The Spanish Privatisation Process: implications on the performance of divested firms[i]

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Abstract: This paper reviews the main characteristics of the Spanish privatisation and liberalisation processes and their consequences for the performance of privatised firms. Conventional pre- versus post-privatisation comparisons fail to indicate significant improvements in privatised firms' profitability and operating efficiency over a medium-term horizon once industry effects are taken into account. In contrast, they do highlight significant improvements in divested firms' industry-adjusted profitability and efficiency over a long-term horizon. Furthermore, the results of the study suggest that the economic environment may play an important role in the success of privatisation processes, and that profitability and efficiency gains seem to take place in firms operating in competitive markets and in firms that were

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privatised during periods of macroeconomic growth. Our results also partially support the influence of restructurings before privatisation on firms' performance.

Key words: privatisation, liberalisation, firms' performance, firms' efficiency

JEL: L33, L32, L51

1. Introduction

Privatisation has been a major worldwide phenomenon in recent years. Beginning in 1979 in the United Kingdom, it has since spread not only to European countries such as France, Italy and Germany but also to developing nations in South America, Asia and Africa. Nor has Spain been an exception to this general trend. 134 firms were privatised between 1985 and 2005 as part of a process of economic restructuring founded upon liberalisation and deregulation in both the financial sector and key product markets. Public sector restructuring and the privatisation of State-Owned Enterprises (SOEs) have been key to economic reform. According to the OCDE (2003), the privatisation program in Spain raised US$ 38,401 million between 1990 and 2001, thereby ranking Spain fourth of the fifteen long-standing EU countries in terms of revenues from privatisations. Such liberalisation and privatisation has led to ever-expanding growth, as a result of which Spain is one of the EU countries with the largest increase in GDP.

1985 marked the beginning of the privatisation of Spanish State-Owned Enterprises, which occurred for three basic reasons. Firstly, it was a response to the economic crisis of the late 1970s and early 1980s, when there were high levels of inflation, interest rates and unemployment; secondly, there was an obvious need to adjust Spanish industry, with its unwieldy, unprofitable public sector, to the new economic environment being ushered in by Spain joining the European Community in 1986. Finally, it was a reaction to the opening-up of international markets. The process, which has been pushed through by Socialist and Conservative governments alike (between 1985-1996 and 1996-2003, respectively),[i] has still not ended, and has been accompanied by greater competition in key product markets, particularly over the latter half of the 1990s and in the wake of the liberalisation plan initiated in 2000. Liberalisation and deregulation have led to a fall in prices, which were actually below the euro-area average in most sectors for 2003 (IMF, 2004).

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The reasons and aims underlying privatisation processes are of a financial, political and economic nature (Cuervo, 1997). Financial reasons include revenues obtained by States upon selling formerly State-Owned Enterprises -SOEs- (Vickers and Yarrow, 1988) and the benefits that accrue from eliminating subsidies to SOEs. Incomes from privatisations have defrayed the public deficit of economies that embraced the process. Political reasons for privatising SOEs are founded upon the purported weaknesses of state ownership: governments find difficult to establish a firm's goals, the market is better able to capitalise on resources, and so forth. Furthermore, privatisation is perceived to attract foreign capital and institutional investors and may help to consolidate capital markets, thereby spawning a kind of 'popular capitalism'. Economic motivations for privatisation are based on claims that private companies outperform their State-Owned counterparts. Pro-privatisation arguments are supported by the results of different studies suggesting that private ownership versus state ownership leads to more productivity, and to superior efficiency and performance (Argimon *et al*., 1999; Cuervo and Maroto, 1983; Dewenter and Malatesta, 2001; Ehrlich *et al*., 1994; Ng and Seabright, 2001). Furthermore, a number of authors have pointed to the enhanced performance of privatised firms after privatisation (Boubakri *et al*., 2005; D´Souza and Megginson, 1999; D´Souza *et al.,* 2005; Megginson *et al*., 1994), although privatisations do not seem to lead to systematic improvements in allocative efficiency (Pestieau and Tulkens, 1993) or in productive efficiency (González-Páramo, 1995; Martin and Parker, 1997; Vickers and Yarrow, 1988). These latter papers suggest that a change from public to private ownership may not be the main determinant of the enhanced performance of privatised firms and that other factors such as management and market competitiveness may influence firms' performance after privatisation. For instance, firms' performance improvements may be due to a greater exploitation of monopoly power, which has harmful effects on allocative efficiency, rather than productive efficiency.

Our paper aims to contribute to the literature, firstly, by reviewing the liberalisation and privatisation processes that have taken place over recent decades in Spain, and secondly, by analysing the consequences on firms' economic performance of one of the largest privatisation processes undertaken by a developed economy. Empirical evidence on the Spanish privatisation process is scarce and non-conclusive as regards purported improvements in the performance of privatised firms (Melle, 1999; Romero, 2005; Sanchís, 1996; Villalonga, 2000a). Our study is also somewhat different to other analyses of the Spanish case in that it covers not only alleged post-privatisation improvements in profitability and efficiency, but also those in output, investment, leverage and employment. All variables are analysed raw and industry-adjusted and the 1985-2000 time period covered by this study is longer. Moreover, our sample encompasses all types of privatisations (direct sales and public offerings), approximately 50% of the firms that were privatised over the period considered, and 45% of the total assets of the divested firms.

The results of our study do not support medium-term post-privatisation improvements in firms' profitability or efficiency once industry effects have been taken into account. However, they do point to significant improvements in firms' long-term industry-adjusted profitability and efficiency, thereby highlighting the need to consider larger time horizons when analysing privatisation processes. Moreover, we find that the economic environment may play an important role for the success of privatisations. On the one hand, firms that belong to competitive sectors, not to utilities, exhibit higher improvements in performance and efficiency, as suggested by Sheshinski and Lopez-Calva (1999). Furthermore, privatised firms during periods that coincided with expansive economic cycles also experience greater performance improvements (Villalonga, 2000a). Pre-privatisation restructurings may also help explain the results of privatisations (Bosch and Vergés, 2002, Dewenter and Malatesta, 2001).

The rest of the paper is organized as follows: section 2 briefly describes the genesis of the Spanish public sector and liberalisation and privatisation processes during the 20th century. Section 3 describes empirical evidence relating to the process. Section 4 deals with the consequences of privatisation processes on performance. Section 5 describes the sample selection, methodology and variables used in the study. Finally, the results of the empirical analyses are discussed in section 6, whilst section 7 presents the main conclusions of the paper.

