



Evolution of the Structure of the French Oil Economy between the Wars: Toward a French Holding Company

Mohamed Sassi

During the interwar period, the French Government was able to take the necessary measures to install an integrated structure for its oil industry. On the eve of World War II, the Compagnie Française des Pétroles (CFP) had an organizational structure that could compete with the Anglo-Saxon “trusts.” The characteristic of the French oil industry was its ability to go beyond a “logic of cartels” toward a model of mixed economy across the “logic of consortia.” In this paper, I illuminate the French method of breaking into big business in a sector as competitive and strategic as oil. Based on technocracy, the French adopted all potentially successful organizational methods, whether French or imported. I also discuss new elements of the French companies’ capacity in the interwar period to equip themselves with industrial structures different from (but comparable to) the American ones.

During World War I, the French petroleum industry underwent its first and most radical change. The war necessitated the massive intervention of the State in the petroleum sector, in particular in 1917, when there were grave shortages and a real crisis in keeping the Army re-supplied.¹ In fact, the experience of the war modified the attitude of the bourgeois republican state, in “legitimizing various forms of state-controlled experiments, some corporatist, some even socialist.”² The French government took control of the oil markets, becoming the sole oil purchaser and importer, creating the

¹ Mohamed Sassi, “The Emergence of a French Oil Industry between the Two Wars,” *Business and Economic History On-Line 2003*, <http://www.thebhc.org/publications/BEHonline/2003/Sassi.pdf>

² Richard F. Kuisel, *Le capitalisme et l'Etat en France: Modernisation et dirigisme au XX^e siècle* (Paris, 1984), 76.

Mohamed Sassi is a research associate and doctoral student at the Université Paris IV (Paris-Sorbonne). Email: Mohamed_Sassi@yahoo.com

Commissariat Général aux Essences et Combustibles (C.G.E.C.) in 1918, and setting up the oil Consortium the same year. This Consortium undertook the distribution of all imported petroleum products; it was a private organization, organized by the same French companies that had formed the “Cartel of the ten” (*le cartel des dix*) before 1914. Thus, the system was a double monopoly with respect to both imports and sales.

This new system represented a true metamorphosis, because the governing elites moved from a “logic of cartel,” with private industry dominating, to a “logic of consortium,” because of the role played by the State. It was a shift from the concept of “convention” to one of mixed economy.³ There were two principal reasons for this unprecedented level of State intervention. First, the traditional role of the mixed economy is to compensate for “the incapacity of the market to find by itself the adjustments required to satisfy the needs of the community.”⁴ This leads to State determination to control key sectors of the national economy. The second reason for State intervention was that for France, this type of economy was closely related to both the confiscation of German assets following the Treaty of Versailles, and to the national economy’s dependence on private companies, particularly in the defense sector. Hence, the emergence of mixed companies such as the *Compagnie Nationale des Matières Colorantes* in 1916,⁵ the *Compagnie Nationale du Rhône* in 1921⁶ or the *Office National de l’Azote* in 1924.⁷

The tendency of French economic historians “to emphasize” questions of cartels and agreements, or the mixed companies, as exemplified by Patrick Fridenson,⁸ underlines the return of a concept according to which

³ The authors of “the economy of convention” specify that they share the assumption according to which “agreement among individuals, even when it limits itself to the contract of a commercial exchange, is possible only within a common framework, without a constitutive convention.” See François Eymard-Duvernay, Olivier Favereau, André Orléan, Robert Salais, Laurent Thévenot, « L’économie de conventions ou le temps de la réunification dans les sciences sociales », *Problèmes Économiques* 2838 (Jan. 2004), 1-8.

⁴ Jean Kerninon, *Les cadres juridiques de l’économie mixte* (Paris, 1991), 10.

⁵ Founded in 1872 under the name: Francolor Pigments Villers Saint Paul.

⁶ The company was founded following a law adopted by the parliament in 1921, as a result of the perceived need of continued government intervention, continuing thus the official interventionism developed during the First World War. Cf. A. Giandou, *La Compagnie Nationale du Rhône (1933-1998). Histoire d’un partenaire régional de l’Etat* (Grenoble, 1999).

⁷ See Jean-Pierre Daviet, *Un destin international, la compagnie de Saint-Gobain de 1830 à 1939* (Paris, 1988).

⁸ Patrick Fridenson, “Tendances actuelles des recherches en France sur l’histoire économique et sociale de la période contemporaine,” in *Dossier Historiens & Géographes: Où va l’histoire économique?* (Paris, 2003), 69-90.

...the mixed economy is an established fact. But State intervention can and must draw inspiration from an organizing idea which is different from that of realization of immediate profits: namely the increase in the overall productive power of the national economy.⁹

In the oil sector, this key concept was already taking hold in various European countries at the very beginning of the 1930s.¹⁰ The evolution of the structure of the newly-created oil industry must take into account international constraints and the private interests in question.

It is important to highlight the evolution of the structure of the French oil economy, starting with the creation of the CFP in 1924. Indeed, State interventionism could result from national leaders' will to mitigate the relative backwardness (from an organizational point of view) of the typical French corporation compared with the American variant. This delay is seen by Alfred D. Chandler, Jr. as a result of the "irrational" attachment of Europeans to the small company in general and the family-owned enterprise in particular.¹¹ The demonstrated success in the establishment of an integrated French oil industry suggests the need for reflection on the organization "model" used as a standard as far as the oil industry structure is concerned.

The Formation of a National Industrial Structure: Emergence of a Mixed Economy

The establishment of a competitive structure, able to confront head-on the invasion of the "trusts," required taking into consideration certain objective factors that conditioned the French petroleum market. These factors took included both the diversity of the actors and the interests of the State. They constituted simultaneously an opportunity and a threat: An opportunity because they could be added to the assets of a national industry, a threat because in the absence of effective coordination, they could tend to reinforce foreign dominance.

The Political and Economic Context: Geopolitical and Economic Change. In the post-World War I period, the State counted on what I shall term "technocracy" for the installation of an adequate oil industry. At the conclusion of the war, all the ingredients necessary to establish an efficient oil policy were present. The lessons of the war were obvious to the French government. Henceforth, every effort should be made to set up an oil policy worthy of its name. The end of the war produced a complete

⁹ Friedrich List (1789-1846), cited in Alain Chazel et Hubert Poyet, *L'économie mixte*, (Paris, 1965), 39.

¹⁰ Guillaume de Labarrière, *Les Sociétés de Pétrole à participation de l'Etat dans divers pays*, (Université de Paris, 1932).

