Private capital, public credit and the decline of American railways in the mid-20th century

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Abstract

From the mid-19th Century until the Great Depression, banks, insurance companies and other large institutional investors supplied railways with external capital that supported their rise to near hegemony over transport in the U.S. This regime ended in the 1930's, when widespread rail bankruptcies threatened broader credit markets. The federal government intervened via a powerful, new, public financial intermediary—the Reconstruction Finance Corporation—to socialize devalued rail debt, which largely removed private institutional investors from rail capital markets. At this defining moment, the Roosevelt Administration could have used its financial and political leverage to rationalize structural weaknesses in the rail industry. It did not. Thus by the time the Depression ended, railways were significantly weakened vis a vis their increasingly successful competitors in highway-based transport. Thus, the decline of American railways was caused more by financial factors than, as existing historiography suggests, by either excessive government regulation or failures of railway management.

INTRODUCTION

For almost a century, starting in the mid-1800's, railways dominated transport in the United States. Then, a seismic shift occurred as cars, buses and trucks became the dominant carriers of passenger and freight traffic and the rail industry declined to a shadow of its former self. This shift began around World War I, reached its tipping point during the Great Depression and was consolidated after the end of World War II. A variety of factors contributed to the change, including inflexible regulation of railway rates; provision of government subsidies to highways, but not railways; inequitable taxation of railways; and failures of rail management. While these aspects of the decline of rail have been well studied, an important gap in the relevant historiography involves changes in the provision of capital to railways, particularly during the watershed years of the Great Depression. Before the 1930's, railways depended in significant measure on large financial institutions—banks, insurance companies, endowments, trusts and other institutional investors—to supply them with capital coming from other than internally generated earnings. Financial institutions acted both as intermediaries, selling stock and bonds, and purchased large quantities of rail securities for their own asset portfolios. At the turn of the 20th century, 22% of asset portfolios of large financial institutions were in rail stock and bonds.[1] Between that point in time and the onset of the Great Depression, even in the face of significant growth of highway-based transport, institutional investors continued to increase their holdings of rail assets. But then, during the defining moment of the great Depression, they changed course and divested from rail, aided and abetted by the interventions of a newly created, powerful, public financial intermediary, the Reconstruction Finance Corporation (RFC). The RFC was created in 1932 by President Herbert Hoover and expanded under President Franklin Roosevelt partly to deal with the presence of large amounts of devalued and illiquid rail securities on bank balance sheets, which was contributing to a freeze in private credit. In the early 1930's the RFC purchased hundred of millions of dollars worth of these devalued securities and

thereby helped to stabilize both bank and railway company finances. But, by socializing rail securities, the RFC also contributed to removing private institutional investors from rail capital markets, decoupling them from their historic relationship as primary suppliers of external capital to railways. Thus, RFC policies produced the unintended consequence of weakening the supply of external, private capital to railways. Combined with President Roosevelt's failure to intervene strongly to rationalize the rail industry, this is, I argue, is an important, but until now, overlooked reason why railways entered the post-World War II era in a weakened position via a vis their competitors in highway-based transport.

In researching the historic change that occurred in the relationship between institutional investors, the state and railways during the 1930's, I address three related questions: first, why did financial institutions continue to maintain large holdings in railway securities in the decades before the Great Depression even though they were witnessing the rise of significant competition from highway-based transport? Second, what specific circumstances caused them to shift out of rail finance in the 1930's? Third, how did politics combine with capital finance during the inter-war years to affect the subsequent shift towards the dominance of highway transport in the U.S.? In answering these questions, this article provides new evidence concerning ways in which historic changes in the structuring of capital finance affected the shift from rail to highway dominance in American transportation in the mid-20th century.

HISTORIOGRAPHIC CONTEXT

Running through much of the historiography concerning the decline of railroads in the United States is a debate—sometimes explicit, sometimes implicit—between those who blame excessive government regulation and those who attribute rail's problems to the internal failures of corporate management. Albro Martin is a major exemplar of the former school. He argues that "the unwillingness of the

Interstate Commerce Commission to grant general rate increases…(after) the enactment of the Hepburn Act in 1906 prevented the flow of investment funds from keeping pace with the demands upon the system and paved the way for a collapse in profitability of railroad operations after 1911."[2] In the latter school are Thompson, Cochran and others who argue that rail management failed to adapt to the changing competitive landscape of transportation, especially to the rapid growth of highway-based transport after World War I.[3]

My research suggests that this debate establishes a false dichotomy inn that it ignores the ways in which major public and private financial institutions influenced the shift from railway to highway dominance of American transport, particularly during the 1930's. Although the role of banks and insurance companies in financing the development of American railways in the period before World War I is richly documented in rail historiography,[4] the investment policies of these and other large institutional investors in the inter-war years is far less well studied. Two most important studies for this period are Carosso's landmark history of investment banking[5] and Goldsmith's equally important compilation of primary data on the assets of banks and insurance companies, 1900-1952.[6] Supplementing these are Kotz's synthesis of research on bank control of corporations[7] and more specific studies of banking and insurance in the inter-war years.[8] For the Great Depression, works by Olson, Schiffman and Mason explain the operations of the Reconstruction Finance Corporation during the New Deal;[9] Rose and others provides important insights into the politics of transportation policy in the years leading up to and during the 1930's;[10] and Bordo's notion of a "defining moment"[11] provides a conceptual handle that is applied specifically to the transport sector in this article.

Some of the works just cited include primary data used here. Most importantly, the appendices to Goldsmith's book include information from the Federal Reserve Bank and Comptroller of the Currency on the railway stock and bond holdings of commercial and savings banks, insurance companies and investment companies. This specific data has never previously been culled from Goldsmith's appendices for interpretive purposes.[12] To this I add two important components by including the rail assets of private investment banks and trust funds. Those assets do not appear in the Goldsmith appendices because investment banks were not subject to government regulation and were not legally required to make a public accounting of their holdings. Yet, Carosso's monograph and Kotz's synthesis of banking research indicate that approximately 250 U.S. private investment banks dominated the capital markets for railroad securities between 1865 and World War I and continued to play a major role into the 1930's,[13] so my analysis takes this information into account. Similarly, with regard to trust funds, the data in Goldsmith's appendices is not broken out specifically for railroads. Yet, both Carosso and Kotz describe how trust funds were mainly investors in blue chip stocks and secure bonds, of which rail was considered the gold standard.[14] Thus, I include trust funds in this article. In short, my analysis abstracts statistics on railway capital finance from Goldsmith's broader data set, then adds information on the rail assets of investment banks and trust funds.

Four other primary sources also provided pertinent information on rail finances. First, documents and data from the archives of the Reconstruction Finance Corporation show how that agency crucially influenced the finances of railways and their large institutional creditors in the 1930's.[15] Second, annual reports from the Interstate Commerce Commission, which was closely involved with monitoring and regulating rail finances, are used.[16] Third, specialized reports on railway finances produced by banks, insurance companies, allied institutional investors and their professional associations provide important

information on the attitudes and policies of these organizations.[17] Finally, government reports, including those of the Office of the Coordinator of Transportation, a key agency that President Roosevelt hoped would help solve the transportation crisis of the 1930's, provide perspective on the federal response during these years.[18] This material is supplemented by secondary sources that deal with the investment behavior of large institutional investors.