2. The Spanish privatisation and liberalisation processes

The Spanish privatisation program is one of the most far-reaching programs ever undertaken by a non-Eastern European country. Before it began in the early 1980s, the Spanish State was actively involved in the economy, mainly as a consequence of the political regime established in the country after the Spanish Civil War (1936-1939). General Franco's victory in 1939 ushered in a period of economic and political isolation, which, when coupled to policies of self-sufficiency and interventionism, spawned a State-led economy. This period of autarky was then followed by a period of economic growth (1959-1974), during which the State reduced its interventionism in the economy but nevertheless continued to regulate the economy and subsidise certain industries and production activities. The State also acquired a large number of ailing private companies, thereby acquiring a large public sector made up mainly of companies operating in non-profitable sectors. In the 1970s, international economic recession hit Spain hard. The economic crisis that followed coincided with the end of the Franco regime (General Franco died in 1975) and the transition to democracy. It was a period of marked social and political instability, when the democratic governments of the transition period (1974-1983) were loath to start any restructuring of the public sector, preferring to use a State Holding (Instituto Nacional de Industria) to maintain employment and provide social

stability. The public sector consequently grew even larger. By the beginning of the 1980s, it was burdened by overcapacity and severe financial problems (see Figure 1)[ii].

[FIGURE 1]

Between 1985, when privatisation began, and 2005, 134 State-Owned Companies from almost every industry -including strategic industries such as telecommunications, energy, transport and banking- were privatised. SOEs privatisation was often implemented in stages via partial privatisations, but there were also total sell-offs, via both direct sales and public offerings under both the Socialist (PSOE) and the Conservative (PP) governments. A considerable number of firms, particularly the larger ones, were privatised in stages. 48 percent were sold off in different phases during the Socialist period (1985-1996), 32 percent were first sold during the Socialist period and continued to be privatised under the Conservatives, and 20 percent were privatised in different phases between 1996 and 2003, when the Spanish Conservative party held power. In 2005, the Socialist government continued the privatisation of three firms whose privatisation was started by the Conservative government and privatised another three firms. Under the Socialist government (1985-1996; 2004-2005), the State retained an average of 37.44 percent of shares in partially privatised firms (after the first stage of privatisation). This figure compares with that of 49.47 percent under the Conservative government (1996-2003). More than half of privatisations (60.23 percent) occurred during the Socialist government's office between 1985 and 1996, particularly during the first period (1985-1992). The equivalent figure for the Conservative government is 39.76 percent, even though there was more privatisation activity per year.

The methods of privatisation used were mainly direct sales (77 per cent) and public offerings (19 per cent), although in some cases auctioning was used (4 per cent). It is interesting to note that the revenues obtained from different privatisation process during the 1990s helped both

Spain and other EU countries to meet the Maastricht criteria of a fiscal deficit below 3 percent and public debt below 60 percent of the GDP. Vergés (1998), in fact, claims that up to 75 percent of these proceeds raised from 1992 onwards were employed to this end, particularly during 1996 and 1997.

Furthermore, most regulated industries were liberalised under the Conservative government. Liberalisation of the electricity industry had already been initiated by the Socialist government with the passing of Law 30/1995, which created an independent regulatory body –the National Electricity Grid Committee (Comisión Nacional del Sistema Eléctrico)– which later merged with the National Energy Committee (Comisión Nacional de la Energia). This was furthered by Law 54/1997 and Royal Decree 6/1999. Competition was brought to the system firstly by creating a pool of generators and then by gradually allowing a choice of electricity supplier from 1998 onwards. Full liberalisation was accomplished by 1st January 2003. In the gas sector, Royal Decree 1377/1996 lowered the barriers for entry into the industry and inaugurated competition; Law 6/1999 followed, and by 1st January 2003, all consumers could choose their gas supplier. Oil prices in the oil industry were liberalised in 1996 and Law 34/1998 culminated the oil industry deregulation and liberalisation process by eliminating any remaining price limitations and restrictions. Furthermore, Royal Decree 15/1999 brought competition into the retail distribution market.

The liberalisation process in the telecommunication sector began in 1997 with the approval of a raft of parliamentary laws. Under Law 12/97, Retevisión became the second fixed telephone operator, ending the monopoly of the already partially privatised Telefónica. Law 20/97 established new tariffs and conditions for connection. The Committee for the Telecommunications Market (Comisión Nacional de Telecomunicaciones) was also created in 1997. The liberalisation process was consolidated one year later by the General Law of

Telecommunications, Law 11/98. During this same period deregulation and liberalisation were also applied to the water and postal service industries (the 1999 Water Law and Law 24/1998, respectively), with sea, air and road transport following on in the late 1990s.

A major consequence of Spain's privatisation and liberalisation processes has been a positive effect on the prices and quality of goods and services (Hernández and López de Castro, 2000). In the telecommunication sector, prices for fixed telephony and for long-distance calls fell by about 50 percent and 58 percent respectively between 1998 and 2002 (Arocena, 2003). Electricity companies have also reduced their prices. Household tariffs decreased by 13 percent between 1997 and 2002. In contrast, according to the National Energy Committee (CNE, 2001), average prices of natural gas in Spain for the industrial sector were the highest in Europe.

A further hallmark of Spanish privatisations was the creation of golden shares, which have provided the Spanish State with at least some level of control. The Spanish State retained a golden share in seven companies privatised by public offerings[iii]. Law 5/1995, which paved the way for the creation of golden shares, was queried by Brussels in 2000. The European Court's decision obliged member states to modify their legislation and declared Spain's golden shares to be illegal in May 2003, arguing that they impeded capital flows. As a result of this ruling, the Spanish State could not exercise its golden shares' rights in four companies: Repsol, Endesa, Telefónica and Iberia. Finally, in November 2005, the Spanish government presented a law eliminating golden shares for passage through Parliament.

