

Network infrastructures in Portugal (1850-1920): capital, technology and skills transfer

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1. Introduction

Nineteenth-century Portugal was a poor country, suffering from deficiencies in capital supply and entrepreneurial initiative. At the same time, scientific and technological knowledge was also very deficient. The introduction of modern urban infrastructures (particularly in power and transport) and railways during the second half of the nineteenth century was a decisive challenge to a country lacking capital, technological and organizational resources. Access to the international financial markets as well as human capital became critical to the introduction of these network infrastructures in Portugal. The creation of foreign firms in these sectors internalised financial capital markets and technological capabilities. The internalisation of financial capital was not restrained to equity. In fact, the access to bond issues in sophisticated markets by these foreign firms operating in Portugal was even more important, because transaction costs would be exceptionally high for domestic entrepreneurs (Hennart, 1998).

However, the competitive advantage of these foreign firms was not only financial. Mobilising technical and organisational capabilities was another source of competitive advantage over domestic projects. These foreign firms had access to a network of managers and technicians, sometimes with a previous career in railway construction or energy supply in other countries. The existence of clusters of financiers, managers and technicians operating in different firms across Europe is a characteristic peculiar to these network infrastructures.

This paper will focus on two case studies: power supply and railway construction in Portugal from 1850 to 1920. It tries to identify the importance of foreign capital (direct investment and portfolio, equity and bonds) in financing these entrepreneurial initiatives. The importance of foreign capital in these firms, the geographic distance between the sources of this capital and the location of operations introduce problems of agency, a well-known problem in organizational studies (Jensen, 1998). Finally, the paper also addresses the circulation of managers and technicians as an important characteristic of these firms, contributing to the circulation of knowledge and skills.

2. Foreign investment in Portuguese railways: *Companhia Real*

In Portugal, the intervention of the state during the 1800s in the provision of the new infrastructure for transport should not be directed to the construction and exploitation of the railways. The specific nature of the investment was recognised – with enormous sunk costs – and the difficulties of development and exploitation in a poor country, as Portugal was in the middle of the 19th century. We must equally recognise the lack of capital, technical knowledge and national entrepreneurs. This being the case, the state was to proceed towards the granting of the concession for the construction and development and exploitation of the railways with some advantages capable of attracting foreign investment, such as the guarantee of the interest on the sums invested or a subsidy for each kilometre of line constructed, as well as other incentives, such as various kinds of fiscal exemption¹. There was ultimately nothing very different from what was being practised in other European countries at the time (Crompton, 1998).

The railway company *Companhia Real* was the fruit of this strategy of attracting external investment, from the second half of the 19th century. It came into being at the end of the 1850s, after the concession granted to D. José de Salamanca, the well known Spanish financier, for the contract for the construction and development and exploitation of a railway line from Lisbon to Badajoz (the Eastern Line) and from Lisbon to Oporto (the Northern Line). The period between 1852 and 1859 had been particularly beset by trouble in relation to railway projects, with successive contracts being granted and then revoked with societies and individuals to whom the concessions for the construction of the lines had been given². The creation of the *Companhia Real* constituted the first materialisation of the dreams for the modernisation of the transport infrastructure, which guided the new regime established in 1851.

The financing of the company is associated with French and Spanish capital, in a “complex network of foreign investors” (Vieira, 1983, p. 173). The analysis made by Lopes Vieira of the creation of the *Companhia Real* is illuminating: of the 17 members of the first Board of Administration, only three are Portuguese³, the remaining members being made up equally of Spanish and French. Besides José de Salamanca, the foreign administrators represented financial bodies with interests in the company (the *Crédit Industriel et Commercial* and the banking house Edouard Blount of Paris) and

¹For an insight into the combination of the models of support in the construction of the Portuguese railways, see Vieira, 1983, pp. 110 onwards.; Alegria, 1990, pp. 306 onwards.

² This proto-history of the *Companhia Real* is well documented in Vieira, 1983, who also presents useful information on the initial process of creating the firm.

³ These were the Duke of Saldanha (well known politician and military chief, with great influence and power), the Baron of Paiva (the Portuguese ambassador to France, and consequently close to some of the principal financiers of the company) and Fortunato Chamiço (a Portuguese banker, founder of *Banco Nacional Ultramarino* and *Banco Totta*).

businessmen connected with the construction of railways and with the French Compagnie Lyon-Méditerranée⁴.

All the existing information on the shareholders of the company throws into relief the fact that the Portuguese shareholders were in the minority. Of the 70,000 shares issued, only 335 were underwritten by Portuguese investors, nor was the presence of Portuguese capital in the company augmented in the following years (Pinheiro, 1986, p. 420).

Table 1 gives us a picture of the distribution by nationality of the shareholders in the *Companhia Real*, from the middle of the 1870s, with the development and exploitation of the Northern and Eastern lines already established after the initial difficulties. The influence of shareholders in the *Companhia Real* with Portuguese nationality is little. It was only at the beginning of the 1880s that Portuguese shareholders were able to systematically maintain around one fifth of the share capital represented in the General Assemblies of the *Companhia Real*⁵. On the contrary, the overwhelming majority of shareholders are foreign citizens. We shall look briefly at the nationality of the remaining shareholders in the company.

Table 1: Nationality of the holders of share capital in the *Companhia Real* represented in the General Assemblies (1877 – 1884)

Nationalities	1877	1878	1879	1880	1881	1882	1883	1884
Spanish	48.0	19.3	12.6	27.6	8.1	10.1	11.9	5.3
French	10.5	16.1	6.3	11.0	13.5	32.1	12.0	17.2
English	9.4	6.8	1.3	0.9	0.9	1.1	1.5	10.3
Turkish	17.3	26.1	62.8	37.5	60.1	25.1	54.5	20.0
German	0.0	23.4	0.0	6.3	8.0	11.3	0.0	28.3
Other nationalities	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.9
Portuguese	14.8	5.0	17.1	16.7	9.4	20.3	20.1	18.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No of shares represented	11715	30697	7963	10880	11164	8874	6730	19126

The presence of Turkish shareholders is explained by the importance of the Camondo family, Jews of Turkish nationality, originating from Spain and with a period in Venice before finally settling in Constantinople in the 18th century. In 1833 the Nissim

⁴ See Lopes Vieira (1983, pp. 271 onwards) and Magda Pinheiro (1986, vol. III, p. 80) for more detailed information on the composition of the first Board of Administration.

⁵ This table does not cover all the shareholders in the *Companhia Real*, but only those represented on the General Assemblies, which explains the variations in the number of shares shown in the final row in Table 1. We do not believe, however – in the case of all the shares being considered – that the relative weight of the Portuguese shareholders would have a greater influence on the share structure of the company.

de Camondo Bank was founded, having transferred all their business to Paris in 1872, very close to the time when the family came to be associated with the *Companhia Real*. Although completely integrated into the Parisian financial milieu, they maintained their Turkish nationality during the period under analysis⁶.

Apart from the Camondo family, the Spanish and French continued to hold great importance as shareholders in the company. The presence of the Spanish, moreover, is linked to the actual creation of the *Companhia Real*, founded by José de Salamanca. In the 1870s, however, he maintained merely a residual presence⁷, Spanish capital being represented mainly by the Gandara⁸ and Cuadra⁹ families, as well as other Spanish capitalists with a lesser number of shares. The 1880s saw, moreover, a diminution of the Spanish share in the capital of the company, due to the loss of the Gandara family's influence from 1880, having given up belonging to the *Paris Committee* in 1882¹⁰.

French shareholders were also present in the structure of the share capital represented on the General Assemblies. They are principally financiers linked to Paris banking, who had been associated with José de Salamanca at the launching of the *Companhia Real*, as are Eduard Blount (English by birth but resident in Paris, financier, president of the Compagnie de l'Ouest, vice-president of the Compagnie Paris-Lyon-Méditerranée, director of MZA), Gustave Delahante (director of Banque de Paris et des Pays Bas and of MZA) and Joseph de Bouillierie (director of the Société Générale de Crédit Industrielle et Commerciale, principal financial partner in the *Companhia Real*).

Finally, a brief reference should be made to the insignificant presence of English capital. Even although, when founding the *Companhia Real* in 1859, the English market had been considered as a likely source of investment, the period under study in Table 1 reveals how its importance is slight and how it tends to lessen with time. It would seem that there appears a tendency similar to that which Augusto Fuschini described in relation to the possession by the English of Portuguese state bonds: the tendency to relinquish

⁶ This study cannot take into account a consultation of the records of the funds of the Camondo Bank, which are in the French national archives. Due to the importance of the family in relation to the destinies of the *Companhia Real* during the period being studied, this must be a necessary task in a later stage of research. Camondo is also one of the shareholders in the Sociedade Geral de Crédito Agrícola e Financeiro (Pinheiro, 1986, p. 281).

