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The London School of Economics and Political Sciences

Upgrading in Spain: an institutional perspective

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A thesis submitted to the European Institute of the London School of Economics and Political Sciences for the degree of Doctor of Philosophy. London, October 2013.

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Abstract

In the early 1990s, Spain faced the risk of losing the market for low-cost manufacturing outputs to Eastern Europe, and the threat of losing control of its complex service sectors to more sophisticated competitors from Western Europe. Most industries had few alternatives other than to upgrade. By the late-2000s, Spanish firms in complex services like Banking and Telecommunications were amongst the most efficient, profitable, and sustainable in the world but most manufacturing sectors had not achieved a comparable outcome.

My thesis explains these changes in the Spanish productive structure through an analysis of the institutional structure beneath them. I argue that upgrading in Spain's complex services was enabled by Peer Coordination (PC), a non-hierarchical variant of relational coordination based on the presence of public-private interdependencies and direct business-state interactions.

Under PC, firms in complex services contributed to the fulfilment of public policy objectives in exchange for sector-specific advantages. PC enabled firms in these sectors to undertake significant restructuration that enabled them to reach the efficiency frontier in their industry. Liberalisation did not unravel PC in Banking and Telecommunications because national-level interdependences remained a structural feature of the two sectors.

By contrast, PC imposed constraints on capital and skill intensive manufacturing sectors that required patient capital and stable demand to develop new complex products. Firms in these types of sectors found it difficult to secure capital and stable demand on their own, and the state had limited capacity to articulate top-down industrial strategies that could facilitate access to such resources. As a result, firms in capital and skill intensive sectors struggled to upgrade. In exceptional cases, regional institutional structures, based on forms of coordination other than PC, were able to provide support for these underserved sectors. In this regard, regional institutions complemented the national ecosystem and contributed to upgrading.

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To my parents, José Luís and Isabel

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List of abbreviations

AEB	Asociación Española de Banca
AHP	Analytic Hierarchy Process
AMETIC	Asociación de Empresas de Electrónica, Tecnologías de la Información, Telecomunicaciones y Contenidos Digitales
ANFAC	Asociación Española de Fabricantes de Automóviles y Camiones
BdE	Banco de España
BIS	Bank for International Settlements
CCOO	Comisiones Obreras
CEMFI	Centro de Estudios Monetarios y Financieros
DEA	Data Envelope Analysis
DGTel	Dirección General de Telecomunicaciones
DT	Deustche Telekom
ECB	European Central Bank
ETA	Euskadi ta Askatasuna
EU	European Union
FDI	Foreign Direct Investment
FEDEA	Fundación de Estudios de Economía Aplicada
FROB	Fondo de Restructuración Ordenada Bancaria
FT	France Telecom
FTTH	Fibre To The Home
GVC	Global Value Chains
ICT	Information and Communications Technologies
IMF	International Monetary Fund
INE	Instituto Nacional de Estadística
INI	Instituto Nacional de Industria
IPE	International Political Economy
IPO	Initial Public Offering
IRI	Istituto per la Ricostruzione Industriale
KIO	Kuwait Investment Office

LME	Liberal Market Economy
M&A	Mergers and Acquisitions
Mbps	Mega bits per second
NACE	Nomenclature Générale des Activités Économiques dans les Communautés Européennes
NGAs	Next Generation Access Networks
NPL	Non-Performing Loans
OECD	Organisation for Economic Cooperation and Development
PC	Peer Coordination
PNV	Partido Nacionalista Vasco
PP	Partido Popular
PSOE	Partido Socialista Obrero Español
PTO	Public Telecommunications Operator
PTT	Public Telephone and Telegraph
RBV	Resource Based View
R&D	Research and Development
RSCA	Revealed Symmetric Comparative Advantage
SEPI	Sociedad Estatal de Participaciones Industriales
SITC	Standard International Trade Classification
SESA	Standard Eléctrica Sociedad Anónima
SETSI	Secretaría de Estado para Telecomunicaciones y Sociedad de la Información
SPRI	Sociedad para la Promoción y Reconversión Industrial
UGT	Unión General de Trabajadores
UK	United Kingdom
US	United States of America
VoC	Varieties of Capitalism
WTO	World Trade Organisation

Chapter 1. Upgrading in Spain: puzzle and research plan

1 Motivation

One Sunday morning in January 1999, I sat with my parents at Bilbao airport waiting for my flight. A recent Spanish university graduate, I was taking up a job in Chicago. With me I carried two bursting suitcases, a double bachelor's degree, a master's degree, and diplomas attesting my command of two foreign languages. It was far better than my dad's high school diploma but not good enough to start a career in a country where 40 percent of my peers were unemployed and most of the rest were underemployed (BBVA 2011). In the autumn of 2006, I sat at a cafe in Harvard Square talking to a French investment banker. My experience in the US had galvanised my opinion that Spain offered scarce career opportunities for qualified individuals. Yet, my colleague was raving about the achievements and dynamism of Spain's large firms in Banking, Telecommunications, Energy, and Civil Engineering. I was baffled.

Despite its many shortcomings, Spain's Fordist industrialisation model in the 1960s and 1970s transformed a backwards, rural economy with stark socioeconomic differences into an industrialised society with a broad middle class. Working conditions improved, standards of living rose, and child labour disappeared. However, by 1993 it was clear that a production model based on standard manufacturing outputs and protected service sectors could no longer be the basis for the rising aspirations of Spaniards. New information technologies; advances in transport; and lower barriers to the movement of goods, services, and capital had deeply transformed manufacturing production and high value-added service sectors. Furthermore, the fall of the Berlin Wall and the decision to integrate Central and Eastern Europe into the European Union (EU) brought into the picture a new set of competitors for standard manufactures and low-end services. Finally, as strategic service sectors like Banking and Telecommunications became progressively liberalised, Spanish firms risked being acquired by larger, more sophisticated rivals looking to expand their operations into Southern Europe.

In short, as the Spanish economy hit bottom in 1993, the country was trapped between East and West: it risked losing the market for standard low-cost manufactures to lower-cost competitors from Eastern Europe, and it stood to lose local control of liberalised services sectors to more sophisticated Western European investors. The only feasible alternative for Spain to maintain or improve its hard-earned standard of living was to upgrade its productive structure. Upgrading meant entering segments where outputs were not easy to replicate by emerging markets and improving processes and operations to ensure that competition with more sophisticated neighbours stood on a level playing field.

As my French investment banker colleague pointed out, by the mid-2000s, Spanish firms in a handful of complex service sectors had climbed to the top of international rankings in terms of market capitalisation, number of clients, worldwide presence, efficiency, and productivity. Deep process and organisational changes enabled these firms to become global leaders and to successfully fend off the spectre of foreign acquisition. These sectors also stood out relative to the rest of the Spanish productive structure in terms of added value, salaries, and career opportunities.

The emergence of Spanish firms in complex service sectors is surprising because movements up the Global Value Chain, or "economic upgrading", require changes in comparative advantages and firm strategies that are complex and risky, and generally have long-term horizons. Furthermore, the hierarchy of the global division of labour tends to be resilient, especially at the top. The purpose of this thesis is to understand upgrading in Spain from the point of view of the institutions that enabled it. In doing so, my thesis aims to respond to the following questions: What institutional structure defines the Spanish model of capitalism? Why was this structure better able to foster upgrading in complex service sectors? Can upgrading be expanded to other sectors in the economy?

The rest of this chapter is structured as follows: Section two explains the perspective I took in this thesis and encapsulates the argument. Section three summarises Spain's economic trajectory. Section four presents the conceptual blocks I used to build my analysis. Section five identifies the gaps in the literature and formulates the research question. Sections six and seven outline the methodology and the chapter structure of the thesis.

2 Analytical viewpoint

2.1 *A political economy, institutional perspective*

The characteristics of production models are relevant to political economists who study the nature and performance of capitalist models. Production models are by nature dynamic, which makes the study of their transformations an inherent part of the study of capitalism.

This thesis tackles the analysis of upgrading in Spain from an institutional perspective (North 1980, Soskice 1999, Whitley 1999, Hall and Soskice 2001, Goyer and Hancké 2005, Hancké, Rhodes et al. 2007). According to this view, firms are directly responsible for production decisions. Therefore, an analysis of upgrading requires a microeconomic baseline that reveals the characteristics of different sectors of economic activity, the strategies of firms, and the economic outcomes that derive from these strategies. However, institutionalists also posit that firm strategies are embedded in a web of institutional structures that simultaneously enable and

constrain them. In other words, the microeconomic perspective needs to be complemented by a macroeconomic view to reveal the institutional structure that conditioned and enabled upgrading. This turns my analysis of upgrading in Spain into a study of Spain's institutional structure.

The basis for my analysis was primary and secondary evidence from three sectors: Banking, Telecommunications, and Professional Electronics. I selected these sectors primarily on the basis of their skill and capital intensity, density of connections to other sectors, centrality to the country's economy, and relative success in reaching the efficiency frontier. I combined these criteria to ensure that cases represented upstream complex sectors whose trajectories have repercussions for the whole economy. I used the first case, Banking, to identify the main features of Spain's institutional structure. However, complex service sectors like Banking operate in highly specialised institutional environments. To prevent the particularities of a single sector from biasing my analysis, I used evidence from the second case, Telecommunications. This second case confirmed, refined, and helped generalise my findings. Finally, I used the third case, Professional Electronics, to evaluate the implications of the national structure on the rest of the economy and to examine the contribution of subnational (regional) institutional systems to upgrading.

Spain is an interesting, critical case in itself and beyond. As outlined earlier, if one country faced pressure to upgrade in the 1990s, it was Spain. Furthermore, since I started tackling these questions in 2008, Spain has become immersed in a crisis so deep that the topic could not be timelier. In mid-2012, the International Monetary Fund (IMF) estimated it would take Spain a decade to reach pre-crisis gross domestic product (GDP) levels (El País 2012). Overall unemployment as of mid-2013 stood at 26.6 percent, and unemployment for those under 25 was 55 percent (INE 2013). These are the worst figures in Europe, with the exception of Greece. Budgets in sectors like education, healthcare, and pensions have been slashed since 2012 to achieve fiscal balance targets (El País 2012 (b)). Furthermore, in May 2012, Spain negotiated a rescue package for the Banking sector, and rumours about larger country rescue lingered into 2013. Under these circumstances, understanding the process by which a handful of sectors upgraded can offer valuable clues on whether, and how, other sectors could achieve comparable results and generate the wealth Spain needs to support a sustainable recovery.

Conceptually, a study of Spain can make a valuable contribution. Spain is neither a world leader nor a developing country, providing an unconventional viewpoint often neglected by the literatures of upgrading, institutionalism, and development. Spain's late industrialisation trajectory, its relatively recent history of political transition and of late integration in the global economy offer insights that may resonate well with other peripheral economies, transitional, and

middle-income countries. In addition, Spain falls into the category of Mixed Market Economies, or hybrid institutional ecosystems. These cases are understudied by the literature of Models of Capitalism and are expected to underperform relative to Liberal and Coordinated Market Economies (Hall and Gringerich 2009). By taking up the study of a hybrid case, this thesis aims to explore the nature of mixed systems and elucidate whether they offer any advantages.

2.2 *A preview of the argument*

My thesis identifies large firms and the Central State as the main catalysts of upgrading, and the structure of the relationship between the two as the key to the outcome. My argument rejects hypotheses based on the idea that the Spanish state-firm relationship was dominated by either large firms or the state. Instead, I argue that state-firm coordination was a peer-group arrangement based on the interdependent and complementary capabilities of the two actors and on the existence of compatible, long-term objectives.

Upgrading, or moving up in the global division of labour, involves changes in the production specialisation of a country, which in turn implies a shift in that country's resource endowments. States' overarching capacities to undertake public investment and provide basic collective goods, and their responsibility toward the common welfare, place them in a unique position to modify a country's resource endowment and, therefore, contribute to upgrading. Firms are also indispensable contributors to upgrading because they are responsible for the decisions that result in superior or more complex outputs, more efficient processes, and effective organisational structures (Porter 1990). Once both actors are identified as necessary, the key is to understand how they articulated their interactions in Spain to achieve what Evans (1995) termed a "multidimensional conspiracy", and why the resulting institutional structure provided stronger support for upgrading in complex service sectors.

Some features of the Spanish evolution point toward two hypotheses in which the state-firm relationship would have been dominated by either of these two actors. In the firm-driven hypothesis, firms would have achieved upgrading through competition and Schumpeterian creative destruction. There are two variants of this hypothesis, depending on the interpretation of the state's role. In the first variant, the state would have been a nonpartisan administrator responsible for creating, structuring, and supporting the markets in which firms upgraded. In the second variant, the state would have played a more active role, but only as an instrument of corporate interests. By contrast, in the state-driven hypothesis, upgrading would have taken place as a result of a strategy architected by the state, and firms would have been implementation instruments.

Supporters of the firm-driven hypothesis contend that a new generation of able managers in service sectors competed successfully in global markets thanks to advantages in project evaluation, execution, and negotiation skills (Guillen 2005, Guillén and García-Canal 2010). By contrast, as Spain's cost advantage in manufacturing sectors eroded, firms were unable to counter cost and product-quality competition, leading to stagnation and decline. Spain's two periods of privatisation in 1983–1985 and 1997–1998, the liberal background of most of its economists, and the rapid opening of product markets after 1986 support the view that the state helped create and support markets.

Contrary to the firm-driven interpretation, detailed comparative evidence from the Banking and Telecommunication sectors shows that Spain's large firms started from positions of disadvantage. The disadvantage stemmed from Spain's economic underdevelopment, the firms' lack of international exposure, and the legacy of Francoism. I also contend that the firm-driven interpretation of manufacturing decline avoids the heart of the question: why did manufacturing not attempt to offset higher relative costs with higher value through increases in product complexity and productivity? Evidence that the state acted primarily as a nonpartisan administrator and market supporter is also unclear. Spain opened its product markets to competition relatively early, but complex services did not immediately face foreign competition. In addition, Chapters 2 and 3 show that the state actively shaped, and continues to shape the structure of markets in these sectors.

The second variant of the firm-driven hypothesis accepts the state's proactive role, but it contends that the state acted on behalf of corporate interests for the sectors that managed to upgrade. Corporate state capture is associated with high levels of corruption, government inefficiency, and low regulatory quality, expectations that were not fulfilled in the Spanish case. Specifically, the state capture hypothesis is inconsistent with the level of competence demonstrated by Spanish civil servants; with the government's solid and continuous commitment to development; and with the consistency among government commitment, policy formulation, and implementation. State capture is also associated with low levels of firm innovation and competitiveness. This expectation contrasts sharply with the deep structural changes and positive trajectories of large Spanish firms in Banking and Telecommunications. Finally, the state capture hypothesis is inconsistent with the commitments assumed by Spanish firms, such as accepting an intrusive bank supervisory system, financing banks' turnaround during the 1977–1985 banking crisis, or developing a strategy and financing the majority of the telecommunications network expansion.

The state-driven hypothesis is supported by evidence of high-profile personal relationships between members of the executive and company CEOs, internationalisation patterns heavily

focused on Latin America, the existence of national plans to modernise certain sectors, license allocations through "beauty contests", and public procurement practices that favour local firms. A "hub and spokes" account in which the state drives upgrading also assumes a great degree of state willingness and the capacity to pick and choose sectors; develop complex strategies; coordinate, understand, and respond rapidly and accurately to market dynamics; share risks with firms through capital investment; and impose plan implementation on subordinated firms.

However, my analysis shows that the Spanish state lacked the willingness, the cross-sector strategic capacity, and the financial resources necessary to articulate upgrading on its own. After the victory of the Partido Socialista Obrero Español (PSOE), Spain's Socialist Party victory in 1982, the incoming government replaced any remaining Opus Dei[1] planners in office with liberal economists trained at the Central Bank. This new group of economists had been vocally critical of the planner's methods, which they associated with the corruption, inefficiency, and unbalanced development that characterised Francoism. In addition, the assumption of the state's overarching planning capability is at odds with the compartmentalised structure of Spain's civil service, which is divided into specialised groups with limited responsibilities and sometimes antagonistic relations. Evidence of one of the key levers of statism, risk sharing through capital investment in firms, is also weak. Spanish private banks, not the state, were the main financiers of Spain's industrialisation, and they had significant autonomy over lending decisions (Pérez 1997). Furthermore, as Chapters 2 and 3 explain in detail, Spain continued to rely on large firms to implement public strategies aimed to address critical episodes, such as the 1977–1985 banking crisis, and to overhaul basic infrastructures. Finally, liberalisation and privatisation of complex services further eroded the state's ability to rely on traditional statist instruments, such as control over suppliers, prices, and investments, to subdue firms. New sources of state power, such as day-to-day supervision, license issuing, and control of infrastructure investment, guaranteed state leverage in complex service sectors but not the power to coerce firms against their will.

The alternative explanation presented in this thesis departs from the assumption that there is a dominant actor in the state-business relationship. It is based instead on the notion of interdependence. *Peer coordination* (PC) is a form of relational coordination based on the presence of actors who need to combine their unique capabilities to achieve compatible goals. In

[1] Opus Dei is a Spanish-founded Orthodox Catholic organisation whose members are encouraged to participate actively in public service at the highest levels, often supported through the Opus' extensive financial resources and personal networks. Opus members had played significant roles in Francoists governments in the 1960s and 1970s, introducing multiannual planning strategies inspired by the French model.

the Spanish case, large firms had strong planning and financial capabilities that could complement the state's weaknesses in these areas, but they were unable on their own to undertake the structural reforms necessary to unleash their potential and become competitive in a changing environment. The state had a clear commitment to economic development and modernisation, strong regulatory powers, and the ability to broker social pacts that could facilitate the modernisation of large firms. However, it lacked the necessary strategic and financial resources to accomplish these goals independently or to impose its power on firms. The role of large firms and the state was underscored by the limited role of intermediary organisations and social interest groups in firms' strategic decision making.

These circumstances made PC an ideal structure to support upgrading in well-established complex service sectors like Banking and Telecommunications: A supportive regulatory framework was key to incentivise restructuration, investment, and growth in complex service sectors, whereas the state's weak planning capacities gave large, private firms the leeway they needed to elaborate strategies that suited their objectives. The state's lack of financial means was not an obstacle for leading firms in these sectors because their size and track record enabled them to raise funds through the markets. Finally, market concentration in the hands of a few large firms meant that firms could communicate with the state efficiently without relying on intermediary organisations.

PC was generally not suitable to support upgrading in skill- and capital-intensive manufacturing sectors, such as Professional Electronics. Such sectors depended more on what the state could do less well: elaborate stable, well-coordinated, long-term plans; facilitate access to patient capital; guarantee stable, long-term demand; and provide access to research facilities for the development of new, complex products. Skill- and capital-intensive manufacturing were also less likely to benefit from the state's regulatory strength because most of these sectors operate in less structured markets. Furthermore, the atomisation of most Spanish manufacturing meant that coordination structured around intermediaries would have been more effective than the one-on-one relationships characteristic of PC. Finally, despite the critical importance of skill- and capital-intensive manufacturing, their upgrading is less directly linked to the fulfilment of developmental public policy goals, such as improving infrastructures or universalising utility services.

Although PC shaped Spain's pattern of upgrading, there were other instances in which upgrading took place in Spain through alternative arrangements. The case of Defence Electronics shows that, in exceptional cases, the state could mobilise its own planning and financial resources to support a sector. In those instances, the Spanish government tended to take a conventional national-champion approach. The case of Industrial Electronics also shows

that regional governments, especially that of the Basque Country, were able to create institutional structures aimed to facilitate access to the types of resources that PC was unable to provide. In that regard, regional institutional structures complemented national ones and contributed to upgrading. Nonetheless, the situation of the Basque Country was based on regional conditions that differed from those of the rest of the country and so remains an exception.

3 Situating Spain

The purpose of this section is to contextualise the rest of my thesis. This section summarises the trajectory of the Spanish economy since its late industrialisation and is divided into three parts. The first part highlights the circumstances and features of Spain's industrialisation. The second part describes the impact of the 1970s crises and the measures adopted to overcome them across relevant industries. The third part describes the growth period that started in 1994 and briefly comments on the impact of the recent crises.

3.1 *Spain's model of industrialisation*

Spain's modern industrialisation took off with the 1959 Stabilisation Plan, which put an end to two decades of autarky and international isolation. The targeted industrialisation model that ensued in the 1960s and early 1970s was structured on multi-annual Development Plans inspired by the French tradition (Smith 1988, Royo 2000, Pérez 1997, Sánchez Domínguez 200). These plans established a list of preferential industries and geographic areas from which growth was expected to expand through upward and downward links. Following international recommendations (World Bank 1962), private investment was the main source of finance for industry. To fuel credit, the government established two instruments of privileged financing: a special rediscount rate for commercial banks that extended credit to state-specified users, and a credit line channelled through the INI (Instituto Nacional de Industria), a public credit institution modelled after the Italian Istituto per la Ricostruzione Industriale. Nonetheless, banks where the main financiers of the system, providing 60 percent of the financing to the private sector (Pérez 1997).

The majority of the workforce acquired their skills on the job rather than through standardised training. According to a report by the Organisation for Economic Cooperation and Development (OECD 1986), 50 percent of those aged 26 or over in 1959 were illiterate or had no education, and the two largest banks amongst the Big 7, the group of the largest Spanish banks, hired candidates straight out of high school through competitive exams akin to public service examinations. Even the small elite with higher education learned the ropes on the job due to the

outdated and theoretical nature of university education (Vicente Ortega 2006, Segura 2012). Free labour representation remained prohibited. Ostensibly, the prohibition was aimed at preventing social unrest, uncontrolled wage increases, and strikes that could break public peace. In reality, the regime was wary of the traditional association between unions and leftish parties, which were anathema to the regime (Pallarés-Barberá 1998, Sánchez Domínguez 2001). Illegal unions became tolerated by the early 1970s and were legalised only in 1977. Thereafter, their activities have concentrated mainly on the negotiation of salaries, contracts, working conditions, and processes of pre-retirement rather than on corporate strategy (Royo 2007, 2008). Even then, salaries remained lower than those in other European Countries. In the second half of the 1980s and despite rampant inflation, Spanish wages were still 23 percent lower than France's, 53 percent below Germany's, and 20 percent lower than Italy's (Pallarés-Barberá 1989). Few sector associations existed before the mid-1970s. For instance, the Asociación Española de Banca (AEB) or Spanish Banking association, was founded in 1977, and the Asociación de Empresas de Electrónica, Tecnologías de la información, Telecomunicaciones y Contenidos Digitales (AMETIC) or association of the Electronics sector, was created in 1973.

Given Spain's capital and technology deficiencies, Foreign Direct Investment (FDI) was essential to achieve industrial development in capital-, technology-, and knowledge-intensive sectors (Varela Panache et al 1974, Muñoz et al 1978, Campa and Guillén 1996, Durán Herrera 2005). Investors were attracted by Spain's combination of cheap and docile labour, the presence of nascent ancillary industries, a potentially large internal market, and public incentives for foreign investment. Often, these were investors that had established operations in Spain in the early 1900s and were retaking or scaling up their operations. This was the case of Siemens, Ericsson, Phillips, and ITT in the Professional and Consumer Electronics sectors (Rico 2006). At the beginning of the 1970s, foreign invested firms represented 85 percent of production and 90 percent of employment in electronics (Adanero 2006). Due to heavy tariffs on imports and exports, production from foreign affiliates catered mostly to Spanish demand[2] (Maravall 1987, López Claros 1988). The scope for innovation spillovers from foreign-invested firms was limited. Production plants in Spain did not incorporate state-of-the-art machinery or undertake operations of high value-added content. Instead, production relied on older equipment and the use of abundant labour (Smith 1998, Guillén 2005). For instance, in the Professional Electronics sector, it was common to import technologies and products that were already mature abroad but unknown in Spain. Local added-value content consisted of the incorporation of auxiliary

[2] By the mid-1970s Spain was still the most closed country in Western Europe; the ratio of exports to GDP stood at 7.5 percent and that of imports to GDP at 14.5 percent (López Claros 1988).

equipment and installation and maintenance services (Rico 2006). There were, however, a handful of small, local firms that strove to produce under their own technology and specialised in one or a few products. Despite these handicaps, the economic effects of industrialisation were dramatic. Between 1960 and 1975, Spain's GDP per capita rose from 30 percent to 65 percent of the OECD average (World Bank data, own calculations).

As in most other countries, complex service sectors like Banking and Telecommunications were highly protected industries. In addition, a combination of the state's chronic lack of capital, underdevelopment, and a history of political instability that led to regulatory and financial uncertainty gave private initiative significant leverage and led to the delegation of governance functions that most other states retained for themselves. In an underdeveloped economy that lacked natural resources, these profitable and safe sectors were the realm of local business elites. As a result, private firms in complex services had a high degree of leverage. Telecommunications is a case in point. Twelve different regulatory frameworks between 1880 and 1924 led to a slow and patchy development of Telecommunications network infrastructure. These circumstances resulted in the establishment of Telefonica, a fully private, foreign-invested firm that assumed the obligation to develop and manage the national network. Romania was the only other European country that followed this formula (Calvo 2010). Capital and technology from the US were fundamental to setting up a telecommunications operator that provided service throughout the country, but preeminent local capitalists also played important management roles at the firm. For instance, the Marquis of Urquijo, founder of the largest Spanish industrial bank, presided over Telefonica between 1924 and 1945. Representatives from Spain's largest banks, such as Pablo Garnica (Banesto), José María Amusátegui (BCH), Emilio Botín (Santander), José Ignacio Goirizalgorri (BBVA), and Isidro Fainé (La Caixa), continued to represent the interests of large banks at the board of Telefonica in the following decades. The delegation of governance functions to Telefonica was substantial; between 1924 and 1987 (Law 31/1987), two successive contracts subscribed between Telefonica and the Spanish state in 1924 and 1946 constituted the only regulatory framework for the sector (Jordana and Sancho 1999, López 2003, Rama et al 2003, Rico 2006, Calvo 2010). In addition, the operator, rather than public employees, represented Spain at supranational organisations like the ITU (International Telecommunications Union).

The Big 7 were Spain's most powerful economic group (Preston 1986). Their ascendancy in the Francoist era can be traced to the bankers' support for Franco during the Spanish war (Tortella and García Ruiz 2003). A favourable legal framework guaranteed the safety and profitability of the banks and their lack of competition from their natural rivals, savings banks. The 1946 Banking Law prohibited the establishment of new banks, allowed banks to establish minimum

interest rates for loans and maximum rates for deposits, and limited dividend distribution. Savings banks could not expand operations beyond the geographical limits of their province or negotiate certain products aimed at professional clients, such as commercial discounts. Savings banks also faced strict limits in the way they invested their profits into local welfare.

The 1962 Banking Law cemented the banks' role as the key financiers of industrialisation by establishing special rediscount rates for credit extended to preferential sectors and by endorsing the mechanism of *pignoración automática*, which allowed banks to automatically monetise their debt. These measures ensured that banks' profits soared as the economy boomed in the 1960s. As in the Telecommunications sector, banks also took on governance functions from the state. Banks were self-regulated and Banco de España (BdE), Spain's Central Bank, had very limited tools to exercise supervision over the Banking sector (Quintana 1985). Furthermore, the increased complexity that accompanied Spain's development increased demand for the bankers' expertise. Between 1945 and 1975, bankers occupied 213 key executive, legislative, or regulatory positions compared to only 11 between 1939 and 1945 (Pérez 1997, Tortella and García Ruiz 2003, Guillén 2005).

3.2 *The 1970s restructuration*

The 1970s crises had devastating effects for the Spanish economy. They further tipped the nation's chronic balance of payments disequilibrium[3] and subsequently brought to the surface the inefficiencies of local firms, they dried FDI flows and market credit, and they created liquidity problems. Initial measures to offset the economic meltdown had a limited scope, mostly because the oil shocks took place during *La Transición*, Spain's delicate political transition. As conditions deteriorated, the INI played the role of the safety valve by acquiring ailing firms in several industries.

The first post-transition government finally undertook restructuring between 1983 and 1985. Despite a rhetoric that suggested conventional industrial policies, the state put more resources into maintaining or creating jobs in the midst of a serious crisis than into protecting or supporting the development of local industry or increasing the value-added content of its outputs. Developments in the Professional Electronics sector exemplify this. By 1980, the INI participated or totally owned 10 Professional Electronics firms (Adanero 2006). Several of

[3] Spain's energy and technology deficiencies, coupled with limited exports, meant that Spain experienced several critical payment crises in the previous decades. One of these, in 1951–1952, led Franco to abandon the autarkic regime he had adopted in 1939 as the only alternative to a drastic reduction in standards of living. Remittances from emigrants and tourists balanced the situation in the 1960s, but the sudden rise in energy prices of the 1970s and the forced return of many emigrants further increased the imbalance.

them, including Standard Electrica and Marconi, the two largest firms in the sector, teetered on closure. In 1983, the government approved a National Electronics Plan that aimed to increase technology usage among Spanish firms and to develop the Electronics sector. The plan included four types of measures to achieve its goals (see Chapter 4), but only one, attracting foreign investment, was pursued in earnest (De Diego 1995, BIT 1997, Adanero 2006). One of the firms that entered the market was Alcatel, which acquired Standard and Marconi in 1986. The entry of foreign investment in Electronics accelerated in the second half of the 1980s as a consequence of Telefonica's decision to divest its industrial arm and establish alliances with global suppliers. Foreign competition increased pressure on local firms, many of which subsequently folded. Although the quantitative objectives of the National Electronics Plan to increase exports were achieved, much of the exported goods were low-value outputs such as consumer electronics (TVs, video cassette recorders, etc.) and electronic components (valves, electromagnetic equipment) rather than complex, high value-added outputs. Furthermore, exports were offset by much larger increases in imports (Fundesco 1986, De Diego 1995, BIT 1997, Pérez 1997).

By contrast, the approach to the Banking crisis of the 1970s to 1980s was more immediate, effective, and thorough. Although one of the aims of the state was to recapture governance functions delegated to the sector, publicly listed banks had a direct role in the sector's restructuration. Also, contrary to its welcoming attitude toward FDI in industrial manufacturing, the government discouraged foreign attempts to acquire troubled banks. One of the first measures of the transition government in 1977 was to reform the financial system. The Ministry of Economics reorganised its various departments to facilitate the elaboration of strategic economic guidelines. The reform also established effective reporting, control, and supervision mechanisms aimed at allowing the BdE to practice an active, independent monetary policy (Quintana 1985). A severe banking crisis from 1978 to 1985 prompted decisive restructuration measures that were efficiently coordinated by the BdE (Sheng 1996, Caprio and Klingebiel 1996, Rivases 1991, OECD 2009). Unlike in manufacturing, banking restructuration was financed primarily through contributions from the private sector. Rescued banks were quickly auctioned off and many were purchased by one of the Big 7. By the end of the 1980s, the BdE favoured a strategy of bank mergers to reinforce the competitive position of local banks and prevent the entry of foreign investors (Rivases 1991, Guillén 2008). This led to a first wave of mergers between 1987 and 1993.

The Telecommunications sector had a lower public profile than Banking, and restructuration took place mostly after the political transition. As in Banking, some of the key measures included the government's recovery of delegated governance functions. As in the Electronics

sector, there was also a plan, but Telefonica had a fundamental role in negotiating its objectives and choosing how to implement them.

The state aimed to recover governance functions through the creation of two public bodies, the Dirección General de Telecomunicaciones (DGTel) or General Directorate for Telecommunications and the Secretaría de Estado para Telecomunicaciones y Sociedad de la Información (SETSI) State Secretariat for Telecommunications and Information Society. Initially, these bodies focused on developing a legal framework for the sector and a plan to universalise telephony services. Telefonica played a direct role in making these plans a reality by developing an efficient wired-wireless technology solution to provide access in remote rural areas (López 2001, Rama 2003 and 2005, Adanero 2006) and by funding 75 percent of the plan's implementation through a combination of internal resources and funds raised through the markets (Adanero 2006). Between 1986 and 1999, the operator increased the number of existing fixed lines by 70 percent (ITU 2010). Like Banking, which divested its industrial portfolio to prevent loses (Pérez 1997, Guillén 2008) Telefonica progressively shed its industrial arm after 1985.

3.3 *The 1994–2007 rebound and the 2008 crisis*

The strategy of industrial restructuration with limited increases in added value was to be a short-lived success. By 1993, the country was once again in the midst of a major crisis, and unemployment reached a high of 24 percent (INE 1993). At that point, the trend toward modularisation of production could have consolidated Spain's position as a provider of low-value manufactured products for Europe. However the fall of the Berlin Wall and the political decision to integrate Eastern Europe into the EU (1994) created hard-to-beat competition in the low-cost manufacturing segment. In addition, the full liberalisation of Banking in 1993 and European plans to fully liberalise telecommunication services by 1998 raised fears that Spanish firms in those sectors could be acquired by more sophisticated and larger Western European competitors. Despite these seemingly adverse conditions, between1994 and 2007, the Spanish economy rebounded. Its GDP performance surpassed the OECD average and the standard of living gap with other large Western European economies narrowed.

Table 1.1 Average GDP growth percentage in 1994–2007

Country	Average GDP growth 1994-2007 (%)
Korea	5.2
Ireland	5
Poland	4.8
Israel	4.3
Turkey	4.2
Czech Republic	3.6
Greece	3.6
Spain	3.5
UK	3.5
US	3.2
Hungary	3.1
OECD	2.7
Portugal	2.5
France	2.2
Germany	1.7
Italy	1.7
Japan	1.2

Source: World Bank Development Indicators

*Data for Ireland only between 2001 and 2007

Table 1.2 Spain's GDP per capita as percentage of other countries'

Country	1985	2009
OECD	48	95
France	48	78
Germany	50	79
Italy	59	90
UK	56	90

Source: World Bank Development Indicators, own elaboration

3.3.1 *The rise of complex service sectors*

Aggregate variables like GDP help identify overall trends, but they are not detailed enough to understand the underlying dynamics behind them or identify divergent trajectories across sectors. To do so, it is necessary to use sector-based data. Microeconomic evidence suggests that a few complex service sectors stood out from the rest of the production structure. Two basic indicators are the size of Spanish firms in these sectors and the dynamics of inward and outward productive investment. Of Spain’s top 20 firms by market capitalisation, 18 operated in only four complex service sectors: Banking, Telecommunications, Energy, and Infrastructures/Civil Engineering (Table 1.3). The same four sectors accounted for 88 percent of Spain’s non-

financial FDI outflows and 40 percent of inflows between 1994 and 2007 (see Table 1.4). The internationalisation of Spanish firms is considered a directional indicator of competitive advantage (Hymer 1976) and contrasts with the limited projection of Spanish firms prior to the 1990s (Maravall 1987, Braña and Molero 1994, Guillén 1994, Sánchez Domínguez 2001).

Banking and Telecommunications stand out from among the four complex service sectors, accounting for 80 percent of outward FDI. More importantly, in addition to expanding their footprint, firms in these sectors became some of the most efficient in the world. In the 2000s, Spanish banks increased their productivity from one of the lowest in the Eurozone to that of the level of the most efficient country, Germany (Table 1.5). In addition, by 2008, Spain's banks' cost-to-income ratio, which is a standard measure of efficiency, was one of the lowest in the Eurozone (Table 1.6).

Table 1.3 Spain's top 20 firms by market capitalisation in 2009

Ranking by market capitalisation	Ranking Forbes 500	Company	Sector
1	34	Telefonica	Telecommunications
2	21	Grupo Santander	Banking
3	40	BBVA	Banking
4	122	Iberdrola	Energy
5	113	Repsol-YPF	Energy
6	609	Inditex	Textiles
7	451	Cepsa	Energy
8	341	Gas Natural	Energy
9	571	Abertis	Infrastructures
10	278	Banco Popular	Banking
11	226	Grupo ACS	Infrastructures
12	363	Acciona	Infrastructures
13	485	Banco Sabadell	Banking
14	409	Mafre	Insurance
15	1,411	Gamesa	Energy production
16	383	Grupo Ferrovial	Infrastructures
17	867	Metrovacesa	Infrastructures
18	680	Sacyr Vallehermoso	Infrastructures
19	1,665	Red Espanola Electrica	Energy
20	642	FCC	Infrastructures

Source: ICEX/Esade: First annual report from the Observatory of the multinational firm 2009

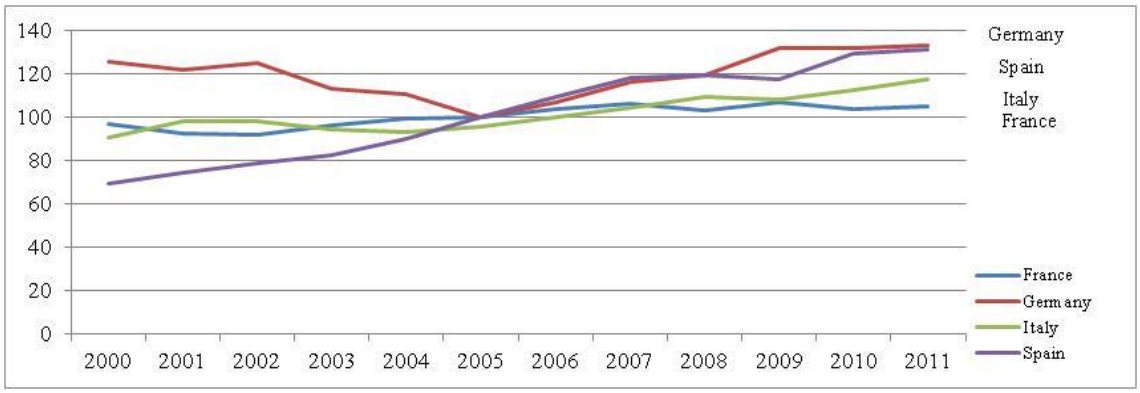
Table 1.4 Non-financial Foreign Direct Investment (FDI) inflows and outflows in 1994-2007

Sector	FDI outflows as percent of total	FDI inflows as percent of total
Financial services except insurance	59.62	7.24
Telecommunications	20.07	18.2
Electricity and gas	7.82	13.46
Building construction	3.26	4.04
Chemical industry	3.22	4.17
Iron and steel products	1.49	1.53
Food industr	1.18	2.5
Infrastructures*	0.88	1.36
Motor Vehicles	0.78	1.71
Hotels	0.59	1.44
Electrical equipment	0.5	0.55
Oil and gas extraction	0.36	0
Information technologies and electronic products	0.09	0.67
Machinery and equipment	0.08	0.6
Textile industry	0.06	0.32

Source: DataInvex. Own elaboration

* Infrastructures includes civil engineering, specialised construction, and technical architecture and engineering services

Table 1.5 Annual person-based productivity, financial, and insurance activities



European Commission and European Central Bank calculations based on Eurostat data. Own elaboration

Table 1.6 Banking efficiency and profitability in 2008

Country	Cost to income (%)	Return on Assets (%)	Return on Equity (%)	Total Operating Expenses	Tier 1 Capital (%)
Ireland	42.3	0.32	6.94	5,135,894	7.96
Spain	46.5	0.75	12.7	42,032,081	8.1
Greece	51.5	0.84	13.31	6,762,121	8.46
Portugal	56.4	0.06	1.17	6,330,979	6.18
UK	59.2	-0.45	-12.24	87,054,380	7.58
Italy	65.8	0.35	4.91	47,427,710	6.88
Luxembourg	70.7	0.38	6.1	2,413,576	10.4
France	76.5	0.08	2.22	86,981,459	8.4
Austria	76.6	0.12	2.29	18,102,786	7.92
Belgium	90.6	-1.81	-62.26	13,657,652	10.84
Germany	91.2	-0.31	-11.38	82,827,604	8.79
Netherlands	203.4	-0.4	-12.53	33,069,304	9.55

Source: ECB Statistics, data for 2008. Own elaboration

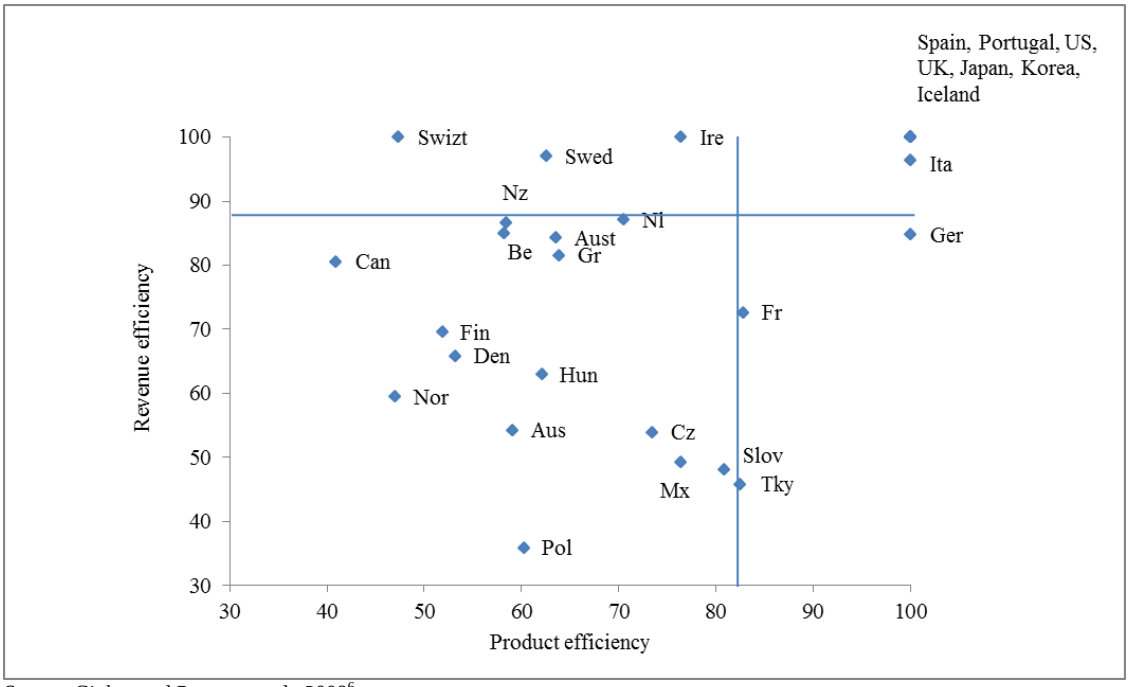
Operating expenses in Euros

Spain also reached the efficiency frontier in telecommunications. According to a comparative study of efficiency across the OECD performed by Lien and Peng (2001) using Data Development Analysis methodology[4] (DEA), in 1980 Turkey, Spain, Mexico, and Italy (in that order) where the OECD countries with the most *inefficient* operators[5]. By 2001, soon after liberalisation, an analysis performed by Pentzaropoulo and Giokas (2003) based on DEA and Analytic Hierarchy Process methods and using revenue and number of subscribers, showed that Spain had improved its operational efficiency but was not yet fully efficient (i.e., revenue and operational efficient combined). By 2007, a new study by the same authors (Giokas and Pentzaropoulo 2008) classified Spain as a "benchmark" in terms of overall efficiency, along with seven other OECD countries (Table 1.7).