¹¹ Alfred D. Chandler Jr., *Scale and Scope: The Dynamics of Industrial Capitalism* (Cambridge, Mass., 1990).

transformation of the world. Political and economic changes took place at a hitherto unknown level.¹² The rapid increase in the money supply led to the depreciation of the European currencies, and a high inflation rate, rendering existing measures ineffective in encouraging the refining industry (see, in particular, the law of August 5, 1919.)¹³ The United States grew rich. The Americans benefited from the decline of European power, and seemed to be the principal beneficiaries of the war; the dollar became the international currency. Economic diplomacy failed to establish the bases for true international cooperation capable of solving the worldwide crisis.¹⁴ Beyond its geopolitical consequences, the war gave rise to the “diplomacy of oil,” and the area of activity of economic diplomacy broadened by turning to “sensitive products,” that is, products such as petroleum that had become essential to a modern nation’s security and survival.

In France, the industrial and economic machine, diverted into production for the military and partially destroyed during the war, started up again.¹⁵ The automobile sector

...entered a period of dramatic and undeniable growth in the 1920s, and served as an engine for the metallurgical sector. From 125,000 vehicles, the production rose to 0.8 million in 1926 and 1.7 million in 1931. The factories at Billancourt (Renault) and Javel (Citroen) symbolized the dynamism of the sector...¹⁶

In fact, the First World War made the military authorities highly receptive to all manner of innovations and improvements in both the automobile and aviation sectors. The French oil industry felt a responsibility to support the autonomy of France for its hydrocarbon supplies, and even to develop internationally.

The Political and Economic Context: The Growing Role of the State. On the diplomatic level, France obtained, under the terms of the San-Remo agreements, access to the abundant oil reserves of Mesopotamia. Indeed, “the British government was committed to grant to the French government, or those which it designated, a 25 percent share at the

¹² Jaques Benoist-Méchin, *Le Loup et le Léopard: Mustapha Kemal ou la Mort d'un Empire* (Paris, 1954).

¹³ Takashi Hotta, *L'industrie du pétrole en France des origines à 1934, l'Etat et les entreprises pétrolières* (Paris, 1990), 202-205.

¹⁴ Guy Carron de la Carrière, *La diplomatie économique, le diplomate et le marché*, (Paris, 1998), 33-44.

¹⁵ François Caron, *Histoire économique de la France XIXè-XXè siècles* (Paris, 1981), 191.

¹⁶ Dominique Barjot (Dir.), *Industrialisation et sociétés en Europe occidentale au début des années 1880 à la fin des années 1960: France, Allemagne-RFA, Italie, Royaume-Uni et Benelux* (Paris, 1997), 239. Note that the rubber industry was also highly dependent upon the automobile sector.

current market price in the gross production of crude oil that the League of Nations Authority would be able to obtain in Mesopotamia...”¹⁷ Henceforth, the French government was certain to recover the share which Deutsche Bank had held in the Turkish Petroleum Company (TPC). Moreover, in Romania, France took part, on an equal footing with England, with the development of the deposits previously controlled by the Germans.

The Dispersion of the French Private Oil Companies. On the French oil market, the increase in world production and the fall in oil prices scrambled the French distributors’ deck of cards. Under pressure from the “trusts,” beginning on May 1, 1921, free import trade returned under certain conditions. A system of import licenses and the building up of reserves was established.¹⁸ These steps did not help the French companies, confronted as they were with the invasion of the “trusts.” The French companies believed increasing their capital was a necessity. Not finding sources of money in France, they were “obliged to accept that which their suppliers imposed upon them, and to accept the level of control of the business that their suppliers insisted upon.”¹⁹

Royal Dutch Shell’s assistance to France in 1919, thanks to the intervention of Henri Béranger, was not disinterested; indeed, Shell believed that the French government would allocate it the responsibility for exploiting whatever France received as war reparations. With the support of the *Banque de l’Union Parisienne* (BUP), Royal Dutch Shell established, as of August 1919, two French subsidiaries: the *Société Maritime des Pétroles* (a sales and distribution firm) and the *Société pour l’Exploitation des Pétroles*.²⁰ The latter specialized in prospecting for and sometimes the production of oil, in both France and the colonies. In addition, beginning in 1921 Shell reinforced its links with one of the largest French private companies, Deutsch de la Meurthe. They created a joint subsidiary, the Société Anonyme des Pétroles Jupiter.²¹

¹⁷ Article 7 San-Remo Agreements (24 April 1920). For more about the “League of Nations Authority”, see Stephen S. Goodspeed, *The Nature and Function of International Organization* (New York, 1968); Émile Giraud, *La société des Nations* (Brussels, 1961).

¹⁸ Decree of 7 May 1921 and Law of 9 July 1921.

¹⁹ Guillaume de Labarrière, *Les Sociétés de Pétrole à participation de l’Etat dans divers pays: La Compagnie Française des Pétroles* (Paris, 1932), 110.

²⁰ According to the Annuaire 1923, the BUP was “an industrial group comprising the principal Parisian banks, the Syndicat des Houillères, the company Schneider et Cie, and several members of the old cartel of the refiners,” cited in André Nouschi, “L’Etat français et les pétroliers anglo-saxons: la naissance de la Compagnie Française des Pétroles (1923-1924),” *Relations Internationales* 7 (March 1976), 241-259.

²¹ Dominique Barjot, *Colas, numéro un de la route* (Caen, 1997).

Standard Oil of New Jersey remained a rather strong presence in France, and was able to absorb more and more of the independent French companies, as illustrated in Table 1.

TABLE 1
The situation of Standard Oil of New Jersey in France in 1920

Name of Company (% Capital)	Capital (Millions of Francs)
La Standard Franco-américaine (49%)	10 (20 in 1921)
La Bedford Petroleum Company (100%)	10
L'Economique (75%)	10
La Compagnie Commerciale des Produits Pétrolifères (56%)	6,250
La Compagnie Générale des Pétroles (51%)	6
La Pétroléenne (40%)	22

Sources: G. Damougeot-Perron, *La Standard Oil Company 1870-1925* (Paris, 1925), 339-345; André Nouschi, "L'Etat Français et les pétroliers anglo-saxons: la naissance de la Compagnie Française des Pétroles (1923-1924)," *Relations Internationales* 7, (March 1976): 241-259; Archives of the CFP at Total.

