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EDWIN WALTER KEMMERER AND THE ORIGINS OF THE FED

BY

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In this article we analyze Edwin Walter Kemmerer's contribution to the creation of the Federal Reserve System. Firstly, we contrast Kemmerer's role in the transition from the Aldrich banking reform plan to the Glass–Owen plan with those of A. Piatt Andrew (who was Aldrich's main advisor), H. Parker Willis (i.e., Carter Glass's advisor), and J.L. Laughlin (who was Willis' mentor). Secondly, we deal with theoretical questions posed by Kemmerer, who, as we assert, developed his own banking reform plan. Even if his proposals were not immediately taken into account in the Federal Reserve Act *of 1913, he contributes to the institutional structure of the Federal Reserve System.*

> The securing of elasticity of currency and credit, not only in the infrequent panic periods, but from January through December of every year, is the big problem now before the National Monetary Commission.
>
> (Kemmerer 1911b, p. 49)

I. INTRODUCTION

Edwin Walter Kemmerer (1875–1945) was a 'money doctor' and a money theorist. He contributed to the establishment of some central banks and to the banking reform of many countries,[1] as well as to the study of the money market and the development of

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[1]Kemmerer's unflagging participation in the discussion on the creation of the Federal Reserve System is essential to understand his attitude when he proposed his banking reforms and established central banks in South America during the interwar years. See Drake (1989). The five countries visited by Kemmerer, in which he reformed the banking and monetary system and established central banks, are Colombia, Chile, Ecuador, Bolivia, and Peru.

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the monetary theory in the US. Nevertheless, his role in the conception of the US Federal Reserve System (Fed) has been neglected until now. We suggest opening a new chapter in the history of the Fed in order to include Kemmerer's contribution, by developing what O.M. Sprague called in 1913 "Kemmerer's Plan of Banking Reform."

We analyze the beginnings of the theory of the central bank introduced by Kemmerer at the turn of the twentieth century. Firstly, we contrast Kemmerer's role in the transition from the Aldrich banking reform plan to the Glass–Owen plan with those of A. Piatt Andrew (who was Aldrich's main advisor), H. Parker Willis (i.e., Carter Glass's advisor), and J.L. Laughlin (who was Willis' mentor). Secondly, we deal with theoretical questions posed by Kemmerer, who developed his own banking reform plan. Even if his proposals were not immediately taken into account in the *Federal Reserve Act* of 1913, he contributed to the institutional structure of the Federal Reserve System.

The literature on the origins of the Fed is vast. Economists and historians have produced countless studies on both its theoretical arguments and historical developments. Kemmerer's contemporaries expressed their views on the Fed in hundreds of documents, addressing issues that have continued to be the subject of constant controversy and debate.[2] Between 1910 and 1913 Kemmerer published seven articles and one book directly linked with this topic.[3] We also take into account two articles: Dimand (2003) and Mehrling (2002). Both emphasize the role played by Fisher, Kinley, Taussig, Sprague, Laughlin, Willis, Warburg, and Strong during the creation of the Fed, but do not include any analysis of Kemmerer's contribution to this debate. Therefore, we seek to explain in detail the theoretical and historical arguments advanced by Kemmerer to justify the creation of the Fed.

The organization of the paper is as follows. Section 2 presents the strengths and weaknesses of the National Banking System (1863–1913) as they appeared during the debates surrounding the 1907 panic. It places particular emphasis on Kemmerer's study of the seasonal variations in the US money market (1910). It shows how this insightful study led him to reject the banking system in effect at the time, which was

[2]As a starting point for this study, we examine the banking reform plans proposed by Nelson W. Aldrich (1911, 1913), and some of the principal works by members of the National Monetary Commission. These plans were discussed by French and White (1909) and Sprague (1909). We also look into J.L. Laughlin (1910, 1914a, 1914b), P. Warburg (1908, 1911a, 1911b, 1914, 1930), and H.P. Willis (1914, 1923), three of the most influential economists and bankers who had written on this subject at that time. We also study several discussions on banking reform in special editions of *The Journal of Political Economy* (December 1911 and January 1912), including MacVeagh (1911), Perrin (1911), Kemmerer (1911c), Frame (1912), Hulbert (1912), Wall (1912), and Willis (1912). *The American Economic Review* also published articles on this subject and dedicated a special edition to the analysis of the Aldrich Plan in 1911. Contributors included Scott (1911), Sprague (1911), and Cooke (1911), as well as Kemmerer (1911b).

[3]These are listed in the references. A decade later, Belgian economist Paul Van Zeeland (1922) completed a PhD dissertation on this subject, directed by Kemmerer, which was published under the title "La Réforme Bancaire aux Etats-Unis d'Amérique." In the same line, central bankers such as Harding (1925) published short histories of the Fed, in addition to Steels (1926) and Burgess (1930), who analyzed the relationship between the reserve banks and money market. For a general history of the Fed, we study Prochnow (1960), Friedman and Schwartz's monetary history (1963), Beckart (1972), West (1977), Timberlake (1978), Livingston (1986), Moore (1990), international origins of the Fed by Broz (1997), the Austrian approach by Rothbard (1999), and, more recently, Meltzer (2003) and Wells (2004). We were especially impressed by Wicker's outstanding book entitled *The Great Debate on Banking Reform,* published in 2005.

responsible for producing an inelastic currency unable to meet the seasonal fluctuations of money demand. Section 3 examines the main banking reform proposals: first, the Aldrich Plan (1911); then the Glass–Willis Plan (1912); and, finally, the Glass–Willis–McAdoo–Owen Plan (1913), which led to the *Federal Reserve Act* (December 1913). It presents Kemmerer's participation at each stage of the debate on the creation of the Fed. Section 4 analyzes Kemmerer's theoretical and political contribution to the American banking reform. We explain the most important theoretical features that any banking system must guarantee, according to Kemmerer: elasticity, solvency, and liquidity. In short, we show how Kemmerer envisioned the central bank long before he became a money doctor. Section 5 concludes.

II. THE NATIONAL BANKING SYSTEM (1863–1913)

In his 1918 work (published twelve times up to 1950), Kemmerer summarized the main shortcomings of the American National Banking System, which, according to him, justified the creation of the Fed: the decentralization and the rigidity of the reserves; the inelasticity of money and credit; the absence of an organized system of international transfer; and the constraining relationship with the Federal Treasury, due to the absence of a money market, which would allow banks to place their funds in the short term. In this section, we present Kemmerer's position in relation to the challenges facing the National Banking System and his study of seasonal variations of the US Money Market.

Challenges Facing the National Banking System

Before the National Banking System was established, two attempts were made to centralize the American banking system in the form of a central bank. Both attempts, first in 1791–1811 (First Bank of United States) and then in 1816–1836 (Second Bank of United States), were highly controversial and ultimately unsuccessful.[4] These initial attempts failed despite the fact that their function—to manage government funds and regulate national credit—was generally accepted by the public. The banking system operated with very limited capital, issued risky credits, and had insufficient reserves for bank notes and demand deposits. Following these two failed efforts, during the Civil War, and after several years under a free-banking system (1836—1863), the *National Banking Act* was signed in 1863.[5] This third attempt proved successful and the National Banking System remained in force from 1863 until 1913.

Let us briefly review the essential features of the National Banking System. There were at the time two types of banks, the State Banks and the National Banks. The State Banks[6] issued the state banknotes according to rules depending on the states.

[4]These banks were created primarily to finance debts from the War of Independence (1775–1783) and the 1812 War, and to attempt to stabilize the value of money under the administration of President James Madison (1809–1817).

[5]For more details on problems under the National Banking System, see Warburg (1930), West (1977), Timberlake (1978), and Selgin (1994).

[6]There were more than 1500 State banks in 1860 and over 900 different banknotes called "State banknotes," which disappeared in 1865, when the State banks developed bank deposits.

The National Banks were subject to the 1863 federal legislation and could issue national banknotes, which were put at the disposal of the banks by the Comptroller of the Currency. The division of the Comptroller of the Currency was created to supervise National Banks. National Banks were required to accept banknotes from all National Banks in order to have a national currency. This helped reduce the risk of loss in case of bankruptcy. Only the Comptroller of the Currency was entitled to print national banknotes. This measure was designed to guarantee the uniformity of banknotes and prevent forgery.

In order to finance the war, National Banks were also obligated to buy Treasury bonds with which to guarantee their banknotes, thus expanding the market and increasing its liquidity. The rule stated that banks have to subscribe to federal government bonds for an amount equal to one-third of its capital, but limited to $50,000, and they could receive national banknotes for an amount representing 90% of the amount of federal government bonds to which they had to subscribe. Additionally, they were required to maintain a minimum percentage of reserve so they could ensure the convertibility of banknotes and deposits.[7]

The system had two main advantages. First, the uniformity of banknotes made forgery particularly difficult (only the signature of each bank was different). Second, the issuing of banknotes was bond-backed, which means they were guaranteed by US Treasury bonds. As a consequence, these banknotes were credit-risk-free.

Nevertheless, the banking system faced two main problems: monetary inelasticity (the quantity of banknotes depended on the bonds issued by government for budget policy purpose); and the scattering of bank reserves and their unavailability in case of crisis. According to Kemmerer, "The most serious defects of our banking system are, broadly speaking, two in number. The first is lack of coordination and centralization.... The second defect is lack of elasticity not only in bank-note circulation, but in bank credit in the broader sense of term" (Kemmerer 1911a, p. 248).