SOURCES AND OWNERSHIP OF CAPITAL FOR RAIL

From their beginnings in the 19th century, railroads relied significantly on external sources of financing that supplemented internally generated earnings to supply capital for construction and expansion. Some of this external capital came from public sources, such as state and local governments, which either purchased railway stock or provided direct loans; some came from land grants from the federal government (though these mainly supported the western and trans-national railroads built after 1850); and some came from individual investors.[19] However, by the mid to late 19th century large private institutions came to dominate external rail finance. Investment banks such as J. P. Morgan and Company, Kuhn Loeb, Goldman Sachs and Lehman Brothers; commercial banks such as First National of New York; and insurance companies such as New York Life and Equitable, issued hundred of millions of dollars worth of stock and bonds (loans) that allowed railway corporations to construct new lines, merge with one another, and to expand both regionally and nationally. As these institutions issued and traded rail securities they took control of emerging American financial markets and, in the absence of strong government regulation, they manipulated stock prices, issued both overvalued ("watered") stock and excessive loans, and built large fortunes. Thus the stocks and bonds of private rail corporations became the most prevalent form of securities traded in U.S. capital markets by the late 19th

century,[20] and private institutional finance largely supplanted public sources in providing capital for railroad construction, mergers and acquisitions.

While both equity (stock) and debt (bonds) supported the capital requirements of American railways throughout their history, by the first decade of the 20th century bonds became the main instrument used to raise funds and much of that debt was held as an asset within the portfolios of large financial institutions. Table 1 shows that a larger amount of rail stock than bonds had been issued and was outstanding as of 1900 ($5.8 billion stock; $4.9 billion bonds). However, by the beginning of World War I, in 1914, bonded debt outstanding had increased by over 100%, to $10.1 billion, while equity capital had increased by less than 50%, to $8.7 billion. Greater reliance on bonds than stock to provide rail capital continued after World War I and up to the Great Depression. Table 1 also shows that the par value of outstanding stock increased only 8.8% between 1920 and 1929, from $9.1 billion to $9.9 billion, while bonded debt rose almost 18.1%, or by $2 billion. On the eve of the Great Depression, the ratio of bonds to stock for railroads was 1.22.[21]

Table 1

Composition of Capital Raised By Railroads, 1900-1939
(in millions)

	Rail Bonds[1]	%	Rail Stocks[2]	%	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%**
1930	12,349	**55.1%**	10,083	**44.9%**	22,432	**100%**
1931	12,768	**55.9%**	10,080	**44.1%**	22,848	**100%**
1932	12,812	**55.9%**	10,114	**44.1%**	22,926	**100%**
1933	12,600	**55.5%**	10,099	**44.5%**	22,699	**100%**
1934	12,430	**55.3%**	10,038	**44.7%**	22,468	**100%**
1935	12,408	**55.3%**	10,023	**44.7%**	22,431	**100%**
1936	12,212	**54.9%**	10,029	**45.1%**	22,241	**100%**
1937	12,261	**54.8%**	10,114	**45.2%**	22,375	**100%**
1938	12,169	**54.7%**	10,089	**45.3%**	22,258	**100%**
1939	11,978	**54.3%**	10,075	**45.7%**	22,053	**100%**

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

[2]**Source:** Commission, Interstate Commerce. "Statistics of Railways in the United States." edited by Bureau of Statistics, 153: Government Printing Office, 1942.
Nominal value, common and preferred stock outstanding.

Railways and their institutional investment sponsors had many sound reasons for using debt (bonds) more than equity (stock) to raise capital, but this choice would ultimately come back to haunt both

parties and play an important role in affecting structural change within the transport sector.[22] Heavier reliance on bonds than stock to raise capital created high fixed interest payments for railroads and recurrent requirements to pay off principal as bonds matured. Since the timing of those interest and principal payments was fixed, rail corporations could not adjust their payments to match fluctuations in operating income that occurred due to broader economic changes, such as recessions. Thus, management was burdened with debt service payments over which they had little control. Stock, on the other hand, bore no such fixed financial burdens. When operating income faltered, management could cut dividends in order to strengthen their budgets, though they might be wary of losing investors if they took this step.[23]

So, why did railroad management rely more heavily on debt (bonds) rather than on equity (stock) to raise capital and why did financial institutions encourage this behavior both by originating loans to railways and by holding a significant portion of those loans in their own portfolios? Some of the reasons are exogenous. For example, for insurance companies and savings banks, government regulations prohibited large equity holdings within their financial reserves.[24] Also, foreign holders of U.S. rail securities, who provided significant amounts of capital to railroads,[25] especially in the period before World War I, favored bonds because they valued their greater security (in the form of a lien on a company about which—from a long distance—they knew relatively little);[26] carried a fixed return, could often be purchased at discount and redeemed on maturity at par and carried less risk than equities.[27] Also, the corporate policies of both rail corporations and their financial sponsors favored borrowing rather than sale of stock to avoid giving give greater corporate control to equity shareholders.[28]

Most importantly, institutional investors favored bonds because they afforded excellent opportunities for earning profits at a relatively low risk. During the early development of capital markets in the U.S., particularly after the Civil War, reducing perceived risk was crucial to attracting investment. This was more easily accomplished with bonds than stock since bonds were often guaranteed by government jurisdictions [29] and since an estimated 90% of bonds were backed by real assets.[30] In addition, rail bonds were usually guaranteed by liens on railway real estate (land and terminals, for example) or rolling stock (engines and railcars), which provided security for lenders. Equipment trust obligations, through which railways bought rolling stock and locomotives via a lease-purchase agreement, with title to the equipment vested in a financial trustee until payments were completed, became a major type of loan made to railways in the early 20th century. In the event of non-payment of debt service, the lenders knew that they could repossess and re-sell the physical assets to recoup their investment. As a result, on the eve of the Great Depression, these loans made up 9% of total funded debt for railways.[31]

Even though bonds provided certain hedges against risk, railway finances were still subject to losses that occurred within the highly competitive environment of railway development, particularly the not infrequent recessions and depressions of the 19th and early 20th centuries. This led many railways into bankruptcy. The average number of American railways in bankruptcy per year between 1894 and 1929 (the eve of Great Depression) was 64. The largest number of bankruptcies was 192 in 1894, after the Panic of 1893 and depression of subsequent years; the lowest 26 in 1905, a period when U.S. railways were thriving financially.[32] Surprisingly, however, when railroads entered bankruptcy, the financial and management reorganization that followed actually provided financial institutions with both a hedge against bond losses and a source of fee income. This is a unique aspect of the financial history of American railroads. American bankruptcy proceedings were governed by the courts, not by state or

federal law, under a specialized judicial procedure called "equity receivership"[33] in which railway ownership or its management representatives invited a bank—usually one which 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 arrangement could be considered collusive.[34] Then, 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 bankruptcy; and second, to purchase new rolling stock and rebuild the often deteriorated infrastructure of the railway. 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 securities 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.[35] In addition, financial institutions reaped large fees repackaging and re-selling the bonds that were issued as part of reorganization.[36] In short, in most American rail bankruptcies equity capital (stock) was put at more risk than credit (bonds), and institutional creditors (bondholders) generally emerged in a stronger condition than stockholders. This adds further evidence to the proposition that financial institutions believed rail bonds were a worthwhile asset to hold in their portfolios.