[4] DEA is a non-parametric method based on several inputs, single output production functions. This method has been used extensively to establish the efficiency frontier in the Telecommunications sector. The two commonly used outputs for telecommunications are number of subscribers and revenue, which in turn define two efficiency benchmarks: operational and revenue efficiency. Typical outputs include number of access lines, staff, number, Internet hosts, annual investment, and total assets.

[5] Results need to be taken directionally, since revenue was based on politically determined tariffs. But in 1980, this was the case in most countries.

Table 1.7 Telecommunications efficiency



Source: Giokas and Pentzaropoulo 2008[6]

More detailed analyses of Telefonica underscore the operator's efficiency. Nokia and Siemens (2009) ranked Telefonica as the world's fourth most efficient wireless operator in terms of cost over capital expenditures, directly behind NTT Docomo, Verizon, and France Telecom. A study by Chun-Hsiung and González Jiménez (2006), also based on DEA, considers Telefonica's Brazil mobile subsidiary the most efficient within a set of operators among Brazil, Russia, India and China. Telefonica's subsidiary also ranks high in terms of three indicators of partial-factor productivity: revenue per employee, revenue per total assets, and revenue per capital expenditure. These results highlight Telefonica's strength at transforming capital investment into revenue.

[6] The axes dividing the quadrants represent the efficiency scores of a hypothetical average country, as calculated using DEA revenue and productivity. Their values are 74.18 percent for productivity and 83.10 percent for revenue.

Table 1.8 Capital investment per communication access path

Country	Average 1988-90	Average 1991-93	Average 1994-96	Average 1997-99
Switzerland	421.7	425.0	389.3	268.2
Spain	383.1	309.4	212.5	183.8
Italy	346.8	366	202.7	137.2
Germany	312.2	438.3	298.6	173.7
Austria	310.4	377.6	343.3	251.9
Japan	294.8	350.9	530.4	290.1
Australia	294.8	248.8	328.4	253.0
Mexico	289.7	325.6	213.8	211.1
Portugal	267.6	325.2	257.7	173.6
Finland	260.2	186.1	221.1	120.1
New Zealand	254.5	242.8	205.2	121.1
Norway	241.1	213.1	145.1	113.6
Canada	238.6	206.1	159.4	167.9
Hungary	233.8	349.5	337.7	166.3
OECD	277.8	246.2	216.7	234.8

Source: OECD Communications Outlook 2009

Table 1.9 Revenue/capital investment ratio

Operator	Country	Revenue/Investment (%)
BT	UK	8.31
France Telecom	France	8.13
Telefonica	Spain	7.47
NTT	Japan	7.43
AT&T	US	7.41
Deutsche Telekom	Germany	7.02
KDDI	Japan	6.96
Vodafone Group	UK	6.38
Comcast	US	6.34
Verizon	US	6.32
Telecom Italia	Italy	6.04

Source: OECD Communications Outlook 2011, data for fiscal year 2009

3.3.2 *The ambiguous evolution of manufactures*

The rise of complex service sectors, particularly Banking and Telecommunications, contrasts with the more ambiguous evolution of most other sectors, especially manufacturing industries like Metal products or Automotive, which had driven industrialisation in the previous decades. As Table 1.4 shows, these and other key industrial sectors like Electronics and Machinery account for a modest share of total FDI outflows and inflows.

Three additional indicators, Balassa's (1965) Revealed Symmetric Comparative Advantage (RSCA), labour productivity, and manufactures as percentage of GDP, corroborate this interpretation. Automotive, one of the few sectors that could claim a positive RSCA, had seen it decrease over time. Other sectors, like Chemicals, had experienced significant improvements toward achieving advantage but remained at negative levels. Electronics (including Components, Professional, and Consumer subsectors) also remained negative. Labour productivity also remained weak, especially when seen in comparative perspective. Not only did most manufactures perform weakly, but their contribution to the economy dropped significantly. A downward trend in manufacturing as a share of the economy has been a common trend among industrialised economies since the 1980s. However, Table 1.12 shows that the decline of manufacturing relative to the size of the economy has been more pronounced in Spain than in other large European economies.

As mentioned earlier, the crisis that started in 2008 affected Spain more than most other countries in the EU. Banking was one of the most distressed sectors, but the crisis did not affect all segments in the Banking sector equally. As detailed in Chapter 2, large banks continued to expand abroad, so much so that, between 2008 and 2012, Banking accounted for 65 percent of Spain's outward flows of productive investment (DataInvex, own calculations). Also, despite a continuous decrease in credit operations, narrow margins on interest rates, and the effort to increase provisions, by mid-2013 the benefits of large banks BBVA and Santander had already surpassed those obtained for the whole of 2012, which indicates their recovery, mostly through growth outside the EU (Santander 2013, BBVA 2013). The healthy rebound of Spain's large banks contrasts starkly with the state of savings banks, which received 61 million Euros from the public Fund for Orderly Bank Restructuring (FROB) and were still in the midst of a transformation effort in 2013 (FROB 2013).

Telefonica's trajectory was comparable. Income between 2007 and 2011 decreased 30 percent (see Table 1.13), but by mid-2013, Telefonica's revenue was up 0.5 percent compared to 2012 and the operator had reduced debt by 10 billion Euros (Telefonica 2013). The evolution of these two sectors contrasted with that of the rest of the economy, where year-to-year GDP decreased by 1.6 percent between 2012 and 2013 (INE 2013).

Table 1.10 Revealed Symmetric Comparative Advantage7

Sector	Year													
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
5. Chemicals	-0.108	-0.092	-0.159	-0.147	-0.138	-0.112	-0.082	-0.069	-0.071	-0.086	-0.093	-0.051	-0.047	-0.034
6. Machinery and transport equipment	-0.029	-0.028	-0.022	-0.051	-0.042	-0.045	-0.057	-0.063	-0.065	-0.042	-0.029	-0.031	-0.034	-0.032
77. Electrical machinery apparatus and appliances	-0.283	-0.327	-0.297	-0.316	-0.287	-0.294	-0.339	-0.290	-0.303	-0.292	-0.277	-0.255	-0.267	-0.275
69. Manufactures of metal	0.044	0.055	0.078	0.180	0.061	0.068	0.086	0.085	0.080	0.082	0.088	0.092	0.071	0.090
78. Road vehicles (including parts and accessories)	0.328	0.354	0.340	0.317	0.323	0.308	0.334	0.311	0.277	0.292	0.300	0.277	0.273	0.278
79. Other transport equipment (railways, aircraft and ships)	-0.036	-0.142	-0.076	-0.122	-0.247	-0.132	-0.146	-0.294	-0.154	-0.123	0.066	0.145	0.104	-0.069
76. Telecommunications and sound recording apparatus	-0.256	-0.211	-0.251	-0.244	-0.248	-0.277	-0.348	-0.310	-0.301	-0.268	-0.335	-0.344	-0.332	-0.335

Source: OECD International Trade and Commodity Statistics, Own elaboration

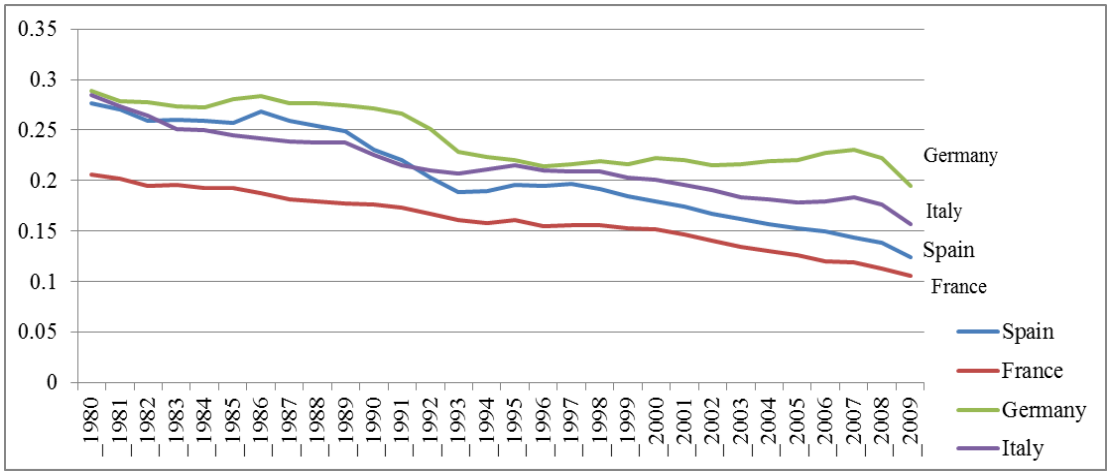
[7] RCA= (exports country a in sector b/ Total export country a) / (World exports in sector j/Total world exports). RSCA= (RCA-1)/(RCA+1) "World" includes data for the following countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United States, and United Kingdom.

Table 1.11 Compared labour productivity (1996–2007 average)

	Labour productivity growth (%)				Average share in total economy added value (%)		
	Spain	EU	US		Spain	EU	US
Electrical and optical equipment	1.8	5.6	17.2		1.1	2.3	2.3
Machinery nec	1.1	2.1	3.8		1.2	2.2	1.1
Transport equipment	1.7	3.1	5.2		1.9	2.1	1.8
Chemicals and chemical products	0.6	3.6	5.2		1.6	1.9	1.9
Basic metals and fabricated metals	0.2	1.6	1.8		2.8	2.6	1.7
Total manufacturing	0.9	2.6	5.1		17.2	19.1	15

Source: OECD 2012 Economics department working paper N 973

Table 1.12 Manufacturing as percentage of GDP in 1980–2009



Source KLEMS. Own elaboration

Table 1.13 Percentage change in financial variables in 2011 relative to 2007

Company	Revenue	Income	Long-term debt	Capital Expenditures
Telefonica	10	-31	16	18
Deutsche Telekom	-10	56	-10	-10
France Telecom	-2	28	9	16
BT	-10	114	-21	2

Source: OECD Telecommunications Outlook 2011 and 2013

4 Conceptual building blocks

There have been no efforts to understand upgrading in Spain and only partial attempts to define Spain's institutional structure. The recent internationalisation of Spanish firms has been reflected in several case studies, many of them centred on the trajectories of single sectors, especially Banking (Casilda Béjar 1997, Meseuger 1999, López 2003, Guillén 2005, Canals and Noguer 2007, ESADE/ICEX 2008, Martínez 2008, Guillén and Tschoegl 2008, Guillén and García Canals 2010). These analyses contain valuable microeconomic insights but lack the macroeconomic perspective necessary to understand upgrading. The main contributions from

historical and political science perspectives (Pérez 1997, Pons 1999, 2002) concentrate on the analysis of the Banking sector during Francoism, and therefore are a partial precedent to my thesis. Finally, a few contributions written from the Varieties of Capitalism (VoC) perspective identify or mention Spain as a mixed or hybrid system (Molina and Rhodes 2007, Hall and Gringerich 2009). However, the VoC literature has not yet explored the structure and features of mixed systems.

To build my argument, I combined three building blocks, or literatures that tend to live in isolation: upgrading, state-centric and firm-centric.

4.1 *Upgrading literature*

Economic upgrading (often simply referred to as upgrading) is the process by which economic actors (nations, producers, workers) move up the Global Value Chain (GVC) by generating outputs that have more value added invested in them because they are better, are produced more efficiently, or require more complex skills (Gereffi, 2005, Gibbon and Ponte 2005, Pietrobelli and Rabelloti 2006, Gereffi and Fernandez-Stark 2011). The concept of upgrading implies that higher returns at the firm or sector levels generated by upgrading will lead to improvements in national socioeconomic conditions (Milberg and Wrinkler 2010). This likens upgrading to development, although the concept is broad enough to be applicable to countries that do not fit the standard definition of low income[8], such as Spain.

Humphrey and Schmitz (2002) distinguish between four different types of upgrading: product, process, functional, and inter-sectorial[9]. However, most of the literature explores functional upgrading, which is identified with moves from assembly to original design and manufacture. Therefore, empirical studies tend to focus on the study of single manufacturing sectors that lend themselves to the hierarchical disaggregation of activities into the segments involved in transforming raw materials into final products. These studies are based on GVC methodology, which makes its main contribution through detailed microeconomic analyses based on input-output descriptions of value chains, the identification of lead firms, and the characterisation of control and coordination mechanisms within the chain. Upgrading, however, is difficult to quantify, to the point that Milberg and Wrinkler (2010) say that it is "one of those things that

[8] The World Bank classifies economies according to annual gross national income per capital calculated using the World Bank Atlas method. In 2012, these groups were: $1,025 or less: lower middle income; $1,026 - $4,035: upper middle income; $4,036 - $12,475: and $12,476 or more: high income (World Bank Country Classifications).

[9] Product upgrading is moving into more sophisticated product lines; process upgrading transforms inputs into outputs more efficiently by reorganising the production system or introducing superior technology; functional upgrading entails acquiring new functions or abandoning existing ones to increase the overall skill content of the activities; and inter-sectoral happens when firms move into new but often related industries (Gereffi 2011).

you know when you see it". Therefore, the literature has used different variables to measure upgrading including productivity growth (Pieper 2000), changes in export value and foreign direct investment (Kucera 2001, Kucera and Sarna 2004), increases in market share and increases of price without losses in market share (Amighini 2006, Kaplinsky and Readman 2004), and Balassa's (1965) RSCA (Rodriguez D'Acri 2011).

Although the GVC approach is suitable for applied microeconomic analyses of single manufacturing sectors, it falls short when the focus shifts to understanding the institutional features that enable upgrading. The approach also favours certain types of upgrading over others or in certain sectors. When the emphasis is on institutional factors, as is the case in this thesis, it is still crucial to understand the organisation of an industry, the trends that shape it, and its evolution. It is also necessary to identify the characteristics and roles of the main economic actors and to move from single- to multiple-sector analyses to establish comparisons and identify systemic patterns. Furthermore, when analysis is based on complex service sectors, most of the variables used by the literature to measure upgrading become unsuitable.

Upgrading assumes a shift in a country's set of comparative advantages and, therefore, a departure from traditional Ricardian and Hecksher-Ohlin models that expect fixed resource endowments. This assumption indicates that although firms and sectors are pivotal in upgrading, states are also critical actors. This is because states have overarching capabilities that no other actor has which, coupled with their responsibility to provide basic collective goods, uniquely position them to change a nation's resource endowment. The identification of both firms and the state as necessary actors points toward the two other building blocks necessary to understand the institutional enablers of upgrading: state- and firm-centric theories.

4.2 *State-centric literature*

The state-centric or statist literature (Rueschemeyes and Skocpol 1985, Evans 1995, Chandler 1997, Ross-Schneider 1998, Weiss 2003, Levy 2006, Rodrik and Hausmann 2006, Schmidt 2009, Rodrik 2011) views the state as a major force in economic transformation. This literature makes two fundamental contributions to the understanding of upgrading: it identifies the roles of the state in the economy, and it discusses the features that affect the state's ability to play these roles effectively.

According to the statist literature, the state can assume three unique roles in economic transformation: supplier of basic collective goods, producer, and leader. The role of supplier of collective goods, such as basic education, rule of law, and basic infrastructures, is broadly accepted by even by the staunchest liberals. The role of producer is highly contentious. A strand of the statist literature maintains that changes in social preferences and ideologies, deregulation,

trade openness, the transformation of the Fordist production model, and technological advances have narrowed the state's capacity to intervene directly in a nation's economic production system (Glyn et al 1990, Ohmae 1991 and 1995, O'Brien 1992, Strange 1995, Evans 1997, Rothstein 1998, Friedman 1999). Other authors like Evans (1995), argue that reducing state activism to the state's direct involvement in production is simply too narrow. Instead, Evans identifies three additional forms of state intervention: custodian (regulator), midwife (assisting in the emergence of new entrepreneurial groups or enticing existing ones to enter other fields), and husbandry (assisting existing business groups in meeting new challenges). In line with Evan's broader view of the state's roles, Levy (2006) contends that even if globalisation and the transformation of the Fordist model have limited the ability of the state to act as a producer, these changes have also enabled the emergence of new forms of state activism. He introduces the role of leader, which he defines as "framing and narrating crises, counteracting information asymmetries, projecting trust and credibility, extending agreements reached in one part of the economy to the rest, compensating losers, issuing influential recommendations, and fostering productive dialogue among social agents". Whitley (1999) adds to this definition the organisation of interest groups, the assignation of coordinating and regulating functions to them, and the determination of conventions governing their forms of conflict resolution (collaboration versus antagonism).

States are not equally effective at playing the roles outlined above and, therefore, at making a positive contribution to upgrading. The statist literature (Johnsons 1982, Rueschemeyer and Evans 1985, Weir and Skocpol 1985, Amsden 1989, Evans 1995, Kaufmann et al 1999, Hellman and Kaufmann 2000, Weiss 2003, Levy 2006, Schmidt 2009) identifies three main factors that influence the state's efficiency: autonomy, decentralisation, and financial resources.

Skocpol (1985) defines an autonomous state as one that "formulates goals that do not simply reflect the demands or interests of social groups, classes, or society". The literature has placed greater emphasis on assessing autonomy by determining whether the inverse, state capture, is taking place. Hellman and Kaufmann (2000) define state capture as efforts of firms to shape the process of creating state laws, policies, and regulations to their own advantage.

Although the definition of state capture is clear, it is not easy to identify state capture in practice. The literature has focused on connecting state capture with state governance and especially with the characteristics of the civil service. The underlying assumption is that a high-quality civil service should act as a barrier against pressure from firms. However, there is no consensus on what features of the civil service can help prevent capture. Rueschemeyer and Evans (1985) associate civil service quality with having a cohesive bureaucracy with common orientations, assumptions, and expertise. Trimberger (1979) points out the importance of

structural removal, or a clear separation between civil servants and entrepreneurial groups to prevent capture. By contrast, analyses of France's developmentalism (Hancké 2001, Loriaux 2003) suggest that tight inner circles of professionals with strong analytical capacities and a pervasive presence in the high spheres of the civil service, business, and politics can lead to state efficiency in some contexts. Finally, Evans (1995) dismisses the importance of structural separation for autonomy. He argues instead that meritocratic recruitment is the basis of esprit de corps among civil servants, and that opportunities for long-term career reward generate incentives to prioritise common goals over individual ones, thus setting barriers to state capture.

Based on work by Hellman, Kaufmann and others, the World Bank has developed a set of indicators, the Worldwide Governance Indicators (WGI) to evaluate state governance. Three of the six WGI indicators—corruption control, regulatory quality, and government effectiveness—specifically relate to state capture. The first variable, corruption control, reflects perceptions of petty and grand forms of corruption. Regulatory quality reflects perceptions of the government's ability "to formulate and implement sound policies and regulations that permit and promote private sector development". Finally, government effectiveness measures perceptions of "the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies". Country-specific analyses of state capture based on the WGI indicators (Hellman et al 2000) further associate state capture with low levels of business innovation and competitiveness.

The WGI indicators adeptly conceptualise the different dimensions of state capture. However, in the words of their own creators, the indicators reflect "the inherent difficulties of evaluating capture using any kind of data" (Kaufmann et al 2010). The WGI are based on "several hundred individual underlying variables" from multiple data sources and measure perceptions, which make the indicators imperfect proxies of the effects they try to measure. Perhaps as importantly, there is no pre-established threshold to determine the cutline between autonomous and captured states.

In short, this means that even the most scientific assessments of state capture need to be taken directionally. In fact, it is not unusual for in-country studies to reflect contradictory interpretations, especially when analyses of firm influence on policy making are not balanced by parallel evaluations of state influence on firm decision making. Analyses of the bank-state relationship in Francoist Spain illustrate this situation. Pérez (1997) cites as evidence of state capture that large banks benefited from the Francoist regulatory environment whereas Pons (2002), counters the state capture argument by contending that even though the state was partial to large banks, it also imposed limits on banks' actions.

The second factor that the literature associates with the state's ability to influence upgrading effectively is decentralisation. Rueschemeyer and Evans argue that states need to balance the coherence that comes from central coordination with local adaptability to ensure maximum efficiency. However, there are three obstacles to establishing a clear relationship between government efficiency and decentralisation. First, Aaron Schneider (2003) points out that advocates of decentralisation may have agendas that are unrelated to efficiency, such as changing the distribution of power. Second, decentralisation has three core dimensions (administrative, fiscal, and political) whose effects are interrelated but do not necessarily operate in the same direction. And third, O'Dwyer and Ziblatt (2006) point out that the impact of decentralisation on government efficiency may vary depending on other national factors, such as socioeconomic development and the degree of integration within the global economy.

Finally, Skocpol (1985) discusses the importance of financial resources in state efficiency. Specifically, she contends that efficiency depends on the state's flexibility in collecting capital and using it to undertake capital-intensive projects. Regarding capital collection, Weiss (2003) points out that the concept of capital resources needs to encompass both tax and non-tax resources, such as capital markets and FDI, which have become more important since the 1990s.

Among the possible uses of public funding, direct support for industry has received the most attention. However, opinions about its utility to support upgrading differ broadly. The main argument in favour (Amsden 1989, Rodrik 2011) is that structural economic transformation will not happen solely through market forces. However, other contributions (OECD 1997, Lerner 1999, Rodrik 2010) point out that public funding is most effective in the early stages of firm development, because then public support helps overcome information asymmetries that may preclude private investment in otherwise promising fields. These same authors caution that publicly funded industrial programs need to be designed carefully to prevent capture by interest groups. Others (NESDO 2005, Hausmann and Rodrik 2006) also caution against automatic links between state funding and effective, high-quality programs because effectiveness requires a dedicated effort and governments face a number of competing demands that require prioritization. Finally, authors such as Noland and Park (2003) argue that publicly funded sector policies may have negative effects, especially when policies are dominated by political considerations rather than comparative advantages, and when interactions between favoured and non-favoured sectors are not considered.

4.3 *Firm-centric literatures*

Firm-centric contributions (Zysman 1984, Porter 1990, Williamson 1993, Teece and Pisano 1998, Whitney 1999, Hall and Soskice 2001) view firms as cornerstones of economic

transformation, because the nature of business is to compete and competitive dynamics generate changes in comparative advantage, which is the basic precondition for upgrading. Firm-centric literatures from various fields (management, political economy, and development) help characterise the sectors most likely to lead the process and identify the firms' features most likely to condition upgrading through control over scarce resources and coordination with other economic actors.

Some authors (Sturgeon and Gereffi 2009, Rodrik 2011(1) and 2011(2)) implicitly or explicitly concede that some sectors are more likely to act as a catalyst for change than others. Rodrik calls these *elevator sectors*[10] and contends that once a country becomes involved in production in one of these sectors, convergence is unconditional. Elevator sectors accelerate the rate at which a country can absorb ideas and new knowledge and, therefore, the speed at which it can reach the technological frontier through increases in labour productivity. This strand of the literature identifies sectors like Automotive, Naval Construction, Machinery and Equipment, Cement, Iron, Steel, and Metal Products as the most likely elevator sectors.

The literature identifies four main features of elevator sectors: capital and skill intensity, concentration of activities in a few large firms, dense connections to other sectors, and centrality to a country's economy. Amsden (1989) argues that low-capital and low-skill sectors such as textiles have a limited capacity for "upscaling" because they can maximise and sustain their profits over relatively long periods of time through capacity expansion, rather than through costly qualitative process changes, skill improvements, or investment in latest-generation equipment. In addition, low skills are difficult to apply to other activities and therefore offer low potential for diversification. Zysman (1984) adds that sectors dominated by a few large firms are more likely to contribute to changes in competitive advantage because they are more likely to unravel investment patterns in physical or market infrastructures to establish a competitive position in the market. These investments accumulate over time, leading to changes in comparative advantage and, ultimately, upgrading. Zysman (1984), Hausmann and Rodrik (2006), and Hidalgo and Hausmann (2009) also argue that deep linkages to other sectors make certain industries more likely to transform a whole economy by transmitting change through proximity and interdependence mechanisms. Finally, Whitley (1999) tangentially mentions centrality to a country's economy or control of key resources within a national institutional context as a key attribute for wealth generation.

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[10] Rodrik 2011

Zysman's argument that elevator sectors are dominated by a few large firms is contentious. His point runs counter to evidence from Germany and Italy, where highly efficient, mid-sized firms are engines of innovation, productivity, and wealth. As Streek (1991) and Harringer (1993) explain, three preconditions allow this to happen in Germany: (a) a universe of several equally efficient competitors, (b) a high-trust climate conductive to transversal alliances between firms; and (c) a socialisation of risk through collective organisations such as Regional Governments, technical schools, trade associations, chambers of commerce, and regional banks. Absent these preconditions, Rodriguez D'Acri (2011) argues that Italian small and medium enterprises (SMEs) reach the efficiency frontier through a complex web of relationships among large lead firms, midsize, and micro firms. Therefore, Zysman's point needs to be qualified to contexts in which institutional preconditions are absent or patterns of inter-firm relationships fail to perform an equivalent function.

Not all firms, even those within the same elevator sector, might equally be able to design and carry out strategies that allow them to compete in higher value-added segments. According to the Resource-Based View literature (Dierickx and Cool, 1989, Barney 1991 and 2001, Peteraf, 1993), firms that control imperfectly mobile strategic resources (physical, human, and organisational) will be more likely to develop strategies that cannot be replicated over time and that lead to sustained competitive advantage. This argument helps dispel deterministic structural arguments according to which entry into certain sectors or segments of sectors could set a country on an automatic upward trajectory.

Finally, authors that take a relational view of the firm (Teece and Pisano 1998, Whitley 1999, Hall and Soskice 2001) argue that the ability of a firm to develop and exploit its capabilities to generate profit depends on the quality of its relationships with internal and external actors, including employees, suppliers, clients, competitors, collaborators, trade unions, business associations, and governments. These relationships can be articulated through different mechanisms. The literature abounds on different classifications of relationships, but despite the nuances of each, they all capture the same dichotomy between arm's-length (market-based) coordination and relational forms of coordination (also called non-market or *strategic coordination*). Arm's-length coordination systems operate via spot market arrangements and in response to price signals, whereas relational coordination is based on negotiation among the parties involved and the agreements reached by them. Implicitly or explicitly these models assume that coordination operates at a national level. Hall and Soskice (2001) explain that they focus on national-level coordination because most relevant institutional structures are based on regulatory regimes determined by national states. They also associate institutional coherence—the use of the same form of coordination across different types of interactions—with superior

economic performance. By contrast, they expect hybrid or mixed systems, which are those that combine market and relational forms of coordination, to underperform relative to pure systems.

The Models of Capitalism literature maintains that countries evolve through a series of historical events, but they do not explain what leads a country to have a system based primarily on one or another form of coordination or on a combination of them. Extending Williamson's (1975) argument from its origins in the management literature, relational forms of coordination arise because information sharing through insider networks helps manage uncertainty when risks are hard to define, decision trees are too complex, and the negative payoffs of inadequate decisions are high. Furthermore, Williamson identifies two different variants of relational coordination systems, hierarchical or peer-group, depending on whether the balance of power between parties makes one party subordinated to the other.

Behind these forms of coordination there are assumptions about the roles and characteristics of firms and the state. In the arm's-length model, firms drive change through competitive processes of creative destruction. The state's role is to provide basic collective goods and to create and supports markets. To do so efficiently, the state must become a nonpartisan entity in which the political and administrative spheres are kept strictly apart, usually through the introduction of specialised independent public bodies whose role is to execute public policy and guarantee competition. In the hierarchical variant of relational coordination, the state is the primary agent of economic change and firms become instruments for policy implementation. According to the developmental state literature (Johnson 1982, Adams 1989), states in these systems tend to have large, expertly trained bureaucracies that exert great influence over policy making through formal and informal procedures. Firms are kept dependent on the state through strict state control of key assets, such as capital and licenses, and sometimes through tight networks linking policy, bureaucracy, and firm executive roles. Peer-group coordination is characterised by a more balanced relationship among the parties involved. Extrapolating from Williamson, all parties (firms and the state) are necessary agents of economic change, but each is unable to drive it on their own. The literature does not state what the roles of the state and firms are in this case, although it points out that they will depend on the unique capabilities of each actor.

5 So what? Identifying the gaps and formulating the research question

5.1 *Missing pieces*

The previous section exposed the conceptual blocks beneath my institutional perspective of upgrading. However, as useful as these approaches are, there are still missing links. This subsection mentions gaps in each of the building blocks that directly affect my analysis.

Upgrading and GVC methodologies conceptualise the type of process my thesis aims to study and offer a few proxies to measure the dependent variable. However, institutions do not figure prominently in the single-case-study approach normally used by the GVC literature. Partly this is because a single-case-study approach does not permit the establishment of comparisons that may reveal systemic patterns and help identify key institutions that contribute to upgrading. Furthermore, the focus on GVC limits the application of the upgrading concept to firms operating in complex service sectors, whose activities cannot strictly be disaggregated into hierarchical segments. One way to overcome this obstacle is to use cross-country comparisons within sectors based on industry-specific variables to establish whether a complex service sector in a particular country is at the efficiency frontier or evolving toward it. In addition, most empirical studies of upgrading have focused on functional upgrading, neglecting other varieties that might be more applicable to service sectors, such as process and organisational upgrading.

The state- and firm-centric approaches tend to live with their backs turned on the other. The result is an underestimation, if not the complete absence, of either firms or the state in each respective explanation. Lack of dialogue between the state- and firm-centric approaches also leads each of these strands of the literature to undervalue interdependencies between firms and the state, resulting in a bias toward hypotheses in which a single actor is the sole or primary agent of upgrading. These single-actor hypotheses often struggle to explain upgrading in economies that industrialised late and opened their economies recently and in which the balance of forces between states and firms may have been historically skewed (which prevented an earlier industrialisation) or may have changed significantly through their transitions from closed to open economies.

Despite the literature's focus on manufacturing sectors, there is no reason that service sectors that fulfil the characteristics mentioned above could not be elevator sectors. The four complex service sectors that stand out in the Spanish case epitomise skill- and capital-intensive industries with dense downstream connections and control of key resources. However, two differences between manufacturing and service sectors do need to be considered. Evaluating upgrading in service sectors requires a different set of variables than those suitable for industries that generate tangible outputs. In fact, the specialised literature of complex service sectors usually relies on

variables that are sector specific. In addition, complex service sectors like Banking and Telecommunications are usually associated with a lower capacity than conventional manufactures to generate direct employment. This means that, in theory, upgrading through complex service sectors could lead to more unequal societies in which higher- and lower-added-value activities coexist. This is not a foregone conclusion, however, because outcomes ultimately depend on the ability of elevator sectors to expand upgrading to adjacent sectors through a pattern of interdependencies. Therefore, if complex service sectors are more efficient conveyor belts for upgrading to adjacent sectors, the fact that service sector firms generate less direct employment need not increase socioeconomic inequality. Moreover, it is not clear that, in the era of modular production, manufacturing sectors continue to generate more direct employment than services in advanced industrialise countries.

The expectation that national economies will be ruled by a single institutional structure based on national-level institutions is limiting, especially when it comes to mapping highly decentralised economies where Regional Governments have substantial powers and, in some cases, political motivations to support upgrading. Subnational systems could develop support structures based on a form of coordination that differs from that of the national system. Such forms of institutional hybridisation need not result in institutional incoherence. Subnational systems that enable upgrading in sectors that are underserved by national-level institutions will instead be complementary by increasing the total number of sectors that can benefit from institutional support. Opening the analysis to subnational institutional levels and allowing for the coexistence of different ecosystems within a single nation introduces a degree of flexibility that can help us understand hybrid models better.

5.2 *The research question*

Despite the useful contributions of the Spanish literature and the building blocks discussed above, it is still unclear what explains recent changes in Spain's productive structure. Why did upgrading in Spain concentrate in complex service sectors? Can it be extended to other sectors? From the institutional viewpoint that this thesis adopts, these empirical questions can be translated into a more specific set of conceptual questions: What defines Spain's institutional structure? What form or forms of coordination is it based on? Answering these questions is crucial to understanding Spain's recent evolution. They are also a necessary first step in developing policy measures to address the ongoing economic crisis and in evaluating policy alternatives that could support recuperation and sustainable growth in the aftermath of the 2008 crisis.

6 Methodology

I constructed my argument through an institutional lens according to which institutional structures condition economic outcomes. Consequently, I started by looking at upgrading from the outcome and then reverse-engineered the process to unpack the institutional factors that shaped it. I departed from the convention that countries are systems and therefore constitute units of analysis. However, to account for Spain's highly decentralised organisation, I complemented the national-level analysis with a subnational (regional) approach. I used detailed case studies from three sectors: Banking, Telecommunications and Professional Electronics and relied on sector-specific variables to track the relationship between upgrading and sector-specific institutions. I used the Banking and Telecommunications cases to define Spain's national institutional structure, although each case also highlighted a different aspect of PC. The Banking case introduced PC, emphasized the relational nature of coordination in the Spanish model, discussed two firm-driven hypotheses, and revealed the compartmentalised character of Spain's elites. The Telecommunications case introduced the state-driven hypothesis and emphasized the differences between PC and other variants of relational coordination. Three smaller cases from the Professional Electronics sector tested the implications of PC for the rest of the economy and evaluated the contribution of subnational institutions to upgrading. Finally, in each chapter, I used cross-country comparisons with countries that represented different variants of coordination to confirm upgrading and to highlight the institutional particularities of the Spanish model.

This section is divided into two parts: The first part explains the sector and region selection process. The second part discusses data collection and use.

6.1 *Case and region selection process*

As pointed out in section three, four sectors stood out from the rest of the economy: Banking, Telecommunications, Energy, and Infrastructures/Civil Engineering. All four conformed to the criteria that define elevator sectors: skill and capital intensity, dense connections to other sectors, centrality to the country's economy, and Zysman's criteria of sectors dominated by a few large firms. They were all also complex service sectors that operated in specialised environments, which set them apart from each other and from other types of economic activities. Such degree of specialisation entailed the risk that if I characterised Spain's institutional structure on evidence from a single sector, my conclusions would be biased by the particularities of that industry. As a preventive measure, I combined evidence from two of these four sectors. I used the first case to determine the existence of PC and its role in upgrading, and the second case to confirm that the structure had general applicability and to refine my findings.

I chose these two sectors based on clear evidence of upgrading. I assumed that sectors that showed the most evident signs of upgrading had benefited the most from their institutional environments, and therefore offered the best chances of contributing to characterise the Spanish institutional structure. In addition, I sought sectors whose policy profiles were as different as possible, to ensure that my conclusions were not driven by sector-specific features and to ensure that findings were as generalizable as possible.

To select these two sectors, I gathered preliminary and secondary information about the four sectors mentioned above and discussed it with experts. Banking was deemed the most representative sector of the Spanish economy, an opinion underscored by the fact that it has been the main (almost the only) focus of study by scholars of Spain. As shown in Tables 1.3 and 1.4, Banking was also the most relevant sector in terms of economic outcomes and showed clear signs of upgrading. Consequently, I chose Banking as my first sector.

Previous contributions had connected the capture of the political establishment by the bankers to the historical position of the Banking sector (Pérez 1997). To test the state capture hypothesis more thoroughly, and to contrast it with the state-driven hypothesis, I sought a second sector that not only showed solid signs of upgrading but that also had the lowest political profile of the remaining three. Telecommunications has been historically considered an unattractive sector subordinated to national postal services in most OECD countries (European Commission 1986, Thatcher 1999). Although Telefonica did not exactly conform to the standard profile, it did have a relatively lower status than Energy and Infrastructures. For instance, Energy and Infrastructures sectors had their own dedicated ministries (Energy and Development respectively), whereas Telecommunications did not even have its own Secretariat (the civil service level immediately under the Ministry) until the second half of the 1980s, nor a specialised civil service administration. Consequently, I chose Telecommunications as the second case.

The purpose of analysing a third sector was to evaluate the impact of Spain's institutional structure on manufacturing, and to assess the contribution of subnational institutional structures to upgrading. The chosen sector, therefore, had to conform to several criteria. First, it had to be a manufacturing sector. Second, to be consistent with the rest of the analysis, it needed to conform to the same elevator sector criteria as the other two sectors: skill and or capital intensity, density of connections to other sectors, and centrality to the country's economy. Consistency with the two previous sectors also implied a preference for upstream versus downstream or consumer-oriented sectors. Third, to provide a realistic view that reflected the Spanish productive structure, and to test the hypothesis that PC was more likely to operate in concentrated sectors, SMEs needed to play an important role in the structure of the sector.

Finally, to test for the contribution of subnational institutions to upgrading, the sector or part of it, needed to be representative of a region's production structure.

The combination of these features led me to discard potentially relevant sectors, like Textiles (downstream, weak connections to other sectors, no centrality) and Automotive (downstream, large assembly plants). Two sectors conformed especially well to the list of criteria described above: Industrial Electronics and Chemicals. The two sectors had several features in common, including similar contributions to Spain's GDP (approximately 9 percent for both) (FEIQUE 2008), a structure dominated by SMEs, and disaggregation into several specialised subsectors. Furthermore, 46 percent of Chemical production was concentrated in Catalonia (FEIQUE 2008), while almost all the Industrial Electronic subsector was based in the Basque Country (Orkestra 2012). These are Spain's two most economically dynamic regions (excluding Madrid) and therefore the most appropriate to conduct a regional-level analysis.

