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The political economy of telecoms and electricity internationalization in the single market

Judith Clifton, Daniel Díaz-Fuentes and Julio Revuelta

ABSTRACT As a consequence of liberalization policies in the European Union (EU), a number of formerly inward-looking incumbents in telecommunications and electricity transformed themselves into some of the world's leading multinationals. The relationship between liberalization and incumbent internationalization, however, is contested. Three political economy arguments on this relationship are tested. The first claims that incumbents most exposed to domestic liberalization would internationalize most. The second asserts that incumbents operating where liberalization was restricted could exploit monopolistic rents to finance internationalization. The third argument claims that a diversity of paths will be adopted by countries and incumbents *vis-à-vis* liberalization and internationalization. Using correlation and cluster analysis of EU telecoms and electricity incumbent multinationals, evidence is found in favour of the third hypothesis. Internationalization as a response to liberalization took diverse forms in terms of timing and extent and this is best explained using a country, sector and firm logic.

KEY WORDS Electricity; European Union; internationalization; liberalization; political economy; telecommunications.

1. INTRODUCTION

It was only from the 1980s that the European Commission (EC) started to embark seriously on forging market integration in the network industries, particularly in telecommunications and electricity, despite the fact it had enjoyed significant legal competence in the field since the Treaty of Rome (Clifton *et al.* 2005). The new, liberalized policy environment which extended over these two sectors substantially changed the business options available to incumbents. In particular, liberalization 'enabled' these previously inward-looking domestic incumbents to contemplate, and pursue, expansion abroad. As a consequence, dozens of incumbents – previously perceived by some as inefficient 'lame ducks' fit only for privatization – rapidly transformed into world class multinational corporations. Their emergence provided evidence of a new dawn of European 'international champions', this time not in the traditional industrial sectors (Hayward 1995), but in the network industries since, though business reached many corners of the globe, the overwhelming bulk

of investment was in other EU countries (Clifton *et al.* 2008). Sectoral liberalization could be understood as a response to a concern that European business, including network industries, had to adapt to new technological and competitive challenges from the United States, Japan and beyond. Market integration in the network industries, it was anticipated, would produce a smaller number of more competitive firms better able to confront global challenges. From the 1990s, a significant number of these incumbents internationalized and now figure not only as some of Europe's but the world's largest multinationals. Fifteen years earlier, none of these firms figured in the top 100 ranking. Given this development, it would appear that European policy-makers met with some success.

Now, liberalization was a 'prerequisite' of incumbent internationalization. Internationalization would not have been prioritized or even permitted when nationalized incumbents were domestic monopoly public service suppliers. However, the *precise* relationship between incumbents' internationalization and liberalization is contested. Tension has emerged around the perception that some incumbents embark on aggressive internationalization strategies in other countries which are relatively more exposed to liberalization – even daring to take over 'their' national 'jewel in the crown' – whilst the 'aggressors' home governments delay liberalization in that sector. While this perception could generate disquiet in any industry, it is particularly alive in energy and communications, which have long been considered of strategic national interest (Clifton and Díaz-Fuentes 2010). For successful market integration, it is essential that a level playing field is created and that it is perceived that all players stick to the rules of the game. Hence, common liberalization deadlines are set, and the EC uses various disciplinary instruments to 'punish' non-compliers. In practice, the implementation of liberalization in different settings invariably differs. Political economists ascribe these differences to the various and multiple pressures states receive from different economic actors (Henisz and Zelner 2006; Smith 2001; Thatcher 2001). Purposeful delay – or the *perception* of purposeful delay – could bring market integration to a standstill ('why should we open up, if they aren't?').¹ Thus, the question of states' and firms' responses to liberalization cuts to the heart of the political economy of the integration process.

There are several persuasive arguments in the political economy literature on the relationship between internationalization and liberalization. Three main approaches will be tested here. The first argument underlines the logic of EC policy in this field: sectoral liberalization leads to the erosion of the incumbents' market share, exposing managers to the 'cold winds' of international competition. Fearful of being left behind in the 'race' to internationalization – investment opportunities are limited in these sectors – managers are pressurized to exploit firm economies of scale and know-how in new or more lucrative markets abroad. So, *faster, deeper liberalization at home is associated with greater incumbent internationalization*. The second argument claims that incumbent managers, faced by the challenges presented by liberalization, will lobby government to delay liberalization at home whilst, simultaneously, exploiting

opportunities opened up by countries that liberalize earlier on. High-risk business abroad is supported by 'softer touch' liberalization, so *greater incumbent internationalization is associated with slower and partial liberalization*. The third argument states that liberalization is met by rational behaviour of states and firms but, because institutions matter, the processes of liberalization differ. Internationalization, made possible by liberalization, may be pursued via different strategies, according to characteristics related to the country, sector and firm in question, so *national and sectoral responses to liberalization will result in various internationalization responses, explained by institutional difference; even if different paths are taken towards a similar end point*.