Privatisation by public offerings unquestionably helped create a 'popular capitalism' in Spain. Whilst State participation in the Spanish Stock Market decreased considerably at the end of the last century and the beginning of this one (from 16.64 percent in 1992 to 0.43 percent in 2002), shareholdings held by individuals and families increased from 24.44% in 1992 to

28.31% in 2002. This dual effect was particularly remarkable from 1996 to 1998, the years when privatisation processes peaked both in size of firms and number of firms privatised. Public offerings were made with an underpricing of 11.70 percent, which is a far larger percentage than the equivalent mean underpricing for private companies subject to public offerings, which stands at 0.57 percent (Alvarez, 2000)[iv]. Privatisation helped enlarge the Spanish Stock Market. The Madrid Stock Exchanges' 1990 capitalisation was 49,679.61 million euros. It rose in 1995 to 99,689.59 millions euros and stood at 908,855.2 million euros at the beginning of 2006, when the Stock Market capitalisation of privatised companies accounted for 49% of the Ibex-35 Index. These privatised firms have a different ownership structure to non-privatised firms'. Those in the Ibex-35 Index have a slightly higher level of free-cash flow (68.91 percent compared to 56.49 percent for all companies in the Ibex-35 Index), with non-financial enterprises, banks and saving banks being the largest shareholders (more than 9.5 percent of the firms' shares for each of the three groups), followed by mutual and pension funds (7.43 percent) (FEF, 2004). Individuals and families, the second largest shareholders of Ibex-35 companies, do not participate in privatised firms[v]. State participation in Ibex-35 privatised firms averages 4.67 percent, a relatively high percentage that was mainly caused by the 28.5 percent share that the State still owned in Red Eléctrica Española (REE), the company that manages Spain's electricity grid[vi]. The ownership structure of these large, Ibex 35-listed privatised companies reflects government will to create stable groups of shareholders and also to keep control in Spanish hands. The large Spanish banks and savings banks participated actively in this process, cementing the interlocking relationship between financial and industrial groups in Spain. As Arocena (2003) argues, this pattern of ownership has generated a web of common interests that may distort entry and competition.

3. Empirical evidence regarding the Spanish privatisation process

Empirical evidence of the implications on firms' efficiency and profitability of the Spanish privatisation process is scarce and inconclusive. Sanchís (1996) analysed a sample of 24 enterprises that were privatised between 1978 and 1990, concluding that not all privatisation processes spawned increases in efficiency. Whereas privatised firms' productivity does not seem to grow, the majority of the firms nevertheless exhibited increases in efficiency when they were restructured. Sanchís (1996) concludes that changes in firms' organizational structure and management may be sufficient to turn around the performance of public enterprises. If this is true, then privatisation may not be needed to achieve an increase in efficiency. Melle (1999) studies a sample of State-Owned Companies that were totally and partially sold by public offerings during the decade of the 1990s. Admittedly her sample of just ten firms is small, but her results do not point to any improvement in firms' performance after privatisation, except in the sales-to-employee ratio. According to Melle (1999), privatised firms seem to improve their operational efficiency but not their capital investment.

Nor do the results of the study by Villalonga (2000a), using a sample of 24 firms that were privatised between 1985 and 1993, support the enhanced efficiency of privatised firms. Villalonga (2000a) suggests that organizational and political aspects, i.e., a firm's size, the type of buyer or the economic cycle, may help explain the relationship between privatisation and efficiency. Hernandez de Cos (2004) uses a sample of 33 Spanish manufacturing firms for the period 1983-1996 to show a negative effect of public ownership on efficiency, and a positive effect of levels of competition on firm's performance (relative productivity and profitability). His results indicate that the role of private ownership cannot be overlooked, although the level of competition is also important for efficiency. Romero (2005) is unable to confirm any improvement in efficiency for a sample of 40 firms that were privatised between 1985 and 2001. However, her results denote an improvement in post-privatisation entrepreneurship, particularly when the privatised company operates in a highly competitive

sector of the market. Using a small sample of 8 firms privatised between 1996 and 2003, Herrero and Guerrero (2005) find an increase in firms' economic efficiency after compensating for industry effects and the time of privatisation. However, the size of their sample and its composition rest robustness to their results.

Four case studies relating to the privatisation process in Spain are also worth mentioning. Arcas and Ruiz (1999) report a post-privatisation increase in the operating efficiency of Repsol, although they do not compare this company with its competitors. Similar results are reported by Hernández and López de Castro (2000) for Telefónica, Repsol, Endesa and Gas Natural, although the authors also fail to compare the results of these privatised firms with those of their competitors. Bosch and Vergés (2002) analyse the privatisation process of the iron and steel company Aceralia (now part of Arcelor), concluding that significant changes in the firm's profitability and efficiency occurred during its restructuring process, before privatisation. Finally, Arocena (2003) studied the economic efficiency of the electrical company Endesa after its privatisation, comparing it with its competitors. He reports an inferior performance of the privatised firm.

To sum up, longitudinal studies tend not to provide significant evidence supporting enhanced performance of Spanish privatised firms. Similarly, case study results fail to confirm the enhanced efficiency of privatised firms compared to their competitors. In this respect, the empirical evidence for the Spanish case coincides with the empirical evidence of Domberger (1993) and Martin and Parker (1995) for the UK, and contrasts with the empirical evidence of Megginson *et al.* (1994) for developed countries, with Boubkari and Cosset (1998) for developing countries, with La Porta and Lopez de Silanes (1999) for Mexico and with Sun and Tong (2003) for China. The fact that a significant number of firms that were privatised were restructured beforehand, that privatised firms were sometimes the 'Crown Jewels' of

their industrial sector, and that State-Owned industrial privatisations occurred during cycles of economic growth may each go some way towards explaining these results.

4. Theoretical arguments and hypotheses

Privatisation theory extols the advantages of the means of production being in private hands, pointing to the inefficiency of government ownership and to the problems faced by State-Owned Enterprises 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, even if the government sets profit maximising as an SOE's goal, 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, agency problems may be more severe in public firms for a number of reasons: there is a dual level of agency relations (citizens-government and government-management); the general citizenship cannot sell a firm's shares; the government may have political objectives; a firm may rely on the government for funding and are thus unlikely to face bankruptcy. All of these factors may drive a firm towards value decreasing diversification and growth. Given these characteristics and market discipline, the change from public to private ownership ought to spark enhanced profitability and efficiency (Boycko *et al*., 1993; Yarrow, 1986). 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 and return over sales for privatised firms (Antoncic and Hisrich, 2003; Boubakri and Cosset, 1998; Megginson *et al*., 1994;). Thus, we propose a first testable hypothesis:

H1: A firm's operating profitability increases after privatisation.

