Divergent Paths, United States and France: Capital Markets, the State, and Differentiation in Transportation Systems, 1840–1940

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Why do the United States and France, both capitalist economies that were dominated by private railways in the 19th and early 20th centuries, have very different transport systems today? After World War II France developed 200 mph high speed trains, while railways in the United States declined to near irrelevance. This paper argues that cross-national divergence was caused by private and public actions that structured capital markets and controlled planning. In the United States private financial institutions

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used capital markets to shape rail development. In France, by way of contrast, the state directly intervened in financial markets and controlled planning. Both systems thrived until World War I. But, then, faced with growing competition from cars, buses and trucks and burdened by excessive debt, they declined towards bankruptcy. The Great Depression became a defining moment as a Socialist-dominated government in France nationalized railways while in the United States, President Roosevelt's New Deal failed to enact policies to ensure the competitive viability of rail in relation to motorized transport. Rarely used archival sources provide much of the evidence for this argument.

Introduction

Americans traveling in France often marvel at that country's railway network, particularly its TGV trains[1] traveling at 200 miles per hour, and wonder why, in their own country, rail transport is so limited and highways so dominant. Commonly cited reasons involve geography, demography, and culture: that the United States is too large, with population clusters too distant from one another to support an efficient rail network, and that Americans have a preference for the freedom of choice offered by the automobile.[2] But, these explanations ignore history. For most of the nineteenth and early twentieth centuries, railways were the main form of transport in both the United States and France, providing efficient movement for passengers and freight throughout those countries, traveling at speeds of up to 120 miles per hour. Highway-based transport only became a significant competitor to railways in the 1920s and, even then, it was mainly automobiles, not trucks, that cut into rail traffic. The historical turning point for transportation in the United States and France was the Great Depression, when railroads fell into bankruptcy. At that "defining moment"[3] the interventionist policies of Franklin Roosevelt's New Deal and the equally interventionist policies of French governments influenced by the Socialist Party moved transportation in different directions. Thus, when contemporary travelers observe differences between French and American transportation, these are not the

1. "Train à Grande Vitesse;" high-speed train. France also has a freight transport system where, for example, high-speed trains carry relatively light packages.

2. M. Foster, *A Nation on Wheel*; E. Sclar, "Passenger Rail," in *The Limits of Market Organization*.

3. M. Bordo, ed., *The Defining Moment*. While the proposition in this book–that the Great Depression was a defining moment–is applied to other sectors, I argue that the concept applies equally well to transportation.

result primarily of timeless factors involving geography, demography, or cultural values. Instead, differences developed during a specific historical period, which began in the 1840s when railroads displaced canals and roadways as primary carriers of freight and passengers, and culminated in the Great Depression of the 1930s, when French and American transportation systems moved along divergent paths toward the future.

In the nineteenth and early twentieth centuries, hundreds of billions of dollars and francs were raised to construct and expand American and French railways. In the United States this capital was raised mainly from stock and bonds issued by large private investment banks, such as J. P. Morgan and Company, Kuhn Loeb, Goldman Sachs, and Lehman Brothers; by commercial banks, such as First National of New York; and by insurance companies, such as New York Life and Equitable.[4] As the primary financial intermediaries in capital markets, these institutions dominated rail finance and shaped rail development.[5] They held large amounts of rail securities in their own asset portfolios, placed their surrogates in rail management positions, controlled the finance committees of railroad boards of directors, and used bankruptcy reorganization to take over weakened railroads. They built railroads into regional and national conglomerates such as the Southern Railway Company (a Morgan-controlled company), the Great Northern (controlled by James J. Hill), and the New York Central (Cornelius Vanderbilt's domain). However, because government regulation was minimal, American railroads often competed within the same region on parallel lines, which weakened them economically, and railroad finances were often corrupted by speculation, overvalued ("watered") stock, and excessive debt. Thus, private control of capital markets and planning largely determined the course of American railway development, but this was accompanied by financial weakness and negative externalities.

4. Equity capital and loans were supplemented by government subsidies and internally generated corporate savings.

5. The term "capital market" is used in this article to include both stock and bond markets. At a practical level, capital markets in both the United States and France involved those places, such as the Bourse in Paris or the Stock Exchange on Wall Street in New York City, where people and organizations traded securities. These markets developed over different time periods and took on different characteristics in each country. While I contend that rail securities played a crucial role in the development of modern capital markets, it is important to note that, in the United States before the mid-nineteenth century, federal, state, and local governments played a significant role in financing turnpike and highway construction, so publicly owned stock and bonds played a role in the development of the first American capital markets. On the development of American capital markets, see Roy, *Socializing Capital*. In France, royal governments were involved in capital markets as early as the seventeenth century. See Lefebvre-Teillard, *Les Sociétés Anonymes*.

In France, by way of contrast, the state was more directly involved in both structuring capital markets and control of plans for that nation's rail development. The French government provided a significant percentage of the funds for transport construction; shaped the characteristics of transport securities traded in financial markets; and determined that the French railway network would take the form of spokes of a wheel emanating outward from Paris, interspersed with smaller regional and local lines, which precluded duplication of routes. While prominent banks such as Rothschild and Company and the Périère brothers' Crédit Mobilier played critical roles in marketing rail stock and bonds, those securities were sold mostly to small individual investors, not held by large financial institutions. Similarly, while bankers and insurance executives, such as Baron Davillier, Regent of the Bank of France, sat on the boards of directors of French railways ("conseils d'administration"), rail planning was generally developed through negotiations with the government.[6] In short, the state directly intervened in both capital markets and rail planning to shape the development of French railways.

Within this institutional context, the defining moment for divergence between American and French transportation was the Great Depression. In the United States, after almost a century of laissez-faire policies vis-à-vis financial markets, the federal government reversed course. Just before leaving office in 1932, President Herbert Hoover created a new, public financial intermediary, the Reconstruction Finance Corporation (RFC), to help revive the availability of bank credit. Succeeding Hoover, President Franklin Roosevelt significantly expanded the RFC's powers, allowing it to purchase hundreds of millions of dollars worth of devalued, illiquid securities held by railroads and their institutional creditors. This produced the desired effect of stabilizing railway finances in the short term and removed large amounts of debt from the balance sheets of banks and other institutional creditors. By socializing rail securities, however, the RFC concomitantly facilitated the decoupling of railways from private banks (such as J. P. Morgan), insurance companies, trusts (of wealthy individuals), and endowments (such as Harvard University) that had supported their capital needs since the mid-nineteenth century, which weakened railways financially in the long run. In addition, the policy decisions—and indecision—of the Roosevelt Administration and Congress undermined the competitive position of railroads vis-à-vis other modes of transportation, mainly autos and trucks. The American

6. From the 1840s until the end of the nineteenth century, "government" in France included the so-called July monarchy of Louis Phillipe from 1830–1848, the Second Republic until 1851, the monarchy of Napoleon III until 1871 and, finally, the Third Republic until the end of World War II.

government failed to enact legislation that rationalized the nation's rail network, which was plagued by duplication of lines; failed to deal with critical questions about whether and how to coordinate railways with other modes of transport; and failed to address various inequities in the competitive relationships between rail and other modes of transport, such as differential tax treatment. As a result, in addition to losing their access to private capital markets, railways were weakened competitively within the country's transportation system.

By way of contrast, the French government, influenced by prominent socialists such as Leon Blum and Jules Moch, responded to the crisis of the Great Depression by nationalizing its railways in 1937. The government quickly paid off accrued railway debts, which stabilized rail finances in both the short and long term, and also mandated that coordination and competitive balance be developed between rail and other transport modes, such as highways and canal transport, which strengthened railways in competitive economic terms. Thus France accomplished in a single piece of legislation what the Roosevelt Administration and members of Congress attempted, but failed to achieve in multiple initiatives throughout the 1930s.

In short, a combination of private and public policies shaped the development of American and French transportation after the rise of railways in the early nineteenth century. In the United States private institutions directly controlled markets and planning, while in France the state determined transportation finance and development. This produced differences in the forms of railway development in the two countries and set the stage for how the two nations dealt with transportation problems during the Great Depression. The United States considered both nationalization and coordination throughout the 1930s, but adopted neither, leaving railroads in a weakened position relative to other transport modes. The French government nationalized its railways in 1937 and, simultaneously, mandated that they be coordinated with other modes of transport. Thus, at the end of the Great Depression the two countries moved along divergent paths toward their transportation futures.

Historiographic Context

Cross-national studies support my thesis that distinctive national approaches to transportation have developed within capitalist economies such as France and the United States.[7] Comparing the

7. I also examined single country studies, but these cannot explain United States–France divergence. Individual studies of American and French transportation history suggest that railroads declined, in significant measure, due to

early-nineteenth-century development of French, British, and U.S. railways, Dobbin contends that "the institutionalized principles of political order found in these nations were applied to industry . . ., (so) the economy (including transport) came to reflect the polity."[8] In a similar vein, Dunlavy argues that differing national political structures were primarily responsible for emerging differences in the technology of American and Prussian railways at the beginning of the nineteenth century.[9] Other, more theoretical work on a cross-national level describes how governments operate within distinctive institutional frameworks that shape the direction of industrial development.[10] In short, the cross-national literature suggests that the distinctive forms of capitalism developed in the United States and Europe in the nineteenth century, produced different forms of development in sectors such as transport.

While applying the notion of nationally different capitalisms, I broaden the conceptual frameworks of Dunlavy and Dobbin. Where their work focuses primarily on the role of politics and the state, I look additionally at the effects of differences in the evolution and functioning of capital markets on national transportation systems. Where their time frame is the early development of railroads at the beginning of the nineteenth century, I look at French and American transportation systems through the Great Depression. Furthermore, I rely on primary sources that have received relatively little attention in prior historiography. For the United States, this includes longitudinal data on the assets of large financial institutions, provided by the

competition from motorized vehicles. But, the fact that highway competition had major influence on both French and U.S. transport development only brings into sharper focus the question of why highways displaced rail in the United States, but did not do so in France, which instead maintained balance among its various modes of transport.

8. Dobbin, "Why the Economy Reflects the Polity," 2. Also, Dobbin, *Forging Industrial Policy*. Dobbin shows that, in France, where the state centrally directed economic development ("dirigisme"), successive royalist and republican governments in the early to mid-nineteenth century authorized the formation of six private railway companies ("le grand réseau"), each with a quasi-monopoly on service in a particular geographic area of the country, but operating under a system of strict state regulation. During the same period in the United States, because government was more decentralized and railway corporations were relatively unregulated, they created a rail system with many parallel lines in the same geographic area. Thus, the polity influenced the structure of the transportation sector of the economy.

9. Dunlavy, *Politics and Industrialization*. Dobbin and Dunlavy also both deal with cross-national divergence in the technological aspects of early rail development in the nineteenth century. For example, France developed a common national gauge for its rail track, as well as common signaling and safety systems, whereas in the United States, different railway companies ran on different widths of track and the signaling and braking systems were engineered differently.

10. Hall, *Governing the Economy;*. Zysman, *Government, Markets and Growth*.

Raymond Goldsmith and the National Bureau of Economic Research,[11] as well as archival records of the RFC,[12] the new public financial intermediary created in 1932 that had major influence on transport system development. For France, I found information on the supply of railway capital in the private archives of major banks and insurance companies;[13] in a branch of the National Archives;[14] in the archives of the School of Bridges and Roadways (École Nationale des Ponts et Chaussées);[15] and in the archives of the National Railway Company (Société National de Chemin de Fer, or S.N.C.F.).[16]

11. Goldsmith, *Financial Intermediaries in the American Economy since 1900*. The National Bureau of Economic Research was founded in the early twentieth century to carry out empirical studies of fundamental aspects of American economic development. Goldsmith's monograph is part of a series of studies dealing with capital formation in the nineteenth and twentieth centuries. While this monograph includes interpretive narrative, I rely exclusively on the data in his appendices, which are compilations from primary sources such as Federal Reserve Bank Bulletins and Comptroller of Currency Reports.

12. The records of the Reconstruction Finance Corporation (RFC) are part of the National Archives of the United States. RFC documents are found in Archive II, located in College Park, Maryland. The primary Record Group for RFC documents is RG 237.