Building on scholarship on telecommunications and electricity reform (Börsch 2004; Eising 2002; Haar and Jones 2008; Héritier 2002; Murillo 2009; Thatcher 2001, 2007) this article analyses the role of liberalization policy in explaining incumbent internationalization in telecommunications and electricity. Correlation and cluster methodology is deployed to analyse all major telecoms (12) and electricity (17) multinationals in the EU plus Norway. After multiple rounds of liberalization, much work is left to be accomplished in telecommunications and, particularly, electricity before market integration is complete (Ilzkovitz *et al.* 2008). In July 2009, the EC ruled E.ON and Gaz de France-Suez had participated in 'market sharing'. Previously, in 2007, the EC ruled Telefónica had set unfair prices. There are, of course, many other less publicized cases.

Deeper insight into the role played by liberalization policy in incumbent internationalization can shed new light on the political economy of market integration. We find no causal relationship between incumbent internationalization and liberalization. Liberalization and internationalization changed the opportunity sets available for incumbents and their governments, but 'policy space' matters. Some larger players aggressively 'swallowed up' smaller or less-convinced market players, in a west-east, north-south direction. Diversity is encountered, at the country, sectoral and, particularly, firm level. Decisions taken inside policy space can have long-lasting consequences on the ways in which the economy is structured.

The rest of the article is organized as follows. Section two presents the three main arguments on the relationship between incumbent internationalization and liberalization and derives the hypotheses. Sections three and four present data on incumbent internationalization and the analysis respectively. Conclusions follow.

2. HYPOTHESES ON LIBERALIZATION AND INCUMBENT INTERNATIONALIZATION

A vast literature exists on why firms internationalize. Here, three main points will be made about the state-of-the-art literature in order to contextualize the political economy literature which deals with the role of policy on internationalization. Firstly, most research firm internationalization focused on the

manufacturing and financial sectors, reflecting the dominance of this profile of multinationals in the twentieth century. Less attention has been paid to why firms in network industries internationalize. Secondly, causes of firm internationalization are complex and multiple. Theories or paradigms developed to explain firm internationalization include multiple variables. One particularly influential perspective is the 'OLI paradigm' (Dunning 1989). Thirdly, scholars are increasingly recognizing the role of policy as a variable in the internationalization decision (Dunning 2009). Policy considerations are important because differences in timing, extent and quality of policies such as liberalization at home and abroad constitute part of the business environment in which firms operate. Policy is even more important, influencing internationalization in the 'heavily regulated' network industries. Telecoms and electricity incumbents had little international presence at the beginning of the 1990s, and regulatory change, including liberalization, 'enabled' their internationalization. Attention is now turned to the conceptualization of liberalization and internationalization in the political economy literature.

The first argument underlies the logic of the single market project, detectable in thousands of EC policy documents. Sectoral liberalization forces incumbents to readjust. Incumbent managers see the erosion of their former monopolistic markets by new challengers. They accept domestic liberalization, fearing its delay could compromise their potential outward expansion owing to reciprocity demands. By embracing liberalization they will be free to exploit scale economies and new markets. Macro-policy reform has a direct impact on firm behaviour, which is assumed to be rational and profit-seeking. This perspective is 'general-istic' because it assumes firms will respond uniformly to policy change. Little attention is paid to country-, sectoral- or firm-based institutional differences. It is also 'optimistic', since it anticipates liberalization will proceed along a lineal path, from design to outcome. If firms, states or both oppose liberalization, EC disciplinary instruments can be used to ensure compliance. This narrative represents the 'hope' of policy-makers: competitive markets will reduce prices and increase choice for consumers. *Hypothesis one claims that the greater a firm is exposed to earlier and deeper liberalization, the more it will respond to increased pressure on its domestic market by increasingly internationalizing.*

Another reading from political economy predicts a different outcome which forms the second hypothesis (Bonardi 2004; Chari and Gupta 2008; Haar and Jones 2008; Sarkar *et al.* 1999). Again, liberalization is understood as being important *vis-a-vis* incumbent internationalization; firms and states are understood to behave rationally; institutional aspects are downplayed. The difference is in the *direction* of the linkage between internationalization and liberalization. In a battle for survival, as liberalization quickens and deepens, firms, sometimes supported by their states, will seek to avoid or restrict liberalization at home. Highly publicized examples of 'national champion' policies include Italian Prime Minister Berlusconi's preference to keep Telecom Italia in 'Italian hands' and France's former Prime Minister Dominique de Villepin's '*patriotisme economique*' pledge to protect 11 'strategic' industries from foreign takeover.

States can deliberately implement liberalization incorrectly, partially or slowly, giving 'breathing time' to domestic players to readjust and exploit other markets which liberalize earlier. State protection of industry may be even more likely to emerge in industries such as networks, owing to historical links and strategic interests. Protection provides firms with monopoly rents, useful when undertaking risky international operations. *Hypothesis two argues that greater firm internationalization is associated with relatively slower and limited implementation of liberalization.*

