variable that takes value one if the State does not hold any stake in the privatised firm and zero otherwise.

[6] Alternatively, we consider the firm's performance at the time of privatisation.

[7] Alternatively, we consider the firm's total assets.

[8] For the explanatory and control variables the statistics have been calculated using VSALES as the dependent variable because in this case we have the largest number of observations. In four cases the State has a golden share in the last stage of privatisation, and the other statistics are similar to the first stage.

[9] In the last stage of privatisation this variable is also correlated with the bulk of the variables included in the study: the method of privatisation (METHOD) -large firms are mainly privatised through public shares offerings-, golden share (GSHARE) -large firms are those in which the State holds a golden share, the industries' regulation (REGIND) -large firms belong to regulated industries-, and the firms' prior performance (PPER).

[10] We consider median values because we rejected the normality hypothesis after applying the Kolmogorov-Smirnov test.

[11] The extreme values were filtered in the dependent, explanatory and control variables, and when we found the heteroskedasticity problems we estimate a robust model.