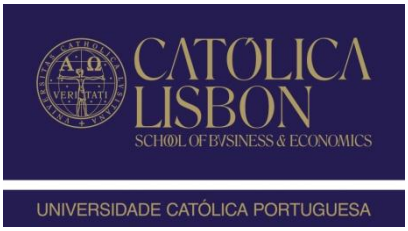

The impact and implications of privatization and residual ownership on performance: A cross-country analysis of the Euro Zone

by Cand. Double Degree:

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Abstract:

This study investigates and compares the different implications of Non-Residual and Residual privatization operations, recognizing its dynamic character. Focusing on the Euro Zone countries privatizations through Public Offers we are able to provide evidence that only Non-Residual operations are associated with improvements in profitability. However, while such improvements appear to come from an improved financial management, improvements in Operating Profits take place actually prior to privatization, suggesting that governments can be effective in restructuring SOEs. Regarding residual ownership of firms by the State, our evidence shows that it does not negatively impact profitability, which is supported by the fact that residual privatizations yields little changes. On the contrary, we argue that our findings add to the scarce empirical evidence stating that residual ownership may be beneficial for both governments and firms. This further leads us to conclude that an effective corporate governance system and market conditions are actually more relevant to performance than ownership nature. Finally, our results in terms of efficiency question previous literature stating that privatization results in improved efficiency as our findings of improvements seem to apply to both privatized firms and their peers. We thus support authors arguing for the failure of most proxy measures used in previous studies to capture changes in operating efficiency.

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I would just like to leave a thank you note to my family and girlfriend, whose importance in my life can hardly be described, and dedicate them this work as they have always supported me in this new stage of my life.

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1 Introduction

The debate around state ownership and privatization is nowadays more relevant than ever and has been reopened with the recently observed worldwide intervention of governments following the recent financial crisis (Borisova et all, 2012). As a matter of fact, despite the wave of privatizations that took place in Western Europe in the beginning of the 1980s, driven mostly by United Kingdom's former Prime-Minister Margaret Thatcher and which soon extended to the rest of the Europe, SOEs and States' holdings in companies still represent a considerable share of their GDP[1].

On top of this, this debate is even more relevant in Europe since a new wave of privatizations is in course as a result of the recent developments in the economic context, with the recent Euro crisis and the consequent need to solve the problems which have risen from large budgets deficits and high debt levels. For example, Greece and Portugal, under the intervention programs of the IMF, are among the countries who have defined a new privatization plan which is expected to generate nearly 50bn Euros or 22% of Greece's GDP in 2010 and 6,5bn Euros or 3,7% of Portugal's GDP, respectively[2]. Nevertheless, as stated in a report published by Deutsche Bank Research the reasons for this new range of privatizations are not only related with the need to "help the government to reduce its debts" but also with the fact that "by relinquishing business activity the government can directly stimulate GDP growth, because it thus creates new opportunities for private-sector activity".

The same report goes on to argue that "experience tells us that private companies operate more efficiently and are more innovative". But is this really the case? Should, therefore, governments privatize firms completely as was the dominant case in the United Kingdom's privatization process or is it possible to conciliate the defense of national interests and strategic industries with those of efficiency and competition? In order to answer these, and other question, this research paper aims to develop a deeper understanding of the dynamics and impact of privatization on operating performance, with a focus on Residual Privatization, which is becoming a more frequent phenomenon and is here defined as the sale of residual and non-controlling stake in firms.

[1] According to recent estimates Italy and France's corporate holdings, for example, represent respectively approximately 5,2% and 4,6% of the GDP.

[2] "Revenue, competition, growth - Potential for privatisation in the euro area", in EU Monitor 87 by Deutsche Bank Research

Understanding this is crucial in making a critical assessment of whether or not Governments should fully exit privatized firms by selling their residual stakes.

The focus of the present work is then the Euro Area and former SOEs operating in what is denominated "strategic industries" as they account for 70% of our sample. With respect to previous research, this paper adds new evidence about the privatization process in Europe, contributing to fill the gap that "there is no study available in the literature investigating the performance of European privatized firms in a single and comprehensive statistical analysis" (Bortolotti and Milella, 2008). However, the most relevant contribution is perhaps the analysis made of the impact and implications of residual privatization and ownership in firms' performance, an issue hardly analyzed in previous literature. Hence, we expect to bring some additional light on whether or not selling residual, non-controlling stakes leads to performance improvements due to a decrease in the influence and involvement of Governments. Or if these type of operations only reasonable from a fiscal and financial point of view. By analyzing the first question we are also able to add new evidence to whether or not the real drivers of previously documented improvements in performance are the reduction of states' ownership or actually the changes that take place simultaneously with it.

The main findings of this paper are that Residual Privatization does not have a significant impact on performance, leading us to conclude that this is due to the fact that potential for improvements is lower since the profitability gap in respect to private firms appears to have been closed in previous privatization operations. Nevertheless, we do document improvements in performance in the years before residual privatization which leads us to advance the possibility that governments time these operations. In general, our findings and statistical analysis in this work provide no evidence to the argument that residual ownership has a negative impact on firms' profitability as long as an effective corporate governance system and sound economic and regulatory environment are in place.

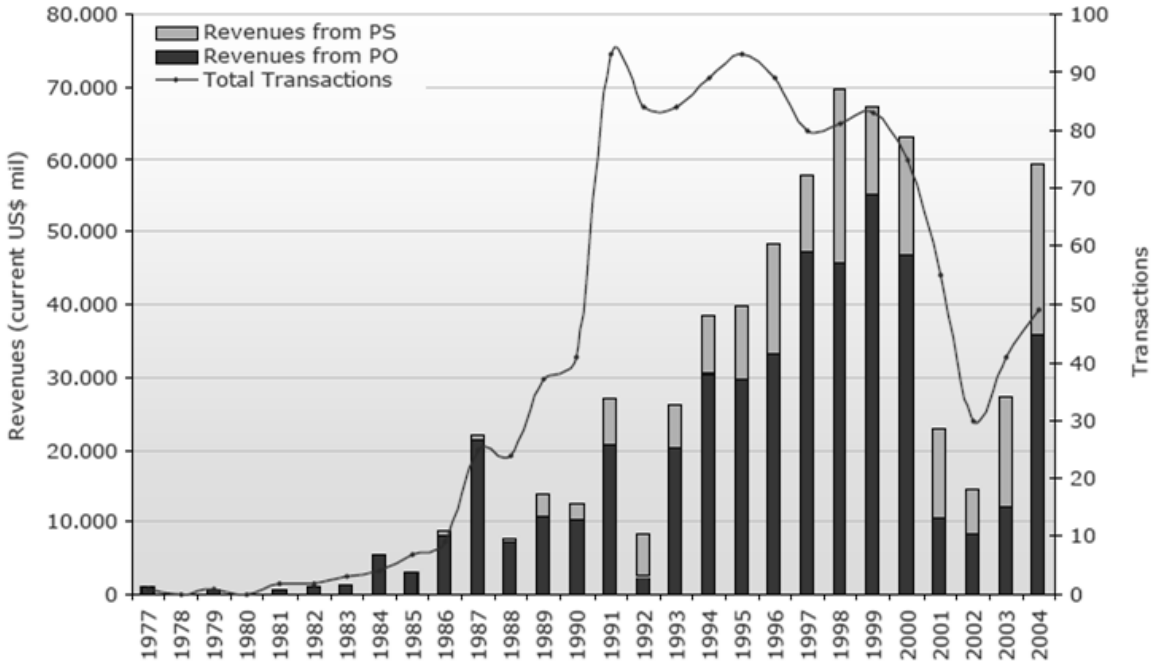
Finally, we also offer some evidence questioning some of the previous studies' conclusions regarding the impact and importance of privatization in improving efficiency. Namely, our DiD and multivariate regression have been unable to find that a lower level of state-ownership is associated with improved efficiency or that privatized

firms are able to close the gap in terms of efficiency and our findings from our univariate analysis suggest that the detected improvements in profitability following privatization are obtained mostly due to a better management of financial resources and taxes. As a result, similarly to Arocena and Oliveros (2012) we also question previous studies methodologies and measurement of operating efficiency.

This paper is divided into 7 parts. The first one, entails a brief description of the privatization process in Western Europe and is followed by a thorough review of previous literature regarding privatization. We then move on to describe our main research questions and hypotheses. Section 4 explains how the sampling process and data gathering processes have been done and is followed by the description of the methodologies used in this work. In our 6th section we present our results and discuss their specific and global implications. Finally, we conclude the present paper with a conclusion summarizing our main findings.

1.1 Privatization in Western Europe

Figure 1 - Privatization in Western Europe: Total Revenues and Transactions



Source: Elaborations on Securities Data Corporation by Bortolotti and Milella, 2008.

To start with, privatization can be defined as the sale of a State-Owned Enterprise (SOE) or assets by a Government to the private sector agents, resulting in a transfer of

ownership which reduces the role of the Government in the local economy and is intended at boosting the private sector. It is usually acknowledge that the first large privatization program was launched by the UK's Government of Margaret Thatcher in the 80s, resulting in a reduction of SOEs' weight in the UK's economy from 10% to almost 0%. However, ever since it we have been witnessing a considerable divestment of States holding in corporations through the implementation of equally large privatization programs all over the world, with this phenomenon becoming actually a global own with more than 100 countries worldwide engaged in their own privatization programs (Megginson and Netter, 2001).

Western Europe, in particular, has been extremely committed to such programs as it is possible to see from the fact that between 1997 and 2004 it accounted for 29 percent of global deals and was responsible for 48 percent of global revenues based on calculations performed by Bortolotti and Milella (2008). Indeed, while the UK pioneered such phenomenon the truth is that shortly after several countries began their own privatization programs, though mostly lacked the scope of the UK's one. For instance, Italy began a long process of privatizing the companies in its State holding company IRI in 1985 and was followed by France in the following year, with some large companies as Saint Gobain privatized. Most of the European countries joined them during the 90s with privatization programs that became particularly strong in the mid 90s. Moreover, the majority of privatization programs seemed to follow a certain order since in the beginning firms privatized operated mostly in the manufacturing, industrial and financial sector and only after were firms from the denominated strategic sectors (telecommunications, energy, transports and utilities) privatized, which is one of the reasons why revenues spurred in the late 90s.

Despite the size and scope of this phenomenon it is important to note that in several cases the government continued to have a role of influence in privatized firms, either by direct or indirect control through voting rights but also through the use Golden Shares and political connections.

2 Literature Review

2.1 State-Owned Companies

Following World War II the world witnessed a tremendous growth in the use of SOEs in several regions. Indeed, as Megginson and Netter (2001) note the Depression, World War II, and the final breakup of colonial empires led many governments, in particular in Western Europe, to assume a more active role in the economy, namely through the ownership of production and provision of several goods and services. This period until the late 70s was characterized by a strong debate about the extent to which the national governments should be an active part in the regulation of the economy and in which industrial sectors should they have an exclusive presence. The existence of many SOEs was justified by the need to solve or mitigate the several types of market failure and reach several non-economic goals such as the need for public control over natural resources, regional policies, employment or social issues (Grout and Stevens, 2003).

Indeed, public control over natural resources is commonly perceived as an argument for public ownership given the fact that profits related to extraction of natural resources, such as oil, are often considerably high, meaning that it may be important for the government to maintain the control of such rent to himself (Goldeng, Grünfeld and Benito, 2008). On the opposite side, the supply of public goods, which due to limited excludability contributes to lower profits (often the case of providing national defense and education) also supported the existence of SOEs in order to provide such goods at a socially optimal price level. Other reasons for the Government's presence in the corporate sector have also been stated, such as promoting the national interest (nationalist motives) or as a way to spur economic growth. However, most literature seems to converge, in general, to the two arguments of being a response of governments to certain market failures or as a tool to promote some economic and even non-economic objectives.

2.1.1 Performance of SOEs

The recent trend towards the reduction, and in some cases nearly disappearance, of government's presence in firms rises the question of whether SOEs do effectively underperform their private counterparts, as many politicians and economists have argued to support the large-scale privatization programs implemented.

In fact, despite the fact that the majority of empirical studies supports the argument that there are systematic performance differences between SOEs and POEs (Privately Owned Enterprises) the reality is that the answer to this question is not unanimous between researchers as a survey of available empirical studies conducted by Shirley and Walsh (2000) has concluded. Indeed, among the 52 studies the authors have analyzed there were actually five who indicated that SOEs outperformed POEs and other 15 studies which were not able to find clear and significant differences in performance. Nevertheless, it is important to mention that the aforementioned 5 studies were all regarding analyses of monopoly firms in the utility sectors, indicating that market structure is another important factor affecting firms' performance.

The meta-review of Villalonga (2000) draws a similar picture. The author splits its review into two groups: cross sectional studies of public-private ownership effects, which she argues has been the dominant type of studies in this field, and longitudinal studies of privatization effects. Indeed, based on her review Villalonga has concluded that the cumulative evidence is not fully conclusive, despite the fact that private ownership appears to, once again, have a clear edge in the literature (in the 153 studies surveyed 104 are in favor, 14 against and 35 neutral regarding the superior performance of private ownership). Similarly, these variance in the results may be attributed to the market structure in of each of the industries (and countries) where the firms operate and to the way efficiency is measured across the studies.

However, some of the most noteworthy and complete studies of public performance, such as Boardman and Vining (1989) and Dewenter and Malatesta (2001) have found that private corporations were significantly more profitable than government firms, which were also associated with higher debt levels. The latter, is particularly relevant not only because the authors have controlled for other possible explanatory factors, such as firm size, location, industry and business cycle, but also

because of the sample's characteristic which spanned across 20 years, and therefore several business cycles.

Moreover, in a more recent study, Goldeng, Grünfeld and Benito (2008) have tried to address the lack of attention characterizing most studies to the potential impact that the characteristics of the market may have on firms' performance. These authors conclude that the performance of SOEs in Norway, from where the sample is extracted, is indeed inferior to that of private firms, even when controlling for the market structure, and find a positive relationship between performance and the market share of companies as well as the market concentration.

Hence, the general belief that POEs perform better than SOEs has found considerable support among the majority of the empirical studies on the performance of SOEs, especially when they control for other factors such as market structure.

2.1.2 Reasons for SOEs Underperformance

So why do SOEs underperform their private counterparts? The answers to this question have been well summarized in the works of Shleifer (1998), Megginson and Netter (2001), Cuervo and Villalonga (2000) and Arocena and Oliveros (2012) and can be grouped within three categories of thought. Understanding the reasons of underperformance is particularly useful for also understanding the reasons why privatization has been so vastly used.

Agency theory argument

The first type of argument is derived from the agency theory, which considers the separation between ownership and control (management team) as the main source of the documented poorer performance of SOEs. Managers (agents) are expected to maximize their own utility, rather than that of the organization or its owners (principals), and it is argued that in POEs shareholders are better and more effective at aligning the objectives of the principal and the agent through a better monitoring of managers and the creation of incentives in order to maximize internal efficiency. Indeed, a better system of corporate governance and an increased number of external control

mechanisms, such as the market for managers or the capital markets, are important for SOEs to improve their performance (Vickers and Yarrow, 1989).

However, in the case of SOEs these mechanisms are virtually absent and the agency problem is further aggravated by the fact that there are actually two other agency relationships. Namely, the public as owners-to-politicians and politicians-to-managers. As a matter of fact, Stiglitz (1988) distinguishes between two categories of incentives available to lead managers to perform well. On the one side, we have *Individual Incentives*, in which even in the case where the only public objective is, for example, profitability the ability of maximizing such returns is hampered by the fact that returns from a SOE are channelled into a public budget that no specific individual can take advantage of as a principal, reducing the incentives to closely scrutinize the actions and efforts of managers. On top of this, the fact that the public sector is usually locked into a pay structure limits the ability to link management salaries, or workers', to firm's performance. and the traditionally higher job security in the public sectors lead to lower efforts and incentives to perform well.

On the other side Stiglitz mentions the lack of *Organizational Incentives*, which consist mostly of the role played by the capital markets in constantly monitoring POEs. As a result, if managers of POEs fail to use resources efficiently, the market exerts pressure on them by withdrawing capital from the company, taking over the company and reallocating its resources (internally or externally) or reducing the value of its holdings.