After careful comparison of preliminary data and conversations with experts, I chose the Professional Electronics sector. The largest subsector of Professional Electronics, Telecommunications Equipment, was directly connected to one of the two complex service sectors used to define Spain's institutional structure. This connection provided a strong basis to examine the direct consequences of PC on adjacent sectors. In addition, Table 1.14 shows that the Basque Industrial Electronics subsector was more representative of that region's productive structure than the Chemical sector was of Catalonia's more diversified economy. As my analysis of subnational institutions was going to be based on a single case alone, it was preferable to choose a sector that appeared to be especially representative of that region's economy.

Table 1.14 Cluster analysis; Catalonia's Chemical sector and Basque Country's Industrial Electronics

Region/Sector	Employees	Employees per firm	Size Rating	Specialisation	Focus	High and Medium-high-tech manufacturing employment (percent of total)
Basque Country's production technologies cluster	16,236	19.9	1.04	1.74	1.65	9
Catalonia's chemicals cluster	19,024	19.7	2.67	1.27	0.55	6.68

Source: European Cluster Observatory

Specialisation is a ratio of percentage employment in the cluser to total employment in the region/total EU employment in the sector over total EU employment

Focus is the ratio of employmnet in the cluster over total employment in the region

6.2 *Data-gathering methodology*

Having selected the industries, I performed my analyses on each sector using data from primary and secondary sources. Data intended to provide insights about the structure and changes in performance of the sector over time and about the institutions that shaped it (specialised

bureaucracy bodies, regulators, and industry associations). I followed a systematic process for all sectors but adapted my approach to the characteristics of each sector. Therefore, each case involved different but equivalent sources of information.

The first step was to establish the standing of each sector relative to other countries using cross-country performance data. I assessed each sector based on performance variables commonly used within that sector, and I used data from public databases or databases available at no cost through the London School of Economics library.

Table 1.15 Data sources and indicators

Sector	Sources	Indicators
Banking	ECB Banking Statistics, IMF Financial Access Survey, Banks' annual reports, OECD International Investment Statistics.	Operating expenses to income, net income to total assets, Tier 1+2 capital over assets.
Telecommunications	OECD Telecommunications Statistics, ITU Database 2010 Edition, Operators' annual reports, OECD International Investment Statistics.	Total access channels, revenue and investment per access channel, investment as percentage of fixed capital formation, investment per inhabitant, foreign direct investment.
Professional Electronics	AMETIC Annual Reports, SEPI/INI Archive, Eurostat Structural Business Statistics, Eurostat International Investment Statistics.	Production, exports, imports, consumption, productivity, gross value added, wages, degree of specialisation.

Within each sector, the identification of key firms was straightforward. In the case of Banking, I focused on large banks, specifically, the so-called Big 7 banks (Central, Hispano, Banesto, Santander, Bilbao, Vizcaya, and Popular) and their successors over time, leaving aside small and medium banks and savings banks (Cajas de Ahorros). In Telecommunications, I concentrated on the historical operator Telefonica. For Professional Electronics, I focused on the largest, most representative firms for each of the three relevant cases. I made these choices in consultation with industry experts (María Angeles Pons and Mauro Guillén for Banking, Ruth Rama and María José Aranguren for Professional electronics).

I obtained additional information about each sector, its structure, its process of transformation, and its dominant institutions through a variety of sources (see further details in Appendix 2):

- Annual company reports for each firm and sector-specific reports elaborated by the national government or its specialised bureaucracies, regulators, industry associations, multilateral organisations, and other entities, including research institutions
- Original national and regional legislation and official Sector Plans
- Transcripts from Congress and Senate sessions

- Published interviews with key stakeholders and transcripts and videos/podcasts of conferences or public events
- Seminar presentations
- Opinion articles, press releases, and interviews published by the specialised media
- Blog posts
- Focus groups transcripts and unpublished reports

I used semi-structured interviews to complement, contrast, and interpret the data obtained through the sources listed above, to fill out data gaps, and to form a clearer idea of industry-level developments and the shape of the productive system. I performed interviews in person, over the phone/Skype, or through e-mail between April 2009 and July 2013. Interviewees were representatives of the sector regulators and industry associations; academic experts; regional, national, and international civil servants and public employees; and current and former employees of selected firms. I performed 52 such interviews, 16 for Banking, 16 for Telecommunications, 17 for professional electronics, and 3 more for sectors or approaches that were later discarded.

I questioned interviewees about the evolution of their sectors, their structure, their competitive advantages, and the process of internationalisation of Spanish firms. I also asked interviewees about the nature of relationships between firms and dominant institutions in their sector and about formal and informal forms of coordination. In addition, I sought to contrast and validate data obtained through other sources or from other interviewees and to interpret and evaluate relevant legislation or plans to distinguish between rhetoric and practice. For the most part, personal interviews played an interpretative and complementary role, although they were important sources of information for particular details regarding the corporate ethos and management style of Spanish firms.

Interviews played a more substantive role in Professional Electronics than in the other two sectors due to the scarcity of either published or public information about the sector. Nonetheless, whenever possible, references to written, published documents were preferred to interview references. The research design relied therefore on the triangulation of data collected from different sources, with interviews playing a secondary role to publicly available data.

Table 1.16 Thesis interviews by chapter

Sector	Interviews	Total Interviews
Banking	Two interviews with Bank of Spain experts, one with a Spanish expert at the IMF, three academic experts, one interview at the Spanish Banking association, three consultants, four interviews with current bank employees, and two with retired employees, presentations by 17 banking experts including the sub-governor of the bank of Spain and the head of research.	16 interviews
Telecommunications	One interview at the SETSI, one at the regulator, one at the college of telecommunication engineers, two with expert at the OECD, five firm-level interviews, one with a state economist, two with technology suppliers, one with an academic.	16 interviews
Professional Electronics	7 for Telecommunications electronics (3 with academics/researchers and 4 with practicioners), 3 for Defence (One with an Indra board-member, one with the director of strategy and one with a former politician involved in the sector's transformation), and 7 for Industrial electronics in the Basque Country (2 with researchers/academics, 4 with current or former public employees and civil servants, 1 firm-level).	17 interviews
Other general interviews	Three interviews with industrial manufacture academics.	3 interviews
Total		52 interviews

7 Thesis road map

This thesis is organised into five chapters: one introductory chapter, three empirical chapters, and one concluding chapter. The cross-sector, case-based method I use in this project favours a structure that exposes the various layers of the argument through in-depth empirical cases. The first two cases present each a sector in comparative perspective, and the third one presents three specialised cases within a third sector. Then the concluding chapter brings together the argument.

Chapter 1 situates my thesis by introducing the topic and the case, previewing the argument, laying out the existing theoretical pieces of the puzzle, and formulating the question. The chapter also offers an overview of the Spanish economy to help situate the rest of the analysis.

Chapter 2 introduces the Peer Coordination argument and contrasts it with alternative firm-driven hypotheses through the example of the Banking sector. The chapter discusses the transformations of the sector and the institutional factors that shaped those changes. This

chapter emphasizes PC's relational character and the presence of several elite groups in the Spanish model

Chapter 3 tests the state-driven hypothesis, confirms, generalises, and refines the PC argument introduced in Chapter 2 through the analysis of the Telecommunications services sector. The case confirms the presence of compatible public and private objectives, the strength of private initiative in complex services, the extent of governance functions' delegation, and the scope of state-firm collaboration that constitute the bases of PC. This chapter highlights the distinguishing features of PC relative to other variants of relational coordination through cross-country comparisons.

Chapter 4 explores the consequences of PC in capital- and skill-intensive manufacturing sectors and the contribution of subnational institutions to upgrading. These contributions are articulated through three specialised cases within Professional Electronics. The first case explores the constraints of PC in a capital- and skill-intensive sector that required patient capital and stable demand to develop increasingly complex new products. The second case discusses under which circumstances such constraints could be overcome. The third case explores the nature of the Basque institutional structure and its contribution to upgrading.

Chapter 5 synthetises the main findings of the case studies in relation to the question that defines this thesis, articulates theoretical contributions, and discusses implications of the argument in light of the 2008 crisis.

Chapter 2. Spanish large banks: introducing Peer Coordination

1 Introduction

According to data from the European Central Bank, in 2009, Spanish commercial banks were some of the most efficient, profitable, and best run in the European Union. With an average cost-to-income ratio of 46.5 percent, return on assets of 0.75, and operating expenses totalling 42 million Euros, they beat competitors from other large European economies (see Section 2 for comparative detail). Within this landscape, large Spanish banks Santander and BBVA stood out prominently. In 2007, Santander became the world's eighth largest bank by market capitalisation and the largest in the Eurozone, and both Santander and BBVA ranked among the top 10 most profitable banks in the world in 2009 (Thomson Reuters 2007, The Banker 2009, Financial Times 2010).

Despite the severity of the economic, sovereign debt, and political crises that have ravaged Spain since 2008, large banks have continued to fare well. In late 2012, both Santander and BBVA passed bottoms-up stress tests based on a hypothetic (very) adverse scenario implying a 6.5 percent cumulative GDP drop between 2012 and 2014 (Oliver Wyman report, September 2012). As of 2011, they were also bronze-class sustainability leaders in the 2011 edition of the prestigious SAM Index, which evaluates a combination of economic, environmental, and social factors. In 2012, Santander remained the 13th most profitable bank in the world (The Banker 2012) and the 4th most valuable banking brand (Brand Finance 2012), confirming its solid reputation and a sustainable business model.

When Spain joined the European Union in 1986, few expected Spanish banks to achieve so much. Spain was joining the world economy, its average income stood below the EU average, and the country's large banks were much smaller and had less international exposure than those of other large European countries. Negative perceptions were long lasting. In 2004, when Santander made its first purchase in Europe, some British analysts doubted the bank's ability to manage risk (Guardian 2004). However, Santander's turnaround of "Shabby Abbey" was widely praised afterwards, and in fact Abbey has been one of the few UK banks to emerge from the crisis relatively unscathed (Guardian 2010).

Commercial Banking is possibly the most notable example of a high value-added sector in which Spanish firms have reached, and at times redefined, the boundaries of efficiency and profitability. The sector has received considerable attention from the literature. Some scholars and practitioners have studied the rise of Spanish banks from a microeconomic perspective, placing the focus on firm-level action. Under a common interpretation (Avedano and Moreno

2004, Gil 2005, Martín Aceña 2007, Rodríguez Inciarte 2008, Guillén 2008, Guillén and García-Canal 2010, Interviews 3 and 11), liberalisation and intense competition within Spain forced large banks to adapt their skill sets to become efficient, innovative, and competitive, which enabled large banks to thrive in the broader context of cross-national liberalisation. Historians and political scientist have emphasised instead the role of state-bank interactions. However, their interpretations differ considerably. Pérez (1997) has argued that the rise of large Spanish banks was anchored in the accommodating attitude of the state during the Francoist and Transition periods. By contrast, Pons (2002) has interpreted the private bank-state relationship over the Francoist period as a quid pro quo in which historical bank privileges were counterbalanced with politically determined obligations and operational constraints.

Although these explanations are valuable, they need to be contrasted, consolidated, updated, and systematised to explain upgrading in Banking and to turn the analysis into a crucial piece in defining the Spanish model of capitalism. The firm-driven explanation offers invaluable empirical insights, particularly regarding the ascent of Banco Santander, which has been studied in detail. Yet, as Pons' and Pérez's analyses underscore, a firm-only approach underplays the institutional and political dimensions of the process. As of 2014, the intensity of public debate regarding the institutional architecture of the Spanish and European financial systems (Santos 2013, De Barrón 2012, El País 2013) makes clear that bank performance, in Spain or elsewhere, cannot be separated from the political and institutional contexts in which banks operate. Pérez's and Pons' explanations rightly place the focus on the analysis on state-bank relationships, but these contributions have important limitations. The two authors concentrate their analyses on the Francoist and political transition periods, and therefore leave out most of the events that concern this thesis. In addition, Pérez's and Pons' interpretations diverge, leaving open the question of which framework—state capture or mutual exchanges—defined the state-bank interactions. Furthermore, both analyses concentrate specifically on Spain and fail to situate the Spanish institutional model in comparative perspective. Finally, neither author conceptualises state-firm coordination in a manner that can be generalised to other sectors and used to define Spain's institutional structure.

This chapter introduces the concept of Peer Coordination (PC) to characterise state-bank interactions in the Spanish context. PC is a form of relational or strategic coordination based on non-hierarchical, institutionalised interactions and exchanges of sensitive information among small groups at decision-making and working levels within state and industry. PC is based on functional interdependencies between the public and private spheres, which is why it tends to thrive in sectors where those interdependencies are structural, as is the case in Banking. PC may develop in political systems characterised by (a) a government's solid and continuous

commitment to particular goals, (b) consistency between such commitment and policy formulation and implementation, and (c) a competent civil service bureaucracy that demonstrates strong analytical and leadership capacities. These features help prevent the state from becoming an instrument of corporate interests. PC also requires the presence of firms with substantial financial and strategic resources and autonomous corporate governance structures. As the case of Bankia shows, this last feature is essential in preventing credit institutions from becoming instruments of state policy and potentially making the banking system prone to moral hazard.

In Spain, PC had distinctive structural features that distinguished it from other forms of relational coordination. Unlike Germany's inclusive variant, where actors developed their goals through consensual agreement, PC actors developed their goals autonomously, although these individual goals still needed to be compatible. In the Spanish Banking sector, the banks' autonomy was guaranteed through the legal separation between the state and the banks by the absence of intermediary agents, such as employee representatives, from the banks' strategic decision-making processes. State autonomy was guaranteed by the analytical capacity of Spanish civil servants at the BdE and by their commitment to the modernisation and transformation of the Spanish financial system. Unlike France's elite-based variant, Spain's system was built on the initially limited powers and financial capabilities of the state bureaucracy to carry out plans to stabilise the economy and modernise the financial sector, and on the presence of several elite groups in the public and private spheres whose orientations and objectives could not be assumed to be aligned.

This chapter shows that, in the Banking sector, PC was articulated through a network of decision-makers within the large or "systemic" banks, the BdE, and the government. In the late 1970s and early 1980s, when PC consolidated, the contributions of the large banks to the transformation of the financial system and to the resolution of a significant banking crisis helped reinforce the authority of the BdE. The large banks also helped empower a new and cohesive political elite who designed and implemented Spain's economic transformation from a closed to an open economy, which was a process that lasted until 1996. As a counterpart, the state, through the government and the BdE, sheltered large banks from unwanted foreign competition for a limited period of time, provided a quality control mechanism that reinforced the banks' credibility, and facilitated the structural transformation of large banks through a series of mergers and large labour adjustments. These measures helped consolidate the positions of power of a new generation of bankers who advocated a dynamic approach to banking and who actively worked to increase the banks' reaction capacity to changes in the competitive environment, enabling them to upgrade.

Greater coordination at European and international levels and the rapid internationalisation of Spanish large banks did not erode the basis of PC. First, there was never a full integration of national markets into a single market, and state-bank coordination continues to be the basis of stability of national financial systems. Second, the relatively recent internationalisation of Spanish banks and the trust-based nature of the banking sector mean that the reputation of Spanish large banks is still sensitive to the evolution of Spanish macroeconomic variables. In fact, the original pattern of interactions and closed relationships characteristic of PC has strengthened over time through the development of a specialised, post-graduate educational institution and an applied research centre founded by the BdE and financed by the large banks. These institutions feed talent to the BdE and the Banking sector and have helped create a banking elite that shares a common orientation. These institutions also function as a forum for discussion, attracting some of Spain's top academic talent.

The rest of this chapter is structured as follows: Section two offers an overview of the Spanish Banking sector. Section three outlines standard explanations for upgrading, highlights the literature's contributions, and discusses its limitations. Section four introduces PC and provides evidence from the Banking sector to define it. Section five summarises, concludes, and anticipates the following chapter.

2 The Spanish retail banking industry in perspective

This section is divided into two parts. The first one looks at the sector's trajectory in comparative perspective. The second provides a more detailed historical account of Spain's original set of large banks (the Big 7) and their evolution.

2.1 *A comparative overview of Spanish Banking*

This section provides a comparative picture of the Spanish Banking sector through an overview of its business model and an analysis based on selected performance ratios. The business model overview looks at bank borrowing and lending patterns, sets performance in perspective through international comparison, and acknowledges the transformation of the sector since the 1990s. Performance assessment is based on three main metrics—operational efficiency, operational profitability, and capitalisation—which are measured through the following ratios: operating expenses to income, net income to total assets, and Tier 1+2 capital over assets. Lower operating expenses to income ratios indicate greater operational efficiency. Higher net income and Tier 1+2 ratios denote higher profitability and better capitalisation. Data for these metrics come from the OECD Banking Income Statement and Balance Sheet statistics. Spain is

compared to a selection of OECD countries whose banking systems are deemed well developed. The UK is absent because it does not report to the database.

Ratio analyses need to be taken directionally because they neglect to account for interactions between performance and other relevant factors, such as the regulatory environment (capital requirements and other mandatory provisions), input costs (costs of capital, wages), different business models, degree and quality of risk management, and the level and structure of competition. To help overcome these limitations, in addition to a brief discussion on borrowing and lending patterns, I use where possible additional variables, qualitative explanations, and a brief evaluation of a sample of banks. The primary sources for these additional variables are banks' annual reports, the IMF Financial Access Survey, and the ECB Banking Statistics. These two databases are relatively new and only have limited historical information.

In 1985, large Spanish banks drew their funds primarily from deposits made by savers. In fact, the interbank lending market was nonexistent until the late 1970s, as was the market for public debt until the 1980s. The stock market was considered narrow and inefficient until its reform in 1988 (Pellicer 1992), and licensed bank brokers, most of whom worked for large banks, dominated investments in the stock market. In addition to providing credit for individuals and SMEs, some large banks, especially the two largest, Central and Hispano, also had significant industrial portfolios (Rivases 1988). The majority of industrial credit was provided on a short-term basis (up to 90 days) (Pons 2002), except in the case of a few public-private monopolies such as CEPSA; CAMPSA (petroleum imports, refinery and distribution); Tabacalera (tobacco); and Telefonica, whose three vice presidents were bankers. Spanish banks' reluctance to extend long-term credit to businesses distinguished them from their German counterparts. Spanish banks' traditional pattern of finance through deposits differentiated them from British commercial banks. And unlike the Big 4 French banks, the Spanish Big 7 were all privately owned and publicly listed institutions.

As of 1985, Spanish banks tended to be more profitable than those in the comparative set. High profitability took place in a context of little foreign and domestic competition and therefore did not necessarily indicate high operational efficiency. Relatively low competition can be inferred from the low number of credit institutions, only 139, compared to Germany's 4,370 or France's 2,050. The ratio of operating expenses to assets is significantly higher than those of most other countries in the comparison set. The ratio of operating expenses over income also tends to be high, especially for a country where the Banking sector was overwhelmingly focused on retail banking (82 percent of income), which tends to be less skill- and labour-intensive than investment banking and therefore has lower operational costs.

Table 2.1 Main Bank ratios in 1985

	Spain	Switzerland	US	Sweden	Germany	Italy	Netherlands	France*
Net income/Assets	0.042	0.027	0.045	0.031	0.029	0.040	0.029	0.023
Net non interest income/Total income	0.183	0.490	0.265	0.349	0.206	0.264	0.257	0.193
Operating expenses/ Net income	0.643	0.527	0.667	0.619	0.606	0.632	0.627	0.703
Operating expenses/Assets	0.027	0.014	0.030	0.019	0.017	0.025	0.018	0.016
Tier 1 and Tier 2 Capital/ Assets	na	na	0.0619013	na	na	na	na	na
Institutions	139	223	14,427	15	4,370	422	84	2,050
Branches per 1,000 inhabitants	0.432	0.448	0.190	0.172	0.500	0.205	0.330	0.463
Employees per branch	9.7	30.3	35.2	16.0	14.0	27.1	19.2	17.1

Source: OECD Banking statistics and Factbook statistics (population). Own elaboration

* Data for 1988

Qualitatively, Spanish banks had more limited international experience than their European counterparts, were relatively smaller, and had limited exposure to competition. These features are attributable to a combination of Spain's late industrial development, the smaller size of the country's economy, and the legacy of the Francoist regime. Several of today's global banks were conceived as international banks and had extensive trade and investment experience. This was the case of the major British banks and of some German banks, such as Deutsche Bank, whose founding purpose was "to promote and facilitate trade between Germany and other European countries as well as overseas" (Deutsche Bank). Spain's limited and late industrial development and the inward-looking nature of the Francoist economy made a parallel development unlikely. As Table 2.3 shows, this was an enduring feature. As late as 1996, Spain's volume of cross-border assets and their percentage over total loans were significantly smaller than those of all other major European economies.

Large Spanish banks were also relatively small. In 1985, their volume of domestic credit operations was approximately one-fifth the equivalent measure in Germany and one-third of that in Italy. This is in line with the relative size of the Spanish economy, which was 25 percent of Germany's and 40 percent of Italy's at the time (World Bank GDP statistics). Given the relative size of the Spanish economy, it is surprising that there were seven large banks, compared to only four in France and in Germany. Lack of concentration can be traced back to Francoism: Franco ruled by dividing any potential opposition and was concerned that any single bank might become too large to be controlled (Carr and Fusi 1979, Lannon and Preston 1990). Consequently, Franco vetoed an attempted merger of the two largest banks by size of deposits (Central and Hispano Americano) in 1965 (Rivases 1989, Guillén and Tschoelg 2008). No other attempt at consolidation took place until 1987.

A smaller domestic economy, insignificant international exposure, and low concentration resulted in large banks that were tiny by international comparison. The largest, Banco Central, ranked only 100th in the world and was about one-fifth the size of Banque Nationale de Paris and one-fourth of Barclays and Deutsche Bank (Guillén and Tschoelg 2008). When Spain opened up its economy to join the EU, these features meant that Spanish large banks were attractive targets for speculators and European competitors hoping to expand their operations in the peninsula (Revell 1987, Rivases 1989, El País 1998, Guillén and Tschoelg 2008).

Spanish banks had limited experience with both foreign and domestic competition. From the 1970s onwards, foreign bank presence grew steadily in Europe. Between 1970 and 1985, the number of foreign banks operating in France went from 58 to 147, in Germany from 77 to 287,

and in Italy from 4 to 40 (White 1998). By contrast, in 1980 only 4 foreign credit institutions[11] operated in Spain, all through exceptional individual concessions that had been issued by Franco (Consejo Superior Bancario annual statistics 1985). Foreign presence was eased in 1978, but Royal Decree 1,388/1978 only enabled foreign banks to open a maximum of three branches and established that local funding (i.e., through deposits) could not exceed 40 percent of the bank's capital investment. These restrictions were not lifted until 1993. Spanish banks, unlike their European counterparts (especially UK commercial banks) also faced very limited domestic competition. Until their consolidation in 1988 (Law 24/1988), Spain's wholesale markets were "narrow, lacked fluidity, had a strong speculative component, and were very illiquid" (Pellicer 1992). In addition, until 1989, savings banks, the other major type of credit institution, were subject to strict operational and geographical constraints that limited their ability to compete on commercial operations.

In a context that restricted domestic competition based on interest rates, commissions, or dividends, Spanish large banks competed through branch expansion. Between 1973 and 1983, the number of bank branches in Spain more than trebled from 5,437 to 16,046 (Fainé 2005). As Table 2.1 shows, operational costs in Spain were relatively high, which suggests that branch expansion increased operational costs more than revenue. Table 2.2 supports this interpretation, showing that as of 2010, commercial banks in Spain had more branches per 100,000 adults than most other advanced industrialised economies.

Upon the inauguration of the Single Market in 1993, the circumstances described above made Spanish large banks attractive targets for the Southern European expansion of sophisticated European rivals. However, the threat of foreign acquisition never materialised. On the contrary, by 2009 Spanish large banks had managed to come out on top along several dimensions. The analysis below presents a comparative perspective in 2009. The comparison takes into account the general transformations experienced by the Banking sector. Spanish banks had expanded their sources of capital to include securities, although less than banks elsewhere, which explains the lower impact of the 2007 financial crisis in Spain. Banks had increased their share of fee-based operations to compensate for a drop in interest rate spreads, an increased that translated into a growing portion of mortgages. Finally, the permanent presence of Spanish large banks in blue-chip firms had decreased. As of 2009, there only remained a few instances in which BBVA, Santander, or Popular—the inheritors of the Big 7—owed 5 percent or more shares of other IBEX 35 firms.

[11] Credit Lyonnais, Société Générale de Banque, Bank of London and South America, Banca Nazionale del Lavoro.

Despite Spain's reliance on large branch networks (Table 2.2), in 2009, Spanish banks outperformed their rivals in terms of operational efficiency (Table 2.4), an outcome that can be attributed to a rise in labour productivity (Table 1.5). Spain's lower operation costs stood out when compared to those of Germany, Italy, and the Netherlands, whose banking systems had comparable specialisations in retail banking. On an individual bank level, the operational costs of Spanish large banks were still significantly lower than those of other major international banks (Table 2.7). Despite decreasing margins for retail banking, Spanish banks were more profitable than those of countries like France, which obtained more than half of their revenue from more lucrative, fee-based activities. This was true despite relatively similar levels of concentration in both countries. Concentration of activities among the five largest institutions in France was 47 percent versus 43 percent in Spain; the respective Herfindahl indexes were 61 and 51 percent (ECB).

Table 2.2 Commercial bank branches per 100,000 adults in 2010

Country	2010
Spain	97.2
Italy	66.5
Switzerland	51.9
France	41.6
US	35.4
Japan	34
UK	24.9
Netherlands	23.1
Germany	15.7

Source: IMF Financial Access Survey

Table 2.5 shows that Spanish banks also stood out in terms of market performance, although Returns on Equity (ROE) tend to fluctuate and need to be taken directionally. As noted above, Spain had also come a long way in improving average person productivity, reaching Germany's level, the most productive country of the set. This was at least partly the result of heavy investments in technology. Spain had one of the world's highest rates of automatic cashiers (relative to its adult population (Table 2.6) and developed its own electronics payment system, 4B. In 2009, 4B handled 54,000 million Euros worth of operations and supported 19.5 million credit and debit cards (4B annual report 2009). Finally, data on foreign direct investment positions shows that Spanish banks not only had managed to avert the foreign threat at home, but they had also established a significant position abroad despite their lack of previous international experience.

Table 2.3 Composition of loans and liabilities in 1996-1997

	1996 Loans to non-banks			1997 Loans to non-banks	
Country	Domestic credit	Cross-border assets	Cross border assets as % of total	Cross border assets	% change 1996-1997
UK	1324.3	145.1	9.9	151.4	4.3
Germany	3075.5	79.8	2.5	102.6	28.6
France	2074.1	72.6	3.4	85.1	17.2
Belgium	365.1	39.8	9.8	44	10.6
Italy	930.8	34.6	3.6	28.8	-16.8
Netherlands	467.6	30.3	6.1	31.3	3.3
Switzerland	494.2	25.7	4.9	28.4	10.5
Spain	661.6	10.7	1.6	11.5	7.5
Austria	255.6	6	2.3	7.2	20
	1996 Liabilities to non-banks			1997 Liabilities to non-banks	
Country	Domestic credit	Cross-border assets	Cross border assets as % of total	Cross border assets	% change 1996-1997
UK	1099.9	128.4	10.5	132.7	3.3
Germany	1355.3	98.5	6.8	103.2	4.8
Switzerland	337.6	79.6	19.1	79.6	0
Belgium	222.1	32.4	12.7	34.5	6.5
Netherlands	295.4	31.3	9.6	25.3	-19.2
France	997.5	28.2	2.7	25.8	-8.5
Spain	563.4	18.4	3.2	16.3	-11.4
Italy	565.3	10.3	1.8	13	26.2
Austria	177.5	5.5	3	5.1	-7.3

Source, White 1998, Data in milions USD

Table 2.4 Main bank ratios 2009

	Spain	Switzerland	US	Sweden	Germany	Italy	Netherlands	France
Net income/Assets	0.023	0.021	0.051	0.020	0.017	0.022	0.016	0.015
Net non interest income/Total income	0.308	0.638	0.402	0.477	0.204	0.363	0.307	0.580
Operating expenses/ Net income	0.372	0.774	0.589	0.574	0.756	0.632	0.691	0.624
Operating expenses as % of assets	0.009	0.016	0.030	0.011	0.013	0.014	0.011	0.009
Tier 1 and Tier 2 Capital as % of assets	0.086	0.064	0.112	0.082	na	0.065	0.055	na
Institutions	153	207	6905	59	1774	768	93	325
Branches per 1,000 inhabitants	0.323	0.213	0.268	0.205	0.455	0.564	0.190	0.609
Employees per branch	7.4	53.8	23.2	22.0	17.0	9.7	35.1	11.1
Inwards FDI positions (Millions USD)	27,812	319,729	254,411	256,694	53,654	91,957	91,870	111,109
Outwards FDI position (Million USD)	157,633	344,217	733,245	420,433	194,384	312,116	175,864	237,307

Source: OECD Banking statistics, Factbook statistics (population) and International Direct Investment Statistics (FDI positions). Own elaboration

FDI positions exclude insurance and pension funding activities.

Table 2.5 Return on Equity (ROE) in 2009

Country	ROE % 2009
Spain	9.23
Sweden	5.41
Germany	-2.68
France	4.64
Italy	3.83
Netherlands	-0.43
UK	-0.65

Source: ECB

Table 2.6 Automatic cashiers per 100,000 adults in 2009

Country	2009
Korea	250.8
US	173.4
Spain	153.7
Japan	133.3
UK	121.9
Germany	116.9
Italy	104.9
France	104.2
Switzerland	95.1
Netherlands	62.6

Source: IMF Financial Access Survey

Table 2.7 Market performance ratios for selected global banks in 2009

	Cost/efficiency (%)*	Return on Equity (%)
UBS	103	9.9
Credit Suisse	73	18.3
BNP Paribas	58.1	10.8
Deutsche Bank	72	14.6
HSBC	52	5.1
Santander	41.7	13.9
BBVA	40.4	16
Popular	29.31	10.98

Source: bank's annual reports 2009. Own elaboration

*The cost-efficiency ratio is defined as total operating expenses divided by net operating income before loan impariment charges and other credit-risk provisions.

2.2 *The trajectory of Spanish large banks*

The trajectories of the Big 7 (Santander, Hispano Americano, Central, Banesto, Bilbao, Vizcaya, and Popular) have been documented in detail by the literature (Rivases 1989, Pérez 1997, Casilda Béjar 1997, Uriarte 2000, Guillén and Tschoelg 2008, Parada, Alemany and Planellas 2009). This section summarises the key facts to set up the historical context of the banks' evolution.

Unlike sectors like Telecommunications or Railways, which were dominated by foreign investors, banks were in local hands since their respective inceptions and played a crucial role in the local economy. The banks' singular economic and political position consolidated during Francoism. First, during Francoism, large banks retained their autonomy from the state. Unlike other sectors, Franco refused demands to nationalise large banks because they supported him during the war (Tortella and García Ruiz 2003). Furthermore, the Banking Law of 1946 prohibited the foundation of new banks and heavily constrained competition with savings banks. Banks also provided the largest share of capital for the 1960s and 1970s' industrialisation, multiplying their profit by six along the way (Pérez 1997, Torrero 2001). As the economy became more complex, bankers gained political influence by lending their expertise to the government. Between 1945 and 1975, bankers occupied 213 positions in different government bodies, compared to only 11 between 1939 and 1945 (Pérez 1997, Tortella and García Ruiz 2003, Guillén 2005). In general, the banking sector, and more specifically the Big 7, came to operate like a cartel governed by gentlemen's agreements (Pérez 1997).

The industrial and banking crises of the late 1970s and early 1980s heavily affected banks with large industrial portfolios such as Hispano Americano, Central, and Banesto. Ultimately, these three disappeared as individual entities: Hispano Americano and Central merged in 1991, and Banesto was acquired by Santander in 1994. By 1989, competition between banks and savings banks broke out into rivalry through "deposit wars" structured around aggressive marketing campaigns and the launch of innovative saving products by Santander and BBV. By then, these two banks were already heading the pack, led by a new generation of bankers who understood that "the old banking ways have died" (Sánchez Asiaín 1987). Joining rhetoric with action, these progressive bankers undertook intense reorganisation and modernisation processes. For instance, in 1992 there were only 6,362 automatic cashiers in Spain, but by 1998 the large banks alone had 10,141 of them (AEB 1992 and 1998).

The relative size of Spanish banks triggered fears of unwanted acquisition in the run-up to the European cross-border liberalisation in 1993 (Second Banking Directive 89/646/EEC). However, after the merger of Bilbao and Vizcaya to form BBV in 1988, the merger of Central

and Hispano Americano in 1991 to form BCH, and Santander's acquisition of Banesto in 1994, there was little room for large banks to grow rapidly through domestic acquisition. Instead, large banks set their sights abroad, primarily on Latin America. As shown in Table 2.8, Spanish banks tended to acquire controlling stakes in the largest local credit institutions in Latin American markets.

Spain's plans to adopt the Euro in 1999 opened new opportunities for expansion back in Spain, and large banks once again switched their attention to the home market. Santander and BCH announced their merger in 1999 to form BSCH (renamed Santander in 2002). By 1998, the conservative government's strategy of privatisation brought to the market Argentaria, a holding of several public banks that the socialist government had created in 1991. In 1999, Argentaria and BBV merged to form BBVA.

In the 2000s, BBVA and Santander continued their expansion, this time primarily in sophisticated markets in Europe and North America. Santander's largest operations in these regions were the acquisition of UK's Abbey in 2004 for 15.8 billion dollars (CEPAL and Thompson Reuters 2011) and the complete acquisition of the United States' Sovereign in 2008 for 1.9 million dollars[12]. BBVA also established a base in the US through several acquisitions in the south of the country. Since the 2008 crisis, both BBVA and Santander have sought additional opportunities in emerging economies. Santander acquired Bank Zachodni in Poland in 2010 from Ireland's Alliance. In 2011 it acquired 19.9 percent of China's CCB, the largest stake a foreign bank can legally own in a Chinese credit institution (Latin Business Chronicle 2011). For its part, BBVA acquired 5 percent of China's CITIC in 2006 and increased its stake to 15 percent in 2011. The same year, BBVA established a cooperation agreement for Latin America with the China Development Bank and acquired a 25 percent stake in Turkey's second largest bank.

Despite the significance of recent international operations, both large Spanish banks turned their efforts to the home market in 2011 to make extraordinary provisions in response to Spain's real estate and sovereign debt crises. These measures caused benefit drops of 47 percent for BBVA and 66 percent for Santander in the first nine months of 2012 (Cinco Días 2012, El Mundo 2012). However, by early 2013, the presidents of the large banks already expected to play major roles in a new round of consolidation that would increase their market shares in Spain (El País 2013). By mid-2013, both Santander and BBVA announced higher profits relative to 2012.

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[12] Santander already owned 20 percent of Sovereign and had an agreement that entitled it to acquire the remaining shares by the end of 2008.

Table 2.8 Acquisitions of Latin American banks by Spanish Banks in 1990-2005

Acquisitions of banks in Latin America 1990-2005				
Country	Acquirer	Bank Acquired	% Stake	Date of acquisition
Mexico	BCH	GFVital	8*	1992
Chile	OHCH	Banco Santiago	43	1995
Peru	Santander	Banco Interandino & Intervalores	100*	1995
Peru	Santander	Banco Mercantil	100*	1995
Peru	OHCH	Banco del Sur	49*	1995
Argentina	BBV	Banco Frances del Rio de la Plata	52	1996
Argentina	OHCH	Banco Tornquist	100	1996
Chile	Santander	Banco Osorno y La Union	51	1996
Colombia	BBV	Banco Ganadero	59	1996
Mexico	BBV	Banco Oriente & Banco Cremi	100	1996
Peru	BBV	Banco Continental	60	1996
Venezuela	Santander	Banco de Venezuela	93	1996
Venezuela	BBV	Banco Provincial	40	1996
Argentina	Santander	Banco Rio de la Plata	35	1997
Argentina	BBV	Banco de Credito Argentino	100	1997
Brazil	Santander	Banco Noroeste	80	1997
Brazil	Santander	Banco Geral do Comercio	50	1997
Colombia	Santander	Banco Comercial Antioqueno	55	1997
Mexico	Santander	Grupo Financiero InverMexico	61	1997
Bolivia	OHCH	Banco Santa Cruz	100*	1998
Brazil	BBV	Banco Excel Economico	55*	1998
Chile	BBV	Banco Hipotecario de Fomento (BHIF)	55	1998
Colombia	BBV	Banco Nacional de Comercio	54	1998
Argentina	BBV	Corp Banca	100	1999
Mexico	Santander	Banco Serfin	80	1999
Brazil	Santander	Grupo Meridional	97	2000
Mexico	BBVA	Banco Comercial Mexicano	30	2000
Brazil	Santander	Banespa	76	2001
Mexico	BBVA	Hipotecaria Nacional	100	2004
Mexico	BBV	Probursa	70	1991-1996
Paraguay	OHCH	Banco Asuncion	78*	

OHCH was a holding company jointly owned by BCH and the Luksic family through its holding in the Banco O'Higgin

*Later sold

Source: Guillen and Tschoegl (2008)

3 Standard explanations for upgrading of the Big 7

Banking has figured prominently in scholarly literature about Spain because of the sector's unexpected trajectory and its performance relative to most other sectors in the Spanish

economy. The two major existing explanations identify firms as the main drivers of upgrading. but scholars have followed two different lines of inquiry within a firm-driven approach. The first has aimed to explain the international expansion of large banks by looking at the detailed trajectories of individual firms. The second has explored the evolution of large banks in the context of their relationship with the state by analysing patterns of institutional change and the role of banks in shaping that process. This section states the two approaches succinctly, including a variant of the second line of inquiry, and explains why they are, on their own, insufficient to understand upgrading.

3.1 *Standard explanations*

3.1.1 *Creative destruction and competitive advantages*

Most scholars and analysts examining the trajectory of large Spanish banks have focused on explaining the internationalisation of Spanish large banks (Avedaño and Moreno 2004, Banco de España/Gonzalo Gil 2005, Guillén 2005, Parada, Alemany and Planellas 2007, Martín Aceña 2007, Rodríguez Inziarte 2008, Guillén and Tschoelg 2008, Guillén and García-Canals 2010, Casilda Béjar 2011). Of these authors, Guillén (2005) has made the most systematic academic analysis. His work aims to dispel the common myth that the internationalisation of Spanish firms was the result of sheer luck. Guillén also refutes claims that internationalisation was unsustainable due to Spain's low rates of technological innovation and that internationalisation was limited to Latin America, where Spanish firms benefited from cultural and linguistic ties. Instead, Guillén attributes the trajectory of the large banks to a combination of leadership skills, business know-how, process and product innovation, and experience with mergers and acquisitions, which they would have acquired during Spain's liberalisation process. Under this explanation, the role of the state fades to the point of being virtually absent, except to facilitate the transition toward a market environment.

According to Guillén and Tschoelg (2008), Santander's President, Emilio Botín, embodies the innovative, discreet, diplomatic, and decisive leadership style of a younger generation of progressive bankers who took over the sector in the late 1980s. Botín did not feel bound by the cartelistic practices of the old Big 7, and he was the mind behind the innovative and competitively remunerated account (Supercuenta) that ignited the deposit wars of 1989 which unravelled the banking cartel. Botín's public interventions to date have been scarce, and he has never declared his allegiance to any single political party. Instead, he has built relationships with the two major right and left wing political parties. For example, he was on excellent terms with former socialist premier Zapatero, although as of 2013 several members of Santander's executive board had strong ties to the conservative People's Party (PP) (Santander Annual

report 2010, Financial Times 2013). Finally, Botín's bold acquisitions of Banesto in 1994 and Abbey in 2004, on which he reportedly had the final say, incarnated the hands-on, top-down decision-making style that enabled Spanish banks to make swift decisions and take advantage of unique investment opportunities for expansion as they arose.