The third hypothesis is derived from comparative political economy (Hall and Soskice 2001) and its application to sectoral reform (Börsch 2004; Levi-Faur 2006; Murillo 2009; Thatcher and Héritier 2002). The most nuanced account uses a 'policy analysis' approach to argue that different paths to reform – explained by institutional differences – may lead to relatively similar outcomes (Thatcher 2007). Internationalization is analysed as technological, economic and policy/ideational developments which unsettle national spaces, but which are mediated by socio-economic distributional issues, efficiency of institutions' reform capability and state actors. Different national contexts and sectors will be affected differently by internationalization: liberal market economies may be more predisposed to embracing liberalization quickly and deeply than co-ordinated market ones, whilst technological change will tend to be stronger in some sectors than others (for instance, in telecommunications than electricity). Firm characteristics, such as size, existence of scale economies, and prior internationalization experience, may intervene in responses to liberalization and internationalization. *Hypothesis three claims that governments and firms responded in various ways to liberalization, incumbent internationalization being one, and that this can be explained by country, sectoral and firm differences.*

Testing these hypotheses is the central aim of this article. However, there are two secondary questions that require brief attention: ownership and firm size. Liberalization and privatization are conceptually different policies and, whilst the EC has competence in liberalization policy, it is up to national governments to implement privatization (Clifton *et al.* 2006). Did privatization influence internationalization? It could be argued that more privatization makes a company more visible to its stock-holders, forcing it to maximize profits, thus, *more privatization means a firm is more likely to respond to go abroad, seeking out profitable markets (hypothesis four)*. Hypothesis four is the corollary of hypothesis one, since greater liberalization and deeper privatization form part of network industry reform. The opposite of this argument is the corollary to hypothesis two. Mergers and acquisitions are often one-off, risky and politically complex operations: boardroom politics often become transformed into 'high politics' when potential gains are significant. Incumbents with significant political involvement may be at an advantage in that they can access information and politicians to 'lubricate' the operation. Hence, *less privatization should be correlated to more internationalization (hypothesis five)*. Finally, firm size could facilitate internationalization. There may be a minimum size that firms need to reach before internationalization becomes possible. Firm size is a control

variable throughout the analysis. Summing up, four hypotheses predict a lineal, continuous relationship between internationalization and liberalization (one and two), and internationalization and privatization (four and five), albeit in different directions. Correlational analysis measures the strength of the associations between the independent and dependent variables, thus is appropriate to test these hypotheses. Hypothesis three predicts there is no fixed relationship between the variables; rather, there will be multiple paths in terms of the timing and extent towards incumbent internationalization and liberalization, best explained by institutional differences. Cluster analysis is ideal for testing this, since patterns of incumbent behaviour are explored.

3. A 'SNAPSHOT' OF RECENT INTERNATIONALIZATION OF EU TELECOMS AND ELECTRICITY INCUMBENTS

A sketch of the internationalization of major EU telecoms and electricity incumbents is briefly provided. Tables 1 and 2 respectively show the major telecoms and electricity multinationals between 1999 and 2006, ranked by revenue in 2006.² The 'Western bias' can be seen since multinationals emerged there with the East largely as recipient. Data is provided on the timing and extent of internationalization, liberalization and ownership, revenue and employees. Definitions and measurements of internationalization, liberalization and privatization require explanation. International activity takes two main forms: global alliances or the physical extension of the firms' sales, assets and/or employees abroad. It is this second activity that has been most important in telecommunications and electricity, so it is this 'physical' internationalization that is considered here. Internationalization is quantified as foreign revenues as a percentage of overall revenues. Data on foreign operating revenues is derived from annual company reports. Liberalization is quantified using OECD (2009), whose methodology constructs different sets of indicators for telecommunications and electricity liberalization (Conway and Nicoletti 2006). Telecommunications liberalization is measured in two ways. The first indicator is 'entry regulation', meaning to what extent legal systems allow for new entrants, zero being they do not, and one being completely.³ The second indicator, 'market structure', indicates what market share new entrants enjoy, as a means of gauging the extent to which liberalization leads to actual competition, zero meaning none and one the total market. For electricity, 'entry regulation' measures the terms and conditions for third party access, the degree of consumer choice of supplier, and the existence of a liberalized wholesale market for power. The second indicator is 'vertical integration', or the extent of unbundling. Indicators for ownership are also included.

Attention is first turned to the telecoms multinationals. Pressures to reform this sector have been documented elsewhere (Bauer 2005; OECD 2007). In 2006, there were five huge and eight medium-sized EU multinationals. Interestingly, the ranking of the 'giants' changed between 1999 and 2006. In 1999, BT ranked top, followed by Deutsche Telekom. But, by 2006, BT's revenue had

Table 1 EU telecoms multinationals: size, internationalization and regulatory reform indicators 1999, 2003 and 2006

