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# Financial Instability and International-Lender-of-Last-Resort Theory from the Gold Standard to the Dollar System

## Theorien der finanziellen Instabilität und Kreditvergabe der letzten Hand vom Goldstandard zum Dollarsystem

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**Abstract:** We identify two approaches to financial crises in the history of political economy, namely, the exogenous approach whereby financial crises are sudden events, and the endogenous approach whereby they arise from a long process. In focusing on the endogenous approach, we study the contributions by Thomas Tooke, Ralph Hawtrey, Hyman Minsky and Charles Kindleberger to the lender-of-last-resort theory, especially in international contexts, under the gold standard and the dollar system. The function of the lender of last resort broadens institutionally (depending on the type of securities and on the institutions issuing or holding them) and internationally (depending on jurisdiction and on the type of institutions ultimately requiring international liquidity).

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## 1 Introduction

In his book *The Arena of International Finance*, Charles Coombs, former Vice President of the Federal Reserve Bank of New York, worried about the nervousness of the foreign exchange and capital markets: “Of the tens of billions of dollars in daily transactions cleared through the market, only a fraction derives

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from such fundamental factors as foreign trade and long term investment. On a day-to-day basis, the market is instead dominated by short term capital movements in search of quick profits”.<sup>1</sup> During the 1960s, Coombs was the key actor of the *Basel Swap Agreements* that helped to counter speculative attacks on the foreign exchange market and strengthened the Bretton Woods monetary architecture by means of limited and reciprocal swap lines among central banks. At the time, controls on international capital movements made it possible to confine the lender-of-last-resort function to the national arena and to leave to the International Monetary Fund the function of temporarily financing any disequilibrium in the balance of payments. Thus, the central bank swap lines were mainly implemented for a *monetary* motive (to stabilize the fixed exchange rate system) and not yet for a financial motive (to stabilize the international financial markets). After a standby period, central bank swap arrangements significantly reappeared in the Western world, but in a very different form, and the hierarchy between the monetary and the financial motive reversed. Indeed, the *Dollar Swap Lines* implemented by the Federal Reserve during the global financial crisis of 2007-09 were unlimited and not reciprocal, and they became the instrument of the international lender of last resort (ILLR) mainly for a *financial* motive. So it is worth investigating whether any theoretical tradition has contributed to the understanding of the evolution of international central banking as a consequence of the financial motive.

The hypothesis of financial instability has endured throughout the history of political economy since the British mid-nineteenth century in connection with the evolution of the theory of the lender of last resort. The purpose of our paper is to explore the contributions by Thomas Tooke, Ralph Hawtrey, Hyman Minsky and Charles Kindleberger to theories of financial instability and (international) lending of last resort, from the national realm under the international gold standard to the international arena within the U.S. dollar system. Even if these contributions were made under different international monetary regimes and in different financial institutional contexts, they share many similarities and especially the theoretical outlook that financial crises and banking panics are the result of an endogenous process and not simply of exogenous shocks.<sup>2</sup>

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<sup>1</sup> C. Coombs, *The Arena of International Finance*, New York 1976, p. xiii.

<sup>2</sup> Several studies may be found on each of these authors. The reader may refer to D. Laidler, Thomas Tooke on Monetary Reform, in: M. Peston/B. Corry (Eds.), *Essays in Honour of Lord Robbins*, New York 1972, pp. 168-185; A. Arnon, *Thomas Tooke: Pioneer of Monetary Theory*, Ann Harbor 1991; M. Smith, *Thomas Tooke and the Monetary Thought of Classical Economics*, London 2011, on Tooke; P. Deutscher, *R.G. Hawtrey and the Development of Marcoeconomics*, London 1990; J. de Boyer des Roches/R. Solis Rosales, *R.G. Hawtrey on the National and Inter-*

At the same time, our paper examines how these contributions reveal that, beyond the international monetary regime, the practice of the (international) lender of last resort is determined by changes in the financial system and the development of the securities market and financial innovations, leading the central bank to endogenously expand the range of eligible securities or collateral. Put differently, the function of the lender of last resort has broadened both institutionally (with the type of securities and the institutions that issue or hold them) and internationally (with the jurisdiction and the type of banking institutions that ultimately need international liquidity).