Property rights theory argument

The second category lies on the property rights theory and states that managers' decisions in public firms are not subject to the same economic consequences as in private firms, decreasing their incentives to operate efficiently and maximize profits. Indeed, the managers of private firms are prevented from pursuing their own agenda by the threat of bankruptcy or takeover. In the case of SOEs, the state acts as an insurer, preventing them to go bankrupt through the existence of soft budget constraints, since any possible gap between income and expenditures is balanced by the government (Kornai, 1980). As a result, since the company does not need necessarily to cover its costs in order to ensure its sustainability the price mechanism no longer guides the

behaviour of managers and works as a deterrent to economic waste, leading to the emergence of problems such as overstaffing, excessive salaries or overinvestment.

Public Choice argument

The Public Choice argument is the third category and states that politicians, bureaucrats and government officials pursue their own utility rather than the general interest, being more concerned with the maximization of their own objectives, such as votes, power and prestige. Indeed, politicians may impose objectives on SOEs that might help them gain votes but might conflict with efficiency, resulting in a lower performance. One example is the protection of the interests of certain stakeholders, like trade unions, in detriment of the firm's efficiency or in the pursuit of social objectives, such as wealth redistribution. Aggravating this is the fact that very likely the costs of monitoring SOEs behaviour is higher for the general public (the ultimate owners of the firm) than it is for interest groups as trade unions, making of SOEs an easy target for rent-seeking activities. Another example of such multiple objectives, is that SOEs may be pressured to hire politically connected people rather than those best qualified to manage them (Krueger, 1990).

2.2 Reasons for Privatization

While most privatizations are carried with the purpose of bringing performance improvements to privatized firms they can also be conducted for other political, economic or financial motives (Vickers and Yarrow, 1989). Indeed, such programs tend to have an impact on public finances, specifically the public deficit and the debt levels (as many states used the proceeds to reduce their debts). It may also be that governments want to increase the number of stockholders and facilitate the access of citizens to capital markets, which are very often stimulated with such programs. Moreover, given that privatization appears to be stronger in countries with higher per capita GDP and lower growth rates may be an indicator that governments use privatization as a tool to foster economic activity through the increase in private investment. (Bortolotti and Milella, 2008)

2.2.1 Classification of privatization methods

It is equally important to look at the different methods that have been employed by governments all over the world when carrying out privatizations processes. As pointed out in Megginson and Netter (2001) the decision regarding the method of privatization is not always simple as they tend to very politicized and encompass several complexities in determining the value and the pricing of the operation. In fact, according to them the method of privatization is very often influenced by factors such as the history of the firm's ownership, the financial and competitive position of the SOE, the government's view of markets and regulation, the regulatory structure in the country and its evolution and the capital market conditions.

Moreover, in the work of Brada (1996) it is possible to find a very complete classification into four main groups of the existing privatization methods. However, it is important to note that there are still some variations within each of the categories and that some privatizations may use a combination of more than one of the different types of divestment. I here present the category most often used in Western Europe:

Privatization through sale of state property - Sell of the government's stake in exchange of an explicit cash payment. This method is further subdivided into:

- *Direct sales (or private sales)* of stakes of SOEs to an individual, an existing corporation, or a group of investors.
- *Share issue privatizations* (or Public Offerings) through which some or all of a government's shares in a SOE are sold to investors by means of a public share offering. They have some similarities with IPOs in the private sector, but while private IPOs aim primarily to raise revenues, SIPs are structured in order to raise money for the government and respond to some of the political factors already mentioned and discussed

According to data analyzed by Bortolotti and Milella (2008) while private sales accounted for the majority of transactions in Western Europe it has been through public offers that governments have raised the most revenues (only represented 28 percent of operations but 64 percent of revenues). This is due to the fact that such method is

frequently used for larger and often more profitable companies that are easier to floated in stock markets.

Finally, it is also important to note the difference between *control privatization*, which refers to privatizations where government ownership becomes less than 50%, and *revenue privatization*, which is the opposite case when government retains more than 50% after the privatization stage (D'Souza and Megginson, 1999). Indeed, this classification is very important because it clearly considers the level of 50% of ownership as a relevant cut-off in understanding the impact of privatization in firms' performance.

2.3 Performance of Privatized firms

So has privatization been successful in achieving its objectives? To answer this we focus our analysis on previous studies concerning the microeconomic impact of privatizations, disregarding on purpose the impact at the macroeconomic level, namely in the fiscal conditions of European countries, on the financial market development and on the benefits to consumers. To start with, the research within this field has been split into two types of studies. The first, which is considered the dominant approach, compares pre- and post-privatization performance of privatized firms and the second compares the performance of privatized firms with their private firms counterparts.

In one of the most comprehensive review of previous literature on privatization Megginson and Netter (2001) have concluded that the majority of evidence indicates that, in general, performance improvements are indeed registered after privatization. Indeed, in this review the authors mentions that nearly all the studies analyzed document significant improvements in privatized firms' performance. On the contrary, the level of employment after the privatization (a particularly sensitive issue in privatizations from a political point of view) does not exhibit a particularly trend of increase or decrease, leading the authors to conclude that the impact on employment is very contingent on the specific characteristics of the privatized firms.

Comparing pre- and post-privatization performance

A more detailed description of the main findings of some of the most well-known and cited studies using this methodology is now presented. The studies of Megginson,

Nash, and Randenborgh, V. (1994), Boubakri and Cosset (1998) and D'Souza and Megginson (1999), are particularly interesting to look at since they are directly comparable because they use exactly the same empirical proxies, testing methodology but used different samples, making it possible to analyze them collectively. All these tests present evidence of increases in output, efficiency, profitability and capital investment, accompanied by decreases in the leverage used by former SOEs. Indeed, apart from profitability, these are all socially beneficial outcomes as they represent a better use of resources by firms and an improvement in their financial health (Megginson, 2003).

The study of D'Souza and Megginson (1999) particularly adds that the analysis of different subsamples concluding that the mentioned improvements are stronger for cases in which governments transfer voting control and for noncompetitive industries. As a result, in the authors opinion "privatization "works," and it works in almost every institutional setting examined".

However, Dewenter and Malatesta (2001) have failed to find robust evidence of further improvement after privatization and concluded that privatization is, indeed, associated with improved profitability but those improvements largely occur in the three years before privatization. These findings, contradictory to previous research, appear to indicate that Governments can efficiently restructure to a certain degree firms before privatizing them, which appears to be the real driver of performance improvement and not the change in ownership per se. Hence, in order to justify privatization, the authors argue that governments' aim with privatizations may not be to achieve efficiency gains, but rather to perpetuate them in time and find some support to this finding in the observation of Yarrow (1986) that the improvements obtained from policy changes may dissipate over time without the added discipline of private ownership.

In a more recent study, Boubakri, Cosset and Guedhami (2009) analyze the impact of privatization in strategic industries, which are defined as including the financial, mining, steel, telecommunications, transportation, utilities, oil, and military-related production ones Megginson et al. (1994). According to these authors the same gains in profitability and operating efficiency of firms from strategic industries are

possible to be found in their sample, though it is equally interesting to note that their findings are consistent with no significant evidence regarding layoffs and reduction in the level of leverage, contrary to some previous studies and expectations regarding the specific nature of such industries. As a result, the gains in efficiency, similarly to La Porta and López-de-Silanes (1999), do not seem to result from reductions in the level of employment. These findings, argue the authors, can be attributed to the specific nature of these firms who not only are more constrained from a political point of view due to social welfare and stability issues but also because they carry larger amounts of debt than firms in non-strategic industries making it more complicated to observe an immediate reduction in the level of debt.

To end this section it is also worth mentioning some studies focusing on specific countries. Regarding the UK, who has mentioned was the pioneering in this field, Boussofiane, Martin and Parker (1997) have analyzed its privatization process and, similarly to Dewenter and Malatesta (2001), have concluded that the improvements in the efficiency of privatized firms takes place 2 or 3 years before the privatization and not with the change in ownership. Indeed, these findings were also corroborated in a previous study be Martin and Parker (1995) who found out the existence of a shake-out" effect, since several firms improved performance prior to being privatized but not after. In general the findings of these authors did not offer support to the benefits of the UK program, since even after adjusting for business cycle effects less than half the British firms studied performed better following privatization.

In relation to Spain, while Villalonga (2000) has shown that the effect of privatizations in the period of 1985 to 1995 has not always resulted in increases in efficiency, being very contingent on political and organizational factors, the study conducted by Arocena and Oliveros (2012) has found out that the efficiency of newly privatized firms significantly increased after their privatization, contrasting to their private competitors who did not show any significant improvement during the same post-privatization period. However, it is also worth noting that, before the privatization, there were no significant differences in efficiency between the SOEs and their private counterparts. Moreover, whilst in Italy, Goldstein (2003) only finds a modest, which is not statistically significant, increase in profitability as well as a decline, though also insignificantly, in efficiency. Similarly, but for Austria Dockner, Mosburger and

Schaffhauser-Linzatti (2005) fail to find significant differences between state ownership and privatization. Finally, it is also worth noting that Finland privatization also offers no evidence of improved performance, potentially because in this country SOEs were already well run and performed well (Willner, 2003).

Comparing privatized firms' with private firms

Within the second type of studies we have the work of La Porta and López-de-Silanes (1999) which has tried to assess performance improvements by comparing the privatized firms with their private counterparts. This process has the clear advantage of being able to separate the effects of privatization from economic or industrial wide effects. Using this methodology, the authors find that their sample (former Mexican SOEs) is capable of closing the existing performance gap in respect to their industry-matched private peers. Indeed, these firms go from being highly unprofitable to being very profitable following privatization, due to productivity gains resulting from better incentives. Moreover, this paper is one of the first to present evidence that privatization when combined with deregulation, namely the removal of price/quantity controls or trade barriers, is more effective in improving firms' performance.

In addition, the study of Arcas and Bachiller (2008), which has analysed the differences in performance between private firms and recently privatized firms in the European Union, presents some evidence to the fact that, for the sample as a whole, privatized firms are more profitable, less leveraged and less labor intensive than private firms. However, it is important to bear in mind that results are not homogeneous across the different geographical zones. For example, while in the French and Scandinavian zones[3] privatized firms are indeed more profitable, less leveraged, in the German zone differences only exist in leverage and labor intensity. On the contrary, in the British zone the results indicate that profitability is lower and leverage is higher for privatized firms. These differences may be due to different economic and legal environments or differences in the privatization process itself since not only the period of privatizations varies considerably as well as its objectives.

[3] The French zone refers to Belgium, Holland, Italy, France, Portugal and Spain, the German zone includes Germany and Austria, the Scandinavian zone consists of Denmark and Sweden and the British zone is Ireland and UK. The study also included an Eastern Zone

In conclusion, despite the clear bias towards supporting the beneficial impact that privatization has in former SOEs' performance and efficiency there is still space within this debate. Either because the existing literature is not unanimous regarding this point, with some authors supporting the argument that the key to improvement is not privatization itself but rather the changes imposed on firms or others finding that improvements incur mostly prior and not after privatization, or because there are still some problems that the mentioned studies are not capable of fully addressing. Such problems can be methodological, namely in terms of the sample selected or the methodology used to assess efficiency and performance, or for not fully incorporating other determinant factors in their analysis, namely the market structure or the economic and regulatory environment in which firms operate. On top of this, the results also seem to differ from country to country, particularly within developed economies, preventing researchers to have advanced an "unambiguous answer about the role of privatization on the financial and operating performance of European SOEs" (Bortolotti and Millela, 2006).

2.3.1 Sources of Privatizations value creation

Having concluded that privatization, on average, leads to performance improvements in the performance of former SOEs a new question emerges: how do privatizations lead to such performance improvements? In trying to answer this Cuervo and Villalonga (2001) have proposed a model, whose underlying assumption is that privatization is a discrete and exogenous change that leads to several endogenous changes in the strategy and organization of the privatized firm, to explain the factors influencing the ultimate effect of changes that the privatization process might trigger on performance (for a summary of their model see the appendix). Hence, what are the changes that privatization operates and are behind the improvements in performance? The answers to these questions are essential in order to better understand the variance that was detected in the cited empirical tests.

Based on the analysis of Cuervo and Villalonga (2001) and D'Souza, Megginson and Nash (2007), often complemented with other's authors findings, it is possible to

summarize the following factors as the most relevant in leading to performance improvements:

1) ***Changes in ownership structure:*** Differences in state ownership, foreign ownership, and employee ownership are likely to affect the performance of privatized firms

a. *Level of post-privatization ownership retained by the state* should play a crucial role in the newly privatized firm's efficiency improvements. In fact, Boycko, Shleifer and Vishny (1996) expect efficiency gains from privatization only in the cases where control rights are transferred to private investors. This results from the fact that the likelihood of government interference and possible re-nationalization is increased when selling only a small stake. Nevertheless, despite such prediction the empirical evidence is not unanimous. For instance, while D'Souza and Megginson (1999) conclude that performance improves more when governments transfer the voting control for the private sector (control privatization), D'Souza et al. (2007) reach a different conclusion, as they are not able to find differences statistically significant when control is transferred. This finding is even more puzzling if we consider the results that the last authors obtain in their profitability regression, which reveals a significantly positive relationship between profitability and state ownership. As a result, in an attempt to explain this findings, the authors advanced that a large residual stake gives the government greater incentives to encourage performance improvements with the objective of maximizing proceeds from subsequent privatization rounds.

b. The presence of foreign investors, who may bring either new know-how or investment capacity and act as a more powerful monitor of firms' performance, and the amount of employee share ownership, who may be unlikely to support certain value maximizing initiatives if perceived as dangerous to their job security (Boycko et al., 1996), may also affect the degree of post-privatization performance. As a matter of fact, empirical evidence tends to favor the presence of foreign investor by suggesting that larger increases in performance take place when privatized firms are controlled by external investors. On the contrary, the empirical evidence regarding the influence of employees' ownership on firms' performance is not so conclusive.

c. *Shareholding structure* is also relevant as the move from a concentrated shareholding (with the state as major shareholder) to an intermediate level of

ownership concentration, where no large shareholder dominates and where the boards effectively performs their control role, improves the effectiveness of privatized firm's new goals and incentive schemes in triggering the desired performance gains.

2) ***Changes in upper management:*** The replacement of the management team, often politically appointed, with a professional businessperson should lead to performance improvements. This argument is further supported on the reasoning that not only may existing managers be reluctant to implement or even allow some of the necessary organizational changes (Martin and Parker, 1997) but also because the new team may bring in resources and capabilities which fit best the competitive market environment that accompanies privatization and deregulation, whereas the incumbent managers skills were more suited to dealing with politicians. In fact, D'Souza et al. (2007) are able to find statistical support to this assertion as they show that profitability increases significantly for firms with greater than 50% change in board of directors, whilst it decreases, insignificantly, for firms with less than 50% change.

3) **Changes in the Strategy of the firm -** Privatization prompts a firm to engage in scope-enhancing corporate strategies and in more innovative and less focused business strategies. This is due to the fact that very often managers in SOEs feel that any potential benefits from their investments can be expropriated and will not likely affect their compensation. On the contrary, losses may jeopardize their jobs. Thus, strategies requiring substantial investments are perceived as "high risk, low return", reducing considerably their appeal. In the case of the risk of losing the job is counterweighted with the increase in compensation which a good strategy can result. Hence, the incentives to invest under private ownership tend to be bigger than in SOEs. Furthermore, in SOEs both the location and the scope of activity are constrained politically and geographically by the state as owner, who tends to focus essentially on the home market. Under private ownership these limitations disappear and firms are free to engage in internationalization and entering new markets. Indeed, internationalization is one of the drivers of the growth registered by privatized firms, who try to leverage their, traditionally, strong position in the internal market.

4) ***Restructuring:*** Usually the main driver of value creation that comes from the privatization process are the transformations which take place within the former

SOEs either before or after privatization, which make it better equipped to compete as a private enterprise. Supporting this is the finding of D'Souza et al. (2007) that firms which restructure are the ones who register larger improvements in operating efficiency as it apparently leads to a more efficient deployment of resources.

a. *Organizational/operational restructuring and Corporate Governance changes* - This type of restructuring is concerned with the internal functioning of the organization, namely its production methods and management structure. The closing, consolidating, or overall reorganization of its production facilities or the modernization of operations are clear examples of such changes. However, the most relevant change is perhaps the introduction or improvement of the prevailing incentive schemes and control mechanisms, which become more outcome and market based.