13. I worked mainly in the archives of Société Genérale in Paris; Banque de Paris et Pays-Bas in Paris and Orléans; and Crédit Lyonnais in Paris. For Société Genérale, I consulted their "Bilan" (Balance Sheet) from Rapports Annuels (Annual Reports): 1888–1936 ; "détail" on "rentes et actions"; "bons et obligations" (securities) from various archival documents in Boite (box) 2520; 2495; 2530; 2492, (Paris: Société Genérale archive). For Bank Paribas, I examined the annual Grande Livre Comptabilité (Main Book of Accounts), focusing on balance sheets for the period from 1888 to 1928. These are located in the "back office" branch of the Paribas archive in Orléans, France. For Crédit Lyonnais, I used their main archive catalogue to locate relevant documents, which were mostly useful in providing historical context. They did not provide data specifically on bank assets. Other private banks, such as Banque Rothschild and Comptoir d'Escompte were also significant intermediaries in raising railway capital, but the results of my research in the archives of the first three banks obviated the need to consult every private bank archive. Insurance company records were found in the offices of the national professional association of French insurance companies (Fédération Française des Sociétés d'Assurances, FFSA).

14. Le Centre des Archives du Monde de Travail (CAMT), Roubaix, France. I worked with documents pertaining to both individual and institutional ownership of railway securities. The main record groups ("fonds") I consulted were: 48 AQ 833 to 1016; AQ 1017 to 2724; and AQ 2747.

15. The archives of the École Nationale des Ponts et Chaussées (ENPC) are located on the school's campus in Marne-La-Vallée, a suburb of Paris. The main documents I worked with at ENPC were: Ministère des Travaux Publics, "Statistique Des Chemins De Fer Francais," (Imprimerie Nationale). These are yearly reports, dating to the early nineteenth century, that provide data on the finances of all French railways and tramways.

16. The SNCF archives are located in Le Mans, France. Originally part of the National Archives, most of the records were subsequently transferred to the auspices of SNCF. I used the master archive index to find relevant documents, since no particular group of records dealt with the issues I was researching.

Sources of Capital for Transport Development

In the early nineteenth century, capital for the construction of major American canals and turnpikes came in significant measure from government purchases of their stock, public loans, and subsidies as well as land grants and rights of eminent domain.[17] As a result, government bonds and, to a lesser degree, private company stock, were major securities traded in early American capital markets.[18] But, with the rapid growth of railways in the 1840s and thereafter, canal stock and bond values declined in financial markets, so many companies went bankrupt and taxpayer-supported public investment was not repaid. This coincided with scandals involving corruption and mismanagement of canal enterprises. Thus, at the historical moment when railways were rapidly expanding, popular sentiment turned against government funding of internal improvements,[19] which led to an important shift in American financial history. Private financial institutions supplanted government in providing capital for railroad construction and the stocks and bonds of private rail corporations soon became the main securities traded in the U.S. capital markets.[20]

Not long thereafter, the same financial institutions that used rail finance to take control of capital markets—such as J. P. Morgan and Company, National City Bank, and New York Life Insurance—initiated a wave of rail mergers to protect their capital investment. At the end of the Civil War, hundreds of small, independently owned railroad corporations operated in the United States. These companies proliferated as part of westward expansion so that, between 1865 and 1893, rail track increased from 35,000 to 176,000 miles.[21] But, banks and other institutional investors were concerned about problems that often characterized promotion of railroads, such as inflated construction costs, overcapitalization ("watering" of stock), and looting of company assets by promoters.[22] They were also concerned that in most regions of the country multiple railway companies competed on lines that frequently paralleled one another,[23] leading to rate competition, particularly for freight shipments, that drove down profits. Regional pools and associations among railways were formed to try to tamp down destructive competition and to stabilize rates, but most

17. Many small private canals and turnpikes were financed largely by private equity. This information was provided by an anonymous reviewer.
18. Carosso, *A History of Investment Banking in America.*
19. Goodrich, *Government Promotion of American Canals and Railroads*; Roy, *Socializing Capital.*
20. Roy, *Socializing Capital.*
21. United States Bureau of Census, "Historical Statistics of the United States."
22. Kotz, *Bank Control of Large Corporations,* 24–31.
23. Saunders, *Merging Lines,* 3–16.

of these initiatives failed. When state governments tried legislating rates, railway companies used contributions, bribes, and political influence to stymie these efforts. As a result, while some railroads were profitable, many others failed and eventually entered into bankruptcy proceedings.[24]

In order to protect the stability and continued growth of their rail securities in the capital markets, a relatively small group of unincorporated, private investment banks, such as J. P. Morgan, Kuhn Loeb, and Lehman Brothers, as well as incorporated commercial banks, such as First National Bank of New York, initiated a wave of mergers and reorganizations in the rail industry, often using rail bankruptcy proceedings as a venue for consolidating or merging small competing railroads into larger conglomerates.

An example typical of one of these reorganization mergers, led by J. P. Morgan, was the creation of the Southern Railway in the 1890s. The Richmond Terminal, Richmond and Danville, East Tennessee and Georgia Central Railway companies, which competed in the same geographic area and had become insolvent in the 1880s for many of the reasons just described, such as competing on parallel track on the same shipping and passenger routes, filed for bankruptcy reorganization in the early 1890s. Railway management invited the intervention of J. P. Morgan as receiver of the insolvent properties. Morgan set about unifying the competing companies into one consolidated regional corporation, which he expeditiously accomplished in September, 1894. As part of the final arrangement, Morgan formed a voting trust to represent stock and bondholders, three members of which became directors of the newly consolidated Southern Railway. The new directors, who included a Morgan partner and representatives of the syndicate of insurance companies, banks, and trust companies formed to purchase and market the stocks and bonds of the new company, appointed managers for the railway, and thereby took control of corporate policy.[25] With reorganization completed, the newly consolidated Southern Railway quickly became an extremely profitable company, shipping coal from Kentucky, Tennessee, and Alabama; iron from Tennessee and Alabama; lumber from the Carolinas and Georgia; plus tobacco, fruits, and vegetables.[26] The interventions of institutional investors were amply rewarded as Southern Railway stocks and bonds soon increased in value on capital markets.[27]

24. Campbell, *The Reorganization of the American Railroad System*, 17–23.
25. Ibid., 149–54.
26. Ibid.
27. The process of reorganizing railroads during the wave of mergers that occurred in the 1890s has come to be called "Morganization," due to the major role

During the same mid- to late-nineteenth-century period in France, railways and capital markets developed primarily as a joint venture between government and private companies.[28] Railway construction in France was financed partly by the state, which provided rights of way, subsidies, loans, and guarantees on rail securities, and partly by private equity and loans. While large, private investment banks such as Rothschild, the Périère brothers' Crédit Mobilier, and Société Genérale acted as intermediaries in issuances of both private and public stock and bonds, in contrast to the United States they did not purchase large quantities of these securities for their own portfolios. As key advisors to railway companies and sometimes as large stockholders, French bankers and insurance company executives served on railway Boards of Directors ("Conseils d'Administration"), were active in setting company policy, and helped negotiate agreements with the government. For example, in an early agreement ("Convention" of 1859) the government committed to guaranteeing the interest for all private and public borrowing on behalf of railways, which assured the large banks that they could easily sell rail stock and bonds to investors, who were primarily individuals of modest incomes. Subsequently, in the Convention of 1883, the companies agreed to cease further issuances of stock and to rely exclusively on borrowing and on direct public subsidies, which tied them even closer to the government.[29]

By 1846, thirty-three different private railway companies existed in France.[30] In contrast to the United States, these companies were not entirely independent, since they operated on publicly owned rights of way under long-term leases to the government. In return for their franchise, companies were protected by laws prohibiting any parallel and competing rail lines, though the state reserved the right to allow competition from canals and/or turnpikes—an early indication of the government's intention to promote a transport system in which no single mode precluded all others from operation.[31] Through

played by J. P. Morgan and his investment bank. See, for example: *ibid*. However, other research suggests that Drexel Morgan and Company was only one of many banks that contributed to the wave of mergers and reorganizations. See Greenberg, *Financiers and Railroads*.

28. Hautcoeur, "Le Marché Boursier."

29. The economic and political context influencing negotiations between the French state and private companies varied with each Convention. For example, after an economic recession in 1882, the government viewed its promise to guarantee repayment of debt from company borrowing, in return for which the companies agreed to contribute a lump sum toward railway construction, as a way to stimulate employment in the national economy. See, for example: Caron, *Histoire Des Chemins De Fer En France* and. Kimon, *French Railroads and the State*.

30. Construction of French railways began in the 1820s.

31. Doukas, *French Railroads and the State*;. Dougall, "Public and Private Operation of Railways in France." Caron, *Histoire Des Chemins De Fer En France*.

a series of subsequent laws and agreements in the 1850s and 1860s, the French rail system was reduced to six major private companies that operated the so-called great network ("le grand réseau") of the Northern, Eastern, Paris–Orléans, Paris–Lyons–Mediterranée, Midi, and Western companies.[32] Then, in 1879, under the Freycinet Plan, the railway companies were mandated to build extensive local lines in each of their franchise regions, with government support. In addition, the Freycinet Plan provided government subsidies for improving the national network of canals and roadways. Within this overall system, railways were the main mode of freight and passenger transport, but water and highway transport continued to be supported and protected by the state. This national system persisted, with some minor modifications, until the late 1930s.

In short, through loans, guarantees, and other interventions, the French government was directly involved in assuring that capital for railway development was forthcoming from financial markets. This was similar to the way the American government influenced capital markets in the early part of the nineteenth century, when canals and turnpikes were constructed. But, whereas localities, states, and the federal government in the United States withdrew from direct financial support of canals and turnpikes by the mid-nineteenth century, so that private banks and insurance companies became the main suppliers of capital for railways, the government in France became increasingly involved in the capital markets throughout the nineteenth century. The larger role of the French state as opposed to the American government in their respective capital markets highlights an important difference that contributed to the divergence between the transport systems of the two countries.

National data on sources of funds for rail development is available for both France and the United States. Table 1, derived from an unusually rich and rarely cited data series, "Statistique des Chemins de Fer Francais" (Statistics of French Railways), published yearly by the Ministry of Public Works,[33] shows that, by 1888, proceeds from bond sales comprised 67.8 percent of all rail capital raised by the major private railway companies in France, increasing to 87.6 percent in 1936—the year before railways were nationalized—with stock a

32. In 1877, the state took over and began direct government operation of some lines in the Southwestern region and the remainder of the Western Company was fully nationalized in 1909. A seventh network, the Alsace–Lorraine, was added as a state operated company after the defeat of Germany and recovery of formerly French land in that region in World War I.