According to the creative destruction argument, large banks honed their competitive skills and gained experience with mergers and acquisitions during the 1980s. At this time, large banks were forced to compete with savings banks, whose market share climbed from 34 percent of deposits in 1985 to 48 percent at the end of 2011, mostly at the expense of banks (Cals 2001, CECA 2011). Large banks acquired experience in mergers through the acquisition of medium and small Spanish banks following the banking crisis of the 1970s to 1980s. The large banks further consolidated their experience in mergers thanks to a first wave of consolidations among large banks in the late 1980s and early 1990s. When banking liberalisation took place across Latin America in the following decade, this knowledge enabled Spanish large banks to take advantage of investment opportunities in the region, and later in Europe and North America. Finally, according to the creative destruction argument, an important part of the success of Spanish large banks resided in their specialisation in mass retail banking, an area where they faced less competition from well-established global banks, which tended to concentrate on the more sophisticated and lucrative corporate or private banking segments.

3.1.2 *State capture and state-bank cooperation*

A second set of scholars explains the trajectory of large banks through a historical perspective that looks at the politics of financial regulation, the role of the banks in influencing institutional change, and the consequences of such changes for the banks. In contrast to the creative destruction argument outlined above, this political-historical line of inquiry highlights the state's active role in supporting the banks and, therefore, in enabling upgrading. However, a comparison between the two main authors that have explored this line of thought shows that the relationship between the state and the large banks can be subject to different interpretations. One interpretation contends that the state acted as an instrument of the large banks' interests. The second interpretation argues that although the state actively supported the interests of large banks, it did so in exchange for collaboration from the banks to achieve public policy objectives. These two interpretations are based primarily on analyses of the Francoist period.

Specifically, Pérez (1997) connects the growth of the Big 7 during Francoism with Spain's late industrialisation and a waning state. Within that context, she argues that the Big 7 came to play two crucial roles: they were the main providers of capital during the 1960s and 1970s industrialisation, and they became a hinge in the configuration of conflict among state elites.

These two roles were the basis of a system in which large banks captured the policy-making process, consolidated their positions, and multiplied their profits.

Perez sees evidence of the long-term persistence of state capture in the way Spain addressed its public deficit in the 1980s, solved the 1977–1985 banking crisis, and liberalised the financial sector. She points out that in the 1980s, the Big 7 opposed the creation of a market for short-term public debt to help finance the public deficit because it would have meant that the state competed directly with large banks in attracting private savings, the banks' main source of capital. In response to the Big 7's concerns, the state did not immediately create a short-term public debt market but instead forced banks to purchase public debt by introducing a compulsory investment ratio. Pérez argues that this measure benefited the Big 7 because unlike a short-term debt market, it relied on the large banks as necessary intermediaries of the system. In addition, the compulsory investment ratio was a high-paying instrument that enabled large banks to maintain their profit margins in a context where declining demand for credit and excess liquidity made profits uncertain. Pérez finds additional support for the capture argument in the government's takeover of Rumasa, a large industrial conglomerate, in 1983, and in the privatisation process of the conglomerate's group of banks. Rumasa's group of banks accounted for 4 percent of deposits, and they were collectively large enough to threaten the position of the Big 7. Therefore, their expropriation and later reprivatisation process eliminated the cartel's largest rival. Finally, she points out that although Spain took legislative measures to set the sector on the path toward eventual liberalisation in the late 1970s, it did not simultaneously take active measures to challenge the banks' control of the financial system, such as enabling foreign banks to operate freely in Spain or consolidating the domestic stock markets.

Pons (1999, 2002) acknowledges the importance of ties between large banks and the state and the role of regulation in articulating those interactions during Francoism. However, she refutes the state capture interpretation by arguing that large banks were not the sole beneficiaries of the system and that the interests of the state and the bankers were not necessarily aligned. Instead, she sees the Francoist environment as one in which agents with different interests played each other out to further their respective goals. Pons contends that the Francoist governments of the 1960s and 1970s wanted to accelerate industrialisation and to reward valuable social and economic elites, and that they used the large banks to achieve these objectives and to obtain cheap public financing. In exchange, the Francoist governments offered banks some advantages to secure their collaboration. Although the large banks did not hesitate to benefit from these measures, Pons argues that the interests of large banks were not necessarily aligned with those of Francoism. Many bankers—including Villalonga, president of Central, and Lladó, associated with Urquijo—were liberals. She also contends that several government measures did not

benefit large banks, including mandatory investment coefficients that tied up to half of the large bank's resources to low profitability investments, restrictions to the distributions of dividends, limits to branch expansion, or the government's right to veto mergers between large banks. Nonetheless, Pons argues that the Big 7 viewed collaboration with the Francoist dictatorship as a lesser evil and that they were conscious of the benefits of maintaining good relationships with decision-makers in a regime that operated by fiat.

3.2 *Limitations of standard explanations*

The two firm-driven approaches outlined above place firms at the centre stage. In doing so, they acknowledge Porter's claim that it is firms, not countries, that compete. However, neither firm-driven explanation can solely explain upgrading in the Banking sector. The creative destruction explanation accurately highlights that large banks took advantage of unique opportunities for expansion derived from the Spanish banking crisis and from banking liberalisation. However, the argument that large banks honed their competitive skills through competition with savings banks in the 1980s is weak. Although savings banks started offering the same range of products as banks in the early 1980s, they could only compete on a limited basis with large banks until 1989, because they were forbidden to expand their footprint beyond their region of origin. More important, the creative destruction explanation fails to acknowledge the role of the Spanish institutional environment in enabling banks to unleash and exploit their capabilities, including the leadership potential of talented progressive bankers like Botín. In this regard, the creative destruction explanation presents a useful and detailed account of the banks' trajectory; however, it is incomplete because it underestimates the role state-bank interactions and, more generally, the relational character of the banks (Teece and Pisano 1998, Whitley 1999, Hall and Soskice 2001).

The political-historical explanations acknowledge the relational character of banks and show that the relationship between the state and large banks was crucial because it shaped the terms of competition for the sector. However, the dialogue between Pérez and Pons underscores the difficulties of characterising the state-bank relationship. Pons' interpretation highlights the need to examine the alignment of interests of the two actors and to explore the presence of exchanges in the relationship before confirming the state capture hypothesis.

Furthermore, some of Pérez's evidence admits interpretation. For instance, in a context in which public debt had been traditionally financed through expansions in the monetary base and banks had been able to monetise their debt, J. Pérez (2012) contends that it was necessary to create market infrastructures, change habits, and develop sustainable policies before creating markets, such as the short-term public debt market that Pérez mentions. Rumasa's expropriation remains

highly contentious to this day. In 1983, Ruíz-Mateos, the entrepreneur behind the Rumasa holding, was already considered the epitome of the nonprofessional bankers who had entered the banking business in the previous two decades to provide liquidity for the operations of fictitious or unsustainable businesses (El País 1983). In fact, as of 2014, Ruíz-Mateos has been tried and convicted of several frauds. In this light, one can interpret Rumasa's expropriation three months after the PSOE won the elections as a sign of the new administration's stance against speculation. Furthermore, although some the holding's banks ended up in the hands of Banco Vizcaya, increasing its market share, Banco Atlántico, the largest bank in the Rumasa holding and the only profitable one, was not sold to the Big 7. Atlántico was acquired by a consortium led by the Arab Banking Corporation (70 percent) and the state-owned Banco Exterior de España (25 percent) (Goodhart 1995).

Finally, Pérez's and Pons' interpretations of state-bank relationships concentrate on the Francoist period and the few years immediately after. Therefore, they leave out most of the post-liberalisation era during which large banks transformed their structures, achieved high levels of operational efficiency, and expanded abroad. Consequently, the two interpretations need to be retested for the post-Francoist period.

4 Coordination and upgrading in the Spanish model

This section aims to fill in the gaps in the explanations outlined above, and to provide an institutional account for upgrading in the Banking sector. The section is divided into three subsections: The first subsection sets the basis for an institutional viewpoint that explains the structure and performance of the Banking sector and establishes the unique features of the Spanish institutional structure through international comparison. The second subsection presents supporting evidence for PC. The third subsection discusses the limitations of PC through the example of Spanish savings banks (*Cajas*).

4.1 *Coordination and upgrading*

Problems of asymmetric information make the financial sector prone to disequilibria. If left unchecked, problems can quickly escalate and turn into systemic financial crises that may provoke deep, protracted economic recessions. A public system of bank supervision is a crucial guarantee of the stability and efficiency of a credit system. Consequently, coordination between credit institutions and states is a structural feature of the banking industry. Moreover, the financial sector provides essential services for any form of economic activity, a role that has historically prompted states to influence credit allocation, especially in bank-based systems.

Post-war European financial systems were characterised by institutional diversity that stemmed from variation in the distribution of power among states, banks, and downstream industry. Institutional diversity translated into structural differences in national Banking sectors. France represented the paradigm of a state-influenced developmental system. In France, bank credit was an instrument for the implementation of broader industrial policies designed by a large bureaucratic apparatus, and credit controls were based on formal legislative procedures served to orient credit toward preferred firms (Zysman 1983). Loans from nationalised lending banks were the main sources of credit. These banks could not operate against the desires of the state and had relatively few incentives to forge strategic relationships with their corporate clients.

The German Banking sector shared France's developmental and bank-based nature, but the state maintained a more distant oversight through a system of public banks whose mandate was to promote development. Banks were responsible for decisions about credit allocation, which was based on market criteria. These two features, a development mandate and responsibility for credit allocation, encouraged banks to acquire in-depth knowledge about their debtors, typically industrial firms. German banks were also allowed to invest in productive firms and to represent shareholders who deposited their shares with the banks. These legal prerogatives further reinforced the banks' interests in corporate decision making and enabled them to exercise it through board memberships (Huffner 2004).

By contrast, the UK financial system relied on highly developed capital markets and was strongly oriented toward protecting Sterling as an international reserve currency, rather than toward industrial development. As a result, UK clearing (commercial) banks were not the primary source of credit for large corporations, although their role in corporate credit was still important and has strengthened since the 1960s (Miles 2009, Davies and Richardson 2010). UK bank loans, unlike German ones, tended to be short-term and were guaranteed through assets rather than operations. Consequently, clearing banks did not need to acquire an in-depth knowledge of their debtors (Zysman 1983). Although the state in the UK did not have as close a relationship with commercial banks as did France or Germany, banks held close but non-statutory relationships with the Bank of England.

Rapid worldwide economic growth in the 1960s generated liquidity and fostered demand for new types of financial products and operations, particularly from large international corporations. Credit institutions catered to these needs with innovative products like the Euromarkets, which they could issue at low cost thanks to IT and telecommunications innovations. By the 1970s, the economic crises laid bare the limitations of industrial policies and led to state retrenchment in productive activities and the credit allocation systems that supported them. Changes in the interests and preferences of crucial economic actors generated

pressure for institutional change. By the 1970s, the additional risks derived from financial innovation caused financial crises in different countries, triggering effective change.

Throughout the 1970s and 1980s, countries tended to formalise and overhaul the supervisory roles of central banks and to progressively eliminate capital controls. These changes were followed by others aimed at increasing competition, privatising credit institutions, consolidating, and deepening wholesale markets. By the early 1990s, these trends transformed what used to be national systems into a multi-layered system with international and national features. Cross-national coordination and supervision was structured around the 1988 Basel Capital Accord, followed by the Basel II revision of 2001–2006. Within Europe, the first and second Banking Directives and the adoption of the Euro in 1999 laid the groundwork for the EU's Single Market.

Despite these changes, national banking structures and the interactions between banks and downstream industry did not converge toward a single European model. Key aspects such as bank supervision, and therefore the solvency and risk management of the system, have remained the responsibility of national Central Banks. Furthermore, despite common industry trends that have modified business models such as securitisation and the increase of fee-based activities, the underlying balance of forces among states, banks, and industry has not changed uniformly. There is no uniform European competitive environment either, which explains why local banks still handle the overwhelming majority of retail banking operations in each Western European market, and why banking sector consolidations have taken place primarily within rather than across markets (Vander Venet 2003 in Herrmann and Lipsey 2003, Cabral et al 2002).

It follows that, to explain the strategies and trajectories of large national banks, it is crucial to understand the balance of forces among national economic agents and the mechanisms through which they articulate their relationships. The literature of Models of Capitalism and the financial literature are of limited assistance in mapping these features. The literature of Models of Capitalism (Zysman 1983, Deeg 1999, Whitley 1999, Hall and Soskice 2001, Amable 2003) views the structure of financial systems as a defining component of specific Models of Capitalism rather than as an industry of its own. As a result, this literature under-theorises the institutional conditions that may help retail banks develop advantages. In addition, the characterisation of financial systems as either credit or capital-market based obscures two crucial factors: (a) that bank credit is an important source of capital in both types of financial systems (Kosmidou et al. 2006, Hardie and Maxfield 2010, Davies and Richardson 2010), and (b) that the commercial banking industry features a high degree of insider network coordination, even in capital-market systems like that in the UK.

Financial research on the other hand, (IMF 2004, Perez, Saurina and Salas 2005, Huffner 2010, Bank of England 2013) offers valuable descriptive information about national institutional systems, but it is less interested in analysing the manner in which the balance of forces among economic actors shapes those systems and their transformations, influencing banks strategies. Finally, recent contributions at the crossroads of International Political Economy, VoC, and economic geography (Erturk and Solari 2007, Hardie and Howardth 2010, Hardie and Maxfield 2010) chart changes in business models in the past three decades. However, these studies concentrate on establishing a connection between increasing levels of securitisation, lending patterns, and the 2007 securities crisis. In addition, Spain does not feature in any of these analyses.

I argue that coordination in the Spanish Banking sector was based on direct relationships between the state (the government and the BdE) and large banks. Downstream industry occupied a distant secondary position, and social intermediaries played a supportive role in implementation. The basis of state-bank coordination was a system of interdependencies that stemmed from: (a) the existence of a pact subscribed by all Spain's economic actors that provided focus and direction to economic reforms, (b) the development of public policies consistent with that commitment, and (c) the inability of either the state or large banks to achieve their respective objectives without collaboration from the other[13]. The presence of well-established banks with autonomous strategic and financial resources, the existence of a cohesive group of skilled economic civil servants selected on merit, and the Spanish tradition of separating elite groups in the public and private sector spheres prevented large banks in Spain from capturing the state and vice versa. The result was a non-hierarchical system based on negotiated exchanges that helped overcome the weaknesses of both the state and the large banks, and furthered their respective interests.

The presence of multiple but separate elite groups in Spain distinguished PC from France's institutional structure. In France, a cohesive elite straddled government and industry, facilitating the synchronisation between the interests of the state, large banks, and industrial corporations. The private character of Spanish large banks, their for-profit orientation, and the lack of long-

[13] These weaknesses were at least partly historical (although certainly not natural); Franco employed the divide-and-conquer strategy and exercised it by purposefully issuing arbitrary favours or imposing constraints, thereby weakening any potentially influential group in the country, and by spurring confrontation between various groups or their individuals (Preston 1986, 1995, Carr 1979). After Franco's demise, established and emerging elites needed to coalesce to further their respective interests in a new context. Some of these relationships were ultimately institutionalised, entrenching the power of some groups.

term links between banks and downstream industry, especially SMEs, distinguished PC from Germany's structure. In Germany, persistent and long-term relationships between banks and industry (both corporations and SMEs) continue to be an enabling force for industry and a source of advantage for banks in the form of a barrier against foreign competition.

PC in Spain has continued to operate under changing circumstances, such as the inauguration of the Single Market and several changes of government, because the features that led to the development of PC—the presence of interdependencies between the state and large banks and the inability of either actor to accomplish their goals without the other—have persisted over time.

4.2 *PC development and consolidation*

4.2.1 *Early stages during the Transition (1977–1985)*

The proximate roots of PC can be traced back to the Spanish political and economic transitions and the process through which the country integrated into the global economy. By 1977, Spain faced a deep, multifaceted crisis with deeply intertwined political and economic factors. Levels of conflict ran high, and "transforming the economic model was considered necessary to address social tensions" that threatened the democratisation process (Moncloa Pacts 1977).

Spanish economic agents reached a consensus regarding the main lines of reform necessary to transform Spain into a democracy and a modern, open economy. In 1977, representatives from all political parties with parliamentary representation, the Prime Minister, and some members of government privately debated the objectives, instruments, and specific measures necessary to restructure and turn around the Spanish economy and the legal reforms necessary to recognise and protect basic civil liberties. The two agreements (economic reforms and civil liberties) that resulted from these negotiations were collectively called the Moncloa Pacts. The pacts were voted on in Parliament, approved by the representatives of the two main unions, and endorsed by the employers' association. Fuentes Quintana, vice-president for economic affairs, also explained in a public broadcast[14] the main lines of the economic pact.

The pacts asked for the development of an active monetary policy, measures aimed at increasing the reaction capacity of the economy to exogenous shocks, and the progressive liberalisation of the financial system (Moncloa Pacts 1977, Fuentes Quintana 1985). The development and

[14] The broadcast, 16 minutes long, remains today a rare example of government straightforwardness and a case of use of mass media for political purposes. https://www.youtube.com/watch?v=Y2tINhRiMqs, Accessed March 21 2014.

implementation of these ideas was understood to be a long-term process of deep change that could not be achieved solely through government fiat (Fuentes Quintana 1985).

The Moncloa Pacts provided focus and direction to the program of economic reforms that followed. Initial reforms aimed to reinforce the powers of the BdE to conduct monetary policy, develop effective bank supervision mechanisms, and set the basis for liberalisation. Because of the macroeconomic nature of these measures, the initiative and the strategy for these reforms departed from the BdE. However, the government and the BdE lacked sufficient powers and instruments to independently achieve these transformations and needed cooperation from the large banks.

A Central Bank can exercise monetary policy through two alternative mechanisms: variation in interest rates or control of the monetary base growth. The first mechanism requires the existence of an active interbank lending market. The second requires synchronisation with the banking system, especially large banks, because banks expand the monetary base through their ordinary credit operations. In the late 1970s, Spain had a rudimentary interbank lending market that was insufficient to enable the BdE to exercise monetary policy (Pérez 1997, J. Pérez 2012). Realising the need for long-term collaboration with the Big 7, Fuentes Quintana pressed for the creation of a representative industry body with which the state could negotiate. The result was the creation of the Spanish Banking Association (AEB) in 1977. Fuentes Quintana favoured and obtained the appointment of a sympathetic industry representative at the AEB, Rafael Termes, a self-defined liberal and the person who would become Quintana's interlocutor (Fuentes Quintana 1985, Termes 1991).

To fulfil the government's reform objectives, the Big 7 needed to agree to a more powerful BdE and to the principle of economic liberalisation. The BdE could only become more powerful at the expense of the large banks and liberalisation was likely to drive interest rates down, reduce large banks' margins, and threaten their control of the market. Consequently, the Big 7 were expected to oppose the BdE's reforms. However, by the late 1970s, a minority of progressive, bankers like Termes supported a degree of change. Specifically, Termes supported the elimination of mandatory investment coefficients and increases in the interest rates at which preferential sectors could borrow. These instruments tied up bank resources to unprofitable investments and, therefore, harmed banks' earnings. Some bankers also saw advantages in a rigorous supervisory system exercised by the BdE to keep in check dubious banking practices and help prevent crises that may disrupt business and stain banks' reputations. Nonetheless, the Big 7 opposed market competition with foreign and domestic rivals, which would have impacted their bottom lines directly.

Ultimately, the initial reform package for the banking sector did not fully achieve the government's aims, especially in terms of market liberalisation, and this reflects the concerns of the Big 7. However, initial reforms were consistent with the overall guidelines contained in the Moncloa Pacts and strengthened the powers of the BdE to exercise monetary policy and supervise the Banking sector.

Royal Decree 1,839/1977 established the progressive reduction of mandatory coefficients from approximately 40 percent to 21 percent and brought interest rates for preferential industries close to market rates. Royal Decree 1,388/1978 authorised the installation of foreign banks in Spain but imposed heavy constraints on their operations. Royal Decree 1,839/1977 eliminated restrictions that barred savings banks from offering commercial discounts (an instrument used to provide corporate credit), enabling them to offer the same range of products as banks. However, the Decree maintained geographical restrictions for savings banks expansion, thereby limiting their ability to compete directly with the Big 7. These restrictions to competition were long lasting. Foreign banks did not operate in equivalent conditions to Spanish banks until 1993, and savings banks were not allowed to freely expand their geographical footprint until 1989. The terms of these reforms are also indicative of the weakness of industry relative to that of the banks. By constraining competition, Spanish banks continued to charge double-digit interest rates in the midst of an acute crisis that choked even profitable firms. For example, in 1980 the president of the AEB admitted to charging 20 percent interest rates (Torrero 1981).

These banking reforms were quickly followed by a set of measures that strengthened the powers of the BdE and showcased the mutual exchange nature that defines PC. Some of these measures reinforced the independence of the BdE relative to large banks. Law 30/1980, for example, dismissed professional bankers from decision-making roles at the BdE and substituted them with public employees. Law 30/1980 also established a system of incompatibilities between public and private employment in the Banking sector. Other measures aimed to strengthen the power of the BdE to conduct monetary policy by building the infrastructures and institutions necessary to develop a fully fledged interbank lending market. For example, in 1976, the BdE introduced a telephony-based interbank exchange system, the first step toward creating a fully-fledged, real-time payment system. This mechanism was also a valuable source of information about the operations of large banks and the level of risks the banks were assuming, which enabled the BdE to monitor potential disequilibria (J. Pérez 2012). In addition, the BdE introduced a rigorous supervisory mechanism for large banks based on the principle of establishing "a close relationship to the firms through trust and knowledge exchange between supervisor and supervisee" (Bank of Spain 2009). Specifically, large banks became subject to constant supervision through a team of inspectors that worked full-time at the supervised banks.

In 2008, one third of the BdE's inspectors were dedicated to this task (Bank of Spain 2009). Micro-prudential supervision mechanisms based on similar principles have been adopted by other European countries in the aftermath of the crisis. However, prior to 2010, such forms of micro-prudential supervision were considered too intrusive by most OECD countries. Finally, the BdE acquired indirect powers over the decision-making structures of large banks through its ability to veto candidates to board-level positions (Interviews 1 and 4).

A second episode of this period, the resolution of the 1977–1985 banking crisis, offered additional testimony to the cooperative and mutually beneficial nature of PC and showcased the competence and leadership capacity of the economists at the BdE. By 1977, Spain faced a significant banking crisis. Between 1977 and 1985, 51 banks out of the existing 110 banks, which accounted for 20 percent of the country's deposits, were rescued. Addressing the crisis required a strategy to rescue ailing banks and turn them around. In line with the Moncloa Pact's commitment to move toward a market-based system, the BdE's strategy to address the banking crisis was based on private-sector turnarounds rather than the long-term nationalisation of ailing banks. Specifically, the BdE created the Deposit Guarantee Fund (Royal Decree 3,048/1977, Royal Decree 54/1978, Royal Decree-Law 4/1980), which was funded through contributions from the banks. The fund bought the majority of an ailing bank's stock at a symbolic price, restructured it with talent from other banks, and then sold it off via public auction (Dziobek and Pazarbasioglu 1998, Martín Aceña 2005).

The successful implementation of the BdE's turnaround strategy was, therefore, based on obtaining the banks' financial resources for the initial rescue operation and on using their expertise and capabilities to turn around failed banks. In exchange for their cooperation, the Big 7 and some growing contenders, like Banco Sabadell, were able to expand their presence by purchasing intervened banks, usually at symbolic prices. However, turnaround operations could sometimes involve substantial costs, and the Big 7 did not always have the option to decline the job. This was the case of Banco Urquijo's turnaround by Hispano Americano. Urquijo was Spain's largest industrial bank, and due to historical ties between Urquijo and Hispano Americano[15], the BdE attributed the responsibility of absorbing Urquijo's losses to the latter. Hispano Americano was already struggling itself and had difficulty accomplishing the massive restructuration of Urquijo. Following the absorption of Urquijo in 1984, Hispano Americano posted negative annual results and was subsequently forced by the BdE to cancel its annual

[15] Through a pact signed in 1944 (Pacto de las Jarillas), Hispano and Urquijo became two separate entities that concentrated on retail and industrial investment activities, respectively. However, both banks concentrated on retail activities and Urquijo on industrial investments, while continuing to collaborate closely.

issue of dividends. This was the first occasion one of the Big 7 had ever done so, and the measure sent a powerful signal regarding the depth of Hispano Americano's financial problems. In fact, it is generally accepted that the absorption of Urquijo marked the beginning of the end for Hispano Americano (Interviews 2, 3, 12).

As befits a negotiated arrangement based on interdependencies, large banks were not the only beneficiaries of the BdE's strategy. The swift and efficient management of the banking crisis by the BdE, and its contrast with the government's weak approach to industrial restructuration, revealed the technical strengths of central bankers, particularly those of a cohesive network of young economists formed at the BdE's Research Department. This group had been recruited primarily from the Faculty of Economics at Complutense University and nurtured by Luís Angel Rojo, a respected academic at Complutense and the director of the BdE's research department between 1971 and 1988 (Malo de Molina 2012). This group constituted Spain's emerging intellectual economic elite, and they supported market-oriented reforms and a central bank fully equipped to control the system's liquidity. Furthermore, the rigorous orthodoxy of this group of economists and the strong professional credentials of each individual contrasted markedly with the generalised corruption, inefficiency, and nepotism that had characterised the civil service during the Francoist era.

These young economists' actions during the management of the banking crisis generated a broader set of benefits for them and ultimately helped strengthen PC. The election of the PSOE in 1982 empowered the BdE's emerging elite to turn their ideas into policy: the PSOE's young and charismatic leader, Felipe González, recruited talent from the BdE to fill top policy-making positions. The first Minister of Economics and Industry, Miguel Boyer, and his successor between 1985 and 1993, Carlos Solchaga, were both BdE-trained economists. After a ministerial reorganisation in 1986, many of those in second-tier positions also had similar backgrounds or at least compatible opinions (El País 1986). Under this new economic leadership, the relationship between the BdE and the government became fluid. The relationship between the BdE and the large banks strengthened, developing a stronger policy-making dimension and remaining locked within a tight group of individuals comprising professional bankers, central bank-trained individuals, and a small group of academics and state economists who also came to occupy positions of responsibility. These groups came to constitute the core of Spanish economic policy making.

Despite their intellectual leadership, the consolidation of the rising BdE elite and the implementation of the economic orthodoxy measures they defended were not undisputed and would not have taken place without implicit support from the large banks. Within the government, a faction led by Vice-Prime Minister Alfonso Guerra criticised Premier González's

choices and advocated a traditional approach based on public deficits and strong support for industrial employment. France's experience weakened his arguments (Rand Smith 1998), and ultimately Guerra left government amid a fraud scandal involving his brother. The PSOE's union, Unión General de Trabajadores (UGT), also criticised the party's shift away from traditional pro-worker policies. The UGT leader, Nicolás Redondo, went as far as breaking party discipline[16] to vote against the annual budget in 1987 before renouncing his parliamentary seat as a protest against the government's industrial restructuration process. In 1998, Redondo also organised a general strike in conjunction with the other national union, Comisiones Obreras (CC.OO). The strike forced the government to soften some of its restructuration measures but did not stop them (Rand Smith 1998). Ultimately, the defeat of the opposition and their arguments showcased the secondary role that industry and their representatives played throughout this period relative to the more assertive roles of the state and the large banks.

4.2.2 *Consolidation in preparation for the Single Market (1986–1993)*

The features that had led to the development of PC in the previous decade—the state's commitment to base its policies on the guidelines defined by the Moncloa Pacts, the compatibility between the goals of the state and those of large banks, and the need for these actors to cooperate—persisted after Spain joined the EU in 1986. This explains why, despite changes in the external context, PC continued to underpin the transformation and upgrading in the Spanish Banking sector.

By the mid-1980s, the BdE had achieved much progress in strengthening its powers to conduct monetary policy and to develop effective supervision mechanisms to ensure the stability of the financial system. As Spain joined the EU in 1986 and prepared for the inauguration of the Single Market, priorities shifted toward achieving the remaining goals outlined in the Moncloa Pacts: liberalise and modernise the Banking sector.

Whereas the policy goals of the previous decade had a strong macroeconomic character, the modernisation and competitive transformation of the Banking sector were microeconomic challenges. Because the Big 7 were fully private firms, the initiative and strategies necessary to achieve these goals rested on the shoulders of the banks. The state could support and help shape the process, but it could not carry it out.

[16] In Spain, party representatives support party leadership. Breaking discipline may involve administrative sanctions (fines) and political sanctions (expulsion from the party).

Not all large banks were conscious of the need -or willing- to transform their structures and business strategies to become competitive in preparation for the Single Market. This was the case of the three largest banks (Banesto, Central, and Hispano Americano), which were still run by the same bankers who headed them through the Francoist period. These traditional bankers were challenged by an emerging generation of progressive bankers who presided over the rest of the Big 7. The main leaders of the progressive bankers' group were Emilio Botín (Santander), Pedro Toledo (Vizcaya), and José Angel Sánchez Asiaín (Bilbao), who shared a common educational background at the University of Deusto[17]. The progressive Deusto bankers understood that the Single Market represented a unique business opportunity, but they were conscious of the necessity to transform their banks' structures and their business strategies to take advantage of the opportunity and to avoid losing control of their entities at the hands of potential rivals from more sophisticated European markets. Although the progressive bankers' perspective was anchored in an analysis of business threats and opportunities, their view was compatible with the BdE's goal to modernise the Spanish Banking sector and to prevent attacks from foreign speculators that may destabilise the financial system.

The Big 7 faced three main competitive challenges relative to their more sophisticated European rivals: they were significantly smaller; they tended to have higher fixed costs; and as late as 2000 (Table 1.5), they were significantly less productive than their counterparts in Germany, France, and Italy. These weaknesses made the Big 7 likely targets of hostile acquisitions and speculative attacks. Size was a particularly important concern for the banks headed by the progressive bankers because these banks were better run than the rest of the Big 7 but smaller in size, which made them attractive targets for foreign acquisition. The fastest path to grow was through mergers and acquisitions, but the banks faced several obstacles. First, if the sector was liberalised immediately, banks risked being acquired by foreign investors before having the chance to adjust and grow organically. This type of uncertainty intensified the risks and the costs of carrying out mergers. Second, mergers and subsequent changes to the banks' boards of directors required approval by the BdE. Finally, mergers needed to be followed by structural reforms, which involved reductions in labour that contravened the legal terms of pre-existing, lifelong contracts and were expected to be financially expensive.

The way the state and the progressive banks addressed these challenges reflects the pattern of exchanges characteristic of PC. The BdE actively supported the goals of the progressive bankers and through them jump-started the modernisation of the Banking sector, while protecting it from

[17] The fourth bank, Popular, and its president, Rafael Termes, adopted a much lower profile regarding these transformations, although they did not oppose them, and Termes continued to be the state's interlocutor at the AEB until 1990.

unwanted speculative investments. The BdE defended a strategy of mergers between a progressive bank and a traditional bank and it assumed that the progressive bank would lead the merged entity. The progressive banks supported this approach, but opted for a merger among themselves, showcasing the diversity of opinions between private and public sector bankers. The first merger in 1987 consisted of an alliance between two progressive banks, Bilbao and Vizcaya, to form BBV. The two largest traditional banks, Central and Hispano Americano, merged in 1994 to form BCH. This was a defensive move that aimed to prevent the progressive banks from launching a potential hostile takeover against any of them.

The BdE and the government facilitated the mergers through several measures. The combination of the fear of foreign acquisition of the large banks and the state's own concern for financial instability led the state to take a protective stance toward the Banking sector. To this end, the state exercised tight control over foreign investment in the sector. Law 26/1988 mandated that anyone taking control of 5 percent of the social capital of a bank needed to inform the BdE, and participations over 15 percent required specific authorisation. This protection was necessarily temporary because Spain was scheduled to join the Single Market in 1993, but it enabled the Big 7 to undertake mergers and restructuration with minimal interference from foreign competitors. The government's defensive approach also aimed to prevent speculative investments that could cause instability in the financial sector. This was, for instance, the purpose of Minister Solchaga's request that the Kuwait Investment Office withdraw its stake in Banco Central in 1987 (Congress 9 February 1993). Spain's position with regards to its banks contrasts markedly with the country's liberal approach to foreign investment in most other sectors, and it illustrates the preferential treatment awarded to banks relative to other industries, especially manufacturing. In 1986, Spain introduced legislation that enabled foreign investors to invest in most sectors under the same conditions as resident Spaniards (Royal Decree-Law 1,265/1986). By 1992, Spain's share of world FDI represented about 5 to 6 percent, a much higher share than Spain's 1 percent share of global GDP.

The government also facilitated the modernisation and competitive transformation of the banks by helping negotiate and fund their internal restructurations. Employment at Spanish commercial banks decreased continuously between 1980 and 2004, losing a total of 70,000 jobs. Between 1995 and 2000 alone, Spanish commercial banks downsized by 27,000 employees, while France decreased by 8,000 and Germany and the UK increased employment by 5,000 and 14,000, respectively (OECD Banking Statistics). Downsizing operations were usually negotiated with the government and unions played an important implementation role. Most layoffs took the form of voluntary pre-retirement agreements generously funded by the state, which contributed approximately half of the ensuing pensions.

The protective stance of the state, and the restructuration measures outlined above substantially lowered the risks and the costs of transforming the Banking sector, and the progressive bankers embraced the opportunity. In 1987, Santander and BBV launched innovative savings products that unchained a deposit war, which signalled the breakup between progressive and traditional bankers. As mentioned above, the sector underwent a massive internal restructuration that lowered fixed costs. In addition, after the first round of mergers with other Spanish banks, progressive banks engaged in an expansion spree in Latin America. Along with being a defensive strategy against hostile acquisitions, internationalisation, and the increase in size it entailed, boosted profitability by raising the banks' volume of operations and by allowing them to benefit from Latin American's larger interest spreads. Moreover, the diversification of operational risk inherent to internationalisation protected banks against future economic downturns in Spain and, therefore, made large, progressive banks more solid and more competitive.

The pattern of collaboration between the BdE and the progressive bankers to achieve compatible goals showcases the interdependencies and mutual-collaboration pattern characteristic of PC. The following factors distinguish PC from state capture: (a) the consistency between the guidelines for economic reform contained in the Moncloa Pacts and the policy choices of the BdE, (b) the leadership position of the BdE in facilitating the modernisation process, and (c) the diversity of opinions between progressive bankers and traditional bankers and between traditional bankers and the state. The innovative and proactive attitude of the progressive bankers also contrasts significantly with theoretical expectations of low innovation, lack of initiative, and shallow structural transformation usually associated with the state capture hypothesis.

The course of action followed by the BdE was not the only option available. The state could have supported a strategy based on long-lasting relationships between banks and industry along the lines of the German system, but this would have compromised the BdE's objectives. The progressive banks, especially Santander, had relatively small industrial investments and were unwilling to play a role in industrial decisions that were outside their field of expertise. By contrast, the three biggest conservative banks had large but often incoherent industrial investments (Pérez 1997, Rivases 1989, Guillén and Tschoegl 2008). Consequently, a German-like strategy would have required supporting the position of the traditional bankers relative to the progressive ones, and therefore possibly delaying the modernisation of the Banking sector. Additionally, part of the institutional core of the German banking system is the presence of a set of public banks that do not operate solely on the basis of profitability criteria (Huffner 2004). In Spain, such an approach would have gone against the for-profit orientation of Spanish large

banks, and it would have compromised the BdE's goal of increasing competition in the sector through liberalisation.

The 1986–1993 period in Spain was also characterised by the development of more permanent institutional foundations to facilitate the dialogue and interpersonal negotiations that characterise PC. Luís Angel Rojo, the father of the BdE elite, was instrumental in the creation of two bodies: FEDEA and CEMFI. FEDEA- Fundación de Estudios de Economía Aplicada- (Foundation for Applied Economy Studies) was created in 1985 and is a research foundation that produces applied economic research. Financed by the BdE, along with the large banks and a few other large Spanish corporations, FEDEA's strength lay in its ability to engage and bring together senior Spanish economists affiliated with top universities around the world. CEMFI- Centro de Estudios Monetarios y Financieros- (Center for Monetary and Financial Studies) is a private postgraduate education foundation founded by the BdE in 1987 "in response to the perceived need of highly qualified specialists in economics both at the BdE and elsewhere in the Spanish economy" (CEMFI). CEMFI is, therefore, a direct source of talent for the BdE, it produces international-quality research, and elaborates projects funded by the Ministry of Economics.

4.2.3 *Impact of the Euro and the internationalisation of large banks*

The relational nature of PC, or the coordination dynamics already set in motion in the previous decades, did not change significantly after the conservative People's Party (PP) came to office in 1996, which attests to the institutionalisation of PC. Many of the individuals who had played significant roles in the previous PSOE administrations remained in positions of responsibility and played key roles in designing and implementing some of the most crucial economic policies of the period. For instance, Luís Angel Rojo, who had become Governor of the BdE in 1992, remained in his post until 2000 and was responsible for designing the monetary policy that enabled Spain to join the Euro, Premier Aznar's pet aspiration.

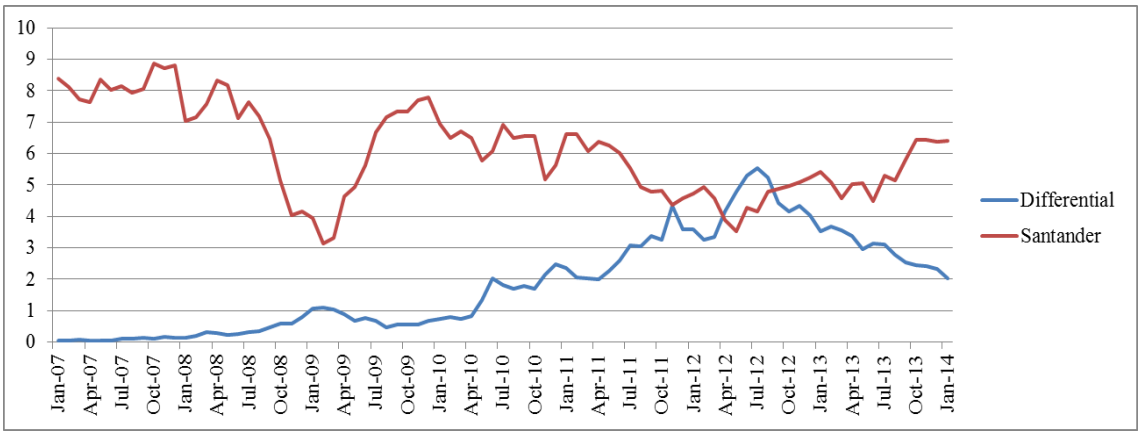
The government's drive to qualify Spain for the Euro prompted a new wave of mergers that accelerated the progressive bankers' leadership, finalised the modernisation and transformation process of the Banking sector, and drove traditional bankers away from decision-making positions for good. The acquisition of BCH by Santander in 1999 represented the final instalment of the war among conservative and progressive bankers. Despite a so-called "merger of equals," the bitter squabbles between BCH and Santander executives over strategic direction epitomised the acrimony between conservative and progressive bankers. Internal struggles came to an end when top BCH executives José Amusátegui and Angel Corcóstegui, the last

representatives of Spain's traditional banking philosophy, renounced their executive positions in 2001 and 2002 (El País 2001, ABC 2002).

The the PP government did not hesitate to use the tools at its disposal to eliminate those it disagreed with, a behaviour that underscores the non-market character of PC, the persistence of divergent opinions among the government and banking elites, and the independence of state criteria. In 2000, Emilio Ybarra, the president of BBVA, was forced to renounce his post among a scandal related to offshore secret accounts. Considering that the issues in question preceded Ybarra's presidency, it is generally accepted that the case surfaced at the initiative of Premier Aznar and those close to him as a response to intense criticism of Aznar on a TV channel controlled by the Ybarra family (Interview 5).

PC is based on the equilibrium between the resources and capabilities of the state and banks, and on the presence of interdependencies between these two actors. Consequently, factors that affect the respective capabilities of the state or banks could affect how they articulate their interactions and potentially unravel PC. One such factor is the internationalisation of large banks. According to Culpepper and Reinke (unpublished), the diversification of risks and the reduction in business volume derived from activities in a single country that accompany internationalisation are likely to strengthen the position of banks at the negotiation table with the government. This could indeed compromise the future of PC. However, recent evidence shows that the performance of Spanish large banks has remained sensitive to events affecting the Spanish economy. A comparison between Santander's quotations in the London Stock Exchange FTSE index and the evolution of the price differential between the Spanish 10-year bond and the German 10-year bond up to January 2014 show a strong correlation between investor's perception of Santander and the evolution of the Spanish sovereign debt crisis.