Company	Country	Revenues (1,000 euros)			Employees (1,000)			Internationalization			Entry regulation			Market structure			Privatization		
		1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006
Deutsche Telekom	Germany	35,325	62,739	77,069	203,268	251,263	248,480	8	38	47	100	100	100	51	64	69	41	57	63
Telefónica	Spain	24,458	31,910	66,459	146,619	221,657	232,996	58	38	62	100	100	100	30	39	44	100	100	100
France Telecom	France	29,014	51,821	4,952	174,282	148,288	191,036	13	41	47	100	100	100	39	56	60	39	41	57
Telecom Italia	Italy	29,425	35,051	40,052	122,682	93,187	83,209	6	20	26	100	100	100	30	49	54	96	100	100
BT	UK	35,438	30,359	35,937	136,800	99,900	106,204	7	7	15	100	100	100	63	77	72	100	100	100
KPN Telecom	Netherlands	9,729	14,502	15,126	38,550	31,267	26,287	9	20	29	100	100	100	35	64	52	56	81	92
Telenor	Norway	4,291	7,503	14,201	23,470	26,694	35,600	17	41	64	100	100	100	23	47	49	11	38	46
TeliaSonera	Sweden	8,149	10,108	12,342	40,155	19,450	28,528	10	49	60	100	100	100	36	56	62	15	54	51
TDC	Denmark	5,765	7,945	8,390	17,464	24,872	19,010	42	53	48	100	100	100	56	64	61	100	100	100
Portugal Telecom	Portugal	3,429	6,490	8,235	16,188	19,207	32,058	9	24	37	33	100	100	21	34	48	88	94	93
OTE	Greece	3,622	5,522	7,768	21,588	17,169	17,782	0	19	26	33	100	100	19	50	53	42	66	72
Telekom Austria	Austria	3,966	4,460	5,472	19,347	13,890	15,428	0	11	32	100	100	100	28	66	67	13	53	75
Mean		16,051	22,367	29,667	80,034	80,570	86,385	14.9	30.1	41.1	88.9	100	100	35.9	55.5	57.6	58.2	73.6	79.0
Standard Deviation		13,387	19,796	26,493	70,804	84,511	88,366	17.4	15.1	16.0	26.0	0	0	14.0	12.3	8.9	36.6	24.7	20.9

Sources: Elaborated by the authors based on OECD (2009).

Table 2 EU electricity multinationals: size, internationalization and regulatory reform indicators 1999, 2003 and 2006

Company	Country	Revenues (1,000 euros)			Employees (1,000)			Internationalization			Entry regulation			Vertical Integration			Privatization		
		1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006	1999	2003	2006
E.ON	Germany	52,016	47,616	72,408	132,930	64,969	80,453	48	41	47	50	83	100	M	M	M	100	100	100
EDF	France	32,057	44,919	60,493	135,448	163,694	156,524	18	29	47	28	94	94	I	I	M	0	0	25
RWE	Germany	45,671	47,470	43,076	155,697	139,535	65,910	23	44	48	50	83	100	M	M	M	0	0	25
Enel ++	Italy	20,933	30,345	38,513	78,511	64,770	60,085	0	5	14	33	61	94	I	U	U	0	25	50
Endesa ++	Spain	13,495	16,644	20,774	34,930	26,600	26,948	31	39	48	94	100	100	M	U	U	75	75	75
Electrabel	Belgium	5,859	10,988	14,051	16,439	17,360	16,585	n.a.	28	40	17	61	61	I	M	M	75	75	75
Iberdrola *	Spain	7,504	10,903	11,253	12,653	13,042	16,969	0	12	18	94	100	100	M	U	U	75	75	75
Scottish Power*	UK	6,247	7,626	8,037	15,932	15,490	9,953	0	59	47	100	100	100	U	U	U	100	100	100
Vattenfall	Sweden	3,268	12,538	16,153	7,991	35,296	32,308	6	64	60	100	100	100	M	M	M	0	0	0
EnBW	Germany	4,470	11,300	13,755	12,581	34,719	20,265	9	12	7	50	83	100	M	M	M	0	0	25
National Grid	UK	2,299	13,592	13,603	3,628	28,940	20,529	0	46	46	100	100	100	U	U	U	100	100	100
Unión Fenosa	Spain	3,270	5,864	6,057	10,785	21,269	17,765	9	34	34	94	100	100	M	U	U	75	75	75
EDP	Portugal	3,954	8,030	9,390	13,992	17,388	13,333	2	19	39	28	100	100	M	M	M	50	50	50
Essent	Netherland	5,164	8,112	6,663	9,852	12,206	10,421	0	18	23	94	100	100	M	M	U	0	0	0
Dong Energy	Denmark	915	2,489	4,780	572	1,125	2,944	0	30	33	94	100	100	I	U	U	25	25	25
Fortum	Finland	2,448	4,812	4,571	17,461	13,343	8,910	32	64	73	100	100	100	M	M	M	50	50	50
EVN	Austria	1,116	1,340	2,233	2,221	2,608	9,535	0	9	46	33	100	100	I	M	U	25	25	25
Mean		12,393	16,740	20,342	38,919	39,550	33,496	11.1	32.5	39.4	68.3	92.2	97.1				44.1	45.6	51.5
Standard Deviation		15,920	15,683	20,737	52,160	46,021	38,647	15.0	18.9	16.7	32.4	13.3	9.4				40.0	38.8	33.6

Notes: U=Unbundled; M=Mixed; I=Integrated.