33. Publics, "Statistique Des Chemins De Fer Francais."

Table 1 Sources of capital raised by class of French railroad companies, 1888–1936 (in millions of Francs)

		Stock sales[a]	Percentage of total	Bond Sales[b]	Percentage of total	Central gov't subsidies	Percentage of total	Local gov't subsidies	Percentage of total	Total capital raised	Total percentage
1888	Primary companies	1,469.9	9.9%	10,067.4	67.8%	3,204.2	21.6%	106.0	0.7	14,847.5	100%
	Government lines	N/A	N/A	N/A	N/A	51.9	30.6%	117.6	69.4%	169.5	100%
	Total capital raised	1,469.9		10,067.4		3,256.1		223.6		15,017.0	
1896	Primary companies	1,469.9	8.4%	11,741.2	67.1%	4,128.3	23.6%	148.6	0.8%	17,488.0	100%
	Government lines	N/A	N/A	N/A	N/A	52.4	30.4%	119.9	69.6%	172.3	100%
	Total capital raised	1,469.9		11,741.2		4,180.7		268.5		17,660.3	
1904	Primary companies	1,469.9	7.5%	13,363.7	68.5%	4,464.3	22.9%	197.6	1.0%	19,495.5	100%
	Government lines	N/A	N/A	N/A	N/A	52.4	30.4%	119.9	69.6%	172.3	100%
	Total capital raised	1,469.9		13,363.7		4,516.7		317.5		19,667.8	
1912	Primary companies	1,469.9	7.0%	15,666.9	74.2%	3,824.0	18.1%	153.9	0.7%	21,114.6	100%
	Government lines	N/A	N/A	298.3	20.3%	1,071.0	72.8%	102.1	6.9%	1,471.4	100%
	Total capital raised	1,469.9		15,965.2		4,895.0		256.0		22,586.1	
1921[c]	Primary companies	1,469.9	5.3%	21,929.9	79.0%	4,178.7	15.1%	166.2	0.6%	27,744.8	100%
	Government lines	N/A	N/A	3,329.7	64.2%	1,754.1	33.8%	106.2	2.0%	5,190.0	100%
	Total capital raised	1,469.9		25,259.7		5,932.7		272.4		32,934.7	
1928	Primary companies	1,469.9	3.3%	37,679.4	84.1%	5,413.4	12.1%	232.1	0.5%	44,794.8	100%
	Government lines	N/A	N/A	8,277.0	80.6%	1,865.2	18.2%	124.6	1.2%	10,266.9	100%
	Total capital raised	1,469.9		45,956.4		7,278.5		356.8		55,061.6	
1936	Primary companies	1,469.9	2.0%	65,516.7	87.6%	7,467.4	10.0%	376.7	0.5%	74,830.6	100%
	Government lines	N/A	N/A	16,143.8	87.3%	1,916.4	10.4%	436.3	2.4%	18,496.5	100%
	Total capital raised	1,469.9		81,660.5		9,383.8		812.9		93,327.1	

Source: *Ministere Des Travaux Publics, "Statistiques des Chemins de Fer Francais, Interet Generate et Interet Local et Tramways", (Paris: Imprimerie Nationale).*
[a]Title of column in source is "Capital Realise".
[b]Title of column in source is "Capital Realise".
[c]Data for 1920 not available.
Note: N/A means data is not available in the primary source.

distant 10.2 percent in 1888, declining to 2 percent in 1936.[34] By way of contrast, during the same time period in the United States, railways continuously raised capital from both stock and bond issuances. Table 2 shows that between 1900 and the onset of the Great Depression in 1929, although the proportion of total capital coming from bonded debt outweighed stock in the United States, the amount of equity capital issued increased by 70 percent, from $5.9 billion to $9.9 billion.[35] With these large sums of equity capital raised and traded, risk finance was more important in the United States than French capital markets during this period.

In addition to differences in the degree to which they relied on equity and debt to finance their railways, France and the United States also differed in terms of the amount of central government expenditures for rail development. Table 1 shows that, in France, the absolute amount of central government subsidies contributed to railways increased 69 percent between 1888 and 1928, just prior to the Great Depression, from 3.2 billion to 5.4 billion francs. However, because of even heavier reliance on credit (bonds) for raising capital, the proportion of overall capital coming from government subsidies declined from 21.6 percent in 1888 to 12.1 percent in 1928. In contrast, in the United States, although federal, state, and local governments gave generous direct subsidies to railroads in the early nineteenth century, in the form of both land grants and government purchases of rail company stock, most public stock purchases ceased before the Civil War and land grants and public subsidies generally disappeared by the end of the nineteenth century. Thus, as noted earlier, rail corporations turned to the stock and bond markets for their capital needs. The decline in direct U.S. government involvement in rail finance by the end of the nineteenth century, compared to an increase in the absolute amount of direct French government subsidies going to railways between 1888 and the eve of the Great Depression, is an important

34. Some French economic historians, such as Hautcoeur, have argued that reinvestment of corporate profits (autofinance) was the most important factor supporting French industrial development prior to 1914, and that, even after World War I, the French stock market played a secondary role in industrial development. However, Hautcoeur excludes railway investment from his analysis, which diminishes the relevance of his argument in this context. Furthermore, as Gueslin and others have pointed out, in the pre–World War I period railway investment was a leading effect in French industrial development. Hautcoeur, "Le Marché Boursier." Gueslin, "Banks and State in France from 1880's to the 1930's."

35. 1888 is the first year shown for France in table 1 because that is after the Convention of 1883, which mandated that railways cease stock issuances. Thus the figure for stock sales remains constant from 1888 through 1936. Data for the United States, shown in table 2, is only available beginning in 1900.

Table 2 Composition of capital raised by railroads, 1900–1929 (in millions)

	Rail bonds[a]	Percentage	Rail stocks[b]	Percentage	Total stock and bonds	Total percentage
1900	4,932	45.7%	5,850	54.3%	10,782	100%
1901	5,210	47.3%	5,806	52.7%	11,016	100%
1902	5,837	49.2%	6,024	50.8%	11,861	100%
1903	6,276	50.5%	6,156	49.5%	12,432	100%
1904	6,528	50.7%	6,340	49.3%	12,868	100%
1905	6,977	51.6%	6,554	48.4%	13,531	100%
1906	7,440	52.2%	6,804	47.8%	14,244	100%
1907	7,825	51.5%	7,357	48.5%	15,182	100%
1908	8,222	52.7%	7,374	47.3%	15,596	100%
1909	8,676	53.0%	7,686	47.0%	16,362	100%
1910	9,055	52.7%	8,113	47.3%	17,168	100%
1911	9,189	52.0%	8,471	48.0%	17,660	100%
1912	9,507	52.4%	8,623	47.6%	18,130	100%
1913	9,802	53.2%	8,611	46.8%	18,413	100%
1914	10,054	53.7%	8,680	46.3%	18,734	100%
1915	10,258	53.3%	8,995	46.7%	19,253	100%
1916	10,385	53.4%	9,059	46.6%	19,444	100%
1917	10,381	52.7%	9,302	47.3%	19,683	100%
1918	10,389	53.4%	9,055	46.6%	19,444	100%
1919	10,349	53.2%	9,091	46.8%	19,440	100%
1920	10,334	53.1%	9,113	46.9%	19,447	100%
1921	10,474	53.6%	9,076	46.4%	19,550	100%
1922	10,573	53.6%	9,141	46.4%	19,714	100%
1923	10,842	54.0%	9,250	46.0%	20,092	100%
1924	11,114	54.0%	9,474	46.0%	20,588	100%
1925	11,785	55.3%	9,539	44.7%	21,324	100%
1926	11,813	55.5%	9,485	44.5%	21,298	100%
1927	11,950	55.3%	9,663	44.7%	21,613	100%
1928	12,216	55.4%	9,843	44.6%	22,059	100%
1929	12,225	55.2%	9,918	44.8%	22,143	100%

[a]Source: Hickman, W. B. (1953), *"The Volume of Corporate Bond Financing since 1900,"* Princeton, NJ: Princeton University Press. Table A-1, p. 252. Includes all types of outstanding rail bonds at par value.

[b]Source: Commission, Interstate Commerce. *"Statistics of Railways in the United States"*, edited by Bureau of Statistics, 153: Government Printing Office, 1942. Figures reflect nominal values of common and preferred stock outstanding.

aspect of the much larger role played by the French state in influencing transportation development.

Thus, in their early years French and U.S. railways were similar in their reliance on equity, debt, and government subsidies to support their growth. But, in the later part of the nineteenth century the two countries began to differ. In France, after the Convention of 1883 was implemented, railroads ceased issuances of equity or risk capital, whereas U.S. railroads continued to sell large amounts stock well into the twentieth century. Also, whereas direct government subsidies supported French railways throughout the nineteenth and twentieth

centuries, in the United States direct government support for railways ended by the turn of the twentieth century. These differences—in the degree of reliance on risk capital and in the levels of direct government expenditures—are two aspects of the way French and American capital markets were differently structured, which provides institutional context for divergence in their transportation systems.

Differences in the Intrinsic Characteristics of French and U.S. Securities

The intrinsic characteristics of rail securities traded in the U.S. and French capital markets also differed and this, too, contributed to the divergence in the development of their national transportation systems. In France, rail stocks were unusual in that they carried government guarantees on dividends and on amortization of share values. These guarantees supported the underlying valuations of French rail securities, even when the sponsoring companies became insolvent and at risk of bankruptcy. By way of contrast, except for a few instances in the early years of direct government promotion of canals and other internal improvements, railway stock in the United States rarely carried public guarantees. Instead, share prices and dividends were mainly determined by market forces, with valuations varying in relation to company earnings and broader economic conditions. Also, in American capital markets prices were sometimes manipulated by brokers engaged in collusion with other brokers, companies, and bankers.[36] Thus, when railroad operations in the United States declined into deficit, as occurred during the not-infrequent economic crises of the volatile late nineteenth and early twentieth centuries, rail stock plummeted in value on capital markets.[37] In France, on the other hand, French railway stocks carrying government guarantees were better insulated from economic volatility.[38]

Various studies by French economic and financial historians indicate that French railway stock maintained generally high price levels even during periods of economic volatility. Marnata's data shows that, in spite of growing competition from highway transportation between 1913 and 1929, rail stock prices rose 33 percent and that, during the

36. Case material concerning the various ways in which brokers and financial institutions attempted, often successfully, to manipulate rail stock prices is recounted in many historical sources. See, for example Martin, *Enterprise Denied*. and Greenberg, *Financiers and Railroads, 1869–1889*.

37. Campbell, *The Reorganization of the American Railroad System*; Carosso, *A History of Investment Banking in America*.

38. Picard, *Les Chemins De Fer*.

depression years of 1929–1939, rail prices decreased less than other sectors, such as textiles, steel, and mining.[39] Denuc's indices of gross dividends and of market value for rail stock for 1857–1932 stay relatively constant from 1883 to 1913, decline only during World War I, then increase from 1919 to 1929.[40] Dessirier's data shows that dividends paid to shareholders of the six major French railways, even during the depression years of 1930–1936, were consistently far higher than the minimum government or company dividend guarantee.[41] Finally, Godfernaux's data shows that share values of stock for each of the primary railway companies were higher in 1927 than in 1877.[42] In short, these studies indicate that French railway stock was protected from economic volatility due to government guarantees on dividends and amortization.[43]

While French railway bonds also carried fixed interest rates guaranteed by the state, their prices were more directly affected by economic trends than were rail stocks. In general, however, losses in bond values that occurred in the nineteenth and twentieth centuries were relatively small. Godfernaux's data shows losses of only 5–13 percent on rail bonds between 1877 and 1927 for the major private railway companies.[44] Partly this is because bond yields were consistently supported by the French state. When the French government issued bonds to support railway development, the Treasury and Bank of France established interest rates to support the yields of other bonds currently trading in capital markets. This is very different from the situation in the United States, where rail bond values in the capital markets varied, as did stock prices, in direct relation to the operating performance of the railways and/or economic conditions. In the United States, bond investors were much more subject to the volatility of the market than in France.

One of the most important reasons why French rail stock and bond values were less volatile than in the United States is that the legal and political systems of the two countries treated insolvency and

39. Marnata, *La Bourse Et Le Financement*.

40. However, the index for market value is much less consistent. Denuc, "Dividends, Valeur Boursière."

41. J. Dessirier, "La Bourse Des Valuers.

42. Godfernaux, *Apercu De L'évolution Des Chemins De Fer Francais*.

43. Particularly after World War I, inflation cut into the real value of stock dividends and, if stock was sold, into the value of capital gains. Inflation is not accounted for in these studies, so valuations are not in "constant" or "real" francs. This, however, does not contradict the overall point that French rail stock and bond prices remained relatively stable from the late nineteenth century through the 1920s and were more strongly insulated from price shocks than in other economic sectors even during Great Depression.

44. Godfernaux, *Apercu De L'évolution Des Chemins De Fer Francais*.

bankruptcy differently.[45] In France, when railroads became insolvent, the government generally intervened to prevent them from entering formal bankruptcy.[46] Bankruptcy was avoided because the government guaranteed interest payments on rail bonds, supported additional borrowing by insolvent companies from the Bank of France's discount window, and/or provided direct Treasury subsidies.[47] As described earlier, the French state had entered into a symbiotic relationship with private railway companies where, in return for the services they provided under long-term leases, the government guaranteed its financial support, as provided in the Conventions of 1859, 1883 and later Conventions in the 1920s and 1930s. For the government to have provided rail securities any less support would have undermined company finances and, concomitantly, the savings invested in railways by French citizens.

