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REGULATORY INDEPENDENCE, OWNERSHIP AND FIRM VALUE: THE ROLE OF POLITICAL INSTITUTIONS

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Abstract

We study the effect of the establishment of independent regulatory agencies on the market-to-book ratios of publicly traded European regulated firms observed from 1994 to 2005. We find that independent regulation in combination with residual State ownership positively affects the market value of regulated firms while high leverage increases the market value of privately controlled firms. The positive relationship between firm value and the government's stake is particularly strong and significant in countries where political institutions do not constrain the power of the executive. We conclude that where the institutional foundations of regulatory commitment are weak, the government tends to affect the regulatory process in order to benefit State-owned firms.

Keywords

Regulatory Independence; Privatization; Firm Value; Leverage; Political Institutions

JEL Classification: K23, L33, L51, L90, G32

1. Introduction*

Starting from the early 1990s, network industries in the European Union experienced deep structural reforms. Liberalization packages have been introduced at the national level yielding enhanced competition via horizontal and vertical de-integration and non-discriminatory third party access, and efficiency improvements via tariff regulation. In order to improve regulatory governance and foster the transition from State to private ownership of natural monopolies, the European Commission enacted directives promoting the delegation of regulatory competencies from central governments to formally Independent Regulatory Authorities (IRAs), as it happened in the US at the beginning of last century.[1] IRAs have been thus established to act on behalf of the State while remaining formally independent of (central or local) governments, ministries, and bodies of the public administration. The OECD describes these new entities as "one of the most widespread institutions of modern regulatory governance" (OECD, 2002).

Independent regulation has been one of the key institutional innovations in network industries and several studies have analyzed its effects on regulated firms' operating performance, prices and firm's productivity, capital structure and fixed investment.[2]

Yet, the economic literature has not established empirically whether this process had an impact on the market value of regulated firms, which channels can be identified to link regulatory independence to valuation, and how they interact with firm ownership and countries' institutional endowment. In this paper, we try to fill this gap: we set up a theoretical framework using a political economy approach establishing such a link and test its predictions on a large sample of publicly traded, State-controlled or (fully or partially) privatized European utilities, for the 1994-2005 period, when large scale structural reforms were taking place in most countries.

A useful starting point for the analysis is to consider the economic effects of enhanced regulatory independence in the utility sector. The seminal contribution by Levy and Spiller (1994) has theoretically shown that the establishment of an IRA creates a more credible regulatory environment and this in turn strengthens investment incentives. Recent empirical evidence (Wallsten, 2001; Gutierrez, 2003; Cubbin and Stern, 2005; Cambini and Rondi, 2010a) supports this view. Still, formally independent regulators may behave opportunistically vis-à-vis the firm by revising their regulatory decisions (i.e. retail or wholesale tariffs) once firms' investment is already sunk.

To overcome regulators' commitment problem, the literature suggests that firms can use their financial structure. Spiegel and Spulber (1994) show that the strategic use of capital structure can shield the regulated firms' investment incentives against regulatory opportunism because regulators may decide to keep regulated rates relatively high to mitigate the risk of financial distress. By allowing the firm to raise its leverage and become exposed to bankruptcy risk, the regulator ties his/her own hands not to reduce the regulated rates ex-post, thus overcoming the commitment problem that curbs the investment incentives of the regulated firm. This theory thus establishes a strategic relationship among price regulation, investment and leverage via the political cost of default.

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1 In the US for example the Federal Communications Commission was set up in 1934 (but was preceded by the Federal Radio Commission), while the Federal Energy Regulatory Commission was formed in 1977, but its predecessor, the Federal Power Commission was founded in 1920. In contrast in Europe, apart from the UK, the other countries introduced independent regulatory agencies starting from the mid-Eighties, but mostly in the mid-Nineties. For an overview of the European regulatory institutions, see Baldwin and Cave (1999).

2 See Armstrong and Sappington (2007) and Guthrie (2006) for two comprehensive surveys and Bortolotti, Cambini, Spiegel and Rondi (2011) for recent evidence on capital structure and prices.

However, this theoretical argument hinges upon private ownership and control of utilities, an assumption which is completely at odds with the reality of most advanced and developing countries. Bortolotti and Faccio (2009) have shown that the overwhelming majority of firms privatized in OECD countries (mostly utilities) are still under government control. Bortolotti and Perotti (2007) document that the privatization in most developing and emerging countries is far from advanced, let alone accomplished. This fact changes the empirical implication of the theory: if the utility is State controlled, the conflict of interest between regulators and the regulated firm is limited by the government's stake in the company, which does not need any longer to resort to leverage to assuage the regulator. Bortolotti, Cambini, Rondi and Spiegel (2011; BCRS hereafter), using a large panel of EU utilities, find consistent evidence on this observation: independent regulation affects leverage and in turn regulated rates *only if* the utility is privately controlled. So it is not just regulation that matters, but regulation *cum* ownership.

Following this argument, we claim that firm ownership is critical to understand the effect of regulatory independence on firm value. Consider for example a utility where the State retains significant ownership and control rights: the government as ultimate owner of may wield its political power to "capture" the regulator outright, obtaining a favourable regulatory outcome which will enhance the value of its residual stake in the firm. This political benefit from residual State ownership will accrue also to private shareholders, which will demand shares of government-controlled utilities, reinforcing the valuation effect. Private and public shareholders of regulated utilities will thus enjoy and share an economic rent at the expense of consumers.

This outcome is more likely to emerge if the formally independent regulator is more exposed to political interference, i.e. if the regulator is not *de facto* independent, and this motivates our further investigations. From the empirical point of view, *real* regulatory independence is very difficult to measure, but it is strongly related to the credibility – in terms of countervailing powers - of political institutions and to the likelihood of changes in the policy regimes (see the survey by Spiller, 2004). We thus study how the relationship between market value and State ownership varies with the institutional constraints on executive's power, our prediction being that the relationship should be stronger where weak checks and balance systems do not constrain political interference in the regulatory policy. To capture country specific features of national political systems we use three alternative variables: a measure of checks and balances sourced from the World Bank Database on Political Institutions, the index of political constraints by Henisz (2000), and an index of political fragmentation constructed by Bortolotti and Pinotti (2008) updating Gallagher (1991).

Our empirical results are consistent with this argument. We find that residual State ownership positively affects the market value of regulated firms and that the beneficial effect of State ownership on firm value is strong and significant in countries where political institutions do not impose constraints upon governmental action and administrative discretion. Indeed, if an effective check and balance system is not in place, or if the electoral system produces a limited set of parties fostering the power and stability of the executive, the government can more easily interfere in the regulatory process for the benefit of the companies in its portfolio. In contrast, for privately-controlled utilities, we find that regulated firms boost market value by using leverage strategically, consistent with Spiegel and Spulber (1994). Private and public large shareholders of utilities will thus influence independent regulator through two different channels: the former via leverage, the latter via residual stakes if political institutions are weak. Results survive using different estimation methods and controlling for reverse causality, sectors characteristics, and different thresholds of ownership and control rights.

A few papers have addressed related issues. Ai and Sappington (2002) investigate the impact of incentive regulation for U.S. telecoms and show that local telecoms companies (RBOC) earnings are higher (by approximately 16%) under price cap than under rate of return regulation. Grout and Zalewska (2006) uses a sample of UK privatized companies between 1993 and 2000 and show that the regulatory changes significantly affect market risk. More specifically, they show that a change from price cap to profit sharing between companies and customers decreases firm's market risk. Beltratti, Bortolotti and Milella (2007) study the effect of residual State ownership on expected returns, finding that a portfolio of fully privatized firms requires a premium to compensate political risk. To the best of our knowledge, our paper is the first systematic analysis on the impact of ownership on independently regulated firms' market value in the EU that identifies residual State ownership as a discriminating factor to understand this fundamental relation.

The rest of the paper is organized as follows. In Section 2 we present the theoretical and empirical background of our analysis. In Section 3 we describe the institutional context. In Section 4, we describe our data, specifically the sample, the firm level data and the regulatory, ownership and political variables. In Section 5 we present the empirical results from estimating the market value regression, while in Section 6 we account for the effect of different political institutions. In Section 7 we present some robustness checks. Section 8 concludes.

2. Literature Background and Theoretical Framework

A fundamental contracting problem of regulation is the credibility of regulatory commitments. Being investments in utilities infrastructure typically sunk and services consumed by the population at large, politicians may behave opportunistically vis-à-vis the utility in order to cater special interests groups, for example by forcing the utility to charge prices below long run average costs, to favour some suppliers, to impose labour conditions or third party access to strategic infrastructures. Politicians have been typically recognized as "bad regulators": as eloquently described by Stigler (1971, p. 3), "the political process defies rational explanation: 'politics' is an imponderable, a constantly and unpredictably shifting mixture of forces of the most diverse nature, comprehending acts of great moral virtue (the emancipation of slaves) and of the most vulgar venality (the congressman feathering his own nest)". Hence credible regulation boils down to restraining the power of the executive to expropriating the utilities' investments (Spiller, 2004).

A key element of credible regulatory governance system is the establishment of independent regulatory agencies (Levy and Spiller, 1994). A qualifying feature of independent regulation is the ability to shield regulatory decisions from political interference. In practical terms, this involves the creation of a regulatory body formally separated from the government and endowed with the powers to take and enforce the critical decisions for the regulated industries (such as rates, quality provision, investment incentives, entry conditions, etc.). Independent regulators are thus institutions operating as a "bonding mechanisms" against political opportunism, designed to create arms' length relationship between politics and regulated firms. Further advantages of independent regulation include enhanced expertise, flexibility in decision-making and sector-specific knowledge that reduces asymmetric information problems. Altogether, these features promote stability and continuity of regulators' course of action, enhancing their credibility (Majone, 1997; Gilardi, 2002 and 2005).

Indeed, recent empirical literature has shown that the establishment of IRAs has created a more stable regulatory environment fostering regulated firms' investments. Wallsten (2001) finds that the privatization of telecom providers in Latin America and Africa was positively related to larger investment in connection capacity and phone penetration, but only where an independent agency exists. Gutiérrez (2003) investigates the relationship among regulatory independence and investment and shows, for telecom companies in Latin American and Caribbean countries from 1980 to 1997, that regulatory independence has a positive impact on the number of phone lines per capita. Cubbin and Stern (2005) show, for a panel of electric utilities in developing countries from 1980 to 2001, that the existence of an independent regulator is associated with higher generating capacity. Li (2009), using data of 22 mobile carriers from 7 countries in the period 1995-2007, shows that regulatory independence is associated with higher mobile penetration and network expansion, higher technical efficiency, TFP growth and innovation and finds that the relationship is stronger when firms are privately-controlled. Cambini and Rondi (2010a) find that the inception of an IRA has a positive impact on the investment decisions of a large panel of EU public utilities. Trillas and Montoya (2011) present an analysis of the evolution of regulatory independence for 23 Latin American and Caribbean countries in the telecommunications industry and show that a higher independence is associated with a higher network penetration. The better ability to make credible long-term commitments by an IRA has been empirically supported also by Guasch, Laffont, and Straub (2008). They study a sample of 307 transportation and water concession contracts in Argentina, Brazil, Chile, Colombia, and Mexico over the period 1989 to 2000, and find that although 45% of the transport concession contracts and 71% of the water concession contracts were renegotiated, the presence of an IRA lowered the probability of renegotiation by 5%-7.3%.