⁷ In the 1870s and 1880s José de Salamanca held only 100 shares.

⁸ General José de la Gandara was a military chief and from the Spanish royal family, following a military career in the Spanish empire, notably when, as Governor of Cuba, he had to confront the Dominican insurrection of 1863. His son, Joaquim de la Gandara, was connected with several railway enterprises, particularly MZA and the Compañía de los Ferrocarriles Andaluces (Railway Company of Andalucía), as well as with Portuguese businesses such as the Sociedade Geral de Crédito Agrícola e Financeiro. He was one of the shareholders in the *Companhia Real* right from the beginning, being one of those on the first Board of Administration.

⁹ Luis de La Cuadra, Marquês de Guadalmina, was associated with Joaquim de la Gandara in various businesses. He was part of the railway business in Spain through his participation in MZA. He was also a shareholder in the Sociedade Geral de Crédito Agrícola e Financeiro (Pinheiro, 1986, p. 281), as well as being in a famous agricultural enterprise – the Colônia Agrícola de San Pedro Alcântara, in Andalucía, which he bought in 1873 with Joaquim de la Gandara.

¹⁰ Minutes from meetings of the Board of Administration in Paris.

these bonds on the markets of other countries such as France or Germany, the ultimate sign of a lessening of confidence in the solvency of the Portuguese State (Fuschini, 1896).

The characteristics of foreign investment have been discussed, whether it be direct investment or portfolio investment¹¹. The latter would be a passive form of investment, where the investors did not make decisions – not even in an intermediary way – and which presupposed a control over the managing of the company. This is what occurred with the loans acquired by the *Companhia Real* from holders of bonds. However, the same thing did not happen with share capital.

Such a significant presence of foreign investment gave rise to the necessity of establishing an accurate definition of incentives and mechanisms of control in the principal-agent relations between the management structure of the company in Portugal and the holders of share capital in Paris and other European cities¹². The distance between where the investment originated and the theatre of activities of the company, as well as the characteristics of this type of investment, extensive and with enormous sums committed, demand that particular care be given to defining the mechanisms of management that should defend the interests of the shareholders.

The railway companies of the 1800s develop, moreover, a clever system of hierarchies of professional managers (Chandler, 1977). The reasons for this development have been sufficiently emphasised: the superior nature of the workforce of these companies, the complexity of their functioning, distributed as it is by different departments with the need for an increased flow of information among them, since they are exercising their activities over extensive geographical areas; there are also the problems of safety associated with railway development and exploitation.

The development of new organisational structures makes even clearer the need to establish a precise definition of the incentives and mechanisms of control concerning the holders of share capital in the company and the hiring of professional managers¹³. We shall leave aside an exhaustive analysis of the characteristics of the organisational structure of the *Companhia Real*, already studied in another text¹⁴. In the context of this paper, our principal interest lies in understanding the way in which the structure of the management of the company reflects the preoccupation with shareholders maintaining control over the business decisions of a company operating thousands of kilometres away from the principal shareholders.

¹¹ See Segal and Simon (1961), Feinstein (1990) and Svedberg (1978).

¹² See Jensen and Meckling (1976), Lamoreaux and Raff (1995) and Jensen (1998) for a treatment of this theme.

¹³ Jensen and Smith (1985); Jensen and Meckling, 1976

¹⁴ Álvaro Ferreira da Silva, “A Companhia Real dos Caminhos de Ferro Portugueses: investimento estrangeiro e estrutura organizativa (1870-1885)”.

3. Top management and the ownership of the share capital in the *Companhia Real*

The organisational structure of the *Companhia Real* can be established by combining different sources of information: the Statutes from when the company was formed in 1859¹⁵; the outlining of bureaucratic procedures and routines, which was executed in 1872 and in which there is a functional description of all the tasks concerned with development and exploitation¹⁶; the list of the company's personnel dating from 1882¹⁷, which presents all the organs of the administration and functions of the company and which, accordingly, consolidates the information furnished by the Statutes of 1859 and by the functional description of development and exploitation established in 1872.

The Statutes of 1859 establish that the company would have an Board of Administration of sixteen to twenty members, of whom at least half should be of Portuguese or Spanish nationality. At the beginning of the 1880s, the list of personnel gives us a total of 19 members on the Board of Administration. Although not as large as Councils of other railway companies¹⁸, the top layer of administration of the *Companhia Real* follows the French model, in contrast to the English model of Board of Administration, which had fewer members (Merger and Giuntini, 1998).

The headquarters of the company are established in Lisbon, where the Board of Administration operates, but the existence of a delegation of administrators in Paris is foreseen, representing those who are resident in France and England. The comparison between normal statutes and the structure of the administration shown by the list of personnel from 1882 reveals some differences. In the first place, four administrators resident in Madrid are specifically mentioned, something not foreseen in the statutes¹⁹. This group of administrators even had some kind of formal existence in the organisational structure of the company, since a support secretariat was anticipated, although consisting of one member only. In the second place, the designated Paris Committee has a formal role that is far more important than that which may be deduced from the statutes. It is made up of nine administrators, which fact alone is significant, since this figure is greater than that of the Board of Administration in Lisbon, which comprises only six members.

¹⁵ There is no alteration to the statute that exists before 1885, a clear sign that the form of management established in 1859 had shown itself to be relatively efficient for a quarter of a century.

¹⁶ Reference to the source.

¹⁷ "Cadre du Personnel. Compagnie Royale des Chemins de Fer Portugais" (CP archive – in constitution). This list of personnel gives only a partial picture of the number of workers employed by the company, since it lists only permanent employees, with either a monthly salary or regular wage.

¹⁸ We see an example of this with the Board of Administration of the Compañía de los Ferrocarriles del Norte de España in 1879, which is composed of 40 members, or that of Madrid-Zaragoza-Alicante (MZA), with 25 administrators (Vidal Olivares and Pablo Ortuñez, 2002).

¹⁹ The Marquês de Salamanca is one of the four Spanish administrators, despite holding a small number of shares in the company. Cf. "Cadre du Personnel...", 1882.

The President of the Board of Administration is at the Paris Committee (an office carried out by the Count of Camondo in 1882), and the executive duties of this role are handed over to a delegated administrator (in 1882, the Spaniard Luis de la Cuadra, Marquês de Guadalmina). This delegated administrator had executive duties, ensuring the link with the development and exploitation of the railway in Lisbon, with the Board of Administration based there and with the director of the company, whose duties will be later explained. The important role performed by this delegated administrator from the Paris Committee in the running of the company is recognised by its salary, the third highest in the company.

The Paris Committee is equally favoured with a technical and administrative staff, whose number and composition give us an idea of its importance in the management of the *Companhia Real*. As well as performing the duties of secretariat and providing administrative support, the eleven members who advise the Board of Administration have accounting expertise in three specific areas: general accounting, managing bonds and shares and managing the financial applications of the company. There also exists a technical advisor with the responsibility of engineer to the Board of Administration, an office fundamental to the strategic running of the company and in the development and exploitation of the network in Lisbon²⁰. This technical advisor took part in the *Paris Committee* meetings, having a consultative role, and would often relocate to Lisbon to take part in the meetings of the Board of Administration. He also received a top salary, on a par with that of the delegated administrator in Paris.

The Board of Administration, which functions in Lisbon, is supported by a secretariat with a small staff (only 5 employees), with duties that are merely administrative, associated with correspondence, organising records and taking minutes at the meetings of the Board of Administration. Its functions are far less extensive than those carried out by the dozen employees supporting the administration in Paris, among which those of accounting and financing stand out. In terms of the statute the Board of Administration meets at least once every month. An analysis of the meetings held between 1876 and 1884 shows that they had been more frequent: the occurrence of these meetings varies between weekly and fortnightly.

The Board of Administration in Lisbon has no president, the connection with the Paris Committee being guaranteed by a delegated administrator who takes on the role of executive administrator, in the role of monitoring of the railway exploitation. This position carries the second largest remuneration in the *Companhia Real*, exceeded only by the Director, thus highlighting the responsibilities of the executive administrator in charge of railway development and exploitation, as opposed to the duties of the administrator delegated by the Paris Committee. This position was held by Jacques Osborne de Sampaio between 1875 and 1884.

²⁰ This was the engineer Sosthène Le François who carried out an important role in the life company during this entire period, as well as taking part in the running of other companies, such as the *Sociedade de Caminhos de Ferro Madrid-Cáceres-Portugal*.