Table 2.9 Santander's FTSE monthly stock performance and Spain's bond differential in 2007-2014



Sources: Santander's average quotation at the FTSE at close of market on the first day of each month in Euros: Yahoo finance. Differential between Germany's interest rate for government bonds with a maturity rate of 10 years and Spain's: Harmonised ECB data (data in percentage points).

4.2.4 *PC and firm autonomy: The case of savings banks*

The relationship between the state and the large banks has continued to evolve along the lines of PC throughout the 2000s. PC, however, is not without its flaws and is subject to capture when firms fail to maintain their autonomy. This is was the case with several savings banks throughout the 2000s. Unlike banks, Spanish savings banks (*Cajas*) were, until 2012[18], non-listed credit entities with a social aim. Cajas regularly acted as the source of financing for Autonomous Regions, and Municipal Governments often used them to fund unproductive projects that generated votes and direct profits to the politicians involved.

The basis for political capture of the Cajas was their corporate governance structure. Law 31/1985 (modified in 2010) established that board members be selected by Autonomous Regions, local corporations, depositors, and workers. The aim of this structure was to reinforce the Cajas' traditional commitment to service their local communities through non-profit, socially beneficial activities. Instead, it made Cajas an easy target for political capture by regional and local governments. The majority of Cajas' board members were appointed by municipal and regional governments, which typically selected political candidates who were amenable to their views. Several of these political appointees lacked previous professional banking experience, which in turn made them more prone to engage in deficient risk management practices (Garicano and Cuñat 2010).

The trajectory of Caja Madrid/Bankia and its disastrous result illustrates the perversities of the system. Following the 1996 election, the incoming PP government substituted Caja Madrid's president and experienced banker, Jaime Terceiro, with Miguel Blesa, a candidate supported by Premier Aznar. Blesa was a lawyer with little previous banking experience. During a period characterised by economic growth and cheap credit immediately after the introduction of the Euro, Blesa went on a branch expansion spree that brought him prestige. He financed the expansion by issuing large amounts of credit, particularly in real estate. In 2005, real estate credit (mortgages and credits to real estate builders) constituted 84 percent of credit growth for Caja Madrid (Barrón 2012). Blesa's approach proceeded without impediment from Madrid's Autonomous and Municipal Governments or the BdE. The governments had few incentives to stop Blesa because the real estate boom was a substantial source of regional and municipal

[18] As part of the measures to address the crisis, most of them have been forced to become publicly listed banks.

income in the form of building permits and fees. Also, as a Caja, Caja Madrid was not subject to the same standard of supervision and reporting obligations as large banks, nor was it, as a non-listed entity, directly subject to market discipline.

By 2008, when the real estate bubble burst, Caja Madrid already faced serious trouble and its non-performing loans ratio stood at 5 percent. However, instead of focusing on Caja Madrid's bottom line, the Autonomous Government's attention concentrated on the appointment of the new president. The candidate's election was the subject of intense public debate among the leaders of two factions within Madrid's Autonomous Government. The winning candidate was Rodrigo Rato, ex-Minister of Economics and a professional politician, who nonetheless lacked professional banking experience. There is no indication that Rato or his team addressed the Caja's problems when they took office in 2010. Instead, Rato undertook the merger of 12 Cajas, including Caja Madrid, to form the publicly listed bank Bankia. Some of these Cajas had serious solvency issues.

In the first half of 2012, Bankia was forced to acknowledge its problems. Following two private meetings with the Minister of Economics and the CEOs of Santander, BBVA, and La Caixa/Caixabank (El País 2013), Rato stepped down and Goirrigonzález, a retired board member of BBV, was asked to take over his position. Bankia's problems were so serious that the government requested a bank rescue package from the EU for a value of up to 100 billion Euros. In February 2013, Bankia announced the largest loss ever for a Spanish corporation: 19 billion Euros. By April, Bankia's stock was barely worth 1 cent of a Euro.

Bankia's trajectory also showcased fundamental problems within the structure of the BdE. In 2006, the BdE's inspectors, who are responsible for supervision, issued a letter to the Minister of Economics revealing that the Governor of the BdE systematically disregarded their repeated warnings. They also requested a structural transformation of the supervisory system. The Governor stepped down in May 2012, which excused him from responding before a public Parliamentary Commission regarding Bankia's failure. In October 2012, the BdE issued a set of recommendations to reform banking supervision, extending the rigorous supervisory system that was formerly used only for large banks to a much larger set of institutions, including several new banks resulting from the conversion of savings banks, such as Bankia.

5 Conclusions and next chapter

This chapter has explored the institutional foundations of upgrading in the Spanish Banking sector. I argued that upgrading was grounded in a form of relational coordination called PC, which revolved around close interactions between the state (primarily the government and the

BdE) and large banks. PC was based on a system of non-hierarchical exchanges and was originally based on the weaknesses of Spain's economic actors—especially operational limitations of both the state and large banks—and the relative alignment between the objectives of public and private sector elites.

The private character of Spanish banks and their for-profit orientation differentiate PC from the German system, while its reliance of several elite groups and a relatively limited bureaucratic apparatus distinguishes it from the French elite coordination model. Greater supra-national coordination has not unravelled PC because state-bank coordination continues to be a structural feature of the sector and the main guarantee of stability in national financial systems, and because Spanish large banks are still sensitive to the evolution of the Spanish economy. Nonetheless, the crisis that started in 2008 showcases significant shortcomings in the model. PC has continued to work effectively for large banks, whose internationalisation processes guaranteed their autonomy and helped prevent government capture. By contrast, the corporate governance system of the Cajas and less rigorous supervision mechanisms made them easy targets for capture by Autonomous Governments and enabled unscrupulous practices.

The following chapter reveals further details about PC and tests the state-driven hypothesis through the example of the Telecommunications sector. The chapter will show that, as in the case of large banks, PC in Telecommunications was based on a system of exchanges and mutual support between the state and the incumbent operator, Telefonica. Under this system, the state achieved its goal of expanding and overhauling Spain's public telecommunications network by relying on Telefonica's strategic and financial resources. In turn, the operator was compensated with a favourable regulatory environment that enabled it to lock in large market shares, obtain privileged access to growing market segments, and undertake a significant organisational restructuration. As in the case of Banking, state-firm coordination continues to be a structural feature of the Telecommunications sector, which explains why it has survived despite liberalisation.

Chapter 3. Telecommunication services: PC and the rise of Telefonica

1 Introduction

In 2011, Telefonica was the world's fourth largest telecommunications operator in terms of revenue and the second largest in number of users, ahead of other large integrated operators such as France Telecom (FT), BT, and Telecom Italia. The Spanish operator had also become one of the most efficient and best managed integrated operators (Giokas and Pentzaropoulos 2008, OECD 2011, SAM 2011). In 1986, when Spain joined the European Union, few could have anticipated this outcome because Telefonica lagged behind its peers in terms of network development, quality of service, and profitability. In 1986, Spain had only 24 lines per 100 inhabitants versus France's 42 and the UK's 37 (ITU 2010). In the same year, 70 percent of Spain's territory qualified for funds from the EU's STAR program, which aimed to develop infrastructures in areas "lagging a long way behind the rest of the Community as regards both telecommunications equipment and the level of services on offer" (European Council 1986). While waiting lists had already disappeared in the UK and France in 1988, Spain still had 384,000 pending applications for service (ITU 2010). In terms of revenue, in 1985 the Spanish monopolist operator trailed other European countries, generating 27,000 US dollars of revenue per 100 access lines versus 38,000 by its French counterpart, 35,000 by the UK, or 45,000 by Germany (OECD Internet and Telecommunication statistics).

The body of analytical literature based on the Spanish Telecommunications sector is sparse. Scholars and industry specialists have concentrated on explaining Telefonica's internationalisation, and then they have assumed that there is a connection between the operator's international expansion and upgrading. Authors articulating the creative destruction explanation (Guillén 2005, Guillén and García-Canals 2010, Vives 2010) have highlighted Telefonica's ability to operate in and benefit from the liberalisation of the sector thanks to its strenghts in project execution, risk evaluation, and shrewd negotiations. Authors positing the state-driven explanation (Chislett 2003, Rozas Balbotín 2003, Martínez 2008) have argued instead that Telefonica's international expansion in Latin America was the result of a state strategy aimed at supporting the operator through size increases. To date, no author has articulated the state capture explanation, according to which the state would have played an active role in supporting upgrading but would have become an instrument of Telefonica's interests. I also explore this hypothesis for consistency with the rest of the thesis and as a robustness check for the PC argument.

The creative destruction and state-driven arguments provide valuable information about the trajectory of Telefonica, but they fail to explain how the operator's internationalisation experiences in less developed economies helped it overcome comparative disadvantages with sophisticated and mature operators from OECD countries. In addition, some of Telefonica's strengths appear less solid when viewed in comparative perspective. The state-driven explanation highlights the role of the state in Telecommunications, but it fails to evaluate the impact of change on the traditional hierarchical relationship between states and Public Telecommunications Operators (PTOs) or how that change affected Spain. The hypothetical state capture explanation considers changes in the traditional Public Telegraph and Telecommunications (PTT) model, but it fails to acknowledge the development of new sources of state power. The state capture hypothesis is also inconsistent with the growing level of competence of Spain's telecommunications civil servants and with Telefonica's innovative and competitive stance.

This chapter argues that the concept of PC is useful to understand Telefonica's upgrading. The chapter complements and refines the concept of PC introduced in Chapter 2 and shows that PC was neither driven by the peculiarities of the Banking sector nor solely applicable to it. I show that the key to unleashing upgrading in Telecommunications was a non-hierarchical form of state-business coordination based on insider networks and characterised by the absence of third-party intermediaries from decision-making processes. PC provided the basis for negotiated exchanges of non-neutral state regulation and public support for restructuration in exchange for infrastructure overhaul. As in the case of Banking, the PC structure was based on the presence of strong public-private interdependencies, compatible public and private sector objectives, and the inability of either the state or the incumbent to achieve their respective goals without cooperation from the other. Under this framework, Telefonica was able to develop and implement a strategy based on intense restructuration and global expansion that enabled the operator to overcome its deficiencies and move ahead of its rivals.

To understand this argument and to evaluate alternative hypotheses, it is crucial to appreciate the impact on state-operator interactions of some key historical developments in the Telecommunications sector. Until the 1980s, the structure of Telecommunications in most OECD countries followed the PTT model, which was based on the natural monopoly paradigm (Thatcher 2004, 2007). This paradigm justified the existence of single national operators under the assumption that competition would hinder service expansion, especially in low-profitability areas. Public or semi-public operators normally depended on short-term political decisions about increases in service tariffs' and annual budgets to plan their investments in infrastructure.

Network equipment was usually developed by and purchased from local manufacturers under schemes that aimed to foster national industrial development.

By the late 1970s, such structures caused serious limitations and constraints. The commercial expansion of digital signal transmission systems opened the door to a broader variety of services and transmission mechanisms. Where alternative service providers, such as cable operators, already existed, these developments rapidly eroded the basis for a single national telecommunications operator. Furthermore, digital network equipment was significantly more complex to develop and involved much higher capital costs than analog equipment. As a result, vertical integration between local equipment manufacturers and national monopoly operators became difficult to sustain. In Europe, manufacturers lacked the scale and the means to develop state-of-the-art equipment due to the size of national markets. Consequently, national operators were forced to sit through long delays for suitable systems and paid prices that could exceed those of emerging global manufacturers by as much as 80 percent (European Commission 1987, Thatcher 1999). As equipment costs rose and service demand continued to grow, operators struggled to fund long-term plans to modernise and expand their networks, waiting lists for new lines grew, and corporate users complained of deficient service over saturated networks.

In the wake of the industrial crises of the 1970s, national governments were reluctant or unable to provide the necessary long-term capital to address these issues. These circumstances drove legislators, operators, and large corporate consumers to advocate the separation between telecommunications operators and states. By the late 1980s, political pressure from stakeholders resulted in a new paradigm based on competition and a growing role for supranational regulation. Because national states retained competences for infrastructure, licensing, spectrum management, and day-to-day regulation, there remained a need to balance national public policy objectives with operators' economic incentives. Nonetheless, under the new paradigm, institutional arrangements needed to be reframed.

In the Spanish case, the permanent tension between government objectives to enhance the network and universalise telecommunications service and operators' concern for the modernisation of its network was resolved through a collaborative agreement. Telefonica made available to the state its capacity for infrastructure development to enable the state to achieve its developmental public policy goals. In compensation, Telefonica benefited from non-neutral regulation that enabled it to undertake the process and organisational changes indispensable to reach the efficiency frontier. The PC structure, with its emphasis on firm profitability, was particularly supportive of Telefonica's transformation and upgrading.

The rest of this chapter is structured as follows: Section two offers a comparative analysis of the Spanish Telecommunications sector over time and introduces Telefonica. Section three outlines standard explanations for Telefonica's upgrading and discusses their limitations. Section four issues an alternative explanation based on PC and provides evidence to support it. Section five summarises, concludes, and introduces the following chapter.

2 The Telecommunication sector in perspective

This section is divided into two parts: The first one looks at the Telecommunications sector's trajectory in comparative perspective. The second provides a more detailed historical account of Telefonica. Data for this section comes primarily from two databases: the OECD Internet and Telecommunications Statistics Database and the International Telecommunications Union (ITU) Information and Communication Technology Statistics Database (2010 Edition). The OECD database is the main source of cross-country comparative information, and the ITU database provides complementary information on additional variables not measured by the OECD. I also use data from company reports and other sources to flesh out the picture.

2.1 *Comparative perspective*

This section provides a comparative perspective of the Spanish Telecommunications sector based on four main variables: network coverage, profitability, investment, and employment over time. The tables below provide two snapshots for 1985 and 2009 (2008 where data for 2009 is unavailable). The national monopoly structure common in 1985 implies that tables reflected the position of national operators, such as Telefonica. Spain is compared to a selection of OECD countries with advanced Telecommunications sectors, including two countries that have advanced rapidly during this period: Ireland and Korea.

In 1985, Spain's telecommunications network fared badly in terms of coverage, network equipment, investment, and profitability. Access to telephony service was not universal; as Table 3.1 shows, the number of access channels was below those of other developed economies. For instance, in 1985 only 52.2 percent of Spanish homes had a telephone versus 90 percent in the US as early as 1960 (Telefonica 1985, Faulhaber 1995). Low penetration came hand in hand with lack of coverage, especially in rural areas; long waiting lists for new lines; and deficient service. As Spain's GDP grew in the second half of the 1980s, the situation worsened; pending applications for service peaked at 350,000 in 1989, at which time they had already disappeared, or nearly so, in every other large Western European country (ITU 2010). Coverage also varied widely by region, ranging from Madrid's 45.4 lines per 100 inhabitants to Extremadura's 16.8 (Lera Laso 1986). These differences reflected variations in wealth across Spain and suggest the

absence of a public strategy to universalise service. In fact, Spain's Indicative Plans in the 1960s and 1970s show no signs of such a strategy.

Table 3.1 Network, profitability, and investment in 1985

	Standard access lines per 100 inhabitants	Revenue per access channel in USD	Investment per access channel	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Sweden	62.78	347.50	104.36	30.03	2.56	66.44
UK	52.93	358.93	73.14	20.38	2.65	38.78
US	49.24	946.76	180.17	19.03	2.58	88.97
France	40.69	381.55	161.94	42.44	3.46	65.89
Japan	37.48	474.81	152.83	32.19	1.88	57.36
Germany	32.95	447.22	195.74	43.77	3.50	64.49
Italy	30.74	363.54	159.69	43.93	2.99	49.10
Spain	24.21	267.69	113.84	42.53	3.03	27.56
Ireland	19.85	670.91	204.16	30.43	3.84	40.55
Korea	18.48	253.39	177.65	70.11	4.98	32.84

Source: OECD Telecommunications and Internet Statistics

Table 3.2 Digital exchanges and waiting lists

Country	Percent fixed lines connected to digital exchanges (1990)	Waiting lists (1985)
Korea	46.5 (1)	279,988
France	75	37,741
Ireland	55	27,726
UK	47	0
US	43	0
Japan	39	0
Sweden	38	0
Italy	33	330,064
Spain	28	252,762
Germany	12	28,369

Source: ITU Telecommunication Statistics 2010. Own elaboration

(1) Data for 1991

Spain also lagged in the adoption of state-of-the-art network equipment. Table 3.2 shows that in 1990, Spain was behind other large European countries and even some poorer countries, such as Korea and Ireland, in shifting from analogue to digital switches. The only exception is Germany, probably as a result of reunification. In addition, Table 3.1's figures for investment per access channel and investment per inhabitant show that Spain was on a slower route to catch up than Korea and Ireland. Spain's disadvantage persisted into the 1990s. Directive 96/19/EC

acknowledged it when it allowed countries "with less developed networks" (Spain, Ireland, Greece, and Portugal) to request additional transitional periods of up to five years to fully liberalise their services[19].

Finally, Spain's monopoly operator was less profitable than its counterparts. Table 3.1 shows that Spain's revenue per access channel was lower than those of most other countries in the comparative set. Lower profitability can be partly attributed to the country's lower GDP per capita and, therefore, to lower intensity of use of the service by residential and business clients. In 1985, Spain's per capita income was 50 percent of Germany's or 48 percent of France's (World Bank 2012). However, an unfavourable comparison between Spain's profitability and that of Ireland and Korea suggests that there were other factors at play. Telefonica's aim to introduce planning as a "modern management tool for updating services … in areas where an appreciable lag was occurring" in 1985 (Telefonica 1985) indicates that there were some limitations in operational efficiency. This interpretation is supported by Spain's low revenue per employee compared to most countries in the set (Table 3.3).

Table 3.3 Revenue per employee (USD) in 1985 and 2008

Country	Revenue per full time employee 1985	Revenue per full time employee 2008
US (1)	104,148	378,335
Japan	69,293	11,321
Italy	57,622	985,220
France (1)	56,743	448,224
Germany	53,889	463,751
UK	45,780	na
Sweden (1)	44,131	710,136
Korea	39,413	430,649
Spain	33,400	795,285
Ireland	29,178	na

Source ITU Telecommunications statistics. Own elaboration

(1) Revenue per employee in 2007

By 2009, Spain's situation contrasted markedly with that illustrated above. Table 3.4 summarises the same concepts used to situate Spain in 1985, with a few adjustments that reflect the transformation of the industry. (The total number of access paths includes mobile and broadband accesses in addition to conventional fixed lines, and waiting lists and the percentage of connections to digital exchanges have become irrelevant.)

[19] Thus, Ireland liberalised telephony services in 1 December 1998, Portugal in 1 Jan 2000 and Greece in 1 Jan 2001.

Table 3.4 Network, profitability, and investment in 2009

Country	Total access channels per 100 inhabitants	Revenue per access channel in USD	Investment per access channel in USD	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Japan	146.98	816.78	128.71	15.76	2.42	189.18
Ireland	162.83	767.76	84.07	10.95	1.06	137.41
US	151.97	759.08	123.96	16.33	2.44	201.85
France	200.02	724.11	81.18	11.21	1.33	128.46
Spain	177.10	713.15	73.03	10.24	1.29	129.33
Germany	201.90	507.19	50.22	9.90	1.16	101.78
UK	197.78	500.06	63.20	12.64	1.42	129.85
Korea	205.45	464.10	53.43	11.51	1.65	92.49
Italy	158.23	399.16	73.08	18.31	1.79	143.05
Sweden	163.45	351.94	72.40	20.57	1.39	145.38

Source: OECD Telecommunications and Internet Statistics

By 2009, Spain had caught up in terms of coverage by various access channels. Investment per access channel was aligned with or even superior to those of several other large OECD economies, which indicates that the large infrastructure gaps of the past were unlikely to reappear. Spain was also one of the most profitable countries in the selection set, both in terms of revenue per access channel and revenue per employee (Table 3.3). This suggests that some of the former operational deficiencies had been addressed. Pentzaropoulos and Giokas' work ranking 19 European operators in terms of operational efficiency corroborate this assessment (Giokas and Pentzaropoulos 2002, 2008). The magnitude of Telefonica's structural transformation in Spain also supports this interpretation: the operator passed from as many as 75,000 employees in Spain in 1994 to only 32,000 by the end of 2009 (Telefonica 1995, CMT 2009). This contrasts with FT's 102,000 employees in France and BT's 112,000 employees in the UK (BT 2009, FT 2009), making Telefonica one of the leanest integrated operators. In addition, Telefonica built a strong international position; in 2008, it obtained 64 percent of its revenue from outside Spain (Telefonica 2008) versus 50 percent for Deutsche Telekom (DT) and BT.

2.2 *Telefonica's trajectory*

This section provides a brief account of Telefonica's individual trajectory to complement the comparative approach outlined above. Telefonica was founded in 1924 as a fully private corporation with foreign capital, technology, organisation, equipment, and talent. Through a contract with the state, the company operated on an initial 20-year exclusive service concession. By the expiration of the contract in 1945, Franco sought to eliminate foreign presence in a sector considered crucial for national security. Therefore, the state purchased all foreign stock at

the hands of ITT, Telefonica's foreign partner, and became Telefonica's largest shareholder with 41 percent of the stock (Segundo Plan de Desarrollo Economico 1969). The operator remained the sole service provider.

Spain's economic boom in the 1960s and early 1970s was an expansionary period for Telefonica in terms of intercontinental and national infrastructures, productivity, and employment. The empirical details of this progression are documented by Calvo (2010). Output per employee between 1967 and 1975 almost quadrupled; employment between 1960 and 1975 almost trebled; and investment in 1975 represented 11 percent of Spain's GDP, more than in any other country in the comparative set (ITU 2010). Despite such intense infrastructure development, Spain started from a low base and teledensity continued to lag behind that of other large Western European countries. There were also important geographical variations in teledensity within Spain. In 1977, teledensity ranged from Extremadura's 10 telephones per 100 inhabitants to Baleares' 40 telephones per 100 inhabitants. Profitability and quality of service also lagged behind those of other PTOs, and waiting lists reached 650,000 (ITU 2010).

Expansion continued throughout the 1980s, although at a slower pace, with access to capital being a major bottleneck. To overcome the limitations of Spain's narrow stock market, Telefonica listed its stock in the Paris, London, Frankfurt, and Tokyo exchanges in 1985. By 1987, it had also listed on the New York Stock Exchange, where it floated stocks for 375 million USD – the largest volume on offer for a non-US firm at the time (Telefonica 1999). Despite these moves, waiting lists continued to rise until 1989, which indicates that network expansion could not meet demand.

The pace of expansion and network modernisation picked up again between 1989 and 1996, at which time service universalisation was considered accomplished. Overall, 1982—1995 was a period of expansion. The number of physical lines in Spain almost doubled, passing from 8.6 million at the end of 1981 to 16.1 million at the end of 1995. Similarly, the number of lines in service increased from 7.7 to 15.1 million (Telefonica 1995). Other performance variables also showed marked improvements. Between 1992 and 1996 alone, net benefits from operations in Spain increased by 45 percent from 80 million to 120 million pesetas (Telefonica 1996). Between 1995 and 1996, market capitalisation increased by 70 percent, which was half the growth of the Spanish stock market in that period (Telefonica 1999). Productivity also rose. Between 1981 and 1996, the number of lines managed per employee passed from 118 to 228 (Telefonica 1995). By 1998, overall productivity was only slightly below the OECD average: -0.6 in Spain versus -0.02 for Germany, -0.31 for the UK, and -.008 for France (OECD 2000).

In the 1990s, Telefonica jumped on the bandwagon of international expansion. Developments in the US and the UK in the first half of the 1980s and the EU's Green Paper of 1987 set the stage for liberalisation across Europe. National operators responded to expected losses of market share in their home markets by expanding operations abroad, but international expansion was not always successful. Telefonica experienced failure firsthand through its participation in Unisource, a consortium led by the Swedish incumbent. Telefonica's ventures abroad in the 1990s shifted from high-revenue markets in Europe and North America to Latin America, where Telefonica purchased small participations in newly privatised operators, normally in cooperation with local investors. Of Telefonica's foreign acquisitions, the most important were the properties acquired in Brazil between 1996 and 1998, which included the fixed telephony operator in Sao Paulo, Brazil's most lucrative market (Telefonica 1996, Telefonica 1999).

In 2000, Telefonica consolidated its presence in Latin America through *Operation Veronica*, a coordinated series of IPOs that aimed at achieving control of its properties in the region and cost 21,500 million USD (Vives 2010). Telefonica continued its expansion in Latin America by acquiring all of BellSouth's properties in the region in 2004 and by making additional consolidation purchases in Colombia (2006) and Chile (2008). In the 2000s, Telefonica also shifted its sights toward Western Europe. Its first major attempt was a failed merger with KPN in 2000, followed by limited investment in mobile licenses for a value of 6,500 million Euros. The most significant European operation until 2014 was the purchase of UK's mobile operator O2 in 2005 for 26,500 million Euros. At the time, this was the largest operation of a Spanish firm abroad (Vives 2010). By the end of fiscal year 2009, these acquisitions made Telefonica the fourth largest operator in the OECD by revenue and the second largest in terms of clients (Table 3.5).

Table 3.5 Major Public Telecommunications Operators in OECD countries in 2009

		USD (Millions)						Units (000)	
Company	Country	Revenue	Net Income	Long-term debt	Capital expenditures	R&D spending	Fixed access lines (000_	DSL/Cable /FTTH lines	Mobile subscribers
AT&T	US	123,018	12,535	64,720	16,595	na	49,392	17,254	85,120
NTT	Japan (1)	108,810	5,261	36,087	14,651	2,972	38,330	16,632	56,082
Verizon	US	107,808	3,651	55,051	17,047	na	na	na	91,249
Deutsche Telekom	Germany	89,745	490	58,068	12,783	278	38,100	na	151,700
Telefonica	Spain	78,810	10,802	66,135	10,548	963	40,606	15,083	202,333
Vodafone (Group)	UK (1)	69,280	13,467	44,604	10,866	436	na	na	302,600
France Telecom	France	64,603	4,163	42,883	7,942	na	na	na	132,593
Telecom Italia	Italy	38,126	2,196	48,881	6,311	1,170	18,525	na	30,856
Vivendi	France	37,692	1,153	11,558	3,679	960 (2)	na	na	na
KDDI	Japan (1)	36,787	2,274	9,327	5,285	331	2,850	2,544	31,872
Comcast	US	35,756	3,638	27,940	5,639	na	na	15,900	na
BT	UK (1)	32,495	1,601	14,834	3,909	1,714	na	na	na
Sprint Nextel	US	32,260	(2,436)	20,293	2,194	na	na	na	na
Softbank	Japan (1)	29,533	1,034	18,490	2,392	6	1,670	4,006	21,880
America Movil	Mexico	29,209	5,692	7,486	3,938	na	27,383	11,986	211,297

Source: OECD Telecommunications Outlook 2013, data for Fiscal Year 2009, (1) Fiscal year ending March 2010, (2) of which EUR 393 million was capitalised

3 Standard explanations for Telefonica's upgrading

The question of what lies behind Telefonica's upgrading is understudied. A few recent empirical accounts trace the operator's history: Calvo (2010) follows Telefonica from its origins in 1924 to 1975, and Vives (2010) details the company's international expansion after 1989. From a more analytical perspective, the literature offers two main interpretations of Telefonica's trajectory, both of which focus on the operator's process of internationalisation: the firm-driven creative destruction argument grounds Telefonica's successful internationalisation in the operator's business know-how, whereas the state-driven argument sees international expansion as the result of a government-directed plan. In addition to these two explanations, this thesis examines state capture as a third argument. Although the state capture hypothesis has not been articulated in the literature, I examine it for consistency with the rest of this thesis and as a robustness check for PC.

This section briefly states the three arguments and outlines their limitations in explaining Telefonica's upgrading.

3.1 *Standard explanations*

3.1.1 *Creative destruction and competitive advantages*

Proponents of the creative destruction argument (Guillén 2005, Guillén and García-Canals 2010) contend that the key to Telefonica's successful international expansion, especially in Latin America, was a combination of time-tested competitive advantages in project execution, negotiation, and risk evaluation. These advantages were especially useful in Latin America, because they helped address telecommunications challenges in a region characterised by low rates of teledensity relative to GDP, high levels of red tape, and risks associated with political and economic instability.

For Guillén and García-Canals (2010), Telefonica's advantage in project execution involved the ability to make cost-efficient investments in infrastructure, to satisfy unmet demand, and to improve quality of service. According to these two authors, the Spanish operator honed in its project execution skills when overhauling the Spanish telecommunications infrastructure in the 1980s and 1990s. Such an interpretation is supported by public declarations to The New York Times by Ignacio Santillana- Telefonica International's CEO in 1994, in which he said that Telefonica had "the best ditch-digging technology around" (NYT 1994). In the same article, Javier Ros, subdirector of strategy for Telefonica at the time, clarified that Telefonica's ability to lay out new infrastructure rapidly and efficiently stemmed from the fact that network

expansion in Spain involved building new lines, as opposed to replacing or modernising existing infrastructures, which was more common in other OECD countries.

In addition, Guillén and García-Canals contend that Telefonica developed strong negotiation and networking skills through years of managing the demands and shifts of Spanish public officials. They point out that, historically, the Spanish Telecommunications sector was highly regulated and Telefonica learnt to navigate the complex process of obtaining licenses. In response to Spanish high-ranking officials holding the power to make or break deals, Telefonica learnt to develop personal relationships with public sector decision-makers to access insider information that enabled the operator to anticipate policy changes. These negotiation and networking skills were especially useful in Latin America, where bureaucratic procedures were long and complex and personal connections essential to the business culture.

Finally, Vives (2010) points out that Telefonica had a different perception of the risks and opportunities of investing in the emerging markets of Latin America, especially when compared to its North American rival, AT&T. Vives fails to fully develop this argument, but his perspective is best understood in its historical context. In the 1980s and early 1990s, US corporations in Latin America were seen as potential targets for attack by those who opposed US foreign policy in the region. By comparison, Spanish investors faced a lower risk of armed attacks. An anecdote by Santillana illustrates well the difference in the perception of risk by the Spanish and North American operators. He recounts that when Telefonica and AT&T's teams arrived to Peru in 1994 to present their bids for the local incumbent, Telefonica's team went out on foot, whereas their Americans counterparts moved around in armoured cars and used bodyguards (Interview 15).

Telefonica's view of opportunities in Latin American market also differed from the priorities of large telecommunications operators from North America and Europe. The early stages of liberalisation in the late 1980s and early 1990s triggered a period of intense activity among incumbents in large European countries to maintain control of their home markets and establish a foothold in the US, and for the US operators to ensure that European incumbents did not establish a position in the US unless they opened their home markets to foreign competition. Many of the attempted expansion operations across the Atlantic ultimately failed. However, these activities underscore that investment in Latin America's emerging markets were a secondary priority for operators such as AT&T, BT, FT, and DT, whose interests were focused in the US and European markets, the world's most lucrative at the time. By contrast, Telefonica, a smaller operator with less international experience coming from a less developed economy, was at a disadvantage to compete with these large operators and found investment opportunities in Latin America more compelling.

3.1.2 *State-driven explanation*

By contrast, Chislett (2003), Rozas Barbotín (2008), and Martínez (2008) see Telefonica's international trajectory, especially its expansion to Latin America, as the outcome of a government strategy. Rozas Barbotín speaks of the state's "iron grip" on the operator's transition toward a competitive environment and of a public strategy that aimed to ensure Telefonica's survival through "a dramatic increase in the operator's critical mass" (Barbotín 2008). He contends that the state was able to exert control over Telefonica's corporate strategy during the liberalisation process because it sold its participation in Telefonica gradually, starting in 1985 and finishing in 1996, enabling the government to continue appointing the operator's CEO. Barbotín also points out that the state continued to exert control over Telefonica's strategic direction even after its full privatisation through the enactment of a golden share (Law 5/1995), which enabled the government to veto any purchases of 10 percent or more of Telefonica's capital. The state used its veto power in 2000 to prevent the merger between Telefonica and KPN. Law 5/1995 was only revoked in 2005 following a European Court ruling (CASE C- 463/00).

Martínez goes further, likening Telefonica's expansion in Latin America to a form of neo-colonialism in which the operator profited from the political climate and the economic downfall of state-run enterprises in the wake of Latin America's *lost decade*. Martínez explains Telefonica's rising star in the context of Spain's policy of reinforcing cultural, political, and economic ties with Latin America. Since its transition to democracy in the late 1970s, Spain sought to reconnect with the region by supporting anti-authoritarian and pro-democracy movements, by taking an active role in conflict mediation, and by fostering pro-democratic debates (Encuentros para la Democracia). The celebration of the 500th anniversary of Columbus's arrival to America in 1992 provided the opportunity to develop a framework for cultural exchange. That same year, Spain launched the Ibero-American Summit, an annual meeting of leaders from all Hispanic nations, as an effort to develop a Latin Commonwealth. Martínez echoes Vives's argument and contends that Telefonica took advantage of a unique window of opportunity: The consequences of the lost decade in the 1980s made Latin American countries receptive to foreign investment. Simultaneously, the US support for corrupt political regimes, its record of human rights violations in the region, and the risk of guerrilla attacks against US business interests temporarily eliminated competition from North American rivals, especially AT&T, in some Latin American countries.

3.1.3 *State capture*

The state capture argument contends that Telefonica drove its own upgrading process and the state was only an instrument of Telefonica's interests. To date, the literature has not articulated the state capture argument. However, I examine this hypothesis for consistency with the rest of this thesis and as a robustness check for the PC argument.

The state capture argument is based on the idea that liberalisation turned the traditional hierarchy of the PTT model upside down, enabling Telefonica to control public policy and tailor it to its advantage. In Europe, the conventional PTT model was structured around a hierarchical relationship in which the PTO was either part of the state apparatus or heavily controlled by it. In the Spanish case, Telefonica was a publicly listed company, but the state controlled the operator through its 41 percent stake and oversaw corporate decisions via the appointment of a government delegate to Telefonica's executive board. Telefonica's subordination was also evidenced in the state's control of access to capital via the approval of service tariffs increases and emissions of new market shares. The state also controlled equipment procurement through its support for procurement arrangements based on exclusive contracts between Telefonica and locally-based producers, and through tariff barriers that made imports of network equipment uneconomical (Calvo 2010, Interviews 4 and 10).

The progressive liberalisation of Telecommunications led states to lose their traditional sources of power over operators, and Spain was one of the first European countries to initiate this transition. By 1978 the government no longer appointed a delegate to Telefonica's board (Telefonica 1978), and by 1987 the state retained only a 20 percent participation in the operator, which was less than half the UK's 49 percent stake in BT in 1987 (BT 2006). As a result, the state's ability to exert control over strategic decision-making decreased. Telefonica's full privatisation in 1996 eliminated any remnants of state influence via stock participation. By the mid-1980s, Telefonica's stock was listed in the five largest international stock markets, and as the operator expanded globally in the 1990s and 2000s, its share of revenue from the Spanish market dropped. The operator's financial autonomy meant that the state lost control through a crucial input. Finally, in 1985, Telefonica shifted to a procurement policy based on competition among providers, and it announced its intentions to sell off its large industrial group, signs that the state was easing control over equipment procurement.

Liberalisation and privatisation simultaneously increased operators' leverage relative to the state due to their size; the concentration of the sector; and their combination of technological, financial, legal expertise, and day-to-day contact with a fast-changing market (Macher 2011). Between 1962 and 2011, Telefonica was the largest Spanish firm by market capitalisation

(Segundo Plan de Desarrollo 1962, Cinco Días 2011). Being the incumbent, Telefonica also owned the largest telecommunications network, amounting to 82 percent of service accesses (CMT 2009), which gave it leverage over a crucial economic resource. According to the state capture argument, Telefonica used its position of market power to obtain favourable regulatory treatment both historically and recently. For example, the procedure chosen to award mobile licenses in Spain upon the liberalisation of the service was a government decision rather than an auction (Royal Decree 1,486/1994)—a method that sector specialists associate with lack of transparency, lobbying activities, and political intervention in favour of incumbents (Del Monte 2003, Jehiel and Moldovanu 2001, Interviews 5 and 10). More recently, Telefonica used its market power to advocate a modification of the Telecommunications Bill that enables the operator to recover its investment in Next-Generation Access networks (NGAs).

3.2 *Rejecting standard explanations*

The creative destruction and state-driven explanations connect Telefonica's geographical expansion in Latin America to upgrading. However, this connection is problematic. As mentioned by proponents of these two arguments, the Latin American context represented a different set of challenges than the more sophisticated markets of North America and Europe. Given the persistent difference between network characteristics and corporate strategies in emerging and mature economies in the Telecommunications sector, it is unclear how Telefonica's experience in Latin America helped it overcome its deficiencies relative to mature and sophisticated operators such as BT and DT, or how it enabled the Spanish incumbent to compete successfully against these rivals in the European markets in the 2000s.

The creative destruction explanation also highlights Telefonica's strengths with regards to the Latin American market, but a comparative perspective raises doubts as to whether these strengths constituted competitive advantages relative to mature and sophisticated operators. Table 3.6 shows that although Telefonica added an impressive 6 million new fixed lines between 1985 and 1996, these figures are significantly smaller than the network expansions undertaken by incumbents in Germany, France, UK, and Italy. In addition, the context of Germany's reunification and the subsequent expansion of telephony service into East Germany weaken the claim that Telefonica's experience with network expansion was fundamentally different from those of operators in more advanced countries.

Similarly, Table 3.7 shows that Telefonica failed to satisfy unmet demand. Waiting lists in Spain rose until 1989, the year Telefonica started its international expansion. Meanwhile, waiting lists declined quickly in France and Italy, the two Western European countries that took the longest to eliminate them. Quality of service was not a particular strength of the Spanish

operator either. Improving quality of service was one the main objectives of Telefonica's incoming CEO in 1989 (Telefonica 1989, Telefonica 1990, Vives 2010), but as late as 1994, Telefonica was still being prompted by the competition authority to address complaints of deficient service (El País 1994).

The state-driven explanation highlights the role of the state in supporting Telefonica's international expansion, but this argument fails to account for the change in the industry's dominating paradigm from a natural monopoly to competition and for the impact of that change on the state's ability to exert control over the incumbent. The state-driven explanation also takes for granted the capabilities and resources of the Spanish state and its ability to influence the outcome of negotiations between Telefonica, a private company, and the governments of foreign nations in Latin America.

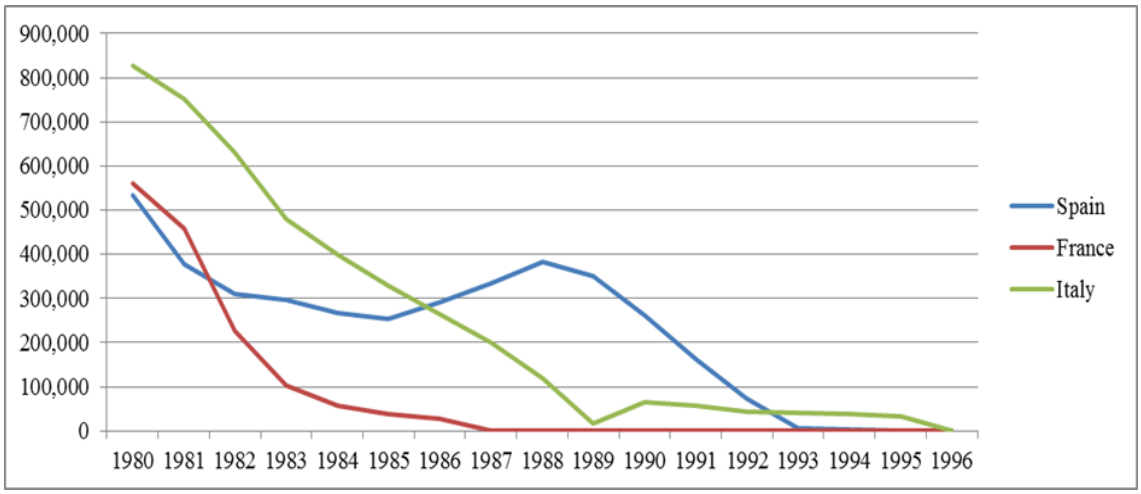
Although the state capture explanation evaluates the impact of the change of paradigm in the balance of powers between incumbents and states, this interpretation fails to take into account the emergence of new sources of state power to compensate for the decline of traditional ones and their role in preventing the reversal of the PTT's historical hierarchy. The state capture argument is also inconsistent with the progressive devolution of policy-making capacity from the operator to the state after 1986 and with the development of a competent Telecommunications bureaucracy, both of which are barriers to capture. Moreover, the argument fails to take into account the state's commitment to economic development, and the consistency between that commitment and public policy formulation and implementation. Nor does the argument examine Telefonica's contribution to the fulfilment of public policy goals in exchange for favourable regulation. Finally, the state capture argument is inconsistent with Telefonica's competitiveness and with the deep structural changes that the operator undertook to reach the efficiency frontier.