The establishment of independent regulators provides investors with some amount of protection against the threat of future policy changes. Hence, the government itself might be in favour of delegating power to these bureaucrats as a way to commit to foster investment and market efficiency.

But what happens when the government maintains equity stakes in regulated firms? In a regime of credible independent regulation, firm ownership should be completely neutral for regulatory decisions. In principle, the only objective of regulatory intervention should be to pursue welfare maximization, independently of the private or public status of the regulated firm.

However, when governments retain ownership rights in firms, they may have incentives to create a *de iure*, but not *de facto* independent regulator. More particularly, once the IRA is established, the government could wield its political power to "capture" the regulator outright, obtaining a favourable regulatory outcome which will enhance the value of its residual stake. Therefore, the original conflict of interest between politicians and regulated utilities could be significantly weakened in the presence of residual State-ownership (Spiller, 1990; Laffont and Tirole, 1991; Laffont, 1996): governments will now seek more favourable regulatory decisions because a share of the profits will eventually accrue to the budget via dividends. This will allow politicians to avoid tax increases, cuts to public expenditures, or other politically costly decisions.

Our claim is that government ownership of utilities might alter the credibility of regulatory commitments, and ultimately affect the expected value of future cash flows and firm value. State owned regulated firms will face a less stringent "independent" regulator, while privately controlled firms will be subject to a tougher regulatory stance. This preferential treatment will be anticipated by rational investors, who will ask a premium for privately controlled firms, increasing the cost of capital. This argument explains why the market value of partly privatized firms tends to be higher than fully privatized firms as documented by Gupta (2005), Beltratti, Bortolotti, Milella (2007) and. Bortolotti and Faccio (2009).

In this perspective, the seminal study by Levy and Spiller (1994) shows that the credibility and effectiveness of a regulatory framework varies with a country's institutional endowment. In fact, regulation is broadly considered to be far more credible – and the regulatory commitment problem less severe – in countries with political systems that constraint executive discretion. (Spiller, 2004, page 628). Also market reforms, such privatization and liberalization, are often driven by, an vary with, political institutions and ideology (Duso and Seldeslachts, 2010). Moreover, the presence of political constraints on executive discretion not only limits the potential interference on regulatory decisions but also directly affect firms' operating decisions. Henisz and Zelner (2001) show empirically that tighter constraints on executive discretion, by improving government's ability to commit not to expropriate the property of privately-owned regulated firms, lead to a faster deployment of basic telecommunications infrastructure. The same argument should apply in our context, with more solid checks and balance systems associated with more credible regulation and neutrality of residual public ownership of regulated firms.[3]

To summarize, the following testable hypotheses stems from our previous arguments:

Hypothesis 0: Government ownership of utilities regulated by an Independent Regulatory Authority should not affect regulated firms' market value.

If the first hypothesis is rejected, then we proceed in testing the following:

[3] To our knowledge, the only paper that has addressed – though in a completely different setting and without considering, as we do, the effect of heterogeneous political systems - the twist between government ownership and regulatory independence, is the study by Edwards and Waverman (2006). Using a sample of 15 EU incumbent telecommunications operators tracked from 1997 to 2003, the Authors show that public ownership of the incumbent positively affects wholesale rates, suggesting that governments influence regulatory outcomes in favor of incumbents in which they are substantially invested. However, this effect is mitigated when in presence of institutional features enhancing regulatory independence from the government.

Hypothesis 1: Government ownership of regulated utilities affects positively market value when the institutional constraints on executive discretion are weak.

To test Hypotheses 0 and 1 we exploit the heterogeneity in our sample across ownership structures (private vs. state control), regulatory frameworks (independent vs. non-independent regulatory agencies) and political systems (strong and weak political institutions that make regulatory commitment more or less credible) to examine the strategic interaction between regulation, government ownership and firms' market value.

3. The Institutional Reforms in the EU Utility Sectors

Following a big wave of nationalization after the Second World War, network industries in Europe were largely dominated by vertically integrated, Stated-owned, monopolies. Under this regime, utilities were viewed as an operational branch of the government and were instructed to provide universal services at low prices, absorb unemployment, and invest in infrastructure. The government in turn played the dual role of owner and "regulator," and set tariffs, quality standards, and investment levels. This arrangement however created ill-performing and highly inefficient public monopolies (Megginson and Netter, 2001).

Starting from the mid 1980's in UK, and early 1990's in the rest of Europe, the European Commission has promoted a gradual liberalization and regulatory process intended to improve the efficiency and service quality of EU public utilities and boost their investments. In particular, the European Commission enacted a number of directives aimed at setting up a common regulatory framework for EU member states, which were in turn required to transpose these directives into national legislation.

One of the most important of these EU-driven reforms is perhaps the institution of Independent Regulatory Authorities (IRAs), which were given the mandate to regulate the activity of network industries and to discipline the potential conflict of interest between the government and State controlled utilities. The IRAs ought to operate with their own specialized staff and detailed tasks, independently of ministries or government departments. The European Commission especially urged member states' governments to establish formally independent regulators within country- wide sectors like energy and telecommunications, leaving, however, the decision about the definition and the scope of the delegated powers to national executives. Typically, delegated regulatory tasks involve price setting decisions, both at retail and wholesale level - whenever access to essential facility is needed to develop market competition -, the definition of entry conditions, the imposition of quality standards and all the technical rules to use or access to existing infrastructures. IRAs have implemented a variety of regulatory mechanisms that differ across countries and sectors and change over time, so that the inception of the IRA cannot be directly related to the adoption of a specific scheme. These regulatory tools range from the typical cost-plus (rate of return) to incentive-based schemes, either in the form of price or revenues caps or through yardstick competition.[4]

As for privatization, the European Commission left the decision about the ownership of regulated energy utilities entirely in the hands of national governments (see Bortolotti et al., 2003, for a comprehensive analysis of the privatization process in Europe). As a result, after more than a decade, many large EU utilities are still controlled by central and local governments, especially as far as France, Germany, and Italy, and the energy sector, are concerned. The implementation of these institutional reforms (modern regulation, privatization, market liberalization) varies considerably across EU countries and sectors. Table 1 reports the year in which an IRA was established, the timing of transposition of sectoral Directives in each Member State, and the allocation of proceeds from privatization over time. The data refer only to energy and telecoms because in water supply and transport infrastructure a common regulatory framework is still under construction, IRAs still do not exist (so regulation is carried out by government committees or within ministries) and privatization process are lagging behind. As shown in Table 1, in most member states,

[4] Within telecommunication sector, for example, all regulators have shifted – over time - from cost-plus to price cap as far as retail services are concerned, but mostly still apply cost-plus regulation to wholesale charges. In the energy sector, some countries (the UK, for example) adopted incentive mechanisms while some others switched from rate of return to incentive based pricing (like Italy and Spain), and some (like Germany and France) rely only on cost-plus mechanisms. For further information on the evolution of regulatory schemes in telecoms and energy sectors, see OECD (2006) and Cambini and Rondi (2010b), respectively.

privatizations followed the implementation of EC directives on the adoption of regulatory framework and the inception of IRAs.

Reforms are most advanced in the telecom industry, where liberalization started in 1987 with the publication of the Green Paper for the Development of the Common Market for telecommunication services and equipment. The Green Paper was followed by a sequence of directives, starting from Directive 90/388 on "Competition in the markets for telecommunications services," which established the institution of national IRAs in each Member State. Table 1 shows that independent regulatory agencies now operate in virtually all member states: in the U.K. the IRA was established in 1984, while in the other EU countries IRAs were set up in mid nineties. As far as firm ownership is concerned, most of the telecom companies are (at least partially) privatized and, as of 2005, Governments held majority UCR only in the German and Swedish incumbents.

Market liberalization reforms are also advanced in the energy sector, where the majority of electric and gas utilities are subject to regulation by an IRAs. The milestone legislation is Directive 96/92 for the electricity, followed by Directive 98/30 for the gas market; these directives aimed at gradually introducing competition in generation/production and distribution, as well as at unbundling the various segments of the energy value chain. Importantly, these directives established independent national regulatory agencies: the U.K. was again the first country in Europe to establish an IRA in 1989, the other countries followed from 1995 to 2000, while Germany was the last one to set up an IRA for energy utilities in 2006. As regards firm ownership, the only fully privatized energy utilities are British. At the opposite side stands the French government, which, with its larger than 80% stake in both Gaz de France and Electricitè de France (and the 32% stake in Telecom France), appears as the most reluctant to release control in regulated utilities.

Finally, in water supply and in transportation infrastructure (docks and ports, airports and freight motorways) structural reforms still lag behind. With the exception of the U.K., most water and transportation utilities are still controlled by central and local governments and subject to regulation by ministries or other branches of the government rather than by independent regulatory agencies.

4. The Sample and Data

4.1 Regulatory, Ownership and Firm-level Variables

For the empirical analysis we use an unbalanced panel of 88 publicly traded utilities and transportation infrastructure operators from EU 15 founding member states, tracked from 1994 to 2005. All firms operate in regulated sectors, i.e. where entry and prices are subject to regulatory oversight either by the State through ministries, governmental committees, or local governments or by a formally Independent Regulatory Agency (IRA), and many, though publicly traded on a stock exchange, are partially owned by the government. The regulated sectors include electric and natural gas utilities (in both distribution and transmission), water supply companies, fixed telecoms, freight roads concessionaires, and transport infrastructure operators such as ports, airports authorities, and rail infrastructure.

In order to study the effect of regulatory independence on firms' financial behavior, we use a dummy that is equal to 1 in all years in which the firm was subject to regulation by an IRA and equals 0 otherwise. The IRA dummy was constructed using data and information on IRAs' inception dates taken from Gilardi (2002 and 2005) for the energy and telecommunications sectors in which IRAs already exist in all countries in our sample. As shown in Table 1, the U.K. introduced an IRA in 1984 in the telecom industry and in 1989 in the energy sector, while most countries established an IRA only in mid nineties, most of them in the time span between 1995 and 2000. We complemented this data by drawing from additional sources information about the presence of IRAs in the other sectors: freight roads, airports, port and docks, and water supply. As mentioned in Section 3, we found that only the water industry in the UK has an independent regulatory agency. Overall, 60 firms are (or become) subject to an IRA while 28 are regulated by a governmental committee or a ministry.