In sum, by the first decade of the 20th century, rail bonds had become the gold standard of securities in the U.S. capital markets, which institutional investors favored over equity for a variety of reasons, including, first, the security those bonds offered through liens on the physical equipment of railroads; second, due to laws that forced insurance companies to invest mainly in bonds, which were considered safer than stocks; third, because the legal structure of equity receivership (bankruptcy) proceedings

included profit incentives to investors to issue bonds; and, finally, by raising capital through debt, rather than equity, railroad management could more readily limit shareholder influence. Thus, as railroads swept across the American landscape between the last quarter of the 19th century and World War I, they did so with the support of banks, insurance and investment companies and trusts that issued rail bonds, which they stockpiled in their own asset portfolios. Though they also issued, purchased and profited from railway stock, the increase in rail debt relative to equity is the most important trend within rail capital finance history during this period.

CHANGES IN PORTFOLIO COMPOSITION

Between 1900 (the first date for which systematic data is available) and 1929, on eve of the Great Depression, financial institutions significantly increased their rail assets, though those decreased relative to other assets within their overall portfolios. Table 2 shows that, for all major financial institutions, holdings of rail securities increased from 1900 to 1912, just before World War I, and continued to increase even after the War, when competition from highway-based transport was beginning to cut seriously into freight and passenger revenues. Specifically, insurance companies increased their holdings of rail securities from $667 million in 1900 to almost $4 billion in 1929, equal to 18% of their investment assets (though down from almost 35% in 1900); savings banks increased their holdings from $420 million to $1.4 billion in 1929, or 14.5% of assets in rail bonds and stock (down from 18.5% in 1900); commercial banks went from $520 million to $1.191 billion, or 2.2% of assets in 1929, down from 7.2% in 1900; and investment companies held 17% of assets in rail securities in 1929 (data not available for 1900). The decrease in rail assets as a percentage of overall institutional portfolios in 1929 reflects diversification of institutional portfolios that accompanied American economic growth, not a decrease in confidence by banks and other institutional investors in railways. Instead, as the so-called

Second Industrial Revolution took hold in the U.S., with tremendous expansion in industries such as steel and public utilities, financial institutions added holdings in those sectors, resulting in a relative decline in their rail holdings.[37] Thus, even as they diversified, Table 2 shows that, on the eve of the Great Depression in 1929, rail securities remained a major component of the investment portfolios of financial institutions: 12.9% as an average for all financial institutions and 16.5% if commercial banks are excluded.[38]

Table 3

Railroad Assets of Major Financial Institutions, 1900-1929

(in millions)

	1900			1912			1922			1929		
	Rail Securities[1]	Total Assets[2]	%	Rail Securities[1]	Total Assets[2]	%	Rail Securities[1]	Total Assets[2]	%	Rail Securities[1]	Total Assets[2]	%
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, N.J.: Princeton University Press. A-3, A-5, A-8, A-9, A-12, A-13, A-16, A-21

[1]Rail 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; miscellaneous and foreign loans. These are same asset categories as in

The financial industry produced a number of reports in the years prior to the Great Depression and even into the early 1930's in which they justified their continued investment in rail securities, even though railroads faced a rise of competition from highway-based modes of transport. For example, a major policy study sponsored by commercial, savings and investment banks, life insurance companies and the endowments of elite universities such as Yale, Harvard and Columbia, argues that rail is an essential mode of transportation in the U.S. economy and defends the emphasis on rail bonds as an investment asset.[39] While acknowledging that "a severe decline in the value of $19.5 billion of railroad obligations and shares has occasioned concern to institutions which hold such obligations among their assets…,"[40] the report defends railways and argues for coordination between railways and other transport modes, "such as highway, water, rapid transit and air."[41] Similarly, a report by the American Bankers Association in the late 1920's avers that the "potential capacity of the motor truck as a competitor of the railroad freight car, and the extent of actual encroachment upon railroad freight traffic, are not relatively great."[42] The bankers argue that "(b)ecause of their longer experience in transportation and their trained traffic organizations, the railroads should be able to develop and operate motor coach and freight truck service better than the new motor vehicle companies…".[43] They also believed that, while "auto is a major part of the U.S. economy…, it hardly seems probable that the degree of increase in motor vehicles in the next five years will be as great as the increase during the past five years."[44] They support railroad purchases of trucking companies that provide short haul services, which supplement the long haul advantages of rail.[45] These are statements by institutional investors who do not appear overly worried about the challenges posed for railroads by highway-based transport.

However, countervailing evidence suggests that some money managers were concerned about competition from highway-based transport. A 1934 report by Joseph Eastman, the Federal Coordinator of Transportation, states that "a member of the Coordinator's staff interviewed numerous officers who have charge of the investment of large amounts of capital for insurance companies, banks, and like institutions, as well as large personal investors. He found that they are beset by fears with respect to railroad investments…. They fear the competition of motor trucks and other transportation agencies…and a host of other things (such as excessive regulation of railway rates)." [46] It is possible, therefore, that bankers and other large institutional investors recognized the threat of high-based transport to the underlying valuations of railway securities in their portfolios, but also believed that railway management was taking appropriate steps to control the deleterious effects of that competition.[47]

In sum, in the period between 1900 and 1929, large financial institutions increased holdings of rail assets in their investment portfolios. They did so even in spite of significant competition from the automobile, truck and intercity bus. Both in their investment priorities and in public reports they fail to manifest significant concern about highway competition, even as the operating finances of railways deteriorated and as numerous railways entered bankruptcy proceedings. Partly this may have been because they saw railway corporate management responding to competition in appropriate ways. Partly, too, they had witnessed instability in rail finances for a long time, well back into the 19th century, but had usually turned that instability to their own financial advantage through the equity receivership process. Furthermore, because they had diversified assets through investments in non-rail industries during the Second Industrial Revolution, their portfolios were somewhat hedged from risk and their portfolios generated strong profits throughout the 1920's.[48] Most importantly, however, on the eve of the Great

Depression, rail securities composed around 15% of assets of all the major institutional groups except commercial banks, a heavy weighting in that single asset category--exposure that would cause significant problems when the financial crash occurred.

PUBLIC FINANCIAL INTERMEDIATION DURING THE GREAT DEPRESSION

As earnings declined after the onset of the Great Depression, as earnings declined many railroads became unable to meet interest charges and payments on maturing debt.[49] Concommitantly, deflation in the value of railway debt contributed to instability in broader U.S. credit markets. This worried not just private bankers who held rail debt in their portfolios, but also officials in the Hoover and Roosevelt Administrations, as they tried to maintain the flow of credit in capital markets in the early years of the Depression. To deal with the credit crisis, President Hoover signed legislation near the end of his term in office in 1932 creating the Reconstruction Finance Corporation (RFC). The RFC quickly became an influential force in the U.S. credit markets, acting as a public financial intermediary. Congress appropriated $4 billion and authorized the RFC to operate as a revolving loan fund so that, as loans were repaid, new debt could be issued without recourse to additional Congressional appropriations. Soon thereafter, newly elected President Franklin Roosevelt signed the Emergency Banking Act (March 9, 1933) and subsequent amendments (June 10, 1933), which gave the RFC additional powers, including authority to lend to financial institutions; to buy stock in banks and insurance companies; to buy stock in private corporations, including railroads, and use its equity position to influence corporate policy; to issue bonds that used assets, such as railcars, as collateral; and to provide funds to government agencies that, in turn, could lend to public and private organizations,

including railways.[50] In short, the RFC had the power to intervene in both financial markets and corporate boardrooms.