By way of contrast, in the United States, numerous rail bankruptcies occurred between the late nineteenth century and the onset of the Great Depression. The average number of American railways in bankruptcy per year between 1894 and 1929 (the eve of Great Depression) was sixty-four. The largest number of bankruptcies was 192 in 1894, after the Panic of 1893 and depression of subsequent years; the lowest was twenty-six in 1905, a period when U.S. railways were thriving financially.[48] American bankruptcy proceedings were governed by the courts, not by state or federal law, under a specialized judicial procedure called "equity receivership."[49] In these proceedings railway ownership or its management representatives invited a bank—usually one that had previously raised funds for the railway—to serve as receiver of the insolvent property. Courts almost always agreed to appoint bank receivers, even though such an

45. Hautcoeur and N. Levratto, "Bankruptcy Laws and Practice;" Sgard, The Liberalisation of Bankruptcy Law in Europe.

46. In a very few instances bankruptcies occurred in the earliest stages of French railway development. F. Caron, *Les Grandes Compagnies De Chemin De Fer En France*. However, as Caron notes in a personal communication: "There were few bankruptcies in the history of French railways because of the assistance the State and local authorities provided the companies . . . in the form of interest guarantees (on their debt)."

47. For example, the Bank of France might buy loans from railroads bearing an interest rate of 6 percent and, in turn, sell the railroads loans of an equal principal amount, but bearing a lower or "discounted" interested rate. The railroads would then owe the Bank of France the lower rate of interest, which lowered the fixed costs of debt owed by railroads, while the Bank of France would continue to pay creditors the 6 percent interest at which they had made their original loan to the railroads.

48. Interstate Commerce Commission, "Statistics of Railways in the United States."

49. Non-rail corporations were governed by other state and federal bankruptcy laws. See Skeel, *Debt's Dominion*.

arrangement could be considered collusive.[50] Next, railway owners and managers, bankers, and stock and bondholders negotiated arrangements to raise new capital, first, to pay off the maturing loans and pending interest payments that originally caused the insolvency, and second, to rebuild the often deteriorated infrastructure of the railway and to purchase new rolling stock. In a typical reorganization agreement stockholders paid an assessment, in return for which they received newly issued stock in the company, while bondholders—mainly large financial institutions—took losses on their devalued railway bonds as new debt was issued. But, while the stockholders were usually left holding "watered" stock, which might not bear dividends for a long time, if ever, bondholders held assets that usually gained in value when the reorganized company returned to profitability.[51] In addition, financial institutions reaped large fees repackaging and reselling the bonds that were issued as part of reorganization, which added to their profits from these proceedings.[52] In short, in American rail bankruptcy proceedings, equity capital (stock) was put at more risk than credit (bonds), and institutional creditors (bondholders) generally emerged in a stronger condition than stockholders.

In sum, both the intrinsic characteristics of railway securities and the way in which those securities were treated during insolvency and bankruptcy differed in France and the United States in the late nineteenth and early twentieth centuries. In France, government guarantees supported price stability for rail securities in financial markets, whereas in the United States prices of rail securities were more volatile. Furthermore, guarantees in France were part of a broader policy of preventing insolvent railways from entering bankruptcy, a clear example of the French state structuring capital markets and establishing the framework within which transportation development would proceed. In the United States, by way of contrast, insolvent and bankrupt railroads were reorganized within capital markets that were structured primarily by private institutions, with government on the sidelines. Equity receiverships were largely voluntary proceedings initiated by railway ownership-management and then controlled by private bankers and other institutional investors. Most settlements benefited institutional creditors, while owners of rail equity were left at greater risk. Equity receivership as law and market procedure persisted from the mid- to late-nineteenth century until reforms were

50. Skeel notes that, in the vast majority of receiverships in the late 1800s, "insiders" were appointed as receivers. See also Lowenthal, "The Railroad Reorganization Act."

51. Hansen, "The People's Welfare"; Moore, *The Reorganization of Railroad Corporations*. Skeel, *Debt's Dominion*.

52. Greenberg, *Financiers and Railroads, 1869–1889*.

instituted during Great Depression in the United States, just as in France government intervention in capital markets to support rail stock and bond prices and to avoid railway bankruptcies persisted unchanged from the mid-1800s through nationalization of railways in 1937.

Institutional and Individual Ownership of Equity and Debt

Ownership of rail securities is another factor that differentiated French and American capital markets. In the United States, major financial institutions owned large blocks of rail stock and bonds, whereas in France securities' ownership was much more broadly dispersed among individuals. The best available data on the rail assets of American commercial and savings banks, insurance companies, investment companies, and trust funds is in the appendices of a landmark study authored by Raymond Goldsmith in the 1950s. An economist at that time with the National Bureau of Economic Research, Goldsmith compiled asset ownership data from primary sources such as Federal Reserve Bulletins and Comptroller of Currency Reports.[53] Regrettably, private investment banks, which dominated the capital markets for railroad securities between 1865 and World War I and continued to play a major role into the 1930s,[54] do not appear in the Goldsmith appendices since they were not subject to government regulation and, therefore, not legally required to make a public accounting of their assets. However, government reports and banking research indicate that the rail assets of the approximately two hundred and fifty U.S. private investment banks amounted to many billions of dollars during this period.[55] Furthermore, the data in Goldsmith's appendices for stocks and bonds held by trust funds is not broken out according to types of securities, such as railroads and public utilities. But, other banking studies indicate that trust funds were mainly investors in blue chip stocks and secure bonds, of which rail were considered the gold standard.[56] Therefore, the figures I cite below from Goldsmith definitely understate the extent to which major classes of financial institutions were invested in rail.

Table 3 shows that in 1900 in the United States, the asset portfolios of financial institutions were heavily weighted with railway

53. Goldsmith, *Financial Intermediaries*.
54. Carosso, *A History of Investment Banking in America*.
55. Ibid. See also: Edwards, *The Evolution of Finance Capitalism*. Kotz, *Bank Control of Large Corporations*.
56. Carosso, *A History of Investment Banking in America*. Kotz, *Bank Control of Large Corporations*.

Table 3 Railroad assets of major financial institutions, 1900–1929 (in millions)

	1900			1912			1922			1929		
	Rail securities[1]	Total assets[2]	Percentage	Rail securities[1]	Total assets[2]	Percentage	Rail securities[1]	Total assets[2]	Percentage	Rail securities[1]	Total assets[2]	Percentage
Mutual savings banks	420	2,269	18.5%	771	3,797	20.3%	934	6,313	14.8%	1,375	9,472	14.5%
Commercial banks	520	7,207	7.2%	929	16,468	5.6%	1,269	38,600	3.3%	1,191	53,718	2.2%
Insurance companies	667	1,915	34.8%	1,745	5,182	33.7%	2,414	10,864	22.2%	3,929	21,890	17.9%
Trust funds	N/A	2,670	N/A	N/A	6,090	N/A	N/A	16,110	N/A	N/A	27,600	N/A
Investment companies	N/A	N/A	N/A	N/A	N/A	N/A	15	90	16.7%	405	2,384	17.0%

Source: Goldsmith, R. (1958) *Financial Intermediaries in the American Economy since 1900.* Princeton, NJ: Princeton University Press. Appendix A-3, A-5, A-8, A-9, A-12, A-13, A-16, A-21.
[1]Stocks and bonds.
[2]Total Assets includes agricultural loans; household mortgages; unincorporated business and corporate loans; corporate stocks and bonds; federal, state and local government securities; and miscellaneous and foreign loans. These same asset categories are broken out in more detail in table 6 for the period 1929–1939.

stocks and bonds: 7.2 percent of commercial bank assets were in rail stock and bonds, 18.5 percent for savings banks, and 34.8 percent for insurance companies. Table 3 also shows that, between 1900 and the eve of the Great Depression in 1929, a period during which competition from emerging highway-based transport was beginning to put pressure on railroad finances, U.S. financial institutions actually increased the absolute amount of their rail assets, although those holdings decreased in proportion to other assets within their overall portfolios. Insurance companies increased their rail assets from $667 million to almost $4 billion in 1900, 17.9 percent of their overall investment portfolio in 1929, though down proportionately from 34.8 percent in 1900. Savings banks increased their rail holdings from $420 million to $1.375 billion in 1929, or 14.5 percent of overall assets (down from 18.5 percent in 1900). Commercial banks went from $520 million to $1.191 billion, or 2.2 percent of assets in 1929, down from 7.2 percent in 1900. Investment companies held 17 percent of assets in rail securities in 1929 (data not available for 1900). As just noted, I also infer from secondary sources that private investment banks and trust funds continued to hold large positions in rail on the eve of the Great Depression.[57]

In general, then, table 3 reflects a rebalancing of institutional portfolios between 1920 and 1929. This occurred because rapid industrial and general economic growth during that period greatly increased the supply of available capital in the financial markets in the United States. The total size of institutional investment portfolios increased 800 percent, from $14.1 billion in 1900 to $115 billion in 1929 (again understated due to exclusion of private investment banks).[58] Much of that capital went into new industries, such as steel, oil, electricity and public utilities, and residential mortgages for the rapidly expanding housing sector. That notwithstanding, table 3 shows that, on the eve of the Great Depression, rail securities remained a major component of the investment portfolios of U.S. financial institutions and, even with rebalancing, larger in absolute terms than in 1900.[59]

Institutional investment in France is difficult to describe with the same quantitative precision as in the United States because data is

57. Carosso, *A History of Investment Banking in America*. Kotz, *Bank Control of Large Corporations*.

58. Goldsmith, *Financial Intermediaries*; see Table 8, p. 60.

59. Government and industry reports also support the finding that financial institutions did not abandon railroads as an investment priority until the 1930s. Financial institutions and their professional associations issued a number of reports supporting railroads and the policies of railway management right up the early years of the Great Depression. See Moulton, ed., *The American Transportation Problem*. Also: American Bankers Association, "Automotive Transportation and Railroads."

limited, especially when looking at bank portfolios. Plessis notes that data on the composition of French bank assets, such as rail stock and bonds, is extremely fragmentary for the period before World War II.[60] In spite of this difficulty, I was able to locate primary data on composition of assets held in companies, including railways, in the private archives of two banks, Banque Paribas and Société Genérale. For Société Genérale (SG), the asset category of rents, stocks, and bonds ("rentes et actions, bons et obligations") included a not insignificant amount of domestic rail investment in 1888, Francs (Frs.) 57.5 million, or 10.2 percent of SG's overall portfolio. But, after 1888, the amount of assets in this category declined consistently to 1.9 percent in 1912 and to less than 1 percent in 1922.[61] Meanwhile, SG's overall portfolio increased from Frs. 562.8 million in 1888 to Frs. 5.9 billion in 1922. Similarly, for Banque Paribas, the absolute level of holdings in rail stock and bonds increased from Frs. 38.6 million in 1888 to Frs. 124.2 million in 1922, and Frs. 225.3 million in 1928, the last year that this category appeared in their account books ("Grands Livres Comptabilité"). Yet, in spite of the increase in absolute numbers, stocks and bonds declined as a percentage of overall Paribas assets, from 13.9 percent in 1888 to 2.8 percent in 1922, and then slightly rose to 5.0 percent in 1926.[62] In sum, it appears that these two banks held only very small amounts of railway stock in their portfolios on the eve of the Great Depression and that most of their investment involved foreign, not French national railways.[63]

Table 4 shows that French insurance companies, on the other hand, had proportionately larger holdings than banks of "securities guaranteed by the (French) state," a category that includes rail bonds.[64]

60. Pléssis, "Les Banques, Le Crédit Et L'économie."

61. Société Genérale, "Bilan" from Rapports Annuels: 1888–1936; "détail" on "rentes et actions; bons et obligations" from various archival documents in Boite (box) 2520; 2495; 2530; 2492, (Paris: Société Genérale archive).

62. Banque de Paris et Pays-Bas, "Bilan," from Grande Livre Comptabilité (Orléans, France : Annuelle, 1888 – 1928).

63. This data from Société Genérale and Banque Paribas supports the prevalent interpretation concerning the investment priorities of French banks in this period. French historians maintain that, while major banks such as Société Genérale, Crédit Lyonnais, Rothschild, and Comptoir d'Escompte may not have held significant rail assets in their portfolios, they granted some direct loans to railways; were closely linked to railway ownership and management through interlocking directorates; and acted as primary intermediaries on most rail stock and bond offerings. Thus, French banks were involved in railway development and were influential in railway corporate decision-making. Caron, *Histoire Des Chemins De Fer En France*. Bonin, *Les Banques Francaises De L'entre-Deux Guerres*.