For all the companies in our sample, we identify and track overtime the ultimate control rights (UCR) by the State which equal to the sum of the minimum ownership stakes along the control chain (i.e., the weakest link concept).[5] Among the 88 firms, 42 firms are privately-controlled throughout our sample, 22 are State-controlled throughout our sample period, and 24 were "privatized" during our sample period (i.e. when the State's ultimate control rights fall below 50% during our sample period). As Figure 1 shows, privatized utilities often display complex ownership structures, with pyramiding often used to separate share ownership and control.

A first examination of our data reveals that the State has a stake in sixty-two companies and that thirty-seven of the partially State-controlled utilities are subject to an IRA. In Table 2 we report, for the ten largest utilities in the telecom, energy and infrastructure sectors, the IPO date, the share of UCR held by government and the total market capitalization at the end of our sample period (2005) as well as the year since when they operate under an IRA. We note that 4 out of 14 public telecom operator incumbents were fully privatized by 2005 whereas two, the German and the Swedish PTOs were still controlled by the State with more than 50% of the UCR. Only the two UK energy operators are fully privatized, though E.ON (Germany) and Iberdola (Spain) have government UCR below 5%. In contrast the two France operators were still State-owned with a share larger than 80% as of 2005. Compared to telecoms, energy IRAs were introduced later, mostly around the year 2000. Finally, among the largest infrastructure utilities, most freight road operators have been fully privatized, but none are subject to an IRA. Overall, the data reveals some cross country differences, for example privatization appear to be lagging behind in France, Germany and more advanced in Spain and in the U.K. where most of the companies in our dataset are under private control during most of the sample period.

Accounting and financial market data have been collected from *Worldscope*. As a measure of firm value we use the market-to-book ratio. This ratio is calculated as total assets minus the book value of equity plus the market value of equity divided by the total assets. The market value of equity is computed by multiplying the number of outstanding shares at the end of the relevant year by the share price at that date converted into U.S. dollars.

4.2 Political and institutional variables

As forcefully stated by Levy and Spiller (1994), the credibility of regulatory commitments depends upon the ability of the political system to constrain administrative discretion, which in turn is affected by the structure and organization of political institutions. Formal institutional arrangements constraining executive discretion include the explicit separation of powers, an effective "checks and balance" system between the organs of government, and an electoral system which facilitates party proliferation and political fragmentation.

Recent empirical literature on political economy has developed a vast array of political variables capturing key features of the political system fostering the credibility of regulatory commitments which will be used in our empirical analysis. [6]

A fundamental element of any political system is the number of decision markers whose agreement is necessary before policies can be changed. We thus start with *Checks & Balances*, a time-varying measure of the number of veto powers in the political system based on specific legislative and executive indexes of electoral competitiveness. This index ranges from 0 (low) to 7 (high degree and quality of checks and balances) and is sourced from the World Bank DPI-Database on Political Institutions.[7] This is an index of

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5 The "weakest link" is widely used in the literature to measure control rights. See La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), Faccio and Lang (2002), and Bortolotti and Faccio (2009).

6 For an application of political economy variables to the telecommunication industry, see Henisz and Zelner (2001) and Duso and Seldeslachts (2010).

7 For a detailed description of the World Bank Database on Political Institutions, see Beck *et al.* (2001). This variable "counts the numbers of veto players in a political system, adjusting for whether these veto players are independent of each other, as determined by the level of electoral competitiveness in a system, their respective party affiliations, and the electoral rules" (p. 170). This measure has been widely used in the literature (see, for example, Keefer and Knack, 2007).

political cohesion that measures whether the one or more parties in presidential system, or minority government or parties' coalitions in parliamentary system may constraint the executive branch and the legislature.

As an alternative measure, we use the *Political Constraints Index* by Henisz (2000) which measures the constraints on political behavior imposed by the political institutions and by the credibility of the political system, such as the presence of separate legislative houses, the internal structure of the judiciary and federal institutions, and the effective systems of checks and balances, etc.. The *Political Constraint Index* also varies over time thus allowing for institutional changes and reforms. The main difference between the two measures is that *Checks and Balances* assumes a linear relationship between the number of adjusted veto points and the degree of constraints on policy change, while *Political Constraints* considers the diminishing marginal returns to the addition of veto players (Tsebelis, 2000) by allowing for the alignment across branches of government that increases the feasibility of policy changes and reduces the level of political constraints.

The third variable we use is the *Electoral Disproportionality*, initially developed by Gallagher (1991) and updated by Bortolotti and Pinotti (2008). The index is a measure given by this formula

$$G = \sum_{i=1}^{N} \sqrt{\frac{1}{2}\left(v_i - s_i\right)^2}$$

where v_i is the share of votes obtained by party in general elections, s_i is the seat share of the party i, and N is the total number of parties in the legislature. The index is continuous and time varying; it equals zero when there is perfect proportionality between seats and votes and it increases, on average, as the electoral rule moves towards the majoritarian system. By locating country-years in a political spectrum ranging from the majoritarian and the so-called "consensus" model of democracy, the index is a measure of political fragmentation. A lower electoral disproportionality is indeed associated with a higher effective number of parties in legislature and government and more stable executives (Lijphart, 1999). As highlighted by Levy and Spiller (1994), proportional electoral systems, by inducing party proliferation and fragmented governments, make policy changes less likely enhancing the credibility of regulatory commitments. In contrast, majoritarian systems, characterized by the turnover of strong governments of different stripes, expose regulation to the risk of unexpected policy reversals.

We also control for key features of the financial and macroeconomic environment of the different EU countries. We use the *Investor Protection* index, i.e. the "anti-director rights" index developed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) and updated by Pagano and Volpin (2005) to proxy for the extent of protection and enforcement of investor rights. The index is time-varying and goes from 0 to 7 as shareholders' rights become more and more protected. We expect that higher values of this index would be associated with lower cost of equity and hence higher market value (see, for example, La Porta, Lopez-de-Silanes, Shleifer and Vishny, 2002). Finally, we include *GDP Growth* to account for country specific differences in macroeconomic conditions over time.

4.3 Instrumental Variables

To allow for the potential endogeneity bias of the key variable at stake, i.e. the residual control rights held by the government, we use a set of instruments which have proved valid in previous empirical analyses of the privatization decision (Bortolotti and Faccio, 2009): the *Political Orientation Index*, the *Index of Government Stability* and the *Debt to GDP Ratio*.

The *Political Orientation Index* measures government's political preferences in the right-left political spectrum. The index ranges from 0 (extreme left wing) to 10 (extreme right wing) and is computed as the weighted average of the right-left political orientation scores of the parties forming the executive branch of government, where the weights are equal to the number of parliamentary seats held by each party divided by the total number of parliamentary seats held by the ruling coalition as a whole (see Huber and Inglehart, 1995, updated by Bortolotti and Pinotti, 2008). The *Index of Government Stability* is a time-varying survey-based measure that assesses both the government's ability to carry out its declared program, and its ability to

stay in office. It ranges from 0 (low stability) to 1 (high stability). It is sourced from the World Bank Database on Political Institutions. Finally, the *Debt to GDP* ratio is to control for one country's fiscal condition and is given by the ratio of total government debt (domestic and foreign) to GDP in a given year. These data are sourced from the OECD Structural Analysis Database.

Table 3 summarizes the descriptive statistics for the main firm and country level variables used in the analysis.

5. The Effect of State Ownership on the Market Value of Regulated Firms

According with the theoretical argument developed in Section 2, State ownership could be critical understand the effect of regulatory independence on firm value due to the political pressure the executive can exert when the company is State controlled. Indeed, a potential conflict of interest may arise between the formally independent regulator – the IRA that in principle should treat all firms equally irrespectively of their ownership – and the government, which enjoys an economic rent if the regulation favours State controlled utilities.

To test our first prediction (hypothesis *H0*), we estimate regulated firms' market to book ratios as a function of ownership, regulatory independence and their interaction, country specific characteristics and firm level controls. To this end, we define the *Market-to-Book* ratio as total assets minus the book value of equity plus the market value of equity divided by total assets, as a proxy for firm value, and estimate the following regression:

$$MTB_{it} = \alpha_0 + \alpha_1 GovernmentUCR_{i,t-1} + \alpha_2 IRA_{i,t-1} + \alpha_3 GovernmentUCR_{i,t-1} * IRA_{i,t-1} + \alpha_4 \mathbf{X}_{i,t} + \alpha_5 \mathbf{Y}_{i,t} + \sum_i \mu_i Firm_i + \sum_t \lambda_t Year_t + \varepsilon_{it}, \quad (1)$$

where MTB_{it} is the *Market-to-Book* ratio of firm *i* in year *t*, $GovernmentUCR_{i,t-1}$ and $IRA_{i,t-1}$ are the lagged values of the continuous government ultimate control rights variable and of the IRA dummy, $GovernmentUCR_{i,t-1} * IRA_{i,t-1}$ is the interaction term that allows us to test for the effect of State ownership when the IRA is in place,[8] $\mathbf{X}_{it}$ is a vector of firm-specific variables, $\mathbf{Y}_{it}$ is a vector of country-specific variables, and ε_{it} is an error term.The vector of firm controls in this regression includes the *Log of Real Total Assets* to control for size, the *EBIT-to-Total Assets* ratio to control for profitability/efficiency and firm *Leverage*, defined as total financial debt divided by the sum of book equity and total financial debt.[9] These specifications are rather standard in the literature (see, for example, Morck, Shleifer and Vishny, 1988; McConnell and Servaes, 1990; Lang, Ofek and Stulz, 1996; and, more recently, Black, Jang and Kim, 2006). However, it is important to note that when leverage is chosen optimally *a là* Modigliani-Miller, changes in leverage are driven by changes in parameters like the size of the firm, asset tangibility, GDP growth, non-debt tax shields, or changes in the regulatory framework. These parameters in turn may also affect the value of the firm directly, thus producing correlation between leverage and market value. However, our sample examines firms that were only recently privatized and regulated by IRAs, and hence it is realistic to assume that these firms do not yet have an optimal capital structure. For these reasons we argue that it is particularly important to control for leverage in our market value regressions.

The vector of country-specific controls includes *GDP growth* to control for contemporaneous macroeconomic shocks, and the *Investor Protection* index to account for the fact that stronger investor protection may lower the cost of equity and therefore boost firm value while lowering its leverage. All regressions include firm and time-specific fixed effects.

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8 A similar approach was used by Kwoka (2002 and 2006) to assess the differences across private and public ownership in, respectively, the prices charged by U.S. electric utilities and their cost efficiency.

9 The reason for not using market leverage in this regression is to avoid the spurious correlation resulting from the fact that the market value of equity appears both in the numerator of *Market-to-Book* and in the denominator of market leverage.