From this perspective, our approach is both institutional and theoretical. As regards institutions, we examine two monetary regimes: the gold standard that Tooke and Hawtrey studied, and the dollar system that Minsky and Kindleberger analysed. In addition, we distinguish two motives for intervention by central banks internationally: the *monetary* motive pertaining to the exchange rate system, and the *financial* motive pertaining to international finance. Under the Bretton Woods regime, the monetary motive of the Basel Swap Agreements dominated. In a context of the fixed-exchange rate system and liberalization of

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national Lender of Last Resort, in: *European Journal of History of Economic Thought* 18/2, 2011, pp. 175-202; *D. Glasner*, Ralph George Hawtrey, in: *R. Dimand/H. Hagemann (Eds.)*, The Elgar Companion to John Maynard Keynes, Cheltenham 2019, pp. 338-347; *P.-H. Rojas*, The Structural Asymmetry of the International Gold Standard in Hawtrey's Works, in: *European Journal of the History of Economic Thought* 26/3, 2019, pp. 587-621, on Hawtrey; *P. Mehrling*, The Vision of Minsky, in: *Journal of Economic Behavior and Organization* 39/2, 1999, pp. 129-158; *Idem*, Minsky and Modern Finance, in: *Journal of Portfolio Management* 26/2, 2000, pp. 81-88; *G. Argitis*, Evolutionary Finance and Central Banking, in: *Cambridge Journal of Economics* 41/3, 2017, pp. 961-976; *D.H. Neilson*, Minsky, Cambridge 2019, on Minsky; *G. Moore*, Review Article: Kindleberger and the Lender of Last Resort, in: *History of Economics Review* 27, 1998, pp. 94-100; *S. Fischer*, Charles P. Kindleberger, 12 October 1910-7 July 2003, in: *Proceedings of the American Philosophical Society* 152/1, 2008, pp. 145-149; *P. Mehrling*, Kindleberger and the Rise of the Dollar System, in: *European Society for the History of Economic Thought Conference*, Sciences Po Lille, on 23.-25.05.2019, on Kindleberger. On the ILLR, among others, see *S. Fischer*, On the Need for an International Lender of Last Resort, in: *Journal of Economic Perspectives* 13/4, 1999, pp. 85-104; *R. Keleher*, An International Lender of Last Resort, the IMF, and the Federal Reserve, in: *Joint Economic Committee, United States Congress*, Washington DC, February 1999, [https://www.jec.senate.gov/public/\\_cache/files/9d33ca4c-2518-49e3-abee-332698e16597/unemploan-international--lender-of-last-resort-the-imf-and-the-federal-reserve--feb-1999.pdf](https://www.jec.senate.gov/public/_cache/files/9d33ca4c-2518-49e3-abee-332698e16597/unemploan-international--lender-of-last-resort-the-imf-and-the-federal-reserve--feb-1999.pdf), 08.03.2022; *W.A. Allen/R. Moessner*, Central Bank Co-Operation and International Liquidity in the Financial Crisis of 2008-09 (Bank for International Settlements Working Papers 310, May 2010); *J.L. Broz*, The Federal Reserve as Global Lender of Last Resort, 2007-2010 (SRC Discussion Paper 30, London School of Economics, January 2015). Our purpose is to draw a Tooke-Hawtrey-Minsky-Kindleberger theoretical tradition on financial crises and (international) lender of last resort.

international capital movements, the hierarchy between the monetary motive and the financial motive was more difficult to handle.<sup>3</sup> Under the current system of floating exchange rate and globalized finance, the financial motive dominates and calls for the Dollar Swap Line programme.<sup>4</sup> For our purpose, we shall mainly address the financial motive, which is the ILLR's *raison d'être*.