64. I argue that this asset category includes a large component of rail bonds for three reasons: first, the French laws of January 22, 1868, and subsequent amendments, required that at least 75 percent of insurance company assets be invested in State guaranteed securities and explicitly included railway securities in that

Table 4 Assets held by French life insurance companies: 1899–1928** (in millions of francs)

	Number of companies	French securities guaranteed by state[a]		Securities issued by French state[b]		Other French securities[c]		Securities issued by foreign states[d]		Other foreign securities[e]		Real estate[f]		Others[g]		Total	Total percentage
1908	18	764.5	29.2%	271.2	10.3%	63.3	2.4%	335.4	12.8%	140.5	5.4%	581.6	22.2%	465.7	17.8%	2,622.2	100
1912	N/A	912.9	30.9%	249.3	8.4%	104.1	3.5%	385.1	13.0%	197.4	6.7%	610.0	20.6%	495.6	16.8%	2,954.3	100
1921	21	882.1	30.6%	412.0	14.3%	190.6	6.6%	164.4	5.7%	59.4	2.1%	626.4	21.7%	547.7	19.0%	2,882.7	100
1928	28	1,663.8	36.1%	804.3	17.4%	237.2	5.1%	238.3	5.2%	143.0	3.1%	810.7	17.6%	713.1	15.5%	4,610.3	100

Source: C Pineaux, *Assurance et Placement* (Paris: Domat-Mont Chrestien, 1938. These pour le doctorat).

**French limited liability life insurance corporations.

[a]Valeurs francaises guaranti par l'Etat.

[b]Fonds d'État francais.

[c]Valeurs francaises diverses.

[d]Fonds d'État étrangers.

[e]Valeurs étrangeres diverses.

[f]Immeubles.

[g]Includes municipal loans ("Emprunts departements communes francais"), mortgage loans ("Pret hypothecates"), advances on insurance policies ("Avances sur polices"), loans on securities ("Prets sur valeurs mobilieres"), usufruct and ownership without usufruct ("Usufruits et nues-proprietes"), cash and bank notes ("Caisse et banques"), and foreign deposits ("Cautionnements a l'étranger").

Life insurance companies in 1908 held 29.2 percent of their overall assets in these securities, which increased to 36.1 percent in 1928. However, the absolute value of these assets—764.5 million francs in 1908 and 1.66 billion francs in 1928—is very small in relation to the approximately 33 billion francs that table 1 shows were raised from bond sales during this period. This is consistent with Hautcoeur and Verley's finding that "(e)ven in their rare times of growth at the end of the 1920s, insurance companies (were) only modest financial intermediaries."[65] Thus, while the asset portfolios of insurance companies were strongly weighted with rail bonds at the end of the 1920s, the absolute size of those holdings was very small in relation to overall French capital markets.

In short, large institutional investors were less important in the capital markets in France than in the United States from the late nineteenth century through the 1920s. Large French commercial and investment banks acted as financial intermediaries in raising rail capital but held only minimal amounts of rail stock and bonds in their own asset portfolios. The assets of insurance companies were more heavily weighted with rail bonds than banks, but considering the overall size of the French capital markets, insurance companies played only a minor role.[66] Thus, on the eve of the Great Depression, while the stability of American financial institutions was threatened by their large holdings of rail assets, no such threat existed in France. These national differences influenced the ways the two countries responded to the crisis of the Great Depression.

Information on individual ownership of rail securities completes the picture of national differences between French and American capital markets on the eve of the Great Depression. In the United States,

category. Pineaux, "Assurance Et Placement."(Doctorat). Second, balance sheets ("bilans") from selected insurance companies that I examined in the archives of the French Federation of Insurance Companies show rail bonds as an asset. Fedération Francais des Sociétés d'Assurance, *Annuaire des Sociétés d'Assurances* (Paris, 1922–1936). Third, a law of July 31, 1920, excluded interest income from rail bonds from taxation, which provided a major incentive to insurance companies to invest in those securities. Pineau, "Assurance et Placement."

65. Hautcoeur and Verley, "Les Placements Des Companies Francaises D'assurances Sur La Vie."

66. However, as with banks, French insurance companies were closely interlocked with railway ownership. Annual yearbooks of French insurance companies for 1922 to 1936, show that almost all major life insurance companies included two or three railway company representatives on their Administrative Councils. For example, the National Life Insurance Company, in 1923, included Baron Davillier, from the Eastern Railway Company (also a regent of the Bank of France); Charles Vergé, from the Paris–Lyons–Mediterranée Railway Company; and Georges Teissier, from the Midi Railway Company. These interlocks are repeated for most companies, for all years of the 1920s and 1930s. d'Assurances, "Annuaire Des Sociétés D'assurances."

individual ownership of stock was relatively limited in the first three decades of the twentieth century and, therefore, of much less importance than institutional ownership and control of capital markets. Though aggregate data is limited, most studies agree that relatively few individuals owned railway stock as of 1900[67] and, of those that did, holdings were concentrated in large blocks.[68] Dispersion of ownership increased between 1900 and the onset of the Great Depression, since during this period American railroads continued to sell equity to raise capital and it was purchased by an increasingly broad array of individuals within the population. By 1929, over 800,000 Americans owned railway shares.[69] However, data on the distribution of dividend income suggests that concentration of stock ownership—the number of shares owned by a single individual—had not shifted significantly between 1900 and 1929. Individuals of moderate means—$10,000 or less in net income reported on their tax forms—received 28 percent of all corporate stock dividend income in 1928, the year before the stock market crash. Yet, a much smaller number of individuals with incomes over $100,000 received the same percentage (28.3 percent) of overall dividend income that year.[70] So, while more individuals owned shares of stock than had been the case in 1900, a relatively small number of wealthy individuals owned a large number of shares, which gave them voting power in stockholder meetings.[71] Thus, wealthy individuals and large financial institutions were the most significant participants in American capital markets on the eve of the Great Depression.[72]

In the case of bonds, concentration of ownership in the United States was even more pronounced. An estimated 75–85 percent of overall long-term debt was held by large financial institutions and by

67. Huebner, "The Distribution of Stockholdings in American Railways," 67ff. Warshow, "The Distribution of Corporate Ownership in the United States."

68. Huebner, "The Distribution of Stockholdings in American Railways," 64–67.

69. ICC, "Statistics of Railways in the United States."

70. Bernheim and Schneider, *The Security Markets*, 55. Also, Appendix 1, Table B, 736–37.

71. I am assuming here that the data just given on ownership of all corporate stocks would be matched if data were broken out according to dividend income received solely by owners of rail stock.

72. O'Sullivan, "The Expansion of the U.S. Stock Market, 1885–1930." O'Sullivan's article is not specifically about trends in individual ownership of stock. Nonetheless, it is indirectly relevant to my research because she discusses how the dramatic expansion of stock issuances prior to the Great Depression was partly due to an increase in demand for corporate stocks by banks and insurance companies, especially in the 1920s, and partly due to an emerging retail market for corporate securities. She argues that individual investors began to invest in securities more for capital gains than for income or dividend payments, which led to larger investment in stock than bonds by individuals.

railroad corporations, with only the remaining 15–25 percent owned by individuals.[73] No more detailed breakdown of this data is available in terms of types of ownership of corporate bonds, including those of railways, compared to governmental securities. However, since Goldsmith's data shows that financial institutions held large amounts of rail debt in their portfolios (see table 3 above), individual owners of rail bonds in the United States, were most likely a relatively small group. This is why, when the Great Depression occurred, the American government focused its financial stabilization policies on the bond holdings of large institutions, not on individuals.

Individual ownership of rail securities was far more important within the French than the American capital markets. Relevant data provided by the well-known French statistician, Alfred Neymarck, shows that ownership of rail securities was broadly dispersed among the French population. Close to 3 million shares of rail stock had been issued by railway companies by the late nineteenth century.[74] The number of shares owned per person appears on share certificates. From these, Neymarck calculates that shares owned declined significantly from 28.3 per stock certificate in 1860 to 10.9 per certificate in 1910.[75] Neymarck interprets this to mean that railway shares belonged to an increasingly large number of stock owners, each possessing a small number of shares (10.9 each). Bond data shows a similar trend toward widespread individual ownership.[76] In addition, Neymarck points out that at the end of 1909, of thirteen million French citizens with any type of savings, four million received small amounts of dividend and interest earnings from stocks and bonds of all kinds, rail included.[77] Thus he concludes that France was a financial democracy ("une démocratie financière") where a large number of citizens of modest financial means ("les petits capitalists, les petits rentiers") owned stocks and bonds and that they held these as savings and/or as a source of income ("rentes").

Neymarck's data only extends up to World War I, not into the Great Depression. However, Moreau-Néret provides data for 1937 showing that the broad dispersion of rail stock and bond ownership had not diminished or become more concentrated among large institutions as of that date. Presumably, therefore, this was also the case eight years earlier, on the eve of the Great Depression. Moreau-Néret's data

73. Department of Commerce, "Long Term Debts of the United States."
74. Recall that the number of shares of rail stock was capped at 3.049 million according to the Convention of 1883 signed by the rail companies and the government. See Note 35.
75. Neymarck, "Les Chemineaux De L'épargne," 138.
76. Ibid., 144–47.
77. Ibid., 123.

shows 2.345 million owners of rail bonds, 50 percent of whom held less than ten bonds ("obligations") each. Similarly, his data for rail stock shows 22.6 percent of owners held only a single share and 50.4 percent held 2–10 shares, though he does not give the total number of stockholders.[78] Combining Moreau-Néret and Neymarck's findings, it appears that, from the late nineteenth century through the 1920s and 1930s, ownership of both rail stock and bonds became increasingly broadly dispersed among the French citizenry. Broad dispersion of rail security ownership became an important factor influencing French government policy toward transport during the Great Depression.

In sum, my findings on the composition of ownership of rail securities in French and American capital markets on the eve of the Great Depression show, first, that large financial institutions were major rail stock and bond owners in the United States, while in France institutions did not comparably accrue rail assets in their portfolios. Second, for individual ownership, the situation is reverse. In the United States on the eve of the Great Depression, only 800,000 individuals owned rail stock and probably far fewer owned rail bonds, compared to 2.345 million individual owners of bonds in France in 1937 and stock holdings similarly broadly distributed (though the exact number of French stockholders is not known). The millions of small security owners in France represent a significant proportion of both the voting population and overall citizenry,[79] while American security owners represent a much smaller part of the U.S. electorate and population. Furthermore, the French government provided guarantees on the interest and dividends of rail securities, whereas the American government did not, so both individual and institutional owners of rail equity and debt were at much greater risk in American than in French capital markets, especially during periods of economic volatility. Thus, the prevalence in France of individual owners of rail securities protected by the central government compared to institutional owners largely unprotected in the United States was a major institutional difference in national capital markets on the eve of the Great Depression.

The Great Depression: Crucible for Change

The transportation sector in France and the United States faced the following situation at the end of the 1920s. In France, World War I

78. Moreau-Néret, *Les Valeurs Mobiliers*, vol. 2, 271–72.

79. Under the Third Republic, full suffrage was granted to all males owning property such as stocks and bonds.

had taken a heavy toll as railways suffered both physical damages and financial problems resulting from wartime inflation. Financial losses were exacerbated by growing competition from cars and trucks. The number of motor vehicles in France increased rapidly from 95,000 just before World War I to 1.460 million at the beginning of the Depression.[80] To attenuate these problems, the French government made large loans to railway companies. But, this increased the fixed charges due on total railway debt by 158 percent, from Frs. 1.2 billion in 1921 to Frs. 3.1 billion in 1929.[81] Thus, at the end of the 1920s "le Grand Réseau" was on the verge of bankruptcy, which put at risk the investments and savings of millions of small, individual investors. Similarly, in the United States, financial weakness resulting from duplication of routes and speculative investment was exacerbated as competition from motorized transport grew significantly. As a result, railways in the United States, as in France, faced high fixed debt and decreasing operating revenues at the worst possible moment, on the eve of the Great Depression.

In response, both the French and American governments made major interventions in capital markets. The French government nationalized its railways, taking over their assets and paying off their debts, while the American government created a new public financial intermediary, the Reconstruction Finance Corporation, which purchased and socialized devalued and illiquid rail securities. For France, these interventions represent a continuation of prior state involvement in financial markets, which strengthened railways in both the short and long term within that country's transportation system. For the United States, they represent an unprecedented break with the past, which, in the short run, stabilized rail finances. But, American intervention had the opposite effect in the long run, weakening the railways relative to other forms of transportation.