To partly address potential reverse causality, all firm variables are lagged one year and moreover we add year and firm fixed effects to filter out unobserved firm heterogeneity that is constant over time. As this approach does not assure unbiased estimations, we further implement instrumental variable regressions. Specifically, because utilities with better performance are more likely to be privatized, we deal with potential endogeneity of both the ownership variable and its interaction with IRA by estimating a two-stage least squares model, where country-specific institutional and political variables as well as firm variables, which may have influenced the decision to privatize State-owned public utilities while being uncorrelated with the error term, are used as instruments. Our instrument set thus includes the one-year lags of the *Political Orientation index*, its interaction with the IRA dummy, the *Debt/GDP* ratio, *Government Stability* and country dummies. The tables report the Hansen J statistics to test the null of the validity of all instruments, the Hausman test of the null hypothesis that the endogenous variable (in our case, *Government UCR*) could actually be treated as exogenous, and the C statistics to test the exogeneity of suspect regressors, such as the *IRA* dummy and the *Leverage*. In Table 4, we present the O.L.S. estimates in Columns (1) and (2) and the IV coefficients, where we allow for potential endogeneity of firm ownership, in Column (3) and (4).

The results in Column (1) show that neither State ownership nor the presence of an IRA seem to influence the regulated firms' market value. Both variables display a positive sign, but the estimated coefficients are insignificant. When we look at the control variables, we find that the market to book ratio is negatively related to firm size and not significantly related to firm leverage. Moreover, market value tends to be larger in countries where investor rights are better protected by the law and GDP growth is faster. Column (2) adds the interaction between Government UCR and IRA. We find that, although ownership remains insignificant, the IRA coefficient turns significantly negative, while its interaction with Government UCR is positive and highly significant. The positive coefficient on the interacted terms suggests that when the IRA is in place, the larger the share held by the State, the higher the firm market value.

To allow for potential endogeneity of the ownership variable, we turn to the instrumental variable (2SLS) estimates. The results are in Columns (3) and (4). The identification tests cannot reject the null hypotheses that the set of instruments we use is valid, nor that the lagged IRA dummy in the regression is exogenous. Moreover, we note that the endogeneity test also cannot reject the null hypothesis that the specified endogenous regressor, i.e. *GovernmentUCR* could actually be treated as exogenous. We find that the results do not change. In Column (3), where we do not account for the interacted effect, the positive coefficient on *Government UCR* has turned significant. Column (4) confirms the OLS results, the stand-alone IRA dummy is significantly negative, State ownership insignificant, and their interaction positive and highly significant.

So far we have used the continuous ownership variable, but to further check the robustness of our results we can also test whether they hold when using two plausible thresholds of state ownership, i.e. two dummies that equal 1 when the Government UCR are equal to and greater than 50%, and equal to and greater than 30%, to cover the case that the state as a shareholder might exercise control even when it holds less than the majority interest. The Appendix Table 1 reports the results from estimating the specification with the interaction between the IRA dummy and the ownership dummies. In Columns (1) and (2), the fixed effect estimates show the positive effect that state ownership displays on the market value of regulated utilities, when the IRA is in place. When we turn to the I.V. results in Columns (3) and (4), we find that the estimated coefficients on the interacted terms confirm this evidence and are highly significant both at the 30% and at the 50% threshold.

To provide a counterfactual analysis, we also examine what happens when the company is privately controlled. We thus regress a similar specification where we replace the *GovernmentUCR* variable with a dummy that identifies privately controlled utilities if the ultimate control rights held by the State are below the 50% threshold and, for robustness, the 30% threshold. We report the OLS and IV results in the Appendix Table II. Following Spiegel and Spulber (1994), and in line with the empirical test by BCRS (2011), we focus here on the interaction between the IRA and the leverage term. If the privately controlled firm strategically use the capital structure to influence the regulator's decisions in their favor, we should observe a positive coefficient on the *Leverage*IRA* term. Column (1) shows that the coefficient of *Book Leverage* is negative and significant, while the coefficient of *Book Leverage*Private Control* is positive and significant and larger in absolute value than the *Book Leverage* coefficient. This latter result suggests that, other things being equal, an increase in *Book Leverage* is associated with a higher *Market-to-Book* ratio when the firm is

privately-controlled. The sign of the coefficient of *Book Leverage* may then reflect the typical negative relation between the two variables that has been found in the literature (see e.g., Frank and Goyal, 2009). In Column (2), we use the more restrictive (30%) definition of private control and the results are similar. Finally, in Columns (3)-(4) we present the IV estimates where we instrument the ownership variable and its interaction with the IRA with country specific variables that are supposed to have influenced the decision to privatize the utility (i.e. the *Political Orientation* and the *Government Stability* indexes). To instrument the leverage term we use asset tangibility (the fixed to total assets ratio) and non-debt tax shield (the ratio of depreciations and amortizations to total assets). An inspection of specification tests reassures about the validity of our set of instrument and at the same time suggests that the null of the exogeneity of both the private control dummies and the IRA dummy cannot be rejected. Our results show that the coefficients on the interacted term are positive and significant in both columns consistent with the idea that privately controlled firms use leverage to boost market value.

Our empirical test provides robust evidence rejecting our Hypothesis 0. In the next section we try to interpret this result and analyze its political economy implications.

6. Firm Value and State Ownership: the Role of Political Institutions

The results obtained so far suggest that the ownership stake held by the government, by offering a shield against regulatory opportunism, boosts the firm's market value. Interestingly, the government stake seems to provide a substitute for standard legal protection of investors, because the previously significant *Investor Protection Index*, no longer matters when we include the *GovernmentUCR*IRA* interaction.

The relevant research questions are now the following: Why does the positive effect of the government stakes appear only when the IRA is in place, i.e. which kind of "protection" is granted by the government shareholder when there is an IRA? And under what conditions is the positive impact of State ownership more likely to materialize? If regulatory powers are formally delegated to the IRA and if the government retains a stake in the firm, one may expect that politicians will try to affect regulatory outcomes for their own benefits (e.g. by demanding a soft regulatory stance maintaining high tariffs that will accrue, via dividends, to the public budget). Private investors of the regulated firm will thus side with the government and value positively its presence as a shareholder. Interestingly, this system of incentives is likely to emerge just because IRAs are in place, since IRAs are the interface between the State - as one of the large shareholders - and the State - as the Government that formally delegates the IRA itself to regulate the returns of the industry. In principle, this effect should not materialize if all independent regulators were *de facto* independent and not only *de jure* (formally).

From the empirical point of view, real (i.e. effective) regulatory independence is difficult to measure. To test our Hypothesis 1, we thus rely on alternative features of political institutions that may proxy the extent to which the room for manoeuvre of the executive is constrained by institutional checks and balances, and predict that in those countries where these constraints are in place, regulators should be less subject to political interference and ownership does not matter. Indeed, when the number of independent institutional actors with potential veto power increases, the regulator should act – at least in principle - more independently from political pressure.[10] Therefore, in countries where such institutional constraints are stronger, the correlation between market value and government stake should disappear.

Our empirical results are consistent with our predictions. In Table 5, we estimate a market value regression where we split our sample according to the quality of country-specific political institutions as measured by the "*Checks and Balances*" (*C&B*) index drawn by the World Bank Political Institutions Database (see Columns (1) and (2)), by the *Political Constraints Index* constructed by Henisz (2000) (see

[10] In fact, in a system characterized by a unified government, control over bureaucrats is stronger than in systems characterized by a divided government (Alesina and Rosenthal, 1996). Therefore, the probability of observing more independent agencies is higher in systems characterized by divided governments where checks and balances are substantial (Spiller and Urbiztondo, 1994; Spiller, 2004).

Columns (3) and (4)) and by the Gallagher *Electoral Disproportionality Index* (updated by Bortolotti e Pinotti, 2008) (see Columns (5) and (6)).

To classify firm-country-years observations with the highest *C&B* index and the tightest institutional constraints, we refer to the index values at top quartiles of their distributions – more specifically, *Checks and Balances* greater than 4, and *Political Constraints Index* grater than 0.771. The subsamples with low *C&Bs* and political constraints are thus defined by a C&B index equal to or lower than 4 and by a Political Constraint index equal to or lower than 0.77. Both indices vary over time, thus allowing for institutional changes and reforms as well as firms shifting across the "high"-"low" categories. Based on country averages, the highest scores in *C&Bs* and *Political Constraint* indices are obtained by Denmark, Holland, Belgium and Germany. At the other extreme, we find Greece, Portugal, Spain and, especially as far as checks and balances are concerned, Italy. The two measures are positively, but not too tightly, correlated (r=0.29), and indeed we notice that some countries feature relatively high C&B indices, but relatively low values in *Political Constraints* (such as France), and vice-versa (like Sweden). Figures 1-4 report the two indexes over time for two selected countries at the top – Denmark and Germany - and at the bottom – Spain and Italy - ends of the distributions.

When we use the *Electoral Disproportionality* index to identify the political environment that makes policy reversal less likely, we select observations that fall beneath the 25th percentile of the distribution, i.e. when the *Electoral Disproportionality* index is below 5.209. Recall that a low electoral disproportionality is on average associated with a highly fragmented political system, which favors regulatory commitment. Conversely, in majoritarian system, strong government have more latitude to meddle with the regulator. Overall, this index does not display a strong correlation with *C&Bs* (r = -0.06) and *Political Constraints* (r = -0.12). However, on a country by country basis, we noticed that in many countries *Electoral Disproportionality* is negatively correlated with *C&Bs*, suggesting that in majoritarian systems the checks and balances system tends to be less effective. Again using country averages, we note that Denmark, Holland, Germany and Sweden score lower values of the *Disproportionality Index*, while, at the opposite end of the distribution, we find France (the less politically fragmented system with an average value of 31.9), the UK, Greece and Italy. In Figure 3 we plot the evolution over time of the *Disproportionality* index for Denmark and Germany – comparatively more fragmented - and for Spain and Italy – less fragmented.

In Table 5, the fixed effects results reported in Columns (1), (3) and (5) are very similar regardless of the variables we use to split the sample. They clearly show that in countries where political constraints or veto powers are low, a larger share of Government control rights increases market value of the utility when the IRA is in place. Indeed, the larger the share, the higher the incentives to government to capture the regulator for its own benefits, but this will be possible where institutional constraints on the executive are weak, or where unified governments make policy reversal more likely (and regulatory commitment more difficult to sustain). It is interesting to comment also on the negative sign on the standalone coefficient of IRA dummy. Recall that this coefficient by construction captures the effect of independent regulation on the market value of fully privately-owned regulated firms. A possible interpretation for this finding is that "independent" regulators under weak institutional constraints will set a particularly tough stance towards private firms to extract rents for the benefit of consumers. In contrast, in Columns (2), (4) and (6), where we focus on the sub-sample with highest *C&Bs* and tightest constraints to politicians' discretion and room for manoeuvre, State firm ownership becomes irrelevant. Our results suggest that the exploitation of political leverage to obtain higher value (through political interference in regulatory decisions) does not occur whenever regulation is granted independence by countervailing powers constraining the power of the executive. In this case, regulatory decisions are taken by regulators independently of government residual stakes in firms. In Panel B we re-estimate the same specifications using 2SLS estimation where we allow for potential endogeneity of Government UCR and of its interaction with the *IRA* dummy. This specification uses the one-year lags of the political orientation index, its interaction with the IRA dummy, the stability index, the Debt/GDP ratio and country dummies as instruments. The specification tests suggest that the null hypothesis that instrument set is valid cannot be rejected, as well as the null of the exogeneity of Government UCR and of the IRA dummy. The IV estimates are very similar to the OLS results and confirm all our previous findings.