In terms of the monetary elasticity problem, under the *National Banking Act*, only the national banks were allowed to issue national banknotes. They were regulated by the Office of the Comptroller of the Currency, which set credit limits and capital restrictions. Most of all, as seen above, the maximum number of banknotes that banks could put into circulation depended on the amount of federal government bonds they had in their portfolio and that secured them (bond-secured system). Kemmerer stressed that under this system, the quantity of banknotes that banks can put in circulation depended on the quantity of government debt (Treasury bonds): "The relation between our treasury department and the national banks encourage on the part of banks the practice of depending upon the government for aid in times of emergency, and tend to prevent the banks from making independently, in advance,

[7]There was a third kind of notes issued by the Treasury since 1862, the United States notes, also known as "greenbacks" In 1863 and until 1879, while the convertibility of banknotes and deposits in gold was suspended, the convertibility in greenbacks was maintained. In 1879 the convertibility of banknotes and deposits was restored. The obligation of capital under the National Banking System was one of the crucial points of the reform and one of the advantages of the system. A required minimum of 15% to 25% was also imposed on reserves, which was *a priori* a good point but actually turned out to be a drawback, since they were not available. Finally, the national banks were also obligated to subscribe to federal bonds (up to a maximum of fifty million) in order to obtain banknotes, which they could then put into circulation.

proper provision for the regularly recurring heavy seasonal demands'' (Kemmerer 1911a, p. 249).

Thus, the quantity of national banknotes available fluctuated according to the amount of public debt and was not related to the American economic activity. In an attempt to solve this problem, American banking reform focused on finding an alternative model to bond-secured currency between 1894 and 1908. The new model, asset-based currency, put forward a currency issued and guaranteed by private values (the issuing system had to be backed by commercial papers, and not by US government bonds).

The purposes of this model were to reduce the system's inelasticity problem, to diminish seasonal demand fluctuations, and to avoid banks' panics. Bankers and businesspeople in the midwest and the south generally favored an asset-based currency, since their historical experience proved that government-sponsored currency (as opposed to bond-secured currency) tended to be overissued and inflationary. New York bankers argued that rural banks could not avoid overissuing (Wicker 2005, p. 22).

During this period, there were many different proposals to establish an asset-based currency.[8] These proposals dictated that only banks, and not the federal government, should be allowed to issue banknotes. In this way, asset-based currency would replace the bond-secured currency created by the *National Banking Act*.

After the 1907 crisis, some bankers—Vanderlip, Hepburn, and especially Warburg—recommended the creation of a European-style central bank, for the US. Debate shifted from centering on asset-based currency reform to focus on the urgent need for a central bank.[9]

The debate on the various asset-based currency proposals came to a halt in 1908 when the *Aldrich–Vreeland Act* was passed. Discussion then turned to address what kind of central bank would be established in the US. However, the *Aldrich–Vreeland Act* did not really represent a financial reform, but a palliative effort in reaction to the crisis that had just occurred.[10]

[8]Among the many proposals for an asset-based currency: the Baltimore Plan (1894), inspired from Canadian banking practices of banknote issue; the Carlisle–Eckels proposals (1894), which called for the abolition of bond-secured currency; the Indianapolis Monetary Commission's Plan (1898) with the participation of J. Laurence Laughlin, Frank Taussig, and Arthur Hadley, which called for the maintenance of the gold standard, the retirement of greenbacks, and furnishing of credit facilities; the Pratt Bill (1903) to incorporate clearinghouses' right to issue currency backed by general assets; and the ABA Currency Commission report (1906) for an asset currency issued by national banks. Other proposals, such as by the NY Chamber of Commerce, represented by Conant and Vanderlip (1906) and Columbia University Lectures (1907, 1908), were devoted to the establishment of an issuing central bank and only as second to an asset-based currency. See Wicker (2005).

[9]"The most significant consequence of the 1907 crisis was the creation of federal reserve banks in the United States, and the remarkable clearness of vision at that time that fueled the idea of establishing a central banking system. For the first time in economic thought in the country, the development of a central bank was associated with not just the issuing of bank notes, but with the concentration of precious metal reserves… issuing bank notes could then be considered as just one of many ways that a central bank can fulfill its mission'' (Rist 1938, p. 436).

[10]"The Aldrich–Vreeland Act was the culmination of fourteen years of deliberations about an asset-based currency as the cornerstone of banking reform'' (Wicker 2005, p. 40). On the 1907 crises and the *Aldrich–Vreeland Act*, see, for example: Kemmerer (1911a), Friedman & Schwartz (1963), and Wicker (2005).

The other major problem facing the National Banking System was the distribution of reserves throughout the country, and their unavailability when needed. Reserves were dispersed, difficult to move, and could not be easily transferred to regions where they were scarce. The required amount of reserves was very strict and banks could not go below the set limit, even in case of crisis. According to van Zeeland, "the situation has been compared—not without humour—to that of a nation which would have taken care to form a territorial army in times of peace but would refrain from using it in times of war, lest all the reserves should be lost" (van Zeeland 1922, p. 25).

Warburg was right in saying that the 1907 crisis was not caused by a shortage of gold in the United States, but by an overextensive distribution of reserves to banks, which then hoarded gold independently and followed their own interests. In turn, this resulted in a shortage of gold and fuelled the panic.[11]

These two main problems—the inelastic currency and scattered reserves—largely contributed to the 1907 financial panic in the US and the resulting failure of many American commercial banks during this period. In 1908 the National Monetary Commission (NMC) was created to address the banking reform issue and conduct a study of necessary changes to the US monetary and banking system.[12] The NMC was headed by Republican Rhode Island Senator Nelson W. Aldrich, a central figure in east-coast business and politics, who worked in close collaboration with advisors and experts. Among them was a relatively unknown economist: Edwin Walter Kemmerer.

Kemmerer's US Money Market Study (1910, 1911b)

Kemmerer got involved in this debate in 1909 when Aldrich and the NMC commissioned him to prepare a study on seasonal variations in the relative demand for currency and capital in the US, which was presented to the Senate in 1910. In his unstudied autobiography,[13] Kemmerer underlined the context and importance of his task:

> The American financial crisis of 1907 brought to public attention again the serious defects of our banking system of which an outstanding one was its seasonal inelasticity. Largely by reason of the importance of agriculture in our economic life, the business of the country took on a pronounced seasonal pattern. This fact prevented an orderly functioning of our money market and price system caused, or at least aggravated, financial stringencies and panics and was a costly inconvenience to

[11]According to Warburg, the 1907 crisis was not the result of the distribution of reserves to a very large number of banks that then hoarded gold independently and in self-interest during the crisis, thus provoking both a shortage of gold and an extended panic. As he said, the result of our system is that our immense quantities of gold and coins remain unused despite the fact that our gold reserves are four times greater than England's, and despite our massive monetary circulation per person of $35. Consequently, every year, we suffer from severe currency shortages. See Warburg (1930, pp. 52–55) and Rist (1938, p. 437).

[12]The NMC began its work in the last year of Theodore Roosevelt's term and continued under fellow Republican William Howard Taft. However, the Democrats won both houses of Congress in the mid-term elections of 1910. Then, in 1912, the Democrats not only kept both houses of Congress but also won the White House with Woodrow Wilson.

[13]Kemmerer's autobiography is in his archives at Mudd Library, Princeton University. We are currently working on this rich text and considering its publication.

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> farmers and many other American producers.. . . It constituted a monetary problem urgently demanding solution by the recently appointed National Monetary Commission. My task was to study the seasonal variations, time them, measure their volume statistically and explore their causes ("Autobiography," pp. 84–85. Kemmerer's Archives).

Kemmerer was inspired by Jevons' (1866) work on the money market in England. He was a pioneer in applying this kind of study to the US economy. Following the publication of his first book (1907) on the quantity theory of money, Kemmerer continued working with US data to demonstrate the relationship among the principal variables affecting the American money market. The results of his studies were widely used by other economists, who participated in this debate on banking reform[14] as well as in discussions on currency and prices in the same period.[15] This study is one of Kemmerer's most important empirical contributions to monetary economics.

Thanks to his 1910 study, Kemmerer showed the pronounced seasonal fluctuations in the demand for cash and for deposit currency in the US money market. He proved there was a proportional relation between the seasonal variations and the scarcity of currency and credit; hence, the instability of interest rates. He attributed this phenomenon to the demand associated with crop shifts and the unresponsive bond-secured currency system (Kemmerer 1911b, p. 33).

> For example, the demand for money increased decidedly in the autumn when large crops were being harvested and marketed, also in the spring planting season. After these crop seasons the demand fell off. But our supply of money and of bank deposit currency was so inelastic that [neither] could expand adequately when the demand fell off as they did in late winter and mid-summer (Kemmerer, "Autobiography," p. 84).

Kemmerer assigned index numbers to each variable for each week of the year. His study covered the years from 1890 to 1908, with each year divided into five representative periods. He observed regularity in the variations from one year to the next. Kemmerer deduced from his study that the two most important variables in the seasonal variations of the NY money market were the short-term interest rate of the NY Stock Exchange, and the ratio of reserves to deposits in NY banks. He demonstrated a negative correlation between the interest rate variation and the banks' level of reserves. Each period of the year corresponds with a crop-moving time.[16]

Kemmerer pointed out (1911b) the pronounced cyclical behavior of the money market. As we see in Figure 1, in the first period of the year, when the demand for money linked to crop shifts (request for liquidity) is low, short-term interest rates are

[14]See Kemmerer's (1910) book and (1911b) article. See also Norton (1902), and Andrew (1906), which constituted the reference of statistical studies on the US money market.

[15]See Fisher (1911) and Houston, et al. (1911).

[16]Theses periods are: 1) From 1 January to 15 February, what he calls the "cheap money" period when the money market is release; 2) From 15 February to 15 April, the "spring revival"; 3) From April 15 to July 30, the "late spring decline and summer depression"; 4) From 1 August to 1 October, "the first phase of the crop period" in which the discount rate increased and bank reserves decreased; and 5) From October 1 to December 31, the "second phase of the crop period" (Kemmerer 1911b, pp. 35–45).