Nationalization in France involved arrangements whereby all of the existing private railroads, plus the two state-operated lines, were merged into the National Railway Company (Société Nationale de Chemins de Fer, or SNCF). Although SNCF was created legally as a limited liability stock corporation ("société anonyme par actions"), with 49 percent of shares ceded to private stockholders, the government was granted majority control (51 percent of shares) and quickly took over railway operations.[82] The state negotiated a generous valuation on the capitalization of the private properties and guaranteed

80. Doukas, *French Railroads and the State*, 215.

81. Ibid., 171ff.

82. From 1937 until 1983 SNCF was obligated to pay interest and principal to existing bondholders. 100 percent of bond assets were transferred to the government as of 1983. Dougall, "Public and Private Operation of Railways in France."

the dividends of the new SNCF stock. It also continued prior guarantees on the interest and principal of existing rail bonds. Thus, the French state protected both holders of rail equity and debt.[83] With so many French citizens holding rail stocks and bonds, the government did not want to jeopardize the value of these securities in capital markets, partly to avoid economic problems and also to maintain political support.[84] Stock and bond holders were effectively treated as a protected class. Though it was a significant step, nationalization of French railways fundamentally continued 100 years of prior state involvement in capital markets that protected private and public investment.

Meanwhile, both the Hoover and Roosevelt Administrations decided to intervene in American capital markets in significant measure because rail debt represented a large proportion of the assets of major U.S. financial institutions and devaluation of that debt after the crash of 1929 had weakened institutional portfolios and, therefore, threatened to freeze broader credit markets. Thus, in 1931, the National Credit Corporation was created and, soon thereafter, its successor, the RFC.[85] With a large initial appropriation of $4 billion, the RFC was authorized to operate as a revolving loan fund so that, as debts were repaid, new loans could be issued without recourse to additional Congressional approvals. In addition, when President Roosevelt signed the Emergency Banking Act (March 9, 1933) and amendments (June 10, 1933), these gave the RFC the authority to buy stock in banks and insurance companies. By the mid-1930s the RFC had the powers of a national industrial bank that could lend to corporations; buy stock in private corporations, including financial institutions, and use those equity positions to influence financial and economic policy; issue bonds using company assets, such as railroad rolling stock, as collateral; and provide funds to other government agencies, such as the Public Works Administration, which in turn could lend to public and private organizations, including railways.[86]

The interventions of the RFC in American capital markets were unprecedented in size and scope. While the federal government had influenced capital markets during and after the Revolutionary War, the War of 1812, the Civil War, and World War I by issuing

83. Doukas, *French Railroads and the State*. Caron, *Histoire Des Chemins De Fer En France*.

84. This conclusion is supported by a number of studies of patterns of savings and inheritances within the French population. See, for example, Gueslin, "Banks and State in France from 1880's to the 1930's," and Moreau-Néret, *Les Valeurs Mobiliers*.

85. Olson, *Saving Capitalism*, 9–14.

86. Ibid., 42–45.

treasury bonds to pay for war-induced deficits, during the Great Depression the RFC intervened in markets more directly, on a larger scale, and using broader financial powers than anytime previously. It intervened with particular speed and forcefulness with regard to railway debt. Table 5 shows that, between 1932 and 1939, RFC used over $800 million to pay interest charges on railway debt and to directly purchase devalued debt from railroads and their institutional creditors, assuming much of that debt as a public responsibility.

In addition, the RFC purchased $107 million in railway loans that do not appear in table 5 because they are a transfer from the Public Works Administration (PWA). The total of over $900 million in RFC loans allowed banks, insurance companies, and other institutional investors to significantly reduce their holdings of devalued rail securities and thereby begin a historic withdrawal from the rail sector. As shown in table 6, between 1929 and 1939 savings banks reduced their rail assets from 14.5 to 7.7 percent of their portfolio. Insurance companies reduced their rail holdings from almost 18 percent of total assets to just under 11 percent. Investment company rail assets declined from 17 to 11.6 percent. At the same time, these institutions significantly increased their investment in federal, state, and local government bonds—securities that provided the least exposure to deflation or bankruptcy risk. By 1939 insurance companies held 29.5 percent of their assets in government securities. Savings banks held 36.1 percent and trust funds, 24.2 percent. As noted in the section on ownership of equity and debt (page 19 above), this understates the amount of reallocation within institutional portfolios, first, because data in Goldsmith's "trust funds" category is not broken out for rail versus other sectors and, second, because private investment banks did not disclose their stock and bond assets, so Goldsmith could not include them in his tables. However, secondary sources, such as Carosso's comprehensive study of banking in the nineteenth and twentieth centuries, provide evidence that both trust funds and investment banks were heavily invested in rail securities in the early twentieth century, then divested from them during the Great Depression.[87] In addition, Jesse Jones, President and Chairman of the Board of the RFC under Roosevelt, wrote a memoir of his years in office that is based on primary source documents. Concerning the rail assets of investment banks, Jones writes that the RFC "(paid) a loan of $14,700,000 to J. P. Morgan and Company, the (Missouri Pacific Railroad's) banking house . . .," as well as granting other loans to private investment banks, commercial and savings banks, and

87. Carosso, *A History of Investment Banking in America.*

Table 5 Amount and purposes of authorized RFC loans to railroads, 1932–1939

	Jan. 22, 1932–Oct. 31, 1934	Percentage	Nov. 1, 1934–Oct. 31, 1936	Percentage	Nov. 1, 1936–Oct. 31, 1939	Percentage
Direct loans[a]	482,274,313	92.9%	24,235,548	13.4%	47,928,459	44.0%
Purchases of securities[b]	N/A	N/A	143,606,450	79.6%	9,300,000	8.5%
Retirement of bonds[c]	N/A	N/A	12,405,667	6.9%	50,391,971	46.3%
Miscellaneous[d]	37,089,782	7.1%	274,200	0.2%	1,205,875	1.1%
Total	519,364,095	100%	180,521,865	100%	108,826,305	100%

Source: Interstate Commerce Commission. "Annual Reports." Washington, DC: U.S. Government Printing Office, 1932–1939.
[a]Direct Loans includes payment of bond and other securities' interest charges and payment of principal on debentures and equipment trust certificates.
[b]Purchases of Securities includes purchase of carriers' loans (some stock), purchase of stock of subsidiary company and purchase of lessor properties.
[c]The Retirement of Bonds means a bond issue was redeemed before its maturity date.
[d]Miscellaneous includes rentals, preferential claims, and judgments.

Table 6 Asset allocations of major financial institutions, 1929–1939 (in millions)

	1929		1933		1939	
	Amount	Percentage	Amount	Percentage	Amount	Percentage
			Commercial banks			
Agricultural loans, non-farm mortgages and misc. other loans	19,518	36.3%	8,032	25.4%	8,004	19.5%
Corporate and other business loans	21,668	40.3%	9,473	29.9%	9,761	23.8%
Railroad stocks and bonds	**1,191**	**2.2%**	**1,052**	**3.3%**	**946**	**2.3%**
Public utility plus other stocks and bonds	4,628	8.6%	2,910	9.2%	2,535	6.2%
Federal, state, local gov't securities	6,713	12.5%	10,195	32.2%	19,723	48.1%
Total	**53,718**	**100%**	**31,662**	**100%**	**40,969**	**100%**
			Mutual savings banks			
Agricultural loans, non-farm mortgages and misc. other loans	4,603	48.6%	4,665	47.4%	4,075	39.5%
Corporate and other business loans	1,333	14.1%	1,174	11.9%	1,003	9.7%
Railroad stocks and bonds	**1,375**	**14.5%**	**1,435**	**14.6%**	**792**	**7.7%**
Public utility plus other stocks and bonds	720	7.6%	819	8.3%	714	6.9%
Federal, state, local gov't securities	1,441	15.2%	1,743	17.7%	3,722	36.1%
Total	**9,472**	**100%**	**9,836**	**100%**	**10,306**	**100%**
			Insurance companies			
Agricultural loans, non-farm mortgages and misc. other loans	9,091	41.5%	9,975	43.2%	8,622	27.5%
Corporate and other business loans	2,708	12.4%	2,620	11.3%	2,366	7.6%
Railroad stocks and bonds	**3,929**	**17.9%**	**3,614**	**15.6%**	**3,372**	**10.8%**
Public utility plus other stocks and bonds	3,873	17.7%	3,970	17.2%	7,748	24.7%
Federal, state, local gov't securities	2,289	10.5%	2,934	12.7%	9,229	29.5%
Total	**21,890**	**100%**	**23,113**	**100%**	**31,337**	**100%**

(*Continued*)

Table 6 (Continued)

	1929		1933		1939	
	Amount	Percentage	Amount	Percentage	Amount	Percentage
	Investment companies					
Agricultural loans, non-farm mortgages and misc. other loans	20	0.8%	23	2.0%	88	6.0%
Corporate and other business loans	13	0.5%	15	1.3%	12	0.8%
Railroad stocks and bonds	**405**	**17.0%**	**137**	**11.9%**	**170**	**11.6%**
Public utility plus other stocks and bonds	1,918	80.5%	965	83.8%	1,173	80.0%
Federal, state, local gov't securities	28	1.2%	11	1.0%	24	1.6%
Total	**2,384**	**100%**	**1,151**	**100%**	**1,467**	**100%**
	Trust funds					
Agricultural loans, non-farm mortgages and misc. other loans	3,730	13.5%	3,190	13.9%	3,690	11.6%
Corporate and other business loans	620	2.2%	560	2.4%	510	1.6%
Public utility, railroad, other stocks and bonds**	**19,350**	**70.1%**	**13,000**	**56.5%**	**19,950**	**62.6%**
Federal, state, local gov't securities	3,900	14.1%	6,250	27.2%	7,700	24.2%
Total	**27,600**	**100%**	**23,000**	**100%**	**31,850**	**100%**
Grand total	**115,064**		**88,762**		**115,929**	

Source: Goldsmith R. (1953) *Financial Intermediaries In the American Economy since 1900.* Princeton, N.J.: Princeton University Press. Appendix A-3, A-5, A-8, A-9, A-12, A-13, A-16, A-21.
**Goldsmith's trust funds data does not break down stocks and bonds into sub-categories, but related documentation indicates that railroad securities are appropriately included here (see text).

insurance companies that held devalued rail securities.[88] In short, both the available hard data and related evidence support my thesis that, through the vehicle of the RFC, the American government socialized a large proportion of rail securities, which, in turn, allowed private financial institutions to move their freed-up capital into treasury bonds and to withdraw from their prior role as primary financial intermediaries to American railroads.[89] In this process the RFC shored up rail industry finances in the short run. But, by allowing financial institutions to effectively end their historic role as the primary suppliers of capital to American railways, RFC interventions weakened railways financially in the long run.

This argument receives further support when it is noted that financial institutions reallocated more of their rail investments than those invested in other sectors. Table 7 shows that, at the same time as they were sharply increasing their purchases of government securities, the two main classes of financial institutions holding rail securities—savings banks and insurance companies—divested of those assets at a more rapid rate than they did in comparable sectors,

88. J.H. Jones, *Fifty Billion Dollars.*, 122. I found that the figures Jones cites in his book match primary data from RFC archive documents, so he probably relied on the same sources. Therefore, I believe his memoir represents a valid source on information about actions taken by the RFC.

89. While financial institutions held a significant proportion of their assets in rail securities and certainly lobbied hard for RFC assistance in divesting from rail, those assets were not necessarily so large that they threatened overall institutional finances. Writing in the late 1930s, C. M. Clay, Chief Counsel for the RFC, suggested that, "due to several intermediate rises in bond prices since 1932, opportunities have been afforded for (bond)holders to weed out their more risky bonds with a minimum of loss. . . ." Clay, *What Shall We Do about the Railroads.*, 59. Clay also maintained that "the (financial) position of . . . insurance companies and savings banks . . . is generally sound. . . ." (ibid., 60) This undercuts any notion that banks, insurance companies, investment trusts, university endowments, and other institutional investors were threatened with insolvency because they held large amounts of rail debt in their portfolios. It seems just as likely that, although it would have diminished profits, they could have continued to hold those securities without seriously jeopardizing their fundamental financial stability. Alternatively, they could have slowly divested themselves of those holdings as market conditions improved (and conditions did improve at various times during the 1930s and 1940s). That said, the discounted loans provided to railways by the RFC were very important for avoiding wholesale bankruptcy within the rail sector during the Great Depression and private financial institutions were unlikely to have provided similarly discounted loans, since their existing holdings of rail bonds had suffered serious deflation in the 1930s. In short, federal loans to the rail sector during the Depression had two interrelated consequences: first, RFC loans shored up the finances of insolvent railroads, which attenuated the effects of the Depression on the U.S. economy. The American federal government subsidized the finances of private institutions in order to avoid massive bankruptcy in the rail sector. Second, RFC refinancing transactions relieved financial institutions of deflated rail bonds, even though those bonds did not seriously threaten institutional balance sheets.