The everyday running of the company is the responsibility of the Director, directly answerable to the Board of Administration. His duties are defined in the statutes, being to direct all the departments of the *Companhia Real*: Accounting, Control and Statistics, Transport, Health, Routing and Works, Materials and Haulage, and Storage and Movement²¹. It is he who implements all decisions taken by the Board of Administration, on which he has a seat with a consultative vote, and who is in charge of all the company's personnel²², proposals for tariffs and contracts relating to the construction and development and exploitation of railways, always subject to approval from superiors. The income accompanying this position places it at the top of the salary scale in the company, symbol of the importance of his duties.

It is a highly technical position, always filled by engineers, who own no capital in the company, apart a small number of the shares. It is the greatest symbol of the importance of the hiring of salaried managers with burdens of responsibility in railway companies, as Chandler has pointed out. It was always a responsibility carried out by French engineers, until the appearance of the Portuguese engineer Manuel Afonso Espregueira, who had an important role in the reorganisation of the *Companhia Real* during the 1870s and who was to retain this post until 1883.

With slight adjustments, the structure of the *Companhia Real* imitated the organisational forms of railway companies in other European countries. It could not help being so, since the constraints of technology and exploitation of transportation determined organisational models that were relatively rigid²³. The administrative and technical experience afforded by foreign investors and technicians enabled models of organisation considered to be the best practice in the field to be transferred to the Portuguese railways. Other Portuguese companies that were smaller, experiencing in a somewhat different manner problems of organisation and exploitation that the *Companhia Real* had already faced, ended up adopting its organisational model for railways²⁴.

Up to this point, the analysis of the organisational structure has sought to trace the essential route of the organisational model of the *Companhia Real*, trying above all to define the way the structure of the top management was linked to the ownership of the share capital of the company. The next section will attempt to understand the model of government of the company and how it was expressed in relation to the organisational structure presented above.

²¹ Article 28 from the Statutes and "Ordem de Serviços n.º 2", 17th August, 1872 (CP archive), in which all the services are listed and functionally defined. This begins by establishing explicitly the relation in the hierarchy between the Director and all the departments of the *Companhia Real*.

²² However, selection, dismissal and salaries had always to be sanctioned by the Board of Administration.

²³ See *title reference* Merger and Giuntini, 1998; Merger, 1992; Chandler, 1997; Caron, 1997; Vidal Olivares, 1999.

²⁴ The reorganisation of the railway companies in the Minho and the Douro regions in 1881 may be given as examples of this.

4. Organisational structure and management strategies

Statutorily, the power of the foreign administrators is already decisive for the life of the Company since the obligation to consult on a large number of subjects has passed to them. Contracts with patrimonial scope, setting tariffs, relations with the Portuguese government, the strategy for exploiting the line or the fixing of the budgetary provision for the company were some of the subjects on which any decision by the Board of Administration in Lisbon had to be preceded by consultation with the administrators in Paris²⁵. However, the statutory formula does not give formal existence to the Paris administrators as far as the list of personnel of 1882 is concerned. The only collective organ referred to is the Board of Administration based in Lisbon, the rest of the administrators participating in the top management of the company by means of an individual vote and after consultation, also individual.

The organisational structure ends up recognising the decisive importance of the Paris Committee (note that this designation, absent from the statutes, points to the formal existence of a collective organ). In the first place, this is by the effective formalisation of the Paris Committee in the organic structure of the company. In the French capital, the President of the *Companhia Real* (the Count of Camondo) heads a council of administrators comprising nine elements. A second sign of the importance of the Paris Committee in the organisational structure of the company is revealed in the composition of the personnel who are contracted to it. It is not only the number of administrators who comprise it (three more than those who sit on the Board of Administration in Lisbon) and the presence of the Chairman/President of the company. A delegated administrator (executive administrator) also makes up part of the Paris Committee, an example of what happens in relation to the administration in Lisbon. This delegated administrator is responsible for the day-to-day negotiations of the *Companhia Real* that are managed from France and for liaising with the Board of Administration based in Lisbon. Throughout the period under study, it is this member of the administration who is sent to Lisbon at particularly important times and for decisions where the use of the telegraph or the postal services to convey information and instructions is not appropriate. Also associated with the Paris Committee is an engineer whose role is above all that of consultant in relation to the technical aspects of the construction and exploitation of the railways. He is also, at times, sent to Lisbon at some of those crucial moments in the implementation of the strategy relevant to an international transport network, as we shall see later. Even in the matter of the technical and administrative assessment of the Paris Committee its importance is noteworthy in the face of what happened with the Board of Administration in Lisbon, above all in respect of accounting. Already, in the earlier section, the specialisation in the accounting functions of the employees working in Paris has been clearly shown. The financial accounting of the company, as well as global accounting, was done in Paris, based on data provided by Lisbon²⁶. In 1883 the whole of the accounting system of the company is reorganised, seeking above all to improve the control of the financial operations of the *Companhia Real*. This reorganisation was

²⁵ Statutes of 1859, art. 26.

²⁶ Bibliographical reference to the balance of 1885. The same is indicated as the beginning of the activity of the *Companhia Real* by Lopes Vieira (1983, p. 272).

undertaken from Paris. Moreover, the accounting service in Lisbon reveals difficulty in adapting to the new rules, as well as a clear dependence relative to the accounting undertaken in the French capital²⁷.

The Paris Committee is one of the “heads” of a bicephalous directive structure. It is thus important to establish the real powers of the Paris Committee, its relationship to the Board of Administration in Lisbon and to the management of the development and exploitation, also based in Lisbon, as well as the justification for the existence of such powers on the part of this Committee, which is in contravention of the governance of the company, established in the statutes of 1859.

To the Paris Committee pass all of the decisions relative to the financial life of the company, from the choice of financial establishments with which to establish special relations for the sale of bonds, for loan applications or for raising deposits, to the ways in which the company's own funds should be applied. The establishment of the contractual details for concessions for the construction and exploitation of the railways was also the subject of decision-making by the Paris Committee. Equally, contracts with other commercial partners were entered into by the Paris Committee, on most occasions on its own initiative and rarely on the initiative of the Board of Administration based in Lisbon. Included here are contracts with other railway companies, national or international, with other transport companies or with suppliers of equipment and services.

The minutes of the meetings of the administrators allow us to examine the degree and the characteristics of the control exercised by the Paris Committee over the management of the company. The frequency of the meetings is on average every three weeks, with some periods when the meetings are more frequent, demonstrating the close monitoring of the management of the *Companhia Real* that was undertaken. All of the documents that circulate above the Director or between him and top management are written in French, specifically so that the Paris Committee can be up to date with all the information about the company on a daily basis.

The company strategy is delineated entirely in Paris, and afterwards presented and ratified in Lisbon. An increase in the internationalisation of the company in the second half of the 1870s, is a clear example of this. At the same time it becomes an important aspect in understanding the history of the company throughout the following decade, until 1894. The meeting of the Board of Administration which ratified this internationalisation strategy is held in 1876, in the presence of the delegated administrator from the Paris Committee, at that time J. de la Gandara²⁸. He presents to the Lisbon administrators the essential vectors of the strategy for internationalisation approved in Paris: positioning the company at the vanguard with a more rapid connection

27 Minutes of the meeting of the Board of Administration in Paris, 4th October 1883. Other meetings to discuss this financial reorganization had already been held in September.

28 Minutes of the meeting of the Administrative Council in Lisbon of 28th September 1876. The Paris Committee had taken this decision on 19th September in the same year. A clearer formulation of the strategy of the *Companhia Real* is made in the meeting of the Paris Committee of 13th September 1877.

between Lisbon and Madrid through the construction of the Cáceres branch-line²⁹, securing an alliance with the Spanish company, in order to promote the connection between Cáceres and the Portuguese frontier. This strategy would be followed by an attempt to find sources for the regular carriage of merchandise between Spain and Portugal through the approval of a contract with the *Companhia Geral dos Fosfatos* of Cáceres, giving to the *Companhia Real* exclusive rights to transport phosphate. The use of the new line provided a faster and cheaper connection with the port of Lisbon and subsequent export to Britain. Once again, the strategy is delineated in Paris³⁰. And once again Gandara, in person, is sent to Portugal to explain the strategic decisions taken in Paris and to mobilise the Board of Administration in Lisbon to accept them³¹.

Practically the whole of the Paris Committee is associated with the Spanish company (Malpartida-Cáceres) which would ensure the construction of the branch-line between Cáceres and the Portuguese frontier and which later would give rise to the *Companhia Madrid-Cáceres-Portugal*, after its merger with the *Companhia de Caminhos de Ferro del Tajo*³². Moreover, the cross-participation between the boards of administration of the two companies led to the situation where the negotiations with the *Companhia Geral dos Fosfatos de Cáceres* were undertaken by Joaquim de la Gandara and La Cuadra, as representatives both of the *Companhia Real* and of the *Companhia Malpartida-Cáceres*³³. The junction of the specialist personnel and of the management is also evident, with the engineer assessor of the Paris Committee serving as delegated administrator of the Spanish company from 1879, La Cuadra having been delegated administrator of this company, before taking on the same role in the *Companhia Real*, from exactly the same date³⁴.