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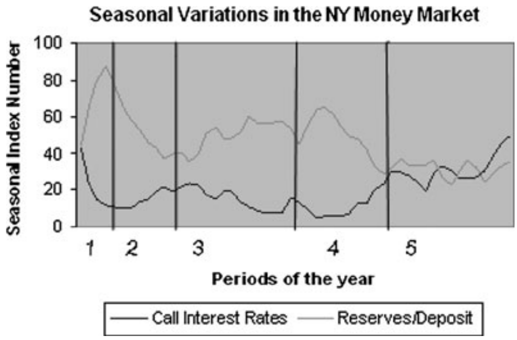

FIGURE 1.

low and the ratio of reserves to deposits and the supply of loans tend to increase, so the money market is released. This is the case at the beginning of the year in winter (period 1), and in spring and summer (period 3). In contrast, the money market is stronger when there is an increase in the demand for capital loans by farmers. The short-term interest rate increases due to growing demand for funds needed for autumn crops, usually leading to a decrease in reserves. This is the case during the second and fourth annual periods; i.e. the harvest seasons. Thus, when reserves decrease, short-term interest rates increase and vice versa.[17]

When farmers need more liquidity for their crops, credit is more expensive and more difficult to access. The problem lies in the fact that when demand for money varies, supply remains unchanged. This phenomenon was known as the inelasticity of currency and credit. Kemmerer's study rejoined and enriched Warburg's, according to whom there is no readily salable paper that, in critical times, the banks can offer (Warburg 1909, p. 342).[18]

In Kemmerer's words, "Our deposit currency ... is one of the most inelastic deposit currencies to be found in any country with a highly developed banking system" (1911b, p. 49). Nevertheless, if the supply were elastic to the seasonal variations in demand, then the seasonal oscillations would have very little influence on the money market and on interest rates.[19]

[17]There are some exceptions in the correlation of the variables; for example, in the fifth period at the end of the year, in which the two variables follow the same movement. For more details see Kemmerer (1911b and 1910).

[18]Warburg tried to convince Americans of the benefits of a rediscounting system that would provide significant security for funds placed in commercial drafts, and ensure a constantly replenished supply of available funds for commerce. In Europe, this idea was obvious, due to the heritage of both Thornton and Bagehot (see de Boyer and Diatkine, 2008), but this was not the case in the United States. In the US, the system of interior letters of exchange did not exist, and business owners obtained funds from their bankers by simple promissory notes that were difficult to rediscount by an issuing bank. These promissory notes accumulated in the banks in exchange for advances without generating constant, mobile, and solvent assets. Warburg presents the advantages of the discounting system for the Reichsbank and the Bank of France. See Warburg (1930) and Rist (1938, p. 439).

[19]Kemmerer not only recommended an elastic currency relative to the seasonal fluctuations of money demand; he went so far as to advocate elasticity relative to the cyclical fluctuations, that is to say, a pro-cyclical monetary system.

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Kemmerer used the example of the importance of agriculture in the American economy to explain the cyclical evolution of the demand for currency: ‘‘No matter how perfect our currency and credit system, the great importance of agriculture in our economic life will doubtless always result in considerable seasonal swings in our money markets, and particularly in that of New York City—the most important and most sensitive one’’ (Kemmerer 1911b, p. 48).

For him, a central bank was necessary to establish the relationship between the public and the banks, and to function as a cornerstone of the banking system. Kemmerer’s vision of a central bank had a dual objective: to avoid crises; and to obtain elasticity in credit issuing. He believed that centralized control of the banking system was necessary. Therefore, the most important question to raise was the following: who, the government or the banking industry, should exert this control? (Kemmerer 1911a, p. 250).

III. FROM THE NATIONAL MONETARY COMMISSION TO THE *FEDERAL RESERVE ACT* (1911–1913)

In this section we explain Kemmerer’s point of view on the banking reform plans advanced by Aldrich, and Glass and Willis. Finally, we discuss the passage of the Glass–Willis–McAdoo and Owen bill, which became the *Federal Reserve Act* in 1913.

Kemmerer’s Reading of the Aldrich Plan (1911)

In January 1911, Republican Senator Aldrich presented his banking and financial reform plan to the Senate. This plan was clearly influenced by bankers’ interests and was immediately attacked by the progressives.[20] With the shift to a new Democratic majority in congress in 1913 and the appointment of William Jennings Bryan as Secretary of State, the Aldrich Plan did not benefit from a favorable political and economic context.

In 1912, Kemmerer belonged to the progressive wing of the Republican Party. Although he supported neither the policies proposed by President Taft, nor the reform plans aimed to benefit bankers, he did not overtly reject the Aldrich Plan. It was quite the opposite, in fact, as he wrote an article to highlight the advantages of the Aldrich Plan. As a progressive, Kemmerer was in favor of public control of the banking system in order to prevent the concentration of power in the hands of a few bankers and to limit the influence of Wall Street.

The Aldrich Plan centered on the proposed creation of a central institution called the National Reserve Association (NRA), which would function as the ‘‘banker’s bank’’ via branches all over the country. The NRA would have the capacity to issue notes and to rediscount bank members’ commercial paper. The control of the institution would be in the hands of the directors, mostly bankers.[21]

The Aldrich Plan received enormous support from the banking community, while public opinion was either indifferent or opposed to it.[22] According to Kemmerer, one

[20]The term ‘‘progressive’’ is used to identify those who supported Theodore Roosevelt as a progressive candidate in the presidential elections in 1912.
[21]An overview of the main points of the Aldrich Plan is presented by van Zeeland (1922, pp. 30–32).
[22]A deep analysis of the opposition between bankers and public opinion can be found in Cooke (1911), Hulbert (1912), Livingston (1986), and in Dimand (2003) and Mehrling (2002).

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of the reasons for the unfavorable public opinion was that the Aldrich Plan had been presented in technical terms not easily understandable for the general public. Kemmerer stressed the importance of the public's interest and comprehension of the Aldrich Plan, and encouraged their participation in the debate on banking reform: "The NRA, if established, will be a great public institution. It will, I believe, greatly improve our banking system as a banking machine, but it will be much more than a banker's bank: it will affect the welfare of over ninety million of people" (Kemmerer 1911c, p. 820).

Kemmerer outlined (1911c) the primary social and public goals of the Aldrich Plan. He believed that the banking industry must be managed under a more unified control. He proposed centralizing banking operations and preservation of bank credit. This approach implied that reserves had to be more concentrated and mobile. In addition, it was necessary to establish a rediscount policy and an asset-based currency. Moreover, bank credit and currency issuing would need to be elastic to avoid pronounced seasonal variations in the demand for currency and capital.

Kemmerer underscored the five most important public functions of the proposed NRA. The first function was to be the depositary of government funds with a view to stop the continuous accumulation of money in treasury vaults, which resulted in significant annual social losses (Kemmerer 1911c, p. 820). The second function was to ensure the capacity and authority to fix a bank rate similar to discount banking rates in European countries in order to exert an effective influence in controlling the money market and to obtain an elastic credit system. [23] The NRA would lower the discount rate when it wanted to increase credit, and raise it to restrict credit. As the association's funds increased and its branches become more numerous and active, the differences between interest rates in the northeast and in the southwest of the country would tend to shrink.[24] The third function was to exert direct power over foreign exchange. The fourth public function of the NRA that Kemmerer emphasized was to be the chief regulator of the country's currency expansion and contraction to control the quantity of money in circulation.[25] Increasing the amount of money in circulation is necessary during low crop times to prevent money market contraction, a rise in interest rates, and a drop in prices (Kemmerer 1911c, p. 823). The fifth and final function was to supervise and to control bank activities.

After presenting these public functions, Kemmerer suggested accepting the Aldrich Plan. He believed that through this plan the NRA would be protected against demagoguery and would constitute a major public administration body for the US. According to him, Aldrich and other NMC members were responsible for the national prejudices against a central bank. For his part, Kemmerer tried to persuade his 'progressives' friends of the necessity of a banking system that took into account the

[23]Kemmerer explains different ways to control the money market: buying and selling currencies, importing and exporting gold, buying and selling bonds of the governments of other countries on the international market, etc. (Kemmerer 1911c).

[24]The discount rate policy will be more effective in the south and the west because it is there that the discount rates are generally the highest (Kemmerer 1911c, p. 821). For example, in the south, it will be necessary to decrease the interest rate to allow an increase in credit demands.

[25]Kemmerer uses here some of the arguments exposued in his first book (1907) on the quantity theory of money. See Gomez Betancourt (2010).

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most important public functions of this plan. He definitely helped convince the opposition of several advantages of the Aldrich Plan.

On more than one occasion, Kemmerer tried to explain the Aldrich Plan to the public. He put forward strong progressives arguments to encourage other progressives to leave aside their prejudice against any proposal coming from bankers.[26] Most bankers accepted the advice issued by the NMC, and, in particular, welcomed the Aldrich Plan, whereas progressives could not believe in the good intentions of a plan supported or approved by the banking community.

From the Aldrich Plan to the Glass–Willis Plan (1912)

Five years following the panic of 1907, discussion centered on a necessary and definitive reform of the banking system. Senator Aldrich presented his first proposition in January 1911. According to Kemmerer (1911a), Aldrich expected criticism and hoped to solicit suggestions for improvement. Aldrich revised and reintroduced the proposition in October of the same year, and the final version became the unanimously adopted recommendation for the independent NMC.

Aldrich and the NMC advisers launched a vigorous campaign in favor of the plan with the support of the American Bankers Association and the National Citizens' League. The Republican platform committee was certainly aware of the plan, but chose not to take a position. The progressives and the Democratic Party admitted the need for banking reform, but they opposed the Aldrich Plan.

