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Divorcing money creation from bank loans: Revisiting the “100% money” proposal of the 1930s

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The 2007-2008 global financial crisis has brought strong renewed interest in the “100% money” reform proposal, inherited from the 1930s, which aims at divorcing money creation from bank lending by imposing 100% reserves on current account deposits. This reform idea, however, is frequently subject to confusion, being sometimes likened to the idea of abolishing bank intermediation, sometimes to that of setting up a currency board, or yet mistaken for the more recent “narrow banking” proposal. For this reason, this article offers to clarify its concept and objectives, by revisiting the works of the authors of this proposal in the 1930s—Henry Simons, Lauchlin Currie and Irving Fisher in particular. After briefly recalling the history of the “100% money” idea, we present its main arguments, and then discuss its implications for the payment system, bank intermediation, and the institutional framework of money issuance. We conclude on the importance of a conceptual clarification of this reform idea in respect of the ongoing discussions about it.

Dissocier la création monétaire des prêts bancaires : retour sur la proposition « 100% monnaie » des années 1930

La crise financière mondiale de 2007-2008 a conduit à un renouvellement d'intérêt marqué pour la proposition de réforme « 100% monnaie », héritée des années 1930, qui vise à dissocier la création monétaire des prêts bancaires en imposant 100% de réserves sur les dépôts en compte courant. Cette idée de réforme est cependant régulièrement sujette à confusion, étant tantôt assimilée à l'idée d'abolir l'intermédiation bancaire, tantôt à celle d'instaurer un *currency board*, lorsqu'elle n'est pas confondue avec la proposition plus récente du *narrow banking*. Pour cette raison, cet article entreprend d'en clarifier le concept et les objectifs, en revisitant les travaux des auteurs de cette proposition dans les années 1930 – Henry Simons, Lauchlin Currie et Irving Fisher notamment. Après un bref rappel historique de l'idée de « 100% monnaie », nous en présentons les principaux arguments, puis discutons de ses implications pour le système de paiement, l'intermédiation bancaire, et le cadre institutionnel de l'émission monétaire. Nous concluons sur l'importance d'une clarification conceptuelle de cette idée de réforme au regard des débats dont elle continue de faire l'objet.

Keywords: 100% money, money creation, Irving Fisher, Chicago Plan, narrow banking

JEL codes: B26, E42, E59

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1. Introduction

The global financial crisis of 2007-2008, which caught many economists off guard, has brought to the fore the role played by credit (including bank credit) in fuelling speculative bubbles and triggering crises (see, for example, Schularick and Taylor [2012] and Aliber and Kindleberger [2015]). It has also drawn attention, more specifically, to the dependency relationship between money creation and bank loans. Given that the money stock mainly consists in bank liabilities serving as means of payment, fluctuations in bank lending are accompanied by fluctuations in the quantity of money, participating in the pro-cyclical dynamics of price movements—in asset markets in particular.² The cumulative interactions between variations in the volume of loans (or debts), in the volume of bank money, and in the price level, were already at the heart of the “debt-deflation” mechanism described in his time by Fisher ([1932]; [1933]). Following the 2008 crisis, one of the reasons that led central banks to massively intervene, through quantitative easing, was precisely to prevent the reduction of bank balance sheets from translating into a monetary contraction with devastating consequences. This episode led several economists and central bankers to question the dependency of money upon banks. Mervyn King, Governor of the Bank of England from 2003 to 2013, for example delivered the following diagnosis:

[T]he fragility of our financial system stems directly from the fact that banks are the main source of money creation . . . In its role as an acceptable medium of exchange, money is not only necessary, it is a social good. . . . Should money be created privately or publicly? . . . [G]overnments [have] allowed the creation of money to become the by-product of the process of credit creation. Most money today is created by private sector institutions – banks. This is the most serious fault line in the management of money in our societies today. (King [2016], pp. 8, 63, 86)

This question of the dependency relationship between money creation and bank loans was already at the centre of the reflections of the English Currency School, in the 19th century, which led, through a famous reform of the Bank of England in 1844, to separating the issue of notes from the discounting business. The idea of *totally* divorcing the creation of means of payment, including scriptural money, from banking activity, was at the heart of the “100% money” proposal debated in the United States during the 1930s’ Great Depression. As we shall see, in reaction to the severe monetary contraction of 1929-33, a number of economists at the time—especially including Henry Simons, Lauchlin Currie and Irving Fisher—called

² According to Aliber and Kindleberger ([2015], pp. 18, 20): “Asset bubbles – most asset bubbles – are a monetary phenomenon . . . One theme of this book is that the cycle of manias and panics results from the pro-cyclical changes in the supply of credit, which increases rapidly in good times, and then when economic growth slackens, the rate of growth of credit declines sharply.”

for a 100% reserve requirement in lawful money behind bank deposits subject to cheque, so as to decouple the issuing from the lending of money. This reform was not adopted, however, and, although it continued to be supported by several economists in the second half of the 20th century—such as Allais, Friedman or Minsky—, it has never been tried out to this day.

Following the crisis of 2007-2008, there has been a marked renewal of interest in the “100% money” proposal. This reform idea has been recently discussed by IMF researchers (Benes and Kumhof [2012] 2013), central bank economists (Chari and Phelan [2014]; Constâncio [2016]; King [2016]; Baeriswyl [2017]; Assenmacher and Brand [2018]; Pfister [2021]), the UK Financial Services Authority’s former chairman Adair Turner [2015], *Financial Times*’s chief economics commentator Martin Wolf ([2014a]; [2014b]), as well as numerous academics including several “Nobel Prize” winners in economics (Buchanan [2010]; Lucas [2013]; Prescott [2014]; Prescott and Wessel [2016]).³ A number of non-governmental organisations and citizen movements have also taken up the issue. In the UK, for instance, members of the NGO Positive Money (Dyson *et al.* [2011], [2016]), building on a proposal drafted in 2000 under the aegis of the think-tank New Economics Foundation (Huber and Robertson [2000]), have proposed a “sovereign money” system inspired by Fisher’s “100% money” plan—the main difference being that, instead of imposing 100% reserves in central bank money on checking deposits, they suggest that central bank money *itself* be used directly, either in scriptural or digital form, by all members of the payment community.⁴ The same type of reform has been advocated in Iceland in a report commissioned by the government (Sigurjónsson [2015]), while in Switzerland a popular initiative calling for an essentially similar reform, the Vollgeld proposal (see e.g. Huber [2014]), has been put to a referendum vote in 2018, which ended in its clear rejection—not without much debate in the process.

Despite this renewal of interest, the “100% money” proposal has received relatively little attention in the literature, and continues to be the subject of much confusion about its concept and objectives. It is for example frequently equated with the idea of abolishing bank

³ See also Kotlikoff [2010], Chiarella *et al* [2012], Krainer ([2013]; [2017]), Goodhart and Jensen [2015], or Fontana and Sawyer [2016]. In the francophone literature, see for example Gomez [2010], Giraud [2012], Grjebine [2015], Quignon [2016], Le Maux [2020], or Gomez and Munier [2020].

⁴ The idea of a “100% money” system in which central bank money itself would be directly used by all economic agents had already been proposed by Tolley ([1962], pp. 299-300). Dyson *et al.* [2016] suggest that this could take the form of a central bank digital currency (CBDC).

intermediation,⁵ or with that of setting up a “currency board” on the model of the English reform of 1844,⁶ when it is not confused with the “narrow banking” proposal that appeared in the 1980s.⁷ Although several works have studied the history of this reform idea (notably Phillips [1995]), its analytical aspect remains to be clarified. Starting from this observation, the present paper endeavours to revisit this proposal as it was formulated in the 1930s, in order to clarify its concept and objectives. We will focus on the authors of this period (mainly Simons, Currie and Fisher) who provided the main theoretical arguments for this reform idea, without however entering into the debates to which it gave rise—our aim here being to clarify its outline, rather than to provide a detailed critical study.⁸ After a brief historical review (Section 2), we will therefore examine the theoretical arguments (Section 3) and practical implications (Section 4) of the “100% money” proposal of the 1930s, before concluding on the importance of such a conceptual clarification for the current debates.