In fact, the majority of the old companies were absorbed by the "trusts." In the absence of a French company able to absorb the capital of the French refiners, the foreign trusts absorbed private companies and private capital. The Company Deutsch de la Meurthe became Jupiter and was combined with Royal Dutch-Shell. The company Fenaille et Despeaux became the Pétroléenne in 1920 and was absorbed by Standard Oil (New Jersey). Paix et Lesieur affiliated with the Anglo-Persian Oil Company (APOC), as did the Société Générale des Huiles du Pétrole (SGHP) beginning in 1921.²² Standard Oil held a majority share (51 percent) of the capital of the other large French commercial bank, the Banque de Paris et des Pays Bas.²³ Only one company, Desmarais Frères, remained independent and purely French.

At the war's conclusion in 1918, Desmarais Frères had 56 million francs in assets, including 50 percent fixed assets (in particular its three refineries), 30 percent in oil stocks and commercial credits, and 20

²² Joseph Huré, *De la naissance de la SGHP à la S.F. BP d'aujourd'hui* (Paris, 1971).

²³ This alliance reinforced the American position in the Middle-East over that of the French, and supported their entry into the TPC, See Eric Bussière, *Paribas, l'Europe et le Monde, 1872-1992* (Anvers, 1992), 108.

percent investments in other corporations. In 1921, French investments in the oil sector totaled only 900 million francs. Desmarais Frères' share was 142 million, based on 15.75 percent allotted to the firm within the consortium. Even if one adds the estimate of the French interests invested in Romania (900 million) and Poland (800 million) in 1923-1924, investments were still far from Royal-Dutch Shell's (3500 million francs) during that time.²⁴

The French state reacted to this difficult situation. It was, beyond the shadow of a doubt, determined to regain control of French interests, both within the country and abroad. A technocratic approach seemed inevitable in aligning these interests in a way beneficial to France. Prime Minister Raymond Poincaré relied upon Ernest Mercier to develop and orchestrate the relationships between the government and the various protagonists.

A graduate of the famed Ecole Polytechnique, and formerly a naval engineer, Ernest Mercier was simultaneously very close to government and the business world. He became a member of the cabinet of Louis Loucheur during the War of 1914-1918 and created the *Union d'Electricité* in 1921, which published a technical plan the following year.²⁵ His success in rationalizing electricity production in the Paris area enabled him to become the government's first choice for the oil mission.²⁶ His primary responsibility was to unite the State and the private companies in a common objective. In a September 20, 1923 letter (which remained secret for a long time), Prime Minister Poincaré wrote to Ernest Mercier that "All French companies involved in petroleum activities [that is, from prospecting for new reserves all the way to sales of finished products] will be able, either at the outset or later on, to hold a share in the newly created Company [the newly created Oil consortium], proportional to the amount of French capital invested in each of these companies."²⁷

²⁴ André Nouschi, "Les investissements pétroliers français dans l'entre-deux guerres," *La position internationale de la France. Aspects économiques et financiers XIX^e-XX^e siècles*, (Paris, 1977), 377-385.

²⁵ See Ernest Mercier, *L'Union d'Electricité et la centrale de Gennevilliers* (Paris, 1922).

²⁶ He began his oil industry career in 1921, when he became president of the Omnium International des Pétroles (O.I.P.). In 1922, with the Anglo-Persian Oil Company, he took control of the Steaua Romana, the most significant oil company of Romania; the same year, he created the Steaua française, of which he became the president. See Richard F. Kuisel, *Ernest Mercier, French Technocrat* (Berkeley, Calif., 1967).

²⁷ Letter of Poincaré to Mercier: Archives of the CFP at Total, 89.14/13.

Figure 1
Evolution of the role of the French State since the First World War

1917-1923	1923	1924-1939
The Oil Consortium	The Syndicat Français d'Etude des Pétrolières	The Compagnie Française des Pétroles
Means: Commissariat Général aux Essences et Combustibles	Means: a technocratic orientation	Means: Capital Participaion, Legislation, Management
* Encouraging public and private initiatives, but controlling importation	* Coordination between the different french actors: installation of an adequate system	* Actor (a major shareholder) within the CFP
* Creating a technical teaching	* An international role	* Originator and Guard of the oil industry thanks to the legislative instrument
* Reaserch of oil in France and in the colonies		* Coordinator between refining and distribution (Agreements)

Toward the Formation of a French Oil Company. To meet the challenge of setting up a French oil industry able to compete with the “trusts,” the French State adopted a global solution. This consisted of finding congruence between the private and public sectors. To better understand this process, it is best to examine it from a theoretical point of view.

The government became aware of the need to attract additional private capital within a united organization. They used diplomatic assets to reinforce this vision. When World War I broke out, 40,000 German shares accounting for 25 percent of Deutsche Bank’s holdings in the TPC, were sequestered in London. Following the Versailles Treaty, these were allotted to France by the terms of the Treaty of San Remo in 1920. What would France do with its newly acquired oil rights? L’Anglo-Persian Oil Company (A.P.O.C.) became the largest shareholder of the TPC.²⁸ However, its representatives insisted that the French share be allotted to a

²⁸ L’Anglo-Persian Oil Company (APOC) founded in 1909 became the Anglo Iranian Oil Company (AIOC) in 1935 and the British Petroleum Company (BPC) in December 1954. The TPC, created in 1911 would become Iraq Petroleum Company (IPC) on 8 June 1929.

private company, not to a public organization. Faced with this constraint and the need for joining together private French companies involved in the oil industry, the State sought “the formula” of the most adequate company form.

With exceptional skill, Mercier simply more closely aligned the will of the State and the oil sector companies’ activities. The State, arbiter of affairs in the Middle East, internally negotiated the form of intervention. Those who held state power, in order to justify extending public control over the private sector, always used a theory of the public utility similar to that of “natural boundaries.” Thus, the concept of an inherent public utility in certain activities emerged. The means used were always the same and the primary distinction between authority and management functions blurred.²⁹ The development the State and the private sector as equal actors, and the imposition of internal constraints by the international situation, generated a new type of State involvement. The State succeeded in drawing up a contractual relationship with the various private companies.

After a preparatory assembly, on October 26, 1923, the main participating companies designated their delegates and the Syndicat Français d’Études Pétrolières was formed. Its immediate aim was the study and resumption of the participation yielded to France within the TPC and those that would possibly be granted in other countries. There were eighteen participants. Each share subscribed was fixed at 60,000 francs (for a total of 1,080,000 francs). These subscribers are described in Table 2.

²⁹ See Georges Liet-Veaux, “La théorie du service public, crise ou mythe?,” *Revue administrative* (May-June 1961): 3-9.