When Kemmerer presented the second Aldrich Plan, he attempted to persuade those who were still opposed to reform, especially farmers. He explained they were averse to Wall Street control of money and banking because they suffered from the seasonal variations in credit and currency demand. However, he said, no other class would benefit from this plan to the extent that farmers would: they are the most affected by inelasticity of the money supply and the rigidity of the American credit system, since the system's inflexibility doesn't respond to the variations in farmers' demand for money (Kemmerer 1913a, p. 53). As we will show, this aspect made Kemmerer's plan distinctive, along with his innovative proposal concerning voting rights for labor unions (especially farmers' unions) and foreign bankers. Kemmerer wanted a more democratically representative board standing over Aldrich's banker's bank. Sprague affirmed that Kemmerer's proposal would be simpler than the Aldrich Plan, but he also said that it would be "unsatisfactory" (Hollander et al. 1913, p. 69) because there was no guarantee that the representatives would have the depth of knowledge and experience needed for good judgment.

Kemmerer raised some criticisms about the second Aldrich Plan. He regretted the absence of a clause proposing public control of the banking system. In his view, the Aldrich Plan increased the power of big banks and the influence of Wall Street. The NRA would be controlled almost entirely by the banking industry. The majority of its directors would be bankers. He thought that even if its capital was entirely provided by the banks, the NRA should not be circumscribed as a bankers' business. Nevertheless, Kemmerer finally accepted the second Aldrich Plan. He agreed on the creation of the

[26]"The Rhode Islands senator was one of the most prominent critics of the progressives, and the progressives, in turn, found Aldrich to be one of the most bitter and stalwart champions of American conservatism" (Johnson 1977, p. 18).

NRA mainly though his defense of their public functions. He went further and affirmed that any reform to be adopted must integrate Aldrich's suggestions on banking reform.[27]

In 1912, two events annoyed the banking community supporting the Aldrich Plan: the Pujo Committee findings and the election of Woodrow Wilson. The Pujo Committee was a subcommittee of the House Committee on Banking and Currency that held investigative hearings on the alleged "Money Trust." The Pujo Committee established that this Money Trust was a small group of rich and powerful financiers associated with Wall Street, who exerted a disproportionate influence on the American financial system. The existence of this well-established and exclusive community of self-interested financial leaders resulted in growing concentration and control of money and credit by a ruling elite (Kemmerer 1913a).[28]

As a reformist Democrat and the governor of New Jersey, who knew little about banks, President Wilson proposed financial reforms to organize the banking system. After he was elected, Wilson named William Jennings Bryan as Secretary of State as a way of thanking him for his political support throughout the presidential elections.[29] Bryan, who completely rejected the Aldrich Plan, was in favor of a central bank submitted to public control. He agreed that it was necessary to bring elasticity to the dollar, but without increasing bankers' privileges.

Wilson was anxious to open the dialogue on banking reform to other perspectives than Bryan's. He turned to two of his close advisors, Carter Glass—who later became the chairman of the House Committee on Banking and Currency—and H. Parker Willis—professor of economics in Washington. A few days before Wilson's victory in November 1912, they both drafted a reform plan to create the American central bank.[30]

Glass and Willis presented their plan to President Wilson on December 26, 1912. They followed Wilson's instruction to propose the creation of a central bank not dominated by the bankers. They suggested creating at least twenty, regional, private reserve banks that would hold part of members' bank reserves and would issue banknotes, commercial papers, and gold certificates. Wilson accepted the proposal, but he added a committee to control and coordinate futures regional reserve banks.

Triumph of the Glass–Willis–McAdoo–Owen Plan (1913)

Woodrow Wilson called on William McAdoo and Robert Owen to form a group with Glass and Willis, and revise the *Glass–Willis Act*. The resulting Glass–Willis–McAdoo–Owen Plan introduced small changes to the previous Act, searching for consensus among the main groups participating in the debate.

[27]Kemmerer noted that "it is possible to suppose that the interest of the bankers as a class and those of the public are identical" (Kemmerer 1911c, p. 827). The fear that the NRA would be controlled and exploited for self-interest by private financial interests constituted the largest obstacle to the reform. Kemmerer also acknowledged public prejudice against the idea of a US central bank that would look like European national banks, or the failed initial attempts to establish a central bank in the US.

[28]See also Brandeis (1914).

[29]Bryan ran in the presidential elections as the Democrat candidate three times: 1896, 1900, and 1908. He was defeated each time by the Republican candidates, first William McKinley, and then William Taft. Even though he never won the elections, he remained an important influence within the Democratic Party. He was Secretary of State from March 1913 to June 1915.

[30]See Johnson (1999, pp. 21–23).

Kemmerer (1918) pointed out the major differences between the Aldrich and the Glass–Owen banking reform plans.[31] In the Glass–Owen banking reform proposal, the president and not bankers would appoint members of the Federal Reserve Board and the twelve reserve banks were allowed to set their own discount rates. Nevertheless, the reserve-deposits ratio would be fixed by the Act. Kemmerer examined whether the Glass–Owen notes and credit-issuing system would guarantee currency elasticity. He wondered if the circulation of the new Federal Reserve notes would increase or decrease according to trade needs. Federal Reserve notes would offer many advantages in avoiding the elasticity problems of the previous issuing system.[32]

The *Wilson Federal Reserve Act* was presented to three different groups: first, bankers in major cities, conservatives, and Republican senators, who supported the Aldrich Plan; second, those who approved of the Glass and Willis currency reform plan, especially Democrats and Progressives; and third, a group consisting of radical farmers from the west and the south who believed that the government should have more authority over the banking system.

On June 23, 1913, President Wilson presented his currency reform program, which assigned exclusive control of the Federal Reserve Board to the government, and established that the elasticity of new currency was an obligation of the federal government. The new Federal Reserve banks were to be the only owners of the reserves. Under this plan, ‘‘banks may be the instruments not the masters of business’’ (Kemmerer 1911c, p. 822).

In June 1913, Glass, Willis, McAdoo, and Owen went to Chicago to see the directors of the American Banking Association's Currency Commission. After this meeting, they revised their plan: the national banks' notes would be withdrawn gradually from circulation; a Federal Advisory Council should be created (with representation from the banking industry) to establish the link between the reserve banks and the Federal Board;[33] more responsibility would be attributed to the regional reserves banks.

Wilson had many opponents: Republicans and Democrats, bankers and farmers. Bankers (especially members of the American Banking Association) supported the Aldrich Plan with only one central bank controlled by bankers and free from government regulation. A banker from San Antonio called Wilson's reform project a ‘‘communist idea.’’ (Johnson 1999, p. 29). Despite these setbacks, President Wilson tried to reconcile with the banking industry and to earn their support for his monetary reforms. It was also very difficult for him to reunify his party in Congress. After the Chicago meeting, the reform lost popularity among Democrats. One criticism was that there was no provision for agricultural debtors from the civil war and that the

[31]See also Warburg's (1930) comparison of the two main plans of banking reform.

[32]Van Zeeland summarizes the Carter Glass project as follows: the creation of a system designed to grant credit to banks, which hold sound assets and want to sell them off in order to meet the legitimate demands of their customers in relation to trade, farming. or industry; simultaneously, the creation of a sufficiently flexible circulation to substitute for the former; and the provision for extending American bank facilities to foreign countries, in order to expand foreign trade, and provide American businessmen abroad with the necessary instruments to conduct their operations (van Zeeland 1922, p. 33).

[33]The Federal Board had also helped to write the laws and to choose the kind of commercial paper it could rediscount,, and explained the mechanism to make rediscounts; it would have to design the new currency, create the new Federal Reserve notes, and envisage an amount for the transfers of the reserves to the new Federal Reserves banks.

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Federal Reserve Act did not address the issue of farmers' credit. Nevertheless, some radical farmers, almost all Democrats, supported Wilson.[34]

In September 1913, Glass presented the reform plan to the House of Representatives and it was approved by a vote of 287 to 85. In October 1913, Frank A. Vanderlip, President of National City Bank, presented a new monetary and banking reform plan to the Senate. He proposed creating only one central bank with private capital but also capital from the government and national banks. This central federal bank, entirely controlled by the federal government, would have twelve branches throughout the country. It could issue money by granting credit and must hold a gold reserve equal to 50% of its issues. This last plan aimed at winning the support of three groups: Democrats, Republicans, and farmers. On December 19, a Senate vote was organized to choose between the Vanderlip plan and the Glass–Willis–McAdoo–Owen reform plan. Finally, the latter plan prevailed with forty-four votes to forty-one. All Democrats supported this reform, while all but six Republicans opposed it.

On December 23, 1913, at 6:00 pm, the *Federal Reserve Act* was signed. The Secretary of the Treasury decided that all the regional Federal Reserve banks would open on the same date: November 16, 1914. On that date, the federal government transferred its funds to the different Federal Reserve banks.[35]

IV. KEMMERER'S CONTRIBUTION TO THE AMERICAN DEBATE ON BANKING REFORM

The United States was one of the first ''money doctor's'' patients after he established a gold exchange standard in Philippines.[36] According to Kemmerer's son, ''throughout his life he repeatedly offered advice on his country's money and banking systems and was frequently called to testify before Congressional committees'' (D. Kemmerer 1993, p. 24). Kemmerer was considered a significant source of analysis on each different banking reform proposal. He made his voice heard by introducing his own suggestions to previous plans.[37]

Even if Kemmerer ideas were never before put together into a formal banking reform plan, the ''Kemmerer's Plan'' expression was used for the first time by H.H. Hollander and by Sprague in 1913. Kemmerer's Plan of banking reform included suggestions to complete and improve the most important plans of banking reform, namely, the Aldrich Plan and the Glass–Owen Plan and allows us to understand Kemmerer's conception of central banks. According to Sprague:

[34]According to Dimand. Aldrich, his advisors, and, in general, the members of the NMC shaped Republican views. On the contrary, Democrats had at least three different points of view: 1) those who supported the Pujo Hearings directed by Louis Brandeis, even if they didn't propose a positive program for reform; 2) the Glass–Willis reform followers, whose goal was to fix exchange rates of the gold standard as a constraint on any new monetary authority; and 3) the Owen cohorts—his goal was price stabilization as Fisher (Dimand 2003, pp. 103–104).