2. Historical background

The proposal to separate money creation from bank loans goes back a long way in the history of ideas. Already in the 18th century, a number of authors in Great Britain—such as Jacob Vanderlint, David Hume and Joseph Harris—condemned the practice of banks issuing notes in excess of their precious metal balances, on the grounds that such “artificial” creation of money would lead to an increase in the price level detrimental to foreign trade (see Demeulemeester [2019], chap. 1). David Ricardo, in a pamphlet written in 1823, observed that the two activities carried out by the Bank of England—the issue of paper money, and the advance of money by way of loan—had “no necessary connection with each other” (Ricardo [1824], pp. 276-277). He called for exclusively entrusting the money-issuing function to a public national bank, so that the state would be the sole beneficiary of the seigniorage revenue. A few years later, it was this time the recurrence of banking crises that led the authors of the English Currency School (led by Samuel Jones Loyd, George Warde Norman and Robert Torrens) to call for separating the issue of bank notes from discounting activity. Their ideas were implemented through the Bank Charter Act of 1844, which, while giving the

⁵ See, for example, Diamond and Dybvig ([1986], p. 65), Benes and Kumhof ([2012] 2013, pp. 4, 79), Wolf ([2014b], p. 210), Turner ([2015], p. 187), or King ([2016], pp. 261-264).

⁶ See, for example, Diatkine ([2002], p. 151).

⁷ See, for example, Friedman ([1992], p.xi), Phillips ([1995], p. 182), Kotlikoff ([2010], p. 132), Chiarella *et al* ([2012], p. 411n3), or Constâncio [2016].

⁸ For an overview of the debates on the “100% money” proposal in the 1930s, the reader can refer, for example, to Barber [1973], Dimand [1993], Phillips ([1995], chap. 11), or Demeulemeester ([2019], chap. 1).

Bank of England a virtual monopoly on the issue of notes, established an institutional separation between its issuing function and its banking business.⁹ This reform, however, only applied to paper money, as the authors categorically refused to recognise the monetary character of other means of payment (such as transferable bank deposits). The idea of separating the issuance of scriptural money from bank loans was to be put forward by other writers—for example Charles Carroll [1860] in the United States, Léon Walras [1898] in France, or Ludwig von Mises [1912] in Austria—who urged that deposits transferable by cheque be fully covered by reserves in metallic money. The Englishman Frederick Soddy [1926], winner of the Nobel Prize in Chemistry, anticipated the “100% money” proposal of the 1930s in an even more direct way, by advocating 100% coverage of current account deposits by reserves made up, this time, of inconvertible (fiat) state money—thus freeing money creation both from its dependence on banks and from its link to gold.

In the context of the Great Depression, the question of the dependency between money creation and bank loans was to become even more acute. Following the stock market crash of October 1929, the volume of means of payment in the United States (cash and deposits transferable by cheque) fell drastically from \$27 billion to \$20 billion between 1929 and 1933 (Fisher [1935a], p. 5). This “Great Contraction” (Friedman and Schwartz [1963], p. 299) was accompanied by a series of bank failures, so much so that by the time President Roosevelt took office in early March 1933, the country’s entire banking system was on the verge of collapse. It was at this point that a group of eight economists from the University of Chicago started to advocate a banking reform programme, presented in privately circulated memoranda (Knight *et al.* [1933] in March 1933; Simons *et al.* [1933] in November), which called, in essence, for exclusively vesting the privilege of money creation in the federal government, by imposing 100% reserves in lawful money behind all checking deposits.¹⁰ This “Chicago Plan” (a term used by Hart [1935]) attracted considerable interest in the Roosevelt administration (see Phillips [1995], chap. 4-6). Several of its authors, including Simons ([1934]; [1936]; [1946]), who was the main inspiration, continued to support it in their subsequent individual publications. From 1934 onwards, however, two other economists were to play a prominent role in advocating this reform idea. The Canadian Lauchlin Currie, then

⁹ The 1844 Act also imposed an automatic issuing rule—the “currency principle”—on the Bank of England’s Issue Department, allowing it to issue notes only by increasing its metallic reserves by a strictly equal amount.

¹⁰ This group included Garfield V. Cox, Aaron Director, Paul H. Douglas, Albert G. Hart, Frank H. Knight, Lloyd W. Mints, Henry Schultz and Henry C. Simons. The thrust of their plan was similar to that proposed in England by Soddy [1926], whose work had been reviewed by Knight [1927]. This led some commentators to argue that the Chicago Plan had been influenced by Soddy’s ideas—a claim discarded by Tavlas [2020].

an instructor in economics at Harvard, published a notable book (Currie [1934a]) in which he criticised in detail the functioning of the existing monetary system. Arguing that “the most perfect control could be achieved by direct government issue of all money, both notes and deposits subject to check”, he proposed that current account deposits be 100% covered by reserves (Currie [1934a], p. 151). Yale University Professor Irving Fisher, in particular, would gradually become the most fervent advocate of this type of reform, which he proposed to call “100% money” in a book of the same name published in 1935 (Fisher [1935a]).

On the legislative front, several (unsuccessful) attempts were made to incorporate this proposal into the New Deal reforms—notably a bill by Senator Cutting and Congressman Patman, first introduced in Congress in June 1934, and again in March 1935 (see Phillips [1995], pp. 79-84, 122). Fisher was particularly active in this context, meeting with Roosevelt at the White House and making numerous speeches and press articles (see Allen [1993]). Currie, for his part, had the opportunity to work for this reform within the federal institutions themselves. In June 1934, he was invited to join a working group at the Treasury Department in Washington, where he wrote a report (Currie [1934b]) elaborating on the 100% reserve proposal he had outlined in his book. In November of that year, he joined the Federal Reserve Board, where Marriner Eccles had just been appointed chairman. Reform of the Federal Reserve System had become a priority for the Roosevelt administration, and Currie was to play a key role in the preparation of the Banking Act of 1935, of which he was, with Eccles, the principal drafter (see Sandilands [1990], p. 64). One of the provisions of the original bill was to give the Federal Reserve Board the power to alter, without specific limits, the reserve requirement ratios for bank deposits (Phillips [1995], pp. 116-117). It had been Currie’s intention, according to his biographer (Sandilands [1990], p. 66), “to give the Board unlimited powers to alter reserve requirements, with a view eventually to achieving the 100 percent reserve system.” During its passage through the Senate, however, this initial bill—which in general greatly enhanced the powers of the Federal Reserve Board as a centralised monetary authority—was fiercely opposed by Senator Carter Glass, who was hostile to any overly substantial revision of the Federal Reserve System that he himself had contributed to establish in 1913.¹¹ In the version finally adopted, modified on a number of points, the Board was only

¹¹ Carter Glass (then a Congressman) had, together with Senator Robert Owen, initiated the bill that became the Federal Reserve Act of 1913, giving birth to the Fed. Even then, he had rejected a clause, introduced by Owen (on a recommendation by Fisher), which required the Fed to promote price level stability (see Dimand [2020]). Under the influence of Glass, the Federal Reserve Act was instead inspired by the real bills doctrine, according to which the issue of banknotes should be based solely on the rediscounting of commercial paper. Adherence to this doctrine, with its pro-cyclical effects, seems to have played a significant role in the passive attitude shown

authorised to double, at most, the reserve ratios from their level at the time the law came into force. As Phillips notes ([1995], p. 127), “[t]his effectively prohibited any move to raise reserve requirements to 100 percent.”¹²

This failure was far from marking the end of the academic debate on “100% money”, which continued into the 1940s. From 1939 onwards, Fisher circulated a “Program for Monetary Reform”, co-written with five other economists (Douglas *et al.* [1939]), which received over a thousand supporters among the members of the American Economic Association (according to Fisher [1997], p. 240).¹³ He also sought, until his death in 1947, to convince President Roosevelt (and later his successor Truman) of the merits of the plan, and tried (unsuccessfully) to win over Keynes to his cause (see Allen [1977]; [1993]; Fisher [1997], pp. 217-220). The “100% money” debate faded with the Second World War.¹⁴ Some economists continued to advocate the idea, however. In France, Maurice Allais supported it throughout his career (see Allais [1947]; [1967]; [1975]; [1977]; [1987]; [1993]; [1999]). Milton Friedman also advocated a “100% money” reform on several occasions (see, e.g., Friedman [1948]; [1960]), even though it played a much less crucial role in his thinking than it did for his Chicago School predecessors.¹⁵ In the 1980s, following the savings and loan crisis in the US, a reform idea with some similarities to (and often confused with) the “100% money” proposal, *narrow banking*, entered the debate (see, for example, Kareken [1986] or Litan [1987]).¹⁶ In this context, authors such as James Tobin ([1985]; [1987]) or Hyman

by the Fed during the monetary contraction of 1929-1933 (see Humphrey and Timberlake [2019]). During the 1935 debates on the revision of the Federal Reserve Act, Glass (now a senator) was “violently opposed” to legislative changes that altered the system he had built (Sandilands [1990], p. 64). He was also very upset that Roosevelt had not consulted him on the appointment of Eccles as governor of the Federal Reserve Board (*ibid.*), as well as not having had the bill in his hands before it was introduced in Congress—which is why, according to Phillips ([1995], p. 120), he did everything to wreck the bill.