Table 7 Divestment by financial institutions (in millions), 1929–1939

	Commercial banks			Mutual savings banks			Insurance companies			Investment companies		
	1929	1939	Percent change	1929	1939	Percent change	1929	1939	Percent change	1929	1939	Percent change
Railroad stocks and bonds	1,191	946	−20.57%	1,375	792	−42.40%	3,929	3,372	−14.18%	405	170	−58.02%
Public utilities	1,382	790	−42.84%	525	517	−1.52%	2,230	4,579	105.34%	301	128	−57.48%
Other corporate loans	16,243	8,341	−48.65%	1,011	873	−13.65%	3,391	4,622	36.30%	1,630	1,057	−35.15%
Federal, state, local gov't securities	6,713	19,723	193.80%	1,441	3,722	158.29%	2,289	9,229	303.19%	28	24	−14.29%
Total	25,529	29,800		4,352	5,904		11,839	21,802		2,364	1,379	

Source: Goldsmith, R. (1968), "*Financial Intermediaries in the American Econony since lW,*" Princeton, NJ: Princeton University Press. Table A-3, A-6, A-8, A-9, A-12, A-13, A-21.

such as public utilities and other corporate loans.[90] This was also true for investment companies, though less pronounced. It was not the case for commercial banks, but those banks had always done far more lending to corporations other than railways. In short, one cannot argue that large financial institutions divested themselves of their various asset classes equally during the Great Depression in order to move into safe government securities. Instead, with assistance from the RFC, they divested more rapidly from rail.

At the same time, private finance capital did not totally withdraw from the rail sector. Table 6 shows that institutions continued to hold anywhere from 2.3 to 11.6 percent of their asset portfolios in rails stock and bonds in 1939. Most likely they held onto their most secure and marketable rail assets, such as equipment trust certificates, an instrument collateralized by rolling stock that could easily be sold to pay off debts if a company became insolvent or filed for bankruptcy.[91] Furthermore, while large, the over $900 million in RFC loans to railways during the 1930s does not match the approximately $13 billion that one study estimates railroads owed creditors.[92] Even this does not change my argument. RFC loans were primarily designed to make new capital available within credit markets that were on the verge of freezing due in significant measure to the heavy weighting of portfolios with illiquid and highly deflated rail securities. RFC intervention accomplished this objective by purchasing not all, but mainly the weakest rail securities owed by railways to financial institutions. This allowed those institutions to withdraw significantly from funding railroads and then to make alternative investment choices with their assets.[93]

90. Table 7 excludes difficult to specify asset data, such as noncorporate "other business loans," which I do not consider comparable to railway assets.

91. Moulton, ed., *The American Transportation Problem*, 277.

92. The $13 billion figure is an approximate mid-point based on a study that shows long-term debt of between $11.9 billion in 1929 and $12.4 billion in 1936 and short-term debt of $1.6 billion in 1929 and $2.4 billion in 1936. See Hart, *Debts and Recovery*, 190.

93. To complete the argument requires answering a related question: What if financial institutions were only reacting to structural shifts already underway in the U.S. transport system when they divested from rail in the 1930s? For two reasons this counterfactual assertion would not change my interpretation. First, documentary evidence shows that American financial institutions did not react to the emerging structural shift in the 1920s in a timely manner. In published reports, financial institutions indicated that they did not see highway modes as a major threat to railways, partly because railway management was taking initiatives to diversify and merge with trucking and bus companies. As a result they stayed strongly invested in rail through the early years of the Great Depression. Second, even if financial institutions were just slow to react to highway competition, the more fundamental point is that they were making decisions in the 1930s that contributed to the decline of railways because access to credit was controlled by private markets. Thus, divestment by private financial institutions denied railways

The long-term consequences of divestment in the 1930s was that it exacerbated competitive disadvantages of rail corporations vis-à-vis highway-based transport. This happened in two ways: first, railways generally depended on external capital to finance their growth, whereas auto, truck, and bus manufacturers relied largely on internally generated profits for their development.[94] Thus, when the RFC facilitated the withdrawal of banks and other financial institutions from the rail sector in the 1930s, it added to rail's financial disadvantages in comparison to highway-based transport. Second, public subsidies for highway construction had begun to increase in the 1910s, not long after subsidies for rail, such as land grants, had ended.[95] This, too, weakened railroads relative to motorized transport. In short, divestment from rail capital by American financial institutions in the 1930s established preconditions for a broader realignment of rail in relation to other forms of transport. While motorized transport did not displace rail as the main form of transportation in the United States until the 1950s and 1960s, the interrelated actions of the RFC and private financial institutions in the 1930s laid the groundwork for that subsequent change.[96]

The Role of the State

Lack of access to private credit was not the only cause of the decline of railways in the United States, just as nationalization of railways did not, by itself, establish a balance among transport modes

access to needed capital and left them dependent on public credit. That, when combined with the failure of the Roosevelt Administration to use its powers to force reorganization of rail, contributed to the post–World War II decline of railways and emerging dominance of highway-based modes within the overall transportation system. See Rose, Seely, & Barrett, *The Best Transportation System in the World,* 45–46. Also, Mertins, *National Transportation Policy in Transition* and. Moulton, ed., *The American Transportation Problem.*

94. L. Seltzer, *A Financial History of the American Automobile Industry*, 265.

95. Rae, *The Road and Car in American Life*; Goddard, *Getting There.*

96. In this regard, another counterfactual argument might be that the Great Depression was just a transitory moment when American railroads were in financial crisis, not a historical turning point or defining moment. What if financial institutions only temporarily divested from rail during the 1930s, then reinvested during and after World War II? Is it necessary to extend my research past the Great Depression, through passage of the Federal Aid (Interstate) Highway Act of 1956 and creation of Amtrak, to show that the Great Depression was truly a watershed. No, because my thesis is that an opportunity to change the trajectory of the American transportation industry toward greater competitive balance between rail and highways was missed in the 1930s, irrespective of what happened to transport thereafter. Could government policy and/or private corporate planning have changed outcomes for American transportation after World War II? Probably, but answering that question would involve a different study which would not change my thesis.

in France. Other governmental and private actions were involved.[97] Tracing some of the most important of these will complete the picture of how the state, finance capital, and rail corporations influenced the divergence between the two nations' transportation systems.

In the United States the Interstate Commerce Commission (ICC) was at the center of transportation policy from its creation in 1887 through the 1930s. During those years the ICC's purview included rate setting for railways and interstate commerce on highways, oversight of rail mergers and acquisitions, issuance of rail securities, and advising both Congress and presidential administrations concerning transportation policy. Yet, the ICC was ultimately less powerful than private corporations in terms of determining the shape of transportation development. In the period between the Civil War and 1900 large financial institutions, such as J. P. Morgan and Company, Kuhn Loeb, as well as powerful railway owners such as Vanderbilt, Van Sweringen, and Hill, shaped the mergers and consolidations that swept the rail industry. The ICC's power over mergers was weak, so it was unable to eliminate duplication of lines that accompanied overbuilding.[98] Then, in the early twentieth century, the ICC was faced with the problem of balancing competition between rail and motorized transport. Before it could do anything about this, however, World War I occurred, causing Congress to pass the Emergency Railway Act of 1917 under which railways were leased to and operated by a new public agency, the Federal Railway Administration. While this set a precedent for direct government control of railways, Congress stopped well short of nationalization. Instead, after the war ended, it passed the Transportation Act of 1920, which ordered the ICC to develop plans for consolidation of railroads. But, as had happened previously as well, Congress failed to provide the ICC with powers to enforce consolidation plans and also left a legal loophole whereby rail holding companies could avoid regulatory approval for mergers.[99] Thus, even as the ICC developed a series of consolidation proposals during the 1920s, rail corporations used holding companies to pursue mergers and acquisitions. For example, the Van Sweringen brothers added to their railway conglomerate in the East and Midwest while

97. Most of the major factors involved in the decline of railways are addressed in the following works: Chandler, *The Railroads*, Goddard, *Getting There: The Epic Struggle between Road and Rail*, Martin, *Enterprise Denied*, Stover, *American Railroads*, G. Thompson, *The Passenger Train in the Motor Age*.

98. Martin, *Enterprise Denied*, J. Stover, *American Railroads*, F. Wilner, "Railroads and the Marketplace." Martin also argues that ICC regulations in the 1890s and early twentieth century held freight rates and passenger fares artificially high and thereby exacerbated the problem of duplication of lines.

99. Mertins, *National Transportation Policy in Transition*, 26–27. Saunders, *Merging Line*.

Vanderbilt's New York Central and the Pennsylvania Rail Corporation pursued their own acquisitions and mergers.[100] Partly undertaken as competitive moves against neighboring railways, these mergers often involved large, speculative investments, financed by issuance of stock and by new borrowing, the latter often at high interest rates. Thus, while some consolidation of railways occurred during the 1920s, as in earlier decades these privately organized mergers failed to overcome the problem of duplication of lines, failed to increase the efficiency of rail transport in relation to highway-based competition, and increased the debt of railways at the worst possible time, just before the Great Depression.[101]

In France, meanwhile, the government was using its financial and legislative powers to maintain the efficient functioning of railways, highways, and canals within a national transportation system. Before World War I most private railway companies in "le grand réseau" were financially successful. The Northern, Eastern, and Paris-Lyon–Mediterranean companies were able to pay their debt service charges and issue dividends to shareholders.[102] The Western Railway Company, which operated in a resource-poor, mostly agrarian region, was not as successful, running large deficits, so it was nationalized by the government in 1909.[103] Similarly, the Alsace–Lorraine Railway Company was formed as a public company in 1918, after France captured this region in World War I. However, major destruction of infrastructure and rolling stock during the war ended the prosperity of French railways. Although government loans helped to rebuild lines and purchase new equipment, the new borrowing added so much debt that it forced renegotiation of financial relations between the private companies and the government. Thus, the Convention of 1921 was enacted, which "set up a common fund into which the surpluses of the private and publicly owned companies over and above the fixed dividend rates on the stock were to be paid, and from which deficits, if any, were to be covered."[104] This stabilized railway finances for the short term. But, due both to high postwar inflation and to increasing competition from autos and trucks, railway company deficits continued to rise, so the finances of French railways weakened in the mid-to-late 1920s. Thus, on the eve of the Great Depression railways in France, as in the United States, faced increasing competition from highway-based

100. Rose, *The Best Transportation System in the World*, 25–26. Saunders, *Merging Lines.*, 47ff.

101. Saunders, *Merging Lines*, 63–64.

102. Doukas, *French Railroads and the State*, 85–86. Caron, *Histoire Des Chemins De Fer En France*.

103. Doukas, *French Railroads and the State*, 55–56.

104. Dougall, "Public and Private Operation of Railways in France," 212.

transport and their finances were seriously weakened by excessive debt.