The first government agency of its kind in American financial history, the RFC's influence on railway finances were particularly significant. It loaned over $200 million to railroads in the first year of its existence[51] and then, from 1933 to 1940, loaned an additional $704 million, for total credits of close to one billion dollars before World War II.[52] The types of credit extended by the RFC to railways varied according to both its evolving legislative mandates and changes in economic conditions. From 1932 to 1934, as Table 3 shows, 92.9% of RFC's rail credit activity involved direct loans to railroads. Comparable to the short term loans of a commercial bank, direct loans provided funds so that railroads could pay recurring interest charges and maturing principal on bonds that would otherwise have gone into default. Then, in 1935, after Congress gave it additional powers to directly purchase corporate securities, the RFC shifted its priorities to refinancing rail bonds. Through that mechanism, it purchased existing rail debt held by private financial institutions, usually at par (full) value, not the deflated values they were selling for in Depression-era bond markets. The RFC then issued new loans directly to the railroads at discounted interest rates, thereby lowering railway debt service charges and improving their chances of remaining solvent. This served the dual function of strengthening the balance sheets of railways and of their private creditors. As shown in Table 3, from November, 1934 through October, 1936, 76.9% of RFC loans were for "purchases of securities," which means refinancing transactions. Then, in the last three years of the Depression, from late 1936 through October, 1939, 46.3% of RFC loans were for "retirement of bonds," meaning bonds were redeemed before maturity. These also were largely refinancing transactions that resulted from improved economic

conditions. Rail operating income increased significantly in 1936 and early 1937, and again in 1939, which allowed railroads to trade in more costly bank and other private debt for RFC bonds bearing lower interest rates.[53] In short, through direct loans, refinancing and retirement of existing bonded debt, the RFC relieved private financial institutions of a significant proportion of their holdings of deflated assets, removing those institutions in significant measure from their historic position as primary suppliers of external capital to railways and substituting the American government as the railway's main creditor.

Table 3

Amount and Purposes of Authorized RFC Loans to Railroads, 1932-1939

	Jan. 22, 1932-Oct. 31, 1934	%	Nov. 1, 1934-Oct. 31, 1936	%	Nov. 1, 1936-Oct. 31, 1939	%
Direct Loans[1]	482,274,313	**92.9%**	24,235,548	**13.4%**	47,928,459	**44.0%**
Purchases of Securities[2]	N/A	**N/A**	143,606,450	**79.6%**	9,300,000	**8.5%**
Retirement of Bonds[3]	N/A	**N/A**	12,405,667	**6.9%**	50,391,971	**46.3%**
Miscellaneous[4]	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, D.C.: U.S. Government Printing Office, 1932-1939. These figures were validated through primary research with Quarterly Financial Reports of the RFC found in Record Group 237, Archive II, National Archives, Rockville, Maryland.

[1]Direct Loans includes payment of bond and other securities' interest charges; payment of principal on debentures and equipment trust certificates.

[2]Purchases of Securities includes purchase of carriers' loans (some stock), purchase of stock of subsidiary company and purchase of lessor properties.

[3]The Retirement of Bonds means a bond issue was redeemed before its maturity date.

[4]Miscellaneous includes rentals, preferential claims and judgments.

The RFC's interventions in private capital markets during the 1930's represent a watershed in the financial history of American railroads, the effects of which are reflected in Table 4, showing changes in the composition of assets in the portfolios of financial institutions between 1929 and 1939.

Table 4

Asset Allocations of Major Financial Institutions, 1929-1939
(in millions)

	Commercial Banks					
	1929		1933		1939	
	Amount	%	Amount	%	Amount	%
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					
	1929		1933		1939	
	Amount	%	Amount	%	Amount	%
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					
	1929		1933		1939	
	Amount	%	Amount	%	Amount	%
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%**

	Investment Companies					
	1929		1933		1939	
	Amount	%	Amount	%	Amount	%
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					
	1929		1933		1939	
	Amount	%	Amount	%	Amount	%
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%**
Railroad Stocks and Bonds	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Public Utility plus 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. *Financial Intermediaries in the American Economy since 1900.* Princeton, N.J.: Princeton University Press, 1953. (Table A-3, A-5, A-8, A-9, A-12, A-13, A-16, A-21)

Most importantly, this table shows that all major classes of financial institutions significantly reduced both the absolute amount and relative size of rail stocks and bonds in their portfolios during this ten year period. Savings banks reduced their rail assets by almost half, from 14.5% to 7.7% ($1.375 billion to 792 million). Insurance companies reduced their rail holdings from almost 18% of overall portfolio assets to just less than 11% ($3.929 billion to $3.372 billion). Investment company rail assets went from 17% to 11.6% ($405 million to $170 million). Commercial banks increased their percentage holdings of rail assets by a very small amount, from 2.2% to 2.3%, but the absolute level of those assets decreased from $1.191 billion to $946 million. Furthermore, as previously noted, these figures significantly understate the amount of reallocation within institutional portfolios both because data in Goldsmith's "trust funds" category is not broken out for rail versus other sectors and because private investment banks did not disclose their stock and bond assets, so they are not included in Goldsmith's tables. However, the evidence is clear that both trust funds and investment banks were heavily invested in rail securities in the early 20th Century, then divested from them during the Great Depression.[54] Thus, divestment from rail securities was broad based, deep and reached across all sectors of American institutional finance.

At the same time as they eliminated rail securities from their portfolios, financial institutions dramatically increased their investment in federal, state and local government securities, which protected them from deflation or bankruptcy risk. Table 4 shows that, between 1929 and 1939, government securities rose from 12.5% to 48.1% of commercial bank portfolios ($6.713 billion to $19.723 billion); from 15.2% to 36.1% of savings bank assets ($1.441 billion to $3.722 billion); from 10.5% to 29.5% for insurance companies ($2.289 billion to $9.229); and from

14.1% to 24.2% for institutional trusts ($3.9 billion to $7.7 billion). Based on Carosso's research, I infer that investment banks took similar steps. Thus, just as the Reconstruction Finance Corporation was socializing rail securities and becoming a major public creditor for railways—thereby allowing financial institutions to remove devalued assets from their portfolios—those same private financial institutions were moving their freed-up capital into government securities. They fled from rail to the safety of government bonds.

The shift of assets by financial institutions into government securities was more pronounced for rail than for other sectors. Table 5 shows that, during the Great Depression, the two classes of financial institutions holding the largest percentage of rail securities—savings banks and insurance companies—divested of rail assets at a more rapid rate than they did in comparable sectors, such as public utilities and other corporate loans. This is also true for investment companies, though for these companies the percentage change differences are less pronounced. It is not the case for commercial banks, but these banks were never major lenders to railways. Thus, financial institutions did not divest from their various asset classes equally during the Great Depression in order to move into safe government securities. Instead, with assistance from the Reconstruction Finance Corporation, they divested more rapidly from rail than other sectors.[55]

Table 5

Divestment by Financial Institutions (in millions), 1929-1939

	Commercial Banks			Mutual Savings Banks			Insurance Companies			Investment Companies		
	1929	1939	%Change	1929	1939	%Change	1929	1939	%Change	1929	1939	%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. (1958), *"Financial Intermediaries in the American Economy Since 1900"*, Princeton, N.J.: Princeton University Press, Table A-3, A-5, A-8, A-9, A-12, A-13, A-21

Yet, arguably, rail assets were not so large that they threatened the overall viability of large institutions. Writing about this issue, 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…."[56] Clay also maintained that "the (financial) position of… insurance companies and savings banks…is generally sound…."[57] This contradicts the notion that banks, insurance companies, investment trusts, university endowments and other institutional investors were threatened with insolvency because of the rail debt they held in their portfolios. Instead, it is equally plausible that, though it might have cut into their profits, they could have continued to hold those securities during the 1930's without seriously jeopardizing their overall financial viability and/or could have slowly divested themselves of those holdings as market conditions improved--and conditions did improve at various times during the 1930's and 1940's.