Table 3.6 Network expansion by country in 1985-1996

	Additional fixed lines (000)		
Country	Increments 1985-1989	Increments 1989-1996	Total increments 1985-1996
US	15,519	34,941	50,460
Japan	7,154	11,583	18,737
Germany	3,456,000	15,252	18,708
Korea	5,274	7,809	13,084
France	3,912	5,958	9,869
UK	3,622	5,881	9,503
Italy	3,869	3,994	7,863
Spain	2,457	3,616	6,072
Poland	637	3,408	4,045
Portugal	789	1,633	2,422
Switzerland	507	787	1,294
Ireland	213	474	687,000

Source: ITU 2010. Own elaboration

Table 3.7 Waiting lists for fixed telephone lines in 1980-1996



Source: ITU 2010 Own elaboration

4 Explaining Telefonica's upgrading through Peer Coordination

This section presents an alternative explanation that traces back Telefonica's upgrading to PC. The section is divided into three parts: The first one discusses the structural character of state-operator coordination in Telecommunications and the shift from the natural monopoly to the competition paradigm. The second part uses cross-country comparisons to show the impact of the shift paradigm on state-operator coordination. The third part defines Spain's institutional structure and presents evidence connecting it to Telefonica's upgrading.

4.1 *Institutional transformation in Telecommunications*

Telecommunications networks and the services they support are critical for national economic growth (Petrazzini 1995, Cowhey 2006). However, the high costs and long-term returns of securing licenses, laying out, and maintaining network infrastructure make Telecommunications one of the world's most capital-intensive industries. This dichotomy creates a permanent tension between policy objectives to universalise service in order to stimulate economic activity and the operators' economic logic to provide service only where revenue can be maximised through traffic.

Until the 1980s, the tension between economic considerations and public interests was resolved through the natural monopoly paradigm. This model enshrined the subordination of economic interests to political aims. In Europe, the conventional PTT model was structured on a hierarchical relationship in which the state owned or controlled the PTO, and strategic decisions were often taken at the Ministry rather than industry level. In addition to full or partial ownership, subordination was articulated through a series of state prerogatives over basic inputs, namely capital and equipment. States exercised control over capital through annual budgets, approvals of tariff increases, and new stock emissions (in countries like Spain where the operator was a listed company). States controlled equipment procurement through vertical integration schemes and import tariffs that forced operators to purchase their equipment from local producers (European Commission 1987, Faulhaber 1995, Thatcher 1999, Cowhey 2006).

From the 1970s on, technological changes highlighted the limitations of the PTT model and led to changes in the needs of operators, governments, and major users. An important shortcoming of the PTT model was the subordination of long-term investment decisions about infrastructure to annual decisions over budgets and tariffs. This made it difficult for PTOs to meet a growing demand for service and to modernise their infrastructure, causing long waiting lists and deterioration in quality of service. The transition from analog to digital signal transmission exacerbated existing problems by increasing the costs of fixed network equipment, especially digital switches. The technological complexity and high fixed costs involved in developing new switches spurred the global consolidation of the equipment industry and made vertical integration at a country level unsustainable. This was especially true in European countries, where local demand from the PTO was not large enough to cover the costs of developing state-of-the-art equipment locally. Thus, European operators suffered important delays in the delivery of digital switches and often had to pay as much as 80 percent more than prices quoted by suppliers from the US (European Commission 1987).

The tension between economic considerations and public interests heated up in the 1980s as the industrial crises placed competing demands on states' resources. Battling industrial stagnation and public deficits, European governments were not inclined to commit the massive amounts of capital necessary to modernise and expand telecommunications networks. Moreover, as technological complexity increased, governments were forced to deal with technical matters that were difficult for public officials who had only generalist training to grasp (Jordana and Sancho 1999, Thatcher 2004). For instance, in 1994, the president of the Spanish Parliament referred to Telecommunications as "the world of the unknown" (Parliament 1994). Finally, the attitudes and preferences of some large corporate clients also shifted. The Financial sector, the largest consumer of telecommunications services, was experiencing structural changes that led to higher demand for data transmission services, which required advanced digital networks.

Political pressure to change institutional frameworks away from the PTT model came from PTOs, governments, and major users who came to support a framework based on the competition paradigm. The most salient features of the new framework were a growing layer of supranational norms and a shift in the balance of power between national states and PTOs. The first changes toward a competitive framework were negotiated in the WTO Uruguay Round (1986–1994). In Europe, the EU started to develop a common framework that enshrined competition and separation between policy making and service provision in the late 1980s (European Commission 1987, 1996, Council of Europe 1996).

The competition paradigm transformed the hierarchical relationship between states and PTOs that characterised the PTT model: states lost traditional sources of power over operators, while PTOs gained independence and leverage. One of the bases of the competition framework was the legal separation between policy making and service provision. The need to legally separate operators from Ministries and to raise large amounts of capital for network overhaul triggered initiatives to incorporate and privatise monopoly operators across the OECD, decreasing states' ability to exert hierarchical control over strategic planning. National states were further deprived of control through the loss of wielding access to capital with the onset of PTOs' financial independence via access to capital markets (both domestic and foreign) and a shift from government-approved tariffs to alternative pricing methods, such as "rate of return". In addition, the liberalisation of the equipment industry and generalised decreases in import duties eased government controls over equipment procurement.

Conversely, PTOs gained influence over states due to their sheer size, the concentration of the sector, and the market resilience of most PTOs (Macher 2011). As technological complexity increased and the pace of change quickened, PTOs gained leverage over bureaucrats with generalist profiles thanks to PTOs' combination of technological, financial, legal expertise, and

day-to-day contact with a fast-changing market. To exploit this advantage, most PTOs developed dedicated research and policy departments.

Despite the shift toward international harmonisation and the loss of historical forms of hierarchical control by the state, national-level coordination remained a crucial feature of the Telecommunications sector. Liberalisation led to increased regulation of most aspects of an operator's daily functions, such as tariffs, contractual conditions for the use of infrastructure, interconnection agreements, spectrum, quality of services, and contract conditions. Therefore, states acquired new sources of power through their roles as legislators, regulators, and competition arbiters. Furthermore, despite an increasing degree of supranational coordination, key competences—such as spectrum allocation and management, design and development of infrastructures, and daily competition oversight—remained with states.

The shift in the balance of power described above forced states and PTOs to find new ways to interact. The literature has under-theorised the institutional conditions that lead to advantage, and therefore upgrading, in this new context. Classic contributions from the Models of Capitalism literature (Zysman 1983, Whitley 1999, Hall and Soskice 2001) are either too old relative to the liberalisation of Telecommunications or too focused on manufacturing industries. More recent contributions (Thatcher 2004, 2007) have tended to focus on the supranational aspects of institutional change and have not connected it to upgrading. The literatures of Telecommunications governance and Information and Communication Technology (ICT) expect a "return of national states" to Telecommunications, but they have so far failed to articulate the character of their contribution (Noam 2007, Simpson 2008, Bauer 2010, Bretznitz 2010).

I argue that the states and PTOs gravitated toward forms of coordination that reflected existing national institutional structures. Each of these frameworks had distinctive structural features and provided different degrees of support for PTO upgrading. A brief cross-country comparison supports this interpretation.

4.2 *Varieties of coordination in Telecommunications*

Germany's national institutional structure is based on strategic interactions among stakeholders (Hall and Soskice 2001). Consistent with this structure, Telecommunications has shifted from a PTT hierarchical structure into an "inclusive" form of relational coordination characterised by a strong presence of the state and employee representatives in DT's strategic decision-making organs. In 2013, Germany held a 32 percent stake in DT. The operator's Management Board, its decision-making body, was elected and controlled by a Supervisory Board in which employee representatives held 50 percent of the seats and the state, along with other large investors, was

represented through its stock in the other 50 percent (DT Corporate Governance Report 2013). Employee representatives at the Supervisory Board normally hold positions in leading trade unions or are part of the Work Committees. Despite an overarching EU framework that establishes the separation between policy making and service provision, this structure ensures that DT's strategy integrates the perspectives and interests of a broad set of stakeholders, similar to other sectors in the German ecosystem.

Such an inclusive approach is manifest in the relatively even distribution of benefits across the system. Germany is the only European country in which the incumbent operator voluntarily provides universal service in the absence of a stated obligation (Garcia Calvo 2012) and the operator voluntarily collaborated in efforts to bring broadband service to the public school system (Lexis and Hassel unpublished). In exchange, the German structure has enabled DT to control the fixed market segment, of which it holds 73 percent; to capture a healthy 32 percent in the more dynamic mobile segment (US Department of State 2011); and to strengthen T-systems, DT's technology arm, through public sector contracts.

However, the German institutional model has not been effective at delivering stockholder value or fostering DT's internal restructuration, hurting the operator's competitive position. According to Lexis and Hassel, the T-share has been the biggest underperformer in the DAX index, and analysts estimate that excessive debt was the main reason behind DT's inability to bid O2 away from Telefonica in 2005 (BBC 2005). Furthermore, by 2006, the PTO's share of new broadband customers had fallen to 10 percent, prompting a comprehensive internal restructuration (Financial Times 2011).

By contrast, France's institutional structure is based on the existence of highly cohesive elites operating at decision-making levels and straddling the public and private sectors (Hancké 2002). Under this system, the PTT model initially evolved toward a structure in which the PTO remained under control of the state and became an instrumental component in delivering public policy goals, such as developing the Telecommunications Equipment industry and maintaining employment levels (see Chapter 4 for further detail).

These goals were often accomplished at the expense of FT's strategic autonomy, high debt levels, and long-lasting organisational problems. At the end of 2002, FT's debt was 68 billion Euros, 146 percent of FT's revenue that same year, and the operator was publicly rescued (OECD 2003, BBC 2005). Although the state subsequently sold its controlling stake in the operator, in 2013 it still maintained a 13 percent participation. FT has also suffered organisational problems, partly derived from an agreement to maintain the civil service status of existing employees. In 2012, the French judiciary undertook a formal investigation of 35

suicides by FT employees linked to a case of corporate psychological harassment. The case was presumed to be connected to FT's 2008 restructuration effort, which involved more than 20,000 job cuts and many thousands of relocations but no mandatory redundancies (FT 2012).

Similar to the German model, the French structure enabled FT to maintain strong market shares in key segments. At the beginning of 2011, the operator held 51 percent of the fixed market and 42 percent of the broadband market (European Commission 2011). In 2013, despite aggressive competition from three other operators, FT held 37 percent of the mobile market (Bloomberg 2013).

On the opposite end of the spectrum, the UK incarnated the arm's-length model based on market-determined prices. In fact, the transformation of the UK's PTT model was deliberately designed to become the poster child of the Thatcherite transformation into a Liberal Market Economy (De la Dehesa 1993, Thatcher 2001). The institutional architecture of the UK's Telecommunications sector aimed to guarantee competition through a strict separation of policy making, policy implementation, and network investment and service provision functions. This was achieved through the allocation of clear responsibilities for each of these functions to autonomous entities: the secretary of state for Telecommunications, the regulator, and private operators, respectively (Garcia Calvo 2012).

The arm's-length model has turned the UK's Telecommunications market into the most competitive in the EU, enabling the emergence of the world's largest, non-incumbent telecommunications operator, Vodafone. However, the UK's institutional structure was not as effective at supporting BT's competitive stance. BT did not benefit from early liberalisation or from the relatively soft landing that the initial duopoly provided to establish itself as one of the world's leading firms. As Table 3.5 shows (see Section 2), BT was surpassed in terms of revenue and income by all operators from other large European countries. BT also lost its leadership in the local market and suffered heavy losses as a result of a less-than-successful expansion into the ICT market. In 2012, BT's market share for fixed telephony was 38 percent and for fixed broadband was 30 percent, the lowest market share of any incumbent in the EU (Ofcom 2013). BT's global revenue in 2009 was less than half of that of its main competitor, Vodafone (Table 3.5), and BT's ICT arm—BT Global Services—lost £1.9 billion between 2003 and 2009 (Mackenzie-Wintle unpublished).

Table 3.8 Variants of coordination across countries in the post-liberalisation context

Basic form of coordination	National variety	Country/Operator example	Principle	Mechanism	Distribution of outcomes
Arm's-length	Pure arm's-length coordination	UK/BT	Market competition.	Strict separation of policy making, implementation, and service provision functions among financially independent actors.	•BT has the lowest market share of any EU incumbents, revenue has declined but stock performance is steady. •The only model that has supported the development of a new global operator (Vodafone). •Uneven investment in infrastructure.
Relational	Inclusive	Germany/Deutsche Telekom (DT)	Integration of stakeholders' perspectives and interests in strategic decision-making.	1/3 state participation in DT, controlling state and employee representation at DT's decision-making organs.	•DT holds a controlling market share in key services, ensuring a steady revenue, but stock performance is dismal, and the company has experienced reorganisatinal difficulties. •State-of-the-art national infrastructures.
	Elite-based	France/France Telecom (FT)	Integration of state and firm elites.	Minority state participation in FT, mutual state-operation influence through a revolving door policy for decision-makers.	•FT maintains strong market shares in key services, ensuring a steady revenue, but historical debt levels have been very high, and the company has experienced serious reorganisational difficulties leading to uneven stock performance. •State-of-the-art national infrastructures.

As this brief comparison shows, institutional structures in the post-liberalisation period evolved in different directions, each of which involved a different set of constraints and advantages for PTOs. Operators in the two countries whose institutional structures were based on relational coordination were better able to defend their home market shares than was BT in the UK's arm's-length model. The steady revenue derived from strong market shares enabled PTOs to improve their networks and expand their international presence. However, the power-sharing structures of the two relational coordination variants also slowed the transformation of PTOs by imposing compromises linked to other policy objectives and by creating obstacles to internal restructuration.

The following section characterises the Spanish institutional structure and provides evidence that it evolved toward PC. This shows that Banking was not an isolated case and that PC can therefore be generalised to a broader range of sectors that shared strong interdependencies between public and private interests.

4.3 *Evidence of PC in the Spanish model*

4.3.1 *Spain's economic Transition (1982-1996)*

The development of PC in the Telecommunications sector can be connected directly to Spain's economic transition. The PSOE government that won the elections in 1982 came into office with a commitment to modernise Spain, which is an idea that reflected the aspirations of most Spaniards. This commitment provided focus and direction for policy measures aimed at overcoming the country's economic backwardness by universalising and improving the quality of basic services, such as health care, education, and utilities (Benegas 2007, El País 2012, Interview 10).

As a basic utility, Telecommunications was also part of the state's modernisation goal. Section 2 established that in the early 1980s, the Spanish telecommunications network lagged behind those of other large European countries in terms of coverage, network equipment, and investment. In response to this context, the government concentrated on universalising access to telecommunications services and overhauling existing infrastructures.

However, the state could not expand and overhaul the telecommunications network on its own. First, the state did not have the human resources necessary to develop an integrated, long-term strategy for Telecommunications. By virtue of the 1946 contract between Telefonica and the state, which continued to regulate telecommunications in the first half of the 1980s, the state had delegated most policy-making functions to Telefonica. Consequently, no specialised Ministry or civil service existed that was responsible for and knowledgeable about Telecommunications. Second, the state lacked the financial capacity to fund the telecommunications network expansion at a time when it was struggling to address high public deficits, double-digit inflation, and a severe banking crisis. Approving higher service tariffs and enabling Telefonica to issue new shares in the Spanish stock markets were not suitable solutions from the state's perspective. Telephony services were part of the basic price basket; therefore, higher service tariffs meant higher calculated inflation. Issuing new stock was problematic because the state was obliged to purchase additional shares to maintain its participation in the company, which directly impacted public spending (Calvo 2010). In addition, Telefonica was Spain's largest corporation and the Ministry of Economics and the BdE were hesitant to accept new emissions of stock out of fear that a large concentration of national savings within a single company could lead to a market collapse and otherwise constrain resources for other sectors (Telefonica 1999, COIT 2006).

Telefonica met with reluctance the state's goal of universalising access to telephony service by expanding it to rural areas because network investments in Spain's poorer regions and sparsely populated areas were unlikely to generate positive returns. However, Telefonica was keen to

respond to the demands from Spanish large banks for the development of high-capacity data networks. The Banking sector consumed more than 64 percent of non-residential telecommunications services in Spain (European Commission 2002) and was therefore Telefonica's largest and most profitable client. Furthermore, in 1983, large banks occupied the three vice-presidencies of Telefonica and several other positions at the operator's Board of Directors (Telefonica 1983). The state's goal of overhauling the public telecommunications network, therefore, was compatible with Telefonica's long-term objective "to incorporate advanced technologies in order to modernise infrastructures, and adapt them [the infrastructures] to the future range of services demanded by users" (Telefonica 1985).

More explicitly, Telefonica's five-year strategy (1985–1990) stated that achieving its long-term objective required a wide-ranging transformation of the operator along the following three lines: (a) deploying high-capacity networks capable of transmitting all types of information; (b) developing state-of-the-art research capacity through partnerships with global technological leaders; and (c) improving procedures and human resources, especially training and greater integration of staff in corporate goals (Telefonica 1985). However, Telefonica was unlikely to accomplish these transformations without cooperation from the state. Deploying high-capacity networks required massive capital investments, but Telefonica could neither expect the state to provide that capital nor raise it in the Spanish stock markets without authorisation from the government and the BdE. Telefonica's historical reliance on its large industrial arm for network equipment was delaying the development and deployment of high-capacity data transmission systems. Delays became so persistent that, in 1984, one of the large banks threatened to develop its own data network unless Telefonica immediately addressed traffic congestion problems (Infante 2002). Seeing as how the state still held a controlling stake in the operator, Telefonica could not shift toward a competitive procurement policy nor divest from its industrial arm without consent from the state. Finally, Telefonica's improvements in procedures and human resources were expected to involve massive layoffs of employees protected by lifelong, quasi-public contracts, as was the case in the Banking sector.

Ultimately, the situation was resolved through a quid pro quo agreement between the state and Telefonica, where Telefonica assumed strategic and financial responsibilities for the universalisation of the telecommunications network but benefited from a non-neutral environment that enabled the operator to divest its industrial arm, undertake a profound organisational transformation, and expand rapidly into growing service segments (namely mobile telephony and data services). Such an arrangement presents the characteristic features of PC, in which firms and the state share partly compatible objectives and firms contribute to the

fulfilment of public policy goals in exchange for state support in areas that enable their competitive transformation and upgrading.

Telefonica's commitment to expand the network to rural areas was formalised through Decree 2,248/1984, which established the framework for the expansion of fixed telephony services between 1985 and 1996. Contrary to the expectations of the state-directed argument, the Decree did not contain the quantifiable objectives and predetermined guidelines typical of a state-directed strategy. Instead, the decree attributed the articulation of specific plans, decisions over deadlines, the development of technical solutions, and the responsibility for raising 75 percent of the necessary capital to Telefonica. Telefonica also assumed the commitment to expand mobile coverage rapidly through the Spanish territory. In the early 1990s, the state was keen to expand mobile coverage rapidly to satisfy the needs of the millions of tourists who visited Spain annually, a key source of national income. However, providing coverage in sparsely populated areas with high seasonal populations was not a strategic priority for the operator, who, unable to deploy mobile phone towers rapidly enough, used provisional reception towers mounted on costly mobile units to fulfil its commitment (Interviews 7 and 11).

Between 1985 and 1987, the state facilitated Telefonica's fulfilment of its commitment to expand the telecommunications network by selling off half of its stake in the operator. Unlike the UK, where the flotation of BT in 1984 intended to set an example for a new institutional structure based on competitive markets, the main purpose of Spain's sale of Telefonica's stock was to enable the operator to raise capital in international capital markets, thereby overcoming the narrowness of the Spanish stock markets (De la Dehesa 1993, Interview 14). In fact, the 1987 Telecommunications Bill left no doubt that Spain was not moving toward an arm's-length model by stating that Telecommunications continued to be "essential services, owned by the state, and managed by the public sector" (Law 31/1987).

The state compensated Telefonica for its contribution to public policy by facilitating the operator's transformation and the divestment of its industrial arm. As in the case of Banking, the state facilitated Telefonica's restructuration by funding generous early-retirement schemes. Between 1996 and 2003, Telefonica's employment in Spain decreased from a peak of 75,500 employees to 35,000 (Telefonica 1996, CMT 2009). This was the largest employment decrease among incumbents in any large European country. In addition, the state did not oppose the sale of Telefonica's industrial group, which started in 1986. The state also helped the operator broker partnerships with foreign investors. However, the state's brokerage interventions were not necessarily neutral, nor did they always conform to the preferences of the operator. This relationship exemplifies the difference between the state's and Telefonica's criteria, which is a characteristic of PC. For example, during negotiations conducive to the sale of Secoinsa, one of

Telefonica's companies, the state strongly favoured a Japanese investor, Fujitsu, over a US contender, IBM, to prevent what some government officials saw as an excessive US presence in Spain (Interviews 1 and 4 Chapter 4). Ultimately, Secoinsa was acquired by Fujitsu.

Compensation to Telefonica also took the form of non-neutral regulation that enabled the operator to capitalise on its fixed network investments and establish a position in the mobile market, which was the fastest growing service in the 1990s. The new contract signed between Telefonica and the state in 1992, which substituted for the contract signed in 1946, reiterated Telefonica's monopoly "over mobile and fixed voice communications and other additional services" (SETSI Resolution 14 January 1992). In addition, the Telecommunication Bill of 1987 and its successor in 1992 maintained Telefonica's exclusivity for mobile telephony until the end of 1993. The state continued to favour Telefonica throughout the liberalisation of mobile services. Mobile licenses were awarded through a beauty contest (i.e., a government decision) instead of an auction, and competition under the initial arrangement was minimal. In fact, the second mobile license was issued to Retevisión, the public entity that ran the public television network, instead of a commercial operator. The third operator and the first real competitor, Airtel, did not obtain a license until 1994 and did not start operating until 1995. This gave Telefonica a one-year head start after the expiration of service exclusivity in 1993.

Although the state brought advantage to Telefonica with these measures, the state simultaneously strengthened its position relative to the operator. The state did so by recovering powers that had been historically entrusted to Telefonica. In 1986, the state created the Secretaría de Estado para Telecomunicaciones y Sociedad de la Información (SETSI), or Secretary of State for Telecommunications and Information Society, and the Dirección General de Telecomunicaciones (DGTel) or General Directorate for Telecommunications. Royal Decree 1,209/1985 made the SETSI responsible for policy making, network supervision, license management, and interactions with national and international organisations upon its establishment. During its first years, the SETSI's main aim was to develop a legal framework to substitute the contractual relationship that had ruled the relationship with Telefonica since 1924. Simultaneously, the state created a new body of civil servants for the Telecommunications sector composed primarily of technical and legal specialists (Interviews 5 and 10). These civil servants were recruited through a rigorous examination process, and were offered opportunities for long-term career development. The state's recovery of policy-making functions and the progressive development of a specialised bureaucracy in the late 1980s and early 1990s functioned as a barrier against state capture and framed the dialogue between the state and Telefonica under a new context.

Contrary to the state capture argument's expectations of limited innovation and lack of competitiveness, Telefonica jumped at the opportunity to benefit from the institutional arrangements described above by proactively engaging in a process of deep restructuration that transformed a slow and bureaucratic organisation into a lean, productive, competitive, and profitable operator. Divestment from the Equipment industry enabled the operator to develop partnerships with global equipment producers, which accelerated the deployment of high-capacity networks. Profits from sales of industrial properties also helped Telefonica raise funds for international expansion in the 1990s. The rapid growth of mobile communications and Telefonica's privileged position in it enabled the operator to transform its culture from within by developing an independent mobile company where young employees were hired and quickly promoted based on performance criteria (Interviews 4, 7, and 11). As a consequence, overall productivity increased, passing from 118 lines per employee in 1981 to 228 lines per employee in 1996 (Telefonica 1996). Profitability also rose. Despite its massive investments abroad, between 1992 and 1996 alone, net benefits from operations in Spain increased by 45 percent (Telefonica 1996), and between 1995 and 1996, market capitalisation increased by 70 percent—half the growth of the Spanish stock market in that period (Telefonica 1999).

4.3.2 *PC after liberalisation*

The full privatisation of Telefonica in 1996 and the move to a fully competitive environment in 1998 did not unravel PC because (a) these changes did not eliminate interdependencies between the state and the incumbent, (b) Telefonica's global clout did not translate into a proportional increase in power relative to the Spanish state, and (c) fluid relationships between the public and private sectors and continuity at decision-making levels encouraged institutional inertia.

Although the state lost its traditional power levers over Telefonica (through ownership and control over capital and equipment), liberalisation did not eliminate public-private interdependencies in the Telecommunications sector. Although incumbents gained leverage due to their size and control of telecommunications infrastructure, the new paradigm also strengthened the state's position through policy-making competences in day-to-day regulation, spectrum licensing and management, and infrastructure.

The visibility of operator-state interdependencies decreased through the 2000s as concerns over infrastructure development and spectrum allocation faded and emphasis shifted toward service exploitation of the infrastructures developed in the 1980s and 1990s and the mobile licences issued in the 1990s. However, changes in the 2010s have brought back to the fore the traditional tension between public objectives to universalise service to stimulate national economic growth and operators' economic logic to invest in infrastructure where and when it is profitable to do

so. In 2010, the European Commission unveiled its Digital Agenda for Europe, a set of recommended policy goals to stimulate the deployment of Next Generation Access Networks (NGAs). The Digital Agenda was endorsed by Member States, the Council, and the European Parliament. Its most ambitious goal was to give "every European access to fast broadband (30 Mbps or above) by 2013, with 50 percent of households receiving speeds above 100 Mbps" (Garcia Calvo 2012). As of the first half of 2014, the implementation of the Digital Agenda trails its intended deadline in most Member States precisely because fulfilling its objectives will require significant investment in telecommunications infrastructure.

Spain's strategy to achieve the Digital Agenda objectives displays the classic pattern of exchanges characteristic of PC in which Telefonica's commitment to develop network infrastructures is compensated with non-neutral regulation. Specifically, the Spanish government decided to not develop a national NGA plan, and it engaged instead in non-public negotiations with Telefonica that resulted in the modification of the Telecommunications Bill in 2012. The modification enabled "operators with market power" (the only one of which was Telefonica) to charge prices over their leased lines "that take into consideration the investment made in the network so as to enable the operator to receive a reasonable return on its investment" (Royal Decree-Law 13/2012). This modification of the Bill ensured that Telefonica recovered its investment in NGAs, a major obstacle preventing Spain's fulfilment of the Digital Agenda. The changes included in the Decree-Law are directly connected to Telefonica's investment of 2,300 million Euros in high-speed networks between 2012 and 2013 (El País 2012, Telefonica 2013, Interviews 4 and 11).

Telefonica's global growth has not altered the balance of power that helps sustain the peer-based nature of PC either. The state's power to issue operating licences, and telecommunications reliance on physical infrastructures mean that Telecommunications has remained a multi-national rather than a global business. Consequently, even though Telefonica has gained international clout, the incumbent's position at the negotiation table with the Spanish state has not strengthened in the same proportion, and state-operator negotiations are still based primarily on local market conditions. In 2008, Telefonica had a solid control of the Spanish market, comprising a 62 percent share of the broadband market by revenue, 74 percent of fixed telephony, and 45 percent of the mobile market (CMT annual statistics), which is more than incumbents in other large European economies (see Section 4.1). Consequently, Telefonica continued to hold a privileged negotiation position that creates the necessary interdependencies that sustain PC.

Finally, the fluidity of the relationship between Telefonica and the SETSI, and the continuous presence of many of the same individuals in both the public and private sectors has facilitated

PC's continuity through institutional inertia. The working relationship between the SETSI and Telefonica has been facilitated by the common educational background, and often personal friendships, of many of the individuals involved. Most telecommunications professionals working in both the public and private sectors are telecommunications engineers, and until 1986, there was only one School of Telecommunications Engineering based in Madrid. In addition, affiliation to the Colegio de Ingenieros de Telecomunicación (COIT), or Professional Association of Telecommunication Engineers, is mandatory for those who practice in the engineering profession. This has enabled the COIT to serve as an informal hub for the sector through regular meetings, publications, and newsletters. Telefonica has also contributed to maintaining a smooth working relationship by creating a dedicated policy department aimed at nurturing the relationship between the operator and the state.

In addition, many of the individuals involved in the Telecommunications sector had experience with PC prior to liberalisation. For instance, Telefonica's current CEO, Cesar Alierta, joined the operator in 2000 from his previous appointment as CEO of Tabacalera, a public-private firm whose relationship with the state served as a model for Telefonica's (Torres Villanueva 2000, Calvo 2010). Furthermore, the characteristic segmentation of the Spanish civil service into specialised bodies and the existence of limited opportunities for transfers across different departments, means that most of the young talent that joined the telecommunications civil service in the early 1990s continued to work in the civil service in 2014, occupying mid and high-level posts (Interviews 4, 10, and 11).

5 Conclusions and next chapter

This chapter has showed that, from the early 1980s, Spain's Telecommunications sector evolved toward a PC structure in which Telefonica contributed to the fulfilment of public policy goals. In compensation, the operator benefited from a non-neutral regulatory environment that enabled it to undertake the organisational and functional transformations necessary to reach the efficiency frontier.

PC persisted even after the European liberalisation of Telecommunications. The new context did not eliminate interdependencies between the state and the operator, a feature that has come back to the fore along with EU plans to deploy NGAs. In addition, the transnational character of Telecommunications prevented Telefonica from significantly altering the balance of forces between the state and the operator. Also contributing to PC's resilience in the Telecommunications sectors are the fluid relationships between Telefonica and the state and the continuous presence of individuals whose careers started during the pre-liberalisation period.

The next chapter examines the consequences of PC on the transformation and upgrading of the Professional Electronics sector and the contribution of regional institutions to upgrading. The chapter shows that PC in Banking and Telecommunications made it difficult for the state to pursue a top-down industrial policy strategy approach, along the lines of France. PC also made it difficult for Electronics' firms to obtain the patient capital and demand they needed to develop new high-value-added products on which to build their upgrading. Chapter 4 will also show that, nonetheless, these limitations could sometimes be overcome by the Central State and by Regional Governments.

Chapter 4. Professional Electronics: PC trade-offs and contribution of subnational institutions to upgrading

1 Introduction

Chapter 2 established that coordination in the Spanish Banking sector was based on close interactions and exchanges of sensitive information among small elites within the state and the sector. Unlike Germany's variant of relational coordination, Spain's was based on the formal (legal, financial, and strategic) autonomy of large banks and the state. In addition, intermediary representatives played no role in strategic decision making, although they contributed to implementation. Unlike France's "elite" variant of relational coordination, which is based on the state's excellent organisational capacity, Spain compensated for the state's limited ability to execute critical structural reforms through cooperation with large banks. In addition, PC operated in Spain through several distinct elite groups within large banks, the Central Bank, government, and academia rather than a single elite group straddling the high echelons of the public and private sectors. The chapter also established that Spain's coordination structure was consolidated during the Transition and survived the Single Market, because national-level coordination has continued to be the primary basis for the stability of national financial systems.

Chapter 3 explored the trajectory of Spain's PTO, Telefonica, and showed that PC can be generalised to other sectors in which there are strong interdependencies between public objectives and private initiative. The chapter also honed in on the differences between the Spanish institutional system and the French and German variants of strategic coordination, showing that PC provided the same opportunities to maintain large market shares but imposed fewer obstacles to the organisational transformation of the PTO, facilitating upgrading.

This chapter explores the implications of PC for Professional Electronics and the contribution of subnational (regional) institutions to upgrading. I build this analysis through three cases: The first case examines the trajectory of the Telecommunications Equipment sector. It argues that PC in Banking and Telecommunications limited the state's ability to pursue a conventional state-directed strategy, along the lines of France, to support the sector. In addition, PC made it difficult for firms to access the patient capital and the steady demand they needed to develop new high-value-added products to upgrade.

The second case, based on the trajectory of the Defence Electronics sector, shows that these constraints were not deterministic. Where local firms already had some independent capacity to develop high-value-added products, and the state could deploy its own strategic and financial capabilities to support upgrading, the Spanish government did not hesitate to undertake a

conventional industrial policy approach. In Indra's case, the strategy paid off; although this is not to be interpreted as an endorsement of the statist approach.

The third case departs from the assumption that institutional structures are defined at the national level and explores the contribution of regional systems to upgrading. Analysis of the Basque Industrial Electronics sector shows that, in some cases, regional institutional systems can complement the national structure by providing support through a different form of coordination. However, the Basque model developed in a context that differed from those of most other Spanish regions, which implies that the Basque regional model may not be generalizable to the rest of the country, at least under current circumstances.

The rest of this chapter is structured as follows: Section two defines Professional Electronics and provides a broad overview of the sector. Section three constitutes the main body of the chapter and contains the three cases outlined above. Section four summarises the main conclusions and lays the groundwork for the concluding chapter.

2 The Professional Electronics sector in perspective

This section is divided into two parts: The first one defines the concept of Professional Electronics used in this chapter and provides the rationale for selecting this sector. The second offers a bird's-eye view of Spanish Professional Electronics throughout the period of analysis.

2.1 *Defining Professional Electronics*

The term "electronics" is broad and ambiguous. This chapter uses the taxonomy and definitions followed by the INI and by AMETIC (Asociación de Empresas de Electrónica), which constitute the standard for Electronics in Spain. AMETIC has traditionally distinguished between three sectors within the broader Electronics industry: Components, Consumer Electronics, and Professional Electronics. The Professional Electronics sector provides specialised, finished inputs to other sectors rather than to individual consumers, and it includes products (e.g., switching equipment for telecommunications operators), services (e.g., specialised corporate software), and combinations of both (also typically referred to as "solutions"). Professional Electronics is therefore a modern manufacturing sector that integrates both services and tangible outputs, often into a single "product".

This chapter concentrates on Professional Electronics, leaving aside Components and Consumer Electronics. As Table 4.2 shows, Professional Electronics was already larger than Consumer Electronics and Components at the beginning of the analysis period. More important, the links among Professional Electronics and most other upstream and downstream areas of economic

activity, and the skill and capital intensity that characterise the sector, make Professional Electronics a suitable comparison to the other two sectors analysed in this thesis.

Professional Electronics is divided into distinct specialisations, each of which has particular characteristics, context, needs, and trajectories. This chapter builds on these differences to articulate the sector's contributions through three cases. The first case is based on the trajectory of Telecommunications Equipment. This sector provides hardware and software solutions for communications services (Telecommunications, Media). The second case traces the trajectory of Defence Electronics, in particular that of a single firm, Indra, whose original strengths lay in defence and navigation systems. The third case follows the trajectory of Industrial Electronics. This sector is geographically concentrated in the Basque region and specialises in process automation and power network controls.

Table 4.1 identifies the main activities undertaken by Spanish firms in each of the cases, as defined by NACE Rev. 2 codes, which correspond to AMETIC's definitions of each specialisation. The EU's classification is preferred to the UN's SITC classification because of NACE's greater specificity. Nonetheless, the first two figures of NACE codes are identical to those of SITC classifications. Code 26.3 corresponds to Telecommunications Equipment. Code 62 covers Indra's main activities in software and information technology services. Code 26.51 comprises the main activities of Industrial Electronics.

Table 4.1 Code definitions of the three subsectors using NACE Rev. 2

CNAE Rev. 2	Concept
26.3	Manufacture of communications equipment
26.51	Manufactures of instruments and appliances for measuring, testing and navigation
62	Computer programming, consultancy and related activities

Source: Eurostat NACE Rev. 2, Statistical classification of economic activities

2.2 *Comparative overview of Professional Electronics*

This section presents an overview of Professional Electronics in Spain through a series of still pictures at key points in the trajectory of the sector. The first one, in 1981, immediately precedes a major transformation. The second, in 1990, precedes the early 1990s crisis and the consolidation processes that anticipated the Single Market. The last one, in 2009, shows the early stages of the economic crisis. This overview is constructed using publicly available sources of information. Data for production, imports, and exports comes from AMETIC's annual reports, the only source of information for the sector until the late 1990s. No further data disaggregation is available for this period. The 2009 overview includes additional variables from Eurostat's Structural Business Statistics databases for Manufacturing and Services. Spain's

performance is compared to a selection of large Electronics producers to situate Spain in a broader landscape.

The data provided in this section needs to be taken directionally for two reasons. First, the classifications are often too generic to fairly assess upgrading in the cases analysed. For instance, "Computer Programming and Consulting" groups low-value-added activities, such as retail sales of standard licensed software, and high-value-added activities, such as the development of sophisticated software for real-time simulation or financial risk assessment. In addition, the most capable electronics firms tend to provide "integrated solutions" that combine several activities. Individual code classifications do not fully capture such solutions. Consequently, this overview is general and needs to be seen jointly with the detailed case analyses developed in section 3.

Table 4.2 The Spanish Electronics sector in 1981

Concept	Consumer Electronics	Components	Professional Electronics	Total	Professional Electronics % over total
Production	68,979	28,041	99,170	196,190	51%
Imports	27,848	39,760	128,980	196,588	66%
Exports	1,338	7,092	34,995	43,425	81%
Consumption	95,489	60,709	193,155	349,353	55%

Source: AMETIC annual report (data in million pesetas)

Table 4.3 The Spanish Professional Electronics sector in 1981

Subsector	Production	Imports	Exports	Consumption	Production/ consumption (%)
Telecommunications	63,799	9,519	10,862	62,456	102%
Office equipment	21,135	84,092	19,261	85,966	25%
Industrial electronics	4,936	9,805	2,431	12,310	40%
Defence and navigation	4,116	5,915	356	9,675	43%
Healthcare	2,274	8,960	979	10,255	22%
Broadcasting	1,979	6,012	541	7,450	27%
Instruments and learning	931	4,677	565	5,043	18%
Total	99,170	128,980	34,995	193,155	51%

Source: AMETIC annual report (data in million pesetas)

As mentioned earlier, in 1981, Professional Electronics was the largest sector within Electronics. Within Professional Electronics, Telecommunications Equipment was by far the largest specialised sector in terms of production, and the only subsector in which Spain achieved full coverage of its needs. As was common in other European countries at the time, this was the

result of vertical integration policies that forced PTOs to purchase locally produced network equipment (see Chapter 3).

By contrast, Industrial Electronics had a much smaller production base. The literature (European Commission 1986, Smith 1998, Guillen 2005, Adanero 2006) agrees that this was the result of demand conditions in Spain. During the previous two decades, Spain's manufacturing production tended to rely on labour intensity rather than capital intensity. In sectors such as Automotive, it was not unusual to import superannuated equipment already discarded in more advanced foreign plants. Defence Electronics was the smallest of the three sectors. Spain's software and hardware producers generated only 43 percent of the resources consumed.

Table 4.4 The Spanish Professional Electronics sector in 1990

Subsector	Produccion	Imports	Exports	Consumption	Production/ consumption
Telecommunications	309,860	135,050	34,970	409,940	76%
Office Equipment and Software	139,101	451,950	81,220	509,831	27%
Defense	34,324	3,535	8,177	29,682	116%
Industrial Electronics	29,173	77,313	11,180	95,306	31%
Broadcasting	10,599	28,863	1,091	38,371	28%
Healthcare	8,583	53,020	3,275	58,328	15%
Instruments and Learning	4,930	35,646	4,110	36,466	14%

Source: AMETIC annual report 1990. Data in millions pesetas.