¹² Currie remained an adviser to Eccles at the Federal Reserve from 1934 to 1939, where he proposed a new version of his 100% reserve plan in an August 1938 memorandum (Currie [1938]). He then served as President Roosevelt’s administrative assistant for economic affairs from 1939 to 1945. See Sandilands ([1990] ; [2004]).

¹³ The authors of this programme included Paul Douglas, Irving Fisher, Frank D. Graham, Earl Hamilton, Willford King and Charles Whittlesey. John R. Commons joined them in a new version circulated in 1940.

¹⁴ Phillips ([1995], pp. 133-135) discusses the reasons why the 100% reserve plan was not ultimately adopted as part of the New Deal reforms. Amongst these, he mentions a widespread misunderstanding of the implications of the reform, which was often wrongly perceived as involving the end of private banking, or as opening the way for state control of credit. The banking profession itself, however, was not systematically hostile to the plan, as illustrated, for instance, by the review of Fisher’s book by banker Harvey E. Fisk ([1935], p. 569).

¹⁵ See Demeulemeester ([2019], pp. 59-61). One may also mention Murray Rothbard [1962], writing in the Austrian tradition of thought, who proposed a system of 100% *gold* reserves on current account deposits, which would remove all money-creation power not only from the banks, but also from the state. This type of reform continues to be supported, for example, by Jesús Huerta de Soto ([1998] 2011).

¹⁶ Conceived as an alternative to deposit insurance to secure the payment system, the narrow banking proposal would separate lending institutions into several categories: narrow banks, on the one hand, which could only

Minsky ([1994]; [1995]) came, in their turn, to suggest 100% reserves on current account deposits. However, it was not until the global financial crisis of 2007-2008, as mentioned in the introduction, that the “100% money” proposal of the 1930s was to arouse a real renewed interest.

3. Theoretical arguments

A first argument of the “100% money” proposal, directly linked to the banking crises of the early 1930s in the United States, was to make the money stock independent of the cash depositing or withdrawing operations carried out by depositors. With 100% reserves on current account deposits, these would only lead to change the form in which means of payment were held (cash or deposits), without impacting their volume. Even in the event of a bank run, no unit of money could be destroyed, and the payment system would be perfectly safe. One might think that this was the main objective of the reform; but this was not the case. The problem of bank runs, as a matter of fact, was largely solved by the Glass-Steagall Act of June 1933, which established a deposit insurance scheme and the separation of investment and commercial banking.

More than the monetary consequences of the deposits and withdrawals of cash, it was those of the decisions relating to the supply and demand of bank loans that concerned the “100% money” theorists in the 1930s. They saw the association between money creation and money lending as a major factor of instability, and it was above all the dependency between these two functions that their reform aimed to break. As Fisher summarised ([1935a], p. xvii): “The essence of the 100% plan is to make money independent of loans; that is, to divorce the process of creating and destroying money from the business of banking.” They agreed on this point with the analysis of the 19th-century English Currency School writers, except that the latter, as already mentioned, only took paper money into consideration. The “100% money” reform, on the other hand, covered means of payment as a whole.¹⁷ In the existing system, which Fisher called the “10% system”, the volume of circulating media increases when banks

invest in government securities or other assets deemed safe, and which alone would be allowed to provide payment services; and other institutions, on the other hand, which could invest in risky assets, but whose liabilities could not serve as means of payment.

¹⁷ Currie and Fisher called “money” all the instruments that commonly fulfil the function of a medium of exchange, i.e. of final means of payment allowing the settlement of transactions, such as cash and current account deposits. The authors of the Chicago Plan, on the other hand, used a broader meaning of the term, including both what they called “effective money”—the means of payment—and “near monies” fulfilling the role of a liquid store of value, but not that of a medium of exchange; this was the case, for example, of savings deposits or other liquid assets, not transferable in themselves but easily convertible into effective money.

lend, and decreases when these loans are repaid. Such variations, these authors insisted, are procyclical: any increase in the volume of money (M) tends to bring an increase in the general level of prices (P) and in business profits (π) (since retail prices are more flexible than production costs); this increase in prices and profits leads to an increase in the volume of borrowing and debt (D), which, *in the existing system where bank lending involves the creation of money*, results in an increase in M , leading to a further increase in P and π , and so on—these variations being further accentuated by those of the velocity of circulation of money (V).¹⁸ The dependence of the medium of exchange on banking activity, they argued, thus generates cumulative interactions between the volume of loans, the volume and velocity of money, and the level of prices and profits, which, if not offset by countercyclical intervention by the central bank, occur alternately upwards or downwards:

In the boom phase: $\uparrow P$ (and $\uparrow \pi$) \Rightarrow $\uparrow D \Rightarrow \uparrow M$ (and $\uparrow V$) $\Rightarrow \uparrow P$, and so on.

In the depression phase: $\downarrow P$ (and $\downarrow \pi$) $\Rightarrow \downarrow D \Rightarrow \downarrow M$ (and $\downarrow V$) $\Rightarrow \downarrow P$, and so on.

The “100% money” authors saw this “perverse elasticity” (Currie [1934a], p. 130) of bank money as a major aggravating factor in trade fluctuations. This is why they called for 100% reserves on current account deposits: the causal link between variations in indebtedness and variations in the money stock would then be broken, preventing the cumulative processes described above from developing. This was at least the position held by Currie and Fisher. The Chicago economists—Simons in particular—attributed a driving role (and not simply an aggravating one) to the variations in V , and regarded the mere consideration of current account deposits as insufficient. In their view, it was essential to complement this reform with a radical overhaul of financial institutions and practices, as we shall see below (Section 4.2).

These authors did not, however, hold a purely monetary interpretation of business fluctuations. They above all argued that such fluctuations, whatever their causes, would become much less severe if they were no longer amplified by the cyclical variations in the volume of means of payment. Nor did they attribute the occurrence of monetary crises solely to the shortcomings of the existing “10% system”. Currie and Fisher, while asserting that the monetary contraction of 1929-1933 could never have occurred under a “100% system”, did

¹⁸ See in particular Fisher ([1935a], pp. 180-181). This cumulative interplay was already at the heart of his credit cycle theory developed in 1911 (Fisher [1911], chap. 4), as well as of his debt-deflation theory developed in the early 1930s (Fisher [1932]; [1933]). It was only in his 1935 book, however, that Fisher called for severing the link between money creation and bank loans. Simons *et al* ([1933] 1994, pp. 45-48) described essentially similar cumulative processes, except that they attributed a prominent, rather than secondary, role to changes in V .

not fail to point out the responsibility of the Federal Reserve Board in this episode, thus anticipating the criticism later formulated by Friedman and Schwartz [1963]. The Fed, they argued, could very well have prevented the fall in the volume of money by intervening earlier and more massively through the open market, and thus stopped the deflationary spiral. The “10% system” therefore did not prevent the conduct of an effective monetary policy. But it made it much more indirect, uncertain and difficult: the central bank had to constantly run “against the wind” of pro-cyclical movements in bank money (Simons *et al.* [1933], p. 48; Currie [1934a], p. 131). These difficulties, Fisher pointed out, were highlighted when the Fed temporarily engaged in open market operations in 1932:

Open market operations . . . have been tried for the purpose of reflation; but the only large effect has been . . . to supply the member banks with “excess” reserves which they either would not use (because they were afraid to lend) or could not use (because merchants would not borrow). . . . Finally the Government stepped in and itself went deeply into debt with the banks. Such must often be our predicament so long as we have a system under which our circulating medium is a by-product of private debt. The time when nobody wants to go into debt is the very time when we most need money and so most hope that somebody will kindly accommodate us by going into debt. Few will do so . . . despite the low rates of interest. It is a case of leading a horse to water without being able to make him drink. Or it is like “pushing on the lines” to make the horse go. . . . Under the 100% system there would be no such “slack”. (Fisher [1935a], pp. 104-105, 108)

Moreover, as he further observed, even in cases where the monetary authority was successful in stabilising the price level, under the “10% system”, this could only be achieved at the cost of manipulating interest rates, preventing them from reaching their “natural” level by market forces alone (Fisher [1935a], p. 139). In this respect, the “100% system” had a double advantage in his eyes. On the one hand, the loan market would be freed from interference by monetary policy, which would no longer require manipulating interest rates to encourage or discourage the creation of money by banks. On the other, monetary policy would be freed from any constraint linked to the loan market: the issuing authority would always be able to inject new money into circulation, regardless of the banks’ willingness to lend or the public’s willingness to borrow, and could fully concentrate on its sole monetary mandate.