According to the already described public choice and agency theorists goals and incentives (or control) are the central variables shaping the privatization-performance relationship. While goals in private firms are clear and related to profit maximization and value creation for shareholders, in state-owned firms the goals are usually blurred, multiple, conflicting and unstable (Cuervo, 1997). In addition, so are the incentive schemes and control mechanisms of private firms in general more effective than that of SOEs in private firms. This is due to the internal control departments and boards of directors in private firms being usually better informed than their counterparts in SOE, where the alignment of objectives with external agencies is in general weak. Hence, changes in incentives and controls are of great importance to trigger the performance improvements.

Moreover, privatization prompts the firm to adopt a more decentralized organizational structure and a greater customer orientation. Indeed, privatization may free managers, if not replaced, from politicians' control, allowing them to exercise their latent managerial talent (Shleifer & Vishny, 1994). In addition, the privatized firm's corporate culture can also be expected to change. For instance, with the adoption of financial goals and more outcome and market-based incentives, the firm will likely move from a production orientation to a customer orientation culture (Cuervo, 1997; Martin and Parker, 1997).

b. *Acquisitions and divestments* - The newly privatized firm may engage in acquisitions, representing a strategy to pursue the new growth opportunities created by

the transfer from state control, or in divestments, which are associated with efforts to focus on the most profitable segments, downsizing to a more efficient and sustainable functional form. On top of this, privatized firms may also merge with other private firms to capture potential synergies and increase scale

III- Financial restructuring - This method of restructuring typically involves a reduction in the leverage of the newly privatized firm. In the sample of D'Souza et al. (2007) firms' financial restructurings consisted essentially of debt payoffs, debt write-offs, and leverage-reducing recapitalizations, like debt-equity swaps

5) Macroeconomic and institutional environment:

a. The level of capital market development is also important in bringing the desired performance improvement since under the capital market scrutiny the monitoring of managerial performance is improved. In fact, the empirical tests conducted in the aforementioned paper indicate that firms in larger, more developed financial markets experience larger gains in efficiency

b. *Political and economic environment* can also be an important factor in influencing the transition to being private, with a sound and stable environment helping fostering the improvements in performance

c. *The competitive forces* can also stimulate greater efficiency and profitability. Vickers and Yarrow (1989) argue that while privatization should lead to efficiency gains when competitive environments exist there seems to be no advantage to private ownership when market power exists. Other empirical studies, such as Megginson et al. (1994) and La Porta and López-de-Silanes (1999), have identified that the efficiency gains are significantly greater for firms in competitive markets in comparison to regulated industries. For this reason, price deregulation and market liberalization are also correlated with higher performance gains

To sum up, it is important to note that it is the failure to induce some of the mentioned changes in the proper and most effective way or the inadequate conduction of the privatization process that hinder the former SOEs to achieve its full potential in terms of performance increasing.

2.3.2 Maintaining influence after privatization

As it is pointed by Bortolotti and Siniscalco (2004) "the sale of a majority holding is not itself a sufficient condition to avoid government interference in privatized companies", which can be a deterrent to the successful implementation of the changes described in the previous section. Indeed, on top of the fact that very often governments maintain a residual or even controlling stake in privatized firms (in the sample of N. Boubakri et al. (2009) 28% of firms continue to have the government as a controlling shareholder) it is also important to mention two additional mechanisms employed by governments to continue exerting their influence in former SOEs.

Boubakri, Cosset and Saffar (2008) examine the impact of the first of these mechanisms: political connections, which concerns the appointment of politicians to important positions in the privatized firm. Indeed, these authors' sample registers a total of 35.51% firms (87 out of 245) who continue to be politically-connected after privatization, identifying the size of residual government ownership and the presence of foreign investors as two factors driving the likelihood of a firm remaining politically-connected. As expected, such firms appear to underperform their non connected peers.

In addition, thanks to the use of the second mechanism, Golden Shares, governments are equally able to continue exerting its influence on privatized firms since "by exerting its rights, the “special” shareholder can often influence the choice of management, exert veto power over the acquisition of relevant stakes by private shareholders, even without owning the majority of stock in the company, or a single share of capital" (Bortolotti and Milella, 2008). Very often the use of such special rights are justified on the basis of protecting the "national interest". The same authors show that Golden Shares have been widely used by European Governments, especially in respect to strategic industries as according to their sample in 1996 golden shares were present in 100% of the privatized firms in the defense sector, 83% in the telecommunications, 62% in the oil and gas and 64% in the utilities sector. Nevertheless, it is also worth mentioning that the recent years have witnessed a substantial decrease

in the existence of these mechanisms in particular in Western Europe following pressures of the European Union in that direction[4].

2.4 Partial privatization and residual state ownership

Having analyzed the drivers of performance improvements in privatization new questions arise: do states have to fully privatize firms in order for such changes to take place and in order for them to be perpetuated over time? Or, on the contrary, is partial privatization an equally effective solution to the underperformance that some SOEs exhibit? Among the reasons why governments retain residual ownership in privatized firms it is possible for us to point out their objective of maximizing revenues from future tranches as well as their goal of signaling to the market the value and commitment towards the privatized firm. On the other hand, it may also be due to the governments' reluctance to relinquish control of privatized firms in sectors which they consider economically and politically strategic (Boubakri, Cosset and Guedhami, 2005).

This issues have been partially addressed in some studies though the attention researches have devoted to understanding them and its implications has clearly been lower than in understanding the previous topics analyzed in this literature review. Nevertheless, as Gupta (2005), among others, has noted firms described as "partially privatized" or "public-private partnerships" have long represented a substantial percentage of all state divestments. As a matter of fact, this situation is well illustrated by Vaaler and Schrage (2009) who point out that the broad sweep of empirical research has never examined the performance impact of state ownership when it becomes a non-controlling minority (<50%) tranche or in other words maintains a residual state ownership.

More importantly, the existing literature regarding this topic, even though not abundant, has been particularly divided. On the one hand, a great amount of studies, some of which already presented previously, indicate that efficiency gains can only be obtained when control rights are passed from the government to the private sector; which has became known as the “political interference” hypothesis. Furthermore, a particularly relevant finding is presented in the work of N. Boubakri et al. (2009), whose

[4] http://www.dn.pt/bolsa/interior.aspx?content_id=1613508&page=6

sample supports the assertion that residual state ownership has a detrimental effect on performance of strategic firms. However, this impact seems to be more moderated in the presence of better protected environments as well as in countries with right-wing regimes.

On the other hand, the number of authors arguing the opposite has been increasing. For instance, Perotti (1995) has developed the "credible privatization" theory, which states that governments can signal commitment by only selling a small portion of the firm at the beginning, namely of the state's willingness to intervene on their behalf and share their economic fate. This affects positively the necessary changes needed to improve performance as well as shareholder returns following strategic decisions. Moreover, Sun, Tong and Tong (2002) have argued that government shareholders may provide additional benefits to privatized firms, namely their political support and business connections.

On top of this, Bortolotti and Faccio (2006) have demonstrated that residual ownership leads to higher market valuations in their sample regarding OECD countries. Similarly, Liao and Young (2012) have found that residual government ownership can have a positive impact on Tobin's Q (approximated as book assets minus book equity plus market value of equity divided by book assets), providing evidence that residual government ownership has a positive impact on post-privatization performance, at least as far as China is concerned. This seems to be particularly true when the risk of expropriation by parent companies is high as government's can add value to the privatized firms by signaling their commitment to privatization through the residual stake.

Vaaler and Schrage (2009) have also questioned the prevailing studies arguing that privatizing firms' performance generally improves with decreasing state ownership and the passage of time. As a result, the author finds, through an event study, the potential supporting role residual state ownership can have, namely in enhancing former SOEs' strategic decision-making and financial performance. An effect which was particularly noticeable in the cases characterized by instability in the home-country investment policy environment.

3 Research Question and Hypothesis

As already discussed and analyzed previously although the impact of government ownership on firm performance has long been debated in the finance literature the findings remain inconclusive. It is still an empirical question whether government shareholders expropriate firms for the benefit of politicians and bureaucrats, or provide political and business support that benefits privatized firms. Hence, it is the objective of the present study and the following analysis to understand if when the State decides to further divest its residual and non-controlling stakes in privatized firms, reducing its influence on these firms, performance is affected.

In addition, we will also try to uncover several questions, based on our sample, that have not gathered consensus in previous research such as whether or not the state is capable of restructuring SOEs and if residual ownership by governments has a negative impact in performance. All this analyses will help understand, for instance, what is the ideal level of State ownership, namely whether or not the state should fully privatize firms or maintain a residual ownership.

Before moving on to the current study's hypothesis it is important to make some clarifications regarding the terminology here applied in order to avoid any potential confusion. Whenever we refer to residual privatization it concerns all the privatization transactions in which the state sells part or all of a residual and non-controlling position and the remaining transactions are denominated non-residual privatization (see appendix for more detailed description). This concept is different from partial privatization which entails privatizing part of the firm, but without the transfer of control.

3.1 Hypothesis Statement

Hypothesis 1: Privatization impact in operating performance and efficiency is stronger for initial stages of privatization

Hypothesis 1.1: Privatizations where the State has a non-controlling and residual stake do not have a significant impact in performance and efficiency

Following previous studies findings we expect an increase in the profitability and efficiency measures for non-residual transactions. On the contrary, we do not anticipate

changes in operating performance following residual stakes privatizations to be significant. This is due to the fact that most of the changes that lead to performance improvements, previously summarized in the literature review, have already taken place in the previous privatization operations. This hypothesis goes therefore on the same logic of Martin and Parker (1995) as well as Kole and Mulherin (1997) who have presented evidence supporting the view that SOEs are intrinsically no less efficient than private firms as long as they operate in the same competitive conditions as private. As a result, if such hypothesis is confirmed it may be an indicator that state ownership by itself is not detrimental to firms' performance since the reduction of state's ownership alone does not induce performance improvements, being the aforementioned changes the real trigger for increasing former SOEs performance.

Hypothesis 2: The government is capable of successfully restructuring SOEs, improving their performance, before privatization

Following the finding of Boussofiane, Martin and Parker (1997) and Dewenter and Malatesta (2001) that improvements in performance take place, not after the privatization, but in the 3 years before we also expect that privatizations improvements will also be found in the years immediately before the privatization, but only for operations classified as non-residual. Indeed, such expectation only applies to this subgroup as only in it do governments have majority control in order to be able to enforce restructuration in an attempt to make the firms to be privatized more attractive and hence maximize the proceeds coming from the privatization. For operations regarding residual stakes we continue to expect no significant improvement in the years in the years before the transaction, though these effects may be stronger if such operations where preceded by non-residual transactions before.

Hypothesis 3: Privatized firms close the performance gap in terms of profitability and efficiency regarding their private counterparts following privatization

Hypothesis 3.1: Firms where the state owns a residual stake do not underperform their private counterparts

As already explored one of the main arguments behind privatization is that SOEs underperform their counterparts and that privatization is a tool that will, in general,

lead to an improvement in firms' performance, allowing them to catch up with their peers. However, most of the literature, as pointed out by Arocena and Arocena (2012), fails to "properly compare the performance level of a formerly public firm before and after its privatization with that of achieved by its private competitors". We will therefore try to address this gap in literature by comparing the performance of privatized firms before and after each of the privatization operations. It is our hypothesis that, similarly to La Porta and López-de-Silanes (1999), our sample of privatized firms will be able to close the performance gap regarding their private counterparts.

Nevertheless, it is also important to mention our expectation that such gap will be closed essentially in the first stages of privatization, here defined as non-residual transactions. For residual privatization operations we do not expect that because the gap will have already disappeared, leaving little room for improvement. In this context, Gupta (2005) has found out that SOEs in India who were only partial privatized have also exhibited significant improvements in profitability, productivity and investment, which can be partially attributed to the often ignored role stock markets can have in ensuring an adequate monitoring and rewarding of manager's performance, even in the cases when government retains control. Hence, it is our expectation that residually owned firms will not underperform their counterparts, meaning that the impact of residual ownership to performance is residual.

3.2 Other Relationships Expected

Regarding capital investment we expect them to increase following initial stages of privatization and to remain relatively stable in the more advanced stages, namely in respect to residual stakes privatizations. This expectation is based on work of N. Boubakri et al. (2009) who have found, based on their sample that privatized firms operating in strategic industries increase their capital investment following privatization. This may be explained, according to the authors, by the fact that these are firms mostly capital intensive and technology-oriented who require high levels of capital investments and whose new private owners are capable of providing them.

On the one hand, N. Boubakri et al. (2009) argue that privatizations may involve lay-offs and labor shedding in SOEs due to the fact that they were previously overstaffed.

On the other hand, Megginson and Netter (2001) have concluded, based on their review of previous studies, that the impact on employment differs considerably from sample to sample. Hence, our only prediction is that our subsample of Residual Privatization will not exhibit reductions in employment and may probably be associated with increases in the number of employees as the firms grow in size and very often expand their operations geographically.

In terms of leverage, following the finding of previous studies, we expect that with the transfer of ownership to private hands a significant decline in leverage should be expected given the removal or reduction of the government's debt guarantees, combined with the new possibility of privatized firms accessing of capital markets. As a result, we expect that the Non-Residual Group will be associated with significant leverage decreases. On the contrary, making predictions about the impact of residual privatization on leverage is far more complex because it is very contingent on the period in which it takes place. Despite this our expectation is that no effects will be found in such group due to the fact that the time since initial privatization is higher, which has allowed firms to operate their financial restructuring, and the government to gradually remove the debt guarantees.

4 Sampling Process and Data Gathering

To start with, it is important to note that, contrary to some of the previous studies who tend to "define the privatization event date to be that on which the government divests, for the first time, a certain amount of shares" (N. Boubakri et al, 2009), the focus of this paper, as already mentioned, is in the stages in which the government sells a residual stake in privatized firm. As a result, its scope goes beyond the first divesture made by governments, although such stages are also included in order to serve as a benchmark. This is done in order to recognize that more often than not, especially for strategic firms, governments privatize SOEs through several stages that may last several years and that they also tend to retain a residual ownership on former SOEs.

In addition, it is also important to note that our sample also includes other situations that allow us to infer the impact of state's ownership, such as reduction of control through capital increases (which has sometimes been an alternative to

privatization as to avoid going through the approval of local parliaments or in order to speed up the privatization process) or actual investments made by the government in previously private firms. Nevertheless, such operations represent less than 5% of our final sample.

4.1 Sample Selection

In order to study the mentioned questions a sample privatized firms until 2007 of the countries which belonged to the Euro Zone in 2005, with the exception of Luxembourg has been built. This sample was initially retrieved from Privatization Barometer Database, a database which contains all the privatizations transactions which took place from 1977 to the present.

Although a total of 1135 transactions concerning the studied countries are reported in this database our final sample, after several treatments, only includes 172 events. First, given the very specific nature of financial institutions these firms have been excluded from the sample, similarly to other authors as Arcas and Bachiller (2008), resulting in the exclusion of 263 privatization operations from the initial sample. Moreover, the present study also excludes firms privatized through Private Sale because the availability and reliability of data is higher for Public Offers. Indeed, obtaining the information from firms which were privatized through Private Sale is substantially more complicated and subject to several inaccuracies since such firms are not subject to the same requirements in terms of disclosing financial information and most of them actually cease to exist after the privatization because they are incorporated into their new owner.

In addition, we pretend to focus mostly in strategic firms, which are, in general, privatized by Public Offers as it allows the government to maximize the respective proceeds. We have chosen to do so due to the considerably higher implications state ownership has in such firms and because such debate is a far more sensitive issue and important as a result of their importance in the local economy, level of employment or in the governments' income, either as a flow of dividends or as taxes on income. Moreover, such subset of SOEs has some features particularly differentiating from other

competitive industries as they are usually associated with state monopoly and strong regulation as well as complex political and institutional issues (N. Boubakri et al., 2009).

Finally, all the cases in which we were not able to retrieve accounting information for at least two years after and before were also excluded from the final sample as well as all the transactions within a firm which did not distance themselves more than 3 years. This last step is particularly important as it is quite frequent for SOEs to be privatized in several tranches, with some of them taking place in a very short period of time which could give a stronger weight to some firms within the sample as the effects of the stages would be mixed. In such cases I have chosen to include what I considered to be the "stronger" stage of privatization, namely either the last one taking place in the shorter period of time (particularly if it concerned stages in which no control transfer occurred) or the stage in which the control was transferred to private hands.