7. Sensitivity Analysis

In this Section we present the results from a sensitivity analysis of the previous market value estimations, by re-estimating our models on two different sub-samples. Results are presented in Table 6 and 7.

From a country level perspective, as noted in Section 3, the UK is the country where the institutional reforms started earlier, IRAs in telecoms, energy and water supply were set up in the Eighties and most firms were fully privatized even before. The peculiarity and relevance of the UK suggest us to check the robustness of our results on a sample which excludes the UK firms. In Table 6 we present the results. Comfortingly, the results support our predictions and are very similar to those reported in Tables 4 and 5. In all columns, even when UK regulated utilities are excluded, the estimated coefficient on the interaction between *GovernmentUCR* and *IRA* is positive and highly significant, both for the full sample and for the subsamples of firm-year observations under weak check and balances political systems.

As far as the sectoral point of view, the analysis in Sections 4 and 5 was based on a diversified set of firms operating in a wide array of industries. Although we control for this large heterogeneity by including firm fixed effects, one might worry about the fact that the extremely different regulatory environment and institutions faced by the firms (Independent Authority, national ministries, local governments or other governmental entity) might somehow bias our results. To address this concern, in this Section we re-estimate our main specifications using the sub sample of EU telecoms and energy (electricity and gas) utilities which at some point in time become subject to the IRA and to similar market reforms as promoted by the EU Commissions from mid nineties onwards.

The results of our OLS estimations with year and firm fixed effects are presented in Table 7. In Column (1), symmetrically to Table 4, we investigate the impact of the continuous ownership variable on the market to book ratio. We find that the *Government UCR*IRA* interaction term is positive and significant, again confirming the results obtained on the full sample. Finally, we account for the role of political institutions by estimating the market to book ratio equation for the subsample of firms under low checks and balances (Column 2), low political constraints (Column 3) and high parliamentary disproportionality (Column 4). The results are consistent with the evidence we obtained in Table 5, i.e. in presence of weak political institutions (with low countervailing powers) or when the government is more unified, and hence where the IRA is formally independent but more likely subject to government interference, the larger the share of government control the higher the firms' market to book ratios.[11]

8. Conclusions

Over the last 20 years and around the world, regulatory competencies in network industries have been delegated to independent agencies in order to improve market efficiency and to avoid the potential conflict of interest stemming from the dual role of the State as owner and regulator. The establishment of IRAs has thus been typically seen as a process to foster credibility regulatory commitment in a context where utilities are (totally or partially) controlled by the State. Regulatory Independence and the State's residual ownership are thus intertwined institutional features that might affect firm's real and financial decisions, and ultimately firm value.

In this paper, we investigate, for a sample of publicly traded European utilities from 1994 to 2005 whether the residual State ownership of regulated utilities is a key variable to identify the channel explaining the valuation effect of independent regulation. Our empirical results show that when the company is still under State control, the residual stake of the government provides an alternate commitment device, shielding the utility from regulatory opportunism. In this context, the government as ultimate owner of the company somehow "captures" the regulator to obtain a more favourable regulatory stance. Our data show that consistent with this view, when the company is subject to "independent" regulation, a larger government

[11] We also re-estimate the baseline regression of the Appendix Table II and we find, similarly to the full sample, that privately controlled energy and telecom companies obtain higher market-to-book ratios the higher is their financial leverage. The results are available on request.

residual stake is associated with an increased market value. This effect appears when the regulator is only formally but not genuinely independent from the government as it happens where weak checks and balance systems and a low political fragmentation do not constrain the power of the executive. On the contrary, where truly independent regulators are in place, the government stake does not provide any additional benefits.

Our results point out a possible regulatory failure in markets dominated by State controlled incumbents and characterized by limited *de facto* regulatory independence. Under these circumstances, the State enjoys and shares with private shareholders an undue economic rent at the expense of citizen/consumers. Given the prevalence of State controlled utilities and the strong power wielded by national governments, this conclusion raises concerns about the effectiveness of liberalization and regulatory policies in network industries in Europe. The formally Independent Regulatory Authority are still, at least in countries with a weak political system, influenced by political opportunism, especially when regulated firms are publicly controlled. To address the problem and therefore to make the recent market reforms on utilities industries really credible, national governments may push forward privatization to eliminate the conflict of interest at the cost of an increased leverage, or improve regulatory institutions in the direction of an enhanced independence and public accountability.

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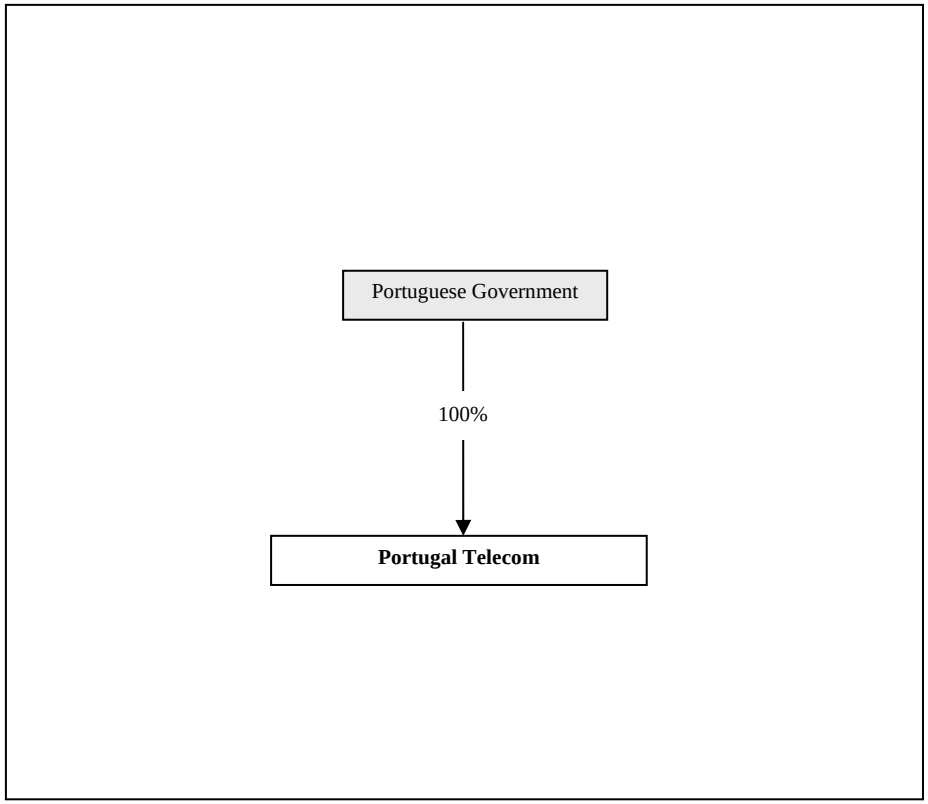
Figure 1. The evolution of the Government Control Rights in EU utilities: the case of Telecom Portugal

As of the end of 1994



As of the end of 2004

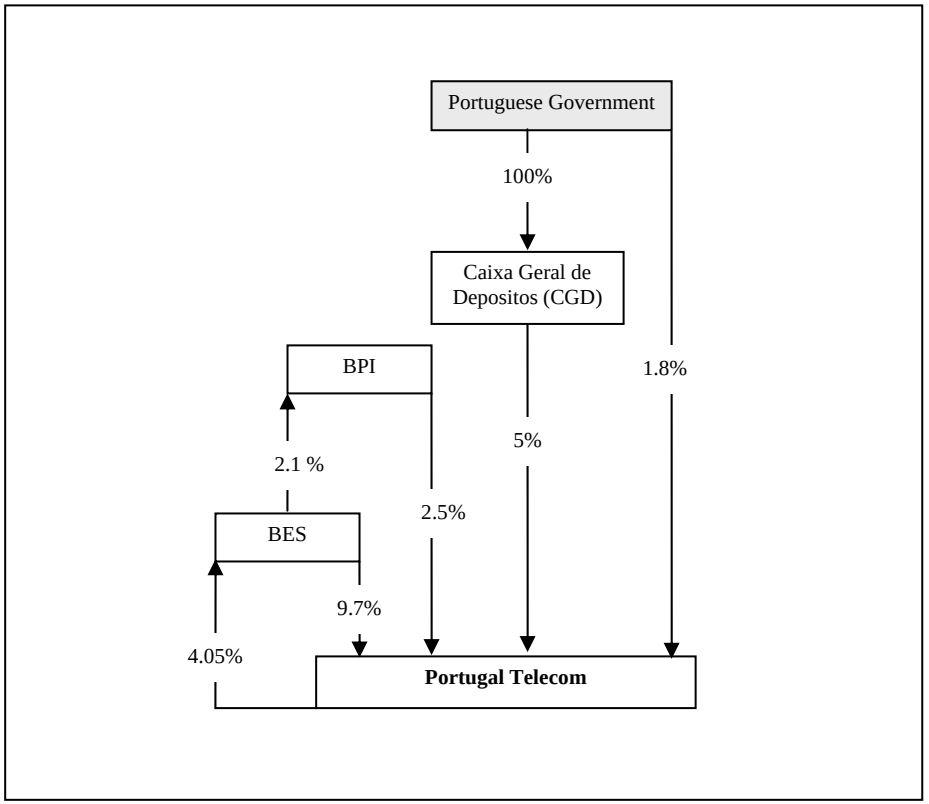
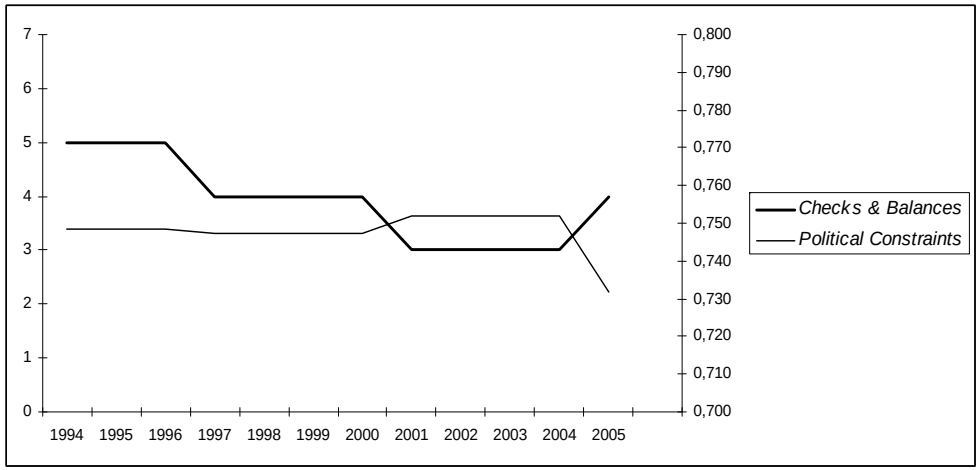
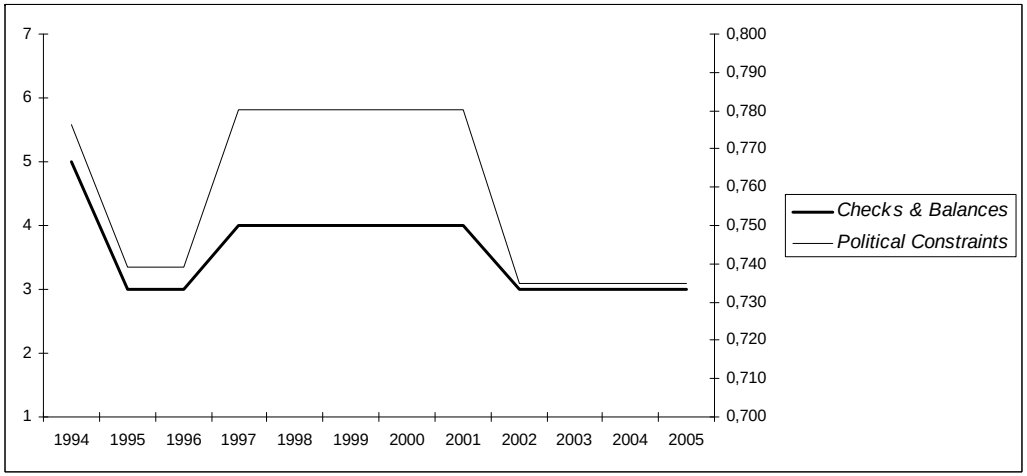