Another argument of this reform plan was that, by making money independent of loans, the need for regulation of banking activity would be alleviated (Fisher [1935a], pp. 36, 171). The various authors of this proposal, as we shall see in section 4.2, differed in their respective approaches to bank intermediation. However, they all agreed that their reform represented the best possible defence against the risk—then very real—of bank nationalisation. More

generally, both Fisher ([1935a], pp. 218-220) and Simons ([1934] 1948, p. 56) presented this reform as a necessary condition for the very survival of capitalism. A final argument, already expressed a century earlier by Ricardo, was of a fiscal nature: by exclusively exercising the privilege of money creation, the state would receive the entire seigniorage revenue (Simons *et al.* [1933], pp. 37-38; Currie [1934a], p. 154; Fisher [1935a], pp. 206-207).¹⁹ Moreover, the federal government would no longer have to increase its deficit to maintain the volume of money in circulation when the private sector is deleveraging, as was the case in the 1930s (Fisher [1935], pp. 104-105).

4. The reform in practice

4.1. *The payment system: 100% reserves on current account deposits*

In order to obtain a medium of exchange whose issuance is entirely decoupled from bank loans, the “100% money” proposal stipulates that only lawful (state-created) money, issued by the public monetary authority, can be used as final means of payment in transactions. The “promises to pay” issued by banks in the form of deposit account balances could therefore no longer fulfil this function, unless they were 100% covered by reserves in lawful money—in which case they would be more like “certificates of deposit” than “promises to pay”, without being able to add anything to (or subtract anything from) the volume of money in existence. This would represent a shift from a mixed system of “in part private and in part Government creation of money” (Currie [1934b], p. 225) to a “completely homogeneous” system (Simons *et al.* [1933], p. 33), in which “*all* forms of circulating medium [would be] under the same control” (Fisher [1935a], p. 201, italics in original). Lawful money would itself exist mainly in scriptural form, ultimately held on the accounts of the monetary authority (see Section 4.3 below).²⁰

The administration of current accounts would therefore be tantamount to the simple warehousing and transferring of deposited sums, to be carried out by check banks (or check departments within banks). The latter could be remunerated by charging their depositors a service fee, unless the account administration costs were to be borne by the state, in whole or in part, “on the same principle of public service which has resulted in removing ‘brassage’

¹⁹ For a discussion of this seigniorage argument, see Demeulemeester [2020].

²⁰ In Fisher’s plan, the check banks would keep their reserves as deposits (100% covered) at the Federal Reserve Banks, which would themselves have their own checking accounts (also 100% covered) at the Currency Commission (Fisher [1935a], pp. 28, 61). Only the latter would have the power to create money.

charges at the mint” (Fisher [1935a], p. 153n1). The state could then subsidise the check banks for this purpose (Fisher [1935a], p. 153n1), or even administer the current accounts itself, for example through the postal savings system (Simons *et al.* [1933], p. 35) or newly-created agencies (Currie [1934a], p. 151). In any case, the sums kept in current accounts would be considered the property of their depositors; in no case could they be used by the banks to finance loans.

4.2. Bank intermediation and the question of savings deposits: two approaches

While all the authors of the “100% money” proposal agreed on making the issuance of means of payment independent of banking activity, they differed on the role that banks should play in financial intermediation. In this respect, two main approaches can be distinguished.²¹

Under the reform plans proposed by Currie and Fisher, banks would continue to act as intermediaries between lenders and borrowers. Loan banks (or loan departments within banks) would finance loans and investments from funds deposited in savings accounts, on the express condition that the balances of such accounts could not be made transferable by cheque or otherwise. Only a fraction of these savings deposits would be kept in reserve: the fractional reserve *banking* system, in which the “promises to pay” issued by banks exceed their cash reserves, would be maintained. However, as these promises to pay could not be used as means of payment, the volume of the medium of exchange would no longer be affected: the *monetary* (payment) system would indeed be fully reserved.²² The loan banks would themselves have, for their own transactions, a current account 100% covered by reserves in a check bank.²³ However, by using savings accounts, they would continue to practice the double transformation of risk and maturity, offering on the one hand deposit contracts payable in the short term (if not “on demand”), and with a fixed nominal return, to finance on the

²¹ See Demeulemeester [2018] for a more detailed analysis of these two approaches.

²² The emphasis on this distinction is ours. Currie and Fisher, although they clearly rejected the idea of subjecting savings deposits to 100% reserves, often claimed that their respective reform plans would put an end to the “fractional reserve system”, or result in fully liquid banks. However, this was only true for *chequable* deposits. Such abuses of language on their part could lead to some confusion. With regard to the reserve requirement ratios to be applied to savings deposits, Fisher ([1935a], p. 13) considered that these should not be affected by the reform, even though he considered their strengthening desirable. Currie ([1934b], p. 199; [1938], p. 361) recommended, on the contrary, that they should be lowered to zero.

²³ As Fisher ([1935a], p. 69) stated: “The loan department . . . would deposit its own cash in the check department and would transfer it by check just like any other depositor.” The movements related to savings accounts would therefore not give rise to any creation or destruction of money, the sums simply passing between the respective current accounts of the loan banks (or loan departments) and their customers.

other hand longer term investments, with a more uncertain return.²⁴ Banking would thus remain fundamentally unchanged in its principles, except that it would no longer give rise to the creation or destruction of money.

According to a second approach, followed by the authors of the Chicago Plan and more particularly by Simons, all bank intermediation based on deposit contracts would be ended. The Chicago memoranda of 1933 already proposed to restrict banks to the sole administering of current accounts (subject to 100% reserves), and to leave the financing of loans to institutions that, on the model of mutual funds, would invest their own capital only (Knight *et al.* [1933], pp. 194-195; Simons *et al.* [1933], p. 35). The fractional-reserve banking system was here condemned in its own existence, beyond the fact that it gave rise to a creation of means of payment. Simons ([1934] 1948, p. 320) considered that the mere practice of maturity transformation, even if carried out by means of non-transferable savings deposits (thus without impact on M), would tend to cause “extreme economic instability” by exacerbating the hoarding and dishoarding of money (impacting V). Bank intermediation, because it offered highly liquid investments (short-term deposit contracts) to mobilise savings, had to be abolished in his view. Even considering the mere practice of short-term debt as a major source of instability, Simons went so far as to suggest the total abolition of debt contracts, envisaging a system in which firms would exclusively finance themselves with equity (Simons [1936], pp. 6-7; [1946], p. 85). Under his pen, the idea of “100% money” thus went far beyond the simple monetary framework of issuing means of payment, involving the abolition of banks and a radical overhaul of financial practices.

Currie and Fisher, as we have seen, did not follow the Chicago authors in this respect, sticking to what might be called a “minimalist” version of “100% money”.²⁵ With 100% reserves on current accounts alone, they argued, “almost all other legal regulations of banks could be abolished” (Fisher [1935a], p. 171). Many commentators, including Simons, criticised them for focusing only on payment instruments, comprising M , ignoring the

²⁴ Both Currie ([1934a], p. 14) and Fisher ([1935a], pp. 168-169) insisted that non-transferable savings deposits, even if convertible “on demand” into means of payment, were of a different nature from deposits transferable by cheque, themselves serving as means of payment. Only the latter fulfilled the role of money and had to be 100% covered. However, they did not exclude that prudential measures, such as withdrawal notices, could be applied to savings deposits (see Currie [1934b], pp. 199-200; Fisher [1935a], pp. 165-166).