To better illustrate this point let's take the case of Greencore, an Irish firm privatized in the following three stages: 55% in 1991, 15% in 1992 and the remaining 30% in 1993. Indeed, in order to be accurate in translating the real impact of this privatization process only the operation that took place in 1991 was considered as they represent the years in which control was transferred. Had we done otherwise and considered the last stage of the privatization operations, where in reality only a residual stake was sold, and the impact in performance of the residual privatization stage could be misleading as it would very likely translate changes in performance which are mostly due to the stage in which the control was transferred to private investors. Hence, in accordance to previous literature which points to the fact that when control is transferred the highest improvements in performance are expected, this stage was considered as the strongest one.

As a result, our final sample is made up of 106 firms who have been part of 172 privatization events relevant to our study. Moreover, as it is possible to conclude from looking at the description tables presented in the appendix strategic industries are, indeed, heavily represented in our sample accounting as they represent approximately 70% of our sample (within the Manufacturing Sector 11 companies operate in the Steel and Defense sectors).

4.2 Determining State's Ownership

One of the key variables to this study is the percentage owned by the state, either directly or indirectly, in each of the privatized firms in each year. This information is important not only to make an accurate classification of the several privatization stages included in the sample but also for the purpose of assessing whether or not privatized firms in each the government owns a residual stake underperform or not their private counterparts.

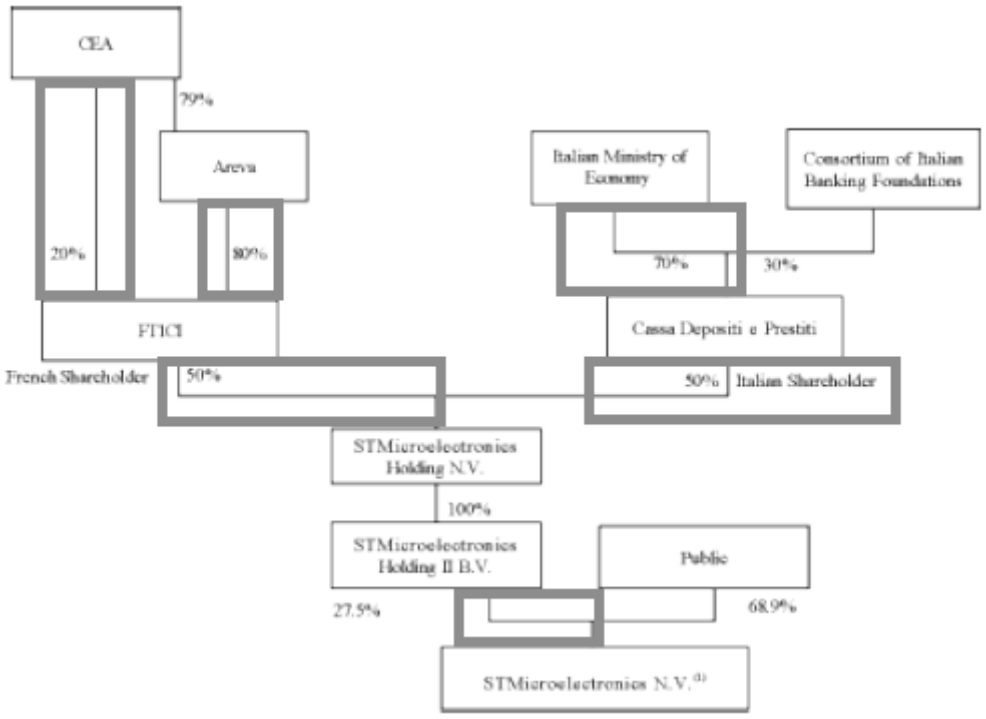
For the purpose of obtaining this information several sources have been used and crossed in order to ensure its accuracy, which was particularly critical for the privatizations which took place in the 90s where ownership data is scarcer and lacks reliability. This data was therefore hand collected from ThomsonOne, a database which provides ownership data for public firms after 1997, Privatization Barometer and Megginson's Appendix of Firms Privatized Through Public Share Offerings between 1961 and August 2000[5]. However, since these three sources very often either contained contradictory information or lacked information for several years, the following resources have also been used extensively:

- Firm's website's and Annual Reports
- Public Organization's responsible for either managing or privatizing SOEs:
    - *The Österreichische Industrieholding AG* (ÖIAG) which is responsible for managing the Austrian Government participations in companies as well as executing the privatization mandate - http://www.oiag.at/ and respective reports retrieved from Privatization Barometer
    - *Finland's Ownership Steering Department* which " is in charge of the practical-level ownership steering of companies operating on market terms" - http://valtionomistus.fi/english/ and its annual reports
    - Spanish *Sociedad Estatal de Participaciones Industriales* (SEPI) http://www.sepi.es/
- Papers concerning the privatization process in each of the countries belonging to the sample
- News regarding privatization operations

[5] Megginson, W.L., 2003. Appendix 1: Details of share issue privatizations, 1961– 2002. In: Megginson, William L. (Ed.), Financial Economics of Privatization. Oxford University Press, New York.

Moreover, in defining the percentage of the privatized firm controlled by the Government the definition used in the works of La Porta, Lopez-de-Silanes, and Shleifer (1999) and Bortolotti and Faccio (2004) of ultimate control has been used. These authors consider ultimate control as the voting rights which are, directly or indirectly, controlled by public shareholders, which can range from the Government itself to Public Banks, other SOEs or regional bodies. As a result, the effective control/ownership of the state has been computed as the weakest link along the control chain. This methodology therefore takes into account both pyramiding and cross-holdings schemes. The following example with STMicroelectronics illustrates the usefulness of such methodology very clearly:

Figure 2 - Illustration of the shareholding structure as of December 31, 2009



Source: Obtained from respective Annual Report

In this case the ultimate control by the State (which in this case is split between the French and the Italian States as this company resulted from the merger of two former SOE) was defined as 27,5%. This value can be easily computed by indeed looking at the weakest link in the value chain of shareholdings. Furthermore, it is extremely relevant to highlight the importance of having included such a definition of control. First, since this methodology was also used when classifying the privatizations events there were cases in each such classification was affected. For example, as noted by Willner

(2003) although since 1994 the stake of Finland's Government in Outokumpu was below 50% the fact is that this firm remained under public control for a long period of time since *The Finnish Social Insurance Institution* continued to own approximately 12.3% of the shares.

Second, and most important, using this methodology has allowed us to remove from our sample some operations classified in Privatization Barometer as privatization in which there was no effective change in Control. Two illustrative cases are the IPOs of Ansaldo STS and Snam Rete Gas. These firms were owned by two former Italian SOEs in which the state remained an active shareholder. Namely, Finmeccanica and ENI, both owned in 30% by the Italian Government, respectively. Indeed, due to this shareholding structure at the time these two firms placed Ansaldo STS and Snam Rete Gas on the stock exchange the effective control of the Government did not change and remained at 30% for both cases, which remained as the weakest link of the control chain.

4.3 Peers Selection

In order to test for hypothesis 3 it was necessary to select and obtain data for a comparable set of private companies. In order to be able to isolate the effects of state ownership the set of comparable companies was intended to only include companies where government's were never shareholders. However, it is extremely difficult to obtain comparable peers in terms of size and within Europe for most of the strategic industries. Such industries include several sectors that were dominated by SOEs or even where only SOEs were allowed to participate. For example, the telecommunications sector in Europe is dominated by Vodafone, Deutsche Telekom, France Telecom, TeliaSonera and Telefonica, from which only Vodafone was never state owned. As a result, some criteria had to be lessen in order to obtain the required number of peers and some former UK SOEs were also included in the peer group since most of them were privatized even before the 90s, namely British Telecom, BP Group and several former UK's utilities firms owned by the government before, became clear as the process of selecting peers advanced.

The matching was done using ThomsonOne database, with the all the data being obtained from Datastream since all companies considered for the peer group had to be

publicly listed in order to increase comparability and reliability of data. This matching procedure resulted in a total of 106 peers, was as it follows:

1) Have the same 4 SIC Code, the difference in size at the intermediate event be lower than 40% and belong to Europe - 19 firms fulfilled this criteria
2) Have the same 4 SIC Code and the difference in size at the intermediate event be lower than 40% - 30 firms fulfilled this criteria
3) Have the same 2 SIC Code and the difference in size at the intermediate event be lower than 40% - 25 firms fulfilled this criteria
4) Have the same 2 SIC Code and the difference in size at the intermediate event be lower than 60% - 13 firms fulfilled this criteria
5) Have the same 4 SIC Code and either operate in Europe or have the possible closest value of assets - 19 firms fulfilled this criteria

5 Methodology

To test our first two hypothesis we follow the methodology that become widely used in studies on the impact of privatization following the work of Megginson et al. (1994). This methodology compares pre and post-privatization results, using a set of empirical proxies, through the Wilcoxon signed-rank test, which tests if the median difference in the computed values of each variable between the pre- and post-privatization periods is zero. The performance measurement proxies for each company are computed over the period [-3,-1] and [1,3], meaning that the year of privatization (year 0) is excluded from this analysis as it includes a period in which governments' ownership registered two different values.

The proxies used for firms' operating performance also following the same study, with the difference that instead of using Return on Equity (ROE) we use EBIT Margin due to our belief that profitability changes are better captured with measures that are a ratio of two current-dollar flows. In addition, Output, defined as Real Sales, has also been excluded from this study given the specific nature of the firms belonging to the sample who tend to be very large and have sales across several geographies, making Real Sales, from our perspective, a weaker proxy to Output since it only considers the local inflation rate. Replicating the same performance measures offers the clear advantage of making

the results comparable to other studies regarding the impact of privatization as such methodology has also been used by several authors, including Boubakri and Cosset (1998), J.E. Farinós et al. (2007) and N. Boubakri et al.(2009), among others.

Table 1 - Proxies used to measure operating performance

Characteristics	Proxies
Profitability	Return on sales (ROS)= Net Income/ Sales
	Return on assets (ROA)= Net Income/Total assets
	EBIT Margin (OP) = EBIT/Sales
Operating efficiency	Sales efficiency (SALEFF)= Real sales/Employees
	Income efficiency (INEFF)= Net Income/Total employment
Capital investment	Capital investment to sales (CESA)= CAPEX / Sales
	Capital investment to total assets (CETA)= CAPEX / Assets
Employment	Employment (EMPL)= Number of employees
Leverage	Total debt to total assets (TDTA)= Debt /Assets

For most proxies local currency and nominal values have been used as they are less sensitive to inflation and to accounting conventions. Regarding the measures of operating efficiency two additional notes are necessary. First, SALEFF not only uses Sales deflated by the local consumers prices index (CPI), retrieved from the IMF's World Economic Outlook Database, but also adjusts the value so that year 0 is equal to 1, increasing the comparability between years. Second, INEFF, contrary to Megginson et al. (1994) is not normalized as SALEFF due to the fact that net income can assume negative values. Instead, what is considered is the change regarding the value of year 0:

$$\Delta Net\ Income\ Efficiency = \frac{Net\ Income\ Year\ n}{Employees\ n} - \frac{Net\ Income\ Year\ 0}{Employees\ Year\ 0}$$

To test hypothesis 2 we have replicated the just described methodology with the difference that we have considered as the reference year the second year before the privatization, or by other words year -2 instead of year 0. As a result the performance will be compared between period [-5,-3] and [-1,1].

Moreover, in order to test Hypothesis 3 we have used the Difference-in-Differences (DiD) technique, which allows us to assess the impact that privatization, often named the treatment factor, has on privatized firms in comparison to firms not affected by this event, denominated as control or peer group. This impact is determined

by considering two distinct differences in the variable of interest: one temporal difference, namely before and after the event, and another difference between the groups of interest, namely the privatized firms and their private peers. The DiD regression is then as it follows:

$$Model\ 1:\ Performance_{it} = \beta 0 + \beta 1\ Privatized_{it} + \beta 2\ After_{it} + \beta 3 Privatized_i * After_{it} + \varepsilon_{it}\ (1)$$

All the explanatory variables included in the specification above are dummy variables aimed at capturing different effects. After is a variable that assumes the value of 1 in the years after the privatization takes place, namely in the 3 years after it. Nevertheless, it is from the coefficients of Privatized and Privatized*After that it is possible to observe the effect of privatization. Privatized is a variable which takes the value 1 for firms which were privatized and 0 for our control group and its coefficient, β1, captures differences in the performance variable before privatization. Moreover, β3, also known as DiD estimator, is what allows us to test whether or not the privatized firm has been able to close the performance gap following privatization.

Hence, for Hypothesis 3 to be supported it is necessary that, to start with, there is a performance gap prior to privatization and, if so, that the coefficient β3 is positive and statistically significant. Moreover, it is necessary to note that Model 1 is never used exactly as above since we always distinguish the type of privatization according to our two subsamples in order to assess whether or not differences exist between the situation before and after privatization between the two.

To test hypothesis 3.1 we first determine whether or not the differences in the performance variables are statistically significant both before and after the event in our DiD regression. However, by doing so we are not only excluding several firms residually owned from our sample but also failing to properly account for several exogenous factors that may explain the performance gap. As a result, we will also analyze the effects of privatization and state ownership for a sample of public firms owned by the State by estimating the following two general models using panel estimation techniques, while controlling for the influence of other firm- and country-level variables which may affect performance:

$$Model\ 2:\ Performance_{it} = \alpha_i + \beta 1\ State\ Ownership_{it} + \beta 2\ Control\ Variables_{it} + \varepsilon_{it}\ (2)$$

Model 3: Performance $_{it}$= α_i+β1 Dummies for State Ownership $_{it}$+β2 Control Variables $_{it}$+ ε_{it} (2)

The models above state include a total of 80 partially owned firms and 153 private firms as peers for a period ranging from 3 to 8 years, depending on the availability of data as we have tried to avoid including the period after the 2008 Financial Crisis. They differ in regard to the treatment given to State Ownership. While the first follows the general trend of considering it as a unique variable in the second specification we try to separate the impact of different levels of ownership, recognizing the differences they encompass. The table 11 and 12 provided in the appendix summarize our explanatory and control variables and describe the observations included in the regression.

6 Results and Discussion

6.1 Main Findings

Univariate Analysis

As it is possible to observe from Table 2 our results for changes in profitability following a privatization operation support the stated hypothesis that changes in profitability would be higher for Non-Residual Privatizations. Indeed, while changes in ROS and ROA are not statistically significant for Residual Privatizations, the opposite is not true for the remaining transactions, which experience mean (median) increases in ROS of 2.0 percentage points (1.0 points) and ROA of 1.0 percentage points (1.0 points), both changes significant at the 1% level. This evidence concerning Non-Residual Privatization is therefore in accordance with previous studies and our previously stated expectation.

However, it is interesting to note that for EBIT Margin the changes are insignificant for both groups. This result is, to a certain extent, intriguing because it occurs simultaneously with a significant change in ROS for firms who privatized non-residual stakes and these two ratios only differ in the measure of profitability used in the numerator.