However, what is interesting to highlight here is the definition of a strategy for the expansion of the company made by the Paris Committee. This strategy is pursued through

29 The earlier connection with Madrid was made via the Elvas-Badajoz frontier which represents a greater distance between the two Iberian capitals.

30 Minutes of the meeting of the Paris Committee, 12th December 1876, which tackles this theme for the first time. The meeting of the Committee on 14th February 1877 deals with the different components of this strategy, a theme which is again discussed in more detail on 7th March 1877. This meeting records some differences of opinion between the Paris administrators and those in Lisbon in relation to the strategy, leading to negotiations with the government concerning a request for a subsidy for construction work.

31 Minutes of the meeting of the Board of Administration in Lisbon, 12th April 1877.

32 Gandara has around 39.5% of the shares, followed by Camondo with 20%, La Cuadra with 12.5%, Delahante with 10%, de la Bouillierie and Blount each with 7% and the engineer of the Paris Committee, Sosthène Le François, with 4%. (Balance...) This means that it is only two of the members of the Paris Committee, E. Joubert of the Banque de Paris et des Pays-Bas and of the *Sociedade dos Fosfatos de Cáceres*, and the Marquis of Scépeaux, who do not make up part of the Spanish company. Relations with the *Companhia del Tajo* become interwoven after the decision of the Paris Committee of 8th October 1878 to proceed with a loan to the Spanish company which would later be amalgamated with the Malpartida-Cáceres to form the Madrid-Cáceres-Portugal, within which are the shareholders referred to above.

33 Minutes of the meeting of the Paris Committee, 18th June 1877.

34 Cf. the minutes of the meetings of the Paris Committee of 27th February and 8th April 1879. Le François only ceases to be engineer assessor of the Paris Committee from 1883, being replaced by Ch. Neveu. But at times – as administrator delegate of the Spanish company – he continues to participate in meetings of the Paris Committee (cf. minutes of the meeting of the Paris Committee of 1st August 1883).

a group of contracts discussed and decided in Paris, directed towards integrating the *Companhia Real* in a network of further railway connections, national and international³⁵, and of maritime connections through the port of Lisbon³⁶. This attempt to guarantee the insertion of the lines of the *Companhia Real* into an intermodal transport network is accompanied by contracts with Wagons-Lits for the introduction of this company's carriages on the Lisbon-Madrid connection from 1882³⁷. In the end, the impact of this strategy of internationalisation in the organic structure of the company led to contracting a full-time employee specialised in the services provided by international transport. This contracting is also done in Paris, the work being given to an agent who had already, from time to time, provided these services for the *Companhia Real* and *Madrid-Cáceres-Portugal*³⁸.

All the decisions that have direct financial bearing are approved in Paris, whether it be the issue of new bonds³⁹ or the negotiation of loans to companies with whom it is intended to strengthen special-relationship alliances⁴⁰ without any recourse to consultation with the Board of Administration in Lisbon, which is only informed *a posteriori*. Decisions taken relevant to railway development and exploitation are equally taken in Paris, but in this case there is a prior consultation with the Director of the *Companhia Real* and the Council in Lisbon, as was the case, for example, in the definition of new tariffs for the transport of phosphates from Cáceres⁴¹. But even other decisions of less relevance and which are concerned with the management of the railway exploitation in Portugal or with personnel are still taken in Paris, such as the regulating of the timetables for connections with the Spanish company, or the fines to be applied to train drivers who are responsible for delays in relation to timetables⁴².

The importance of the Paris Committee, not only in the strategic management of the company but equally in the operational management, has been clearly shown. It corresponds to the assurance given in the Board of Administration to the representatives of the major shareholders of the companies, who were mainly foreigners, as we saw in the earlier section. The Board of Administration in Lisbon ended up having a greatly diminished importance, formally approving decisions taken in Paris and monitoring the day-to-day management by the delegated administrator.

35 Besides the conventions already signed with the Spanish MZA and *Madrid-Cáceres-Portugal*, in 1882 contracts are approved providing combined services with the *Caminhos de Ferro do Minho e Douro* and *Orense-Vigo* (minutes of the Paris Committee, 21st June 1882).

36 Contracts with the shipowners E. Grosos (Havre), John Hall Junior & Cie (London), Burrell & Son (Glasgow) signed between 1881 and 1882.

37 Paris Committee minutes of 23rd November 1881.

38 Contracting of Mr. Ravenstein from 1881 (Paris Committee minutes of 7th December 1881). This employee would create the international agency and customs clearance services.

39 Since cases vary, only the *título de exemplo*, see the minutes of the Paris Committee of

40 Cf. the footnote above in relation to loans to the *Companhia del Tajo*, as well as the decision related to loans to the *Companhia Malpartida-Cáceres* in the minutes of the meeting of the Paris Committee of 18th January 1881.

41 Minutes of the meeting of the Paris Committee, 2nd March 1881 1881.

42 Minutes of the meeting of the Paris Committee, 7th December 1883

For this very reason, it is in the Paris Committee that changes in the ownership of the share capital are to be seen. The men linked to financial establishments who have provided support since the beginning of the *Companhia Real*, such as Crédit Industriel e Commercial, the finance house of the banker Edouard Blount of Paris or the Banque de Paris et Pays-Bas, remain permanently on the Paris Committee⁴³. In the same way, entrepreneurs connected with the railway companies in Spain and France are found among the administrators, as we have seen earlier. From the beginning of the 1880s, the Camondo family had a weighty presence on the Board of Administration, reaching the highest point of its growing importance in the shareholder capital. The Camondo family substituted Gandara, who had been in the presidency and in functions of executive administration. While this was happening, the Board of Administration in Lisbon remained almost unchanged from the beginning of the 1870s, with the position of the delegated administrator being occupied by Osborne Jacques Sampaio, and virtually the same names continuing on it until 1884⁴⁴. This was a further sign that the real centre of power of the bicephalous Board of Administration was situated in Paris.

The existence and the importance of the Paris Committee recognise the need for both the representatives of those holding by far the greatest part of shareholder capital and the financial establishments responsible for handling bonds on the Paris market to intervene in the strategic management of the *Companhia Real*. It provided a guarantee for investments made in backward countries such as Portugal, with a poor reputation in the foreign capital markets.

In the same period, the free-standing companies had similar concerns (Wilkins, 1988). In this case - and in contrast to companies such as *Companhia Real* - the legal constitution of the company was drawn up in the country where the investment originated, with the Board of Administration also being based there, the operational management being moved to the country receiving the investment. At the same time, these companies had no kind of activity in the country where the capital originated and where the Board of Administration was based, thus being remote from the classic cases of multinationals⁴⁵.

The more-or-less interventionist role played by the Board of Administration based in the country providing the foreign investment has been discussed⁴⁶. The question of free-standing companies⁴⁷ being treated as a special case has also been raised. In this paper we intend above all to indicate the motivation of companies basing the Board of

43 These are figures such as G. Delahante, J. de la Bouillierie, Ed. Blount or E. Joubert.

44 This is based on an analysis of the composition of the Paris Committee and the Board of Administration in Lisbon between 1860 and 1884.

45 The explanation for the direct investment of multinationals lies in the existence of a certain competitive advantage that is obtained by these companies in the originating country, which leads them to choose direct investment rather than any other form of contract with a local enterprise (Markusen, 1995; Caves, 1996)

46 Wilkins (1988) points above all to the reduced or null importance of the management coming from the country where the investment originates. In Wilkins (1998), Corley (1998), Jones (1998) or Miller (1998) an opposing position is taken, although with differences in degree.

47 Corley (1998) rejects the conceptual existence of free-standing companies.

Administration outside the receiving country and in the country which provides the funds invested. Locating the Board of Administration in the originating country was a way to defend the property rights of those holding the share capital, subjecting the operation and management of the company in a third country to the commercial and societal legislation of the originating country (Wilkins, 1998). Although it is possible that a whole range of distinct characteristics for intervention exists on the part of the headquarters, it is only the existence of management competencies located outside the country where the investment is made that makes these companies a distinct case regarding domestic companies, but owned by foreign citizens operating locally (Corley, 1998).