²⁵ Friedman ([1960], pp. 65-70), on the other hand, took up the bulk of the Chicago Plan, in which loan banks would disappear in favour of investment funds; he refused, however, to follow Simons in his recommendation to ban short-term debt contracts (see Friedman [1967], p. 3). As for Allais, he proposed to maintain the intermediation function of lending banks, but to prohibit them from practising maturity transformation: “all lending for a given term would be financed by borrowing of at least the same term” (Allais [1987], p. 525).

destabilising role played by financial instruments in the broad sense and their impact on V . Fisher ([1935a], p. 167) recognised that runs on savings accounts had played an important role in the banking crises of the early 1930s, and that they could still occur under the system he proposed.²⁶ But, in his view, “the runs on savings banks usually follow contraction of the medium of exchange and the appreciation of the dollar”, and “given stability of the dollar, runs on savings banks would be extremely rare” (Fisher [1935a], pp. 166, 170). Indeed, he saw changes in V as tending to follow and exacerbate changes in M , rather than being a major source of instability independently of the latter (Fisher [1935a], pp. 78-79, 102).²⁷ Fisher ([1935a], pp. 102-170) also insisted that the effects of movements in V could always be offset by an adjustment of M in the opposite direction—an adjustment which, moreover, could be achieved much more directly and effectively under the proposed “100% system”. In addition, even if full coverage of current accounts alone were to prove insufficient to prevent severe depressions from occurring, additional measures could always be adopted later if necessary:

What is important, the 100% system would make it easier to study all these other problems, uncomplicated by the money problem which now envelopes them as in a fog. . . . As soon as we get a good monetary system we can more safely determine what else needs mending. To be able thus to see more clearly, and to diagnose more correctly, would be a powerful aid to all efforts to find and apply effective remedies. These might include safeguards for savings banks, regulation for security issues, [etc.] (Fisher, [1935a], pp. 216-217)

One final point is worth noting here: unlike the Chicago authors, Fisher did not rule out that a lender of last resort (although he did not use this term) could continue to rescue lending banks in an emergency—as we will see in the next section.

4.3. The monetary authority: beyond the issuing monopoly, several open questions

Currie, Fisher and the authors of the Chicago Plan all agreed to entrust an issuing monopoly to a public monetary authority, which alone should be empowered to create means of payment in accordance with an issuance criterion set by law. They insisted on the fact that the “100% money” reform, which was institutional in nature, did not in itself entail any

²⁶ “The 100% system would be no cure-all for business fluctuations though it would help reduce them. . . . [I]t would afford no guarantee that loan banks and savings banks would be completely immune to runs and failures, nor that any such immunity would be enjoyed by investment houses, building and loan associations, insurance companies, commercial concerns, railways or any other persons or corporations except the checking banks” (Fisher [1935a], p. 216).

²⁷ On this point, Fisher’s interpretation would later be supported by empirical studies, such as those conducted by Warburton ([1949], p. 91) or Friedman and Schwartz ([1963], p. 682). Friedman ([1967], p. 12) will explicitly refute the opposite interpretation supported by Simons: “The movements in velocity—which Simons took as an independent source of instability—come later than the movements in the quantity of money and are mild when the movements in the quantity of money are mild. They have been sharp only when there have been sharp movements in the quantity of money.”

particular choice concerning the monetary policy objective to be pursued. Its advantage, they held, was that it offered ideal conditions for monetary control, whatever the mandate given to the issuing authority by Congress. This did not prevent these authors from expressing their opinions on the issue, however. They agreed that the internal stability of the currency (in terms of domestic purchasing power) was more important than its external stability (in terms of foreign exchange), advocating the abandonment of the gold standard in favour of flexible exchange rates. They differed, however, on the specific issuance criterion to be adopted. Fisher advocated a policy of stabilising a price index, aiming to keep the purchasing power of the dollar constant—a criterion which Currie also seemed to favour. Simons and his Chicago colleagues, on the other hand, were divided between stabilising a price index, which implied active monetary management, and adopting a fixed quantity of money, which they saw as having the advantage of being automatic.²⁸ Currie and Fisher, as well as Douglas *et al.* ([1939], pp. 18-19), denied the issuing authority any discretion as to the *objectives* of monetary policy, but insisted on the importance of some discretion in its implementation. It may finally be noted that Currie ([1934a], p. 155; [1934b], p. 209) was rather opposed to this authority being independent of the executive branch, in contrast to Fisher ([1935a], p. 206) who insisted that it should be “independent like the Supreme Court, so that the purchasing power of our dollar may be kept stable despite banking operations and despite United States Treasury operations.”

The choice of institution to exercise this function of monetary authority also remained a matter of debate. Both Currie and the Chicago Plan authors proposed to nationalise the Federal Reserve Banks, which would issue all the country’s money under the supervision of a body that could be the Federal Reserve Board or a new federal monetary authority. These authors seemed to consider the central bank primarily in terms of its monetary functions, related to the issuance of money and the administration of the payment system, rather than in terms of its financial functions, related to the refinancing of lending banks—functions which, they sometimes seemed to assume, would largely lose their *raison d’être* under the proposed system.²⁹ Only Fisher discussed, in his reform plan, the respective functions of monetary authority and bankers’ bank. He proposed that the issuing of money, on the one hand, should

²⁸ This was Simons’ position until 1934, when he himself came to advocate a policy of stabilising the price level.

²⁹ This position could make sense in the case of the Chicago Plan, under which lending banks would disappear (see above). Currie, although he would have kept the banks in their intermediation function, initially considered abolishing rediscounting (Currie [1934b], p. 224). He later proposed that rediscounting could be practised by the Reserve Banks (Currie [1938], p. 361), but out of money creation rather than centralised reserves. He therefore did not envisage, as Fisher did, rediscounting independently of the issuance of money.

be entrusted to a public monetary commission (the “Currency Commission”), whose sole mandate would be to regulate the quantity of money according to the objective set by Congress (Fisher [1935a], p. 27). The function of bankers’ bank, on the other hand, would be the responsibility of the Federal Reserve System, which Fisher would have kept globally unchanged: the Federal Reserve Banks, in his reform plan, would not be nationalised, and would continue to play their role of refinancing the lending banks—provided, however, that, like the latter, they would use pre-existing funds for this purpose, without the possibility of creating money.³⁰ These two types of functions, he insisted, required different skills, and could interfere with each other if they were performed by the same body:

It is often thought that the Federal Reserve System should perform the monetary function and stabilize the dollar. But, for this function, [it] is ill fitted in organization, personnel, inclination, and tradition. Moreover it has other important functions to perform—especially rediscount—and these other functions often conflict with the function of stabilization. . . . Efforts to do a banking business and, at the same time, to stabilize the price level have, in the end, failed dismally. . . . They have been like trying to serve two masters. (Fisher [1935a], p. 205)

Although he was not in favour of it, Fisher did not rule out the possibility that the monetary authority itself might be allowed to rediscount in case of emergency, thus acting as a “safety valve” for the banking system, without interfering thereby with its issuing function (Fisher [1935a], pp. 88-89).³¹

The question of which method of monetary injection should be favoured also remained open. Generally speaking, the authors of the “100% money” plan considered the rediscount channel to be inappropriate for this purpose, as it was too indirect and uncertain.³² The authors of the Chicago Plan envisaged that money could be injected either through open market purchases of government securities (or other types of assets) or through the fiscal channel (via increased government spending or lower taxes)—the latter channel, they added, being much more effective in times of depression (Simons *et al.* [1933], p. 38). Currie ([1934b], p. 202) and Fisher ([1935a], p. 21) favoured the channel of open market operations,

³⁰ Fisher ([1935b], p. 41, our translation) stated: “It is not necessary to go so far as Senator Cutting advocates by having the Treasury buy up the Federal Reserve System, which is now a private affair. On the contrary, I would keep the Federal Reserve System as a bulwark for private banking enterprises, but without giving it control of the purchasing power of the dollar, which is a truly governmental function.” Another alternative, which Fisher ([1935a], p. 89) seemed ready to consider, was to dispense with rediscounting from the Federal Reserve Banks, leaving each bank to find another bank to rediscount with on its own.

³¹ Fisher ([1935a], p. 203n1) thus noted that, if the Currency Commission had to rediscount, it could always offset (or, in more modern terms, sterilise) the resulting money creation by selling securities on the open market.