[35]The *Federal Reserve Act* mandates four main goals: the creation of Federal Reserve banks; an elastic currency; ease in discounting commercial paper rediscount; and the establishment of more effective banking supervision. See Board of Governors of the Federal Reserve System (1939).

[36]See Gomez Betancourt (2008) and Gomez Betancourt (2011).

[37]I treat Kemmerer's intellectual formation in Gomez Betancourt (2009).

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> Professor Kemmerer is to be congratulated on the plan of organization which he has devised for the control of the machinery needed to make possible cooperative action among bankers. He had attacked the chief obstacle, which has been encountered in the effort to secure banking reform legislation—the widespread fear that greater power over money and credit might be secured by a few banks and bankers in the money centers, and particularly by those of New York City. Professor Kemmerer's plan has the enormous advantage it is most unlikely that control would ever be acquired by particular groups or classes of banks; under Professor Kemmerer's plan this possibility would be even more remote. But this is not its chief virtue. It is conspicuously a better plan because it makes more obvious, more intelligible, the impossibility of undesirable control over the proposed Reserve Association (Hollander et al. 1913, p. 68).

The original aspects of Kemmerer's Plan are both on political and monetary issues: the link between the notion of business confidence and the elasticity of credit system; the solvency of the banking system; and the liquidity of bank reserves.

Political Issues in Kemmerer's Plan for Banking Reform

Kemmerer's Plan essentially provides two practical suggestions[38] regarding the Aldrich Plan and the Glass–Owen Plan. First, the supervisory board of this new institution must guarantee that it fulfills its functions and public responsibilities. Its organization plan must be altered. Second, the banks' right to vote must not any longer be proportional to their amount of capital.

It is indeed necessary to reconsider how the future central bank should be controlled. Kemmerer thought that promoting public participation (not pertaining to the banking community) in the board of directors would increase public confidence on the future central banking system.[39] For Kemmerer, the new institution would be much more than a bankers' bank. If it was established, it would be a great public institution equipped with capacities and economic policy responsibilities such as determining discount rates, gold payments, the size of the reserves, and amount of currency to be issued. It would have a central board to deal with more important questions, and a branch board to treat more specific questions related to deposits, transfers, discounting, and loans. On the branch board, there would be representatives from agriculture, trade, and industry, all publicly selected (Kemmerer 1913a, p. 59). One-third of the bank's boards of directors would be government representatives, one-third bankers, and one-third from private-interest groups and shareholders.

Thus, Kemmerer called for a balanced representation of all sectors of society in some committees while he made sure at the same time that politics remained out of the NRA. Representation would increase if a third of the branch board (instead of a sixth, as was then the case) represented the farmers, the businessmen, and the manufacturers, and if those members were appointed by the state governors. By contrast, the Aldrich Plan proposed that the NRA should almost entirely be controlled

[38]J.H. Hollander: "I am in agreement with Professor Kemmerer as to the wisdom of the two amendments which he proposes to the Aldrich bill" (Hollander et al. 1913, p. 64).

[39]He also opposed the appointment of the NRA director by the US president, arguing that the president was not the best qualified to appoint someone to the post. An expert from the banking community would be a more appropriate authority to make such a decision.

by bankers. Only three of the forty-five members would not be selected by bankers but by the federal government—the Secretary of the Treasury, the Secretary of Commerce and Labor, and the Comptroller of the Currency. [40] Kemmerer also recommended the creation of another committee, the Currency Committee of the American Banker's Association, to supervise the NRA. He encouraged the public to fight their prejudice against the Aldrich Plan by showing that the essential function of the NRA would be to fulfill public responsibility and that power would by no means be necessarily concentrated in the hands of bankers.

According to Kemmerer, it was also necessary to abandon the notion that each bank's right to vote depends on its amount of capital. It should be substituted by the rather simple democratic rule of one vote per institution. He wanted the election rules within the NRA to be modeled after those of the American democracy. For the future, Kemmerer proposed a more democratic and direct method for selecting the members of the board of directors. He took the example of the American Clearing House, which, he believed, was the most efficient institution in the world.[41]

The representation of the various economic sectors in the committees responsible for deciding and enforcing monetary policy is a feature of the Fed, as established by the law of 1913, via the creation of the Federal Advisory Council beside the Federal Reserve Board of Governors. The Federal Advisory Council (FAC), the oldest of the consulting committees of the Fed, is made up of twelve members reselected each year at the suggestion of the directors of the Federal Reserve banks. Since the council members are designated by the directors of regional banks, they are usually bankers.

In the spirit of the 1913 Act, the Federal Advisory Council (FAC) is supposed to help the Federal Reserve Board discuss and propose recommendations on monetary policy, financial regulations, and other fields related to Federal Reserve banks. The meetings between the FAC and the Federal Reserve Board are not open to the public and the reports are published subsequently. These meetings are always held in Washington, four times a year at least.

Theoretically, in 1913, the Federal Advisory Council, originating from banks in which the rule of the three thirds prevails, was to play a role in defining monetary policies. On September 30, 1913, it was Carter Glass who put forward the idea (discussed in Kemmerer 1913c) to protect public interests via a consulting committee of bankers in which each regional bank would be represented. Van Zeeland (1922) later shows that the FAC—which represented only the banking system and left aside two-thirds of the population anyway—was mainly created for form's sake and the board was, in fact, deciding monetary policy alone:

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[40]Americans believed that their interests did not always match bankers' interests. The case of the *United States postal saving*, witnessed by Kemmerer, is a good example of a situation in which the interests of these two types of economic agents were opposed.

[41]"If we turn for a moment to the great banks of Europe we find that although nominally and as regards stock-ownership they are private institutions, their officials have been forced more and more to feel the responsibilities of great public trusteeship. Moreover, in the leading European countries great care is taken to prevent the central banks from falling into the control of the banking class of the community or of any other special class. In Germany the ultimate control of the Reichsbank is in the imperial government.... In France the governor of the Bank of France and the two subgovernors are named by a decree of the president of the republic upon the proposal of the minister of finance" (Kemmerer 1911, p. 828).

> Broad prospects are indeed opened up, but the ‘‘Federal Advisory Council’’ actually has nothing to do in the picture. For what does advice mean, even if it is asked for or listened to with deference, if it is not backed up by any authority, sanction or influential instance? . . . It was actually imagined as a sort of harmless concession to bankers, who protested quite strongly against the fact that the whole of the Reserve Board was appointed by the President. They were given a sort of consulting role in the Board’s activities via a group more or less emanating from them. It was the « Federal Advisory Council », which was to act as a safety valve (van Zeeland 1922, pp. 112–113).

The idea of Kemmerer’s Plan was to ensure that the democratic principle was at work in all parts of the system, given that each of the advisors represented a different region of the United States. They were in charge of looking after the economic interests of their districts and, in theory, each of the twelve members had the same right to vote.

> The theory may have been admirable in its concept, but the hard facts of economic life resulted in a quite different picture. The president of a small bank in St. Louis or Cincinnati, sitting in conference with Paul Warburg and J.P. Morgan to "advise" them on monetary policy, would be unlikely to contradict two of the most powerful international financiers in the world, as a scribbled note from either one of them would be sufficient to plunge his little bank into bankruptcy (Mullins 1952, chap. 4, p. 40).

However, Kemmerer managed to get his reform on representation (i.e., integration of all sectors of society) adopted only for the directors of Federal Reserve banks. He failed to impose it on the Federal Advisory Council (in which the majority is represented by the banking sector) and the Federal Reserve Board (in which the majority is appointed by the Head of State). Paul van Zeeland points here to what he sees as a major flaw to be corrected:

> Let us make it clear. We are not criticizing the trend towards centralization. It seems to us, in itself, logical and necessary. But since the Reserve System is now actually a central system, what is the point of presenting it under the guise of regionalism? Would it not be infinitely preferable to recognize the real nature of the role played by the Reserve Board, and reform its organization in order to address the criticisms and problems raised by its current structure? Since it now plays, for the whole of the United States, the role which had been attributed to each Reserve Bank in its own district, why not organizing it according to the same principles which were used to form the Reserve Banks’ boards of directors, namely, essential independence, limited government control, representation of the various business groups, and decision power in the hands of these representatives (van Zeeland 1922, p. 272).

Let us now turn to the political role played by Kemmerer in this debate. Kemmerer corresponded with Willis and President Wilson, and finally supported the banking reform proposed by the Glass–Owen Plan. Here are some excerpts from his correspondence with Willis:

> Dear Willis: Many thanks for your helpful letter with reference to the Glass-Owen bill. I think I also recognize your style in the majority report on the bill which you gave me. It is an excellent defense (from Kemmerer to Mr. H. Parker Willis, New York City, Sept. 15, 1913. Box 29. May–Sept 1913. R–Z. To Willis from Kemmerer. Kemmerer’s Archives).