Table 2 - Comparison of Pre and Post Privatization Performance

For each variable we give the number of observations, the mean and median (between parenthesis) values of the proxy 3 years before and 3 years after the event, the mean and median change in the variable's value and a test of significance of the median change (the Wilcoxon signed-rank test). We also provide the percentage of firms exhibiting the dominant trend, with negative changes indicated between parenthesis

Variables	Type	N	Mean [-3,-1] (Median)	Mean [1,3] (Median)	Mean Change (Median)	Percentage of firms exhibiting dominant change	Z Statistic for Difference in Medians (after - before)
Profitability							
ROS	Residual	51	0.07	0.07	0.00	0.55	0.586
	Privatization		(0.05)	(0.06)	(0.01)		
	Non-Residual	120	0.05	0.07	0.02	0.63	2.843***
	Privatization		(0.04)	(0.05)	(0.00)		
ROA	Residual	51	0.04	0.04	0.00	0.55	0.548
	Privatization		(0.04)	(0.04)	(0.00)		
	Non-Residual	121	0.04	0.04	0.01	0.60	2.018**
	Privatization		(0.03)	(0.04)	(0.01)		
EBIT Margin	Residual	51	0.14	0.14	0.00	(0.55)	-0.703
	Privatization		(0.10)	(0.11)	(0.02)		
	Non-Residual	120	0.13	0.14	0.00	0.59	0.885
	Privatization		(0.10)	(0.10)	(0.01)		
Efficiency							
Sales Efficiency	Residual	49	0.96	1.05	0.09	0.65	2.512**
	Privatization		(0.94)	(1.01)	(0.07)		
	Non-Residual	117	0.94	1.09	0.14	0.79	6.198***
	Privatization		(0.92)	(1.07)	(0.15)		
	Residual	49	-4978	-1995	2982	0.55	1.248
Net Income	Privatization		-(1275)	-(258)	(1017)		
Efficiency	Non-Residual	117	-4722	1909	6631	0.74	4.832***
	Privatization		-(2766)	(1238)	(4003)		
Capital Investment							
	Residual	51	0.14	0.13	-0.01	(0.57)	-0.830
Capital Investment	Privatization		(0.09)	(0.09)	(0.00)		
to Sales	Non-Residual	116	0.15	0.12	-0.03	(0.58)	-2.128**
	Privatization		(0.10)	(0.10)	(0.00)		
	Residual	51	0.07	0.07	0.00	(0.51)	-1265.0.
Capital Investment	Privatization		(0.06)	(0.06)	(0.00)		
to Assets	Non-Residual	117	0.08	0.07	-0.01	(0.63)	-3.274***
	Privatization		(0.07)	(0.07)	(0.00)		
Employment							
Employees	Residual	51	44574	49451	4876	0.61	2.381**
	Privatization		(19102)	(26361)	(7259)		
	Non-Residual	121	36959	41589	4630	0.56	0.943
	Privatization		(13459)	(13841)	(382)		
Leverage							
	Residual	51	0.28	0.28	0.01	0.53	0.375
Total Debt to Total	Privatization		(0.26)	(0.28)	(0.02)		
Assets	Non-Residual	120	0.28	0.28	0.00	0.50	-0.056
	Privatization		(0.28)	(0.27)	-(0.01)		

***,**,* Significant at 1,5 and 10 percent levels, respectively

As a result, drawing on the critical assessment made by J.E. Farinós et al. (2007) that performance measures used in previous studies "can on occasion be misleading if used to compare firms with different capital structures" these results appear to indicate

that improvements in profitability come mostly from a better management of financial resources as well as of the tax paid by privatized firms. This results from the fact that firms who have higher leverage ratios also benefit from higher tax shields, meaning that such ratios measure not only the operating performance but also the management of financial resources and the impact of financial leverage.

This better financial management can come from two different sources. Firstly, firms may adopt a more optimized capital structure. Indeed, such explanation would go in the direction of the finding of D'Souza et al. (2007) that one of the sources in the improvements registered by privatized firms comes from the financial restructuring in which privatized firms engage, leading to a decrease in leverage. Secondly, Non-Residual Privatization is very often associated with access to the financial markets which may allow firms to have access to new and cheaper sources of financing while diversifying their financing sources. Hence, privatized firms may be able to reduce their financial expenses while still benefiting from debt's tax shields, optimizing their financial management. In addition, it is also possible that privatized firms, when released of government's influence, also try to minimize the value of taxes paid in comparison to when they were under Governments' influence.

However, looking at the results obtained for our leverage ratio we are not able to provide support for the hypothesis that firms improvements in profitability come from changes in capital structure since changes in Leverage are not statistically significant, leading us to conclude that the gains in profitability may effectively come from our second possible explanation. A possible explanation for the insignificant changes in leverage levels for Non-Residual Privatizations was advanced by N. Boubakri et al. (2009) who did not also find evidence of decreases in leverage for his sample of privatized firms in strategic industries. According to the same authors that could be partially explained by the fact that SOEs, particularly in strategic industries, which also make up a great part of the present sample, usually carry great amounts of debt making it more difficult to witness an immediate decrease in the level of leverage.

In terms of Operating Efficiency both measures indicate that privatization transactions, regardless of its type, are associated with substantial improvements in it. In fact, only our Residual Privatization subsample registers a non significant

improvement in Net Income Efficiency, though the change is equally positive. If we take a closer look at the information reported in the Table 2 it is possible to see that such changes are stronger for the initial privatization operations as we had anticipated. For example, this subset of privatization operations experiences an average (median) increase of 0.14 (0.13) in Sales Efficiency compared to an average (median) increase of 0.1 (0.7) when residual stakes are sold. However, the reasons behind the detected improvements for our residual transactions are not clear to us and by analyzing our next hypothesis we expect to have more information to understand them.

Our results for the impact in employment are according to our expectation that residual privatization, and thus reduced government's influence, is not associated with the reduction of employment as following them firms register a mean (median) increase in the number of employees of 4876 (7259). Nevertheless, we believe that establishing a casual relationship between the two would be inaccurate and that most likely such increases are the result of the expansion and increase in scope of firms since such increases take place simultaneously with the mentioned increase in the sales efficiency ratio. What may be argued is that such results support the fact that in the long-term privatization is actually associated with increases in employment, supported by the comment of Megginson (2003) that improvements in performance are "achieved without systematically reducing employment".

For the last variable to be analyzed, capital investment, we find a statistically significant reduction, at the 10% level, in both capital investment proxies for our Non-Residual Privatization stages, contrary to previous studies who predict and document increases in Capital Investment following privatization. To understand what may be behind such results, similarly to Megginson et al. (1999), we have also analyzed real capital expenditure by normalizing them using the same procedure as for Sales Efficiency. When doing so we are actually capable of finding a significant increase in capital investments changes meaning that the insignificant results are due to "sales and total assets increasing at a faster rate than capital expenditures".

Performance prior to privatization operations

Comparing the results previously obtained with the ones in Table 3 it is possible to find support for our second Hypothesis that Governments are not only able but

effectively restructure firms prior to privatization. Indeed, focusing on the subsample of non-residual privatizations it is possible to see that the improvements in all the measures of profitability and efficiency analyzed are actually considerably stronger during this period, with the mean (median) increase in ROS growing from 2.00 percentage points (1.0 point) to 3.00 percentage points (2.0 points) for example. As a result, all the profitability and efficiency ratios, with the exception of the EBIT Margin are now significant at the 1% level, given support to the fact that part of the registered improvements in performance actually take place before and not following the privatization. Moreover, the fact that the improvements in the EBIT Margin are now statistically significant, with a mean (median) increase of 1 percentage point (1.00 point), may mean that operating profitability is essentially improved prior to privatization since in the period [1,3] we were unable to find any significant improvement.

Such finding is in accordance with the privatization experience in some of the countries belonging to our sample. For example, Berne and Pogorel (2004) have observed that several French companies, as Thomson and Air France, were only privatized when they became attractive investments which meant that such firms were forced to go through a long process of restructuration that involved, among other things, the reduction of leverage, injection of new capital and restructuring.

In addition, it is also possible to observe that the reduction previously detected in Capital Expenditures actually takes place essentially during in the period [-1,1], which may be a sign of the Government's objective of maximizing the cash-flows in the short-term and raise the proceeds from the privatization, ensuring the success of the privatization transaction, which is particularly relevant given the predominant nature of Public Offers in our sample. This discovery may explain why we were unable to find the expected increase in investment in our first analysis. However, we must also bear in mind the possibility, which we are not able to exclude, that governments manipulate some of the accounting data and variables in order to make firms more attractive.

Surprisingly, it is important to note that, while insignificant after privatization, the tests showed above demonstrate that Residual Privatizations are equally associated with statistically significant improvements in profitability and efficiency during the

period [-1,1] in relation to the 3 years before. Although the reasons behind such finding are not clear for us we would like to advance two alternative explanations.

Table 3 -Analysis of changes in performance prior to privatization

For each variable we give the number of observations, the mean and median (between parenthesis) values of the proxy 3 years before and 3 years after the event, the mean and median change in the variable's value and a test of significance of the median change (the Wilcoxon signed-rank test). We also provide the percentage of firms exhibiting the dominant trend, with negative changes indicated between parenthesis

Variables	Type	N	Mean [-5,-3] (Median)	Mean [-1,1] (Median)	Mean Change (Median)	Percentage of firms exhibiting dominant change	Z Statistic for Difference in Medians (after - before)
Profitability							
ROS	Residual Privatization	43	0.05 (0.04)	0.08 (0.06)	0.03 (0.02)	0.77	2.995***
	Non-Residual Privatization	87	0.03 (0.03)	0.06 (0.05)	0.03 (0.02)	0.70	4.419***
ROA	Residual Privatization	43	0.03 (0.03)	0.05 (0.04)	0.02 (0.01)	0.72	3.007***
	Non-Residual Privatization	87	0.02 (0.02)	0.04 (0.03)	0.02 (0.01)	0.74	4.499***
EBIT Margin	Residual Privatization	43	0.12 (0.08)	0.14 (0.10)	0.02 (0.01)	0.67	1.968**
	Non-Residual Privatization	88	0.11 (0.08)	0.12 (0.10)	0.01 (0.01)	0.58	1.938*
Efficiency							
Sales Efficiency	Residual Privatization	41	0.92 (0.93)	1.10 (1.06)	0.18 (0.13)	0.66	3.713***
	Non-Residual Privatization	87	0.95 (0.93)	1.11 (1.10)	0.16 (0.16)	0.84	5.777***
Net Income Efficiency	Residual Privatization	42	-5790 -(2922)	8792 (4361)	14582 (7283)	0.83	3.870***
	Non-Residual Privatization	86	-519 -(1438)	7167 (3137)	7686 (4575)	0.80	6.379***
Capital Investment							
Capital Investment to Sales	Residual Privatization	44	0.14 (0.09)	0.12 (0.09)	-0.02 (0.00)	(0.57)	-0.782
	Non-Residual Privatization	86	0.13 (0.12)	0.11 (0.10)	-0.02 -(0.02)	(0.62)	-2.474**
Capital Investment to Assets	Residual Privatization	44	0.08 (0.07)	0.07 (0.06)	-0.01 -(0.01)	0.52	-0.408
	Non-Residual Privatization	86	0.09 (0.08)	0.07 (0.06)	-0.01 -(0.01)	(0.66)	-2.965***
Employment							
Employees	Residual Privatization	44	49394 (22369)	51230 (25104)	1835 (2736)	0.61	0.922
	Non-Residual Privatization	87	47871 (17472)	51390 (19052)	3519 (1580)	0.60	1.202
Leverage							
Total Debt to Total Assets	Residual Privatization	44	0.27 (0.24)	0.28 (0.28)	0.02 (0.04)	0.52	0.467
	Non-Residual Privatization	87	0.29 (0.28)	0.27 (0.27)	-0.02 -(0.02)	(0.54)	-1.384

***,**,* Significant at 1,5 and 10 percent levels, respectively

First, it may be that, despite their reduced influence, governments are still capable of influencing or enforcing improvements in the privatized firm's performance in order to maximize proceeds with the operation (here it is necessary to note that we are not once again able to exclude some "forced" manipulation of accounting data). Nevertheless, it is our belief that the explanation is different, with an inverse casual relationship, and that we are actually before a situation of market timing, with the Government further divesting from privatized firms in periods where the operational performance, and probably as a result the stock price, is higher. Nevertheless, this hypothesis requires further research by crossing information from share prices with the results just presented.

Nevertheless, a possible bias in the analysis just made is that some of the privatization transactions analyzed in the sample are preceded by other privatization transactions in the years before it. As a result, it may be the case that the changes detected are actually caused by those transactions rather than the action of governments, probably indicating that the effects of privatization may take a certain time to actually materialize in improvements since certain aspects that affect efficiency, namely cultural issues, are more difficult to change in the short-term. However, by analyzing the years before the transactions included in this test we are able to conclude that its impact, particularly for Non-Residual Privatizations, is not substantial, although we are not able to reject any influence in the results observed.

Indeed, by observing the table presented below, which presents what happened in the years before the event, we can see that for the non-residual subsample nearly 70% did not have a privatization up to 5 years before. The same is not, though, as it would be expected, true for the group of residual privatizations. Nevertheless, we still have a weight of 50% of operations that were not followed by any prior privatization up to 5 years before, which, although not high enough to discard such possibility (especially because we have 20% of the events preceded by privatization operations in the 2 years before), it gives us some confidence to at least conclude that the impact of previous privatizations in the conclusions advanced is not strong enough to account for all the noted trends.

Table 4 - History of privatizations before the analyzed event

	1 Year Before	2 Years Before	3 Years Before	4 Years Before	> 4 Years	1st Privatization
Non-Residual	7 (8%)	8 (9%)	10 (11%)	2 (2%)	15 (17%)	45 (52%)
Residual	5 (11%)	5 (11%)	8 (18%)	3 (7%)	19 (43%)	3 (7%)

Difference-in-Differences (DiD) Regression

The results obtained using the model DiD, summarized in Table 5, provide empirical support to our hypothesis that privatized firms are able to close the gap in terms of profitability and that the performance gap is essentially closed in the first privatization operations (which fall predominantly in the category of Non-Residual Privatizations). This can be observed by the fact that, despite privatized firms in the Non-Residual group having lower ROS and ROA prior to privatization operations (though not strong enough to be statistically significant), in the period following privatization this was no longer the case. Indeed, the statistical significance of the DiD estimator at the 1% level for ROS and 5% level for ROA does lead us to conclude that this subsample of firms registered in the 3 years following privatization a higher growth in ROA and ROS that allowed them to catch up with their peers.

For EBIT Margin we also have a statistically significant DiD estimator at the 5% level but in this case it appears that it was mostly obtained thanks to a decrease in our control group's EBIT Margin.

In addition to this, the statistical results hereby presented also offer support to the assertion that firms residually owned by the State do not underperform their fully private peers. In fact, they appear to over perform their control group, though only the ROA before privatization is significant at the 10% level. In fact, the trend for Residual Privatizations in terms of convergence is the opposite to the other group since it is actually the private firms that improve their performance at a faster pace, with the DiD estimator being negative for the profitability ratios.

Table 5 - Analysis of post privatization convergence through DiD Regressions

ROS

	Before	After	Difference [After-Before]
Non-Residual Privatization	4.88	6.54	1.66**
Control Group	6.47	6.07	-0.40
Residual Privatization	7.11	7.07	-0.03
Control Group	4.88	5.39	0.51
Difference (Non-Residual)	-1.59	0.48	2.06***
Difference (Residual)	2.23	1.68	-0.5

ROA

	Before	After	Difference [After-Before]
Non-Residual Privatization	3.35	4.35	1**
Control Group	4.02	3.86	-0.16
Residual Privatization	4.38	4.37	-0.01
Control Group	3.31	3.41	0.10
Difference (Non-Residual)	-0.67	0.48	1.15**
Difference (Residual)	1.07*	0.96	-0.1

EBIT Margin

	Before	After	Difference [After-Before]
Non-Residual Privatization	12.70	13.39	0.69
Control Group	13.72	12.52	-1.19*
Residual Privatization	13.67	13.80	0.13
Control Group	11.06	11.78	0.72
Difference (Non-Residual)	-1.02	0.86	1.88**
Difference (Residual)	2.61	2.02	-0.5

Sales Efficiency

	Before	After	Difference [After-Before]
Non-Residual Privatization	94.52	108.94	14.42***
Control Group	99.78	111.46	11.68***
Residual Privatization	95.67	105.93	10.25**
Control Group	97.31	102.45	5.14
Difference (Non-Residual)	-5.26**	-2.52	2.73
Difference (Residual)	-1.63	3.49	5.12

This table reports the difference-in-differences estimates on different ratios use as proxies to operating performance. Non-Residual Privatizations include firms in which the state was a majority shareholder and divested part of its holding. Residual Privatization includes firms in each the State privatized part of its residual and non-controlling stake. Before refers to the three years before the event and After refers to the three years that follow it. Numbers in parentheses are . *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. The t-statistics were computed with heteroskedasticity-robust standard errors and clustering at the country level

This further adds to the previous evidence that residual privatization is not associated with improvements in performance and a potential explanation is now given by the fact that the potential for performance improvements is considerably more reduced in such cases as the gap of performance appears to have already been closed, which is particularly relevant in the case of highly competitive markets where no market power exists. However, such results are only valid when considering the profitability proxies as if we look at sales efficiency these former SOEs appear to underperform their control groups (see appendix).