³² Only Currie, after initially rejecting it, actually considered this option in his 1938 memorandum ([1938], pp. 361, 364). In Fisher’s plan, as we have noted, the Federal Reserve Banks would still be able to rediscount, but without this practice resulting in money creation.

preferably involving government securities. Both authors sometimes seemed to consider that by operating under a “100% money” system, loan banks would have little reason to hold reserves and would systematically put into circulation any new money received via the open market (see Currie [1934b], p. 224; Fisher [1935a], pp. 109-110). If this was not the case, Fisher nonetheless observed, the monetary authority could resort to other, more direct channels, such as buying government bonds directly from the public (*ibid.*, p. 109). If the existing stock of government debt proved insufficient, he added, the Treasury could always issue new securities which would then be bought back by the monetary authority, with “mutual cancellation of interest” between the Treasury and the latter (Fisher [1935a], p. 208).³³ The government could then put this money into circulation in various ways, for example by reducing taxes (without a corresponding reduction in spending), or even by direct payment of a “social dividend” to citizens (Fisher [1935a], pp. 208-209).³⁴ Such a course of action would, however, require some coordination between the monetary and fiscal authorities, a point that only Simons ([1934] 1948, p. 65n7) seemed to insist on.

Beyond the consensus of these authors to entrust the issuing of money to an authority mandated by Congress, the questions concerning the institutional framework and procedures for exercising this function were therefore far from being settled.³⁵

³³ Fisher ([1935a], p. 208n3) stated that these transactions could take place in the usual way, with the Treasury selling securities in the primary market (in exchange for pre-existing money), while the Currency Commission would at the same time buy securities in the open market (creating money).

³⁴ Let us note here that a “100% money” system could potentially reduce the distortionary effects put forward by Richard Cantillon [1755], according to whom an injection of money would impact the relative price structure depending on the specific markets through which it came into existence. By being issued in the way of loans (from commercial banks as well as the central bank), money necessarily comes into existence *where the banks lend*—mainly, today, in asset markets. By being issued through tax credits or payments to citizens, on the other hand, it could reach all sectors of the economy at once. The potential advantage of a “100% money” reform in this respect, ignored by the 1930s’ authors, has only recently been highlighted in the literature (see, for example, Baeriswyl [2017]).

³⁵ One of the referees of this article raises the question of the significance of the “100% money” proposal in light of the evolution of central banks, which in the 1930s were coming under increased state control (see Blancheton [2016]). As illustrated in this section, the “100% money” authors did not adopt a uniform stance in this respect. They all called for a state monopoly on money issuance, but differed on the choice of institution to carry out this function, on the degree of independence to be granted to it, and on the appropriateness of maintaining a bankers’ bank—not to mention the question of whether the latter, if established, should be private or public, independent or not, or even merged with the issuing authority. Their principled positions also allowed for exceptions—Fisher ([1935a], p. 113) pointing out, for example, that in the event of a great war, Congress might have to authorise the Currency Commission to finance the Treasury without regard to price stability.

5. Conclusion. On the importance of a conceptual clarification of the “100% money” proposal

This article has set out to clarify the outline and objectives of the “100% money” proposal as formulated in the United States, in the 1930s, by various economists including Henry Simons of the University of Chicago (author with several of his colleagues of the “Chicago Plan”), Lauchlin Currie of Harvard, and Irving Fisher of Yale. The essence of this reform idea, common to the different versions of the proposal, was to divorce the issuing of money from the lending of money, which combination in the existing system was seen as a major factor of instability. It was proposed to impose a 100% reserve requirement in lawful money on all transaction deposits, and to grant a public monetary authority a total monopoly on the issuance of means of payment. Beyond this core idea, as we have seen, the different versions of the plan diverged on a number of issues, particularly related to bank intermediation and the organisation and functioning of the monetary authority.

This conceptual analysis leads us to clarify several points that are regularly confused about the “100% money” idea. A first example concerns the degree of affiliation between this proposal and those of the 19th century Currency School. The “100% money” reform is often presented as a transposition of the provisions of the Bank of England Charter Act of 1844, which applied only to banknotes, to scriptural money.³⁶ Without denying the obvious proximity between these two reforms, it is important to highlight an important difference. The 1844 Act endorsed the *joint* adoption of an institutional reform (dissociating the issuance of banknotes from banking activity) and a very specific issuance rule (the “currency principle”). The “100% money” proposal, on the other hand, is solely an institutional reform, leaving it to the legislative authority to separately determine the objective of monetary policy. It therefore does not imply the establishment of a “currency board”, as has been claimed in the literature.

The “100% money” proposal should not either be confused with the more recent narrow banking proposal. The latter, in fact, intends to decouple the creation of money not from bank loans at large, but only from *risky* loans: narrow banks could still create means of payment by investing in assets deemed safe. The “100% money” proposal goes beyond narrow banking on the monetary aspect, by advocating the removal of all power to create or destroy money from banks as a whole; on the other hand, it goes less far on the financial aspect, as it does not

³⁶ Fisher ([1935a], pp. 19, 27, 29) himself excessively equated the “100% money” plan with the 1844 reform, without noting their differences. For a detailed comparison between the “100% money” proposal and the reform ideas of the Currency School, see Demeulemeester [2021].

imply any separation of lending institutions according to the risk level of their asset portfolio. Finally, the two proposals have different objectives. The main purpose of narrow banking is to make the payment system more secure, by removing any liquidity risk on current account deposits. It is sometimes thought that this is also the primary objective of the “100% money” reform, which would *de facto* offer such security. The authors of this proposal in the 1930s, however, insisted above all that it would put an end to cumulative variations in the volume of money, which were considered a major source of amplification of cycles. Their argument on this point, however, was largely lost sight of later, including among economists who supported the “100% money” idea in the second half of the 20th century.³⁷

Another common confusion is the idea that the “100% money” proposal would imply imposing 100% reserves on *all* bank deposits. This would mean abolishing banks in their intermediation function, which, compared to that exercised by non-bank intermediaries, is characterised by the double transformation of risk and maturity made possible by the specificity of deposit contracts. It is precisely on the basis of this consideration that a large number of economists have recently rejected the “100% money” idea.³⁸ However, as we have pointed out, only the authors of the Chicago Plan (and more particularly Simons), among the main theorists of this reform idea in the 1930s, advocated abolishing bank intermediation.³⁹ Currie and Fisher (but also Douglas *et al.* [1939]) would have kept banks in their intermediation function, provided only that savings account balances could not be made transferable by cheque.

While the “100% money” proposal continues to fuel monetary debates, sometimes taking on more modern forms based on a digital currency, we felt it was important to go back to the roots of this reform idea to clear up some of the misunderstandings it is often subject to. The applicability of such a reform today raises another set of questions that are beyond the scope of this paper. However, let us imagine that, tomorrow, a central bank digital currency comes

³⁷ It is notable, for example, that the argument that a “100% money” system would end the cumulative interactions between the volume of loans, the volume of money and the price level, which is still found in Allais ([1947], pp. 278-279, 360-361), does not appear anywhere in Friedman. Friedman pointed out that the public’s choices about the *form* in which to hold their money balances, under such a system, would no longer bring undesired changes in the total money volume (Friedman [1960], pp. 66-68). But at no point did he observe that the same would be true for the decisions about the granting and repayment of bank loans. Yet, as we have seen, it was mainly the latter aspect that was central to the 1930s’ writers.

³⁸ This has been the case, for example, of Diamond and Dybvig ([1986], pp. 65-66), Williamson and Wright (2010, p. 28), Turner ([2015], pp. 188-190), or King ([2016], pp. 262-264).

³⁹ This provision of the Chicago Plan, as we have pointed out, was later taken up by Friedman ([1960], pp. 65-66). It is also found in the “revisited” version of the Chicago Plan proposed more recently by Benes and Kumhof of the IMF ([2012] 2013).

to supplant bank deposits in the settlement of transactions. We might then find ourselves in the presence of a “100% money” system, without even noticing it.