TABLE 2
Les compagnies of the Syndicat Français d'Etudes Pétrolière

The Group of Refiners	The Group of Banks
Compagnie Industrielle des Pétroles La Pétroléenne, Desmarais Frères, Lille Bonnières Colombes, La Standard Franco-Américaine, Société Algérienne des Pétroles de Tliouanet, Pechelbronn (Société Anonyme d'exploitations minières), La Steaua Française, Aquila Franco-Romana, Pétrofina, Société des Naphtes de Limanowa Société Française des Pétroles de Silva Plana,	Banque de Paris et des Pays Bas, Banque de l'Union Parisienne (BUP), Crédit Mobilier, Banque Nationale de Crédit, Crédit Lyonnais, Société Générale pour favoriser le développement et le Commerce dans l'Industrie en France, Comptoir National d'Escompte de Paris, Le crédit Industriel*,

Source: Letter of November 3, 1923 to Petrofina (Archives of Total, 82.8/553).

*These four credit establishments asked to take part jointly for a share in the Syndicat equal to the proportion of a quarter each one. They were represented together by only one personality; see Note du 7 novembre 1923, Archives of Total, 82.8/553.

A contract can only codify the relations between two people who find it beneficial to collaborate, and who seek maximum gain as the result of their collaboration. In the theory of the contracts this result is sometimes called the “organizational revenue or the surplus.” The division of the surplus deriving from cooperation is at the center of any contractual negotiation.³⁰ Thus, in a first project presented on October 17, 1923, Mercier aligned himself with the interests of the participants. Indeed, the distribution of the shares, offering 40 percent to the refiners, 30 percent to the producers, and 30 percent to the banks does not reveal any State participation, although the State contributed its TPC holdings.³¹ Mercier's

³⁰ The theory of the contracts is a branch of neo-classic theory dealing primarily with bilateral relations (between two individuals or two units of decision). The two parties involved must take into account the existence of random events and of an asymmetry of information where one of the parties is better informed than the other. Bernard Guerrien, *Dictionnaire d'analyse économique* (Paris, 1997), 97.

³¹ Archives of the CFP at Total, 82.8/553.

proposal had a double advantage: its aim of engaging a maximum of capital centered interest on promoting the new project, and it complied with “the rule of proportion” Poincaré wanted.

This “union” (in English the sense of the French word “*syndicat*” might be conglomerate or new corporate entity) should undertake to constitute “a French and independent company, which would tend to develop oil production under French control, a tool able to carry out a national policy of oil.” The synthesis of Raymond Poincaré would be thus validated, as the principal guideline of a future oil policy:

...the company will have to be primarily French and independent. It will make a point of developing production of oil under French control in the various areas of prospecting. The State will be able to take charge, pending equitable remuneration, if need be, of the mission of undertaking projects which it considers necessary.³²

Creation of the CFP. The creation of the organizational strategy of the future Compagnie Française des Pétroles (CFP) was made in accordance with the interests of the French oil companies.³³ As soon as the “Union” was established, the State looked into the question of the number of voices within the future national company, with respect to shareholder voting rights. Assuming that the number of additional votes allotted to the preference share equals 1/3 of the total and the number of these Shares with 1/5 of the capital, the voting rights allotted to the two title categories are as follows:

Shares of Control: 7/15 (preferred stock or preferred shares).

Ordinary Shares: 8/15 (regular shares of stock, held by any stockholder with the financial resources to purchase them).

However, the promoters must hold at least 1/3 of the capital to be assured of maintaining control of the business. However, under the existing conditions, only foreign “trusts” and some powerful French firms were able to fulfill this obligation.

Awareness of this difficulty pushed the Government to devise a legal framework to exert effective supervision over the CFP. Proposed legislation (known as the Lesache law) made it obligatory that the personal shares Category A could not be transferable without the agreement of the Board of Directors.³⁴ Ownership of these A category priority shares would be reserved for French nationals. The State undertook on its own to cut

³² Extract from Raymond Poincaré’s letter of 20 September 1923 to Ernest Mercier exposing the French Government’s intentions concerning the CFP; Archives of the CFP at Total: 89.14/13).

³³ Or (at least in theory) any French establishments with oil interests in France or elsewhere.

³⁴ Document entitled *Action à vote plural, projet du Gouvernement*, Archives of the CFP at Total: 82.8/553.

“the list of the companies which were to be allowed to subscribe to the start-up capital.”³⁵ The initial amount of 25 million francs, had to be subscribed by means of 12,500 A-shares of 500 francs (representing 6.25 million francs and 250,000 votes), and of 37,500 B-shares with the same unit value but requiring three times more funds and receiving only 13 percent of the total of the votes.

On March 28, 1924, the CFP was in operation, with the possibility of as much as 50 million in start-up capital, on a simple decision of the Board of Directors.³⁶ The company set four principal objectives: a) the exploitation of oil resources obtained or to be obtained by diplomatic agreements, with first priority given to petroleum deposits in Mesopotamia; b) the acquisition of a share in foreign production, in a variety of countries so that a steady and reliable supply would be assured; c) to try to obtain concessions in Russia by combining French efforts, and d) the development of oil resources discovered in France and Algeria.³⁷

Evolution of the Structure of the French Oil Industry since the Creation of the CFP

Parallel to its activities within the IPC, the State set conditions for organizing the internal market and the effective development of the French oil industry. The critical objective remained to install the legal and structural means to encourage and promote French refining.

Setting Up Investments Under State Control. Well aware of its potential future interest in the Middle East, the French State organized the establishment of an oil industry structure. A January 10, 1925 law created the ONCL, directed by Louis Pineau.³⁸ The role of this office consisted not only of studying questions related to the oil industry, but also (thanks to a significant budget allocation) allotting premiums to tankers that were French flag carriers, and financing oil exploration in France and in the colonies.³⁹ The ONCL was a public utility placed under the direct

³⁵ Ernest Mercier, “Rapport au conseil d’administration du 7 mai 1930,” Archives of Total, 89.14/-13.

³⁶ This capital was actually carried to 50 million francs 3 Aug. 1926. See Maurice Mercier, « Les pétroles de Mossoul et la participation française », *La Revue Industrielle* 8 (Nov. 1926): 513.

³⁷ Extract from Raymond Poincaré’s letter of 20 Sept. 1923 to Ernest Mercier.

³⁸ Law of 25 Jan. 1925, *Annales ONCL 1926*, 152. Pineau came from a military background. He entered to the military academy in 1907 and became captain at the age of 26. He was wounded during the victorious battle of the trenches of Colonne, and transferred to the Air Force. Then, he passed the competitive examination for the “Intendance” with flying colors. At the end of the war, Henry Béranger entrusted to him the direction of its sales department until the moment of the creation of the ONCL: According to *L’industrie pétrolière* 4 (Mar. 1933).