On the contrary, in terms of operating performance our DiD regression does not provide conclusive evidence supporting the prediction that privatized firms close the gap since our DiD estimators, though positive, are not statistically significant[6]. This questions previous studies who conclude for improvements in efficiency without adequately comparing the registered improvements with a relevant benchmark. In fact, it is possible to observe, given that the measure of Sales Efficiency was normalized, that all the groups register improvements in the proxy used after privatization and that only for the Control Group of Residual Privatizations they are not significant. Interesting to note as well is the fact that this time it appears that it is for Residual Privatizations where the gap of performance is closed which may suggest some long term effect of privatization as privatized firms become more efficient and productive. However, this effect is not significant and is contradicted by the results obtained for the second ratio of operating performance (see appendix).

As a result, our evidence does not allow us to conclude that the gap in terms of efficiency is closed following privatization as well as that the previously documented improvements in efficiency ratios are caused by the privatization. For this reason we advance two possible explanations for the non significance of the results. The first relies on the limitation of the efficiency measures employed in this and in most studies regarding privatization. Arocena and Oliveros (2012) note this very well when stating that "most studies focus on the analysis of single-factor productivity measures or partial economic and financial indicators, largely ignoring estimates of productive efficiency", rejecting that profitability is a good proxy to measure efficiency.

[6] The absolute and not normalized values of the efficiency proxies may be also found in the appendix

The problem mentioned regarding the "single-factor productivity" measure of efficiency is particularly relevant due to the fact that, as already detailed, most of the firms belonging to this sample are generally capital intensive. Hence, such a measure of performance is not capable of accurately capturing improvements in efficiency concerning the use of capital or the employment of more advance technology. For that reason, in results not reported here, we have also analyzed Asset Turnover, commonly used as a proxy for the efficient use of capital, but found no significant changes.

The second possible explanation is built on the notion of experience curve, which states that the more experience a firm has in producing their product the lower are its costs due to, among other factors, a more efficient allocation of the labor input[7]. Hence, it may be the case that improvements in efficiency previously documented in privatization studies are also due to the fact that firms become naturally more efficient with the passage of time and, in general, with the consequent increases in size and sales and not due to the changes brought about with the privatization.

Multivariate Regression

The results from our multivariate regression, presented in Table 6, present evidence supporting that that residual ownership is not detriment to firms' profitability, here measured as ROS though state ownership does impact it significantly. In fact, it appears to even have a positive impact on performance, which is statistically significant at 5**. This is only possible to observe in the model in each we have categorized privatized firms according to their year-on-year state's ownership. Indeed, had not we accounted for this, as most of the surveyed studies on privatization and state ownership do, and our conclusion would simply be that less state the better. However, it appears that such statement is only true up to a certain ownership level and that level appears to be 30%, which denotes the existence of a non-concentrated shareholding structure.

It is also possible to see that firms in each the state exited also exhibit higher ROS significant at the 1% level. Nevertheless, given the limited number of observations concerning such cases (only 10% of total observations for privatized firms), the period covered in our sample and our previous finding that privatizing residual stakes does not lead to performance improvements such results must be interpreted with caution.

[7] http://www.economist.com/node/14298944

Table 6 - Multivariate Regression analyzing impact of Residual Ownership

This table shows the results of the multivariate regressions including the main explanatory variable, state ownership, and control variables. The coefficients of the regressions are on the first line for each variable, where *, ** and *** represent their significance at 10%, 5% and 1% levels. The numbers in brackets underneath each coefficient are the t-statistics from the heteroskedasticity-robust regression. The dependant variable are proxies for profitability and efficiency

	ROS (1)	ROS (2)	SALEFF (1)	SALEFF (2)
State Ownership	-0.072***		206	
	-(6.10)		1.29	
Majority		-0.042***		179.93
		-(4.93)		(1.07)
Z50		-0.037*		-249.6
		-(1.83)		-(1.25)
Z40		-0.022*		164.18
		-(1.94)		(0.62)
Z30		0.021**		-228.
		(2.26)		-(1.18)
Exited		0.047***		-558.*
		(2.83)		-(2.03)
Size	-0.005**	-0.006**	143.53	146.07
	-(2.27)	-(2.42)	(0.98)	(0.95)
Economic Cycle	0.455***	0.507***	10431	10036
	(3.12)	(3.55)	(1.10)	(1.10)
GDPpc	-0.00	-0.0023	433.0*	344.4*
	-(0.47)	-(0.16)	(1.87)	(1.75)
Ease of Doing Busines	0.001***	0.001***	6.742	7.527
	(6.65)	(5.67)	(0.96)	(0.95)
Freedom from corruption	0.000**	0.0008**	-10.0**	-13539**
	(2.53)	(2.47)	-(2.15)	-(2.19)
Business freedom	0.001**	0.001***	29.62	29.54
	(2.46)	(2.63)	(1.27)	(1.31)
Investment freedom	0.000	0.000	17.247	18.296
	-(0.19)	-(0.56)	(0.79)	(0.83)
Constant	0.012	-0.028	-8422.352	-7549.873
	(0.10)	-(0.22)	-(1.11)	-(1.03)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	1571	1571	1514	1514
Adjusted R^2	0.097	0.097	0.010	0.010

Moreover, our results for efficiency are not clear as there is a lot of variance and our dummy variables, contrary to the ROS' regression, do not show a clear trend. In fact, the only value that comes significant is the variable representing the periods after which state has exited privatized firms shareholding structure which, with a negative

coefficient, may indicate that doing so does not bring additional benefits for the firm. However, such results are not very strong and clear which may be based, as just discussed, in the inadequacy of Sales Efficiency as a proxy for efficiency (the positive coefficient for state ownership is an example of that). For example, our second proxy for efficiency (Net Income Efficiency) offers different results from the ones here presented, apart from the fact that our exit dummy also has a negative value.

6.2 Robustness Analysis

In testing Hypothesis 2 we have analyzed a different time period, comparing the period [-5,-3] with the period [-1,1]. However, such comparison and the results obtained may be affected by the bias of comparing different realities since, in order to meet the criteria of having data for at least 2 years before and 2 years after the benchmark year, several firms could not be included in the mentioned analysis. Hence, there is the possibility that the conclusions detailed resulted from the fact that we were not comparing the same subset of firms, being the real driver of the changes detected the exclusion of the mentioned firms. For that reason we have redone the statistical tests for the period [-3,3] in order to check if the conclusions remained the same. As the reduced sample trends are very close to the full sample we are able to exclude the mentioned problem and conclude that the detected differences are, indeed, due to the time frame selected. The results for the reduced sample can be observed in the Appendixes.

We have also performed two control checks for our DiD regression given the mentioned complex nature of finding suitable peers for the privatized firms included in the sample. The first one has consisted in adding more 86 peers operating in developed economies and in the same industry to our control group (for the remaining 17 firms a second acceptable peer was not actually possible to retrieve). The results obtained with this enlarged peer group provide additional support to the analysis and discussion of the DiD results already presented since the statistical results remain, in general, very similar and the detected differences do not impact the aforementioned conclusions. For example, the EBIT Margin DiD estimator is no longer significant and at the 5% level but since we had not considered such change relevant because it was obtained at the

expense of a fall in the performance of our control group our conclusions remain unchanged.

The second robustness check that we have performed involved including in our DiD regression control variables to account for the existence of different economic and political environments between our subsamples and the respective control groups (see appendix). This control has only been done for our profitability proxies, since they were the ones where convergence was detected. As a result, we have added the natural logarithm of assets as a proxy for firm size and GDP real growth as a proxy for the economic cycle in each period. In terms of political variables, we have used three rankings computed within the Index of Economic Freedom, aimed at measuring countries' degree of economic freedom. This robustness check has only validated our finding in terms of ROS as the significance in the coefficient of the DiD estimator for ROA and EBIT Margin disappears when we account for differences in the economic environment. As a result, we are able to make two inferences from this check:

1. The results presented in terms of convergence need to be analyzed with additional caution due to the difficulties encountered in having a suitable peer for firms operating in strategic industries
2. The fact that only ROS is able to pass this robustness check may actually provide additional evidence to our finding that improvements in profitability do not come from an improved use of physical resources, understood as capital or labor, but rather from a better use of financial resources

6.3 Discussion of results

Taking a global view at the analysis and conclusions presented in this work it seems plausible to argue that residual ownership does not negatively impact performance of firms. Indeed, combining this with the previously mentioned findings of other authors that residual ownership may lead to higher market valuations as well as enhance firm's financial performance we are led to conclude that governments' residual ownership, particularly as far as strategic industries are concerned, may actually have a positive rather than negative performance.

Supporting this view that residual ownership may actually be advantageous are some recent cases in which Governments, or local municipalities, have actually entered firms' shareholding structures as residual owners. This was the case, for instance, of Elisa Corporation in Finland and Beiersdorf AG in Germany. Both cases had one thing in common: local authorities decided to step in and assume a residual position in order to protect either the local or national interests. In fact, the acquisition of approximately 10% of Elisa's shares in 2008 was justified as "it was determined that it was of particular importance to the State to ensure that at least one major telecom operator would remain under Finnish ownership", in an operation considered as unique in the history of state ownership in Finland[8].

Similarly, the City of Hamburg decided to also acquire a 10% stake in 2003 in order to ensure that Beiersdorf maintained its operations in Hamburg. Interestingly, this stake has already been divested in 2007 for €1.2 billion after a strong growth in sales and earnings[9] which may actually be an example of the already discussed possibility that, when selling residual stakes. Governments' try to time such operations to maximize the proceeds.

As a matter of fact, our aggregate findings also appear to show that there is a change in Government's objectives as the process of privatization unfolds. In fact, we consider that when Governments decide to divest part or all of their residual and non-controlling states they do so mostly for financial rather than operating or economic reasons. This is supported in the finding of Bortolotti et al. (2006) that there is a correlation between countries' debt ratios and the extent of their privatization program, concluding that fiscal conditions are a main driver of privatizations. Thus the likelihood that in such operations maximizing the proceeds is considerably more important than in the initial operations, where other political and economical objectives play an important role.

Furthermore, from our perspective this study is also capable of addressing the gap left from previous cross-country analyses which "do not allow to conclude that privatization per se has been the key in boosting the financial and operating

[8] 2008 Annual Report of the Ownership Steering Department in the Prime Minister's Office
[9] http://www.cosmeticsdesign-europe.com/Business-Financial/Hamburg-sells-stake-in-Beiersdorf-despite-strong-sales-growth

performance of firms, but rather the combination of liberalization, regulatory and ownership changes" (Bortolotti and Milella, 2008). Indeed, our subsample of residual privatizations may be a way to infer that since the only change involved in such operations tends to be the reduction in governments' ownership. As a result our findings support the perspective that the improvements in performance come from the several changes that take place simultaneously as privatizations rather than from the single reduction of state's ownership, namely changes in the market environment or in the prevalent models of government ownership and corporate governance.

To support this conclusion and in order to better interpret all the presented results we would like to mention the conclusions of 3 additional studies. The first study, by V.A. Aivazian et al. (2009), has been able to demonstrate that a program of corporatization launched in China, which "entailed restructuring the internal governance system of these firms while preserving state ownership", was equally capable of leading to the desired improvement in SOEs performance.

The other two analyze the performance of Government-Linked Companies (GLCs), an alternative control structure which became known as a success case, particularly in Singapore. According to Ang and Ding (2006) these model is characterized by "publicly traded companies in which the government owns a partial but substantial cash flow right, and yet a disproportional control right". This work analyzes the specific case of Singapore and has found evidence supporting the fact that GLCs are not only more highly valued but also that they outperform their peers in a set of performance variables. Similarly to this study Feng et al. (2004) have analyzed the impact of privatizations through share issue in 30 GLCs and, contrary to us for Non-Residual operations, found no significant changes in ROS, efficiency and leverage measures. To support their findings the authors argue that "the openness of the Singapore economy to intense foreign competition and its well-functioning markets may be the reasons for their GLCs being comparable to the privately run counterparts in efficiency".

As a result, if we combine the findings of the current study with those of V.A. Aivazian et al. (2009), Ang and Ding (2006) and Feng et al. (2004) it starts to become more apparent that governments' presence in firms, contrary to what several studies

have argued, is not necessarily negative to firms' performance and efficiency as long as those firms operate within a similar environment as private firms and within an efficient system of corporate governance.

The importance of having an efficient system of corporate governance is highlighted by OECD who acknowledges that "how well governments manage these assets has a great impact on the substantial values these enterprises represent and thus on a country's public finances. Better performance of these enterprises is a positive factor for economic growth and competitiveness"[10]. For that reason, we have witnessed a considerable improvement of such systems a little bit throughout all Western Europe with many Governments establishing entities responsible for managing their participations in enterprises. As a matter of fact, that may also be one of the reasons while we were not able to find evidence showing that residually owned firms are less profitable than their peers. Comparing the system of corporate governance in SOEs and partially owned firms with the one in place when the most preeminent studies questioning the performance of former SOEs were made is actually an extremely complex task .

Finally, if we combine the finding that privatized firms did not close the gap in relation to the selected peer group in terms of efficiency with the finding that ROS increases while the EBIT Margin remains, in general, unchanged then the hypothesis that privatization is followed by improvements in operating performance finds little support to it. Although this may be due to the facts that part of the operational improvements already took place before the privatization as already demonstrated or the potential inadequacy of the proxies used to measure efficiency we would also like to advance another explanation.

Thus, we consider that while the changes in profitability, namely through financial restructuring, are easier to obtain and more short-term oriented the same does not apply to operational efficiency. Indeed, as efficiency is deeply rooted in workers' productivity and the technological level existent at firms, improving efficiency, at least in a generalized and sustainable way, may require a longer period . This can be explained by the fact that workers' productivity is closely related with their culture, which is

[10] http://www.oecd.org/daf/ca/corporategovernanceofstate-ownedenterprises/oecdglobalnetworkonprivatisationandcorporategovernanceofstate-ownedenterprises.htm

before privatization closer to public workers' culture and is something much more complex to change, and that investments in improving technological also tend to have a more long-term impact.

6.4 Limitations and Further Research

To start with, when analyzing the main results and conclusions here presented it is important to bear in mind that the proxies used to measure efficiency, as shown in the DiD regression, may not be the most adequate and hence our results are contingent to the "extent that profitability and efficiency can be equated" (Dewenter and Malatesta, 2001). Indeed, P. Arocena and D. Oliveros (2012) note exactly that higher profitability may come from higher market power and not higher efficiency.

Another important note to bear in mind is that finding a set of comparable peers who have experienced the same changes in the operating environment as our sample of privatized firms is a particularly challenging task. As a result, our sample of peer firms belongs very often to different countries and inclusively different economic areas (in fact only 47 of our peers are actually from Europe). This means that the presented results must be analyzed with additional caution, as our regression with additional control variables has demonstrated (though the results did not change much after adding more peers).

The dynamic nature of the most of the privatization experiences in Western Europe, with several firms being privatized in several stages and some of them in a short period of time, also requires us to analyze some of the results with caution as it is not always possible to disentangle the effects between different privatization stages.

In addition, similarly to previous works using the methodology employed by Megginson et al. (1994) our study is also affected by two major drawbacks. The first results from focusing on companies only privatized through Public Offers since it may introduce some biases, namely selection bias, as these companies tend not only to be the largest and most profitable SOEs but have also usually been subject to some pre-privatization restructuring in order to make the privatization run smoother, as several studies using this methodology have noted. However, since we are mostly concerned exactly with these large, strategic firms and the impact of state's ownership in them

(instead of the impact of states' ownership on the average firm) we consider such problem to be less relevant for the present study. The second drawback, actually more relevant for us, is related with the fact that such methodology is not able to account for changes in the macroeconomic, competitive or regulatory environment or for the fact that governments may use alternative forms of exerting influence in privatized firms apart from voting shares, as Golden Shares. Hence, although by considering residual privatizations we are at least able to separate the effects of ownership from other initiatives and changes in regulation launched side-by-side with the first privatization operations, the presented results most bear in mind the mentioned caveats.

We also consider that, as pointed by J. D'Souza et al. (2005), having only considered public traded companies in developed economies contributes to reduce several of the problems associated with bad quality of data that tend to appear in multinational studies of privatization.

Furthermore, our research has also left some open questions and space for future research. To start with, our analysis of the period prior to Residual Privatizations has left the question of whether or not there is an "opportunistic" behavior from the Government who may time the Residual Privatization operations, conducting them when performance and probably share prices are more favorable. For this reason, it would be interesting to explore this issue in greater detail, trying to separate other factors that may have accounted for the detected trend, such as recent privatization operations.