When all is said and done, however, even if they had not divested, private institutions were unlikely to have provided additional loans to railways in the 1930's because their existing rail holdings had suffered serious deflation in value. Thus, the discounted loans provided by the

Reconstruction Finance Corporation were crucial for avoiding wholesale bankruptcy within the rail sector during the Great Depression. Federal loans during the Depression shored up the finances of insolvent railroads, which concommitantly attenuated the effects of the Depression on the broader U.S. economy. At the same time RFC refinancing transactions relieved financial institutions of deflated rail bonds, even though arguably those bonds did not seriously threaten their balance sheets. In essence, the American government subsidized the finances of private institutions in order to avoid massive bankruptcy in the rail sector.

The interventions of the RFC were unique in American financial history up to that time. Never before had the American government so directly and massively influenced private capital markets. While the government had previously issued treasury bonds to pay for deficits resulting from the Revolutionary War, the War of 1812, and the Civil War, the Reconstruction Finance Corporation intervened in capital markets in the 1930's more directly, using a wider range of financial tools, and on a larger scale than ever before. During the Great Depression, the RFC became a national investment bank with immense capital resources and no reserve requirements that backed its credit with the government guarantees. It directly took over assets that banks, trusts, institutional endowments, insurance and investment companies were anxious to shed, including, notably, seriously devalued railway debt, and simultaneously financed depression-induced federal government deficits. These unprecedented initiatives represent the beginning of the modern era of the U.S. government acting as public financial intermediary.

POLITICS AND FINANCE

While this article focuses on the rail industry's access to capital, financial issues cannot be separated entirely from political developments that affected transport in the inter-war period.[58] Some of these are particularly relevant to the decline of rail, beginning with problems railways experienced in dealing with regulation by the Interstate Commerce Commission (ICC). In the U.S. the ICC was at the center of transportation policy from its creation in 1887 through the 1930's. During these 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. However, particularly during the period between the end of the Civil War (1865) and 1900, the ICC was less powerful than private corporations, particularly large banks, insurance companies and other institutions of finance capital, in terms of determining the shape of transportation development.[59] During that time, J.P. Morgan and Company, Kuhn Loeb, Lehman Brothers, and powerful railway corporations such as those controlled by Vanderbilt, Van Sweringen and Hill, shaped the mergers and consolidations that swept the rail industry.[60] Since ICC power over these mergers was weak, it was unable to eliminate the duplication of lines and overbuilding that often occurred.[61] Then, after 1900, the ICC faced a new problem--balancing competition between rail and motorized transport. Before it could do anything about this, however, the demands of supplying troops and allied nations during World War I caused 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. This set a precedent for direct government control of railways and could have been used to bolster the ICC's power after the war's end. Instead, Congress passed the Transportation Act of 1920, which mandated that the ICC develop plans for

consolidation of railroads, but failed to provide the agency with effective powers to enforce consolidation plans and also left a legal loophole whereby rail holding companies could avoid regulatory approval for mergers.[62] Thus, even as the ICC developed a series of consolidation proposals during the 1920's, rail holding companies continued to pursue mergers and acquisitions. For example, the Van Sweringen brothers added to their railway conglomerate in the East and Midwest while Vanderbilt's New York Central railways and the Pennsylvania Rail Corporation pursued their own acquisitions and mergers.[63] 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. As a result, while some consolidation of railways occurred during the 1920's, 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.[64] Thus, by the end of the 1920's the rail industry in the United States was internally divided; had not overcome inefficiencies from duplication of lines; and was losing passenger and freight revenues to competition from highway-based transport—all just as their finances were seriously weakened by excessive debt.

In order to effectively and efficiently compete with the growth of highway based traffic, the rail system required rationalization—elimination of overlapping rail lines, combining weak with strong companies, and system-wide consolidation to increase efficiency.[65] Thus, early in his first term, President Roosevelt supported passage of the Emergency Railroad Transportation Act (June 16, 1933) creating the Office of the Federal Coordinator of Transportation, which was

empowered to investigate, recommend and, if necessary, require changes to the U.S. transportation system. Appointed as head of this new office, Joseph Eastman, who was also an ICC Commissioner, urged consolidation and financial reorganization of railroads in order to make them competitive with highway-based transportation.[66] Based partly on Eastman's recommendations, the Roosevelt Administration submitted numerous bills to Congress during the 1930's dealing with rationalization of the planning, financing and re-structuring of the country's transportation system and Congress itself held numerous hearings and proposed laws, one of which called for full nationalization of railways.[67] While some important legislation was enacted, aspects of the new laws actually weakened railway finances. First, amendments to the railway equity receivership law, passed by Congress in 1933 and 1935, reduced the power of financial institutions to unilaterally control bankruptcy proceedings, which thereby increased the motivation of financial institutions to withdraw from rail capital markets since they could no longer manipulate reorganization to achieve financial gain.[68] Second, the Banking Act of 1933 (Glass Steagull), ordered commercial banks to withdraw their deposits from investment banks.[69] Because 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.[70] Finally, the Transportation Act of 1940 supported a national transportation system that embraced rail, motor and water modes, but the Act provided no effective power to the government to implement such a system, so the competitive position of rail was not ameliorated.[71] Thus, taking all this legislation into account, by the end of the Great Depression American railways were no better off in terms of access to

capital and competitive balance with motorized transport than they had been at the beginning of the 1930's.

In addition to legislative change, President Roosevelt could have taken executive actions to improve railway finances. He and his Coordinator of Transportation could have used their numerous points of leverage over the rail industry to force at least consolidation, if not the full nationalization plans that Eastman initially proposed.[72] The Transportation Act of 1934 stated that the Coordinator's Office could, if necessary, "… require action on the part of the (rail) carriers...which will avoid unnecessary duplication of services and facilities…".[73] But Eastman was "tentative,…doubtful, hesitant, and elaborately cautious," according to one major study of his term as Coordinator,[74] so he forced no change on the railway industry. Roosevelt was similarly cautious. At a time when both railways and their institutional creditors were in desperate need of support, Roosevelt could have used the RFC's control of large amounts of capital and credit to force railroads to accept consolidation, reorganization and rationalization of their services.[75] Instead, he and the RFC allowed railroads to continue to operate a system weakened by duplication of lines and services and other inefficiencies which allowed cars, buses and trucks to make competitive inroads. In short, Roosevelt and his appointees failed to use their political, economic and financial powers to address the underlying structural weaknesses of the railroad industry. Neither executive actions taken, nor new legislation passed in the 1930's was sufficient to create a transportation system in which railroads could compete effectively with cars, buses and trucks. Thus the rail industry began a long period of decline--interrupted only by an ephemeral revival during World War II--and highway based transport continued its rise towards dominating American transport.