Market pressures and the reduction of State subsidies ought to drive privatised firms to employ their human, financial and technological resources more efficiently (Boycko *et al*., 1993; Suneti *et al*., 1992). This theoretical increase in a firm's efficiency is supported by a range of empirical studies (De Alessi, 1980; D´Souza and Megginson, 1999; D´Souza *et al*., 2005; Sun and Tong, 2003; Vining and Boardman, 1992) and is one of most frequently cited justifications of privatisation made by governments. Consequently we state the following hypothesis:

H2: A firm's efficiency increases after privatisation.

Firms' output may also increase following privatisation. Higher incentives, better financial opportunities and more competitiveness after privatisation can spark enhanced output, as reported by La Porta and Lopez de Silanes (1999) for Mexico, by Boubakri and Cosset (1998) and Boubakri *et al*. (2005) for developing countries' privatisation processes, and by Sun and Tong (2003) and Wei *et al*. (2003) for China. On the other hand, privatisation may also lead to a fall in output, as the government will no longer be encouraging managers (via subsidies) to attain inefficient levels of output (Boycko *et al*., 1993). Given the former of the two arguments, we test the following hypothesis:

H3: A firm's output increases after privatisation.

Empirical evidence regarding the influence of privatisation on firms' investment is not conclusive. Whereas Boubakri and Cosset (1998), D´Souza *et al.* (2005) and Megginson *et al*. (1994), all report a post-privatisation increase in investment, D´Souza and Megginson (1999) find no significant changes and Parker (1994) reports an increase in privatised firms' R&D expenses. Theoretically, post-privatisation increases in firms' efficiency should drive firms to increase investment expenses, given their access to capital markets funding. Moreover, different studies suggest that privatisations may boost entrepreneurship in divested firms

(Zahra and Hansen, 2000). Thus, Antoncic and Hisrich (2003) report a negative relation between firms' innovation and the State-held stake in firms' capital after privatisation. Thus, we propose:

H4: A firm's investment expenses increase after privatisation.

Privatisation may also influence firms' leverage. Former SOEs will no longer be able to recur to State guarantees in debt contracts; nor will they be able to depend on government funding, and will have to face the risk of bankruptcy, as described by the studies of Annuati-Nero *et al.* (2003), Bortolotti *et al.* (2001) and Megginson *et al.* (1994). A consequent post-privatisation reduction in a firm's leverage should therefore be expected:

H5: A firm's leverage decreases after privatisation.

Privatisation and liberalisation processes have important consequences on divested firms' human resources. SOEs are usually dominated by trade unions, or pursue the interests of the State in protecting economically and socially distressed regions or areas[vii]. Consequently, post-privatisation, divested firms will tend to reduce their work force. Empirical studies analysing this issue are not conclusive and vary depending on the country studied. For example, for the Chilean case, Meller (1993) reports an increase in employment after privatisation, as do Boubakri and Cosset (1998) for a sample of firms in developing countries, and Sun and Tong (2003) for China. In contrast, Sakita's study (1989) of the privatisation of a Japanese train company suggests a significant decrease in its work force after privatisation. Similar results are reported by Harper (2002) and Ramamurti (1997). According to the theoretical arguments we have referred to, we propose:

H6: A firm's employment decreases after privatisation.

5. Sample, methodology and variables

5.1. 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 collected economic and financial information about these privatised firms for a period of up to eleven years encompassing five years before through five years after the last stage of privatisation. The following filters were applied to this database: a) Firms for which we were unable to obtain data for a period of at least up to seven years encompassing three years before through three years after the last stage of the privatisation process were excluded; b) Financial firms were excluded due to their particular characteristics; c) Firms for which we were unable to estimate their mean industry ratio were also excluded from the sample. These filters reduced the final sample to 58 companies (see Table 1).

[TABLE 1]

These firms belong mainly to the transport equipment industry (15.67% - SIC code 37), to the iron and steel industry and to the water, electricity and gas industry (11.11% - SIC Code 33 and 49, respectively). Privatisations occurred mainly in 1997 (18.05%), in 1999 (12.5%) and in 1989 (9.72%), mainly via direct sales of the company (75%). Privatisation under the Socialist government (PSOE) accounted for 42 privatisations (33 through direct sales and 9 through public offerings) and 30 firms in the final sample were privatised under the Conservative government (21 through direct sales and 9 through public offerings). Information about the privatised firms was obtained from different data sources: the State Corporation of Industrial Shares (Sociedad Estatal de Participaciones Industriales-SEPI), samples used by previous studies (Vergés, 1999; Villalonga, 2000b) and the reports of the Consultative Privatisation Committee (Consejo Consultivo de Privatizaciones -CCP-). Accounting information for the pre-privatisation years was obtained from the annual reports of the former SOEs archived in the SEPI library and at different ministries (Economy and

Industry). Accounting information for the post-privatisation years was obtained from the files of the Spanish Supervisory Agency (CNMV) and the Madrid Stock Exchange, the firms' offerings prospectuses, from SABI (Sistema de Análisis de Balances Ibéricos) and Informasa databases and from the companies' financial reports. This information has been completed with that 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 Spanish Central Bank (Central de Balances del Banco de España).

5.2. Methodology and variables

In line with the hypotheses proposed in the previous section, our paper aims 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. We follow Boubakri and Cosset (1998), D'Souza and Megginson (1999) and Megginson *et al.* (1994) in using a matched pairs methodology (pre- versus post-privatisation). Empirical proxies for each variable and each company are computed for a period of up to eleven years encompassing five years before through five years after the last stage of privatisation. Thus, performance, investment, employment and leverage from the five years of public ownership through the five years as a privatised entity (both for the first stage of the privatisation -1S- and the last stage of the privatisation -LS) is estimated for each company. These measures are estimated raw for each firm and after adjusting for its industry. The mean and median of each variable for each firm over the pre- and post-privatisation windows (pre-privatisation: years -5 to -1 and years -3 to -1 and post-privatisation years: +1 to +5 and years +1 to +3) are then calculated. For all firms, the year of privatisation is named year 0. As it includes both public and private ownership phases of the enterprise, it is excluded from the calculations. Having computed pre- and post- privatisation mean and median values, we use the t de Student test and the Wilcoxon Signed Rank test to test for significant changes in the variables.