Table 4.5 Professional Electronics production, international comparison in 1990

Country	Telecommunications	Office Equipment and Software	Industrial Electronics
US	1,767,150	6,692,595	8,411,370
Japan	1,586,445	7,206,465	2,360,820
Germany	542,325	1,260,525	1,384,845
France	514,395	774,135	998,025
Italy	395,115	695,310	516,495
UK	363,615	1,219,680	1,007,790
Spain	309,860	139,101	87,609
Korea	177,870	363,510	98,385
Netherlands	95,445	306,180	233,940

Source: AMETIC annual report 1990. Data in millions pesetas

Table 4.6 Professional Electronics consumption, international comparison in 1990

Country	Telecommunications	Office Equipment and Software	Industrial Electronics
US	2,079,000	6,401,860	7,837,830
Japan	1,102,500	5,261,445	1,822,695
Germany	496,545	1,521,660	974,925
France	495,075	1,098,090	929,985
UK	446,250	1,352,505	929,040
Spain	409,940	509,831	258,153
Italy	403,200	903,105	594,825
Korea	126,210	2,115,565	205,275
Netherlands	120,960	487,515	260,505

Source: AMETIC annual report 1990. Data in millions pesetas.

By 1990, production in all Professional Electronics subsectors had increased significantly, but it had not grown fast enough to match much steeper rises in demand derived from the growing role of Electronics in most economic activities. The comparative perspective shows that Spain was neither a large producer nor a large consumer in any of the segments.

Table 4.7 The Spanish Professional Electronics sector in 2009

Subsector	Production	Imports	Exports	Consumption	Production/ consumption (%)
Telecommunications	1,649	3,009	560	4,098	40%
Industrial Electronics	596	571	339	828	72%
Defence and Navigation	507	68	228	347	146%
Healthcare	60	396	33	423	14%
Broadcasting	253	14	83	184	138%
Instruments and Learning	58	211	38	231	25%
Total	3,123	4,269	1,281	6,111	51%

Source: AMETIC annual report (data in million Euros)

Table 4.8 Communications Equipment in detail in 2009

(NACE 26.3)

Country	Production value	Labour productivity	Wage adjusted labour productivity	Gross value added per employee FTE	Number of companies	Total full time equivalent employment	Number of persons employed per entreprise	Share of personnel costs in production (%)	Labour cost per employee FTE	% of total manufacturing production
Sweden	na	na	na	na	281	na	na	na	na	na
EU 27	na	60	110	na	7,201	na	31.33	20	na	na
France	6,185.5	na	na	48.0	545	24,734	na	30.5	76.4	0.9
Germany	5,643.0	64	117.5	67.3	902	29,096	34.1	28.9	56.1	0.4
Italy	5,425.0	52	na	na	964	na	na	na	na	na
UK	3,132.3	na	na	na	1,683	na	na	21.5	na	0.7
Spain	930.1	60	147.5	63.1	240	5,732	25.2	25.8	41.9	0.2
Netherlands	237.1	51	102.9	58.0	96	1,453	17.1	33.5	54.7	0.1
Ireland	182.0	42	71.6	44.2	12	451	39.4	15.2	61.2	0.2

Source: Eurostat Structural Business Statistics

Table 4.9 Defence (software) Electronics in detail in 2009

(NACE 62)

Country	Production value	Labour productivity	Wage adjusted labour productivity	Number of companies	Total full time equivalent employment	Number of persons employed per enterprise	Value added at factor cost	Goods and services purchased for resale in the same condition as received
Ireland	na	na	na	na	na	na	na	na
EU 27	292,386.67	66.96	125.23	na	na	5.4	165,244.42	na
UK	60,611.9	79.2	150.5	104,112	417,273	4.7	38,508.6	na
Germany	58,548.3	82.3	135.8	54,511	369,469	8.4	37,753.7	18,947.5
France	40,366.2	na	na	38,533	256,378	na	21,290.6	2,265.3
Italy	27,132.2	54.0	105.7	46,517	157,029	5.0	12,542.3	911.9
Netherlands	22,174.2	72.9	119.3	23,173	123,139	6.5	11,047.6	795.2
Spain	16,889.5	52.3	116.6	22,216	183,134	9.1	10,617.0	4,833.8
Sweden	11,365.0	63.8	104.5	31,033	81,449	3.1	6,077.7	1,812.9

Source: Eurostat Structural Business Statistics, Services

Table 4.10 Industrial Electronics in detail in 2009

(NACE 26.51)

Country	Production value	Labour productivity	Wage adjusted labour productivity	Gross value added per employee FTE	Number of companies	Total full time equivalent employment	Number of persons employed per enterprise	Share of personnel costs in production (%)	Labour cost per employee FTE	% of total manufacturing production
Ireland	na	na	na	na	na	na	na	na	na	na
Netherlands	na	na	na	na	361	8,738	26.4	na	na	na
EU 27	50,938.64	59.24	121.69	na	10,978	na	31.24	32.19	na	na
Germany	17,826.1	57.5	109.8	60.6	2,488	118,712	50.3	36.6	54.9	1.3
France	9,566.6	na	na	79.4	876	49,626	na	36.2	69.8	1.4
UK	8,045.7	64.3	147.2	68.4	2,260	48,472	22.8	27.3	45.3	1.7
Italy	4,097.0	61.1	125.5	75.2	904	19,029	25.9	26.4	56.8	0.6
Sweden	1,883.0	71.0	123.7	78.8	504	9,131	20.1	28.8	59.3	1.4
Spain	1,465.7	63.6	154.7	66.9	606	9,666	16.8	28.0	42.4	0.4

Source: Eurostat Structural Business Statistics

By 2009, Spain continued to be a modest producer of Professional Electronics. Telecommunications Equipment was still the largest segment of the industry, but production was hardly sufficient to cover 40 percent of the total consumption, according to AMETIC's figures. Compared to a range of large European producers, the Spanish Telecommunications Equipment sector was small in terms of production value, number of companies, and full-time equivalent employment. Labour productivity was on par with the EU-27 average, but it jumped significantly when adjusted by wages. This indicates that Spain built its competitive edge through lower labour costs, especially compared to Germany and France, the two largest producers in the set.

Spain stood out in Industrial Electronics in terms of productivity, both unadjusted and adjusted. Yet total production was the smallest in the comparative set, as was the average size of firms, the total number of firms, and their share of total manufacturing. This suggests a problem of critical mass. Finally, Spain did not stand out in the Defence sector. A high degree of firm specialisation did not translate into higher productivity, and about a quarter of total production corresponded to products resold to domestic users rather than high-value-added activities, such as software development.

2.3 *The brief story of the Spanish Computer industry*

A peculiarity of the Spanish Electronics landscape is that, unlike Italy, France, and the UK, which considered it crucial to help create a national computer industry, the idea never took off in Spain. This brief section summarises the trajectory of the Spanish computer industry and hints at the reasons for its early demise. The case is relevant because it showcases three relevant characteristics of the Spanish industry in general and the Electronics sector in particular: the difficulties faced by Spanish entrepreneurs, the impact of foreign investment, and the lack of long-term public support for innovative industries.

The largest Spanish manufacturer of computers, Telesincro, was founded in the early 1970s by Joan Majó, a Catalan entrepreneur and future Minister of Industry (1985–1986). Telesincro produced office minicomputers using primarily imported parts and components. This configuration made Telesincro uncompetitive in relation to well-established giants, like IBM, because Spain did not impose import tariffs on computers (IBM's strategy) but taxed foreign components, which Telesincro required for its products (De Diego 1995). Unsurprisingly, by 1975 Telesincro was suffering heavy losses. In a brief attempt to support the development of a Spanish computer industry, the INI, Telefonica, and Fujitsu assumed control of Telesincro through a common venture named Secoinsa. Banca Catalana (a bank owned by the Jordi Pujol, the future Catalan government leader between 1980 and 2003) contributed to the project with a

loan to Telesincro (El País 1981). The effort was short lived; in 1980, the INI abandoned the project and Telesincro was sold to Bull, which used the facilities to establish a base for its commercial operations in Spain. The experience was also Fujitsu's first contact with the Spanish market, and therefore a valuable learning experience.

3 Detailed case studies

This section provides a more detailed analysis of each of three Professional Electronics subsectors (Telecommunications Equipment, Defence, and Industrial Electronics) and connects their trajectories with Spain's institutional structure.

3.1 *Telecommunications Equipment: Cross-sector implications of PC*

This case explores the implications of PC for the Telecommunications Equipment industry. The case argues that PC in Banking and Telecommunications made it difficult for equipment firms to access the patient capital and steady demand they needed to develop new, complex products through which they could upgrade. PC also made it unlikely that the state would pursue a conventional "national champions" strategy, along the lines of the French model. Spain could have pursued an alternative strategy based on collaborative-competition, but the weaknesses of Spanish intermediary agents prevented such an approach in the 1980s and early 1990s. Nonetheless, since the early 2000s, firms located in the Madrid area have developed informal collaborative networks that have enabled the sector to survive.

Few sectors generated as much expectation of immediate growth as Telecommunications Equipment in the 1980s. Digitalisation, growing corporate demand for data-transmission networks, and the first timid steps toward the end of vertical integration between equipment manufacturers and service providers generated altogether positive prospects. However, the development of complex, high-value-added products, such as digital switches, required heavy capital investments over several years. This meant that only firms with adequate product development capabilities, access to patient capital, and a sufficient guarantee of commercialisation were able to take advantage of the opportunity. In Europe, the Equipment sector was geared toward servicing PTOs due to vertical integration. Positive expectations for a relatively concentrated sector and national control over PTOs made Telecommunications Equipment an ideal candidate for conventional industrial policy strategies.

In the second half of the 1970s, both the UK and France attempted this route by concentrating on the production of digital switches, although only France pursued it full term (Thatcher 1999). France incentivised and facilitated the development of state-of-the-art digital switches through

public research facilities and capital injections. In addition, France nationalised large equipment producers, brought about asset swaps between them to facilitate concentration and specialisation, and used control over the PTO to influence demand (Thatcher 2000, Owen 2012). By the mid-1980s, equipment manufacturers were left to develop their own strategies, but by then much of the groundwork that enabled Alcatel to specialise solely in Telecommunications Equipment and to expand internationally had already been laid.

France's choices contrast with Spain's in that the Spanish state (a) never articulated goals related to product development, (b) failed to provide financial support for manufacturers that struggled through the economic crises, (c) helped attract foreign investors to the detriment of local equipment manufacturers, and (d) did not oppose Telefonica's decisions to diversify its supplier base or to divest from its large industrial group.

I argue that Spain's and France's different institutional contexts were the foundation for these different sets of choices and that PC made industrial policy a less plausible route in Spain than in France. Specifically, I contend that there were two main obstacles to industrial policy in the Spanish case: the limited product development and financial capabilities of Spanish Telecommunications Equipment producers, and the implications of PC in Banking and Telecommunications. Spain was also unlikely to facilitate upgrading through inter-firm competition-collaboration, due to the lack of collaborative structures.

As seen in Table 4.3, in 1981, the Telecommunications Equipment sector was the largest among Spain's Professional Electronics sectors. As in other large European countries, size was fundamentally the result of a closed market and a long-standing, exclusive agreement between Telefonica and Standard Electrica SA (SESA), which was ITT's Spanish affiliate and the largest and most sophisticated producer in the Spanish market. However, size did not equal technological leadership. In 1981, SESA was still fully engaged in the production of semi-digital switches, while its counterparts in France and the UK were developing fully digital switching systems to compete with those in the US (Thatcher 2000, Calvo 2013).

Even if we assume that using a foreign affiliate to implement a national champion strategy was not a problem, the two switch manufacturers located in Spain, SESA/ITT and Intelsa/Ericsson, still would have required substantial additional research capacity to develop a competitive, state-of-the-art digital switch. At the time, Ericsson concentrated all of its research capacity in Sweden. SESA, a more independent affiliate, conducted only applied research in its Spanish labs (Interviews, 1, 3, and 6). An industrial policy based on a Spanish firm without foreign ties would have been even more problematic. Firms tended to be small, few had product development capacity, and those that did usually produced low- and mid-value-added outputs.

For instance, Amper, Spain's largest local producer, had only 850 employees and specialised in the production of answering machines and keypad telephones.

Private efforts to maintain production capacity -let alone undertaking complex, multiyear, product-development projects—required patient capital. In the 1980s, France's producers complemented their efforts through public research centres and public capital injections. In Spain, public research was unlikely to have a significant impact in the sector because of the scarcity of national resources dedicated to it. In 1985, Spain invested only around 0.6 percent of its GDP in research and development. Investment peaked at 1.3 percent of GDP in 2007, still well below France's consistent investment of around 2.2 percent (OECD 2012).

In addition, the structure of PC in Spain between the state and the large banks meant that firms were unlikely to obtain patient capital through them. As explained in Chapter 2, in the late 1970s, the banks agreed to a stronger BdE and to a reform package that set the sector on a path to liberalisation. In return, the banks maintained control of the internal market, delayed entry of foreign competition, and obtained the progressive elimination of mandatory investment coefficients. Lack of banking competition and lower investment in state-defined projects had adverse consequences for equipment manufacturers: banks quickly divested from industrial investments that were not immediately profitable. In addition, in absence of competition, banks offered credit to their corporate clients at double-digit interest rates (see Chapter 2). As a result, Telecommunications Equipment firms struggled through the crises of the first half of the 1980s and early 1990s, and most were forced to cut costs and downsize. For instance, between 1981 and 1990, SESA downsized from 23,000 to 5,000 employees (Cubero Postillo 1992), and Amper closed down two of its divisions (ABC 1993, El País 1993, El País 1994).

The French approach relied on two key additional elements: a set of broader policy objectives articulated by the executive and the use of the PTO as an instrument of policy implementation. AMETIC and the COIT used their annual reports and publications to advocate an approach similar to France's. In their view, a state-directed approach in Spain would have required the active cooperation of Telefonica and the development of a national electronics plan. The nature of PC between the state and Telefonica and Telefonica's for-profit ethos meant that these ideas were unlikely to come to fruition in the way the sector expected.

As explained in Chapter 3, in 1984, the Spanish state lacked sufficient resources to define, finance, and independently modernise the country's telecommunications network. Instead, Telefonica assumed these responsibilities in exchange for strategic independence and legal protection from competition. An implication of the PC arrangement was that the state was unlikely to force Telefonica to allocate purchasing orders to local producers to support the

Telecommunications Equipment sector the way France did with FT. In addition, the state could not force the PTO to maintain ownership, finance, and contribute as a technology partner to its industrial group. In fact, the PTO's for-profit ethos and the Equipment sector's lack of capacity to develop the next generation of products meant the most beneficial option for Telefonica was to take the exact opposite route and divest from the industry.

This is indeed what Telefonica did. During the first half of the 1980s, Telefonica adopted a strategy of multi-annual procurement plans and support for its industrial group (Telefonica Annual Reports, 1982, 1983, 1984), but by the middle of the decade, the operator had shifted to competitive procurement policies and started to forge alliances with cutting-edge foreign equipment producers, like AT&T. In 1986, Telefonica also started to divest its industrial group, a trend that accelerated by the end of the decade, to help finance the operator's international expansion (Interview 9). Finally, in 1985, Telefonica abandoned costly product-development efforts, such as the Tesys B modem, after some of its corporate clients threatened to build their own private data networks unless Telefonica immediately solved traffic congestion issues (Interviews 5 and 7). To the dismay of industrial policy advocates, the state did little to dissuade the operator from any of these actions.

Nonetheless, after several years of failed attempts, the state did approve two successive biannual National Electronics Plans (PEIN I and PEIN II) in 1984 and 1987. The plans' goals were to stimulate demand, production, and exports and to reduce Spain's technological dependency (Senate 1986). Although the production and export targets were met and even exceeded (Parliamentary session 24 October 1984), they were achieved primarily through foreign investment. Between 1984 and 1986, 86 percent of investments, 95 percent of production, and 97 percent of exports associated with PEIN I corresponded to AT&T, Fujitsu, HP, Ericsson, and ITT (De Diego 1995). In addition, there is scant evidence that the plans helped Spanish firms upgrade. Some of the largest projects, such as a new AT&T's microelectronics plant, were associated with legal provisions that actually limited spillover effects: Ministerial Order of 5 June 1985 established limitations on the exports of imported technology, which made it difficult for Spanish firms to adopt AT&T's technology and develop products based on it for export. More generally, additional competition with sophisticated foreign competitors hurt local firms, forcing some of them to sell their interests to foreign investors. Amper, for example, sold a majority participation in its Telecommunications business to Siemens in 1995 (El País 1995). By the mid-1990s, 70 percent of Spain's Telecommunications Equipment production took place through foreign-invested firms (De Diego 1995). The National Electronics Plans, therefore, were not the instruments of protection and support for which the sector had advocated. Instead,

their main contribution was to facilitate FDI entry into the Spanish market and enable Telefonica to upgrade its network through partnerships with leading global suppliers.

The long-term consequences of Spain's choices were not positive for the Telecommunications Equipment sector. By the early 2000s, much of Spain's productive capacity was in decline or had been transferred outside Spain. The AT&T plant, inaugurated in 1987 through the PEIN I plan, closed in 2001. SESA/Alcatel also closed its largest production facility, located in Toledo, and as of 2013 obtained the majority of its revenue from wholesaling and services. In 1999, Fujitsu, which had taken over the Tesys B project from Telefonica, transferred most of its manufacturing capacity to Siemens Germany as part of an asset swap (Interviews 4 and 7). Local firms like Amper downsized and shifted their orientation toward telecommunications software and therefore services, rather than hardware (Amper 2011).

The rest of the sector remained fairly atomised, which prevented individual firms from undertaking the development of high-value-added products on their own. According to AMETIC, in 2011, the Telecommunications Equipment sector was composed of 187 firms, one third of which were concentrated in Madrid (another 23 percent were in Catalonia). The average size of these firms was only 31.6 employees, and the total employment in the country was 5,906 people (AMETIC 2011). By contrast, Alcatel-Lucent employed 76,000 people worldwide by the end of 2011 (Alcatel 2011).

However, there are signs that firms located in the city of Madrid (not so much those located in the periphery or in other places in Spain), have managed to build an informal collaborative network through which to share information or collaborate on larger projects (Rama and Ferguson 2007, Holl and Rama 2009 (a), Holl and Rama 2009 (b)). According to the literature, the network originated when the turbulences of the 1990s forced larger firms to lay off valuable employees, who in turn opened their own small firms. Unlike conventional collaborative efforts built through employer and employee representation, the Madrid network is based on a common educational background at the Madrid School of Telecommunications and COIT membership (Rama and Ferguson 2007, Holl and Rama 2009, Interview 6). However, the size and resources of each individual firm has continued to prevent them from undertaking the type of complex, high-value-added projects necessary to reach the sector's frontier.

3.2 *Defence Electronics: Indra's exceptional case of industrial policy*

The example of the Telecommunications Equipment sector has shown that, despite the sector's pressure in favour of top-down industrial policy, firms' weak financial and product-development capacities and the implications of PC made that route impracticable. The case of Defence Electronics shows that these institutional obstacles were not deterministic. A state-

directed upgrading strategy was feasible where local firms with product-development capacity could be used as instruments for the implementation of industrial policy and where the state could deploy its own capacities without clashing with the priorities derived from PC. In the case of Indra, Spain reorganised the sector through a textbook industrial policy approach consisting of capital injections, incentivised mergers, public contracts, and manager appointments, despite opposition from some of the firms involved.

Spain's technological underdevelopment, chronically small military budgets, and collaboration agreements with the US meant that Spain normally relied on imported equipment or local production under foreign licence for Defence Electronics. This started to change in the 1980s. Ceselsa, founded in 1979, was the first Spanish Defence firm to develop its own technology, and from the beginning, the company wanted to be technologically and financially independent. To that end, Ceselsa developed and commercialised its own radar system in Spain (ABC 1981, El País 1981) and launched a partial IPO in 1986. By 1990, the firm had expanded into flight simulation software and aviation control systems, reaching 1,500 employees and 14,000 million pesetas in revenue (Morcillo 1991). Although Ceselsa was a dwarf by international standards, the company's break into high-value-added segments represented a significant departure from the status quo of the Telecommunications Equipment sector. In addition, it made it feasible for the state to cooperate directly with a Spanish firm that had no ties with foreign investors.

Ceselsa's future development depended on achieving economies of scale and continuing to innovate. Despite the firm's aspirations of independence and its budding success securing some international contracts (El País 1991), fulfilment of those objectives ultimately depended on the ability of the firm to secure public contracts in Spain. Here too, conditions were more favourable to industrial policy than in the Telecommunications Equipment sector. Unlike Telecommunications Equipment, where the state needed to rely on Telefonica to generate stable demand and the primary source of patient capital were large banks, Defence and Civil Aviation were ministerial competences funded through public budgets. Furthermore, unlike most Telecommunication Equipment companies, Ceselsa was a publicly listed company that had the ability to raise capital through the Spanish stock markets.

It follows that the two main factors deterring industrial policy in Telecommunications Equipment (patient capital and stable demand) were not major obstacles for industrial policy in the Defence sector. In addition, the political climate was favourable to industrial policy for Defence. After the failed military coup of 1981, the transformation and modernisation of the Spanish armed forces was considered critical to underpin the stability of Spain's democracy (Interview 10, El País 1982). Between 1982 and 1991, military budgets increased sevenfold (Telos 1995), and investment programs included a new air surveillance system to be developed

by Ceselsa (Ministry of Defence). Two thirds of the 3,000 million pesetas to develop the new radar were to be financed by the Ministries of Defence and Industry and the remaining one third by Ceselsa. If the project was successful, it was expected to lead to an estimated 35,000 million contract (Expansión 2013).

In this context, the incoming Minister of Industry in 1986 and his successor until 1993 (both of whom were former directors of INI) spearheaded an effort to reorganise the Defence sector. Their goal was to create a company that could compete successfully in the European sphere after the 1993 liberalisation (Inisel 1989, El País 1989, Interview 8). The first step was to merge Ceselsa with Inisel, a group of companies owned by the INI.

Inisel, which specialised in software development and systems engineering, (Inisel 1989) had been created in 1986 out of the consolidation of two smaller companies and was about the same size as Ceselsa. In addition to Defence, Inisel developed traffic control systems, which meant that the company resulting from the merger of Inisel and Ceselsa would have a more diversified product portfolio and be about twice as large. However, civilian traffic control was also managed by the state, which implied that the new company would still be heavily dependent on public contracts and, therefore, state support.

Ceselsa opposed the government's plan for a merger because it clashed with its independent approach. Negotiations were tense, and a first agreement reached in 1990 was later abandoned due to Ceselsa's demands (El País 1990). However, drastic cuts in the Defence budget—driven by the fall of the Berlin Wall in 1989 and the economic crisis that started in 1990—soon left Ceselsa to finance the full cost of research for the new air surveillance radar. Fully aware that Ceselsa depended on the allocation of the expected contract to survive, the Ministry made the allocation of the contract contingent on a merger with Inisel (Expansión 2013). Economic pressure prevailed, and the two parties reached an agreement in 1992 to form Indra, which was under the INI's wing. The public entity controlled 62 percent of Indra's stake, and Inisel's former CEO (and therefore an INI man) became CEO of Indra (INI/SEPI). By contrast, Ceselsa's CEO, who represented opposition to public control, was not offered an executive position in the new firm.

After the merger, the state continued to support Indra's upgrading through conventional industrial policy instruments. As agreed, a few months after its incorporation, the government allocated to Indra the radar contract that had been suspended throughout the negotiation process (El País 1993). In addition, Indra became part of the Grupo TENEO, a select group of companies with a strong competitive potential in which the state held partial ownership. TENEO's role was to provide stable capital to these firms to facilitate restructuration and to

prepare them to compete in the market (SEPI). Specifically, Indra's restructuration plan involved a 15,000 million pesetas capital expansion. To support Indra's technological capacity, TENEO also orchestrated an agreement by which France's Thomson took a minority participation in Indra.

In 1996, the incoming government decided to dissolve TENEO and accelerate the privatisation of the firms participated by the public group. As in other sectors, this did not represent a large shift, but rather accelerated the process already set in motion by the previous governments (Interviews 8 and 9). To prepare for the upcoming privatisation, SEPI strengthened efforts to make the company profitable, develop new products, and support its internationalisation. The restructuration process was considered concluded in 1998, when Indra posted profits for the first time (Indra 2013). Simultaneously, SEPI agreed with Thomson that upon the IPO, the French investor would half its 24.99 percent participation in Indra (SEPI). Indra was fully privatised in 1999, but the state has continued to show its support to a firm it considers "one of the pillars of (Spain's) technological base and its international presence" (El País 2013). In 2013, SEPI purchased a 20 percent stake in Indra from Bankia, the failed bank mentioned in Chapter 2. This move is significant in light of Spain's austerity measures and Indra's success.

It is impossible to know what would have happened in the absence of state intervention. However, Indra became the Spanish poster child of success in a complex, capital-intensive, high-value-added sector. In 2012, Indra obtained 3,000 million in revenue, employed 21,000 people in Spain (42,000 globally), and conducted 57 percent of its operations abroad. Growth has continued through the crisis. As of 2013, Indra had been included for seven consecutive years in the Dow Jones Sustainability Index and the STOXX Sustainability Index (Indra website). Building on Ceselsa's original strategy, Indra has achieved technological independence and employs a highly skilled workforce. Indra has invested between 6 percent and 8 percent of its annual revenue in research and development since 2005, the same ratio as IBM, one of the world's largest research and development investors (IBM 2012). Of its employees, 83 percent have higher-education degrees (Indra 2011).

3.3 *Industrial Electronics in the Basque Country: The contribution of subnational institutions to upgrading*

3.3.1 *Introduction*

So far, this thesis has taken the state as a unit of analysis to explain Spain's pattern of upgrading. However, since 1980, Spain has shifted from a centralised economy to a quasi-federal system in which 17 Autonomous Regions have claimed an increasing number of competences. This last case incorporates the contribution of regional systems to Spain's

upgrading through the analysis of the Basque Country's Industrial Electronics sector. More generally, this case conveys the presence of multiple layers in the Spanish institutional structure and shows that systems based on different forms of coordination can coexist and complement one another.

Since it was created in 1980, the Basque regional government has played a decisive role in building, shaping, and financing an increasingly sophisticated collaborative institutional framework based on intermediary economic agents. The purpose of this framework was to support investment in new product development to enable small and medium firms (SMEs) based in the region to generate increasingly complex outputs. The Basque Industrial Electronics sector is an important component of Basque economy, which revolves on production of capital goods. It has also been one of the major beneficiaries of the Basque institutional framework (Interview 15). This makes Industrial Electronics a representative sector of both the Basque regional economy and the institutional framework that lies beneath.

The components of the Basque collaborative framework have been explained in detail by some of its main agents (see: www.politicaindustrialvasca.net, Orkestra 2012). Therefore, the main contribution of this case is to explain why the Basque Country opted for a form of collaboration that differs from the national model, and to point out how the regional and national frameworks complement each other. I argue that three elements led to an institutional framework based on inclusive cooperation in the Basque Country: (a) a rising nationalist political elite with self-government aspirations; (b) a production structure that could benefit most from shared, cross-sector platforms; and (c) a complex, multilevel governance structure that divided competences among several agents.

These factors were absent or too weak in most other Spanish regions, and consequently, it is unlikely that the Basque ecosystem can be replicated broadly across Spain. Nonetheless, the Basque case showcases the multilevel character of the Spanish institutional structure and the potential for different forms of coordination to coexist and complement each other within a larger national model.

The rest of this case is structured into three subsections: the first one details the trajectory of the Basque Industrial Electronics sector; the second discusses the basis for collaborative cooperation in the Basque Country and situates it within the Spanish landscape. The third subsection briefly outlines the fundamental elements of the structure and the way in which it supported upgrading in Industrial Electronics.

3.3.2 *The Basque Industrial Electronics sector*

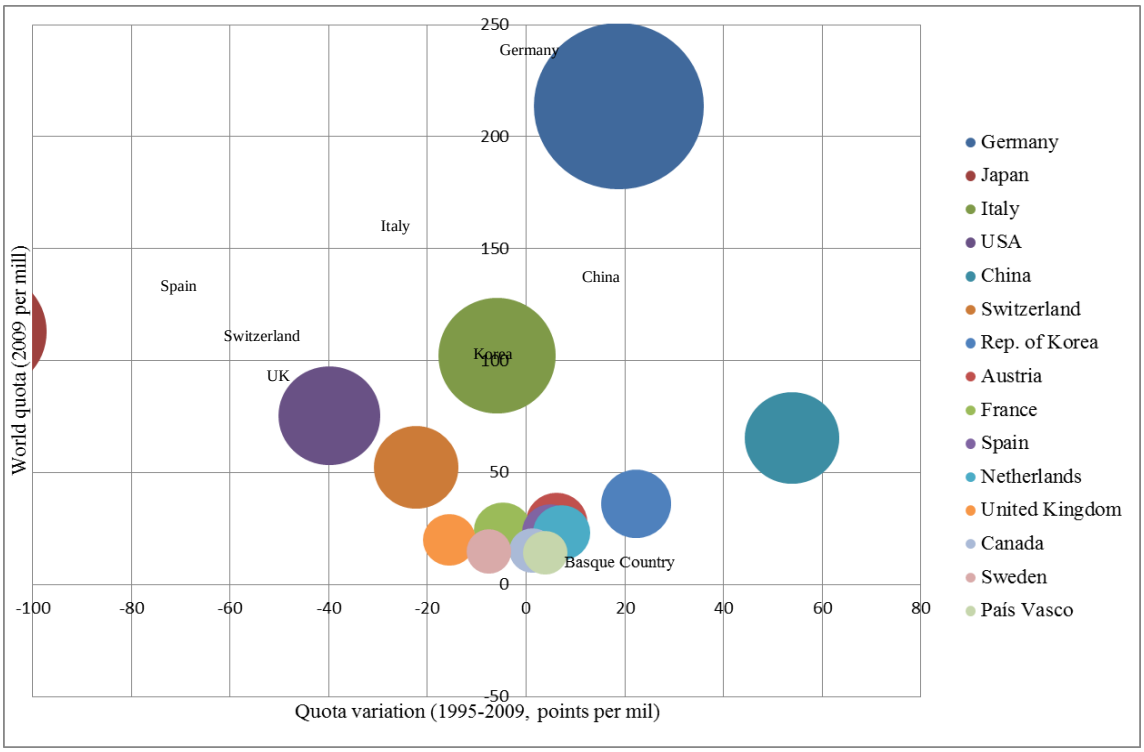
As noted earlier, in 1981, Spain's Industrial Electronics sector was small. Affiliates of foreign firms like General Electric and Westinghouse were present in the market, but there was also a relatively important population of smaller firms founded by local entrepreneurs. Of these, almost all firms that specialised in production processes (Industrial Machinery, Machine-Tools) were located in the Basque Country (Orkestra 2012, SPRI, Interviews 12, 14 and 17). Geographical concentration derived from the Basque Country's specialisations in metal and capital goods, which in 1986 constituted 17 percent of the region's GDP (INE Regional Accounts), and from the need of the industrial machinery producers to be located near their clients.

In the early 1980s, the Basque Industrial Electronics sector was at a critical juncture. The region's heavy industrial sectors were some of the worst hit by the 1970s crises. Between 1975 and 1980, GDP per capita in the region dropped from 99 percent to 75 percent of Europe's average (Porter et al 2013). Despite the implementation of national restructuration plans in sectors like Steel and Shipbuilding, these sectors, and the region as a whole, continued their downward spiral until the early 1990s (Plaza 2000, Cuesta Valle 2006). Electronics manufacturers, which catered almost exclusively to the national market, consequently suffered. However, the industrial restructuration of the early 1980s, as in other countries in Europe, involved a shift toward more technologically intensive production processes. As a result, the crisis represented a massive opportunity for the Industrial Electronics sector, provided it managed to upgrade to serve the increasingly sophisticated needs of its clients.

Upgrading in Industrial Electronics required product-development capacity in higher-value-added segments, which in turn required patient capital and close interactions with its clients, as per usual in capital-intensive industrial sectors based on continuous innovation (Hall and Soskice 2001). In 1981, the Basque Industrial Electronics sector had very limited product-development capacity. The region only invested 0.097 percent of its GDP in research and development, of which 80 percent was undertaken by four firm-based Technology Centres (Gobierno Vasco 1984). Only one of these centres, Ikerlan, included electronics among its specialisations. Ikerlan serviced the Mondragon Group of Cooperatives (MCC henceforth). In 1979, the Technology Centre employed 24 people and its budget was 28 million pesetas (Gobierno Vasco 1984), resources that did not situate the industry on the cutting edge. For instance, Danovat, the country's leading Machine-Tool manufacturer and an MCC cooperative, did not produce numerically controlled (CNC) machines until 1987 (Linazisoro 2005). Employee qualifications also tended to be low, with only about 30 percent of those working in the Electronics sector having tertiary education (Orkestra 2010).

By 2009, the Basque Industrial Electronics sector showed signs of upgrading. Despite the size of the region (barely 2 million people) and the increasing sophistication of Industrial Electronics' outputs, the Basque Country was among the largest producers of manufacturing technologies, particularly Machine-Tools. As Table 4.11 shows, the region's world share of exports in Manufacturing Technologies between 1995 and 2009 had slightly increased, despite increasing competition and higher technological complexity, while that of Spain as a whole had decreased by 40 percent in the same period. Technology investment among Basque producers was 4 percent of revenue, most of which was dedicated to product and process innovation. The share of the workforce with higher education had also risen from 38 percent in 1990 to 70 percent in 2009 (GAIA). In fact, despite the onset of the crisis in 2012, the Basque Electronics sector's Industrial Performance Index, a measure of performance, stood at 110 (relative to 2010), one of the few sectors to deliver positive results over this period (EUSTAT).

Table 4.11 Bubble chart, Manufacturing Technologies (Machine-Tools) from 1995 to 2009



Source: http://tools.orkestra.deusto.es/klusterbolak data from UN Comtrade and AEAT, Own elaboration.

3.3.3 *The basis of collaborative coordination in the Basque Country*

The changes described above unfolded at a time when Spain was introducing structural changes to its territorial organisation. One of the thorniest issues of Spain's Transition was the conciliation of state unity—a non-negotiable condition for the armed forces—with historical self-government demands from peripheral regions. The 1978 Constitution addressed the matter

by enabling regions to claim broad or exclusive competences in all but a few fields reserved to the Central State (Spanish Constitution Title VIII). Although only historical regions were expected to develop self-government capabilities, the country ended up adopting a quasi-federal structure based on 17 regions. The Basque Country was the first one to be formed (Organic Law 3/1979).

The Basque Country was one of the three Spanish regions for which self-government was a response to historical demand. Growing violence by pro-independence terrorist organisation ETA (Euskadi ta Askatasuna/Basque Country and Freedom) underscored the urgency of a solution. The newly legalised Basque Nationalist Party (PNV), a strong political formation that had championed the region's short-lived regional statute of 1937, looked at the new territorial organisation as the opportunity to put into action its historical aspirations for self-government. To do so, the rising PNV elite needed to define its position and galvanise support from its traditional stronghold of Basque entrepreneurs. Economic transformation and upgrading became the instrument to achieve their goals (Orkestra 2012, Interviews 13 and 15).

Two factors favoured a strategy focused on economic transformation. To distinguish itself from ETA, who aspired to self-determination, the PNV chose to develop its self-government project within Spain (Interview Arzallus 1990). This involved acting within the competences that the Spanish Constitution enabled the region to claim. Of these, economic competences were the broadest the region could claim and the first to be decentralised. With the Basque industry in shambles, industrial transformation and upgrading was also the path toward winning over the influential business class, not to mention making a difference in the region. The upgrading-centric strategy worked so well that, with the exception of a brief period between 2009 and 2012, the PNV has governed the Basque Country since the first regional election in 1980.

The Basque Government took a hands-on approach to economic transformation from the start. In those sectors where the Central Government had defined a restructuration plan, the Basque Government could only assume implementation competences. Restructuration plans were prepared for industries such as Steel and Shipbuilding (see SPRI for details of the plans, sectors and firms involved), which were usually composed of large firms. By contrast, for sectors that fell outside the scope of Central Government plans, the Basque Government could claim full competences. These sectors tended to be related to the production of industrial machinery, which constituted 15 percent of the Basque GDP (INE Regional Accounts) and were composed primarily of mid-sized and small family firms.

The Basque Government concentrated on this second set of sectors and set about creating a supportive institutional structure for them (Porter 2002, Basque Government 2008, SPRI,

Orkestra 2012, Porter et al 2013). Two other factors contributed to this decision. These sectors were composed primarily of family firms; therefore, supporting them involved assisting the Basque entrepreneurial class, whose interests directly aligned with those of the governing PNV. In addition, these sectors constituted the mainstay of the Basque economy. Since they fell outside the scope of national restructuration plans, there was a strong concern that they would languish and worsen the crisis unless the Basque Government intervened.

The characteristics of the Basque productive structure meant that it was likely to benefit most from an institutional framework based on inclusive coordination along the lines of the German model. The Basque economy was (and still is) more dependent on industrial production than the rest of Spain. In 1986, 38 percent of regional GDP came from industrial activities, compared to 25 percent for Spain as a whole (INE regional accounts). Within industrial production, the Basque Country specialised in a number of mature and adjacent industrial sectors: Metal Production, Metal Products, and Production Machinery. The reliance of these mature industrial sectors on continuous innovation and the presence of cross-sector complementarities meant that an approach based on shared platforms was more likely to have a stronger positive impact than uncoordinated strategies based on individual firms or specific sectors.

In addition, as mentioned above, the majority of Basque firms in these sectors were SMEs with limited product-development capabilities (Orkestra 2010, SPRI). Consequently, they were likely to benefit from collective innovation platforms geared toward their needs and from collaborative structures that enabled individual firms to share knowledge or combine efforts on large projects. Given their size, Basque firms were also likely to benefit from a structure based on intermediary organisations through which the sector could discuss and build a cohesive opinion to negotiate with the Basque Government.

Even if the characteristics of the Basque economy made it more likely to benefit from inclusive coordination, institutional structures are the result of a negotiation process and, therefore, not always pareto optimal. In the Basque case, the fight for inclusive coordination was decided in a broader arena. The Basque fiscal regime is based on a figure called the “Concierto Económico”. The Basque Statute of 1979 reinstated the historical right of the region’s three provinces to establish, regulate, and collect taxes (Law 12/1981 and Law 12/2002). The Basque Country then paid a negotiated amount to the central government for expenses related to competences, such as Defence, that had not been decentralised. From an institutional perspective, the Concierto meant that the three Basque Provincial Governments (Diputaciones) imposed and collected taxes, and the Regional Government had spending powers but no control over its resources. This arrangement was a historical peculiarity of the Basque Country that only one other region, Navarre (historically linked to the Basque Country), shared.

Despite the PNV's control of the Regional and the Provincial Governments, this setup soon led to disagreements. In the early 1980s, four of the five existing Technology Centres were located in the province of Guipuzcoa, which had a strong machinery production industry. The Basque Government's generous funding to the centres starting in 1982 (see section 3.3.4 below) was seen as unfair by the governments of the other two provinces, especially that of Vizcaya, which was also heavily industrialised. In response, Vizcaya's government created and fully funded four Technology Centres in its own territory, which competed directly with those located in the province of Guipuzcoa and funded by the Basque Government (Mosso 1999, Rico Castro 2007).

The situation sparked a deep chasm within the PNV party regarding the distribution of powers between the Provincial and the Regional Governments. At the base of the two conflicting positions were different approaches to policy-making. One faction, led by regional Premier Carlos Garaikoetxea, advocated the marginalisation of Provincial Governments and the concentration of all competences on the Regional Government. Conceptually, this approach implied a top-down vision of regional policy making. A second group advocated a more even distribution of competences between the Provincial and the Regional Governments, and therefore a more inclusive approach to policy making.