++ ENEL takeover Endesa in March 2007

* Iberdrola takeover Scottish Power in 2006

Sources: Elaborated by the authors based on OECD (2009).

stagnated, having grown much less than the other 'giants', whilst the German incumbent's revenue more than doubled, leading the pack. Telefónica ranked fifth in 1999, but leapt to second place in 2006. Much incumbent growth was fuelled by internationalization. The average extent of incumbent internationalization in 1999 was nearly 15 per cent, increasing to 41 per cent in 2006. Incumbent internationalization was uneven with regard to timing and extent. Both smaller and larger incumbents internationalized. In 1999, internationalization 'stars' included Telefónica (58 per cent) and TDC (42 per cent); by 2006, sales abroad exceeded domestic levels for Telenor (64 per cent), Telefónica (62 per cent) and TeliaSonera (60 per cent). BT was by far the least international of the multinationals by 2006. Regarding liberalization, 'entry regulation' shows that Denmark, Sweden and the UK were 'first movers' during the 1990s; their liberalization preceded implementation of EC directives. The importance of EC directives with regard to timing, however, can be seen as all other countries reached full 'entry regulation' by the 1999 deadline, except those with official extensions: Greece; Portugal; and Ireland. The UK was consistently the most open market for new entrants ('market structure'). Between 1999 and 2003, average access to market share for new entrants increased from 35 per cent to 56 per cent; but this only grew another 2 per cent over the next three years. In 2006, incumbents still enjoyed around 43 per cent of market share, though this was uneven. Telefónica enjoyed the highest market share (66 per cent), whereas BT only had 28 per cent. Of the 'big five', Spain was the least open between 1999 and 2006. As 'first-mover', Telefónica – enjoying monopoly status and having enjoyed significant private ownership from the 1970s – was the internationalization pioneer, taking advantage of the liberalization of Latin American telecoms markets (Clifton *et al.* 2008). Privatization was completed earlier on in BT, TDC and Telefónica, followed by Telecom Italia, and, though telecommunications privatization was widespread across the EU, public ownership remained at 24 per cent on average in 2006, being higher in Deutsche Telekom, France Télécom, Telenor, TeliaSonera, OTE and Telekom Austria.

We now turn to the EU's 17 major electricity Multinationals ranked by revenue in 2006 (Table 2). Technological, economic and ideological factors influencing reform and EU responses are documented elsewhere (Domanico 2007). Unlike telecoms, where there is one major national incumbent, in electricity there may be several, owing to the organization of the sector as regional monopolies or else as a result of unbundling. This fact should not cause sample bias because firms in the same policy environment may – indeed do – behave differently. Thomas (2003) predicted that the single market in electricity would produce a 'seven sisters' oligopoly. More dramatic still, by 2006 the EU only had five energy giants left: E.ON; RWE; EDF; GDF-Suez;⁴ and ENEL. Examining internationalization patterns, E.ON recalls Telefónica's behaviour since it internationalized early on (48 per cent of sales were earned abroad in 1999) while enjoying monopoly conditions at home. Internationalization of incumbents was, on average, 11 per cent in 1999, and 39 per cent by 2006, a strikingly

similar outcome to the extent of internationalization in telecoms incumbents over the same period. International patterns are uneven but it is notable how some of the fastest growing incumbents during this period were the medium-sized firms, namely, Vattenfall, EnBW, National Grid and EDP.

Comparison of the liberalization data for telecoms and electricity shows how, whilst in telecoms, entry regulation was virtually in place by 1999, progress was slower in electricity. One reason for the delay is that the electricity was an inter-governmental process whilst telecommunications was supranational (Levi-Faur 1999). So if, by 1999, most countries had liberalized telecommunications, a number of electricity laggards remained. As in telecoms, the timing and extent of liberalization was uneven. The UK was uniquely early in its pre-emption of EC directives: full liberalization and unbundling were reached by 1995. The Nordic countries were also early movers to liberalize entry regulation, though Denmark was the only one to fully unbundle by 2002. These countries had historically traded electricity with each other to balance their systems and in the late 1990s they established the Nordic Power Exchange for a single electricity market. After the UK lead, the path to unbundling was uneven; Spain (2002), Italy (2003) and the Netherlands (2004) responded to EC directives. France, Belgium, Germany and Portugal moved more slowly. Privatization was slow during the period, increasing on average from 44 per cent to 51 per cent of these incumbents. Here, there was huge diversity: in 2006, incumbents from Germany and the UK were fully privatized, while public ownership still dominated in Sweden, the Netherlands, France, Austria and Denmark. The privatization of incumbent multinationals went much further in telecoms than in electricity.

4. ANALYSIS

The five hypotheses are now tested using correlation and cluster analysis techniques. Results are divided into telecoms and electricity.

4.1. Telecoms

Correlation between variables using Pearson bivariate correlation, Kendall rank and Spearman rank correlation were used to detect the strength of association between internationalization and entry regulation, market structure, ownership, size (revenue and employees) for 1999, 2003 and 2006. However, over this period, correlations were not detected: indicators on liberalization, ownership or size do not explain the extent of incumbent internationalization. No evidence on hypotheses one, two, four or five is obtained.⁵ Next, cluster analysis is deployed to search for groups that are found to be similar in one or more sets of variables, to test hypothesis three. All 12 telecoms incumbent multinationals were considered for extent of internationalization, entry regulation and market structure for 1999, 2003 and 2006. Results are shown in Table 3. Since all

Table 3 Cluster membership of EU telecoms multinationals: Internationalization and liberalization (market entry and market structure)

	<i>Internationalization and market entry</i> 1999	<i>Internationalization and market structure</i>		
		1999	2003	2006
Deutsche Telekom	3	3	4	4
Telefónica	4	2	2	2
France Telecom	3	1	4	4
Telecom Italia	3	1	1	1
BT	3	3	3	3
KPN Telecom	3	1	3	1
Telenor	3	1	2	2
TeliaSonera	3	1	4	4
TDC	4	4	4	4
Portugal Telecom	1	1	1	1
OTE	1	1	1	1
Telekom Austria	3	1	3	4
Valid cases	12	12	12	12

Notes: Based on Squared Euclidean Distance and Average Distance among groups.