And President Wilson:

> About a year ago, in company with Professor Daniels and Professor Fetter, I had the privilege of a talk with you at your home on the subject of banking reform. The conversation had reference more particularly to a paper on Some Public Aspects of the Aldrich Plan of Banking reform which I have recently read before the Western Economic Association, and a copy of which had been given to you by Professor Daniels. The enclosed paper, which is an argument for a thorough democratization of the National Reserve Association's plan of government, is a sequel to that appears. It was read last Monday at the annual meeting of the American Economic Association in Boston. The fact that the paper will not be published for some months, together with the importance of the problem and your interest and responsibility in connection therewith, explain the liberty I am taking in sending you at this time a manuscript copy of that paper. If I can ever be of service to you in connection with this subject please command me. With great respect, I am, Kemmerer (from Kemmerer to Mr. Woodrow Wilson, President-Elect of the United States, Princeton, NJ, Jan. 4, 1913. Box 27. Oct–Jan. 1913. S–Z. Wilson. Kemmerer's Papers. Correspondence. Series 2B).

In Kemmerer's words:

> It happens at the present time that I am in a position where my advice may possibly exercise considerable influence in connection with the proposed legislation, and I am looking for all the light I can get with reference to the merits and defects of the Glass bill (from Kemmerer to Perrin, Cornell University, Ithaca, NY. Box 29. May–Sept. 1913, M–Q Kemmerer's Papers. Correspondence).

Paul Warburg himself pointed out the role played by Kemmerer in the debate over the creation of the Fed, and the similarity with his own ideas. He remarked that Kemmerer's ideas were largely accepted by the two main political reformers, Aldrich and Owen: ''Professor Kemmerer's mind, which I have reason to believe Mr. Glass regarded as that of a friend, and mine, which he classed as that of a 'hostile critic, traveled along exactly the same lines'' (Warburg 1930, p. 113).

For Kemmerer, the Reserve Board structure was essential to getting the legislation through Congress. The correspondence between him, President Wilson, and some other important figures in guiding the legislation shows that Kemmerer contributed to the debate on the institutional structure of the new Fed. Here is some evidence of the relationships between Kemmerer, Owen, and the future President Wilson:

> My dear Mr. Kemmerer: I am this morning in Dr. Owens' office, and at his request I have taken up with the secretary the matter of your letter. I have just written Governor Woodrow Wilson, asking him to appoint you as one of the delegate of the State'' (from Lillian W. Johnson to Kemmerer, Jan. 14, 1913. Box 27. Kemmerer's Papers. Correspondence. Series 2B).

And his answer:

> . . . thank you for writing to Governor Wilson with reference to my appointment as one of the delegate of the States of New Jersey on the Commission for the study of cooperation in Europe.. . . I am pleased to know that you are so actively interested in this important work in connection with agricultural credit (from Kemmerer to

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Lillian W. Johnson, Jan. 18, 1913. Box 27. Kemmerer's Papers. Correspondence. Series 2B).

He writes later in his "Autobiography" (n.d.):

> I took an active part in the campaign for banking reform by writing, public speaking and doing advisory work. I belonged to a small group of economists who were consulted by President Wilson and was employed and consulted by the New York State Bankers Association and the National Progressive Party through its National Legislative Reference Bureau (n.d., p. 86).

Kemmerer played an important role in the information campaigns on banking reforms and the problems of the banking system existing at the time. His aim was to popularize the aspects of the reforms he supported. Indeed, he believed it was the responsibility of the economists to make their analyses and the practical aspects of the reforms of the banking system clearer and easier to understand. He was dedicated to advocating the project of the creation of the Fed to his fellow countrymen.

Kemmerer pointed to the general public's fear that the "money trust" would take absolute control of the system. However, he believed the public feared more the control of the banking system by the money trust (or by Wall Street) than by Washington. The political point Kemmerer made in his article "Banking Reform in the United States" (1913a) is extremely important: he underlined social responsibilities of the new institution and the necessity to include representatives of each sector of the society. In particular, Kemmerer was worried about farmers' difficulties with credit access.

Kemmerer strongly believed that farmers should participate in the Federal Reserve Board and that farm credit should be improved and increased in the United States.[42] Some statements he made on the farm credit situation were partially taken into account in the 1913 *Federal Reserve Act*. He was not the only one who defended the farmer's situation but he had an important role, until now neglected.

In short, as a member of the National Monetary Commission, which was dominated politically by Republicans and economically by bankers, Kemmerer supported the Aldrich Plan for its objectives with respect to centralization, reserve availability, and money and credit elasticity. As an affiliated member of the brand-new progressive party (headed by T. Roosevelt), he protested against the takeover of the proposed federal system by the banks of New York. In proposing to replace it with federal government control and introduce the farmers' interests in the system of representation, Kemmerer contributed to the compromise between the two political parties and the vote of the *Federal Reserve Act* on December 23, 1913.

Business Confidence and Monetary Elasticity

Kemmerer (1907) presents his quantity theory through a test comparing the shifts of two variables. The first variable corresponds to a price level index. The second variable corresponds to the relationship between what he called "monetary demand" and "commodities supply." According to him, this ratio determines the price level.

[42]"Professional avocations that occupied my spare time in this period include: . . . assisting the Governor of the State of New York in drawing plans for the improvement of agricultural credit in the State" ("Autobiography" n.d. p. 106).

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To find this second variable, he built a monetary circulation index (monetary demand) and goods circulation index (commodities supply). Kemmerer sought to compare the evolution of the first variable (price level index) with the second index (that he built) to validate quantity theory. He showed that quantity theory was always verified from 1879 to 1907, except for two periods marked by a lack of business confidence.

According to his test, the quantity theory is verified in the long run. Nevertheless, he proved that there is a divergence in the short run between the two variables, resulting from fluctuations in business confidence. For Kemmerer, "confidence is the corner-stone of every credit transaction . . . every transaction in the credit world involves confidence" (1907, p. 82). Credit depends on business confidence. He introduced this notion to prove the close connection among business confidence, the quantity of money in circulation, and the quantity of bank reserves in a country. For him, business confidence has a direct relationship to deposit currency and a negative relationship to bank reserves: "When business confidence is high, there is a comparatively large cancellation of indebtedness . . . relatively little actual cash is demanded of the banks under such circumstances, and comparatively small bank reserves will support a large credit structure of deposit currency" (Kemmerer 1907, p. 84).

Consequently, if business confidence increases, there is reduction in demand for cash. In other words, the relation between bank reserves and deposit currency changes inversely with the degree of businesses confidence. "Business confidence, in a word, acts as a sort of a buffer between cash reserves and deposit currency" (Kemmerer 1907, p. 84). In our opinion, business confidence is a notion linked to other US problems introduced later by Kemmerer as an issue of monetary inelasticity.

Nevertheless, we note that in Kemmerer's US plan on monetary reform, neither the price variable nor his speech in favor of the quantity theory of money appeared. In fact, Kemmerer did not refer here explicitly to the quantity theory. This is in contrast to Irving Fisher, who links quantity theory to his analysis of banking instability and his monetary reform: the compensated dollar. Kemmerer is a quantity theorist, with some concern about instability of velocity due to business confidence. According to Kemmerer, this is another point that differentiated him from Fisher:

> Professor Fisher's formula expressing the relationship between the circulating media and prices is essentially the same as my own [Kemmerer, 1907], but he pays little attention to the business confidence factor, which is a most important consideration in the interpretation of the formula. The ratio of deposit currency to bank reserves is a function of business confidence" (Houston et al. 1911, p. 53).

Even if Kemmerer's (1907) business confidence argument (to explain times when the quantity theory cannot be verified) was not present in his plan on banking reform, we could establish a relation between the lack of elasticity and the lack of business confidence, and between the business confidence and Kemmerer's affinities with the real bills doctrine.[43]

[43]To place Kemmerer in the history of economics thought, it is important to note that his banking reform has nothing to do with the British monetary orthodoxy (Fetter 1965; and de Boyer and Diatkine 2008). In the debate on US banking reform, we found neither Hume's price-specie-flow mechanism, nor the Currency Principle. In these articles Kemmerer does not refer to Bagehot, or to any lender of last resort theory. He did not use the Currency School as his analytical reference framework to develop his banking reform plans.

Monetary Elasticity, Solvency of the Banking System and Liquidity of Banknotes

The first aim of what we call "Kemmerer's Plan for Banking Reform" is to ensure the elasticity of the American bank credit and currency system. Kemmerer addressed this topic in his 1910 book, in his analysis of the different banking reform plans and in his introduction of his own recommendations.

When Kemmerer defended monetary elasticity, his objective was to pair changes in elasticity with requirements for trade. Quantity restrictions on notes were harmful because notes should be able to vary seasonally with the economic transaction needs. In this respect, he was quite far from modern conceptions of the currency board. He wanted a central bank that intervenes on the money market.

The second important feature of Kemmerer's plan on US banking reform is the security of notes and the solvency of the banking system. According to him, the safety of banknotes can be ensured through certain policies. First, the US government should assume legal and moral protection on a certain quantity of money. In addition, the Federal Reserve Board should guarantee at any time an additional unrestricted fund to protect the notes. Second, the maintenance of strong gold reserves was necessary to avoid a state of banking illiquidity.

Regarding the first policy, the notes must be only issued once, decided by the regional bank boards of directors, and must have also received the approval of the Federal Reserve Board. In this way, there would not be a doubt on notes. The new Federal Reserve notes were more elastic than the national banknotes, which were bond-secured (Kemmerer 1913c, p. 161).

Many people criticized the Glass–Owen Plan for the obligation imposed by the government to guarantee the last refunding of bills. Kemmerer agreed with Glass–Owen that the government should guarantee at any time the last refunding of the notes. For him, the notes should be adequately protected by reserves, but in times of severe instability (in terms of issuing currency), and when there is a risk of currency depreciation, the government has to assume responsibility. In the case of risk, the liable government credit must be called upon: "In such an emergency, it is difficult to imagine any purpose more important for the exercise of the government's credit than to keep the country upon a specie-paying basis" (Kemmerer 1913c, p. 160).