Figure 2
Political Indicators In selected EU countries
***Checks & Balances* – source: Beck et al. (2001) - and *Political Constraints* – source: Heinsz (2000)**

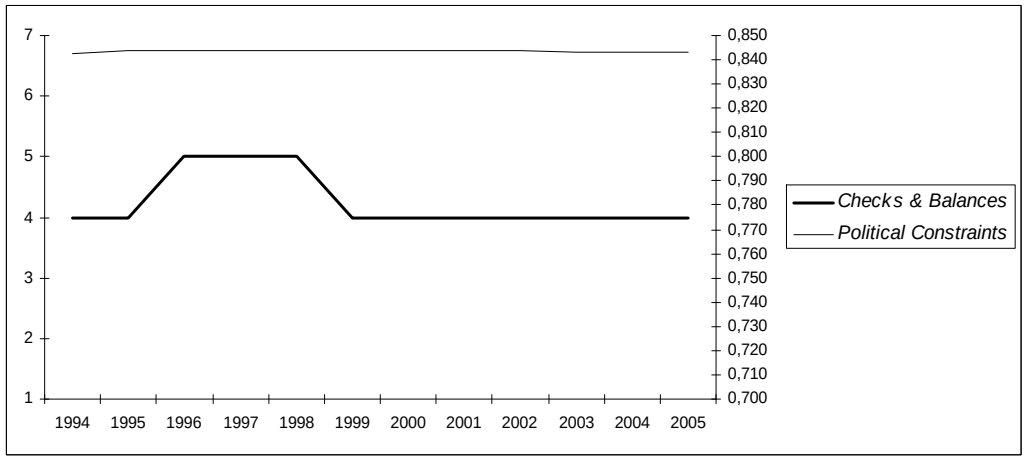
Spain



Italy



Germany



Denmark

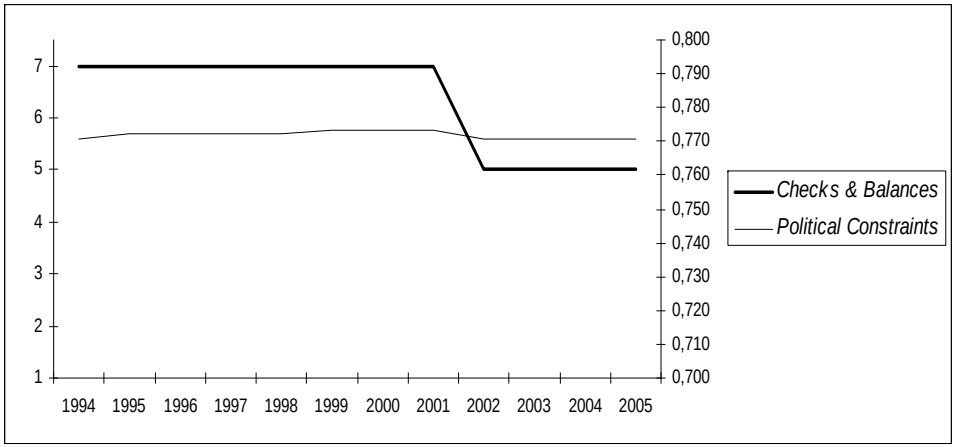


Figure 3

Political Indicators In selected EU countries
***Gallagher Political Institutions Disproportionality Index (*source: Gallagher, 1991, and Bortolotti and Pinotti, 2008)**

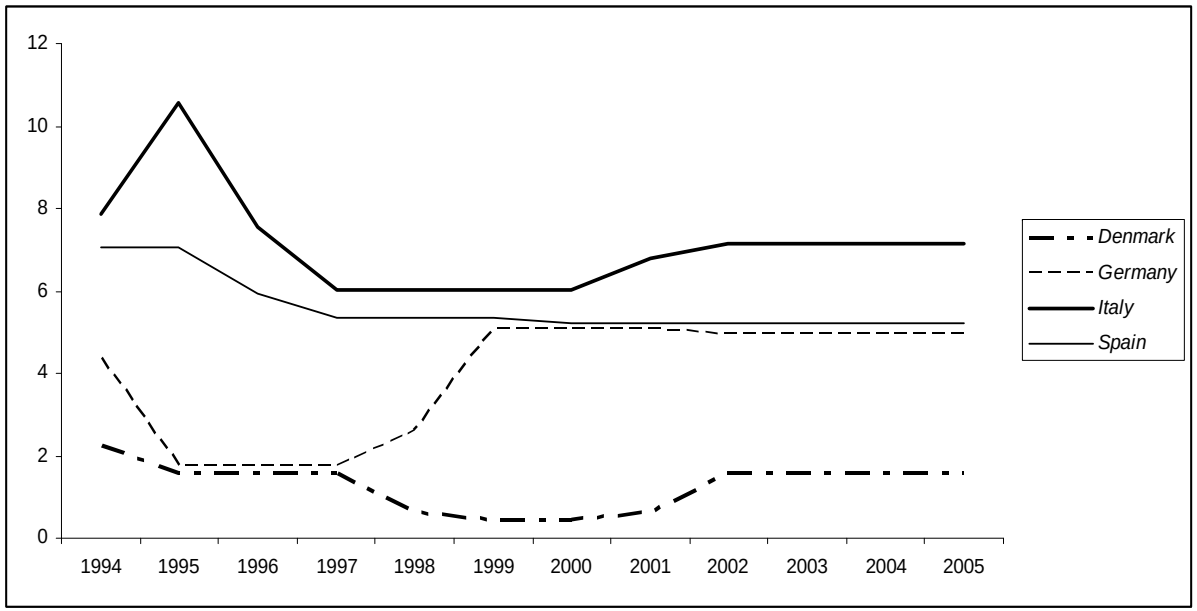


Table 1 -- The timing of regulation and privatization in the energy and telecommunications sectors in European countries

	Energy (Electricity & Gas)					Telecommunications			
Country	**Date of establishment of IRA**	**Liberalization Reform in Electricity (Directive 96/92)**	**Liberalization Reform in Gas (Directive 98/30)**	**Privatization revenues in energy raised before the transposition Directives**	**Privatization revenues in energy raised before the establishment of the IRA**	**Date of establishment of IRA**	**Liberalization Reform in Telecoms (Directive 90/388)**	**Privatization revenues in TLC raised before the transposition Directives**	**Privatization revenues in TLC raised before the establishment of IRA**
Italy	1995	1999	2000	30.52%	0	1997	1997	5.72%	5.72%
UK	1989	2000	2000	100%	18.60%	1984	1997	94.84%	3.07%
Spain	1998	1997	1998	23.91%	52.62%	1996	1997	22.17%	22.17%
France	2000	2000	2003	2.54%	2.54%	1996	1996	2.24%	2.24%
Portugal	1995	1999	2006	66.58%	12.94%	2001	1997	31.19%	100%
Germany	2006	1998	2003	63.15%	100%	1996	1996	0%	0%
Netherlands	1998	1998	2001	16.11%	0%	1997	1998	42.84%	41.86%
Austria	2000	1998	2000	55.40%	70.76%	1997	1997	0%	0%
Sweden	1998	1997	2004	0%	0%	1992	1997	0%	0%
Finland	1995	1998	-	4.47%	0.42%	1987	1997	0.10%	0%
Greece	2000	1999	failure to transpose	2.40%	0%	1992	1999	50.20%	0%
Belgium	1999	2000	1999	10.12%	10.12%	1991	1997	79.33%	0%
Ireland	1999	1999	2000	-	-	1997	1996	0%	0%
Denmark	1999	1996	2001	0%	0%	2002	1996	48.54%	100%

Table 2 – The Top 30 European Regulated Companies by Market Capitalization

Company Name	Country	Date of Establishment of an IRA	IPO Year	Market Capitalization (US$bn, end 2005)	Government Control Rights (end 2005)
Panel A: Telecommunications					
Telefonica de Espana SA	Spain	1996	1987	71.88	0.000
Deutsche Telekom AG	Germany	1996	1996	69.74	0.575
France Telecom	France	1996	1997	64.58	0.324
Telecom Italia SpA	Italy	1997	1997	56.04	0.000
British Telecommunications PLC	U.K.	1984	1991	33.02	0.000
Telia Sonera AB	Sweden	1992	2000	24.10	0.590
Koninklijke KPN NV	Netherlands	1997	1994	21.32	0.078
TeleDanmark AS	Denmark	2002	1994	11.64	0.000
Portugal Telecom SA	Portugal	2001	1995	11.27	0.127
Telekom Austria AG	Austria	1997	2000	10.83	0.302
Panel B: Energy and Water Utilities					
Electricité de France	France	2000	2005	68.88	0.873
E.ON	Germany	2006	1987	68.14	0.048
Enel	Italy	1995	1999	48.29	0.322
RWE	Germany	2006	1922	41.47	0.310
Suez	France	2000	1987	39.10	0.197
Vivendi	France	2000	2000	36.00	0.124
British Gas PLC	U.K.	1989	1986	35.03	0.000
Gaz de France	France	2000	2005	28.80	0.801
National Grid Transo PLC	U.K.	1989	1995	28.67	0.000
Iberdola	Spain	1998	1992	24.60	0.020
Panel C: Airports, Ports and Docks, and Freight Roads					
Abertis	Spain	-	2003	14.36	0.010
Autostrade SpA	Italy	-	1999	13.69	0.000
Autoroutes du Sud de la France (ASF)	France	-	2002	13.65	0.008
BAA PLC	U.K.	-	1987	11.90	0.000
SAPRR (Autoroutes Paris-Rhin-Rhone)	France	-	2004	8.07	0.000
SANEF (Autoroutes du Nord et de l'Est de la France)	France	-	2005	6.21	0.150
Brisa Auto Estradas de Portugal	Portugal	-	1997	5.04	0.050
Fraport AG	Germany	-	2001	4.83	0.586
Associated British Ports Hldgs	U.K.	-	1983	3.04	0.000
Kobenhavns Lufthavne A/S	Denmark	-	1994	2.33	0.392

Table 3 - Summary statistics
88 Publicly listed European regulated firms, 1994 – 2005.