The organisation of the management structure of *Companhia Real* is similar to the free-standing companies, even though it did not have the distinctive feature that these had of legal register and headquarters outside the place where the investment was made. In the country of origin of the shareholder capital of the free-standing companies, an Board of Administration was maintained and was provided with a small workforce. The size of this administrative structure could depend on the type of business engaged in, a theme that the historiography about these companies has not yet highlighted, although Corley (1998) tried to present a typology according to the degree of control exercised by the Board of Administration. It is possible to predict that enterprises such as railway companies would have needed to develop more complex administrative structures, fully able to undertake the functions of financial control. Similarly to the free-standing companies, the need to defend the rights of the principal shareholders was also the main reason for the importance of the Paris Committee in the management of the *Companhia Real*, much beyond the powers statutorily attributed to the administrators who were resident outside Portugal.

Nevertheless, such intervention by an Board of Administration based in a foreign country could create points of conflict with the operational management based in Portugal. It could give rise to conflicts about strategic orientation, but could equally be responsible for dissension about strictly operational aspects. The crisis in the *Companhia Real* between 1884 and 1885 is a clear example of this situation.

At the beginning of the 1880s, not only does the internationalisation strategy, begun a decade earlier, undergo an escalation, but there is also a spillover of this strategy into the operational management of the company. Three examples are elucidative. The first refers to the contracting of someone to be responsible for the commercial management of the modal and intermodal international connections (in 1881, Mr Ravenstein). The second example is in respect of the creation of a new level of middle management – the chief engineer of construction (in 1884, Engineer Revel), responsible for a new service for the planning and constructing of new railway lines. Symptomatically, this service is made dependent on the Board of Administration and not on the Director. Finally – and after various meetings of the Paris Committee which were very critical of delays in the usual schedule of the Lisbon-Madrid train – it is decided to create a new post of salaried top manager, who takes away from the Director the management of technical services and the exploitation of the company. This is the creation of the post of General Inspector for Development and Exploitation, in 1883.

This escalation of intervention by the Paris Committee sparks off the revolt by national shareholders. After an earlier process of buying shares on the secondary market, the national shareholders resorted in the General Assembly to the legal artifice of only accepting proxies who had been recognised by a notary to stand in for absent shareholders. This immediately ousted most of the foreign shareholders and allowed a “coup d'état” in the power structure of the *Companhia Real*.

The complaints of the Portuguese shareholders are varied, but there are some themes that deserve to be particularly highlighted. These are to do with the management by the Paris Committee of the strategy of internationalisation, and its financial results, and also the changes in the organisational structure that resulted from this. These themes correspond exactly to the escalation which we talked about earlier. They finally reveal the reactions generated by the management model introduced by the Paris Committee – the centralisation of strategic management and the transformation of the organisational structure.

At first the offensive action of the national shareholders is crowned with success. A new Board of Administration is elected, into which enter the figures who had led the hostilities: the Conde da Foz, Mariano de Carvalho, A. Bensaúde, Conde de Moser and Carlos Maria Eugénio de Almeida. The statutes are changed twice, expunging its text of any subject which might give organic and decisive substance to the Paris Committee⁴⁸. This outcome reveals the agency problems associated with the relations between the shareholders and the operational management, in a bicephorous structure where the centre of power is to be found outside Portugal.

5. Foreign investment in the construction of networks of gas and electricity

In response to the interest of various town and city halls to introduce into their municipalities more efficient and more secure public lighting between the middle of the 19th century and 1910, various proposals were made by Portuguese and foreign entrepreneurs to develop and exploit the provision of public and private lighting, first by gas and later by electricity, in different towns and cities.

In the city of Lisbon, the *Companhia Lisbonense de Iluminação a Gás* was founded in 1846, a company which developed this service until 1889, and in the city of Oporto arose the *Companhia Portuense de Iluminação a Gás*⁴⁹

In the 1880s, interest in initiatives to introduce gas lighting into urban centres that still did not have this form of illumination intensified, and in the cities where the initial contracts had come to their termination points, various companies arose which were interested in competing for new concessions which already anticipated the introduction of

48 New statutes are approved in 1885 and 1887. In the latter case, the statutes are expunged of even any reference to the Paris Committee.

49 The concession was won by Hardy Hislop, who founded this company. Hardy Hislop had also shown an interest in investing in the Portuguese railways.

electric lighting. It is in this context that, in Lisbon, the *Sociedade Gás de Lisboa* and, in Oporto, the *Companhia Gás do Porto* came into being.

In Lisbon, although the concession for public illumination was awarded in 1887 to the *Sociedade Anonyme d'Éclairage du Centre* of Brussels, the high costs of implementing a new gas network and the risks of a market in which only the provision of public illumination was assured were the determining factors for *Gás Belga* to look for new capital investment. For this purpose, a limited company, the *Companhia do Gás de Lisboa* was established with the other foreign companies that had also made presentations at the bidding for the gas-lighting concession: the *Compagnie Générale pour l'Éclairage et le Chauffage par le Gaz* - *Gás Belga*, also from Brussels, *Khon Reinach & Co* and *P. M Oppenheim*.⁵⁰

From this time, the supply of gas for private consumption comes to be developed and exploited through a system of competition between the *Companhia Lisbonense de Iluminação a Gás* and the *Gás de Lisboa*. This situation created great financial difficulties for these two companies.

Operating in a market where, although the trend is upward, the private consumption of gas does not reach levels which are economically profitable, these companies are confronted with huge financial difficulties. Merger into a new company, the *Companhias Reunidas de Gás e Electricidade*, (CRGE), is the solution found in 1891. In the CRGE, the foreign capital, particularly that of *Compagnie Générale pour l'Éclairage et le Chauffage par le Gaz* - *Gás Belga*, has significant weight, as we shall see in the following point.

In 1889, when the concession for public lighting for the city of Oporto was awarded to Charles Georgi, other companies also competed for this concession: the *Compagnie Générale pour l'Éclairage et le Chauffage par le Gaz* - *Gás Belga*, of Brussels, represented by Leon Somzée, the *Imperial Continental Gas Association of London*⁵¹ and *Fernand Delhaise & B. Mangerman*, also Belgian.

The size of investment necessary for the creation of a gas network led Charles Georgi to associate himself with these companies, founding the *Companhia Gás do Porto*. The importance of foreign capital in the *Companhia do Gás*, particularly Belgian, is clear from the composition of its Board of Administration: Baron George de Soubryan, Eugéne Brettmayer, Wilhelm Pfitsmayer, Lucien Guinotte, Tecelin Monjot, Leon Somzée, Adolpho da Cunha Pimentel, Domingos Alves Moreira, José Ribeiro Vieira de Castro and Manoel Pinto Gomes de Menezes.

50 The *Sociedade Gás de Lisboa* was constituted with a capital of 1,260,000\$000, divided into 28,000 shares of 45\$000 each, which had an interest of 5% of the capital during the period when the work on the installation of the manufacturing establishment was being undertaken. Part of this capital was deposited in the Lusitano and the Lisboa & Açores Banks. Martins and Coelho (1998, p.24).

51 This company was created in London in 1824 with the objective of creating gas networks on the European continent, and was active in countries such as Germany, Austria and France.

The interests that various shareholders had in *Gás do Porto* and at the same time in CRGE are determinant in CRGE's acquisition of 16,100 shares in the Oporto company in 1897, even though this was not an attractive business deal due to the financial difficulties that the company was going through at that time⁵².

Among the shareholders that had a larger number of shares in these two companies is *Compagnie Générale pour l'Eclairage et le Chauffage par le Gaz - Gás Belga*. The interest this company had in investing in Lisbon and Oporto is found in the policy for investment in foreign companies followed by this company, so that the diversity of interest present in the same is not strange⁵³. The composition of the Board of Administration of this company is representative of the diversity. Participating in it were François Gabriel Dehaynin, one of the administrators of *Crédit Industriel et Commercial de Paris*, and people connected to the railway and metallic construction sectors, as is the case with Edouard Prisse and Joseph Oppenheim, respectively director and president of the Anvers-Gand railway⁵⁴.

In 1869, *Gáz Belgica* had eight gas plants in Italy, two in Germany and three in Belgium. In 1887, when it became part of *Companhia Gás de Lisboa*, it was associated with the *Banque d'Escomptes de Paris* and the *Companhia du Centre de Bruxelles* in competing for the gas concession for Carcassone. At this stage the company reached its "maximum extension"⁵⁵.

The international connections of this Belgian company are not a unique case⁵⁶. The interest of foreign companies in developing and exploiting the gas networks in Portugal is a part of the policy of internationalisation of capital which marked out this sector during the second half of the 19th century. The development and exploitation of urban gas networks, despite requiring huge investments and being businesses with high sunk costs, allowed for the payment of large dividends in the medium term⁵⁷.

52 This decision, taken by members of the Board of Administration of CRGE, among whom were Baron de Souberyan, León Somzée and Charles Georgi, was contested by various shareholders. See Matos et al (2003, pp. 46-47) on this subject.