As regards theory, we identify two approaches to financial crises and lending of last resort: the exogenous approach (from Bagehot to Bernanke) whereby financial crises and banking panics are sudden events, and the endogenous approach (from Tooke to Kindleberger) whereby they arise from a long process.<sup>5</sup> The theory of the lender of last resort is often associated with Bagehot's *Lombard Street*, a book that has been largely commented on and that basically saw banking panics as some form of neuralgia, that is, as an exogenous shock.<sup>6</sup> The assumption that financial crises and the subsequent lender-of-last-resort intervention are the result of an endogenous process has been disregarded in the

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3 R.G. Hawtrey, *The Art of Central Banking*, London 1932, p. 232; C.P. Kindleberger, *Key Currencies and Financial Centres*, in: F. Machlup/G. Fels/H. Müller-Groeling (Eds.), *Reflections on a Troubled World Economy: Essays in Honour of Herbert Giersch*, London 1983, pp. 75-90, here: p. 84.

4 Under the current system, the financial motive governs the Federal Reserve's Dollar Swap Lines and is related to the collapse of the international and dollar-denominated banking and financial system, while the monetary motive is related to deviations from covered interest rate parity. In a study on the central bank swap lines and the intervention of the Federal Reserve in 2007-09, S. Bahaj/R. Reis, *Central Bank Swap Lines: Evidence on the Effects of the Lender of Last Resort* (Bank of Japan, IMES Discussion Paper Series 2019-E-9, July 2019), distil confusion in associating the function of the "lender of last resort" to a ceiling goal regarding the deviations from covered interest parity (the *monetary* motive), and mention only in passing the question of the stabilization of the international banking and financial system (the *financial* motive).

5 De Boyer/Solis Rosales, R.G. Hawtrey, accurately distinguish two traditions of the lender of last resort from an institutional viewpoint: (a) the Tooke-Hawtrey tradition considers that the national central bank has to increase its own liabilities during a financial crisis; (b) the Bagehot tradition considers that the Banking Department of the Bank of England has to decrease its reserve in Bank notes. The distinction we make stems from a theoretical viewpoint: (α) the Tooke-Hawtrey-Minsky-Kindleberger tradition considers that financial crises are endogenous; (β) the Bagehot-Friedman-Bernanke tradition considers that financial crises are exogenous shocks (E. Carré/L. Le Maux, Bernanke and Kindleberger on Financial Crises, 1978-2002 (Symposium on Money, Banking and Finance, Banque de France, Paris, 18-19.06.2021)). These two distinctions overlap except in the case of Friedman and Bernanke who fit into the (a) and (β) traditions. On Bagehot, see among others T.M. Humphrey/E. Keleher, *The Lender of Last Resort: A Historical Perspective*, in: *Cato Journal* 4/1, 1984, pp. 275-318; A.H. Meltzer, *Financial Failures and Financial Policies*, in: G.G. Kaufman/R.C. Kormendi (Eds.), *Deregulating Financial Services*, Cambridge 1986, pp. 79-96; P. Mehrling, *The New Lombard Street. How the Fed Became the Dealer of Last Resort*, Princeton 2010.

6 W. Bagehot, *Lombard Street. A Description of the Money Market*, London 1873.

literature on the lender-of-last-resort theory. We fill the gap, extending and highlighting the spectrum of the (international) theory of the lender of last resort from the gold standard to the dollar system, and from Thomas Tooke to Charles Kindleberger.

## 2 The Gold Standard

“The art of central banking has grown up under the *régime* of a metallic standard” – Hawtrey’s assumption applied in the case of British monetary history.<sup>7</sup> The gold standard could take on one of two forms. The first was the gold *specie* regime and corresponded to the classical gold standard that prevailed in Britain from 1821 and in the Western world from 1871 onwards. The second form was the gold *bullion* regime and gold exchange standard that Western countries at the 1922 Genoa conference undertook to put in place and that briefly prevailed in Britain from 1926 to 1931. Tooke’s contributions fitted the gold specie regime of his time so no ambiguity is attached to his analysis of the gold standard. Hawtrey’s contributions dealt with both the gold specie and the gold bullion regime, but he did not systematically differentiate between the two regimes. Regardless of the design of the gold standard, any central bank acting as the international lender of last resort was constrained to preserve its metallic reserve and maintain gold convertibility or gold parity and set its interest rate accordingly.