Variable	Mean	Std. Dev.	Min	Max	No. Obs.
Book Leverage	0.272	0.215	0	1	889
Real Total Asset (millions of 2005 dollars)	20,245	32,951	30	205,179	891
Real Sales millions of 2005 dollars)	9,262	14,750	4	80,226	891
Tangibility	0.622	0.210	0.034	0.967	890
EBIT-to-Total Asset	0.074	0.099	-1.948	0.299	871
Market-to-Book	1.416	0.736	0.572	14.176	767
Non-debt Tax Shield	0.052	0.03	0	0.183	891
Government's UCR	0.348	0.359	0	1	891
Independence Regulatory Agency dummy	0.585	0.493	0	1	720
Political Orientation Index	5.662	1.481	3.665	8.025	720
Disproportionality Index	10.712	8.540	0.428	33.739	891
Checks and balances Index	3.823	0.939	2	7	891
Political Constraints Index	0.736	0.100	0.34	0.89	891
Government Stability Index	0.159	0.326	0	1	891
Public Debt to GDP Ratio	0.688	0.266	0.274	1.299	837

Table 4 – Market Value and Government Ownership

The dependent variable is the Market-to-Book ratio defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). *Government UCR* is a continuous variable constructed by Bortolotti and Faccio (2009), which uses the weakest link approach to measure the State's ultimate control rights. *IRA* is a dummy equal to 1 if an independent regulatory agency (IRA) is in place and is equal to 0 otherwise. *Investor Protection* is the time-varying "antidirector rights" index by Pagano and Volpin (2005). The explanatory variables are defined in Section 4.1. The Hansen J statistics tests the null of the validity of all instruments, the Endogeneity test is the Hausman test of the null hypothesis that the suspect endogenous variable (in our case, *Government UCR*) could actually be treated as exogenous, and the C statistics tests the exogeneity of suspect regressors (such as the IRA dummy and the lagged Leverage). Robust standard errors are in parentheses. ***, **, * denote significance at 1%, 5% and 10%.

Dependent variable: MTB ratio	(1)	(2)	(3)	(4)
	O.L.S.		**I.V.**	
Leverage$_{t-1}$	0.050	0.073	-0.019	0.071
	(0.171)	*(0.171)*	*(0.187)*	*(0.182)*
EBIT-to-Total Assets$_{t-1}$	0.622	0.563	0.575	0.494
	(0.466)	*(0.417)*	*(0.460)*	*(0.415)*
Log of real total assets$_{t-1}$	-0.286***	-0.249***	-0.294***	-0.222**
	(0.080)	*(0.070)*	*(0.097)*	*(0.101)*
Investor Protection$_{t}$	0.094***	0.059**	0.136***	0.015
	(0.034)	*(0.026)*	*(0.052)*	*(0.047)*
GDP Growth$_{t}$	0.038	0.065*	0.033	0.097**
	(0.044)	*(0.039)*	*(0.046)*	*(0.048)*
Government UCR$_{t-1}$	0.637	0.016	1.327*	-0.603
	(0.455)	*(0.209)*	*(0.755)*	*(0.681)*
IRA$_{t-1}$	0.093	-0.274**	0.101	-0.682**
	(0.069)	*(0.137)*	*(0.075)*	*(0.279)*
Government UCR$_{t-1}$ * IRA	-	1.414**	-	2.830***
	-	*(0.619)*	-	*(0.999)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.146	0.176	-	-
F Test (*p value*)	0.000	0.000	0.000	0.000
Endogeneity Test (*Gov. UCR$_{t-1}$*) (*p value*)	-	-	0.33 (0.566)	0.11 (0.740)
Hansen J (all instruments) (*p value*)	-	-	1.14 (0.564)	1.48 (0.476)
C Statistic (*IRA$_{t-1}$*) (*p value*)	-	-	0.76 (0.382)	1.48 (0.224)
C Statistic (*Leverage$_{t-1}$*) (*p value*)			0.08 (0.783)	0.29 (0.590)
N. Firms [N. Obs.]	88 [698]	88 [698]	88 [655]	88 [655]

Table 5 – Market Value, Ownership and Political Constraints

The dependent variable is the Market-to-Book ratio defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). The explanatory variables are defined similarly to Table 4. C&B is the *Checks & Balances*, a time-varying index, ranging from 0 to 7, that measures the number of veto powers in the political system according to specific legislative and executive indexes of electoral competitiveness (World Bank Database on Political Institutions). The *Political Constraints Index* by Henisz and Zelner (2001) measures the restrictions to the behavior of politicians imposed by the political institutions and by the credibility of the political system. The *Disproportionality Index* by Gallagher (1991), updated by Bortolotti and Pinotti (2008) is a continuous and time varying index of political fragmentation. The Hansen J statistics tests the null of the validity of all instruments, the Endogeneity test is the Hausman test of the null hypothesis that the suspect endogenous variable (in our case, *Government UCR*) could actually be treated as exogenous, and the C statistics tests the exogeneity of suspect regressors (such as the IRA dummy and the lagged Leverage). Robust standard errors are in parentheses. ***, **, * denote significance at 1%, 5% and 10%.

Panel A: O.L.S. Estimation

Dependent variable: MTB ratio	(1) *Low C&B*	(2) *High C&B*	(3) *Low Political Constraints*	(4) *High Political Constraints*	(5) *High Disproportionality*	(6) *Low Disproportionality*
$Leverage_{t-1}$	0.134	-0.228	0.257	-0.198	0.096	0.302
	(0.172)	*(0.320)*	*(0.205)*	*(0.338)*	*(0.182)*	*(0.394)*
EBIT-to-Total $Assets_{t-1}$	0.631	-0.988	0.715	-0.712	0.652	-1.560
	(0.462)	*(0.788)*	*(0.497)*	*(1.303)*	*(0.475)*	*(1.293)*
Log of real total $assets_{t-1}$	-0.166**	-0.077	-0.210***	-0.388	-0.216***	-1.202*
	(0.073)	*(0.216)*	*(0.064)*	*(0.270)*	*(0.059)*	*(0.628)*
Investor $Protection_t$	0.032	0.078	0.071*	0.074	0.028	-0.023
	(0.028)	*(0.128)*	*(0.041)*	*(0.085)*	*(0.026)*	*(0.304)*
GDP $Growth_t$	-0.026	0.159*	0.044	0.214	0.064*	-0.123
	(0.045)	*(0.090)*	*(0.036)*	*(0.170)*	*(0.038)*	*(0.181)*
Government UCR_{t-1}	-0.074	-0.502	0.101	-0.196	-0.368***	1.172
	(0.207)	*(0.587)*	*(0.251)*	*(0.445)*	*(0.124)*	*(1.194)*
IRA_{t-1}	-0.443***	0.253	-0.208	-0.581	-0.204*	-0.569
	(0.173)	*(0.295)*	*(0.143)*	*(0.392)*	*(0.106)*	*(0.455)*
Government UCR_{t-1} * IRA	2.502***	-0.005	1.192*	2.029	2.373**	1.268
	(0.901)	*(0.609)*	*(0.684)*	*(1.629)*	*(1.162)*	*(0.822)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.258	0.369	0.214	0.207	0.270	0.283
F Test (*p value*)	0.000	0.004	0.000	0.100	0.000	0.152
N. Firms [N. Obs.]	81 [574]	27 [121]	73 [539]	27 [155]	68 [530]	23 [168]

Panel B: I.V. Estimations

Dependent variable: MTB ratio	(1) *Low C&B*	(2) *High C&B*	(3) *Low Political Constraints*	(4) *High Political Constraints*	(5) *High Disproportionality*	(6) *Low Disproportionality*
$Leverage_{t-1}$	0.098	0.274	0.233	-3.321	0.098	0.800
	(0.195)	*(1.422)*	*(0.982)*	*(0.612)*	*(0.184)*	*(0.778)*
EBIT-to-Total $Assets_{t-1}$	0.547	1.415	0.633	-1.816	0.582	-1.297
	(0.475)	*(5.961)*	*0.481)*	*(1.469)*	*(0.434)*	*(1.433)*
Log of real total $assets_{t-1}$	-0.150*	-0.455	-0.192*	-0.397	-0.188**	-0.670
	(0.090)	*(0.422)*	*(0.103)*	*(0.304)*	*(0.075)*	*(0.556)*
Investor $Protection_t$	0.005	0.101	0.053	0.105	-0.005	1.028
	(0.055)	*(0.495)*	*(0.110)*	*(0.171)*	*(0.053)*	*(0.841)*
GDP $Growth_t$	-0.014	0.183	0.058	0.248	0.097*	-0.035
	(0.050)	*(0.169)*	*(0.051)*	*(0.219)*	*(0.057)*	*(0.195)*
Government UCR_{t-1}	-0.559	4.738	0.189	-0.559	-0.768	-4.195
	(0.857)	*(6.885)*	*(0.962)*	*(1.129)*	*(0.690)*	*(3.877)*
IRA_{t-1}	-0.670**	-0.487	-0.472*	-1.126	-0.448*	-0.460
	(0.306)	*(3.667)*	*(0.270)*	*(1.631)*	*(0.266)*	*(0.848)*
Government UCR_{t-1} * IRA	3.447**	1.256	2.149**	3.994	4.801*	1.765
	(1.423)	*(11.128)*	*(0.982)*	*(7.096)*	*(2.480)*	*(2.011)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
F Test (*p value*)	0.000	0.084	0.000	0.274	0.000	0.353
Endogeneity ($Gov.UCR_{t-1}$) (*p value*)	0.01 (0.960)	0.03 (0.867)	0.13 (0.716)	0.129 (0.720)	0.891 (0.345)	0.223 (0.637)
Hansen J (all instruments) (*p value*)	0.82 (0.663)	1.04 (0.593)	1.46 (0.48)	1.937(0.379)	0.765 (0.682)	1.826 (0.401)
C Statistic (IRA_{t-1}) (*p value*)	0.54 (0.460)	0.98 (0.795)	1.40(0.237)	0.01(0.924)	0.392 (0.531)	1.35 (0.245)
C Statistic ($Leverage_{t-1}$) (*p value*)	0.10 (0.752)	0.96 (0.327)	1.24(0.264)	0.26(0.613)	0.610 (0.435)	0.00 (0.986)
N. Firms [N. Obs.]	81 [549]	21 [97]	73 [502]	27 [149]	68 [530]	23 [158]

Table 6 –Robustness: Market Value, Ownership and IRA Excluding the UK

The dependent variable is the *Market-to-Book ratio* defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). The explanatory variables are defined similarly to Table 4. C&B (*Checks & Balances*), the *Political Constraints* and the *Disproportionality Indexes* are defined as in Table 5. Robust standard errors are in parentheses. ***, **, * denote significance at 1%, 5% and 10%.