According to Kemmerer, it is precisely in such an emergency that government credit must serve to maintain the payments in cash in the country, and thus guarantee the circulation of money.

> When the government gives to a politically appointed body like the Federal Reserve Board great power, it assumes, through that board, great responsibility. If the notes depreciate or even threaten to depreciate, that fact will be proof that the Federal Reserve Board has failed to exercise properly and effectively its great regulating and conserving powers. The government would be morally responsible for the integrity of the note issue even without any legal responsibility, and the public would hold it so (Kemmerer 1913c, p. 162).

However, in terms of convertibility of banknotes, Kemmerer criticized the Aldrich and the Glass–Owen plans because in both, currency redemption was only in lawful money and not directly in gold. According to Kemmerer, it was necessary to ensure convertibility of notes and deposits in gold. The US Treasury must be legally obliged to maintain parity of all types of money with gold. According to him (1913c, p. 162), the State should assume legal and moral engagement to guarantee the convertibility in gold of banknotes and deposits: "this government responsibility is not a new thing: our present national banknotes are also issued by the government to the banks and the government assumes an unlimited liability for their payment" (Kemmerer 1913c, p. 162).

Regarding the policy of strong reserves, Kemmerer thought the minimum reserve requirement for notes and deposits in the Glass–Owen plan was too low. He maintained that it should not be forgotten that the regional bank reserves constitute a substantial part of the country's bank credit. The amount of the reserves required must be sufficient to inspire public confidence. As an example, he pointed out that for the Bank of France, there was no set minimum reserve requirement, though their reserves were generally over 45% to 55% of their deposits. In the case of the Reichsbank, Kemmerer explained that there is a minimum reserve requirement against notes of 33 1/3%, but the Reichsbank always maintained 65% of the reserves against notes and 50% against all other liabilities (Kemmerer 1913c, p. 165). US regional banks usually maintain reserves around the legal amount required, but, as Kemmerer observed, there is a tradition among US bankers to hover close to the minimum reserve requirement (Kemmerer 1913c, p. 165).

Because it is easier to reduce the minimum reserve requirement than to increase it, once fixed, Kemmerer recommended not fixing it too low from the start. He proposed a minimum reserve requirement at 40% between notes and deposits (Kemmerer 1913c, p. 166). This measurement is, for him, one of most urgent to correct in the Glass–Owen Plan. Moreover, he added, from the point of view of reserves, the deposits and the notes were to be treated in the same way, because they are demand liability for the regional banks. He suggested treating notes and deposits in the same way (Kemmerer 1913c, p. 166).

V. CONCLUSION

Kemmerer played the role of a mediator between the various reform plans proposed and the political groups involved. His participation in the debate was crucial to the transition between the two main plans. On one hand, he supported the Aldrich Plan on banking reform while he was a member of the National Monetary Commission. On the other hand, he was close to President Wilson, and later supported the Glass–Owen Plan for banking reform. Kemmerer's suggestions for the Aldrich Plan and the Glass and Owen reforms would allow the American banking system to guarantee the elasticity of banknote issuing, and the solvency and liquidity of the banking system. His study of the US money market, as well as his advocacy for a central bank with branches throughout the country, was key to legitimate the reform.

Kemmerer always emphasized the social and public functions of both reform plans—in particular, the role played by the government and the relationship between public and private interests in the banking system. He strongly defended the farmers' position by assessing the negative consequences the previous banking system had for them. Kemmerer was doubly afraid of giving excessive power to either the federal government in Washington or to Wall Street bankers, though he feared the influence of the banking elite more.

One of Kemmerer's proposals, which shows most clearly his influence on the structure of the future institution, concerns the organization of the boards of directors: one-third of government representatives, one-third of affiliated banks, and one-third of representatives from the trade, industry, and agriculture sectors. Kemmerer's aim was to reach a balance between all the political and economic powers involved. He argued that all sectors of society were to participate in the negotiations on banking and monetary policy. He was particularly anxious to give voice to farmers in the policy-making process of the new institution. He suggested that the farmers should be present not only on the board of each district bank, but also on the board of the new institution. His analysis focused on the question of the control of the future Central Bank in the United States. According to him, the bank is a social institution that involves not only bankers but indeed all the economic sectors of the country.

Apart from his contribution to the political component of the debate, Kemmerer's main goal was to explain to Americans how the Fed would be established and how it would work. He was a central banks theorist: he understood the importance of ensuring the liquidity of banknotes and the role of the State to guarantee the solvency of the banking system. After having learnt the theoretical principles of money and banking, thanks to his experience in the Philippines and in his own country, Kemmerer was ready to play his role of money doctor abroad.

REFERENCES

Aldrich, Nelson W. 1911. *Suggested Plan for Monetary Legislation*, submitted to the National Monetary Commission, S. Doc. 784. Also revised edition, Part 2, 61st Congress, 3rd Session, Government Printing Office, Washington.

Aldrich, Nelson W. 1913. "Banking Reform in the United States." *Proceedings of the Academy of Political Science in the City of New York* IV, 1. *Banking and Currency in the United States* (Oct.): 31–91.

Barber, William, ed. 1997. *The Works of Irving Fisher*. Editorial assistance of Robert W. Dimand and Kevin Foster. London: Pickering and Chatto.

Beckart, Benjamin. 1972. *The Federal Reserve System*. The American Bankers Association. New York: Columbia University Press.

Board of Governors of the Federal Reserve System. 1939. *The Federal Reserve. Its Purposes and Functions*. Washington: National Capital Press.

de Boyer, J., and R. Gomez Betancourt. 2010. "How Did the US Monetary System Work under the National Banking System (1863–1913)?" Paper presented at the 14th Annual Conference of the European Society for the History of Economic Thought, University of Amsterdam.

de Boyer, J. and S. Diatkine. 2008. "British Monetary Orthodoxy in the 1870s: A Victory of the Currency Principle." *The European Journal of the History of Economic Thought* 15, 2 (Summer): p. 181–209.

de Boyer, J. 2003. *La pensée monétaire: histoire et analyse*. Paris: Les Solos.

Brandeis, L. 1914. *Other People's Money, and How the Bankers Use It*. New York: Frederick A. Stokes Company. Reprinted Fairfield NJ: Augustus M. Kelley.

Broz, J. Lawrence. 1997. *The International Origins of the Federal Reserve System*. Ithaca and London: Cornell University Press.

Burgess, Warren Randolph. 1927. *The Reserve Banks and the Money Market*. New York: Harper and Bros.

Cooke, Thornton. 1911. "Financial Co-Operation and the Aldrich Plan." *The American Economic Review* 1, 2 (June): 234–250.

Dimand, R. 2003. "Competing Vision for the US Monetary System, 1907–1913." *Cahiers d'Economie Politique* 45 (Automne): 101–137.

https://doi.org/10.1017/S1053837210000441 Published online by Cambridge University Press

Drake, P. 1989. *The Money Doctor in the Andes: The Kemmerer Missions, 1923–1933*. Durham: Duke University Press.

Fetter, F. W. 1965. *Development of British Monetary Orthodoxy, 1797–1875*. Cambridge MA: Harvard University Press.

Fisher, I. 1911. ‘‘Recent Changes in Prices Levels and Their Causes.’’ *The American Economic Review* 1 (2): 37–45. Papers and Discussions of the Twenty-third Annual Meeting, April 1911.

Frame, Andrew Jay. 1912. ‘‘A Review of the Proposed National Reserve Bank.’’ *The Journal of Political Economy* 20, 1 (Jan.): 33–40.

French Johnson, J., and Horace White. 1909. ‘‘Central Bank: Discussion.’’ *AEA Quarterly* 10, 1 (Series 3, Apr.): 370–376. Papers and Discussions of the Twenty-first Annual Meeting, Atlantic City, N J, 28–31 December 1908.

Friedman, M., and A. Schwartz. 1963. *A Monetary History of the United States 1867–1960*. Princeton NJ: Princeton University Press.

Glass, C. 1927. *An Adventure in Constructive Finance*. Garden City NJ: Doubleday, Page.

Gomez Betancourt, R. 2008. ‘‘E.W. Kemmerer Money Theorist and Money Doctor.’’ PhD thesis, University of Paris I. Pantheon-Sorbonne.

Gomez Betancourt, R. 2009. ‘‘In the Mind of a Money Doctor: E.W. Kemmerer’s Intellectual Anatomy.’’ Article presented at the History of Economics Society meeting, June 2009.

Gomez Betancourt, R. 2010. ‘‘E.W. Kemmerer’s Contribution to the Quantity Theory of Money.’’ *European Journal of the History of Economic Thought* 17, 1 (March): p. 181–209.

Gomez Betancourt, R. 2011. << Les apports de Kemmerer à la théorie du Gold Exchange Standard >>, Actes du Colloque << Histoire Economique de la Caraïbe (1880-1950) >>. Université de Quisqueya, Port au Prince. Éditions de l’Université d’Etat d’Haïti, forthcoming.

Gomez Betancourt, R., and K. Sugimoto. 2011. ‘‘Seasonal Variations in New York Money Market under the National Banking System. Are Kemmerer (1910) results correct?’’ *Histoire Economique Quantitative*. Economies et Sociétiés. Série AF No. 43 (2011), forthcoming.

Harding, P. G. 1925. *The Formative Period of the Federal Reserve System*. Boston MA: Houghton Mifflin.

Hollander, J. H., et al. 1913 . ‘‘Banking Reform Discussion.’’ *The American Economic Review.* 3, 1 (Mar.): 64–88. Papers and Proceedings of the Twenty-fifth Annual Meeting of the AEA, Mar. 1913.