References

- Aliber R.Z., Kindleberger C.P. [2015], *Manias, Panics and Crashes: A History of Financial Crises*, 7th edition, Basingstoke, Palgrave Macmillan.
- Allais M. [1947], *Économie et intérêt. Présentation nouvelle des problèmes fondamentaux relatifs au rôle économique du taux de l'intérêt et de leurs solutions*, Paris, Librairie des publications officielles.
- Allais M. [1967], *Les Conditions de l'expansion dans la stabilité sur le plan national*, Paris, Sirey.
- Allais M. [1975], “Le Concept de monnaie, la création de monnaie et de pouvoir d'achat par le mécanisme du crédit et ses implications”, in: Coulbois P. (ed.), *Essais en l'honneur de Jean Marchal, tome II : La Monnaie*, Paris, Cujas, 106-145.
- Allais M. [1977], *L'Impôt sur le capital et la réforme monétaire*, 2nd edition, Paris, Hermann, 1988.
- Allais M. [1987], “The Credit Mechanism and Its Implications”, in: Feiwel G. (ed.), *Arrow and the Foundations of the Theory of Economic Policy*, New York, New York University Press, 491-561.
- Allais M. [1993], “Les conditions monétaires d'une économie de marchés”, *Revue d'économie politique*, 103(3), 317-367.
- Allais M. [1999], *La Crise mondiale d'aujourd'hui. Pour de profondes réformes des institutions financières et monétaires*, Paris, Clément Juglar.
- Allen W.R. [1977], “Irving Fisher, FDR, and the Great Depression”, *History of Political Economy*, 9(4), 560-587.
- Allen W.R. [1993], “Irving Fisher and the 100 Percent Reserve Proposal”, *Journal of Law and Economics*, 36(2), 703-717.
- Baeriswyl R. [2017], “The Case for the Separation of Money and Credit”, in: Heinemann F., Klüh U. and Watzka S. (eds.), *Monetary Policy, Financial Crises, and the Macroeconomy*, Cham, Springer International Publishing, 105-121.

- Barber G.R. [1973], “The One Hundred Percent Reserve System”, *The American Economist*, 17(1), 115-127.
- Benes J., Kumhof M. [2012], “The Chicago Plan Revisited”, IMF Working Paper WP/12/202, International Monetary Fund, revised version, 2013.
- Blancheton B. [2016], “Central Bank Independence in a Historical Perspective. Myth, Lessons and a New Model”, *Economic Modelling*, 52, 101-107.
- Buchanan J.M. [2010], “The Constitutionalization of Money”, *Cato Journal*, 30(2), 251-258.
- Cantillon R. [1755], *Essai sur la nature du commerce en général*, Londres, Fletcher Gyles.
- Carroll C.H. [1860], “Mr. Lowell vs. Mr. Hooper on Banking and Currency”, in: Carroll C.H., *Organization of Debt into Currency and Other Papers*, Princeton (NJ), D. Van Nostrand, 1964, 202-218; originally published in *Hunt’s Merchants Magazine and Commercial Review*, 42 (May 1860), 575-585.
- Chari V.V., Phelan C. [2014], “On the Social Usefulness of Fractional Reserve Banking”, *Journal of Monetary Economics*, 65, 1-13.
- Chiarella C., Flaschel P., Hartmann F., Proaño C.R. [2012], “Stock Market Booms, Endogenous Credit Creation and the Implications of Broad and Narrow Banking for Macroeconomic Stability”, *Journal of Economic Behavior & Organization*, 83(3), 410-423.
- Constâncio, V. [2016], “Challenges for the European Banking Industry.” Lecture given at the Conference on “European Banking Industry: what’s next?”, organised by the University of Navarra, Madrid, 7 July 2016.
- Currie L.B. [1934a], *The Supply and Control of Money in the United States*, Cambridge (MA), Harvard University Press.
- Currie L.B. [1934b], “A Proposed Revision of the Monetary System of the United States, Submitted to Secretary of the Treasury Henry Morgenthau, September 1934”, in: Currie L.B., *The Supply and Control of Money in the United States*, New York, Russell & Russell, 1968, 195-226.
- Currie L.B. [1938], “The 100 Percent Reserve Plan, August 12, 1938”, *Journal of Economic Studies*, 31(3/4), 2004, 355-365.
- Demeulemeester S. [2018], “The 100% Money Proposal and Its Implications for Banking:

- The Currie-Fisher Approach versus the Chicago Plan Approach”, *The European Journal of the History of Economic Thought*, 25(2), 357-387.
- Demeulemeester S. [2019], *The 100% money proposal of the 1930s : Conceptual clarification and theoretical analysis*, PhD thesis, ENS de Lyon.
- Demeulemeester S. [2020], “Would a State Monopoly over Money Creation Allow for a Reduction of the National Debt? A Study of the ‘Seignorage Argument’ in Light of the ‘100% Money’ Debates”, *Research in the History of Economic Thought and Methodology*, 38A, 123-144.
- Demeulemeester S. [2021], “The 100% Money Proposal of the 1930s: An Avatar of the Currency School’s Reform Ideas?”, *The European Journal of the History of Economic Thought*, 28(4), 577-598.
- Diamond D.W., Dybvig P.H. [1986], “Banking Theory, Deposit Insurance, and Bank Regulation”, *The Journal of Business*, 59(1), 55-68.
- Diatkine S. [2002], *Les Fondements de la Théorie bancaire*, Paris, Dunod.
- Dimand R.W. [1993], “100% Money: Irving Fisher and Banking Reform in the 1930s”, *History of Economic Ideas*, 1(2), 59-76.
- Dimand R.W. [2020], “J. Laurence Laughlin versus Irving Fisher on the Quantity Theory of Money, 1894 to 1913”, *Oxford Economic Papers*, 72(4), 1032-1049.
- Douglas P.H., Fisher I., Graham F.D., Hamilton E.J., King W.I., Whittlesey C.R. [1939], “A Program for Monetary Reform”, unpublished memorandum dated July 1939, Irving Fisher Papers, Yale University Library.
- Dyson B., Greenham T., Ryan-Collins J., Werner R.A. [2011], “Towards a 21st Century Banking and Monetary System”, joint submission to the Independent Commission on Banking, by the Centre for Banking, Finance and Sustainable Development at the University of Southampton, the New Economics Foundation, and Positive Money.
- Dyson B., Hodgson G., Van Lerven F. [2016], *Sovereign Money. An Introduction*, London, Positive Money.
- Fisher I. [1911], assisted by Brown, A.G. *The Purchasing Power of Money*, 2nd edition, New York, Macmillan, 1913.
- Fisher I. [1932], *Booms and Depressions*, New York, Adelphi.

- Fisher I. [1933], “The Debt-Deflation Theory of Great Depressions”, *Econometrica*, 1(4), 337-357.
- Fisher I. [1935a], *100% Money*, 3rd edition, New Haven, City Printing Company, 1945.
- Fisher I. [1935b], assisted by Cohns H.R.L., “Les Perspectives de Stabilisation du Dollar”, *Bulletin Périodique, Société belge d’Études et d’Expansion*, 96 (March), 37-41.
- Fisher I. [1997], *Correspondence and Other Commentary on Economic Policy 1930-1947. The Works of Irving Fisher. Vol. 14*, edited by W.J. Barber, assisted by R.W. Dimand and K. Foster, London, Pickering & Chatto.
- Fisk H.E. [1935], “Review of Irving Fisher’s *100% Money*”, *The American Economic Review*, 25(3), 569.
- Fontana G., Sawyer M. [2016], “Full Reserve Banking: More ‘Cranks’ Than ‘Brave Heretics’”, *Cambridge Journal of Economics*, 40(5), 1333-1350.
- Friedman M. [1948], “A Monetary and Fiscal Framework for Economic Stability”, *The American Economic Review*, 38(3), 245-264.
- Friedman M. [1960], *A Program for Monetary Stability*, New York, Fordham University Press.
- Friedman M. [1967], “The Monetary Theory and Policy of Henry Simons”, *The Journal of Law & Economics*, 10, 1-13.
- Friedman M. [1992], “Preface”, in: *A Program for Monetary Stability*, 10th printing, with new preface, New York, Fordham University Press, vii-xii.
- Friedman M., Schwartz A.J. [1963], *A Monetary History of the United States: 1867-1960*, Princeton, Princeton University Press.
- Giraud G. [2012], “Rendre le monopole de la création monétaire aux banques centrales?”, *Revue Banque*, 752.
- Gomez C. [2010], “Une ‘vieille’ idée peut-elle sauver l’économie mondiale ? Un réexamen de la proposition d’une réforme radicale du système bancaire : l’imposition d’un coefficient de réserves de 100%”, paper presented at Blaise Pascal University, IUFM Auvergne, France, 9 February 2010.
- Gomez C., Munier B. [2020], “Pour une révision monétaire radicale”, *Les Echos*, 9 April 2020.