Table 2 shows the variables used in the study and the predicted relationships. 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). We also use real sales -in millions of euros- (sales deflated by the index of retail prices, SALES) as a proxy for output[viii]. Investment is defined as the increase of the firm's fixed assets each year (INV). Finally, we use the ratio of total leverage (LEV) and the ratio of long-term leverage (LLEV) as proxies of the firms' capital structure and the number of the firms' employees at the end of each year (EMP) to measure changes in employment.

[TABLE 2]

6. Results

6.1. Privatisation and firms' performance

Table 3 shows the means and medians of raw differences in the performance of the firms after their privatisation over the (-3+3) window[ix]. We find a significant increase in the mean and median values for all the proxies of efficiency and for the ratio of profitability, return on assets (ROA), and a significant decrease for the ratio of total leverage (LEV). These results apparently seem to lend at least some support to hypotheses 1, 2 and 5, which predicted an increase in firms' profitability and efficiency and a decrease in firms' leverage after privatisation. However, once industry effects are considered, results vary. Although the majority of the median profitability and efficiency ratios[x] 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 (Table 4). 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 (only at a 10 per cent) during the final and initial stages of privatisation respectively.

[TABLE 3]

[TABLE 4]

One possible explanation for these results could be the time horizon of the analyses. 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. If this is the case, the consequences of the organizational and structural changes of divested firms' should be studied over larger time horizons. Although not shown here, we find significant improvements in firms' raw profitability and efficiency ratios over the (-5+5) window. Moreover, when industry effects are considered, results also denote significant improvements in some ratios: return on assets, return on sales and the ratios used as proxies of firms' efficiency, net profit-to-employee and operating profit-to-employee, as well as in the firms' level of investment (Table 5).

[TABLE 5]

As do the results reported by Boubakri and Cosset (1998), D´Souza and Megginson (1999) and Megginson *et al.* (1994), these results seem to support the arguments behind hypotheses 1 and 2. We find that the change from public to private ownership, over a long time horizon, seems to lead to increases not only in the firms' profitability and efficiency *per se* but also to significant increases when compared to their competitors. In this sense, although over a relatively short time (a (-3+3) horizon), our results seem to differ from those reported by Boubakri and Cosset (1998) for a sample of firms' privatised in developing countries, by

D´Souza and Megginson (1999) for a sample of firms' privatised in industrialized countries, and by La Porta and Lopez de Silanes (1999) for Mexico, they nevertheless do tend to confirm the conclusions reported by earlier studies of the Spanish privatisation process that did not consider the possible influence of industry effects. For example, Sanchís (1996) reports that not all privatisation processes led to improved productivity, Melle (1999) and Romero (2005) only find an increase in the sales-to-employee ratio, and Villalonga (2000a) points to the need to consider factors like firm's size, the economic cycle and the type of the buyer when studying Spanish privatisations. However, according to our results over the longer time horizon of (-5+5), privatisations seem to spark improvements in the performance of the divested firms, even when industry effects are considered.

6.2. Factors that may influence the success of privatisation processes

Previous studies suggest that privatisation *per se* may not be the sole explanation of changes in divested firms' performance (Bishop and Kay, 1992; Domberger, 1993; Green and Vogelsang, 1994), and that other factors may come into play. These include the competitive, political and economic environment (Harper, 2002), the stake retained in a firm's capital by the State after privatisation (Boubakri and Cosset, 1998; Megginson *et al.*, 1994; Wei *et al.*, 2003), the identity of the new owner (Boubakri *et al.*, 2005; Frydman *et al.*, 1999; Sader, 1993) or the restructuring of privatised firms prior to their privatisation (Dewenter and Malatesta, 2001).

We will now go on to analyse whether the time of privatisation, an industry's competitiveness and a firm's prior restructuring influenced the results of the Spanish privatisation process[xi]. The economic cycle or time of privatisation may influence the success of privatisations. Restructurings are more plausible during expansive cycles and consequently the impact of privatisations should be larger for firms privatised during expansive economic cycles, as post-

privatisation, firms' performance may be influenced by a country's macroeconomic evolution (Alexandre and Charreaux, 2004; Villalonga, 2000a). In order to test this prediction, we analysed differences in divested firms' performance ratios over the (-5+5) period by dividing the sample into two different sub-samples: one of the firms that were privatised during periods of economic growth and the other of firms privatised during periods of recession. We define a period of economic growth as one during which a country's annual GDP is larger than its GDP for the previous year. Although not shown, we find that once industry effects are considered, at a 1 per cent level, significant improvements were observed in the majority of the profitability ratios and in the operating profit-to-employee ratio (at a 5 per cent level) for firms that were privatised during expansive economic cycles, but no improvements are observed for firms that were divested during recessive cycles. These results suggest that economic cycles seems to influence industry-adjusted performance of divested firms, giving firms that were privatised during expansive cycles more opportunities to improve *per se* and in comparison to their competitors. These results are in line with those reported by Villalonga (2000a) for Spain and by Alexandre and Charreaux (2004) for France, and suggest that observed improvements in firms' profitability and efficiency are partially due to the country's economic environment. Furthermore, it must be acknowledged that most privatisations by public offerings were of Spain's so-called 'Crown Jewels' and took place during periods of economic growth. This may also help explain the observed results.

A further factor that influences a firm's economic environment is the existence of a competitive market, and a firm's efficiency will depend mostly on regulation in the absence of one (Vickers and Yarrow, 1988; Yarrow, 1986). Thus, competitiveness could also be a major determinant of divested firms' performance improvements (Chirwat, 2004; Djankov and Murell, 2002; Newbery and Pollitt, 1997; Ramamurti, 1997). To test this prediction, we again divided the sample into two groups: one of firms in regulated industries (utilities) and

another of divested firms operating in competitive markets. We find that significant improvements are found for the proxies of profitability and efficiency for non-regulated firms when industry effects are taken into account, whilst regulated firms only show a significant improvement at a 5 per cent level in their ROA and ROS ratios. Moreover, non-regulated firms also show significant increases in investment levels and significant reductions in the ratio of long term leverage.

These results seem to suggest that market competitiveness not only leads to improvements in firms' profitability and efficiency *per se*, but also to improvements in the performance of privatised firms when compared to their industry peers. Furthermore, under market pressure, divested non-regulated firms seem to reduce their levels of long term leverage and to increase their levels of investment compared to their competitors. Privatisation seems to motivate firms to improve their performance, given that they must compete with their private counterparts in order to survive without the financial support of the State that guaranteed their existence regardless of poor performance. Consequently, as suggested by previous studies (Bishop and Kay, 1992; Bortolotti *et al.*, 2001; Martin and Parker, 1995; Megginson *et al*., 1994; Saal and Parker, 2003), privatisation processes should be accompanied by structural reforms and liberalisation processes in order to be successful.