1 = Low internationalization and low liberalization

2 = High internationalization and low liberalization

3 = Low internationalization and high liberalization

4 = High internationalization and high liberalization

member states had attained complete entry regulation from 1999, this variable is no longer of use and is excluded from the analysis henceforth.

Cluster analysis reveals some interesting patterns. Starting with 1999, there are two sets of findings: internationalization and entry regulation; and internationalization and market structure. Regarding the former, two incumbents – TDC and Telefónica – set the pace to internationalize, constituting cluster four. Both underwent significant internationalization and were based in countries where entry regulation had been liberalized. The vast majority of incumbents, however, fell into cluster three; here, internationalization is slow, whilst entry regulation is liberalized. Portugal and Greece predictably fall into a fourth category, cluster one; where incumbent internationalization is slow and entry regulation is officially delayed.

Analysis of internationalization and market structure throws a more nuanced light on these results, particularly with regard to the strategies of TDC and Telefónica. TDC is left alone in cluster four, since market share is quite liberalized in Denmark. Telefónica uniquely comprises cluster two, since it embarked on internationalization while enjoying a high share of its domestic market. Hence, TDC and Telefónica emerge as opposites: the two most international of companies pursued expansion based on different shares of the domestic

market. Again, the vast majority of incumbents fell into the same category, cluster one, where both internationalization and market structure liberalization are low. Exceptions are BT and Deutsche Telekom (cluster three), where internationalization is low but market structure is highly liberalized. The clusters in 1999 show that there are no automatic relationships between the variables under study; rather, in similar situations, incumbents pursued different internationalization strategies.

A number of patterns emerge over the next seven years. Firstly, Telefónica is joined by Telenor in cluster two. As mentioned, Telefónica and Telenor were both 'stars' with regard to their aggressive internationalization, both from a context of slower market structure liberalization. Telenor emulated Telefónica's strategy from 2003. Secondly, ambitious internationalization is now pursued by other incumbents but in the context of a liberalized market structure. TDC's strategy is adopted by TeliaSonera, France Télécom, Deutsche Telekom and, to a lesser extent, Telekom Austria, comprising cluster four. There is a third group of incumbents (cluster one) which internationalized more slowly from countries where market structure was less liberalized: Telecom Italia; KPN; Portugal Telecom; and OTE. Finally, BT is alone in cluster three, as incumbent internationalization is low but market structure is liberalized. BT's lower international level is explained by its de-internationalization decision during firm reorganization.

4.2. Electricity

Using the same correlation techniques and periods of time as for telecoms, the extent of incumbent electricity Multinationals was analysed, considering entry regulation, vertical integration, ownership, revenue and employees. No correlations were detected between internationalization and entry or vertical integration. In 1999, there is a significant correlation between incumbent size and internationalization, though this is not seen in 2003 and 2006. It appears that larger firms had the edge when embarking on internationalization strategies in the earlier period. However, since no correlations were found between liberalization and internationalization, no evidence for hypotheses one, two, four and five was detected.

Cluster analysis is applied to detect patterns in incumbent internationalization, considering the same variables and time period as previously. The relationship between internationalization and entry regulation is first analysed (see the left side of Table 4). In 1999, the most internationalized incumbents fell into two clusters. Firstly were those which internationalized strongly whilst entry regulation was liberalized, Fortum and Endesa (cluster four). E.ON, in contrast, stands out for aggressive internationalization in the context of low entry regulation liberalization. As in telecoms, the leader incumbent internationalizers emerged from contexts where liberalization is both less and more advanced. E.ON is reminiscent of Telefónica in its pursuit of ambitious internationalization from a relatively closed market. Most incumbents pursued cautious

Table 4 Cluster membership of EU electricity multinationals: internationalization, entry regulation and vertical integration

	<i>Internationalization and entry regulation</i>			<i>Internationalization and vertical integration</i>		
	1999	2003	2006	1999	2003	2006
E.ON	2	4	4	1	1	1
EDF	1	4	4	2	2	1
RWE	1	4	4	1	1	1
Enel ++	1	1	3	2	3	3
Endesa ++	4	4	4	1	4	4
Electrabel	0	1	2		3	1
Iberdrola *	3	3	3	3	3	3
Scottish Power*	3	4	4	3	4	4
Vattenfall	3	4	4	3	1	1
EnBW	1	3	3	3	3	2
National Grid	3	4	4	3	4	4
Unión Fenosa	3	4	4	3	4	4
EDP	1	3	4	3	3	1
Essent	3	3	3	3	3	3
Dong Energy	3	4	4	2	4	4
Fortum	4	4	4	1	1	1
EVN	1	3	4	2	3	4
Valid cases	16	17	17	16	17	17

Notes: ++ ENEL takeover Endesa in March 2007.