³⁹ Laurent Ursulet, *L’Office National des Combustibles Liquides (1925-1939)*, (Paris, 1999), 63-66.

authority of the Minister Commerce and Industry.⁴⁰ Moreover, the director of the ONCL was “the permanent delegate” of the Minister and ensured the operation of his services with the assistance of a board of directors.⁴¹ The provisions of the law guaranteed the ONCL resources.⁴²

The ONCL had a double role. It was both a customs control method and a legislative infrastructure for the oil industry. Until its creation, there was not a direct link with any CFP strategy. However, enacting it constituted a stage preliminary to the passage of a law supporting French refining and the creation of a national refining company.

On March 16, 1928, followed by Senate passage March 30th,⁴³ the French Parliament adopted a law concerning the importation of oil products, intended “to encourage the re-establishment of the refining industry in France.”⁴⁴ These new laws partially replaced the January 10, 1925 law, but did not change the articles dealing with the ONCL.⁴⁵ This legislation allocated the State the capacity to control crude oil imports and derivatives by instituting special permits: A10 for imports and refining, and A3 for distribution. These authorizations included strict constraints such as the requirement that the transport of at least two-thirds of the tonnage imported for the domestic market be carried in tankers flying the French flag.

This fundamental law constituted a form of monopoly. Although voted in only following long parliamentary debates, it had the advantage of defining the framework within which the French oil industry would be obliged to operate. The special authorizations constituted one of the instruments of French economic policy.⁴⁶ They returned to a mode

⁴⁰ The ONCL would be attached to the Ministry of Public Works by the 25 June 1936 decree.

⁴¹ The decree of 14 Sept. 1925 gave details of the ONCL’s mission and reinforced the links by which the law attached it to the Minister of Commerce and Industry.

⁴² Article 7 of the law specified the resources of the ONCL as follows: a consumption tax of from 1.5 to 10 francs per ton declared paid by all importers of oil and derivatives; balances of the accounts of the French Consortium of importation of oil and gasoline, in accordance with the provisions of article 68 of the law of 30 July 1920; subsidies, gifts, legacy, liberalities, and funds of any nature received by community offices and publicly-owned establishments such as the Chamber of Commerce; and all receipts made by the ONCL in remuneration for public services. See Oivier Lesourd, “Office National des Combustibles Liquides,” *Guide du pétrole, son industrie, son commerce, leurs fournisseurs* (Paris, 1939), 183-5. Archives of the Institut Français des Pétroles (IFP).

⁴³ “Loi du 30 mars 1928 relative au régime d’importation du pétrole,” Archives of the CFP at Total: 89.14/13.

⁴⁴ Compagnie Française des Pétroles, *Rapport du conseil d’administration*, Extraordinary general meeting of 20 March 1929: Archives of Total 82.8/553.

⁴⁵ Laurent Ursulet, *L’Office National des Combustibles Liquides (1925-1939)*, 111.

⁴⁶ See the Archives of Desmarais Frères at the Centre des Archives du Monde de Travail (C.A.M.T): 130 AQ 1, 130 AQ 2 et 130 AQ 3.

defined as “a liberal application of the monopoly of State registered in the French law” and thus of tightly controlled competition.⁴⁷ The law entrusted the monopoly of importation and refining of oil to the State. It was the State that delegated special authorizations (A 10, valid for 10 years for crude oil, and A 3, valid for 3 years for finished products) to titular companies.

Mesopotamian petroleum resources were not included in these authorizations. “...The San-Remo agreements...gave truly a national origin to oil extracted in a foreign country and dealt with the operation of a kind of national management of oil production. Such was not the case for the agreements made with Romania which dealt simply with the purchase of Rumanian oil.”⁴⁸ The March 30, 1928 text was the origin of the development of a national refining industry and establishment of a French oil fleet.

The government reinforced its influence in moving towards the installation of a French oil industry. On March 19, 1929, a new convention authorized the State to subscribe at par 35 percent of the capital of the CFP. Thanks to the arrangement of B-shares (with one vote) and A-shares (with twenty votes), the State was ensured voting rights equal to 40 percent of the total.⁴⁹ The Senate and the Chamber of Deputies ratified this convention in 1930. Within the same year, the capitalization of the CFP was raised from 150 to 200 million francs (see Table 3).

In 1931, the subscription of the State in the capital of the CFP passed to 45 percent of the voting shares, but always with 35 percent of the capital. The statutes of the CFP were amended so as to make it possible at the State to designate within the board of directors a number of administrators equal to a quarter of the total number of the administrators currently in office. Thus, two commissioners represented the State with the council of the Company. However, in spite of the establishment of these bonds with the State, the CFP remained a company that depended on private law, with a majority of shares over which ownership could be transferred, and whose management did not depend on the Government.⁵⁰

⁴⁷ M. Charlot, general rapporteur of the law of 30 March 1928: Archives of Total 82.8/553.

⁴⁸ Chambre syndicale de l'industrie du pétrole, “Régime de l'importation des pétroles. Portée de la clause du contrat d'intérêt national,” a confidential document (29 June 1934). Archives of the C.A.M.T.: 130 AQ 26.

⁴⁹ Archives of the CFP at Total: 92AA091/73.

⁵⁰ Archives of Total: 92AA091/73.

TABLE 3
Contributions of the shareholders with the CFP from 1924 to 1931

	Amounts in 1,000 current Francs	In 1,000 F75*
1924 Subscription of start-up capital 50 000 shares at 500 (5 Francs)	250	32,250
1926 Increase of capital 50 000 (at parity) shares	250	22,775
1927 Increase of capital 1 for 2 voices 50,000 shares (at parity)	250	21,950
1928 Increase of capital 1 for 1 150,000 shares with a 10 percent premium	825	72,435
Totals	1.575	149,410
1930 Increase of capital 100,000 shares (1 for 3) with a 10 percent premium +10,400 shares with a premium of 40 percent	622.8	50,945
1931 Subscription of the State 220,985 (at parity) shares	1,104.9	94,690

Source: Archives of Total: 82.5/16

* New Francs (in 1975).

The Institutional Arrangement as an Instrument of Reorganization: The Promotion of a Large Refining Company. Because the private companies were able to safeguard a strong position within the French market, the CFP was obliged to make arrangements with them under the aegis of the State.