Finally, we will consider whether firms' post-privatisation performance can be explained either totally or partially by restructuring prior to sale (Alexandre and Charreaux, 2004; Dewenter and Malatesta, 2001; Fraquelli, 2001). Governments may restructure public firms prior to their privatisation in order to obtain higher incomes, but managers would also be willing to restructure public firms before their privatisation, as the job risk will be greater when the firm is subject to market discipline. When we divide the sample into two sub-samples: one of firms that improve their performance after privatisation and one of firms that

do not, we observe that the firms that fail to improve their industry-adjusted performance after privatisation are the ones that recorded higher profitability levels (ROE) and lower levels of leverage prior to privatisation.

To sum up, our results seem to suggest an improvement in divested firms' performance over a long time horizon and that different factors such as the economic cycle, competitiveness, or prior restructurings can help explain changes in performance.

7. Conclusions

Privatisation has been an important phenomenon in many countries, particularly over the last two decades. It is seen as a means to modernise a country's economy and to reduce political and government interference in economic activity. Moreover, in a significant number of countries, e.g., Spain and other EU-members, privatisation has contributed significantly to reducing public deficit. The Spanish privatisation process was preceded and accompanied by public sector restructuring and deregulation and liberalisation of key product markets (petrochemicals, telecommunications, energy, gas and transport). This large-scale privatisation process has triggered a sharp decline in public sector participation in Spain's GDP (0.1% in 2001) and in the Spanish Stock Market. Internationally, the empirical evidence supports the superior performance of private firms. Some studies also suggest post-privatisation improvements in firms' performance. For Spain, the studies of Argimon *et al*. (1999), Azofra *et al*. (1991), and Cuervo (1989), all support the superior performance of private firms. However, earlier studies regarding the possible improvements in performance of Spanish privatised firms are not conclusive (Melle, 1999; Romero, 2005; Villalonga, 2000a). What really seems to be the case is that revenues from privatisation helped Spain to comply with the Maastricht Treaty. Between 1996 and 1998, the Spanish State raised 21,991.80 million euros, of which up to 75 percent was used to reduce the country's fiscal

deficit (Vergés, 1998). The evidence also suggests that prices in Spain have dropped due to liberalisation (IMF, 2004) and that, as a result of these intense privatisation and liberalisation processes, the country has experienced significant growth. Moreover, as privatisation by public offerings of large State companies proceeded, so also did the participation of individuals and families increase significantly during the 1990s, reaching 28.31 percent ownership of the Spanish companies quoted on the Stock Market in 2002. Privatisation does indeed seem to have spawned some degree of 'popular capitalism' in Spain. Nevertheless, groups of stable shareholders have also been created as large shareholders of privatised firms.

We have used a broad database to analyse whether the Spanish privatisation process has led to improvements in firms' profitability and efficiency, to larger firms' investment rates and to a decrease in firms' leverage. We find no evidence of significant post-privatisation improvements in firms' profitability and efficiency once industry effects are considered over the medium term horizon of three years after privatisation. However, we do find evidence that suggests significant improvements in divested firms' profitability and efficiency over the longer term horizon of five years after privatisation. These results suggest that divested firms may need more time to outperform their industry peers. Nevertheless, we cannot confirm an increase in investment or a decrease in leverage or employment after correcting for industry effects. We also find that factors such as the economic environment and industry competitiveness, as well as prior restructurings, may help explain the results of privatisation.

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TABLE 1: Sample

Privatisation year [1]	Privatised firm	Activity	Method of privatisation
1986	Amper	Electronics	PO
1986	Entursa	Tourism	Direct Sale
1986	Frigsa	Food	Direct Sale
1986	Gesa	Energy	PO
1986	Remetal [2]	Aluminium	Direct Sale
1986/90	Seat	Car industry	Direct Sale
1987	Acesa	Highways	PO
1987	Alumalsa	Aluminium	Direct Sale
1987	Gas Madrid	Energy	PO
1987	Litofan	Aluminium	Direct Sale
1987	Purolator	Car industry	Direct Sale
1988/95	Ence	Paper	PO
1988/98	Endesa	Energy	PO
1989	Astican	Shipbuilding	Direct Sale
1989/92	Ateinsa	Capital goods	Direct Sale
1989	Enfersa [3]	Fertilizers	Direct Sale
1989/92	MTM	Capital goods	Direct Sale
1989	Oesa	Food	Direct Sale
1989	Pesa	Electronics	Direct Sale
1989/97	Repsol	Energy	PO
1990	Hytasa	Textiles	Direct Sale
1990	Salinas de Torrelavieja	Salt	Direct Sale
1991/92	Geasa	Porcelain	Direct Sale
1991	Jobac [4]	Wholesale	Direct Sale
1992	Campsa	Petrochemical	Direct Sale
1992	Icuatro	Health	Direct Sale
1993	FSC	Capital goods	Direct Sale
1993/94	Palco	Aluminium	Direct Sale
1994	Artespaña	Craftsmanship	Direct Sale
1994	CTE	Shipping	Direct Sale
1994/97	Enagas	Gas	Direct Sale
1995	Lesa	Food	Direct Sale
1995	Refinalsa	Aluminium	Direct Sale
1995	Sidenor	Iron and steel	Direct Sale
1995/99	Telefonica	Telecommunications	PO
1995/99	Indra	High technology	Direct Sale / PO
1996	Gas Natural	Gas	PO
1996	Sefanitro	Fertilizers	Direct Sale
1997 (SEP/OCT)	Aldeasa	Wholesale	Direct Sale / PO
1997	Almagrera	Mining	Direct Sale
1997 (JUL/DEC)	CSI-Aceralia	Iron and steel	Direct Sales/ PO
1997	Elcano	Sea transport	Direct Sale
1997	Ferroperfil	Aluminium	Direct Sale
1997	H.J. Barreras	Shipbuilding	Direct Sale
1997	Iongraf	Aluminium	Direct Sale
1997	Retevision [5]	Telecommunications	Direct Sale
1997	Surgiclinic Plus	Pharmaceuticals	Direct Sale
1998	Inespal	Aluminium	Direct Sale
1998	Inima	Environment	Direct Sale
1998	Productos tubulares	Iron and steel	Direct Sale
1998	Tabacalera	Food (tobacco)	PO
1999	Astander	Shipbuilding	Direct Sale
1999	Aya	Aerospace	Direct Sale
1999	Enatcar	Road transport	Direct Sale
1999	Icsa	Aerospace	Direct Sale
1999	LM Composites	Capital goods	Direct Sale
1999	REE	Energy	PO
2000	CASA	Aerospace	Direct Sale