53 The *Compagnie Générale pour l'Eclairage et le Chauffage par le Gaz, Gás Belga*, was founded on 12th August 1862 on the initiative of Joseph Oppenheim and among the founders are several of his relatives and friends, such as his son-in-law Jacques Herrera, Italian consul in Brussels. Later Jacques Herrera participated in the foundation of the Bank of Brussels.

54 Brion and Moureau (2005, pp. 225-226).

55 Idem, p.228.

56 Cf Jean-Pierre Williot, (2004, pp.165-166).

57 As is seen in the development and exploitation of gas networks in various countries. Even in Lisbon, this business deal by the *Companhia Lisbonense de Iluminação a Gás* would allow the payment of significant dividends: 1851, 6%; 1852, 7.5%; 1853-1870, 6%; 1871, 10% ; 1887-1888, 25%.

6. The CRGE: an example of foreign investment in the development and exploitation of gas and electricity networks.

The *Companhias Reunidas de Gás e Electricidade* (CRGE) has an initial capitalisation of 5,580,000\$000, represented by 124,000 shares of 45\$000 (250 francs)⁵⁸. The shares of the former companies are exchanged for shares in CRGE, which guarantees the influence of the principal foreign shareholders of the *Companhia do Gás de Lisboa* in CRGE⁵⁹.

The nominal shares are always small. In 1912, of 142,000 shares of the company, only 20,346 shares are nominal (16%), and are found to be distributed among 242 shareholders, in a large dispersal of capital. The bearer bonds are mainly in the hands of foreign shareholders who thus retain an important percentage of the capital of the company.

The amount of foreign capital is always above 40% and rises significantly to 68.7% from 1914. This increase occurs because of the subscription by the *Société Financière de Transporte et Entreprises Industrielle* (Sofina) of 96,000 new shares created at that time. With this acquisition, Sofina becomes the major shareholder, having 43.6% of the total shares of the company.

Year	Shares owned by foreigners (a)	% of the total of shares	Total of shares
1891	51,522	41.5%	124,000
1913	55,295	44.5%	124,000
1914	151,295	68.7%	220,000

(a) Only the shares represented in the general assemblies are considered

Sofina, which was created in 1898, invests in various foreign countries from 1905, as is the case with Spain, where in 1905 it funds the Barcelona tramways, and it also has activity in Bilbao⁶⁰. Heinemann contributes to this policy in a significant way. In 1905 he joins Sofina where he organises the technical services which allow the company to expand its business dealings.

58 This capital is made up of the assets of two former companies valued at 5,400,000\$000, and by a further 180,000\$000 subscribed by shareholders.

59 In October 1892, the CRGE had already received 14,136 shares from the *Companhia Lisbonense de Iluminação a Gás* and delivered 35,340 from its company. AHFEDP, *Relatório do Conselho de Administração da CRGE 1891-1892*, p.9

60 René Brion, "Le rôle de Sofina" in VER, p. 217.

Until 1913, the foreign companies that own a major number of shares are the Compagnie Général pour l'Éclairage et le Chauffage par le Gaz, S. Propper & Compagnie, Société Watel, Dehaynin & Compagnie, Compagnie Général Française et Continental d'Éclairage par le Gaz and Crédit Algérien. At the beginning of the 20th century, the major individual shareholders who hold or represent the greatest number of shares are George Kohn, Adolpho Oppenheim and Theodore Verstracten.

	1901	1908	1909	1910	1911
Adolpho Oppenheim	3,000	575	502	425	500
Crédit Algérien	1,500	1,145			
Ce Général Française et Continental d'Éclairage par le Gaz				4.822	4,822
	2,322	4,822	4,822		
Ce Général pour l'Éclairage et le Chauffage par le Gaz	15,843	15,943	15,943	15.943	9,916
George Kohn	4,000	4,000	4,100	4.100	4,000(a)
Siegfried Propper	988				
Propper & Compagnie	12,406	11,782	9,826	8.226	7,926
Société Watel, Dehaymin & Compagnie	7,000	7,016	7,585	7.585	7,504
Theodore Verstracten	1,044	984	1,084	1.084	1,154

(a) From this date, the shares belong to Madame Eugene Kohn. In this year George Kohn (son?) owns 2.200

Assuming the assets and liabilities of the *Companhia Lisbonense de Iluminação a Gás* and of the *Sociedade Gás de Lisboa*, the financial situation with which CRGE begins its activities is not favourable. The years when the Lisbon company developed and exploited the gas business in a system of competition provoked a deficit financial situation, and lack of liquidity led to the degradation of facilities. The high investment that the *Companhia do Gás do Porto* made in bringing about the construction of plant and a piping network required recourse to bank loans.

The situation is aggravated by debts for the payment of public lighting which CRGE had to write off in relation to the *Câmara Municipal de Lisboa*, in compensation for the signing of a new contract.

This new contract, which obliged the provider of private gas and electricity to gradually substitute electric lighting for gas lighting, made it necessary for CRGE to make constant investments in two networks. At the same time, increasing consumption of gas and electricity required the introduction of new equipment in the gas plants and the construction of three electricity generating plants: the Central da Boavista in 1901, the Central Tejo I in 1908, and the Central Tejo II (1918).

The size of the work to be undertaken and the amount of the equipment to be acquired, much of it purchased from abroad, obliges the CRGE to have recourse to

increasing its capital, issuing new shares and contracting loans from Portuguese and foreign financial organisations.

CRGE expenditure is aggravated by its participation in the *Sociedade do Gás do Porto* and later in the development and exploitation of the Sétubal gas plant. In 1907, for example, in the face of the high interest rates imposed by the Portuguese banks, the Board of Administration asks the general assembly of shareholders for authorisation to issue a series of bonds up to 900 *contos*⁶¹. In the same year, it makes a contract with S. Propper & C^a, a financial organisation which was a shareholder with CRGE, for a loan of 1,500,000.000 francs at an interest rate of 6% a year⁶². In 1899, a loan had already been made by the organisation and in 1909 a new loan of 700,000 francs is approved⁶³.

7 The participation of foreign shareholders in the management of CRGE

Foreign investment in this company is not assumed to be passive or portfolio investment. On the contrary, the major foreign investors participate in the definition of the investment policy followed and in the technical options which are chosen, and they assume financial and management control.

Hence, the clear definition of relations and the way responsibilities are divided between members of the Board of Administration in Lisbon and those who reside abroad are central aspects for the organisation of the company.

The very characteristics of this business demand specialised technical knowledge at the production level, knowledge of management and of how to establish contact with the consumers, and will determine, in a way that is similar to that of the railways, the existence of hierarchies of professional managers. In the development of this type of manager, some other factors were determinant: the size of the company's workforce, the functional complexity required in the production of gas, electricity and their by-products, and know-how about operating in different kinds of spaces in the city⁶⁴, later enlarged to include Sétubal and Oporto; the need to acquire specialised machinery and essential raw materials from abroad; the commercial strategies for increasing consumption and winning new consumers.

For this, the major shareholders of the company have an active role in the organisational structure of the company, in financial and technical control and in the choice of professional managers.

61 In 1909, only 2,500 were found in place. *Relatório do Conselho de Administração da CRGE, 1907-1908*, Lisboa, 1909, pp. 5-6-

62 AHFEDP, Minutes Book of the Board of Administration, 1907-1915, fol.2.

63. AHFEDP, Minutes Book of the Board of Administration, 1900-1907, fol. 90 and Minutes Book of the Board of Administration, 1907-1915, fol.41.

64 At the end of the 19th century, the CRGE broadened the distribution of gas beyond the city limits, in 1899 signing contracts with the municipal authorities in Cascais and Oeiras. In the following year, the latter widened the contract for gas provision to include the villages of Queluz and Belas.

The company headquarters is based in Lisbon, with a delegation functioning in Paris. The organisation of the Paris delegation is the responsibility of the Board of Administration members resident in that city and in Brussels, with the stipulation, however, that it keeps audited accounts, with copies of the accounts-book and the daybook being sent every fortnight.

The statutes of 1891 establish as management organs a Board of Administration composed of 16 members, eight foreign and eight Portuguese, elected for three years⁶⁵. Being a company constituted from two other companies, the interests of these companies is clearly represented by Portuguese and foreign members. For the *Companhia Lisbonense de Iluminação Gás* we find António Centeno⁶⁶ and José Street da Cunha. The various foreign companies that had interests in the *Companhia do Gás de Lisboa*, in which foreign capital is in the majority, are represented by Eugene Breittmayer, Walhelm Pfizmayer, Theodore Verstraeten and Victor Terclin Monjot.