* Iberdrola takeover Scottish Power in 2006.

Based on Squared Euclidean Distance and Average Distance among groups. Internationalization and entry regulation: 1 = Low internationalization and low liberalization; 2 = High internationalization and low liberalization; 3 = Low internationalization and high liberalization; 4 = High internationalization and high liberalization.

Internationalization and vertical integration: 1 = High international and high integration; 2 = Low international and high Integration; 3 = Low international and low integration; 4 = High international and low integration.

internationalization programmes in 1999. There were two similarly sized clusters of incumbents: cluster three where liberalization was more advanced; and cluster one where this was delayed. Included in cluster three were Spanish regional incumbents (Iberdrola and Unión Fenosa) and, in cluster one, German regional incumbents (RWE and EnBW). These Spanish and German incumbents had lower internationalization levels than Endesa and E.ON respectively. Therefore, even a national–sectoral approach cannot account for the variety of firm strategies. Ultimately, varieties of response are firm-level. Finally, most incumbents pursued internationalization slowly; only 5 of 17 pursued internationalization enthusiastically in 1999.

Vertical integration is analysed on the right-hand side of Table 4. Cluster one comprises incumbents which made above-average progress unbundling and where internationalization was stronger: Fortum; Endesa; E.ON; and RWE. In common with telecoms, the vast majority of electricity incumbents internationalized slowly in 1999. In both sectors, only a minority of incumbents were strongly internationalized by 1999. Of the lesser internationalized incumbents, three fell into cluster two, where unbundling is progressing slowly; the bulk (eight) fall into cluster three, where unbundling is ongoing.

How did these incumbents evolve over the next seven years? Analysis is first turned to internationalization and entry regulation. By 2006, there is some convergence, since all incumbents bar Electrabel are in either cluster three or four, both of which are characterized by high liberalization. Of these incumbents, cluster four is dominant, grouping 12 strongly internationalized incumbents – following the pattern set by Fortum and Endesa – based in home markets with liberalized entry regulation. The second largest cluster, three, comprises four incumbents which internationalized less from liberalized environments (Enel, Iberdrola, EnBW and Essent). Interestingly, Iberdrola and Enel, originally ‘hesitant’ internationalizers, completed huge acquisitions after 2006. In 2007, Iberdrola took over Scottish Power and, in 2009, Enel took over Endesa. These incumbents ‘bided their time’ until finally absorbing all the international business of their peers. Chronologically, the UK was the first of the three to liberalize entry, followed by Spain, with Italy trailing behind. From this perspective, a ‘wait-and-see’ logic may have proved advantageous: slower liberalizers took advantage of incumbents in countries that had liberalized previously. The wave of massive mergers and acquisitions reflects the reality that the EU electricity market is characterized by monopolistic competition populated by a small number of huge multinationals. Belgium’s traditionally private Electrabel was the main exception to the rule. Here, a defensive strategy was at work. Electrabel pursued an ambitious internationalization programme between 1999 and 2006 as the government delayed market opening. Fears about the incumbent’s vulnerability were proved correct when immediately, on opening the market, Electrabel was snapped up by Suez, after which both were merged with Gaz de France to form one of Europe’s largest multi-utilities (Bauby and Varone 2007).

With regard to internationalization and vertical integration, the most internationalized of electricity incumbents are divided up nearly equally into two clusters, since, whilst entry regulation liberalization was nearly complete in 2006, progress on unbundling was mixed. First, there was a group of seven highly internationalized incumbents based in countries where unbundling was more advanced (cluster four). This included National Grid, Scottish Power, Endesa, Unión Fenosa, Dong Energy and EVN. These incumbents were able to internationalize as both entry regulation and unbundling were implemented. Second, a group of six incumbents (cluster one) pursued significant internationalization expansion, in a context of liberalized entry but delayed unbundling (E.ON, EDF, RWE, Vattenfall, EDP and Fortum). The main exception was

Electrabel, which had delayed both forms of liberalization. So, Finland's Fortum which, in 1999, seemed to be setting the pace for internationalization in the context of advanced liberalization, and saw its foreign revenues increase over seven years from 32 per cent to 73 per cent, did so whilst unbundling stagnated. A similar observation can be made of the other cluster members. A third cluster, three, comprises three incumbents whose internationalization was slower in a context of greater progress unbundling. EnBW is alone in cluster two, enjoying higher vertical integration but less internationalization. Here, it can be seen how Iberdrola and EnBW, operating in the same policy environment as their other highly internationalized Spanish and German peers, were much slower to internationalize. Again, diversity is beyond national and sectoral patterns – it is ultimately located at the firm level.

5. EXPLAINING INTERNATIONAL PATTERNS IN TELECOMS AND ELECTRICITY

Regulatory reforms defined broadly as liberalization were a prerequisite for the rise of telecoms and energy multinationals. The internationalization of EU incumbents could not have taken place without liberalization of entry regulation and would have been difficult without progress on unbundling and privatization. However, countries implement liberalization in different ways and speeds. While the rationale behind EU policy-making is that liberalization forces the best firms to become more competitive and, often, internationalize, there remains a perception that some countries delay or restrict liberalization, promoting 'national champions' to takeover other countries' strategic 'jewels in the crown' causing tension. A clearer understanding of state and firm response to liberalization helps shed light on the political economy of market integration.