(1) First and last year of the privatisation process (privatisation in stages or blocks).
(2) Although in 1990 0.5% of the firm was privatised, due to lack of information, we only consider the first stage of the privatisation process.
(3) Although in 1991 20% of the firm was privatised, due to lack of information, we only consider the first stage of the privatisation process.
(4) Although in 1995 30% of the firm was privatised, due to lack of information, we only consider the first stage of the privatisation process.
(5) Although in 1999 30% of the firm was privatised, due to lack of information, we only consider the first stage of the privatisation process.
(6) The industry classification corresponds to the one denoted by the SEPI reports (not SIC codes).
PO denotes Public Offerings
Source: Own elaboration

TABLE 2: Variables of the study

Variables	Description	Predicted relation
Profitability		
Return on assets (ROA)	Operating profits 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 profits divided by sales	$ROS_A > ROS_B$ (H1)
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 profits divided by the number of employees	$OP/EMP_A > OP/EMP_B$
AV/EMP	Added value divided by the number of employees	$AV/EMP_A > AV/EMP_B$ (H2)
Output		
Real sales (SALES)	Nominal sales/ index of retail prices	$SALES_A > SALES_B$ (H3)
Investment (INV)	Increase of fixed assets	$INV_A > INV_B$ (H4)
Leverage		
Total leverage (LEV)	Liabilities / assets	$LEV_A < LEV_B$
Long term Leverage (LLEV)	Liabilities LR / assets	$LLEV_A < LLEV_B$ (H5)
Employment (EMP)	Number of employees	$EMP_A < EMP_B$ (H6)

A and B denote after and before privatisation

Variable	Pre- privatisation		Post- privatisation		Difference		Z	
	Mean	*Median*	*Mean*	*Median*	*Means*	*Medians*	*t-student*	*Wilcoxon*
PROFITABILITY								
ROA -3+3 (1S) N=38	1.380	2.525	3.073	4.899	1.693	2.374	1.242	-1.675 *
ROA -3+3 (LS) N=38	1.380	2.525	2.804	4.899	1.424	2.374	1.138	-1.080
ROE -3+3 (1S) N=41	3.161	8.363	8.097	9.943	4.936	1.580	0.485	-1.160
ROE -3+3 (LS) N=41	3.161	8.363	7.793	9.779	4.632	1.416	0.441	-0.862
ROS -3+3 (1S) N=37	1.466	2.616	5.012	5.097	3.546	2.481	1.620	-1.531
ROS -3+3 (LS) N=37	1.911	2.616	2.946	5.097	1.035	2.481	0.476	-0.837
EFFICIENCY								
SALES/EMP -3+3 (1S) N=48	0.055	0.036	0.068	0.040	0.013	0.004	2.845 ***	-3.477 ***
SALES/EMP -3+3 (LS) N=48	0.053	0.036	0.063	0.045	0.010	0.009	1.723 *	-2.900 ***
NP/EMP -3+3 (1S) N=36	-0.002	-0.003	0.012	0.004	0.014	0.007	3.501 ***	-3.519 ***
NP/EMP-3+3 (LS) N=36	-0.002	-0.003	0.009	0.003	0.011	0.006	2.839 ***	-2.671 ***
OP/EMP -3+3 (1S) N=34	0.005	0.001	0.012	0.005	0.007	0.004	2.097 **	-2.624 ***
OP/EMP -3+3 (LS) N=34	0.006	0.002	0.018	0.006	0.012	0.004	2.613 **	-2.801 ***
AV/EMP -3+3 (1S) N=22	0.097	0.067	0.100	0.085	0.003	0.018	0.830	-1.899 *
AV/EMP -3+3 (LS) N=22	0.097	0.067	0.099	0.085	0.002	0.018	0.219	-1.899 *
OUTPUT								
SALES -3+3 (1S) N=54	91.995	14.319	109.272	17.516	12.277	3.197	0.363	-1.502
SALES -3+3 (LS) N=53	80.384	13.803	102.284	14.583	21.900	0.780	0.983	-1.138
INVESTMENT								
INV -3+3 (1S) N=31	10.293	6.978	9.646	1.953	-0.647	-5.025	-0.130	-0.063
INV -3+3 (LS) N=31	11.039	7.298	9.099	2.875	-1.940	-4.423	-0.420	-0.072
LEVERAGE								
LEV -3+3 (1S) N=40	67.641	63.389	59.160	60.841	-8.481	-2.548	-2.538 **	-2.204 **
LEV -3+3 (LS) N=41	68.174	63.812	53.849	57.266	-14.325	-6.546	-3.461 ***	-2.974 ***
LLEV -3+3 (1S) N=39	14.634	13.295	15.634	11.659	1	-1.636	0.441	-0.196
LLEV -3+3 (LS) N=39	15.191	13.295	15.702	12.256	0.511	-1.039	0.228	-0.022
EMPLOYMENT								
EMP -3+3 (1S) N=51	2200.920	576	2635.019	379.660	434.099	-196.340	1.331	-0.811
EMP -3+3 (LS) N= 51	2200.920	576	3325.464	379.660	1124.544	-196.340	1.839 *	-0.444

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

TABLE 4: 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 a 10%
** Statistically significant at a 5%
*** Statistically significant at a 1%
1S denotes the first stage of the privatisation process
LS denotes the last stage of the privatisation process