In addition, analyzing residual privatizations only from a perspective of performance is, at best, a partial analysis of all the issues involved. Indeed, the objectives behind such operations may not be, as already pointed out, to improve performance but to obtain important revenues. It is easily observed, and the recent wave of residual privatization shows exactly this, that indebted countries use the proceeds to amortize debt and as a result reduce the amount of interest paid, gaining some slack in their fiscal budget. Hence, an additional issue to explore can be understanding, through a cost-benefit analysis, whether or not Governments have gained more from the reduction in the interests paid than from the annual flow of revenues as dividends or if in the long-

term they could have actually had access to higher revenues, through dividends as well as the appreciation of shares.

Finally, the aspects regarding the impact of residual privatization in financial performance, which have been left outside the scope of the present study, may also add important insights to the discussion regarding the implications of residual ownership and the impact of residual privatization.

7 Conclusion

The previously presented results make several important contributions to the still unresolved debate of what should be the role of the State in the corporate sector and the impact of residual ownership and privatization in firms. First, our sample provides empirical support to the fact that firms' performance, understood as profitability, is not affected by privatization operations after the State has relinquished control. This may be due to the fact that firms residually owned by governments do not underperform their peers, as our DiD and multivariate regression appear to indicate as far as profitability is concerned. In addition, residual privatizations are associated with significant increases in employment which may indicate a positive long-term effect of privatization programs in this variable.

Thus, it appears that State's do not have to fully exit SOEs shareholding structures in order to make them reach their potential in terms of performance as it was the case in several strategic industries in Spain, the UK and more recently Portugal. On the contrary, the establishment of an efficient system of corporate governance, the role of capital markets in monitoring performance and the implementation of measures that approximate the operating environment to those of private firms seem to be conditions strong enough to avoid privatized firms being less profitable.

Second, we have also been able to show that, similarly to previous studies, our sample of firms registered improvements in the variables measuring profitability and efficiency in the period [-1,1] regardless of the type of privatization. Indeed, this has led us to conclude for the fact that governments are not only capable of successfully improving firms performance as well as that they seem to time further privatization operations. Hence, the two mentioned findings support the argument advanced by

Dewenter and Malatesta (2001) that privatizations' main role is to remove the influence that future governments may exert on privatized firms, ensuring that the improvements in performance overcome the test of time and possible changes in political orientation.

Third, with our DiD regression we are also able to show that, while privatized firms are capable of significantly closing the gap to their private peers in terms of profitability, the same does not happen in terms of efficiency as all our subsamples experience significant growth in our proxy for efficiency. Similarly, our multivariate regression also fails to show that residually owned firms are as efficient as private ones. Making the bridge of these finding with the fact that significant improvements in profitability seem to be obtained mostly at the expense of a better management of financial resources has led us to question previous studies methodologies in concluding that privatized firms become more efficient.

Finally, it is important to note that our findings regarding the impact of residual ownership in profitability, which is actually higher for firms residually owned as our multivariate analysis and DiD indicate, combined with previous authors research indicate that contrary to what many defend residual ownership may actual be beneficial for both privatized firms and the State. Nevertheless, a definite conclusion requires further research to fully grasp all the implications of residual ownership, namely in financial performance and in efficiency, whose results in this study have led us to conclude that a more effective proxy for efficiency may be required.

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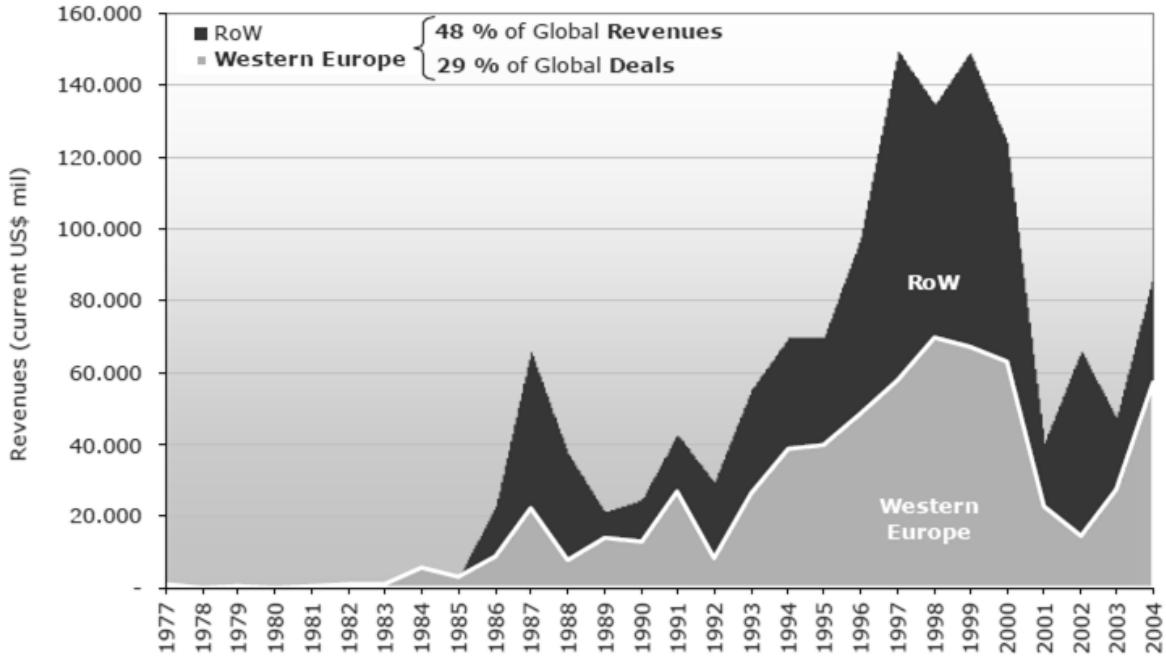
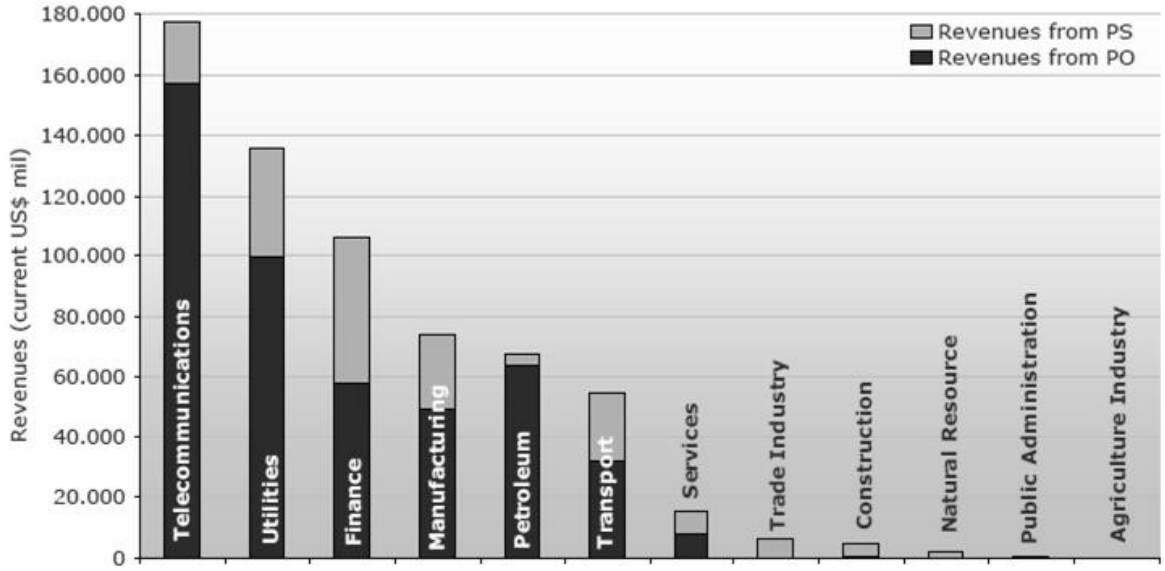
Appendix

Figure 3 - Revenues in Western Europe vs Rest of the World (1977-2004)



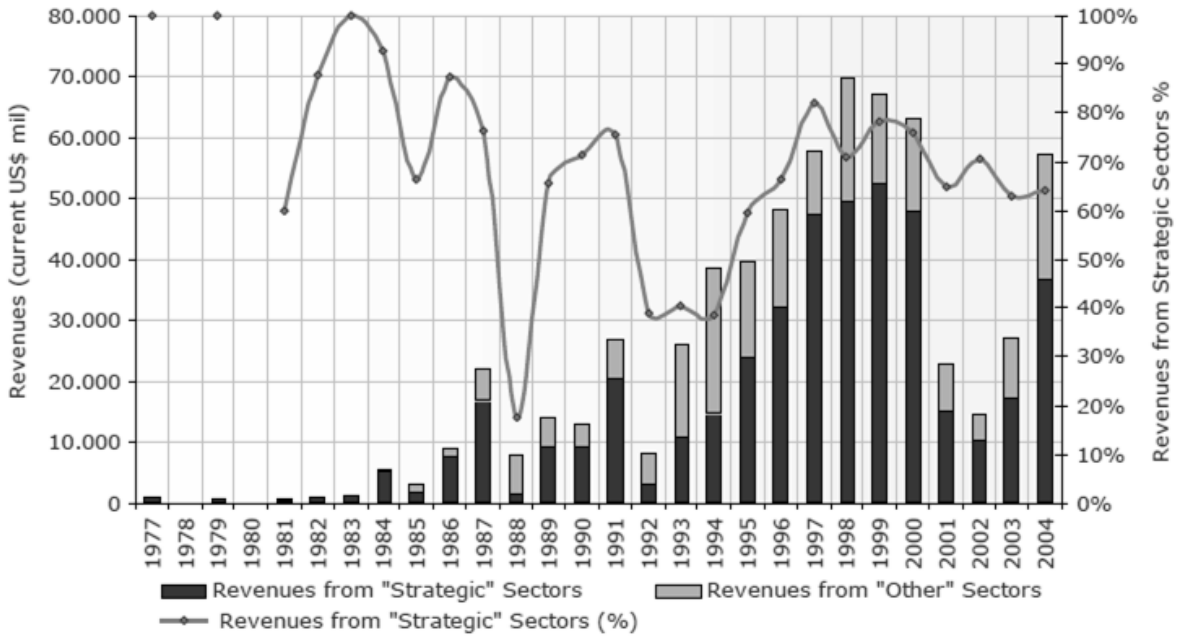
Source: Elaborations on Securities Data Corporation by Bortolotti and Milella, 2008.

Figure 4 - Privatization in Western Europe: Distribution of Revenues by Sector



Source: Elaborations on Securities Data Corporation by Bortolotti and Milella, 2008.

Figure 5 - Strategic vs Other Sectors (1977-2004)



Source: Elaborations on Securities Data Corporation by Bortolotti and Milella, 2008.

Figure 6 - Model defined by Cuervo and Villalonga (2001)

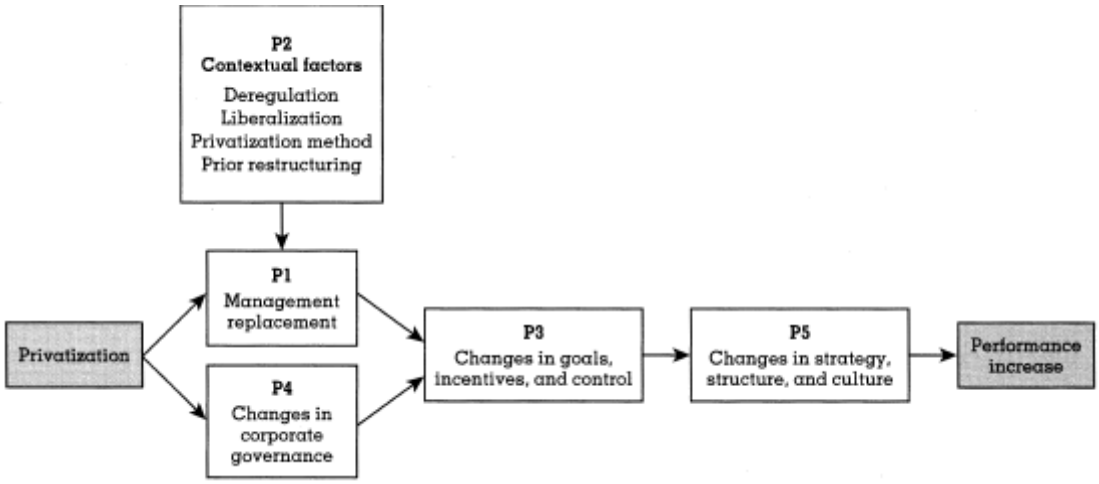


Table 7 - Privatizations in Western Europe per country (1977-2002)

Country	Deals	Revenues	PO/Deals	PO/Rev	Rev/Deals	Rev/GDP
Portugal	78	25,453.65	0.51	0.8	326.33	0.19
United Kingdom	183	145.531.73	0.32	0.88	795.26	0.11
Finland	56	16,328.63	0.43	0.66	291.58	0.1
Italy	103	96,442.39	0.44	0.84	936.33	0.08
Spain	74	46,577.60	0.35	0.79	629.43	0.06
Sweden	56	18,625.54	0.2	0.7	332.6	0.06
Austria	51	11,503.06	0.57	0.51	225.55	0.04
Netherlands	29	19,182.48	0.38	0.66	661.46	0.04
France	97	59,875.26	0.53	0.92	617.27	0.03
Germany	150	73,302.53	0.14	0.66	488.68	0.03
Belgium	10	5,707.97	0.2	0.18	570.8	0.02
Mean	81	47.139.17	0.37	0.69	534.12	0.07
Median	74	25.453.65	0.38	0.7	570.8	0.05

Deals is the number of privatizations; Revenues is Total Revenues from Privatizations for the period in US$ mil 1995; Po/Deals is the number of privatizations by Public Offer as a % of the total number of privatizations; PO/Rev is % of revenues raised through Public Offers of Shares from privatizations; Rev/GDP is the ratio of revenues for the period to the 2002 GDP (in US$ mil 1995)

Table 8 - Description of classification of classification of operations

Initial Classification	*Description*	*Final Classification*
Remained Under State Control	Government privatizes part of the SOE but the control remains with it. This can include first privatization operation as well as subsequent transactions	Non-Residual Privatization
Transfer of Control to Private Investors	Government relinquishes control either by fully exiting as a shareholder or by maintaining a non-controlling stake	
Residual Stake Sold	Government owns a non-controlling stake and divests part of it	Residual Privatization
Residual Stake Sold and no ownership remains	Government owns a non-controlling stake and divests it in its totality	
State acquires minority stake	Government acquires a minority stake in a previously 100% private firm	

Table 9 - Description of firms included in the sample

Description of Firms

By Country	Number	Percentage	Assets (€000s)
Austria	12	11.32%	2.559.592.58
Belgium	3	2.83%	3.648.078.67
Finland	10	9.43%	2.969.070.80
France	22	20.75%	21.223.488.23
Germany	13	12.26%	23.693.427.77
Greece	6	5.66%	2.693.270.83
Ireland	2	1.89%	1.116.615.00
Italy	14	13.21%	9.252.962.93
Netherlands	5	4.72%	5.993.204.60
Portugal	8	7.55%	4.002.202.88
Spain	11	10.38%	6.604.757.27

By Sector	Number	Percentage	Assets (€000s)
Telecommunications	11	10.38%	19.061.612.73
Petroleum Industry	8	7.55%	13.472.703.50
Transportation Indust	20	18.87%	11.142.981.30
Utilities	23	21.70%	16.604.598.13
Manufacturing	37	34.91%	5.337.720.62
Services	6	5.66%	1.487.806.50
Trade Industry	1	0.94%	204.416.00

Table 10 - Description of Transactions Analyzed

Description of Transactions

By Type	Number	Percentage
Remained Under State Control	56	32.56%
Transfer of Control to Private Investors	65	37.79%
Residual Stake Sold	22	12.79%
Residual Stake Sold and no ownership remains	26	15.12%

By Sector	Number	Percentage
Telecommunications	23	13.37%
Petroleum Industry	18	10.47%
Transportation Industry	29	16.86%
Utilities	34	19.77%
Manufacturing	60	34.88%
Services	7	4.07%
Trade Industry	1	0.58%