CONCLUSIONS

In theoretical terms, the way public and private financial intervention in capital markets affected the shift from rail to highway dominance in American transport is representative of the process by which structural change normally occurs within economic sectors in the United States. Private institutions, not government planning, largely control credit allocation in the U.S.,[76] which is a version of Keynesian liberal economics, sometimes termed "corporate capitalism"[77] or a "capital market based system."[78] This type of system operated in the U.S. from the late 19th century through the 1930's, as banks, insurance companies and other large institutional investors supported railway capital needs, even in the face of growing competition from highway-based transport. On the eve of the Great Depression in 1929, insurance companies held 18% of their corporate assets in rail; savings banks, 14.5%; and investment companies, 17%. But, as depreciation eroded the value of those assets in the 1930's, financial institutions divested from rail, removing themselves from their historic position both as financial intermediaries in rail capital markets and as major purchasers of rail securities for their own asset portfolios. This created a significant precondition for structural change because railroads lost access to external, private capital. Furthermore, auto, bus and truck producers relied largely on internally generated profits to produce their vehicles, so were not as dependent as railways on external financing for growth.[79] So, while railroads faced loss of access to external capital in the 1930's, this was not a problem for their highway-based competitors.

The withdrawal of private capital from railway finance was facilitated by the Reconstruction Finance Corporation, a powerful new public financial intermediary created during the Great Depression to restore liquidity to frozen American credit markets. The RFC purchased devalued

rail assets and thereby assumed the role of public creditor to railways. However, the RFC did not use its takeover of railway credit to force changes in the competitive landscape of American transport. The Office of Transportation Coordinator did not intervene to force either elimination of duplicative railway lines or corporate consolidations that could increase efficiency in the industry. As had been the case throughout the prior financial history of the United States, even during the crisis of the Great Depression, when the government had a momentous opportunity to force structural change in the transport sector, private rail and highway corporations continued to make the decisions that determined their own fate. Private planning, not public intervention, continued to determine the structure of American transport. While highway transport did not become completely dominant in the U.S. transportation sector until the 1950's and 1960's, the interplay of private financial institutions and the federal government in capital markets in the 1930's established significant financial preconditions for that subsequent shift.[80]

But, one could ask of those financial institutions that divested from rail securities in the 1930's: weren't they just reacting to shifts towards highway transport that had already commenced around the time of World War I? Weren't they just avoiding losses and pursuing profits in a rational manner? On the contrary, my argument is that these institutions did not react to the emerging structural shift towards highway transport in a timely manner. In their published reports in the 1920's, they gave various reasons why they did not see highway modes as a major threat to railways, not least because railway management was taking initiatives to diversify and merge with trucking and bus companies. As a result they stayed strongly invested in rail into the early years of the Great Depression. Even if one accepts that financial institutions were just slow to react to highway competition and that divestiture in the 1930's was a belated way of avoiding

losses and pursuing profits elsewhere, once they began to divest, they were making decisions that contributed to the decline of rail. This is because, as noted earlier, access to credit in the U.S. is controlled by private markets. In fact, whether institutional investors were just slow to react or whether they were reactive or proactive at all is not the point. The point is that divestment denied railways access to needed capital and left them dependent on public credit. In the context of the American market-based system, where government did not use its executive powers to force structural economic change, railroads were left at a serious disadvantage relative to their highway competitors.

Alternatively, one could argue that the more deep rooted cause of railroad decline was loss of competitiveness with highway transport, not divestiture from rail assets by private capital, due either to inflexible regulation of freight and passenger rates by the Interstate Commerce Commission [81] and/or to poorly conceived decisions by railway management concerning how to cope with highway competition.[82] However, as proponents of the inflexible rate thesis concede, regulation by itself did not inevitably doom railways to failure[83] and highway hegemony was not an inevitable outcome of management failures.[84] On both counts, if railways had eliminated duplicative lines and consolidated overlapping corporate jurisdictions through mergers, and/or if the government had forced consolidation of rail services to bring efficiency to the overall industry, railroads might have more effectively competed with highway-based modes of transport. These were not purely hypothetical alternatives. They were contingent options very much under active consideration by railways and government in that historical time period.[85]

Thus, the central thesis of this paper is not contradicted by counterfactual arguments. The evidence remains clear that, when the Roosevelt Administration, through the vehicle of the Reconstruction Finance Corporation, relieved railroads of much of their devalued debt and facilitated the redistribution of assets within the portfolios of large financial institutions in the 1930's, it could also have used its considerable political, regulatory and financial powers to force railroads to consolidate, reorganize and rationalize service. But, because the American political economy is not based on an interventionist state, these steps were not taken. As a result, by the end of the Great Depression American railways had lost much of their financial strength and economic competitiveness with highway-based modes. This allowed the motorized transport industry to move towards establishing its dominance within American transport, a position it would consolidate not long after the end of World War II.

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[1] R. Goldsmith, *Financial Intermediaries in the American Economy since 1900* (Princeton, N.J.: Princeton University Press, 1958). See Tables A-3, 5, 8, 9, 12, 13, 16, 21.

[2] A. Martin, *Enterprise Denied* (New York: Columbia University Press, 1971). viii. Other works in this vein include: K. A. Kerr, *American Railroad Politics, 1914-1920: Rates, Wages and Efficiency* (Pittsburgh: Carnegie Mellon, 1968). R. Saunders, *Merging Lines: American Railroads, 1900-1970* (DeKalb, Illinois: Northern Illinois Press, 2001).

[3] G. Thompson, *The Passenger Train in the Motor Age* (Columbus: Ohio State University Press, 1993). Thomas C. Cochran, *Railroad Leaders* (New York: Russell and Russell, 1965).

[4] The very large number of studies of individual railroads and their financial backers, and the lesser number of regional and national studies, provide relevant background for the pre-World War I period addressed in this article. Among the main works I rely upon are J. Stover, *American Railroads* (Chicago: University of Chicago Press, 1961). E.G. Campbell, *The Reorganization of the American Railroad System, 1893-1900* (New York: Columbia University Press, 1938). D. Kotz, *Bank Control of Large Corporations in the United States* (Berkeley, CA: University of California Press, 1978). A. Martin, *Railroads Triumphant* (New York: Oxford, 1992). Saunders, *Merging Lines: American Railroads, 1900-1970*. An excellent review of this and the broader railway literature is provided by A. Churella, "Company, State, and Region: Three Approaches to Railroad History " *Enterprise and Society* 7, no. 3 (2006).

[5] V. Carosso, *A History of Investment Banking in America* (Cambridge, Mass.: Harvard University Press, 1970).

[6] Goldsmith, *Financial Intermediaries in the American Economy since 1900*.

[7] Kotz, *Bank Control of Large Corporations in the United States*.

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[9] J. S. Olson, *Saving Capitalism: The Reconstruction Finance Corporation and the New Deal, 1933-1940* (Princeton, N.J.: Princeton University Press, 1988). D. Schiffman, "Shattered Rails, Ruined Credit" (Ph.D. Dissertation, Columbia, 2000). J. Mason, "Reconstruction Finance Corporation Assistance to Financial Intermediaries and Commerical and Industrial Enterprises in the U.S., 1932-1937," in *Resolution of Financial Distress*, ed. S. Claessens (Washington: The World Bank, 2002).

[10] M. Rose, Seely, B., Barrett, P., *The Best Transportation System in the World: Railroads, Trucks, Airlines and American Public Policy in the Twentieth Century* (Columbus, OH: Ohio State University Press, 2006). H. Mertins, *National Transportation Policy in Transition* (Toronto: D.C. Heath 1972). {Latham, 1959 #116}

[11] M. Bordo, ed., *The Defining Moment: The Great Depression and the American Economy in the 20th Century* (Chicago: University of Chicago Press, 1998).