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

Variable	Pre- privatisation		Post- privatisation		Difference		Z	
	Mean	*Median*	*Mean*	*Median*	*Means*	*Medians*	*t-student*	*Wilcoxon*
PROFITABILITY								
ROA -5+5 (1S) N=18	-5.611	-2.278	0.439	1.433	6.050	3.711	4.511 ***	-3.680 ***
ROA -5+5 (LS) N=18	-1.965	-1.561	1.611	1.433	3.576	2.994	2.258 **	-2.896 ***
ROE -5+5 (1S) N=23	9.394	3.786	-0.336	3.287	-9.730	-0.499	-0.871	-0.639
ROE -5+5 (LS) N=24	7.799	3.116	-12.951	2.072	-20.750	-1.044	-1.649	-1.600
ROS -5+5 (1S) N=18	-10.347	-7.291	2.775	1.850	13.122	9.141	3.078 ***	-2.940 ***
ROS -5+5 (LS) N=17	-8.079	-7.517	1.479	1.777	9.558	9.294	2.236 **	-2.533 **
EFFICIENCY								
SALES/EMP -5+5 (1S) N=25	0.018	5.87-04	-0.549	-0.015	-0.567	-0.015	-2.112 *	-1.444
SALES/EMP -5+5 (LS) N=24	0.020	8.37-04	-0.115	-0.014	-0.135	-0.015	-1.092	-0.943
NP/EMP -5+5 (1S) N=21	-0.003	-0.004	0.023	-2.83-04	0.026	0.004	2.235 **	-1.964 **
NP/EMP -5+5 (2S) N=22	-0.004	-0.004	0.002	-5.78-04	0.006	0.003	1.165	-1.542
OP/EMP -5+5 (1S) N=16	-0.008	-0.007	0.010	0.001	0.018	0.008	2.702 **	-2.741 ***
OP/EMP -5+5 (LS) N=17	-0.007	-0.005	0.004	-0.003	0.011	0.002	2.019 *	-1.965 **
AV/EMP -5+5 (1S) N=8	0.059	0.053	-0.329	0.018	-0.388	-0.035	-1.255	-1.960 *
AV/EMP -5+5 (LS) N=8	0.059	0.053	0.062	0.032	0.003	-0.021	0.061	-0.840
SALES								
SALES -5+5 (1S) N=28	72.676	10.977	123.871	1.150	51.195	-9.827	1.178	-0.023
SALES -5+5 (LS) N=28	72.676	10.997	241.430	1.150	168.754	-9.847	1.268	-0.091
INVESTMENT [1]								
INV -4+4 (1S) N=21	-0.228	-2.984	8.258	9.568	8.486	12.552	1.964 *	-2.068 **
INV -4+4 (LS) N=20	0.181	-1.939	4.479	5.902	4.298	7.841	0.843	-1.195
LEVERAGE								
LEV -5+5 (1S) N= 21	4.929	5.746	4.043	2.847	-0.886	-2.899	-0.204	-0.191
LEV -5+5 (LS) N= 22	7.255	6.046	4.161	4.277	-3.094	-1.769	-0.542	-0.568
LLEV -5+5 (1S) N=21	-0.650	-4.059	-3.382	-4.440	-2.732	-0.381	-0.985	-1.616
LLEV -5+5 (LS) N=22	-1.629	-4.117	-2.664	-2.637	-1.035	1.480	-0.322	-0.503
EMPLOYMENT								
EMP -5+5 (1S) N=26	1661.491	104.831	2414.159	76.547	752.668	-28.284	1.314	-0.038
EMP -5+5 (LS) N= 26	1661.491	104.831	2480.287	92.820	818.796	-12.011	1.334	-0.013

(1) The maximum horizon that we can consider for the investment measure is nine years encompassing four years before and four years after the year of privatisation.

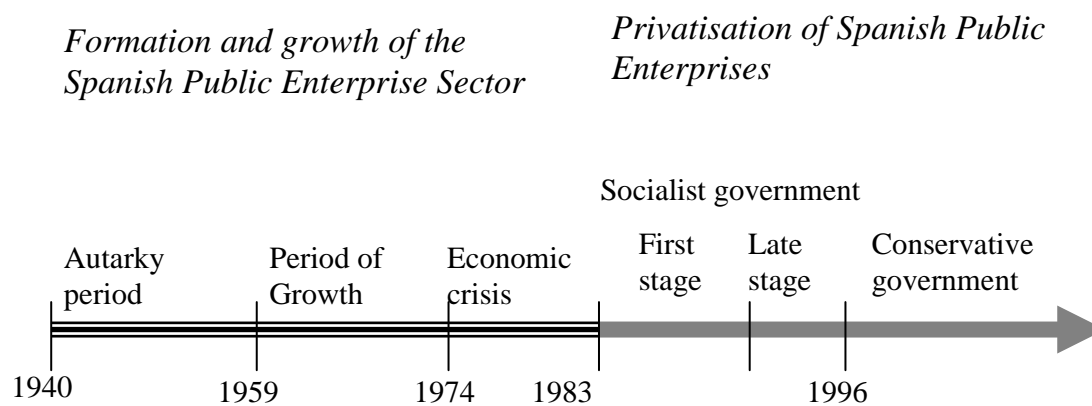* Statistically significant at a 10%
** Statistically significant at a 5%
*** Statistically significant at a 1%
1S denotes the first stage of the privatisation process
LS denotes the last stage of the privatisation process

Figure 1: The road to Spanish privatisation

Formation and growth of the Spanish Public Enterprise Sector

Privatisation of Spanish Public Enterprises

Socialist government

| Autarky period | Period of Growth | Economic crisis | First stage | Late stage | Conservative government |

1940   1959   1974   1983   1996

Source: Own elaboration

[i] The Socialist party won the general elections in March 2004. We therefore consider the conservative period until the end of 2003, although the Conservative party also ruled the country during the early months of 2004.

[ii] Gamir (2003) reviews the process of change of the Spanish State-Owned Enterprises and the main characteristics of the privatisation process.

[iii] Argentaria, Endesa, Iberia, Indra Sistemas, Repsol, Tabacalera and Telefónica.

[iv] This underpricing is for the period 1985-1997.

[v] The data refers to June 2003 and includes the privatised companies that merged with other companies.

[vi] In September 2006 the stake of the State in the capital of REE amounted to 20 per cent.

[vii] Another cause of the high work force rates of public firms may be the opportunistic behaviour of the management team that would benefit from 'building empires' (Jensen, 1986).

[viii] Sales have been deflated to year 1980.

[ix] We eliminated extreme values of the ratios to avoid possible biases.

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

[xi] We attempted to apply a regression framework to account for various factors influencing post-privatisation performance, but due to the small size of the sample and, consequently, to its non-normality, the results, even after correcting for extreme values, were not reliable. Thus, we decided to apply non-parametric tests to the univariate sub-sample comparisons.