From March 1928 on, the *rapporteur* of the Commission of the Mines, speaking to the Chamber of Deputies, having recalled the success the CFP had made of its almost sacred mission (French autonomy in crude

oil production), announced the logical next step: "... to establish a large refinery."⁵¹ It was at this time that the State began training the shareholders of the future subsidiary company. The search for a State solution, led to the development of a new convention signed on March 19, 1929, for the creation of a French refining company with the State holding 10 percent of the 100 million francs capital, and the CFP 56 percent (retaining control of its subsidiary company).⁵² French importers held the remaining 34 percent, including 18.7 percent solely for the subscription of Desmarais Frères.

In addition, the State's 10 million francs from the ONCL were reassigned to it by the CFP, which would take them on its subscription. The composition of the first board of directors reflected the distribution of capital.⁵³ The president was Ernest Mercier, president of the CFP; the managing director was Louis Tronchère. The administrators were Robert Cayrol, Paul Desmarais, Henri Desprez, Paul-Emile Javary, Jules Meny, Alexandre Palliez, André Pellissier, and André Risler. Maurice Mercier was the secretary of the board of directors.

The statutes of the CFR allotted it a very diversified portfolio, thanks to which it could later carry on its activity under optimal conditions. It could build and develop its refineries as demand evolved. These statutes also opened up the possibility of shareholder participation in the new company, jointly with the CFP or not. The CFR developed interests in a significant number of companies engaged in very diverse oil or petrochemical activities: underground storage, transport by pipeline, joint-refining projects with other refiners, petrochemicals. It also envisaged constructing two (or even three) factories.⁵⁴ However, the CFR's 100 million francs in start-up capital of was not sufficient to bring all its projects to fruition. Therefore, they planned to expand the 100 million francs capitalization to three hundred million francs in the near future, to reach five hundred million. For its distribution outlets, under the terms of these provisions, the State authorized the CFR to refine 25 percent of the needs of the distributive firms.⁵⁵ Consequently, construction for two refineries got under way. One was in Normandy in Gonfreville, near the port of Le Havre, on the Tancarville canal. Inaugurated in 1933, its initial refining capacity reached 900,000 tons of crude. Construction of the second, in the Berre wetlands in Provence,

⁵¹ *Note sur le raffinage*, Archives of the C.A.M.T.: 130 AQ 6.

⁵² As under the terms of a provision express of the law of 1928, the State cannot take participation in a company of this kind without a special permit of the rooms (article number 8).

⁵³ Archives Desmarais Frères, C.A.M.T.: 130 AQ 1.

⁵⁴ *Ibid.*

⁵⁵ Compagnie Française des Pétroles, *Rapport du conseil d'administration*, Assemblée Générale Extraordinaire of 20 March 1929. Archives of Total 82.8/553.

began in 1934 and the facility went on line in July 1935. French refining capacity, less than 300,000 tons per annum in 1927, would reach 8 million tons in 1938, a remarkable achievement.

Cooperation in Refining and Distribution: A Question of Vertical Integration. The constitution of the CFR, integrating the largest French distributors and their respective leaders as administrators, provides an excellent overview of the totality of the French oil industry. Indeed, the State controlled the upstream part of the industry (23.75 percent of the IPC); it gathered together all the industrialists and French banks with an interest in oil, then, thanks to the authorization allowing distributors to join the CFR (18.7 percent for Desmarais Frères alone), it controlled a large part of the downstream part of this industry.

One of the unifying factors in this restructuring was the rapid agreement reached between Mercier and the Managing Director of Desmarais Frères, Robert Cayrol.⁵⁶ This was the key element that tended to elicit common policies on the part of the smaller refiners who were group members. Both of these men were technicians, and they were leaders “of exceptional quality, though they were in many ways dissimilar. They tended to complement each other quite happily, in order to reach together the same goal, the overall prosperity of their nation.”⁵⁷ Their cooperative approach to the calculation of production costs and reasonable profit margins reflected this shared interest.⁵⁸ Distribution and refining arrangements tended to favor the principal French distributors (Desmarais Frères and Lille-Bonnière-Colombes). Indeed, they conceded a part of their refining activity to benefit from broader access to distribution rights, reinforcing their market position. This complementarity refining-distribution was the subject of a contractual agreement beginning in 1929, creating a form of concentration in refining activity.⁵⁹

Vertical integration should offer a competitive advantage to those who practice it, insofar as business procedures are rationally organized and administrative structures are under efficient control to avoid putting

⁵⁶ Born in 1883, he belonged to a Protestant family. After graduating from the Naval College in 1904, he made a career in the navy. Equipped with very good qualities of command, it became attached to the General Staff in 1914, commander in 1916, then lieutenant commander in May 1919. In 1920, he joined the company Gnome et Rhône as sales manager until being called to take the direction of Desmarais Brothers in 1923. There he would remain 37 years and would play a key part within French oil industry. Cf. Maurice Guierre, *Robert Cayrol 1883-1959, de la mer au pétrole, l'unité d'une vie* (Paris, 1960).

⁵⁷ *Ibid.*, 23.

⁵⁸ Mohamed Sassi, “The Emergence of a French Oil Industry between the Two Wars,” 23.

⁵⁹ *Ibid.*; see also the convention of 1 Aug. 1929: Archives of the CFP at Total, 82.8/404.

an excessive bureaucracy in place. In fact, the structure that was set up, based on coordination or a “quasi-fusion,” did not allow for a perfect unity of command structure, but, instead, a form of strategic business unity. The failure of certain companies seeking to develop a specific type of refining activity, what we might call a “niche market,” corroborates this. One can cite the case of the Saint-Gobain company here.⁶⁰ Indeed, as Oliver Williamson suggests, the new structure resulted from an institutional arrangement that minimized transaction and production costs.⁶¹ However, this vertical integration simply bypassed individuals’ efforts to gain power and control, and instead concentrated that power in the hands of the State. This suggests a very different vision from that proposed by Williamson and Ouchi.⁶² Was this situation paradoxical? No, because the case in point was functioning within the framework of a mixed economy. The State’s approach was both contractual and dynamic: we see a policy of cooperation, not of absorption.