[12] The main focus of Goldsmith's monograph is on the historical development of capital formation in all economic sectors of the United States in the first half of the 20th Century.

[13] Carosso, *A History of Investment Banking in America*. Kotz, *Bank Control of Large Corporations in the United States*. See also: G.W. Edwards, *The Evolution of Finance Capitalism* (London: Longmans, Green and Company, 1938).

[14] Carosso, *A History of Investment Banking in America*. Kotz, *Bank Control of Large Corporations in the United States*.

[15] The records of the Reconstruction Finance Corporation 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 in RG 237.

[16] Interstate Commerce Commission, "Statistics of Railways in the United States," ed. Bureau of Statstics (U.S. Government Printing Office, various years).

[17] These are referenced at relevant points in the article.

[18] These are referenced at relevant points in the article.

[19] C. Goodrich, *Government Promotion of American Canals and Railroads, 1800-1890* (New York: Columbia University Press, 1960), W. Roy, *Socializing Capital: The Rise of the Large Industrial Corporation in America* (Princeton, N.J.: Princeton University Press, 1997). Goldsmith notes that railroads relied considerably more on external finance than did manufacturing corporations in the same period. Manufacturers relied primarily on reinvestment of profits, or internal financing. Goldsmith, *Financial Intermediaries in the American Economy since 1900*. 7-10.

[20] Roy, *Socializing Capital*.

[21] Wilkens shows that a significant amount of U.S. rail debt and equity was held by foreigners, mostly foreign financial institutions, but avers that "the course of foreign investment in U.S. railroads, 1875-1914, was highly erratic." She estimates $4.2 billion in long term foreign investment in railroads in 1914, which, based on Goldsmith's figures shown in Table 1, would mean 22.4% of total rail securities were held by foreigners on the eve of World War I. M. Wilkens, *The History of Foreign Investment in the United States to 1914* (Cambridge: Harvard University Press, 1989), 193-94. See also B. Eichengreen, "U.S. Foreign Financial Relations in the Twentieth Century," in *Cambridge Economic History of the United States*, ed. S. Engerman and R. Gallman (Cambridge: Cambridge University Press, 2000).

[22] The growth trends for rail stock and bonds are consistent with broader trends in the development of capital finance in the U.S. During the first four decades of the 20th Century, the major types of private financial institutions—

commercial and savings banks, investment banks, insurance companies, investment companies and private trusts—increased their assets by over 800%, from $14.1 billion in 1900 to over $115 billion in 1929. Throughout this period of growth, financial institutions consistently held between 15% and 20% of their portfolios in corporate bonds, with somewhat less than that in stock. See A. Bernheim and M. Schneider, eds., *The Security Markets* (New York City: Twentieth Century Fund, 1935). 149 The stocks and bonds of railroads formed a significant percentage of this overall portfolio of assets. As of 1900, 7.2% of commercial bank assets were in rail bonds and stock; 18.5% for savings banks; 34.8% for insurance companies. See Goldsmith, *Financial Intermediaries in the American Economy since 1900*. Appendix Tables A-3, 5, 8, 9, 12, 13, 16, 21. Regrettably the data set from which these numbers derive do not provide a uniform, detailed breakdown of stock compared to bond holdings by financial institutions. However, Goldsmith indicates that most of the rail assets held by financial institutions were bonded debt and only a relatively small amount was in stock.

[23] Thanks to an anonymous reviewer for adding the caveat about possible loss of investor confidence.

[24] Bernheim and Schneider, eds., *The Security Markets*. 149.

[25] Two of the most important works in this regard are: A. Veenendaal, *Slow Train to Paradise: How Dutch Investment Helped Build American Railroads* (Stanford: Stanford University Press, 1996). and Wilkens, *The History of Foreign Investment in the United States to 1914*.

[26] Thanks to an anonymous reviewer for making this point.

[27] Wilkens, *The History of Foreign Investment in the United States to 1914*, 191. Eichengreen, "U.S. Foreign Financial Relations in the Twentieth Century."

[28] D. Greenberg, *Financiers and Railroads, 1869-1889* (Newark, Delaware: University of Delaware Press, 1980), 216-17, Schiffman, "Shattered Rails, Ruined Credit", 32.

[29] On this particular point, see: J. Larson, *Internal Improvement: National Public Works and the Promise of Popular Government in the Early United States* (Chapel Hill, North Carolina: University of North Carolina Press, 2001). Also Goodrich, *Government Promotion of American Canals and Railroads, 1800-1890*.

[30] J.B. Baskin, "The Development of Corporate Financial Markets in Britain and the United States, 1600-1914: Overcoming Asymmetric Information," *The Business History Review* 62, no. 2 (1988): 215.

[31] H. Moulton, ed., *The American Transportation Problem* (Washington, D.C.: Brookings Institution, 1933). 277

[32] Interstate Commerce Commission, "Statistics of Railways in the United States," ed. Bureau of Statistics (Government Printing Office, 1942).

[33] Non-rail corporations were governed by other state and federal bankruptcy laws. See D. Skeel, *Debt's Dominion: A History of Bankruptcy Law in America* (Princeton: Princeton University Press, 2001).

[34] Skeel notes that, in the vast majority of receiverships in the late 1800's, "insiders" were appointed as receivers. Ibid. See also M. Lowenthal, "The Railroad Reorganization Act," *Harvard Law Review* 47 (1933).

[35] B. Hansen, "The People's Welfare and the Origins of Corporate Reorganization: The Wabash Receivership Reconsidered " *The Business History Review* 74, no. 3 (2000). William Moore, *The Reorganization of Railroad Corporations* (Washington, D.C.: American Council on Public Affairs, 1941). Skeel, *Debt's Dominion: A History of Bankruptcy Law in America*.

[36] Greenberg, *Financiers and Railroads, 1869-1889*.

[37] Goldsmith, *Financial Intermediaries in the American Economy since 1900*, A-3, 5, 8, 9, 12, 13, 16, 21.

[38] Commercial banks mainly provided short term credit to railroads, not long term loans.

[39] Moulton, ed., *The American Transportation Problem*, 300-01.

[40] Ibid. lxv

[41] Ibid. 833

[42] American Bankers Association, "Automotive Transportation and Railroads: A Study of Relationships," (New York City, N.Y.: 1927), 12.

[43] Ibid. 33

[44] Ibid., 27.

[45] Ibid. 12

[46] Federal Coordinator of Transportation, "Is There Need for a Radical or Major Change in the Organization, Conduct and Regulation of the Railroad Industry Which Can Be Accomplished by Federal Legislation.," ed. Committee on Interstate Commerce (US Government Printing Office, 1934).