### 2.1 Thomas Tooke

Tooke<sup>8</sup> came up with a theory of financial crises that combined (i) an understanding of the clearing mechanism with outflows and inflows of interbank liquidity and (ii) an analysis of the anticipation of scarcity and the ensuing instability of price dynamics in specific markets where capital gains are significant. The adverse clearing mechanism (or the law of interbank reflux) is differ-

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<sup>7</sup> Hawtrey, *The Art*, p. 174.

<sup>8</sup> The three first paragraphs of the present sub-section are partly based on earlier research (*L. Le Maux*, *Banque centrale et finance: la Banque d’Angleterre, le taux d’intérêt et le Bank Act de 1844*, in: *Revue Economique* 69/4, 2018, pp. 541-573; *Idem*, *Thomas Tooke and the Classical Theory of Central Banking*, Unpublished Manuscript 2019; *Idem*, *The Classical Monetary Theory on Bank Liquidity and Finance*, in: *Oxford Economic Papers* 72/3, 2020, pp. 692-709).

ent from the real bills doctrine.<sup>9</sup> It is a representation of the relation between rival banks granting credit and providing means of payment at the same time through the issue of *demand debts* – in the form of banknotes and demand deposits – *convertible* at par into ultimate money. Given that interbank relations are concerned, it applies whatever the kind of ultimate money – gold specie as well as fiat money – even if Tooke’s analysis was developed when the gold specie regime prevailed. The adverse clearing mechanism shows how competition between banks prevents any overexpansion of bank issuing for a given portfolio risk. Tooke described three channels within the matrix of reflux: the first two channels correspond to a reflux of rival banks’ demand debts and hence to a net inflow of liquidity; the third channel corresponds to the reflux of the individual bank’s own demand debts and therefore to a net outflow of liquidity.<sup>10</sup> This might be called the *liquidity view*. All in all, if convertibility into ultimate money at the commercial bank’s desk is not to be ignored, it should not conceal the density of reflux within the clearing and banking system.

The law of reflux within the interbank market is fully operative as a market discipline mechanism whenever the law of supply and demand in all markets of goods and assets is effective. But, Tooke argued, this is not necessarily the case especially once the price dynamics in financial markets and its effects on commercial banks’ portfolios are taken into account. In raising the question of speculative movements in markets where the capital gain is significant, Tooke worried about the role of opinion: “There are, doubtless, persons who, upon imperfect information, and upon insufficient grounds, or with too sanguine a view of contingencies in their favour, speculate improvidently; but their *motive* or *inducement* so to speculate is the opinion which, whether well or ill founded, or whether upon their own view or upon the authority or example of other persons, they entertain of the probability of an advance of price”.<sup>11</sup> The theoretical outlook Tooke developed is not simply based on informational asymmetry at a point of time but on price dynamics in certain goods, assets, or real estate markets. The concern is not that of knowing whether traders’ opinions are well or ill founded, but whether or not price signals are interpreted as encouraging a further buying spree or, conversely, as triggering a flight to quality. Once specula-

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<sup>9</sup> D. Glasner, *The Real-Bills Doctrine in the Light of the Law of Reflux*, in: *History of Political Economy* 24/4, 1992, pp. 867-894.

<sup>10</sup> T. Tooke, *A History of Prices and of the State of the Circulation, 1839-1847*, Vol. 4, London 1848, p.185.

<sup>11</sup> *Idem*, *A History of Prices and of the State of the Circulation, 1838-1839*, Vol. 3, London 1840, p. 153, original emphasis.

tive movements are in motion, the law of supply and demand is no longer effective in that the rise (fall) in prices entails a further increase (decrease) in demand. Because they lend on collateral to traders, commercial banks take part in the speculative process by extending credit. Banks become vulnerable to – and amplify – financial disorder, which creates the need for the lender in last resort.