Until 1915, the presidency of this council is assumed by foreigners⁶⁷. In 1891, Baron de Soubeyran is elected and fulfils this role until 1894, when he is replaced by León de Somzée. In 1903, Theodore Verstraeten assumes the presidency of the Board of Administration and remains in this office until 1915. Each of them, although they reside abroad, has a participatory role in the administration of the company, and they represent the Compagnie Générale pour l'Eclairage et le Chauffage par le Gaz - Gás Belga, the major shareholder until the entry of Sofina in 1913. In 1867, Leon Somzée was nominated for the post of chief engineer of Gás Belga and Theodore Verstraeten in 1887 became general manager of the same company.

The members of the Board of Administration who are resident in Lisbon meet fortnightly under the organisation's president or vice-president, a post to which a Portuguese is elected. In 1891, the responsibility is allotted to Augusto Cesar Barjona de Freitas.

From 1904, the government nominates a delegate who is present at council meetings, and who makes sure that the decisions taken do not prejudice the Portuguese state and do not infringe national legislation.

The nomination of a delegated administrator who regularly moves to Paris and, when necessary, to Brussels, makes the circulation of information between the various council members easier. With the same objectives, the minutes of the Paris meetings are

65 Only shareholders with at least 100 shares could become part of this council. The reconstitution of the organisational structure of the CRGE is done based on various kinds of information: the statutes creating the company dating from 1891 and the successive alterations to the statutes to which the company was subjected; analysis of the minutes of the Board of Administration and of the general assembly of shareholders.

66 In 1901, António Centeno had 1,350 shares and was one of the major Portuguese holders of nominal shares.

67 At this time Portuguese legislation obliged the president of the Board of Administration to be a member with Portuguese nationality.

read at the Lisbon meetings and those of Lisbon, after being translated, are sent to the Paris delegation.

The distribution of powers between the administrators in Lisbon and those who live abroad is not statutorily defined. But the functioning of the various administrative structures of the company comes to recognise the weight of the Board of Administration based in Paris, which represents the bigger shareholders. This weight is visible at various levels of activity. On the one hand, the most important subjects in respect of the company's financial questions are dealt with in Paris, with one or more Portuguese being sent there. On the other, when it is necessary to take important measures to restructure local management or production by the plants, these measures are rarely taken without the presence of the president of the Board of Administration, often accompanied by other members of the council, moving to Lisbon. Finally, for critical situations, specialists are sent to Lisbon to evaluate the company's situation.

The discussion of the proposal presented in 1913 by Sofina to subscribe to 96,000 of CRGE shares decides that two meetings be held in Paris, presided over by Verstraeten, at which are present, as well as the foreign administrators (S. Propper, Emmanuel Propper, George Kohn, Jacques Monthiers), the president of the board of the general assembly, the vice-president of the Board of Administration, Fernando Munró dos Anjos, two Portuguese spokesmen of this council, the company's lawyer, Pereira dos Reis, the administrator Jules Deleury and the commissioner Marcel Block⁶⁸.

The accepting of the Sofina proposal implies important alterations to the composition of the Board of Administration, since this company requires, from 1914, that four administrators designated by the company make up part of it, changing the number of members who comprise the council. The administrators nominated by Sofina are Dannie Heineman, Mariano de Foronda y Gonzalez, Georges Pavie, Rudolf Luecher⁶⁹.

Despite the importance of this subject, the situation of political instability in Europe only allows foreign administrators to visit Lisbon for the meeting to give final approval to the decisions that have been taken regarding negotiations over Sofina in June 1915. At this meeting are present Verstraeten, Heineman and Mariano Foronda.

The presence of these foreigners, who were joined a little later by J. Deleury, Propper, Monthiers, G. Kohn. and G. Pavié and whose stay in Portugal was for around a month, is used for a series of decisions to be taken leading to a reorganisation of the services of the company. They analyse the interest of the *Sociedade do Monte Estoril* in establishing conditions for the electrification of the Cascais railway, the debt to CRGE from the Lisbon municipal authority, the contract for electric energy, the possibility of transferring the workshops for meters and other equipment to other companies. They go on to an inspection of the company accounts, the task of Mathieu, and testifying to the

68 AHFEDP, Minute book of the Board of Administration, 1907-1915, fol. 239

69 At the meeting of 26th February 1914, the members of the Board of Administration in Lisbon are informed of this decision. AHFEDP, Minute book of the Board of Administration, 1907-1915, fol.

lateness of these, the bookkeeper of the *Companhia do Porto*, Francisco Pinto Moreira, is put in charge of accounting for CRGE⁷⁰.

The president of the Board of Administration is sent to Lisbon with some regularity, especially on the occasions where production conditions or the conditions of the company require decisions to be taken which do not involve major work but which require large investment. It is what occurs when, in 1902, the deteriorating state in which the manufacturing establishments are found and the need to increase the production of gas in order to supply increasing demand, require important work to be undertaken, particularly the construction of new gasometers, together with the acquisition of new equipment⁷¹. Faced with the dimension of the work to be undertaken in March 1903, Verstraeten goes to Lisbon to evaluate the situation and the decisions are only taken after he delivers his opinion on the subject⁷². This situation demonstrates the level of the decisions concerning large investments which are taken by its foreign partners on behalf of the Board of Administration of Lisbon.

The Board of Administration elects from its members a delegated administrator, whose duty it is to establish links between the members of the Board of Administration in Lisbon and those in Paris.

The day-to-day management of the company is assured by a General Manager, who is normally present at the meetings of the Board of Administration of Lisbon to inform it of the state of the company and to indicate the measures that should be taken. In 1892, Baptista Francesco Cruvellier is nominated as General Manager of the company and the contract that is made with this specialist shows the importance that is attached to his role: a contract for five years, with a salary of 8,000 francs, a gratuity of 16,000 francs, 4,000 francs for housing, and the following percentages: 1% of the dividend lower than 3%, 1 ¼% of the dividend of 3% and a progressive percentage at the rate of 1 ¼% for each further distribution.

Although the 1891 statutes do not stipulate the creation of a Technical Committee, they leave open the opportunity for the creation of this organ to which the Board of Administration could delegate part of its functions, particularly those of a technical nature. In 1892, a Technical Committee is elected comprising three members who are resident abroad, Leon Somzée, Breittmayer and Théodore Verstracten. There is only one member with Portuguese nationality resident in Lisbon, Joaquim Pires de Sousa Gomes, which reflects the capacity for intervention of the representatives of foreign capital, although the justification for the choice of three foreign persons is the knowledge that they possess concerning the gas industry. The engineer León Somzée, who in 1867 assumed the role of chief engineer of the *Sociedade Gáz Belga*, has already had responsibility for setting up gas plants in various countries in which this company has invested.

70 He is given a retainer of 100\$00 a month plus a delocation allowance per diem of 7\$50.

71The situation was described in the report of the Director, Paul Collart. AHFEDP, Minutes of the Board of Administration 1900-1907, fols 86-87

72 On this subject, see Matos et al. (2005).

Foreigners on this committee are always in the majority. In 1912, the organisation of the committee establishes specific functions for each of the four members who comprise it at the time: Theodore Verstaeten, president in Brussels for services in general; Propper, in Paris, specialising in financial questions; Seixas, in Lisbon, specialising in external relations; Veiga, also in Lisbon, specialising in internal services.

In 1913, with Sofina becoming part of CRGE, Dannie Heineman is appointed to the technical committee. In the following year, the war makes contacts between Lisbon, Paris and Brussels difficult, and the general assembly of 1914 reduces the number of members of the committee⁷³, but, on 10th June 1915, it returns to having four members again: Verstaeten, Propper, Heineman and Elio do Rego.

Although this technical committee ought to function essentially as a consultative organ, in practice there falls to it the management of all of the technical aspects in respect of the company. The experience and the technical know-how that the members of the committee possess with regard to the gas and electricity industries are in this way applied to CRGE so that the characteristics of the Portuguese consumer market oblige them to adapt their skills to the concrete realities.

The remoteness of most of the members of the technical committee from the theatre of operations initially creates a series of difficulties. With the aim of maintaining the committee permanently up to date with the situation in the company, in 1892 the General Manager is charged with reporting fortnightly to the Board of Administration in Lisbon on the state of the company's resources, with a forecast of the outgoings for the five following days; a monthly report on the previous month's business and a balance sheet for that month. A copy of these documents is sent to Paris. Sometimes the complexity or the technical character of these topics is dealt with in Paris, obliging the Director to travel there to discuss the subjects personally. This is what happens, for example, in 1903, when the Director, Paul Collart, goes to Paris to discuss with Verstraeten and Neu the projects relative to the new electrical installations that had already been voted for by the Lisbon Council⁷⁴. In 1916, when the company is living through a particularly complicated situation due to a lack of fuel oil, the Board of Administration of Lisbon decides that the Director, Jules Cordeveener, should accompany the delegated administrator to Paris to describe and explain the situation⁷⁵.