Because of this cooperation, the Desmarais Frères company was propelled to the third rank among oil distributors in France (14 percent) behind l’Economique (a subsidiary of Standard Oil, 17 percent) and Jupiter (a subsidiary of Shell, 16 percent).⁶³ In France as in Europe, various forms of cooperation still bear fruit. In the chemicals sector, the Compagnie de l’Azote overcame the effects of the 1929 crisis thanks to a formula bank/industry and its association with the German group IG Farben. Better still, the trust that linked IG Farben, the British ICI, and Norsk Hydro succeeded in maintaining an advantageous position until 1935, the date of an International Convention on Nitrogen.⁶⁴

At the beginning of the decade of the 1930s, the crisis of 1929 was felt in the oil market in France. The market fell into disorder and many oil companies were on the verge of bankruptcy. Neither the CFP nor the adherent distribution companies suffered in the least. Mesopotamian production had long been reserved for large sales organizations (Desmarais Frères in particular). Moreover, article 12 of the 1931 convention with the State provided the CFR with significant assurances concerning the sale of its refined oil. On the eve of the Second World War, the State could carry out the objectives envisaged by the law of March

⁶⁰ Jean Pierre Daviet, *Un destin international: la Compagnie de Saint-Gobain 1830-1939* (Paris, 1988), 510-535.

⁶¹ Oliver E. Williamson, “The Logic of Economic Organization,” *Journal of Law, Economics & Organization* 4 (Spring 1988): 65-117.

⁶² Oliver E. Williamson, *Market and Hierarchies: Analysis and antitrust Implications*, (New York, 1975); William G. Ouchi, “Markets, Bureaucracies, and clans,” *Administrative Science Quarterly* 25 (March 1980): 129-141.

⁶³ Edgar Faure, *Le pétrole dans la paix et dans la guerre* (Paris, 1939).

⁶⁴ Bertrand de Lafargue, “Un exemple de partenariat industriel franco-allemand au sein d’une entreprise internationale: Norsk Hydro, 1905-1945,” *Entreprises et Histoire* 8 (June 1995): 51-61.

1928: 15 refineries whose capacity ranged from 200,000 to 1,200,000 tons were built in France. In 1929, 100,000 tons of crude oil were refined: 900,000 in 1932, 5,500,000 in 1937 and more than 7,000,000 tons in 1938.

The Model of the Modern Oil Company. Confronted with the presence of existing structures within its sector, the CFP established the objective of cooperative alignment with large potential competitors. In order to achieve this objective, it was obliged to take into account the structural specificity of the French market and determine the transitory or adaptive forms required for its development.

Was the structure of the French industry, presided over by the CFP, the product of endogenous French technocracy, or a product of exogenous Americanization? Here we must consider two fundamental givens: a competitive but very capital-intensive world market and a French tradition of state intervention in the economy derived from the Colbertien model.⁶⁵ The first was what predisposed the establishment of an international trust and the perennialization of the world market shares, and tended to profit the large Anglo-Saxon companies. The second represented the Nation's desire for independent energy supplies. To achieve this objective, it was necessary to establish large international companies, requiring the intervention of the state and a high level of expertise.

State intervention was undertaken with the intent to catch up with the leading countries: the United States, United Kingdom, and the Netherlands. The French oil industry trailed far behind. When political decision-makers engage in such an exercise, they must take the specific context into account. In fact, as Gerschenkron affirmed in connection with this same type of problem within the framework of the theory of substitutes, decision-makers were forced to set up institutions and policies that never existed in countries with better economic and technological performance.⁶⁶ In the French case, that presupposed intervention of public capital within the CFP, such as the enactment of creative and interventionist legislation.

⁶⁵ Jean Baptist Colbert (1619-1683) came from a Reims family of clothier merchants. He became a State adviser in 1649. Then, under the effective reign of Louis XIV beginning in 1661, the king added to his duties. He was a general controller of finances (i.e., at the same time Minister for the economy, Minister for the budget, and Minister for finance). To reabsorb the chronic deficit, he reorganized the tax system and increased protectionism. He thus attacked privileges and taxation of commoners, removed internal customs, created the Ferme générale in 1680, simplified the public accounts, and enacted major ordinances. See Gatien de Sandras de Courtilz, *La vie de Jean-Baptiste Colbert, ministre d'Etat sous Louis XIV, Roy de France*, (Cologne, Germany, 1695) and Andrew Trout, *Jean-Baptiste Colbert*, (Boston, 1978).

⁶⁶ Alexander Gerschenkron, *Economic Backwardness in Historical Perspective, a Book of Essays* (Cambridge, Mass., 1962), 7.

In a sector as technologically competitive as oil, there are limits to public intervention.⁶⁷ As French technocrats, such as Loucheur or Mercier, became aware of this reality, they saw the need for collaboration: public capital and private capital, public initiative and private initiative. Here we can grasp the meaning of the collaboration of the State, working through the CFP, with the principal private group, Desmarais Frères. This collaboration occurred through the creation of a mixed company, formed with a majority of private capital and a minority of public capital. The CFP thus constituted the original French model of a large company. It is interesting to compare the CFP's characteristics with those of some of the largest French private companies.

These private companies belonged to three types: the railway model (or, more recently, the model of the largest electric companies); the typical model of the large French industrial firm; and the model of the mixed investment company. The first model was of a private company providing a public service. Key examples include the Compagnie des Chemins de Fer du Nord⁶⁸ and the Company of Paris-Lyon-Marseilles (PLM) before its nationalization in 1937.⁶⁹ In the field of the generation and distribution of electricity, one can cite examples such as the Union d'Electricité directed by Ernest Mercier, that of Energie Industrielle,⁷⁰ or the Société de l'Energie Electrique du Littoral Méditerranéen.⁷¹

In the second model, industrial firms followed a rather *fayolian* (functional) model of hierarchical organization.⁷² Like the railroads and utilities, these companies borrowed their model of organization, hierarchical, stratified, and bureaucratic, from systems put in place during the Ancien Régime and the Napoleonic Empire. These large companies

⁶⁷ See "The Role of the States, the Public Sector and the Companies Deprived in the Oil Economy: Oil, States and Large Companies," *Annals of the Collective Economy Journal* 1 (1966).

⁶⁸ François Caron, *Histoire de l'exploitation d'un grand réseau. La compagnie des chemins de fer du nord 1846-1937* (Paris, 1973).

⁶⁹ In 1937, the State nationalized all the railway companies and created the SNCF (National Company of the Railroads).

⁷⁰ Catherine Vuillermot, *Pierre-Marie Durand et l'énergie industrielle: histoire d'un groupe électrique 1906-1945* (Paris, 2001).

⁷¹ Dominique Barjot, "Le rôle des compagnies d'électricité dans l'industrialisation de la Provence: l'exemple de l'Energie Electrique du Littoral Méditerranéen," in *Histoire économique de la Provence* (Aix-Marseille, 1998), 195-216.