Dependent variable: MTB ratio	(1)	(2) *Low C&B*	(3) *Low Political Constraints*	(4) *High Disproportionality*
Leverage$_{t-1}$	-0.066	-0.033	0.121	-0.132
	(0.132)	*(0.131)*	*(0.126)*	*(0.132)*
EBIT-to-Total Assets$_{t-1}$	-0.144	1.124	0.874*	0.816
	(0.593)	*(0.761)*	*(0.478)*	*(0.587)*
Log of real total assets$_{t-1}$	-0.177*	0.016	-0.046	-0.065
	(0.093)	*(0.088)*	*(0.054)*	*(0.054)*
Investor Protection$_{t}$	0.085***	-0.060	0.084**	0.036
	(0.031)	*(0.075)*	*(0.037)*	*(0.028)*
GDP Growth$_{t}$	0.082*	-0.022	0.072*	0.075
	(0.045)	*(0.052)*	*(0.040)*	*(0.050)*
IRA$_{t-1}$	-0.112	-0.544**	-0.012	-0.082
	(0.130)	*(0.275)*	*(0.078)*	*(0.086)*
Government UCR$_{t-1}$	-0.251	-0.091	-0.269**	-0.419***
	(0.184)	*(0.264)*	*(0.131)*	*(0.129)*
Government UCR$_{t-1}$ * IRA	0.929**	1.788***	0.396**	0.925***
	(0.459)	*(0.677)*	*(0.163)*	*(0.220)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.160	0.241	0.227	0.278
F Test (*p value*)	0.000	0.000	0.000	0.000
N. Firms [N. Obs.]	64 [478]	57 [354]	49 [319]	44 [310]

Table 7 – Robustness: Market Value, Ownership and IRA in the Telecoms and Energy (Electricity and Gas) Sectors

The dependent variable is the *Market-to-Book ratio* defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). The explanatory variables are defined similarly to Table 4. C&B (*Checks & Balances*), the *Political Constraints* and the *Disproportionality Indexes* are defined as in Table 5. Robust standard errors are in parentheses. ***, **, * denote significance at 1%, 5% and 10%.

Dependent variable: MTB ratio	(1)	(2) *Low C&B*	(3) *Low Political Constraints*	(4) *High Disproportionality*
Leverage$_{t-1}$	0.049	0.048	0.243	0.054
	(0.241)	*(0.238)*	*(0.291)*	*(0.264)*
EBIT-to-Total Assets$_{t-1}$	0.581	0.615	0.722	0.637
	(0.436)	*(0.467)*	*(0.509)*	*(0.474)*
Log of real total assets$_{t-1}$	-0.308***	-0.213**	-0.263***	-0.290***
	(0.086)	*(0.093)*	*(0.071)*	*(0.074)*
Investor Protection$_{t}$	0.004	-0.027	-0.002	-0.020
	(0.047)	*(0.051)*	*(0.071)*	*(0.041)*
GDP Growth$_{t}$	0.018	-0.095*	0.019	0.018
	(0.053)	*(0.057)*	*(0.049)*	*(0.052)*
IRA$_{t-1}$	-0.131	-0.449**	-0.107	-0.218*
	(0.110)	*(0.192)*	*(0.107)*	*(0.128)*
Government UCR$_{t-1}$	0.500	0.223	0.499	-0.221
	(0.430)	*(0.398)*	*(0.481)*	*(0.221)*
Government UCR$_{t-1}$ * IRA	0.996**	2.288***	0.932*	2.193*
	(0.478)	*(0.839)*	*(0.536)*	*(1.140)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.203	0.301	0.261	0.315
F Test (*p value*)	0.000	0.000	0.000	0.000
N. Firms [N. Obs.]	57 [451]	51 [356]	45 [334]	40 [313]

Appendix Table I
Market Value, IRA and Government UCR at 30% and 50% Thresholds

The dependent variable is the Market-to-Book ratio defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). The explanatory variables are defined similarly to Table 4. *UCR30%* is a dummy equal to 1 when the government controls 30% or more of the firm's UCR and is equal to 0 otherwise. *UCR50%* is a dummy equal to 1 when the State's UCR is 50% or greater. Robust standard errors are in parentheses. The Hansen J statistics tests the null of the validity of all instruments, the Endogeneity test is the Hausman test of the null hypothesis that the suspect endogenous variable (in our case, the *IRA dummy*) could actually be treated as exogenous, and the C statistics tests the exogeneity of suspect regressors (such as the UCR dummies and the lagged Leverage). ***, **, * denote significance at 1%, 5% and 10%.

	(1)	**(2)**	**(3)**	**(4)**
Dependent variable: MTB ratio	**O.L.S.**	**O.L.S.**	**I.V.**	**I.V.**
$Leverage_{t-1}$	0.061	0.062	0.104	0.075
	(0.175)	*(0.172)*	*(0.182)*	*(0.177)*
EBIT-to-Total $Assets_{t-1}$	0.641	0.582	0.609	0.515
	(0.496)	*(0.436)*	*(0.489)*	*(0.447)*
Log of real total $assets_{t-1}$	-0.288***	-0.272***	-0.246***	-0.253***
	(0.085)	*(0.076)*	*(0.094)*	*(0.090)*
Investor $Protection_t$	0.068***	0.072***	0.044	0.057*
	(0.026)	*(0.026)*	*(0.028)*	*(0.033)*
GDP $Growth_t$	0.054	0.053	0.078*	0.061
	(0.039)	*(0.040)*	*(0.045)*	*(0.046)*
$UCR30\%_{t-1}$	-0.066	-	-0.324*	-
	(0.093)	-	*(0.193)*	-
$UCR50\%_{t-1}$	-	0.048	-	-0.107
	-	*(0.106)*	-	*(0.328)*
IRA_{t-1}	-0.033	-0.060	-0.081	-0.013
	(0.081)	*(0.081)*	*(0.282)*	*(0.308)*
$UCR30\%_{t-1}$* IRA_{t-1}	0.250	-	1.335***	-
	(0.207)	-	*(0.193)*	-
$UCR50\%_{t-1}$* IRA_{t-1}	-	0.570*	-	0.994**
	-	*(0.345)*	-	*(0.412)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.133	0.152	-	-
F-Test (p-value)	0.000	0.000	0.000	0.000
Endogeneity Test (IRA_{t-1}) (*p value*)	-	-	3.795 (0.051)	2.395 (0.122)
Hansen J (all instruments) (*p value*)	-	-	3.958 (0.138)	3.709 (0.156)
C Statistic ($UCR30\text{-}50\text{-}\%_{t-1}$) (*p value*)	-	-	0.04 (0.845)	0.962 (0.327)
N. Firms [N. Obs.]	88 [698]	88 [698]	88 [698]	88 [698]

Appendix Table II
Market Value, IRA and the Use of Leverage by Privately Controlled Regulated Firms

The dependent variable is the Market-to-Book ratio defined as (Total Assets - Book Value of Equity + Market Value of Equity)/Total Assets). The explanatory variables are defined similarly to Table 4. *Private Control* is a dummy equal to 1 when the firm is privately-controlled (i.e., the government's UCR are below 50%) and is equal to 0 otherwise. *Private control_30* is a dummy equal to 1 when the State's UCR are below 30%. Robust standard errors are in parentheses. The Hansen J statistics tests the null of the validity of all instruments, the Endogeneity test is the Hausman test of the null hypothesis that the suspect endogenous variable (in our case, the *Private Control dummy*) could actually be treated as exogenous, and the C statistics tests the exogeneity of suspect regressors (such as the IRA dummy and the lagged Leverage). ***, **, * denote significance at 1%, 5% and 10%.

	(1)	**(2)**	**(3)**	**(4)**
Dependent variable: MTB ratio	**O.L.S.**	**O.L.S.**	**I.V.**	**I.V.**
$Leverage_{t-1}$	-0.589*	-0.190	-3.767*	-2.464*
	(0.301)	*(0.291)*	*(2.209)*	*(1.426)*
EBIT-to-Total $Assets_{t-1}$	0.691	0.684	0.869*	1.067**
	(0.488)	*(0.485)*	*(0.449)*	*(0.487)*
Log of real total $assets_{t-1}$	-0.300***	-0.294***	-0.349***	-0.293***
	(0.085)	*(0.086)*	*(0.110)*	*(0.097)*
Investor $Protection_t$	0.089***	0.073***	0.048	0.064*
	(0.030)	*(0.026)*	*(0.049)*	*(0.038)*
GDP $Growth_t$	0.042	0.046	0.060	0.031
	(0.042)	*(0.041)*	*(0.047)*	*(0.042*
Private Control Dummy50% $_{t-1}$	-0.463*	-	-0.717**	-
	(0.263)	-	*(0.367)*	-
Private Control Dummy30% $_{t-1}$	-	-0.142	-	-0.905*
	-	*(0.182)*	-	*(0.507)*
IRA_{t-1}	0.031	0.053	-0.158	-0.076
	(0.054)	*(0.059)*	*(0.138)*	*(0.141)*
Private Control Dummy50%$_{t-1}$* $Leverage_{t-1}$	0.807**	-	4.763*	-
	(0.348)	-	*(2.677)*	-
Private Control Dummy30% $_{t-1}$* $Leverage_{t-1}$	-	0.379	-	3.845*
	-	*(0.262)*	-	*(2.051)*
Firm dummies	*Yes*	*Yes*	*Yes*	*Yes*
Year dummies	*Yes*	*Yes*	*Yes*	*Yes*
R squared	0.146	0.133	-	-
F-Test (p-value)	0.000	0.000	0.000	0.000
	-	-		
Endogeneity Test (*Priv Control*$_{t-1}$) (*p value*)	-	-	2.33 (0.675)	3.93 (0.415)
Hansen J (all instruments) (*p value*)			1.15 (0.282)	0.01 (0.956)
C Statistic (*IRA*$_{t-1}$) (*p value*)	-	-	0.89 (0.345)	0.54 (0.463)
C Statistic (*Leverage*$_{t-1}$) (*p value*)			1.05 (0.306)	1.36 (0.243)
N. Firms [N. Obs.]	88 [698]	88 [698]	88 [698]	88 [698]

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