[47] As noted in my discussion of relevant historiography (see "Historiographic Context," above), historians have long debated whether or to what extent poor quality of rail management contributed to the decline of rail in the United States. I do not engage this debate here, since to do so would take me beyond the conceptual boundaries of this article. That said, I am indebted to Albert Churella for the following comment on "managerial incompetence" interpretations. "There seems to be a predilection for blaming people for what were more likely secular changes in the rail industry and the transportation sector of the US economy. Some say the fault lay in the 'dead hand' of regulation, even though…the ICC was a well-managed entity, especially under Eastman. Others say that it was managerial incompetence. I think that it is more likely that, post-1887, the ICC validated the railroads' long-standing policies of rate discrimination and value-of-service pricing—including their propensity to use high tariffs on manufactured goods to cross-subsidize rates on grain, coal and other bulk commodities that, ICC officials recognized, were essential to the functioning of the American industrial economy. It was a great system, except that trucks quickly took away most of the high-value traffic. That was not management's fault. That said, after World War I and perhaps even earlier, smart and ambitious young men tended to avoid a career in the RR industry. The real chance for success lay elsewhere, in autos, chemicals, and other rapidly growing sectors of the American economy, where salaries were, on average, twice what a comparable position paid in railroading." (Churella, private communication) For further information on these matters, Professor Churella points interested readers to: K. Revell, *Building Gotham: Civic Culture and Pubic Policy in New York City, 1898-1938* (Baltimore: Johns Hopkins Press, 2003).

[48] E. White, "Banking and Finance in the 20th Century," in *The Cambridge Economic History of the United States*, ed. S. Engerman, R. Gallman (New York: Cambridge University Press, 2000).

[49] Moulton, ed., *The American Transportation Problem*, 61-63.

[50] Olson, *Saving Capitalism*. 42-45. Also various documents from RG 237, Archive II, U.S. National Archives.

[51] Reconstruction Finance Corporation, "Quarterly Report," (Washington, D.C.: U.S. Government Printing Office, 1932).

[52] Reconstruction Finance Corporation, "Monthly Reports," (Washington, D.C.: Reconstruction Finance Corporation, 1932-1940).

[53] Interstate Commerce Commission, "Annual Reports," (Washington, D.C.: U.S. Government Printing Office, 1932-1939).

[54] Carosso, *A History of Investment Banking in America*. Another relevant source in this regard is the memoir written by Jesse Jones, President and Chairman of the Board of the Reconstruction Finance Corporation under Roosevelt, which 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 insurance companies that held devalued rail securities. So Jones provides additional evidence that private investment banks were heavily invested in rail securities up to the Great Depression. J.H. Jones, *Fifty Billion Dollars* (New York: Macmillan, 1951).

[55] A common interpretation of investor behavior during the Depression is that financial institutions were shoring up their balance sheets so they could extend new loans to companies and businesses needing capital, thereby attenuating the credit crunch (see Olson, 1988). The data in Tables 4 and 5 does not support this argument. Instead the data shows that finance capital moved its credit out of both railroad and other corporate investments into mostly secure notes of the U.S. Treasury and state and local governments.

[56] C.M. Clay, *What Shall We Do About the Railroads* (Washington, D.C.: Ransdell, 1939). 59

[57] Ibid., 59.60

[58] A. Chandler, *The Railroads--the Nation's First Big Business* (New York: Harcourt Brace Jovanovich, 1965), S. Goddard, *Getting There: The Epic Struggle between Road and Rail* (New York: Basic Books, 1994), Martin, *Enterprise Denied*, Stover, *American Railroads*, Thompson, *The Passenger Train in the Motor Age*.

[59] Saunders, *Merging Lines: American Railroads, 1900-1970*. James C. Nelson, *Railroad Transportation and Public Policy* (Washington, D.C.: Brookings, 1959).

[60] Campbell, *The Reorganization of the American Railroad System, 1893-1900*

[61] Martin, *Enterprise Denied*, Stover, *American Railroads*, F. Wilner, "Railroads and the Marketplace," (Washington, D.C.: Association of American Railroads, 1987). Martin also argues that ICC regulations in the 1890's and early 20th Century held freight rates and passenger fares artificially low and thereby exacerbated the problem of duplication of lines.

[62] Mertins, *National Transportation Policy in Transition*. 26-27. Saunders, *Merging Lines: American Railroads, 1900-1970*.

[63] Rose, *The Best Transportation System in the World: Railroads, Trucks, Airlines and American Public Policy in the Twentieth Century*. 25-26. Saunders, *Merging Lines: American Railroads, 1900-1970*. 47ff.

[64] Saunders, *Merging Lines: American Railroads, 1900-1970*. 63-64.

[65] Ibid.

[66] Olson, *Saving Capitalism*. 118. Also Claude Fuess, *Joseph B. Eastman: Servant of the People* (New York: Columbia University Press, 1952). Latham, 1959

[67] 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. H.B. Summers, Summers, R.E., eds., *The Railroad Problem: With Reference to Government Ownership* (New York: H.W. Wilson Company, 1939). 123.

[68] The new provisions Chapter 204, sec. 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 now would 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." See Skeel, *Debt's Dominion: A History of Bankruptcy Law in America*. 106.

[69] Kotz, *Bank Control of Large Corporations in the United States*.

[70] Ibid. 54.

[71] Rose, *The Best Transportation System in the World: Railroads, Trucks, Airlines and American Public Policy in the Twentieth Century*. 71.

[72] Transportation, "Is There Need for a Radical or Major Change in the Organization, Conduct and Regulation of the Railroad Industry Which Can Be Accomplished by Federal Legislation.."

[73] Title 1, Section 4 of Act.

[74] E. Latham, *The Politics of Railroad Coordination* (Cambridge: Harvard University Press, 1959
).

[75] Ibid., 253-57.

[76] Orren, *Coporate Power and Social Change*.

[77] Roy, *Socializing Capital*.

[78] John Zysman, *Government, Markets and Growth: Financial Systems and the Politics of Industrial Change* (Ithaca, N.Y.: Cornell University Press, 1983).

[79] Goldsmith, *Financial Intermediaries in the American Economy since 1900*. Plus, highway-based transport was expanding during the inter-war period partly due to government subsidies for road building. See Goddard, *Getting There: The Epic Struggle between Road and Rail*. John Rae, *The Road and Car in American Life* (Cambridge, Mass.: MIT Press, 1971). Nelson, *Railroad Transportation and Public Policy*.

[80] Hypothetically, railways could have won back that sponsorship, or funded capital requirements through internal financing, or looked to government for additional loans. None of those options was possible during the Great Depression, with railway finances in such perilous condition. Nor did they become more possible anytime soon thereafter. After the Depression ended (excluding World War II, which briefly propped up their finances), passenger railways were unable to gain access to private credit and freight railroads did not regain significant access to the credit markets until the 1960's, well after the shift to highway-based transport was far advanced. As for government loans, the Reconstruction Finance Corporation ceased to exist in the early 1950's and, by that time, American government policy had shifted strongly towards support of highways, particularly with passage of the Interstate Highway Act in 1954. Stock issuances and/or internal financing were the other options for railways, but with their finances in decline by the 1950's, these were not viable. Further discussion of these matters, however, would take this paper beyond its temporal boundaries. My basic point remains that the 1930's were a watershed period for railways in the U.S., which laid a financial foundation for highway-based transport to replace them as the dominant mode in the American transportation system in the decades after the Depression ended.

[81] Martin, *Enterprise Denied*, Stover, *American Railroads*, Wilner, "Railroads and the Marketplace."

[82] Thompson, *The Passenger Train in the Motor Age*.

[83] Martin, *Enterprise Denied*. 352-364

[84] Thompson, *The Passenger Train in the Motor Age*. 6-7

[85] Transportation, "Is There Need for a Radical or Major Change in the Organization, Conduct and Regulation of the Railroad Industry Which Can Be Accomplished by Federal Legislation.." Summers, *The Railroad Problem: With Reference to Government Ownership*. Mertins, *National Transportation Policy in Transition*.