Because the rail industry was critical to the American economy, all the major interest groups—financial institutions, the business community, railway management, labor unions, major rail shippers, Congress, and top officials in the Roosevelt Administration including the President—actively debated and considered how to deal with the country's transportation system. The national discussion ranged from whether to continue with private corporate planning, enforce consolidation, or allow federal takeover of railroads.[105] As interested parties, banks, insurance companies, and other large institutional investors formed the National Transportation Committee in 1932. This group recommended cartelization of railways.[106] Shippers supported consolidation and rail unions went one step further, suggesting nationalization.[107] Opposing these steps, rail ownership and management argued for continued private planning.[108] During his campaign for the presidency in 1932, Roosevelt took the middle ground, opposing nationalization, but suggesting that railroads "should be regarded as parts of a national transportation service."[109]

Following Roosevelt's leadership, soon after he assumed office Congress enacted the Emergency Railroad Transportation Act (ERTA) in June, 1933. The ERTA created a new Office of Transportation Coordinator, to which Roosevelt appointed Joseph Eastman, an ICC commissioner and leading national expert on transportation. Eastman was empowered to propose plans for reducing redundancy within the railway industry and improving coordination between rail and other modes of transport. The Act also gave the ICC powers to prevent railroads from using holding companies, as they had in the recent past, to privately implement reorganizations that contravened ICC plans. Thus, as early as 1933, the Roosevelt Administration possessed both the ICC's regulatory powers and the financial powers of the RFC to reorganize railways and, more broadly, to implement systemic transportation reform that would integrate railways and highway-based transport into a national transportation system.

During the New Deal, the Office of Transportation Coordinator carried out major studies of railways in relation to other modes of transport, based on which it issued a series of reports for improving

105. E. Latham, *The Politics of Railroad Coordination*; Summers, *The Railroad Problem;* Rose, *The Best Transportation System in the World*.
106. Latham, *The Politics of Railroad Coordination*, 13.
107. Summers, *The Railroad Problem*.
108. Ibid.
109. Ibid., 181.

the American transportation system.[110] In addition, various high-level Presidential committees studied the transportation problem and made recommendations.[111] Based on this work, the Roosevelt Administration submitted numerous bills to Congress during the 1930s dealing with rationalization of the planning, financing, and re-structuring of the country's transportation system and Congress regularly held hearings and proposed various laws, one of which called for full nationalization of railways.[112] By the end of the 1930s, however, no comprehensive policy had been enacted that either strengthened railways' access to private capital or established a national framework for competitive balance among rail, highway, and other modes of transport.[113]

That said, during the 1930s some important legislation was in fact enacted, though paradoxically some of it actually weakened railways. First, amendments to the railway equity receivership law were passed

110. The report most relevant here is: Federal Coordinator of Transportation, "Is There Need for a Radical or Major Change?"

111. A good summary of these is found in Rose, *The Best Transportation System in the World*, 63ff.

112. Bills were introduced in Congress during 1935 in the House of Representatives (H.R. 7541) and 1936 in the Senate (*S.* 2573) providing for gradual introduction of government ownership. Summers, *The Railroad Problem*, 123.

113. The historiography concerning why so little happened includes two important studies. The first, by Amherst historian Edward Latham, examines the brief history of the Office of the Transportation Coordinator (1933–1936) and argues that Eastman was too indecisive. "(T)he overall record (of Eastman) . . . is one of hesitation and confusion. At no point did the Coordinator seem to be clear-cut in his thought about (railroad) consolidations . . . (which was) very much like his attitude on public ownership, tentative, approving, doubtful, hesitant, and elaborately cautious. In a time that may have called for bold strokes, he preferred to wield a small brush to execute miniatures of policy." (Latham, *The Politics of Railroad Coordination.*, 110.) An alternative interpretation is offered in a recent book by three well-known transportation historians (Mark Rose, Bruce Seely, and Paul Barrett). They argue that a long history of hostility in Congress and in popular culture to railway owners who were seen as rapacious and corrupt impeded executive and legislative action. Also, they point out that the political structuring of American transportation into separate modes, rather than a unified system, precluded rationalization of the nation's transportation system. "(G)overnment officials organized rail, truck, and airline firms into three separate and distinct industries and three separate and distinct markets." (Rose, *The Best Transportation System in the World,*. xiv-xv.) "(L)eaders of the nation's legislative and executive institutions never succeeded in developing a single or overarching transportation policy. In place of an often-discussed vision of American transport built around (integrated) transportation companies, members of Congress and President Roosevelt produced a fractured system that included a rail network as well as systems of roads, cars, and trucks, bridges and waterways, and airways and airlines that were and remained unconnected to one another." (Ibid., 21) For the purposes of this paper, it is not necessary to take sides between Latham and Rose et al., concerning how and why the transportation politics played out the way they did during the 1930s. The key point is to understand what the Roosevelt Administration and Congress did and did not accomplish, in order to understand the implications of their actions for the future of American transportation and for divergence from France.

by Congress in 1933 and again in 1935, which reduced the power of financial institutions to unilaterally control bankruptcy proceedings. This was a significant reform in terms of protecting all parties to a reorganization.[114] But, it also increased the motivation of financial institutions to withdraw from rail capital markets since they could no longer manipulate reorganization to achieve financial gain. Second, the Banking Act of 1933 (Glass Steagull), enacted by Congress in response to excessive concentration of financial power among financial institutions, ordered commercial banks to withdraw their deposits from investment banks.[115] Since these deposits had been used as a source of loans, railways lost another potential source of capital. Third, the Motor Carrier Act of 1935 gave the ICC regulatory power over all motor carriers engaged in interstate commerce, but did not tie that to broader rationalization of competition within the transportation industry.[116] Finally, the Transportation Act of 1940 supported a national transportation system that embraced rail, motor, and water modes, long a goal of New Deal reformers such as Eastman, Adolph Berle, and Rex Tugwell. But, the 1940 Act was toothless, providing no effective power to the government to implement such a system.[117] Thus, in terms of access to capital and competitive balance with motorized transport, by the end of the Great Depression American railways were in a situation no better than at the beginning of the 1930s.

During this same period in France, the place of railways in the country's overall transportation system was also being vigorously debated. Railway management and labor, highway proponents (particularly truckers), financial interests, Parliament, and a series of coalition governments proposed and negotiated various plans concerning whether to nationalize railways or to strengthen the finances of private companies within the existing "grand réseau."[118] In the end, the government opted for nationalization in August of 1937. In contrast to the United States, however, nationalization was not a radical step since in the previous decades the state had taken over two formerly

114. The new provisions—Chapter 204, Section 77, 47 Statute 1474 (1933, amended 1935)—provided for a binding 2/3 vote by classes of creditors and assured a prominent role for the ICC, which was empowered to propose trustees, set limits on compensation of lawyers and pass judgment on any proposed reorganization plan. From the reformers' perspective, "(a)lthough the ICC's powers were not nearly so sweeping as some lawmakers wanted, they promised to increase the role of governmental oversight to the detriment of private negotiations among the parties themselves." Skeel, *Debt's Dominion*, 106.

115. Kotz, *Bank Control of Large Corporations*, 54.

116. Rose, *The Best Transportation System in the World*, 62.

117. Ibid., 71.

118. J. Jones, *The Politics of Transport in Twentieth Century France*, 59ff.

private railway lines, the Western Railway Company (1909) and Alsace–Lorraine (1918), and had created a major canal company (Compagnie Générale de Navigation de Rhin) as a mixed public–private enterprise ("société d'économie mixte) in the 1920s.[119] Moreover, when it originally established "le grand réseau" of private companies with essentially a monopoly on rail transport in the 1860s, the state reserved the right to run canals and roadways parallel to the rail network. These precedents are built into the 1937 railway nationalization legislation in various ways, including a "coordination decree" that provides for a "Superior Transport Council" consisting of representatives of railroads, motor carriers, and water transporters, to advise the government on intermodal coordination, plus regional "technical committees" that are mandated to "propose plans for the rational division of passenger traffic by rail and road. . . ."[120] In short, as in the previous 100 years of French transport history, when the government created the National Railway Company in 1937, it used its executive and financial power to establish a national system that would maintain competitive balance among rail, highway, and water modes.

Thus, state actions in France during the Great Depression mandated a balanced transport system while state intervention in the United States had the opposite effect, laying the foundation for highway transport to displace rail. The historically unprecedented intervention of the U.S. government in its private capital markets in the 1930s creates the appearance of similarity to French state interventionism, but more important is what the American government did not accomplish during this period. The Roosevelt Administration did not use either the RFC's financial powers or the ICC's regulatory powers to force railroads into consolidation, reorganization, rationalization or nationalization, steps that were widely considered necessary to allow rail to compete successfully with highway-based transport. This allowed cars, trucks, and air transport to erode the competitive advantage of rail service.[121] While the United States moved toward a system dominated by highways and airlines, with rail declining to a minor role, France continued to promote a national system of transportation balanced between rail and other modes.

119. Gueslin, "Banks and State in France"; Lescure, "De La Concurrence Des Secteurs Bancaires Publics Et Privés"; Delorme and André, *L'état Et L'économie*.

120. Dougall, "Public and Private Operation of Railways in France," 228–29.

121. The various ways in which motorized transport eroded the competitive advantages of rail has been well documented by economic and business historians. Martin, *Enterprise Denied*. Saunders, *Merging Lines: American Railroads, 1900–1970*. Rose, *The Best Transportation System in the World: Railroads, Trucks, Airlines and American Public Policy in the Twentieth Century*. G. Thompson, *The Passenger Train in the Motor Age* (Columbus: Ohio State University Press, 1993).

Theory and Conclusions

In theoretical terms, the way the American and French public and private sectors influenced structural change in transportation between the mid-nineteenth century and the 1930s is represented best within the overlapping conceptual frameworks of Hall, Zysman, and Thelen and Steinmo, which the last two authors term "historical institutionalism."[122] In this framework, the state is a network of institutions and laws closely related to, and influencing, the nation's economic system. An important measure of state influence is the degree to which it controls allocation of private investment and credit for the purpose of promoting the development of particular industries or economic sectors (commonly called "industrial policy").[123] A system of direct state intervention in markets, via government owned banks for example, is called an "interventionist state."[124] A system of credit allocation largely determined by private capital markets is termed "corporate capitalism"[125] or a "capital market–based system."[126]

These categories aptly describe the political economy of the United States and France with regard to transportation development in the period discussed in this paper. Up until the Great Depression the United States was a strongly market-based system in which private banks, insurance companies, and other large financial institutions controlled the allocation of capital and used that power to privately plan the development of American railways. A formidable accomplishment of this market-based system was that it produced a nationwide railway network, which dominated American transportation for almost 100 years. But, that network was also weakened by speculative investment, overbuilding, duplication of lines, and excessive debt. When the Great Depression occurred, American railways faced widespread bankruptcy. In what appears to be a reversal of market control, the Roosevelt Administration responded by authorizing a newly created public financial intermediary, the RFC, to purchase and socialize much of the deflated and illiquid rail debt held by both railways and their major creditors, which freed financial institutions to invest their assets elsewhere. However, RFC interventions were not accompanied by government mandates that railways eliminate duplication of lines and rationalize their services to become more competitive with highway and air transport. Thus, the Roosevelt

122. Thelen and Steinmo, "Historical Institutionalism in Comparitive Politics"; Hall, *Governing the Economy*. Zysman, *Government, Markets and Growth*.
123. Hall, *Governing the Economy*.
124. Ibid., 99.
125. Roy, *Socializing Capital*, 98, 102.
126. Zysman, *Government, Markets and Growth*, 70.

Administration left private corporations largely in control of deciding where to invest their capital and avoided any specific industrial policy mandates concerning transportation development.

France, by way of contrast, was characterized by an interventionist state throughout the period treated in this paper. Throughout the nineteenth and early twentieth centuries, the French state directly intervened in capital markets to stimulate private rail investment, while simultaneously maintaining control of national transportation planning. Private rail companies worked in close cooperation with the government, operating seven major lines that emanated outward from Paris, interspersed with regional and local lines. If any railway became insolvent, the state stepped in with loans to prevent bankruptcy. However, state planning and financial support notwithstanding, railways in France became overburdened with debt by the late 1920s, partly due to losses suffered in World War I and partly due to increasing competition from autos, buses, and trucks. Thus, when the Great Depression occurred, the government nationalized "le grand réseau," creating the National Railway Company (SNCF), paid off the loans owed by private railways, and mandated policies to maintain railways on an equal competitive footing with other modes of transport. The state determined economic outcomes by assuring that railways would not lose out to highway and air transport.

In the final analysis, then, a market-based system in the United States established a nationwide railway network that, faced with internal financial and systemic weakness, emerged from the Great Depression unable to compete on equal terms with motorized transport. In France, on the other hand, an interventionist state maintained competitive balance among its various modes of transport during periods of both prosperity and depression. Thus, by the end of the 1930s, transportation networks in the United States and France were moving towards the future along divergent paths.

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