⁷² Henri Fayol (1841-1925) was one of the French precursors of management. Its principles relating to the organization, administration, and management were successful in the United States. Fayol "was reimported" in France after the Second World War, by American advisors, benefitting from the passion for the American model. It should be recalled that Fayol recommended the unity of command on all hierarchical levels, which postulated a versatility increasingly more improbable among chiefs with a lengthening of the hierarchical line. See Henri Fayol, *Administration industrielle et générale* (Paris, 1999).

were, like the CFP, faced with international competition (Anglo-Saxon or German). Examples of this model would include Saint-Gobain,⁷³ Schneider and Co,⁷⁴ Alais, Froges and the Camargue (AFC-Pechney),⁷⁵ Lafarge or Rhône-Poulenc.⁷⁶ These firms generally preserved their *fayolian* organizational style, but that did not prevent the partial penetration of American methods, as observed in the car sector (Citroen, Renault, and Peugeot) or the tire industry (Michelin).

The Compagnie Nationale du Rhône illustrates the third model, the mixed investment company, joining together national or regional public capital with semi-public (the Chamber of Commerce) or private capital. This type of company shared with the two preceding models a *fayolian* organizational structure based on the model of the great national technical administrations (mines and electricity, public utilities, and so forth.). Ultimately, the CFP inherited these three models while undergoing greater influence from the American organizational model than other energy sector companies.

Conclusion

The case of the CFP, owing to the fact that it belonged to the mixed economy and the oil sector, nourished debate on the theory of the company, in general, and the different structures a large modern company could adopt, in particular. That was all the more true vis-à-vis the phenomenon of the importation of the American modes of organization, ethics included. The advanced stages of structural development were reached in the United States, including the oil industry, at the very beginning of the twentieth century according to Alfred D. Chandler, Jr.⁷⁷ The Chandlerian theory is based on the uniqueness of the history of American industrial development and of American ethical systems. However, in France the oil industry case the specifics of the French company at the time of the formation of a great competitive structure, privileged partnerships rather than fusion through absorption. The CFP of

⁷³ Daviet, *Un destin international: la Compagnie de Saint-Gobain 1830-1939*; Jean Pierre Daviet, "Stratégie et structure chez Saint-Gobain: un modèle français dans les années 1930?," *Entreprises et Histoire* 1 (April 1992), 42-60.

⁷⁴ Agnès D'Angio, *Schneider et Cie et les travaux publics* (Paris, 1995).

⁷⁵ Ludovic Cailluet, "Un exemple français d'acquisition de capacités organisationnelles: Alais, Froges et Camargue (AFC-Pechiney): d'une Avant-Guerre à l'autre" *Entreprises et Histoire* 13 (Dec. 1996): 115-127.

⁷⁶ Fabienne Gambrelle, *Rhône-Poulenc 1895-1995* (Paris, 1995); Pierre Cayez, *Rhône Poulenc 1895-1975: contribution à l'étude d'un groupe industriel* (Paris, 1988).

⁷⁷ Alfred D. Chandler Jr., *La main visible des managers, une analyse historique*, (Paris, 1988). See also Laurence Capron, "Les vagues de fusions et acquisitions aux Etats-Unis: 1887/1904, 1916/1929, 1950/1970," *Entreprises et Histoire* 10 (Dec. 1995): 21-46.

the 1930s was thus far from the large integrated American structures recommended by Chandler. However, the CFP took as a starting point the American model and its structures (a significant capacity for negotiation, economies of scale). However, thanks to its shareholders, it also benefited from the advantages of a small nationally-based family structure. The survival of the family-owned and paternalistic company Desmarais Frères until 1965 offers irrefutable proof of this.⁷⁸

The accelerated development of an “integrated” company such as the CFP was possible thanks to the French model of mixed economy. This type of economy advanced cooperation to a level that can be described as “quasi-fusion.” The company thus created was the product of a more sophisticated system of private property rights that, with legislative support, allowed it to reach optimal efficiency. This argument is partially linked to the reflections of Alchian and Demsetz, in the framework of their theory of the rights of ownership, to the extent that the firm is a form of efficient, group-directed organization of production.⁷⁹ To guarantee the effective cooperation of the agents (various private companies for our case), it was necessary that one agent (the French State), the “monitor” according to Alchian and Demsetz, specialize in the control and efficient management of the performances of each team member. This agent had to benefit from a status superior to that of the other agents, and to base its authority on a contractual structure and a structure of original property rights.

In addition, the case of the CFP confirmed the evolutionary thesis which *a priori* poses that firms are able to take initiatives and, in particular thanks to their interaction, to adapt their behaviors.⁸⁰ Indeed, the adaptation of French companies to the constraints encountered in their activities in their national market was a source of behavioral variations. These variations generated varied forms of dynamism that, in themselves, pushed towards these evolutions. It is probably behind the compromise between Desmarais Frères and the CFR, aiming at developing a more specialized activity, that the “invisible” hand of the creators of French oil industry was hidden. The evolutionary idea is based on the adaptation of both agents and processes. It always produced innovations. Indeed, the agents “have always the capacity to try out and discover new rules”; thus, they “continue to introduce behavioral innovations into the

⁷⁸ See Mohamed Sassi, “Desmarais Frères: A French Paternalistic Model,” in *Companies-Owners-Employees*, EBHA 2002 proceedings edited on CD-Rom, (University of Helsinki, 2002). A printed version is soon to be published.

⁷⁹ Armen A. Alchian and Harold Demsetz, “Production, Information costs, and Economic Organization,” *American Economic Review* 62 (Dec. 1972): 777-795.

⁸⁰ Richard R. Nelson and Sidney G. Winter, *An Evolutionary Theory Economic Change* (Cambridge, Mass., 1982).

system.”⁸¹ The evolution of the totality of the system thus offered an exemplary case of path dependency.⁸² In fact, this system created by the State was not random, but it followed a “path” determined by accumulated competencies and apprenticeships, which enabled it to evolve with the changing environment. The evolutionary theory applies elegantly to the case of the CFP insofar as it indicates how the company learned and arrived at various solutions while following these types of behaviors. These results were obtained although the behaviors in question were often temporary, suboptimal, and adaptive in relation to perceptions of constraints imposed by the national or international environment.

⁸¹ Giovanni Dosi, Richard R. Nelson, “An introduction to Evolutionary Theories in Economics,” *Journal of Evolutionary Economics* 4 (Sept. 1994): 157.

⁸² Laurent Tissot and Béatrice Veyrassat, eds., *Trajectoires technologiques, marchés, institutions. Les pays industrialisés, 19^{ème} et 20^{ème} siècle: De la dépendance du contexte à la dépendance de sentier* (Bern, 2001).