Three main hypotheses on the relationship between internationalization and liberalization were established. The first predicted that incumbents most exposed to earlier and deeper liberalization would internationalize most. The second predicted that incumbents would pressurize states to restrict or delay liberalization, so those with secure financial and political resources would be most able to embark on high-risk adventures abroad. Correlation techniques were used and it was confirmed that no evidence existed on a direct relationship between internationalization and liberalization or ownership. Hypotheses one and two (and secondary hypotheses four and five) were rejected. Hypothesis three asserted that internationalization forces were mediated by rational actors at the country, sectoral and firm levels. Incumbent internationalization could be best understood when multiple institutional layers were considered (internationalization forces; national contexts; sectors and firms). Cluster analysis was used to reveal a diversity of responses to liberalization and internationalization. In general, this diversity can be organized at the country level, with modifications for sectors and, also, for firms.

The size of the economy and firms mattered for incumbent internationalization. The single market led to the emergence of multinationals in

telecommunications and electricity from Western Europe. Large continental countries, particularly France and Germany, dominated the battle in assuring their respective national incumbents would dominate European multinationals in both sectors. Neither were liberalization 'pace-setters' nor consistent 'laggards': rather, they were 'middle-of-the-roads'. France was slower-than-average to liberalize electricity, while E.ON's early internationalization occurred in near monopolistic conditions. In telecoms, France liberalized at an average pace; Germany was somewhat faster. Spain and Italy took strides to join them. Spain was a 'pace-setter' liberalizing electricity but moved slower in telecoms: faster liberalization did not prevent Endesa from emerging as a leading multinational, whilst Telefónica emerged as a leading world multinational in near monopoly conditions. Spain revealed firm-level differences as Iberdrola and Unión Fenosa internationalized more hesitantly than Endesa. Endesa's strong internationalization drive could have been facilitated by its privileged contact with policy-makers, since it had enjoyed significant state participation from its origins in the 1940s, whilst the others had been privately owned (Clifton *et al.* 2007). Italy took longer to liberalize both sectors and its incumbents were slower to internationalize; nevertheless, Enel and Telecom Italia occupied positions in the top-five by 2006, Enel's strategy being to 'wait and see' before acquiring Endesa in 2007. So the most international of the EU's multinational telecoms and electricity incumbents emerged from the larger continental economies: France; Germany; Spain; and Italy. Typically, here, complex corporate cross-shareholding arrangements had developed, and many incumbents had been partially owned by national financial institutions since the 19th century (La Porta *et al.* 1999). So, whilst there were no automatic relations between the timing and extent of liberalization and incumbent internationalization, most of these multinationals emerged thanks to a slower or middle-of-the-road approach to liberalization, possibly allowing the required time for strategic interaction among actors, befitting 'mixed' and 'co-ordinated' market economies (Hall and Gingerich 2009) to orchestrate internationalization. The UK, with its highly developed stock market, often typologized as a 'liberal' market economy, characterized by more arms-length relationships between economic agents, embraced liberalization (and privatization) early on and deeply. Today, UK incumbents do not dominate EU multinational rankings in these sectors. BT sacrificed its domination of the rankings, de-internationalizing in order to restructure. The UK is now an attractive site for investment: Telefónica's O2 has already overtaken Vodafone UK, and proposed mergers between Orange and T-Mobile and France Télécom and Deutsche Telekom would put Vodafone further down the UK ranking. In electricity, Scottish Power was taken over by Iberdrola.

The smaller economies can be analysed in two main groups. First, the Nordic countries: here, in general, liberalization was implemented quickly, while incumbent internationalization occurred mainly at the sub-regional level, suggesting strong co-ordination efforts. Electricity internationalization was shaped by the prior existence of the trade pooling system. A similar observation

could be made for telecommunications: even the blacksheep 'star' internationalizer, Telenor – comparable to Telefónica because it enjoyed relatively delayed liberalization and became very international (as opposed to European) – gained nearly one-quarter of foreign revenue from other Nordic countries. Elsewhere, defensive patterns predominated: in Greece, the Netherlands and Portugal, liberalization was implemented relatively slowly, and incumbents internationalized cautiously. In Belgium, efforts to protect Electrabel via delayed liberalization ultimately failed.

The experience of incumbent internationalization shows that political economy approaches which predict firms will internationalize as an automatic response to earlier liberalization at home, or that firms will lobby a government to delay liberalization while aggressively going abroad, are over-deterministic. They may explain some experiences in Europe, but no such generalized patterns are observed. Instead, paths to incumbent internationalization are best understood by taking into account multiple layers of institutional differences: internationalization forces, country, sector and firm characteristics. Further research should enquire in depth the relative importance of the various institutional differences to explain internationalization outcomes.

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NOTES

- 1 Interview with national regulators in July 2008.
- 2 Annual information 1999–2006 is simplified by showing information from three years which represents the overall trend.
- 3 This is a composite indicator including mobile, trunk and international long-distance telecommunications services.
- 4 Suez took over Electrabel in 2003 and then merged with GDF in 2007.
- 5 Results are shown on our website <http://personales.unican.es/diazd/>

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