Houston, D. F., et al. 1911. ‘‘Money and Prices Discussion.’’ *The American Economic Review* 1, 2 (Apr.): 46–70. Papers and Discussions of the Twenty-third Annual Meeting, Apr. 1911.

Hulbert, E. D. 1912. ‘‘Some Points in Opposition to the Aldrich Plan.’’ *The Journal of Political Economy* 20, 1 (Jan.): 25–32.

Jevons, W. S. 1866. ‘‘On the Frequent Autumnal Pressure in the Money Market, and the Action of the Bank of England.’’ Paper read before the Statistical Society, April 1866. *Journal of the Statistical Society of London* xxix: 235–253.

Johnson, Roger. 1999. *Historical Beginning of the Federal Reserve*. Boston: Federal Reserve Bank of Boston, Public and Community Affairs.

Kemmerer, Donald L. 1993. *The Life and Times of Prof. Edwin Walter Kemmerer, 1875–1945, and How He Became an International “Money Doctor.”* Illinois: The Author.

Kemmerer, E. W. 2007. *Edwin Walter Kemmerer’s Papers, 1875–1945*. Princeton NJ: Princeton University, Seeley G. Mudd Manuscript Library, Department of Rare Books and Special Collections.

Kemmerer, E. W. n.d. ‘‘The Autobiography of a Money Doctor.’’ Princeton University, Seeley G. Mudd Manuscript Library, Kemmerer’s Archives.

Kemmerer, E. W. 1903. ‘‘Money and Credit Instruments in their Relation to General Prices.’’ PhD dissertation manuscript, Cornell University. First copy.

Kemmerer, E. W. 1907. *Money and Credit Instruments in Their Relation to General Prices*. New York: Henry Holt & Company. Second edition, 1909. Reprinted 1983, New York & London: Garland.

Kemmerer, E. W. 1910. *Seasonal Variations in the Relative Demand for Money and Capital in the United States*. Washington DC: Government Printing Office. National Monetary Commission, 61st Congress, 2nd session Senate. Document N. 588.

Kemmerer, E. W. 1911a. "American Banks in Times of Crisis under the National Banking System." *Proceedings of the Academy of Political Science in the City of New York* 1, 2, *The Reform of the Currency* (Jan.): 233–253.

Kemmerer, E. W. 1911b. "Seasonal Variations in the New York Money Market." *The American Economic Review* 1, 1 (Mar.): 33–49.

Kemmerer, E. W. 1911c. "Some Public Aspects of the Aldrich Plan of Banking Reform." *The Journal of Political Economy* 19, 10 (Dec.): 819–830.

Kemmerer, E. W. 1913a. "Banking Reform in the United States." *The American Economic Review* 3, 1 (Mar.): 52–63. Supplement. Papers and Proceedings of the Twenty-fifth Annual Meeting of the American Economic Association, Mar. 1913.

Kemmerer, E. W. 1913b. "The Bank-Note Issue of the Proposed Federal Reserve Banks." *Proceedings of the Academy of Political Science in the City of New York* IV, 1, *Banking and Currency in the United States* (Oct.): 160–168.

Kemmerer, E. W. 1915. "Putting the Federal Reserve Act into Operation." *The Economic Journal*. Vol. 25, No. 97 (Mar. 1915): pp. 1–8.

Kemmerer, E. W. 1918. *The ABC of the Federal Reserve System: Why the Federal Reserve System Was Called into Being, the Main Features of Its Organization, and How It Works*. Twelfth edition. Princeton NJ: Princeton University Press.

Laughlin, J. L. 1910. "Banknotes and Lending Power." *The Journal of Political Economy* 18, 10 (Dec.): 777–792.

Laughlin, J. L. 1914a. "The Banking and Currency Act of 1913: I." *The Journal of Political Economy* 22, 4. (Apr.): 293–318.

Laughlin, J. L. 1914b. "The Banking and Currency Act of 1913: II." *The Journal of Political Economy* 22, 5 (May): 405–435.

Laughlin, J. L. 1933. *The Federal Reserve Act: Its Origin and Problems.* New York: Macmillan.

Livingston, J. 1986. *Origins of the Federal Reserve System: Money, Class, and Corporate Capitalism, 1890–1913*. Ithaca NY: Cornell University Press.

MacVeagh, Franklin. 1911. "Banking and Currency Reform." *The Journal of Political Economy* 19, 10 (Dec.): 809–818.

Mehrling, P. 2002. "Economist and the Fed: Beginnings." *Journal of Economic Perspectives* 16, 4 (Autumn): 207–218.

Mehrling, P. 1997. *The Money Interest and the Public Interest: American Monetary Thought, 1920–1970*. Cambridge MA: Harvard University Press.

Meltzer, Allan H. 2003. *A History of the Federal Reserve. Volume I, 1913-1951*. Foreword A. Greenspan. Chicago: The University of Chicago Press.

Mullins, Eustace. 1952. *Secrets of The Federal Reserve*. John McLaughlin, Reprinted 1983.

Moore, Carl. 1990. *The Federal Reserve System: A History of the First 75 Years*. Jefferson NC: McFarland & Company.

Norton, J. P. 1902. *Statistical Studies of the New York Money Market*. New York: Macmillan.

Piatt, Andrew A. 1906. "The Influence of Crops on Business in America." *Quarterly Journal of Economics* 20 (May): 323–353.

Perrin, J. 1911. "What Is Wrong with Our Banking and Currency System?" *The Journal of Political Economy* 19, 10 (Dec.): 819–830.

Prochnow, H. 1960. *The Federal Reserve System*. New York: Harper.

Rist, C. 1938. *Histoire des doctrines relatives au crédit et à la monnaie depuis John Law jusqu'à nos jours*. Paris: Librairie du Recueil Sirey.

Rothbard, Murray. 1999. "The Origins of the Federal Reserve." *The Quarterly Journal of Austrian Economics* 2, 3 (Fall): 3–51.

Scott, A. 1911. ''The Aldrich Banking Plan.'' *The American Economic Review* 1, 2 (Jun.): 251–261.

Selgin, George A., and Lawrence White. 1994. ''Monetary Reform and the Redemption of National Bank Notes, 1863–1913.'' *The Business History Review* 68, 2 (Summer): 205–243.

Sprague, O. M. 1909. ''The Proposal for a Central Bank in the United States: A Critical View.'' *The Quarterly Journal of Economics* 23, 3 (May): 363–415.

Sprague, O. M. 1910. *History of Crisis under the National Banking System*. Senate Document 538 (NMC) 61st Congress, 2nd session. Washington DC: Government Printing Office. Reprint 1977, Fairfield, NJ: August M. Kelley.

Sprague, O. M. 1911a. *Banking Reform in the United States*. Cambridge MA: Harvard University Press.

Sprague, O. M. 1911b. ''The Aldrich Plan for Monetary Legislation.'' *The American Economic Review* 1, 2 (June): 262–271.

Sprague, O. M. 1913. ''The Organization of the Federal Reserve Banks.'' *Proceedings of the Academy of Political Science* 4: 106–17.

Sprague, O. M. 1914. ''The Federal Reserve Act of 1913.'' *Quarterly Journal of Economics* 28: 213–254.

Steels, J. 1926. *La banque à succursales dans le système bancaire des Etats-Unis*. Ghent, Belgium: Université de Gand. Publication de la faculté de droit.

Timberlake, R. 1978. *The Origins of Central Banking in the United States*. Cambridge: Harvard University Press.

Wall, A. 1912. ''The Aldrich Plan: A Possible Monetary Gerrymander.'' *The Journal of Political Economy* 20, 1 (Jan.): 41–48.

Warburg, P. 1909. ''Central Bank of United States.'' *American Economic Association Quarterly* 10, 1(Series 3, Apr.): 338–358. Papers and Discussions of the Twenty-First Annual Meeting, Atlantic City, NJ, 28–31 December 1908.

Warburg, P. 1911a. ''Principles That Must Underlie Monetary Reform in the United States.'' *Proceedings of the Academy of Political Science in the City of New York* 1, 2. *The Reform of the Currency* (Jan.): 376–388.

Warburg, P. 1911b. *The Reform of the Currency*. Ed. H. R. Mussey. New York: Academy of Political Science.

Warburg, P. 1914. ''Essays on Banking Reform in the United States.'' *Proceedings of the Academy of Political Science in the City of New York*. Vol. 4, no. 4. Academy of Political Sciences. Columbia University, New York.

Warburg, P. 1930. *The Federal Reserve System. Its Origins and Growth, Reflections and Recollections*. Two volumes. New York: Macmillan.

Wells, D. 2004. *The Federal Reserve System. A History*. Jefferson NC: McFarland & Co.

West, R. C. 1977. *Banking Reform and the Federal Reserve, 1863–1927*. Ithaca: Cornell University Press.

Wicker, E. 2005. *The Great Debate on Banking Reform: Nelson Aldrich and the Origins of the Fed*. Columbus OH: Ohio State University Press.

Willis, H. 1912. ''The Banking Question in Congress.'' *The Journal of Political Economy* 20, 9 (Nov.): 869–885.

Willis, H. 1914. ''The Federal Reserve Act.'' *The American Economic Review* 4, 1 (Mar.): 1–24.

Willis, H. 1923. *The Federal Reserve System*. New York: Ronald Press.

Yohe, W. P. 1990. ''The Intellectual Milieu of the Federal Reserve Board in the 1920.'' *History of Political Economy* 22: 465–488.

van Zeeland, Paul. 1922. *La Réforme bancaire aux Etats-Unis d'Amérique de 1913 à 1921. Le Système de la Réserve Fédérale*. Bruxelles: Ed. Bruylant.