By Country	Number	Percentage
Austria	20	11.63%
Belgium	4	2.33%
Finland	18	10.47%
France	36	20.93%
Germany	23	13.37%
Greece	11	6.40%
Ireland	2	1.16%
Italy	18	10.47%
Netherlands	8	4.65%
Portugal	13	7.56%
Spain	19	11.05%

By Period	Number	Percentage
1985-1989	21	12.21%
1990-1994	19	11.05%
1995-1999	53	30.81%
2000-2004	42	24.42%
2005-2009	37	21.51%

Table 11 - Variables used in Multivariate Regression

Variables	Description
Explanatory Variables	
Model 2	
State Ownership	Percentage of voting rigths of the sample firms controlled by the Government or other Public Entity
Model 3	
Majority	Dummy variable that takes the value of 1 when Government controls more than 50% of voting rights
Z50	Dummy variable that takes the value of 1 when Government controls between 50 and 40% of voting rights
Z40	Dummy variable that takes the value of 1 when Government controls more than 40% and 30% of voting rights
Z30	Dummy variable that takes the value of 1 when Government controls less than 30% of voting rights
Exited	Dummy variable that takes the value of 1 when Government no longer holds any control over the privatized firm
Control Variables	
Firm-specific	
Size	Natural log of total assets for each year
Economic	
Economic Cycle	Percentage Real GDP Growth for each year
GDPpc	Natural log of GDP per capita in US Dollars for each year
Political	
Ease of Doing Busines	2013 Ranking in Ease of Doing Business for each country
Freedom from corruption	Variable obtained from Index of Economic Freedom for each year and country
Business freedom	Variable obtained from Index of Economic Freedom for each year and country
Investment freedom	Variable obtained from Index of Economic Freedom for each year and country

Table 12 - Description of Multivariate Observations

By Year		Observations Per Type	
1991-1995	39	More than 50%	152
1996-2000	222	40%<x<50%	30
2001-2005	972	30%<x<40%	193
2006-2011	540	<30%	216
		Exited	64

Table 13 - Control Sample for Hypothesis 2

For each variable we give the number of observations, the mean and median (between parenthesis) values of the proxy 3 years before and 3 years after the event, the mean and median change in the variable's value and a test of significance of the median change (the Wilcoxon signed-rank test). We also provide the percentage of firms exhibiting the dominant trend, with negative changes indicated between parenthesis

Variables	Type	N	Mean [-5,-3] (Median)	Mean [-1,1] (Median)	Mean Change (Median)	Percentage of firms exhibiting dominant change	Z Statistic for Difference in Medians (after - before)
Profitability							
ROS	Residual Privatization	43	0.05 (0.04)	0.08 (0.06)	0.03 (0.02)	0.77	2.995***
	Non-Residual Privatization	87	0.03 (0.03)	0.06 (0.05)	0.03 (0.02)	0.70	4.419***
ROA	Residual Privatization	43	0.03 (0.03)	0.05 (0.04)	0.02 (0.01)	0.72	3.007***
	Non-Residual Privatization	87	0.02 (0.02)	0.04 (0.03)	0.02 (0.01)	0.74	4.499***
EBIT Margin	Residual Privatization	43	0.12 (0.08)	0.14 (0.10)	0.02 (0.01)	0.67	1.968**
	Non-Residual Privatization	88	0.11 (0.08)	0.12 (0.10)	0.01 (0.01)	0.58	1.938*
Efficiency							
Sales Efficiency	Residual Privatization	41	0.92 (0.93)	1.10 (1.06)	0.18 (0.13)	0.66	3.713***
	Non-Residual Privatization	87	0.95 (0.93)	1.11 (1.10)	0.16 (0.16)	0.84	5.777***
Net Income Efficiency	Residual Privatization	42	-5790 -(2922)	8792 (4361)	14582 (7283)	0.83	3.870***
	Non-Residual Privatization	86	-519 -(1438)	7167 (3137)	7686 (4575)	0.80	6.379***
Capital Investment							
Capital Investment to Sales	Residual Privatization	44	0.14 (0.09)	0.12 (0.09)	-0.02 (0.00)	(0.57)	-0.782
	Non-Residual Privatization	86	0.13 (0.12)	0.11 (0.10)	-0.02 -(0.02)	(0.62)	-2.474**
Capital Investment to Assets	Residual Privatization	44	0.08 (0.07)	0.07 (0.06)	-0.01 -(0.01)	0.52	-0.408
	Non-Residual Privatization	86	0.09 (0.08)	0.07 (0.06)	-0.01 -(0.01)	(0.66)	-2.965***
Employment							
Employees	Residual Privatization	44	49394 (22369)	51230 (25104)	1835 (2736)	0.61	0.922
	Non-Residual Privatization	87	47871 (17472)	51390 (19052)	3519 (1580)	0.60	1.202
Leverage							
Total Debt to Total Assets	Residual Privatization	44	0.27 (0.24)	0.28 (0.28)	0.02 (0.04)	0.52	0.467
	Non-Residual Privatization	87	0.29 (0.28)	0.27 (0.27)	-0.02 -(0.02)	(0.54)	-1.384

***,**,* Significant at 1,5 and 10 percent levels, respectively

Table 14 - Difference-in-Differences Robustness Analysis

ROS

	Before	After	Difference [After-Before]
Non-Residual Privatization	4.88	6.54	1.66**
Control Group 1	6.47	6.07	-0.40
Control Group 1 + 2	6.40	6.27	-0.14
Residual Privatization	7.11	7.07	-0.03
Control Group 1	4.88	5.39	0.51
Control Group 1 +2	4.89	5.86	0.97*
Difference (Non-Residual - Control Group 1)	- 1.59	0.48	2.06***
Difference (Non-Residual - Control Group 1 +2)	- 1.52	0.28	1.79**
Difference (Residual - Control Group 1)	2.23	1.68	-0.5
Difference (Residual - Control Group 1+ 2)	2.22	1.21	-1.0

ROA

	Before	After	Difference [After-Before]
Non-Residual Privatization	3.35	4.35	1**
Control Group 1	4.02	3.86	-0.16
Control Group 1 + 2	4.05	4.16	0.12
Residual Privatization	4.38	4.37	-0.01
Control Group 1	3.31	3.41	0.10
Control Group 1 +2	3.63	3.88	0.25
Difference (Non-Residual - Control Group 1)	- 0.67	0.48	1.15**
Difference (Non-Residual - Control Group 1 +2)	- 0.70	0.18	0.88*
Difference (Residual - Control Group 1)	1.07*	0.96	-0.1
Difference (Residual - Control Group 1+ 2)	0.75	0.49	-0.2

EBIT Margin

	Before	After	Difference [After-Before]
Non-Residual Privatization	12.70	13.39	0.69
Control Group 1	13.72	12.52	-1.19*
Control Group 1 + 2	14.02	13.16	-0.86
Residual Privatization	13.67	13.80	0.13
Control Group 1	11.06	11.78	0.72
Control Group 1 +2	11.60	12.51	0.91
Difference (Non-Residual - Control Group 1)	- 1.02	0.86	1.88**
Difference (Non-Residual - Control Group 1 +2)	- 1.32	0.23	1.54
Difference (Residual - Control Group 1)	2.61	2.02	-0.5
Difference (Residual - Control Group 1+ 2)	2.07	1.29	-0.7

Sales Efficiency

	Before	After	Difference [After-Before]
Non-Residual Privatization	94.52	108.94	14.42***
Control Group 1	99.78	111.46	11.68***
Control Group 1 + 2	99.66	111.03	11.37***
Residual Privatization	95.67	105.93	10.25**
Control Group 1	97.31	102.45	5.14
Control Group 1 +2	98.31	105.74	7.42*
Difference (Non-Residual - Control Group 1)	-5.26**	- 2.52	2.73
Difference (Non-Residual - Control Group 1 +2)	-5.13**	- 2.09	3.04
Difference (Residual - Control Group 1)	-1.63	3.49	5.12
Difference (Residual - Control Group 1+ 2)	- 2.64	0.19	2.83

Net Income Efficiency

	Before	After	Difference [After-Before]
Non-Residual Privatization	- 4.848.77	1.851.76	6700.524***
Control Group 1	494.05	4.226.82	3732.77
Control Group 1 + 2	- 936.22	5.919.97	6856.18***
Residual Privatization	- 5.112.25	101.88	5214.132*
Control Group 1	- 7.137.32	3.966.97	11104.28***
Control Group 1 +2	- 5.930.19	9.499.88	15430.07**
Difference (Non-Residual - Control Group 1)	-5.342.81**	-2.375.07	2967
Difference (Non-Residual - Control Group 1 +2)	- 3.912.54	-4.068.21	-155
Difference (Residual - Control Group 1)	2.025.07	-3.865.08	-5890*
Difference (Residual - Control Group 1+ 2)	817.95	-9.397.99	-1021

Sales Efficiency

	Before	After	Difference [After-Before]
Non-Residual Privatization	29.833.30	34.502.60	4669.30
Control Group 1	35.958.59	41.298.55	5339.96
Control Group 1 + 2	39.899.49	48.043.86	8144.37
Residual Privatization	33.450.51	37.988.91	4538.40
Control Group 1	38.890.01	44.500.68	5610.67
Control Group 1 +2	44.854.63	53.502.17	8647.54
Difference (Non-Residual - Control Group 1)	- 6.125.29	- 6.795.95	-670
Difference (Non-Residual - Control Group 1 +2)	- 10.066.19	- 13.541.26	-3475
Difference (Residual - Control Group 1)	- 5.439.50	- 6.511.77	-1072
Difference (Residual - Control Group 1+ 2)	- 11.404.12	- 15.513.26	-4109

Net Income Efficiency

	Before	After	Difference [After-Before]
Non-Residual Privatization	12.674.76	19.113.41	6438.65
Control Group 1	19.274.75	23.219.57	3944.82
Control Group 1 + 2	20.001.88	26.616.99	6615.11
Residual Privatization	26.782.03	31.862.41	5080.38
Control Group 1	15.395.52	26.591.45	11195.93
Control Group 1 +2	19.006.21	34.382.72	15376.52
Difference (Non-Residual - Control Group 1)	- 6.599.99	- 4.106.16	2493
Difference (Non-Residual - Control Group 1 +2)	- 7.327.12	- 7.503.58	-176
Difference (Residual - Control Group 1)	11.386.51	5.270.95	-6115*
Difference (Residual - Control Group 1+ 2)	7.775.82	- 2.520.32	-1029

Table 15 - Difference-in-Difference Regression with control variables

This table shows the results of the robustness analysis made for the DiD regression in the case of Non-Residual operations. The coefficients of the regressions are on the first line for each variable, where *, ** and *** represent their significance at 10%, 5% and 1% levels. The t-statistics were computed with heteroskedasticity-robust standard errors and clustering at the country level. The dependant variable are the proxies used for profitability and the control variables are aimed at capturing differences in firm-factors, economic and political environment

	Non-Residual								
	ROS (1)	ROS (2)	ROS (3)	ROA (1)	ROA (2)	ROA (3)	EBIT Margin (1)	EBIT Margin (2)	EBIT Margin (3)
Privatized	0.012	0.010	-0.001	-0.007	0.002	0.001	0.022	0.007	-0.018
	(0.61)	(0.51)	-(0.04)	-(0.74)	(0.20)	(0.10)	(0.42)	(0.13)	-(0.37)
After	-0.004	-0.001	-0.003	-0.002	0.003	0.001	-0.012*	-0.010**	-0.014**
	-(1.00)	-(0.41)	-(0.93)	-(0.76)	(1.54)	(0.52)	-(1.97)	-(2.17)	-(2.57)
After*Privatized	0.020**	0.015**	0.017**	0.011**	0.007	0.008	0.018**	0.014	0.016
	(2.87)	(2.16)	(2.15)	(2.66)	(1.59)	(1.68)	(2.11)	(1.54)	(1.58)
Log(Assets)		0.007	0.000		-0.005	-0.005		0.003	0.004
		-(0.26)	-(0.07)		-(1.63)	-(1.70)		(0.54)	(0.86)
GDP Growth		0.825***	0.834***		0.685***	0.670***		1.024***	1.032
		(7.12)	(9.89)		(7.17)	(7.33)		(6.30)	(6.21)
Freedom from corruption			-0.0005*			-0.001			-0.001**
			-(1.81)			-(1.28)			-(2.14)
Business freedom			0.000			0.000			-0.001
			-(0.71)			(0.83)			-(1.20)
Investment freedom			0.001			0.000			0.001
			(1.15)			(0.08)			(0.73)
Constant	0.037***	0.034	0.070	0.040***	0.091**	0.119	0.104**	0.059	0.192**
	(3.25)	(0.69)	(1.12)	(6.66)	(2.40)	(1.28)	(2.48)	(0.66)	(2.17)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1382	1373	1261	1388	1379	1267	1388	1381	1269
Adjusted R^2	0.081	0.071	0.092	0.004	0.070	0.083	0.064	0.088	0.130

Table 16 - Multivariate Regression for EBIT Margin and NIEFF

This table shows the results of the multivariate regressions including the main explanatory variable, state ownership, and control variables. The coefficients of the regressions are on the first line for each variable, where *, ** and *** represent their significance at 10%, 5% and 1% levels. The numbers in brackets underneath each coefficient are the t-statistics from the heteroskedasticity-robust regression. The dependant variable are proxies for profitability and efficiency

	EBIT Margin (1)	EBIT Margin (2)	NIEFF (1)	NIEFF (2)
State Ownership	-0.132***		12.060	
	-(7.97)		(0.78)	
Majority		-0.083***		12.102
		-(7.05)		(0.74)
Z50		-0.062**		-22.44
		-(2.48)		-(1.44)
Z40		-0.049***		28.538
		-(3.83)		(1.03)
Z30		0.004		6.998
		(0.44)		(0.46)
Exited		0.076***		-48.1
		(3.41)		-(1.49)
Size	-0.007***	-0.007***	10.405	9.9208
	-(2.97)	-(3.07)	(1.10)	(0.99)
Economic Cycle	0.566***	0.613***	816.4	832.0
	(3.03)	(3.32)	(1.25)	(1.32)
GDPpc	-0.02	-0.0241	39.59**	36.59**
	-(1.59)	-(1.46)	(2.16)	(2.34)
Ease of Doing Busines	0.000***	0.002***	1.795***	1.702***
	(1.88)	(6.63)	(3.59)	(3.13)
Freedom from corruption	0.001*	0.0007**	0.176	0.1161
	(2.93)	(1.96)	(0.42)	(0.27)
Business freedom	-0.00***	0.001***	2.738*	2.814*
	-(0.06)	(2.99)	(1.78)	(1.90)
Investment freedom	0.002	0.000	0.853	0.904
	(7.49)	-(0.38)	(0.60)	(0.63)
Constant	0.244	0.221	-811.805	-777.2105*
	(1.64)	(1.51)	-(1.67)	-(1.65)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	1593	1593	1547	1547
Adjusted R^2	0.143	0.145	0.015	0.015

Déclaration sur l'honneur

Je, soussigné(e), Nuno Filipe Magalhães Moreira, certifie sur l'honneur que je n'ai rien plagié dans le travail ci-joint, ce qui signifie que je suis le seul auteur de toutes les phrases dont le texte est composé. Toute phrase ayant un autre auteur que moi a été mise entre guillemets, avec indication explicite de sa source. Je suis conscient(e) qu'en contrevenant à la présente règle je transgresse les principes académiques reconnus et m'expose aux sanctions qui seront prononcées par le conseil de discipline.
J'atteste également que ce travail n'a jamais été présenté dans le cadre d'études antérieures à ESCP Europe.
S'il s'agit d'un travail réalisé dans le cadre d'études effectuées en parallèle, je dois le préciser.

Les propos tenus dans ce mémoire n'engagent que moi-même.

Fait à Paris le

Affidavit

I the undersigned, Nuno Filipe Magalhães Moreira, certify on the honor that I have not plagiarized the paper enclosed, which means that I am the only author of all the sentences this text is composed of. Any sentence from a different author than me was written in quotation marks, with explicit indication of its source. I am aware that by contravening to the present rule, I break the recognised academic principles and I expose myself to the sanctions the disciplinary committee will decide on.
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The remarks written in those pages only commit me.

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