- Goodhart C.A.E., Jensen M.A. [2015], “A Commentary on Patrizio Lainà’s ‘Proposals for Full-Reserve Banking: A Historical Survey from David Ricardo to Martin Wolf’. Currency School versus Banking School: An Ongoing Confrontation”, *Economic Thought*, 4(2), 20-31.
- Grjebine A. [2015], *La Dette publique et comment s’en débarrasser*, Paris, Presses universitaires de France.
- Hart A.G. [1935], “The ‘Chicago Plan’ of Banking Reform. A Proposal for Making Monetary Management Effective in the United States”, *The Review of Economic Studies*, 2(2), 104-116.
- Huber J. [2014], “Réforme Monnaie pleine. Une réforme de la création monétaire par la transformation de la monnaie scripturale en monnaie pleine et la création d’une banque centrale étatique indépendante” (translated from German), Wettingen, Association Modernisation Monétaire (MoMo).
- Huber J., Robertson J. [2000], *Creating New Money: A Monetary Reform for the Information Age*, Londres, New Economics Foundation.
- Huerta de Soto J. [1998], *Dinero, crédito bancario y ciclos económicos*, Madrid: Unión Editorial. English translation: *Money, Bank Credit, and Economic Cycles*, 3rd English edition, Auburn: Ludwig von Mises Institute, 2012.
- Humphrey T.M., Timberlake R.H. [2019], *Gold, the Real Bills Doctrine, and the Fed: Sources of Monetary Disorder, 1922-1938*, Washington (DC), Cato Institute.
- Kareken J.H. [1986], “Federal Bank Regulatory Policy: A Description and Some Observations”, *The Journal of Business*, 59(1), 3-48.
- King M. [2016], *The End of Alchemy. Money, Banking, and The Future of The Global Economy*, New York, W.W. Norton & Company.
- Knight F.H. [1927], “Review of Frederick Soddy’s *Wealth, Virtual Wealth, and Debt*”, *The Saturday Review of Literature*, 16 April, 732.
- Knight F.H., Cox G.V., Director A., Douglas P.H., Hart A.G., Mints L.W., Schultz H., Simons H.C. [1933], Untitled memorandum dated 16 March 1933, including a plan for banking reform, in: Phillips R.J., *The Chicago Plan and New Deal Banking Reform*, Armonk, M.E. Sharpe, 1995, 191-199.

- Kotlikoff L.J. [2010], *Jimmy Stewart Is Dead. Ending the World's Ongoing Financial Plague with Limited Purpose Banking*, Hoboken, John Wiley & Sons.
- Krainer R.E. [2013], "Towards a Program for Financial Stability", *Journal of Economic Behavior & Organization*, 85 (January), 207-218.
- Krainer R.E. [2017], "Economic Stability under Alternative Banking Systems: Theory and Policy", *Journal of Financial Stability*, 31, 107-118.
- Le Maux L. [2020], "Les trous noirs de la monnaie pleine", *Revue française d'économie*, 35(2), 51-79.
- Levitin A.J. [2016], "Safe Banking: Finance and Democracy", *The University of Chicago Law Review*, 83(1), 357-455.
- Litan R.E. [1987], *What Should Banks Do?*, Washington, D.C., The Brookings Institution.
- Minsky H.P. [1994], "Financial Instability and the Decline (?) Of Banking: Future Policy Implications", Working Paper No. 127, October 1994, The Jerome Levy Research Institute of Bard College.
- Minsky H.P. [1995], "Would Universal Banking Benefit the U.S. Economy?", Hyman P. Minsky Archive, Paper 51, revised version dated 5 April 1995.
- Mints L.W. [1945], *A History of Banking Theory in Great Britain and the United States*, Chicago, University of Chicago Press.
- Mises (von) L. [1912], *Theorie Des Geldes Und Der Umlaufsmittel*, Munich and Leipzig, Verlag von Duncker & Humblot. English translation: *The Theory of Money and Credit*, 2nd edition, New Haven, Yale University Press, 1953.
- Phillips R.J. [1995], *The Chicago Plan and New Deal Banking Reform*, Armonk, M.E. Sharpe.
- Prescott E.C. [2014], "Interest on Reserves, Policy Rules and Quantitative Easing", *Journal of Economic Dynamics and Control*, 49, 109-111.
- Prescott E.C., Wessel R. [2016], "Monetary Policy with 100 Percent Reserve Banking: An Exploration", NBER Working Paper No. 22431, National Bureau of Economic Research.
- Quignon L. [2016], "100% monnaie. Une idée moins vertueuse qu'il n'y paraît", *Revue Banque*, 345, 20-23.

- Ricardo D. [1824], *Plan for the Establishment of a National Bank*, London, John Murray, Albemarle-Street. Reprinted in *The Works and Correspondence of David Ricardo*, Vol. 4, edited by P. Sraffa, Cambridge (UK), Cambridge University Press, 1951, 271-300.
- Rothbard M.N. [1962], “The Case for a 100 Per Cent Gold Dollar”, in: Yeager L.B. (ed.), *In Search of a Monetary Constitution*, Cambridge (MA), Harvard University Press, 94-136.
- Sandilands R.J. [1990], *The Life and Political Economy of Lauchlin Currie. New Dealer, Presidential Adviser, and Development Economist*, Durham, Duke University Press.
- Sandilands R.J. [2004], “Editor’s Introduction”, *Journal of Economic Studies*, 31(3/4), 171-193.
- Schularick M., Taylor A.M. [2012], “Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008”, *American Economic Review*, 102(2), 1029-1061.
- Sigurjónsson F. [2015], *Monetary Reform. A Better Monetary System for Iceland*. A Report Commissioned by the Prime Minister of Iceland, Reykjavik.
- Simons H.C. [1934], *A Positive Program for Laissez-Faire*, Public Policy Pamphlet No 15, Chicago, University of Chicago Press; reprinted in *Economic Policy for a Free Society*, Chicago, University of Chicago Press, 1948, 40-77.
- Simons H.C. [1936], “Rules versus Authorities in Monetary Policy”, *Journal of Political Economy*, 44(1), 1-30.
- Simons H.C. [1946], “Debt Policy and Banking Policy”, *The Review of Economics and Statistics*, 28(2), 85-89.
- Simons H.C., Cox G.V., Director A., Douglas P.H., Hart A.G., Knight F.H., Mints L.W., Schultz H. [1933], “Banking and Currency Reform”, memorandum dated November, 1933, in: Samuels W. (ed.), *Research in the History of Economic Thought and Methodology*, Archival Supplement 4, JAI Press Inc., 1994, 31-40.
- Soddy F. [1926], *Wealth, Virtual Wealth and Debt. The Solution of the Economic Paradox*, 2nd edition, London, Britons Publishing Company, 1933.
- Tavlas G.S. [2020], “On the Controversy over the Origins of the Chicago Plan for 100 Percent

- Reserves: Sorry Frederick Soddy: It Was Knight and (Most Probably) Simons!", *Hoover Institution, Economics Working Paper 20102*. Forthcoming, *Journal of Money, Credit and Banking*.
- Tobin J. [1985], "Financial Innovation and Deregulation in Perspective", Bank of Japan, *Monetary and Economic Studies*, 3, 19-29.
- Tobin J. [1987], "The Case for Preserving Regulatory Distinctions", in: *Restructuring the Financial System*, Kansas City, Federal Reserve Bank of Kansas City, 167-183.
- Tolley G.S. [1962], "100 Per Cent Reserve Banking", in: Yeager L.B. (ed.), *In Search of a Monetary Constitution*, Cambridge (MA), Harvard University Press, 275-304.
- Turner A. [2015], *Between Debt and the Devil. Money, Credit, and Fixing Global Finance*, Princeton, Princeton University Press.
- Walras L. [1898], "La Caisse d'épargne postale de Vienne et le comptabilisme social", *Revue d'économie politique*, 12(3), 202-220; reprinted in *Études d'économie politique appliquée. Théorie de la production de la richesse sociale*, Lausanne, F. Rouge ; Paris, F. Pichon, 1898, 376-398.
- Warburton C. [1949], "The Secular Trend in Monetary Velocity", *The Quarterly Journal of Economics*, 63(1), 68-91.
- Williamson S., Wright R. [2010], "New Monetarist Economics", in: Friedman B.M. et Woodford M. (eds.), *Handbook of Monetary Economics*, Vol. 3A, Amsterdam, Elsevier, 25-96.
- Wolf M. [2014a], "Strip Private Banks of their Power to Create Money", *Financial Times*, 24 April 2014.
- Wolf M. [2014b], *The Shifts and the Shocks: What We've Learned – and Have Still to Learn – from the Financial Crisis*, London, Penguin Books.