With Sofina becoming part of CRGE, it comes to have a determinant role in management, since it is incumbent on it to study all the work which should be done in the company, in exchange for an indemnity of 6% of the total expenditure of the first establishment in relation to this work. At the same time, Sofina received an indemnity of 1 ½% over the invoice value of material to be acquired for development and exploitation and for renovation. Should the work to be undertaken require the prolonged stay of an

73 AHFEDP, Minute book of the Board of Administration of CRGE, 1915, fol 238

74 AHFEDP, Minute book of the Board of Administration , 1901-1907, fol.97.

75 AHFEDP, Minute book of the Board of Administration , 1915-1922, fol 69.

employee, the expense would be borne by CRGE, as well as travel expenses and expenditure on the organisation of an office⁷⁶.

Furthermore, Sofina not only chose four members of the Board of Administration, as well as owning 68% of the capital and having its administrator on the CRGE technical committee. This situation places the other foreign companies in the situation of being portfolio partners. That, at least was the situation verified in relation to the *Compagnie Générale Française et Continental d'Éclairage par le Gaz (Gás Belga)*⁷⁷

8. The circulation of technicians and the transfer of technology.

An analysis of some of the personnel lists of GRGE allows us to understand their circulation over several localities in different European countries. It was a circulation which, in many cases, was supported by financial interests that a Belgian or French company held in Portugal, Spain or other countries.

The role of director of the CRGE production establishments is taken on by foreigners with technical training and experience gained in other gas plants and electricity companies. In 1892 Baptista Francesco Cruvellier is nominated as General Manager of the company; he had already been part of the *Companhia do Gás de Lisboa* as well as being on the commission responsible for its closing down, along with W. Pfizmajer.

Despite abandoning the position he held in Lisbon, Cruvellier must have continued to be linked to foreign companies, since in March 1912 Cruvellier comes to Lisbon with the charge of writing a report on improvements to be made to the industries exploited by CRGE. At this time the direction is controlled by the administrators Anjos and Seixas and by the directors Miet and Nandin. The engineer Miet is named as Director of Technical Services and Nandin as Director of Commercial Services. The direction of gas production is given to the engineer Lievens.

In 1914, Antoine Combet de Larenne, who for several years directed the development and exploitation of gas in Madrid, was chosen by the representatives of Sofina in CRGE to undertake the role of General Manager of the company. Due to personal problems, Combet did not remain for long in Lisbon and, following his resignation in July of 1915, the Board of Administration approves the proposal of Dannie Heineman to contract the engineer Jules Cordweener for the position.

Following on with the same authority vested in Combet, he proposes the hiring of the following technical personnel: Manuel Brea, who at that time was Assistant Director of the gas plant in Madrid, to carry out the same duties in the plant at Belém; Ramon Ugart, inspector of gas-meter services in the plant at Madrid, for director of the installation service of gas meters; Girardin, who for 13 years had been director of

76 Idem, p. 243.

77 On this subject, see Jean-Pierre Williot, "De la naissance des compagnies à la constitution des groupes gazières en France (années 1820-1930), ob. Cit., p.234

electricity-meter services at the União Eléctrica Madrilena plant, for the post with responsibility for installation and electricity meters; Cunze, as recruiter of new clientele for electricity, not actually one of the personnel of these companies, but receiving from them a monthly salary of 25 francs for his services⁷⁸.

Apart from CRGE's international associations, the shortage of Portuguese electrotechnical engineers determines resorting to the contracting of foreigners. In 1908, when electricity production already forms a highly important part of this company, the electrical engineer Spire is hired⁷⁹. In 1915, when the company decides to construct a second electricity generating plant, the Central Tejo II, the Belgian engineer Maurice de Roo is contracted to direct the construction works. This engineer, trained at the University of Gand in mechanical engineering (1905) and electrotechnical engineering (1906), would begin his career in the Bollinx Society of Gas Motors and in 1913 he would enter the service of Sofina which was to send him to Constantinople to direct the construction of the Silighar Generating Plant⁸⁰.

In 1915 the following contracts are also decided: the Russian chemical engineer Chorower⁸¹; an electrical engineer⁸²; two office employees; the architect Wiet to oversee the construction of the new generating plant. The proposal to contract Xavier Foronda, who was working in the development and exploitation of electricity in Spain, to the company's commercial services, meets the opposition of Mariano Foronda due to the close relations connecting them.

In 1919, when CRGE intends to recommence the production of gas gas, which was interrupted during the war, Sofina sends to Lisbon one of its directors, Jantlat, and the engineer Maurice Bock. This engineer remains in Lisbon as a delegate of Sofina, in order to take care of all matters needing to be resolved. Apart from the technical aspects of the company, it is he who studies the contract to be drawn up between CRGE and the *Sociedade do Estoril*, which is presented to the Board of Administration in 1920.

9. Conclusion

The investment of these foreign companies in Portugal corresponded to a period of the internationalisation of the gas and electricity industries. Through the creation of branch offices or by investing in Portuguese companies, they abolished frontiers for the transfer of technology. In order to be active in different European countries, the large construction companies producing gas and electricity or developing and exploiting production plants for these sources of energy favoured the circulation of engineers and

78 Idem, p. 219.

79 He is awarded an annual salary of 8,000 francs. AHFEDP, book of minutes of the Board of Administration, 1907-1913, fol. 27

80 Simões (1997, p. 57).

81 The conditions for engaging this engineer are finally approved only on 29 October, 1915.

82 On 27 November, 1915, the engineer João Roma is engaged, who is attached to the electricity service with the salary of 80\$00.

other specialists around Europe. The study of the professional route covered by these engineers can contribute to an understanding of the transfer of technology and of technological options which, during this time, was happening in each country⁸³.

The importance for and the characteristics of foreign investment in the *Companhia Real* are similar to those of other Iberian railway companies, as is the case with MZA and the North, presented by Vidal Olivares and Pablo Ortúñez (2002). The *Companhia Real* did not have in its shareholder structure the prestige, the financial dimension or the stability in its shareholder nucleus of the Péreire or the French branch of Rothschild, but the principles which guided this type of investment were similar: access to available capital in foreign markets; interests in the profits associated with construction, especially when linked to state subsidies; the importance of the financial business, supporting the exploitation of railways through bond issues.

This communication puts forward other justifications for the relevance of foreign investment in this area of business. Besides the access to investment funds by an economy where there were deficiencies, the *Companhia Real* was able to internalise financial capital markets as well as technological skills⁸⁴. The first presents itself not under the form only of shareholder capital, but above all through debt, namely bonds. Domestic companies found difficulty in having direct access to such large-scale funding directly in the market or through financial intermediaries. International financiers, operating in capital markets that were more developed and had greater liquidity, had lower transaction costs in internalising the access to these financial funds, regarding the alternative solution of creating a domestic company, with unknown Portuguese promoters, which might attempt the subscription of shareholder capital (Hennart, 1998).

However, what bound together these international companies in the creation of concessionary railway companies was not only financial reasons (Casson, 1998). The mobilisation of technical and organisational skills is another of the fields where a competitive advantage existed relative to identical projects might be developed inside a country like Portugal. The presence of foreign managers and technical experts in top management positions or with technical responsibilities in *Companhia Real* and in CRGE was clearly evident. The mobility of these men in relation to various European companies where participation in shareholder capital exists was a point that has also emerged in this communication. The analysis of the network of investments and of the clusters of financiers, managers and technical experts operating in various companies is an interesting theme for future research.

83 On this subject, see Jean-Pierre Williot, (2005) and Matos (2005).

84 Once more, the example of the free-standing companies serves us as an analogy, in the reading that is made of this type of company and of its justification by Jean-François Hennart (1998). Here is suggested the extension to the issue of bonds, the lower transaction costs attributable by this author only to shares. In the case of railways, the issue of bonds was more feasible due to the importance of the patrimony of the companies, which could serve as collateral, and of the expectations of state intervention in financial non-fulfilment situations, because of the character of the public concessions taken on by these companies. The interpretation of Hennard is contested by Casson (1998).

This characteristic could be a source for the diffusion of organisational management innovations, as appears to have succeeded with the *Companhia Real*, a theme that was clearly shown in the case of the organisational structure, but which could equally be revealed in the accounting reform completed in 1883.

This communication has highlighted the fact that this type of investment was very far from the characteristics of a portfolio investment, as far as the control of the company is concerned. The Paris Committee exercised control not only over the strategic management but also over the operational management of the *Companhia Real*. In the case of the *Companhia Real*, we believe we have stressed with particular care the importance of the Paris Committee and the consequences of this type of control on the model and the practices of the governance of the company. The energy companies we have considered, above all CRGE, equally had management practices in which the foreign shareholders maintained their capacity to control both strategic decisions and operational aspects.