The crisis ended in 1986 when Premier Garaikoetxea stepped down and left the PNV to create a separate political party (El País 1987). The winning faction soon took steps to establish a collaborative policy-making structure based on the distribution of competences between the Provincial governments and the Basque Government. Simultaneously, the Basque Government consolidated the role of economic strategy as the backbone of its regional policy and worked to translate the same collaborative approach to economic policy.

3.3.4 *The Basque institutional framework and its connection to upgrading*

This section provides empirical evidence to support the idea that the Basque Government built an inclusive coordination institutional framework around the needs of industrial SMEs. The timeline of events supports my argument that inclusive coordination was consolidated after the resolution of the political conflict outlined above. Specific examples of programs are developed around the case of Industrial Electronics, one of the sectors that benefited most from this structure.

The initial Basque framework was based on two agents: the SPRI and a network of Technology Centres supervised by the Basque Government. Cooperation and upgrading were defining features of both from the time they were established. SPRI was created in 1981 (Law 5/1981) and has since been the primary responsible for implementing the Basque Government's industrial policy programs. Its original mandate included the responsibility for "fostering inter-

firm cooperation" and for "promoting process and industrial product innovation". SPRI programs had a direct impact on Industrial Electronics from the beginning. For instance, the first program managed by SPRI, CN100, aimed to encourage manufacturing of CNC machines in the Basque Country and to support demand from SMEs. This program was funded with 1,157 million pesetas between 1982 and 1983 (SPRI).

In addition, the Basque Government set up plans to develop a collective platform of Technology Centres to enhance the product development capabilities of industrial SMEs. Basque Technology Centres were modelled after Germany's Franhofer Institutes (SPRI). As such, they were expected to develop applied research to service the needs of local firms. In the Basque case specifically, each Centre was expected to work on generic research projects fully funded by the Basque Government, as well as on contracted research paid for by local firms. To achieve this goal, Decree 92/1982 offered existing Technology Centres the opportunity to transform into non-profit entities. By doing so, they agreed to coordinate their activities with regional industrial and technology policies, place their capabilities at the service of all firms based in the Basque Country, and adapt and disseminate new products and technologies in agreement with direction issued from the Department of Industry. Technology Centres were not obliged to submit to this change, but the Basque Government made its offer hard to refuse by offering the patient capital that Centres needed. Between 1982 and 1996, the Basque Government invested 16,044 million pesetas in eight Technology Centres. This capital amounted to 44 percent of the Centres' resources in 1982 and 50 percent in 1986, although the percentage decreased progressively as private projects picked up (SPRI).

All existing Technology Centres, including Ikerlan, the only one dedicated to Electronics, accepted the offer. In fact, since production technologies were a chief line of research, Ikerlan was a major recipient of public funds. Between 1982 and 1996, it received 3,664 million pesetas, or 23 percent of the total public outlay (SPRI, own calculations). Robotiker, a second Centre that also specialised in Electronics and that was one of the four Technology Centres created and funded by the provincial government of Vizcaya, received an additional 1,057 million pesetas after it joined the Basque Government's network in 1993.

Despite the mandate for collaboration mentioned above, in the first few years, the Basque Government's strategy were characterised by a lack of coordination among the different economic agents (Mosso 1999, Plaza y Velasco 2001, Rico Castro 2007, Azúa 2010, Orkestra 2012). A major impulse toward the development and consolidation of a collaborative framework was the adoption in 1988 of Michael Porter's cluster framework, which was the basis for the translation of the collaborative structure defined at the political level to the economic arena. Initial contacts with Porter started in 1986, immediately following the

resolution of the political crisis mentioned above. Most activities were undertaken under the umbrella of multiannual Framework Plans, the first one of which was issued in 1991 (see SPRI for details of each Framework Plan).

In 1990, following the implementation of Porter's framework, professional associations became the visible heads of industry clusters, or "concentrations of interconnected firms and related organisations that compete and collaborate" (Orkestra 2012). As in the case of Technology Centres, some industry associations already existed and actively collaborated in the implementation of SPRI programs. This was the case with GAIA (Electronics) and AFM (Machine-Tools). The Basque Government helped professional associations increase their resources to become hubs for cross-firm dialogue within and across sectors and to become providers of resources to SMEs (e.g., technical training, marketing, and internationalisation consultancy services) (SPRI). In addition, the Basque Government supported the development of start-ups in high-value-added segments by providing seed capital and office space in three specialised Technological Parks, one in each province. Of these, the Zamudio Park was the first to be established in 1987. It specialised in Electronics and provided a home for new firms, often spin-offs from the projects developed by Technology Centres or from some of the largest, most-established firms (Orkestra 2012). To provide seed capital to the new firms, the Basque Government, through SPRI and with the participation of the three regional savings banks, created in 1985 a venture capital society called Sociedad Gestora de Entidades de Capital Riesgo Sociedad Anónima (SGECR SA). These measures had positive effects for innovation in Industrial Electronics. By the second half of the 1990s, Basque firms were responsible for more than half the Spanish patents registered by groups not linked to foreign investors (Orkestra 2010). As shown in Table 4.11 the Basque Electronics cluster grew between 1995 and 2009, whereas it significantly contracted in the rest of Spain.

Since the late 1990s, this framework has evolved through efforts to deepen relationships among economic actors and to expand networks by including universities. Decree 96/1997 established Innobasque, an umbrella network that grouped Technology Centres and other innovation agents, such as firm labs and Technology Parks, in a move to coordinate and represent all innovation centres in dialogue with the Basque Government. In turn, Technology Centres also coordinated their efforts under two platforms: Tecnalia, formed in 2002, and IK-4, formed in 2005. Robotiker and Ikerlan each joined one of the platforms. The main purpose of this consolidation was to gain critical mass to compete for EU projects with larger rivals, like the Ferhofen Institutes (IK4). In addition, technology platforms have served as incubators for specialised firms. Some of the most innovative Basque Electronics firms, such as Zigor, which specialises in Power Electronics, are spin-offs derived from these platforms. In addition, in 2006, SPRI and

the Government of Guipuzcoa, in collaboration with Deusto University, funded Orkestra, a research group dedicated to regional innovation. Orkestra was part of a new phase in the Basque strategy aimed at expanding the collaborative structure through the involvement of universities (Smart specialisation forum, July 2013). The integration of higher-education institutions has accelerated since 2008 as part of an effort to address the weaknesses of the system and invigorate the role of social science research in supporting the formulation of economic policy.

4 Conclusions

This chapter has explored the impact of PC on the Professional Electronics sector and the contribution of regional institutional systems to upgrading.

The case of Telecommunications Electronics showed that PC made it unlikely that Spain would pursue a conventional top-down industrial policy approach, along the lines of France. Nonetheless, the case of Defence Electronics showed that the state could and did circumvent the constraints derived from PC when it could rely on its own strategic and financial capabilities, and when local firms had a certain degree of innovation capacity. In such cases, the state did not hesitate to use conventional industrial policy instruments, such as incentivised mergers, public contracts, and direct funding, to shape a sector and build a national champion, despite opposition from some of the firms involved.

Finally, the case of Basque Industrial Electronics explored the role of regional institutional structures in upgrading. The political context of the region, the dire effects of the industrial crisis in the Basque Country, and the importance of the Basque business class made upgrading the main political priority of the rising Basque Nationalist Party. The characteristics of the region's industrial production favoured an approach based on inclusive coordination, but this strategy was only adopted after the resolution of a deep political crisis.

The specificities of the Basque Country imply that its institutional structure may not be generalisable to other Spanish regions. However, this example shows that the Spanish national model can and does coexist with regional systems based on other forms of coordination. Subnational structures provided support for upgrading in sectors that the national-level system did not, which made the national and regional systems complementary.

The following chapter completes this thesis. The chapter takes up again the empirical and conceptual questions posed at the beginning of the thesis and presents the conclusions of my empirical work. Then, the chapter discusses contributions to the literature and possible

extensions to be addressed in future analyses. Finally, the chapter explores the practical implications of my findings and concludes.

Chapter 5. Conclusions

1 Recapitulation

Spain's late industrialisation in the 1960s and 1970s set the basis for an industrialised society with a broad middle class. However, by the mid-1980s the limitations of Spain's Fordist model were apparent in a world that was rapidly changing. New technologies, advances in transport, and lower barriers to trade and capital movements transformed manufacturing sectors and led to a generalised rise of service sectors. As Spain's economy hit the bottom in the early 1990s, the country was trapped between the devil and the deep blue sea. The fall of the Berlin Wall meant that Spanish manufacturers now had to compete with a new set of countries for standard manufactured outputs from a disadvantageous position. On the other hand, EU plans to liberalise sheltered service sectors spread concerns that Spain's most sophisticated firms could lose control over strategic decision making to more advanced rivals looking to expand into Southern Europe.

If Spain wanted to maintain and continue raising the standard of living of its citizens, most sectors had to upgrade. That is to say, they had to move up the Global Value Chain into segments where outputs were not so easy to replicate by emerging markets and where they could compete evenly with their more sophisticated neighbours. Not all sectors achieved these goals equally well. Spanish firms managed to reach the efficiency frontier in complex, high-valued-added service sectors, like Banking and Telecommunications, but failed to obtain comparable outcomes in most manufacturing sectors, especially those that required significant investments in equipment or product development. Although the rise of services as a percentage of a nation's GDP is a generalised feature of the post-1980s world, the rise of Spanish complex services to the top of the global leagues in terms of productivity, profitability, and international scope is a surprising outcome. Spanish firms in these sectors started from a position of comparative disadvantage in terms of size, resources, productivity, quality of service, and competitive experience, and upgrading required changes in comparative advantages that were not easy to achieve. In addition, the fall of manufacturing sectors in Spain was more pronounced than in other large European economies.

My thesis aimed to understand why upgrading in Spain transpired as it did by taking an institutional viewpoint. This meant that my initial empirical puzzle: what explains changes in the Spanish productive structure, and why were complex service sectors better able to reach the efficiency frontier? Translated into a more conceptual question: what defines Spain's institutional structure? To answer this question, this thesis combined a bottoms-up

microeconomic perspective that revealed the characteristics of key sectors and the decision of firms with a macroeconomic perspective that laid bare the web of systemic patterns that enabled and constrained firm strategies.

The literature offered no ready answers to map Spain's institutional structure. In great part this was because existing analyses offered only partial, sector-specific perspectives. Contributions written from a management perspective (Guillen 2005, 2010, Guillen and Tschoegl 2008) concentrated on firm-level trajectories but underplayed the role of institutional structures in enabling firms to succeed. Accounts from historians and political scientists (Perez 1997, Pons 1999, 2002) emphasized the role of institutional structures in the Banking sector but concentrated on the Francoist period and its immediate aftermath, leaving out the period of analysis with which this thesis was concerned. Social science scholars exploring internationalisation (Chislett 2003, Rozas Balbotín 2003, Martínez 2008) emphasized the influence of the state over large firms and state-to-state interactions, but they failed to consider the impact of recent shifts in firm and state capacities and the role of institutions in unleashing firm resources. Finally, in the few instances where authors looked at Spain as a system (Molina and Rhodes 2007), the Spanish model was characterised as "mixed" or "hybrid", a concept that was not sufficiently elaborated.

To fill in this gap, I combined, reinterpreted, and adapted three major building blocks: the concept of upgrading, the statist literature, and a group of firm-centric literatures. The literature of upgrading defined the dependent variable and helped identify paradigmatic cases where Spain had reached or redefined the efficiency frontier. This was key to operationalize my analysis. The statist and firm-centric literatures identified the state and firms as key actors in enabling upgrading, defined their respective roles, and pointed out the characteristics that enabled them to play those roles effectively. Following the Models of Capitalism literature, I identified coordination across economic agents as the key to defining a nation's institutional structure and, through it, upgrading.

I operationalized my analysis through in-depth case studies taken from three sectors: Banking, Telecommunications, and Professional Electronics. The three sectors were skill and capital intensive, densely connected to a large number of other industries, and central to Spain's economy. I used in-depth analyses of the first two sectors to define and generalise Spain's national institutional structure. Three cases from the third sector, Professional Electronics, were a means to evaluate the impact of the structure previously defined on the rest of Spain's productive tissue and to examine the contribution of regional institutional systems to upgrading.

Empirical evidence confirmed that Spain's national institutional structure was based on a variant of relational coordination that I called "Peer Coordination". PC was a non-hierarchical form of coordination defined by a division of tasks and regular exchanges of sensitive information between large firms and the Central State. This structure enabled the state overcome the strategic and financial limitations of the state through the resources of established firms. PC operated best in sectors where public and private interdependencies and complementarities were strong. Interactions between firms and the state took place directly, because Spain's intermediary agents lacked a tradition of actively contributing to strategic decision-making processes. This meant that PC operated best in concentrated sectors where individual firms could establish a direct rapport with the state.

The Banking and Telecommunications cases showed that PC operated as a system of negotiated exchanges. The financial and strategic resources of large firms complemented state weaknesses and enabled it to undertake crucial reforms, address sector-specific crises, and overhaul critical infrastructures. In exchange, large firms benefited from non-neutral regulation that enabled them to implement deep restructuration plans, secure large market shares, and substitute an older generation of decision-makers.

Liberalisation in the Banking and Telecommunications sectors did not fundamentally alter the relational nature of PC because national coordination remained a crucial feature of both sectors. The two of them experienced significant transformations that empowered firms and deprived the state of some traditional sources of power. However, the states' supervision remained crucial to ensure the stability of what were still distinctive national financial systems. Similarly, in Telecommunications, states maintained crucial competences over key resources, such as infrastructure development and spectrum allocation, and acquired new sources of leverage through their roles as regulators and competition referees, which rendered them indispensable.

Spain's PC was structurally different from other European variants of relational coordination. Unlike their German counterparts, Spanish intermediary agents, especially unions and sector associations, played negligible strategic decision-making roles, although they supported and facilitated implementation. Direct coordination between firms and the state tended to benefit large firms over SMEs. The Spanish state also lacked France's excellent organisational capacity.

Instead, the Spanish structure was based on the state's limited capacity to design and implement multi-annual projects that required heavy capital commitments or intensive cooperation between public bodies. In addition, Spain had a fragmented elite structure based on specialised groups that operated in relatively narrow public or private sector environments. Finally, in the Spanish case, the state had less of a presence in the heart of large firms, through either public ownership

or board-level representation, than its counterparts in Germany and France. Overall, this PC structure delivered benefits equivalent to those of other variants of relational coordination for firms in the Banking and Telecommunications sectors, but it imposed fewer constraints, therefore facilitating organisational and functional upgrading.

PC in Spain was less likely to consolidate in skill- and capital-intensive sectors, where firms lacked significant financial and strategic resources, public-private interdependencies were less immediate, and the atomisation of the sector called for the presence of intermediary agents to articulate the relationship and shared-knowledge platforms necessary to generate new complex products. This situation affected manufacturing sectors the most, due to their characteristics and needs, and accounts for Spain's lopsided pattern of upgrading. My analysis of the Professional Electronics sector showed that manufacturing sectors also faced additional constraints derived from PC in Banking and Telecommunications. PC made it difficult for firms to access the patient capital and stable demand they needed to develop new complex products to upgrade. In some cases, PC also prevented the state from pursuing conventional top-down industrial strategies to support a sector.

Nonetheless, these difficulties could be overcome when the Central State could rely on its own organisational and financial capabilities and local firms had some independent capacity for new product development. In other instances, Regional Governments were able to develop institutional structures more suitable to the needs of atomised manufactured sectors and contribute to upgrading. Evidence from the Basque Country showed that, since 1980, the region has developed an increasingly sophisticated institutional framework based on inclusive coordination. Unlike PC, the Basque structure revolves on a network of intermediary entities that has facilitated product and process innovation in atomised skill- and capital-intensive sectors, like Industrial Electronics, which were underserved by the national model. Nonetheless, the Basque model is unlikely to be replicated in other parts of the country under current circumstances because the model was based on three features unique to the region: a strong pre-existing industrial base, a peculiar division of powers between Provincial and Regional governments, and a well-established regional nationalist party that differed from those in the majority of Spain.

The rest of this chapter is structured as follows: Section two summarises the conceptual contributions of my thesis. Section three discusses future avenues for research. Section four considers immediate practical implications and concludes.

2 Contributions

The findings summarised above not only help explain the structure that enabled upgrading in Spain, but they also complement, and in some cases challenge, the literature. Specifically, Spain's combination of high- and low-performing sectors and the presence of complementary institutional systems based on different forms of coordination challenge conventional assumptions about the expected underperformance of hybrid systems and the identification of institutional complementarity with institutional homogeneity. In addition, PC's non-hierarchical, multi-agent structure calls for better integration between firm-centric and state-centric views. The circumstances that helped consolidate the Spanish system indicate that the capabilities and resources of economic actors matter for institutional development. Finally, the identification of several variants of relational coordination indicates a need for more detailed analyses of relational models. In what follows, this section develops these themes.

2.1 *Performance in hybrid models and complementarity through heterogeneity*

The VoC literature (Hall and Soskice 2001, Hall and Gringerich 2009) concentrates fundamentally on national-level institutions. It also identifies institutional coherence with institutional homogeneity, or the application of the same form of coordination across several spheres of the economy across sectors. Homogeneous systems are associated with the generation of advantages that enable firms to perform certain types of activities more efficiently. By contrast, institutional systems that combine different forms of coordination (hybrid or mixed systems) are expected to perform less efficiently.

Evidence from the Spanish case showed a more complex picture of national institutional systems. My thesis did not undermine the idea that institutional systems need to be internally coherent to generate advantage; both PC and the Basque regional structure were based primarily on a single form of coordination, and high-performing sectors were those that closely aligned with each of the systems. However, my analysis challenged the assumption that a political economy should be defined by a single institutional system by showing that Spain had a primary system and at least one subnational structure in the Basque Country. The presence of a subnational institutional system, in turn, showed that an approach based solely on national-level institutions has limitations, at least when it comes to understanding a decentralised country.

Furthermore, the presence in Spain of two self-contained, internally coherent institutional systems based on different forms of coordination challenged the conventional view that advantage can only stem from institutional homogeneity. In Spain, the primary institutional structure operated through direct exchanges between the Central State and large firms, whereas the Basque structure relied on a dense network of intermediary agents to articulate the

relationship between SMEs and the Regional Government. Paradoxically, institutional heterogeneity did not lead to incoherence. The two systems were complementary in that each provided support for different types of economic activities and firms, increasing the total number of sectors that were able to upgrade. Two features ensured that, despite their reliance on different forms of coordination, the national and regional systems did not undermine each other. First, the distribution of powers between the Central and Regional governments enshrined in the Constitution guaranteed that policy-making powers associated with Banking, Infrastructures, and Utilities were not decentralised. Second, the Basque Government had political incentives to support sectors that were underserved by the national system. These sectors constituted the economic backbone of the region and were directly associated with the powerful Basque entrepreneurial class that supported the ruling party. Therefore, upgrading was the PNV's most direct strategy to consolidate its credibility and that of the newly formed Regional Government.

Although my thesis argued that subnational institutions need to be incorporated into analyses of national structures, the two detailed case studies on Banking and Telecommunications support the claim that supra-national coordination does not unravel national structures. Chapters 2 and 3 showed that technological innovations and institutional change transformed what had previously been sheltered, national-based sectors into porous, multi-level ecosystems. Nonetheless, these changes did not undermine the critical role of national states, permitting national institutional systems to subsist. Thus, despite the dramatic transformation experienced by banks everywhere, close coordination between credit institutions and states has continued to be necessary to guarantee the stability and efficiency of national credit systems. Similarly, liberalisation did not eliminate the underlying tension between heavy capital investment in infrastructures and long-term maturity returns that defined Telecommunications. In fact, states competences for infrastructure development and allocation of other critical resources enabled countries to evolve from the PTT model into institutional structures that reflected different national models.

2.2 *Integrating firm- and state-centric perspectives*

Models of Capitalism contributions place firms at the centre of their analysis because of firms' role as generators of wealth. The role of other actors in this framework, and specifically that of the state, is unclear but presumably vicarious to that of firms. Statist contributions, on the other hand (Rueschemer and Skocpol 1985, Evans 1995, Chandler 1997, Ross-Schneider 1998, Weiss 2003, Levy 2006, Rodrik and Hausmann 2006, Schmidt 2009), identify the state as the main catalyst for economic transformation, placing firms in a second plane. My thesis argued in favour of integrating these two positions and considering instead the possibility that both states and firms can be co-responsible for upgrading through a non-hierarchical relation.

My thesis showed that large, established firms in Banking and Telecommunications not only engaged in a relationship with the state, but also needed the state's unique capabilities as negotiator, legislator, and advocate to upgrade. This consolidated the argument that although firms are cornerstones of economic transformation due to their ability to generate wealth, states are equally necessary to urge and orchestrate changes in the country's resource endowment, a prerequisite of upgrading. As mentioned above, liberalisation and globalisation affected the ability of states to exercise power over banks and PTOs through conventional avenues, such as control over suppliers, price regulation, and explicit trade barriers. However, states have maintained unique competences and capabilities specific to each of these sectors that continue to make them indispensable.

The institutionalist literature is based on the idea that institutions are the result of a negotiated process between the actors involved. Yet, the Hall and Soskice approach does not evaluate the way that resources and capabilities of economic actors influence their positions in the negotiation game. My thesis argued that integrating the firm-centric and statist views requires taking into account the capabilities and resources of each actor in their national context and viewing these capabilities as complementary. I showed that Spain's PC developed within a historical context defined by the state's chronic lack of capital, historical delegation of governance functions to the private sector, late economic development, concentration of economic elites in a handful of protected sectors, and recent political and economic transitions. These factors determined the relative strengths and weaknesses of the state and large firms, the range of options available for coordination, and the choices they adopted. The state's willingness to make concessions to firms depended on its ability to accomplish policy objectives through its own resources. Firms' responses also depended on their needs. The state was willing to offer favourable regulation and support for restructuration to well-established firms because the firms' resources complemented the state's own and helped further public policy goals. The state was willing to make concessions even if PC arrangements prevented it from providing more substantial support to smaller, more vulnerable firms in other sectors. This is because successive governments prioritised a development and modernisation strategy based on universal access to basic services and competitive capital markets. Recipient large firms were willing to accept this agreement because they benefited from state support to strengthen their market positions and undertake deep restructuration. Smaller firms that suffered the constraints of this system lacked a platform to articulate their demands. Finally, where the state had sufficient autonomous planning and financial resources to fulfil its objectives, it did not take a peer-group approach. Instead, it adopted a more conventional, top-down industrial policy approach. As the Defence Electronics case showed, in such instances, relevant private firms that depended on public contracts had little alternative but to comply.

2.3 *Variants of relational coordination*

In the VoC literature, Coordinated Market Economies are those were firms depend heavily on non-market relationships to build their core competencies. Non-market coordination "generally entails more extensive relational or incomplete contracting, network monitoring based on the exchange of private information inside networks, and more reliance on collaborative, as opposed to competitive, relationships" (Hall and Soskice 2001). Although this definition of nonmarket coordination is broad in practice, the literature has tended to identify the German model on which the VoC framework was built with relational coordination.

This thesis challenged the identification of non-market coordination with the German model, pointing out instead that there are different variants of relational coordination. PC emerged as a structure in which policy-making, policy-implementation, and service provision functions were not clearly separated but rather determined through negotiation among several groups of elite civil servants and private sector decision-makers. A comparison between Spain and Germany showed that intermediary agents were absent from decision-making roles in Spain and that the German state continued to play an important role through a vast network of public banks and board-level representation at Deutsche Telekom. A comparison between Spain and France showed that Spain's public service lacked the organisational skills of its French counterpart, in part as a result of Spain's specialised and siloed elites.

These structural differences translated into a different set of constraints and advantages for Spanish firms in terms of market share, obstacles to restructuration, relationship with adjacent sectors, and participation in programs and services with redistributional aims (e.g., universal service). Specifically, the example of Telecommunications showed that PC tended to maximise the capacity of firms to maintain large market shares in established segments and to establish solid positions in emerging ones, while minimising constraints related to restructuration and long-term relationships with clients and equipment suppliers. In other words, PC offered large firms the benefits of relational coordination with few of the constraints. In this context, Spanish firms in Banking and Telecommunications could prioritise profit-making and structural transformation over contributions to the common welfare, enabling them to overcome their historical deficiencies and reach the efficiency frontier. Meanwhile, their counterparts operating in other relational models struggled to balance firm priorities with constraints derived from public service, and those in arms' length models adopted defensive strategies.

PC did, however, entail systemic constraints. My thesis showed that the advantages experienced by complex-service sectors in Spain came at the expense of other industries. Capital- and skill-intensive sectors that needed patient capital and steady demand to develop more complex

products experienced difficulties accessing them. Often, the state also found that it lacked the instruments to articulate top-down industrial strategies. Finally, the state's prioritisation of PC meant that there was no significant national effort to build a common platform to help atomised sectors overcome their limitations.

These findings call for a more detailed characterisation of institutional structures based on relational coordination in order to identify the nuances of different variants. Analyses of complex services also suggest that characterisations of institutional systems should be based on a broader set of sectors, including complex services. Although manufacturing is an important part of the economy of any country, complex service sectors like Banking and Telecommunications are also central to any economy because of their thick network of interconnections to virtually all other sectors, the types of outputs they generate, and their capital and skill intensity. This position challenges two types of conventional views regarding complex services. The first view sees complex service sectors, and especially the financial sector, as "part and parcel" to a specific model of capitalism rather than productive sectors in their own right (Zysman 1983). The other view (Rodrik 2011) fails to include complex services in the definition of "elevator sectors", or those industries that can act as catalysts for sustainable economic development. A view of complex services as elevator sectors also engages directly with current debates regarding the role of manufactures and services in generating the basis for "good new jobs, new enterprises, and sustainable growth" (MIT 2013).

3 Future research agenda

The aim of my thesis was to understand upgrading in Spain by revealing the institutional structure that enabled it. In doing so, my analysis brought about issues whose full exploration was beyond the scope of this study. One of the issues was defining hybrid models. My thesis challenged the convention that hybrid institutional systems do not have a clearly dominant form of coordination by showing that Spain's dominant institutional structure and the Basque regional system had clear internal coherence. Nonetheless, the Spanish model does not exhaust the range of structures that fall under the denomination of "hybrid" models. Italy's configuration, for example, follows a different structure based on hierarchical relationships across firms of different sizes, which are subject to different institutional constraints (Rodriguez d'Acri 2011, Simoni 2012). In-depth analyses of individual hybrid models are a first step in understanding the nature of individual systems and starting to question conventional knowledge, but a future research agenda should be geared toward establishing a clear taxonomy of hybrid systems and the factors that determine different varieties.

In addition, the exploration of institutional conditions in Banking and Telecommunications revealed that there are few theories about the institutional conditions support upgrading in these complex-service sectors. Although my thesis implicitly suggested that relational coordination provides more adequate support than an arm's-length model, it also showed the presence of several variants of such coordination, each of which resulted in a different set of constraints and advantages for firms in the sectors directly involved and in those directly adjacent to them. Further research is needed to refine the definition of these variants and to determine which ones, and under which conditions, offer better support for upgrading.

Finally, my thesis argued that the capabilities and resources of economic actors play an important role in the development of institutional structures and that, in turn, these features are historically embedded. Specifically, my empirical work pointed out the importance of Spain's political and economic transitions in the consolidation of PC and the regional Basque system. Still, empirical evidence of the impact of political and economic transitions in the Spanish case is not sufficient to understand the general contribution of these events to the consolidation of institutional systems. Future research should explore this as part of broader analyses on the origins of institutional systems. Comparisons between western and eastern peripheral countries could be particularly useful. The fall of the Berlin Wall brought into the picture a range of countries that shared some similitudes with Spain, including limited government capacity to develop and implement strategic plans, the need for capital, technology and managerial skills to transform outdated manufacturing industries, and lack of experience with competition (Sachs and Lipton 1990, Sachs 1993, Sachs 1994). Like Spain, these countries were situated in the periphery of Europe and faced the prospect of EU integration.

4 Practical applications and concluding remarks

In addition to its conceptual value, the analysis contained in my thesis has important implications for current policy formulation. The economic crises that started in 2008 have affected Spain more than most countries, and recovering to pre-crises levels may take a decade (IMF 2012). Despite a battery of anti-crisis measures instituted since 2011, Spain's GDP still contracted by 1.2 percent in 2013 (BdE 2014). Understanding the institutional structure of the Spanish economy does not guarantee that the government will take the necessary steps to set the country on a path toward sustainable economic recovery, but it helps identify the causes of the country's current predicament and evaluate policy options to address it.

This thesis has showed that PC provided complex service sectors with sufficient support to undertake the transformations that enabled them to upgrade. However, Spain's institutional

structure failed to provide equivalent support for most skill- and capital-intensive manufacturing. The result was an unbalanced system in which complex service sectors thrived while manufacturing capacity dropped significantly. Between 1980 and 2010, the contribution of manufacturing activities to Spain's GDP decreased by 15 percentage points from a starting point of a 30 percent contribution to GDP (Table 1.12 and KLEMS 2012), which was a sharper decrease than those experienced by any other large European country, including the UK.

The changes in Spain's productive structure that followed from PC had adverse consequences for labour markets. The sharp decrease in manufacturing activities translated into low demand for professionals with technical skills and few incentives for the unskilled to further their training. In 2012, only 22 percent of Spaniards aged 25–65 had upper secondary education qualifications, which are the basis for most professional and technical occupations, compared to 48 percent for the EU-21. By contrast, 46 percent of people in Spain had capped their education below upper secondary level (16 years of age), which is almost double the EU's average proportion of 24 percent (OECD 2013).

In addition, the concentration of upgrading in a handful of service sectors translated into low demand and a narrow set of career-enhancing opportunities for university educated workers. University education in Spain has expanded rapidly since the 1980s, reaching 39.1 percent of those aged 25-34, or slightly above the OECD average of 38.6 percent (OECD 2013). The mismatch between supply and demand of skills based on tertiary education has led to widespread underemployment. In 2007, 44 percent of Spaniards under 29 years old with tertiary education were employed in roles that did not require such qualifications, the highest rate in the OECD (OECD 2010). The situation has further deteriorated throughout the crisis, as youth unemployment has climbed to 55 percent (INE 2013).

If Spain wants to continue upgrading, these mismatches between labour supply and demand will need to be addressed. A large pool of uneducated workers cannot be the foundation of a national productive structure based on high-value-added outputs. A bottom-heavy labour force is likely to trammel the efforts of firms to undertake upgrading, because unskilled workers are difficult to redeploy across different activities, especially when new functions are more complex. A strong set of highly skilled individuals, by contrast, is necessary for upgrading, but unused and underdeveloped skills stagnate and devaluate. Furthermore, university-educated individuals tend to be mobile, especially at the start of their careers. Therefore, unless Spain manages to generate career-enhancing opportunities for the youngest, best-educated portion of its workforce, the country may well end up devaluating or exporting its most valuable asset.

To address these mismatches, Spain will need to reinvent and transform its productive structure, which in turn will require a change of the institutional framework beneath it. Spain could choose to move toward an institutional framework based on market coordination. However, the analysis in this thesis showed that the majority of the manufacturing sectors that declined did so because they lacked sufficient resources to undertake the product and process upgrading necessary to compete as markets for their products were rapidly opened. Therefore, a rapid shift toward market-based coordination may benefit industries that are already highly competitive, such as Spain's complex service sectors, but it is unlikely to provide the initial impulse necessary to expand upgrading to a broader set of sectors, some of which will need non-market measures to transform.

Instead, Spain could move toward a more inclusive form of relational coordination in which different economic actors pull together their resources and work in tandem to achieve a common goal. This thesis showed that at the heart of PC's consolidation laid a broad consensus among political forces across the ideological spectrum, economic elites, and social intermediaries, which lent credibility to the process. Consensus was built through constructive dialogue among decision-makers and revolved around two closely related goals: democratisation and modernisation. "Modernisation" meant convergence toward the EU standard of living and was to be achieved through the universalisation of public services, basic infrastructures, and the transformation of the financial sector.

The changes that Spain needs to undertake now to foster upgrading across a broader set of economic sectors are no less daunting that those that took place in the previous decades. These changes will require a similar process of broad-based consensus building around a specific set of long-term goals and a clear strategy to achieve them. Such a strategy may include tactical cost-cutting elements, but it should not shy away from making the productive investments necessary to foster upgrading.

Spain could choose not to transform its existing institutional structure. In such case, Spain could aim to stimulate recuperation by reducing costs and promoting traditional low-skilled activities, such as tourism. In the short-term, such an approach could generate encouraging signs of recovery. For example, lower labour costs could translate into increases in productivity and international competitiveness. Lower public expenses in concepts like education, healthcare, and research and development could appear to redress Spain's public deficit. However, such an approach has little potential to generate sustainable economic recuperation and help redress the unbalances pointed out above. Without significant institutional change, Spain is unlikely to achieve upgrading in a broader range of sectors, and without upgrading the Spanish economy will become more reliant on cost competition and therefore more vulnerable.

As of early 2014, developments do not suggest that Spain is taking the necessary steps to transform its institutional structure and foster upgrading in a broader set of sectors. Since the onset of the economic crisis in 2008, the central state and most firms have aimed to redress it by adjusting their costs rather than increasing productive investment to foster upgrading. Since 2011, the government has slashed public expenditures in core areas such as education, healthcare, and social services, which constitute the basic infrastructure of any advanced economy. Similarly, most firms have sought to increase their competitiveness by cutting costs—primarily labour costs—rather than making the type of productive investments that will enable them to generate complex outputs that do not compete in price. Between 2009 and 2012, total investment in research and development dropped by 9.2 percent while salaries decreased and unemployment trebled, reaching 26 percent (INE 2014, BdE 2014). Finally, informal evidence suggests that an increasing number of Spain's university-educated individuals are seeking employment abroad (El País 2011, Financial Times 2012, El País 2013, NYT 2013). More symptomatically, the government's public discourse concentrates on highlighting fledging signs of recuperation rather than on fostering debate and consensus around the terms of a long-term strategy to transform the Spanish model of capitalism.

Unless Spain shifts its current course and does so soon, more people will find themselves waiting for their flights in airports across the country in search of career-enhancing opportunities abroad, just like I did over a decade ago.

Appendix 1: List of interviewees arranged by chapter

Chapter 2

1. Alejandra Bernad - Regulatory Division, Bank of Spain
2. Ramon Casilda Béjar - Instructor, Spanish School of Diplomacy
3. Alfonso Caro (AEB) - Spanish Banking Association
4. Luís Gutierrez de Rozas - Research Department, Bank of Spain
5. Mauro Guillén- Professor Wharton School of Business
6. Alejandra Kindelán – Head of Research and Public Policy at Banco Santander
7. Manuel Marín González- Former MP
8. Soledad Nuñez –Director of the Treasury
9. Aldo Olcese Santonja - Royal Academy of Economics and Finance
10. Iliana Olivié – Associate Professor Complutense University, Researcher Real Instituto Elcano
11. Sofía Pérez - Associate Professor, Boston University
12. Santiago Pernías (AEB)- Spanish Banking Association
13. María Angeles Pons- University of Valencia
14. Karina Robinson - Principal, Robinson Hambro Ltd
15. Vicente Salas-Fumás - Professor University of Zaragoza, former Board Member Bank of Spain
16. Francisco Uría - Partner, KPMG, Financial Sector Specialist

Chapter 3

1. Paula Alcalde Arranz – Director Comisión Nacional de la Competencia
2. Angel Amado Calvo Calvo – Emeritus Professor Universitat de Barcelona
3. Joan Calzada Aymerich - Assistant Professor Universitat de Barcelona
4. José De la Peña - Former Institutional Relations and Strategy Director, Telefonica
5. Agustin Diaz-Pines -Senior Economist Directorate for Science,Technology and Industry, OECD
6. Esther García Echevarría - Client Manager, IBM
7. Pilar Girón - Global Director Talent Management, Telefonica
8. Jorge Infante González - Comisión del Mercado de las Telecomunicaciones
9. Jacint Jordana Casajuana - Lecturer Universitat Pompeu Fabra
10. Angel León Alcalde -Sub-director general of Operations and Information Technologies, Ministry of Industry, Tourism and Commerce
11. Natalia Moreno Rigollot - Public Policy Manager International office, Telefonica

12. Joaquín Osa Buendía - General Director Comisión del Mercado de las Telecomunicaciones
13. Eugenio Torres Villanueva- Lecturer Universidad Complutense
14. Erik Rovina Mardones- State Economist, Adjunct Subdirector of commercial policy for Latin America and North America
15. Ignacio Santillana del Barrio- Former head of finance (Telefonica)
16. Luís Vives – Lecturer, ESADE Business School

Chapter 4

Case 1: Telecommunication electronics

1. José Luís Adanero Palomo –Former Director of I+D Telettra
2. Angel Calvo Amado- Professor U. de Barcelona
3. Xavier Castillo Ferrer- Ametic/ U. Pompeu Fabra
4. Adriano Galano- Business Development Manager Fujitsu
5. Jorge Infante González - Former Researcher Telefonica I+D
6. Ruth Rama Dellepiane –Spanish Council for Scientific Research (CSIC)
7. José Antonio Silvestre Ayala- Fujitsu Technology Solutions

Case 2: Indra

8. Emma Fernández- General Strategy Director Indra/Alcatel
9. Ignacio Santillana del Barrio- Board Member, Indra
10. Manuel Marín González – Former President Spanish Parliament

Case 3: Industrial electronics in the Basque Country

11. Leire Bilbao -Innobasque – Presentation July 18th Donostia, UPV/EHU
12. José Luís Briceño- ICEX, Ministry of Economy and Competitiveness, Industrial products
13. Nagore García Mendizábal – Lecturer Kings' College
14. Iñigo González Bastida- Former Director Trade Commission of Spain in Chicago
15. Maria José Mendizábal Querejeta- Researcher Deusto University- /Orkestra
16. Pedro Ruíz de Aguirre – Fagor Automation
17. Aitor Sotés - Former Director SPRI

Interviews for discarded sectors

1. Sandra Valle- Lecturer, U Oviedo
2. Ernesto Sancho Ulldemolins – Opel España

3. Angel Martínez Sanchez – Professor, U. Zaragoza

Appendix 2: Archives, libraries, databases and other sources of information

- AEB (Asociacion Espanola de Banca) Annual statistics
- AMETIC, anual statistics archive, Madrid
- Banco de España, publications
- Bank for International Settlements, statistics
- Boletin Oficial del Estado online and Boletin Oficial del País Vasco
- Colegio Oficial de Ingenieros de Telecomunicaciones (COIT), online publications archive
- Comision del Mercado de las Telecomunicaciones, annual statistics
- CSIC
- Focus groups transcripts for a study on Madrid Telecommunications Equipment performed by Cubero Postillo (1992)
- Ruth Rama's archive of news about the Spanish Electronics sectors (1985-1998)
- Datainvex, Statistics on Spanish investment abroad and foreign investment in Spain
- European Central Bank statistics online
- Eurostat
    - Structural Business Statistics (Services and Manufacturing)
    - International Investment Statistics
    - Employment Statistics
- FEDEA publications
- GAIA
- IMF Financial Access survey
- INE
    - National accounts
    - Regional Accounts
    - Labour Statistics
- ITU World Telecommunications ICT Indicators Database 2010 edition
- OECD, Online Library
    - Telecommunications and Internet Statistics
    - International Investment Database
    - Banking Income Statement and Balance Sheet statistics
- Orkestra, online tools
- Parliament, Congreso y Senado, sessions archive
- SEPI library, Madrid

- SPRI http://www.politicaindustrialvasca.net/PIGV/politicaindustrial_es.nsf
- Telefonica online historical archive
- World Bank online databases
    - Development Indicators
    - Economic Policy and External Debt Statistics

Other data sources

Seminars:

- Fundacion Ramon Areces seminar: "Reconfiguracion del sistema bancario español" July 22-24, Madrid 2012
- Universidad del País Vasco Seminar "Estrategia de especialización inteligente: la universidad como pieza clave en la estrategia de desarrollo regional" July 19-19, Donosti San Sebastian, 2013

Blogs:

- Nada es Gratis www.nadaesgratis.es
- Rodrick D. http://rodrik.typepad.com/
- http://thecurrentmoment.wordpress.com/

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