After showing why the Bank of England should intervene as the ultimate provider of liquidity, Tooke addressed a twofold issue. What should the lender of last resort's rule of conduct be under the gold specie standard? And how should financial stability policy (lending in last resort) be integrated with monetary policy (convertibility into gold specie)? The answer lies in the central bank rate policy. In this respect, Tooke advocated the fixed interest rate policy that the Bank of England implemented prior to 1844 (and correlatively he deplored the active rate policy that prevailed after 1844) and which corresponded to the *classical* policy (as opposed to the *new* policy) of the Bank of England under the gold specie standard.

Prior to 1844, the classical policy of the Bank of England worked as follows. In normal times, the central bank rate was maintained above the market rate in order to hoard or increase the metallic reserve, to reduce speculation in financial markets, and to address external drains during commercial crises. In times of crisis, the Bank of England rate was below the market rate in order to avoid commercial banks becoming insolvent. Correlatively, the portfolios of the Bank of England tended to grow and the *structure* of the asset side of its balance sheet changed in accordance with circumstances. The crises of 1837 and 1839 provided an illustration: despite the fall in the metallic reserve and the absence of an active rate policy, the Bank intervened in the last resort in the discount market by acquiring private securities and without restricting convertibility into specie. Thus, the Bank helped to stabilise the interbank market in two ways: (i) by setting a moderate interest rate on the one hand, (ii) and by significantly increasing the amount of discounting and even broadening the range of collateral on the other.<sup>12</sup>

Empirically, Tooke advocated the classical policy of the Bank of England and its interventions during financial crises of 1825, 1837 and 1839.<sup>13</sup> Analytically, he formulated the rule of conduct for the domestic lender of last resort under the gold specie standard: “to grant extended accommodation at a moderately increased rate of interest”, that is, to lend liberally at a moderate rate once the

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<sup>12</sup> J. Clapham, *The Bank of England: A History 1694-1914*, Vol. 2, Cambridge 1944, pp. 157-158, 167-168.

<sup>13</sup> Tooke, *History of Prices*, Vol. 4.

metallic reserve had been previously hoarded.<sup>14</sup> In considering the financial cycle, it may be inferred from Tooke's rule that the fixed rate policy (in normal times) associated with the moderate rate policy (in times of crisis) was contracyclical: "The greater or less liability to variation in the rate of interest constitutes, in the next degree only to the preservation of the convertibility of the paper and the solvency of banks, the most important consideration in the regulation of our banking system".<sup>15</sup> Hence, Tooke showed how the monetary policy and the financial stability policy could be combined under the gold specie standard. The above-the-market rate in normal times helped to achieve the objective of the monetary policy – ensuring convertibility into gold specie. The below-the-market rate (that is, the moderate rate) during times of crisis helped to achieve the objective of lending of last resort – ensuring financial stabilization.

The Bank of England's fixed interest rate policy not only combined the monetary policy and the financial stability policy, but it also linked the domestic and international spheres. From a domestic standpoint, the accumulation of metallic reserve in normal times contributed to providing room for manoeuvre for difficult times and to avoiding a sharp and early increase in the interest rate when the Bank acted as the lender of last resort. From the international standpoint, the fact that the Bank of England increased its interest rate steadily and moderately during financial crises tended to quieten investors from abroad and to avoid over-reaction from the other central banks. On the one hand, the Bank of England endeavoured to maintain its interest rate fixed at 4 percent as long as possible and only made moderate rises as a last resort during difficult times – which was deemed non-aggressive towards other central banks in Europe and especially in France. On the other hand, the Bank of France also opted for a policy of a 4 percent fixed interest rate – which implied tacit cooperation between the central banks on either side of the Channel. As a result, the moderate rise in the Bank of England rate did not cause a sudden upward response by the directors of Bank of France who could reasonably expect that the Bank of England was attempting to return to its 4 percent rate as soon as possible. For these reasons, Tooke paid tribute to the maintenance of the fixed rate policy of the Bank of France and to its temperate attitude during the 1847 crisis.<sup>16</sup>

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**14** *House of Commons*, Report from the Select Committee on Commercial Distress, in: Parliamentary Papers Vol. 8, parts 1-2, 1848, q. 5310.

**15** *T. Tooke*, *An Inquiry into the Currency Principle*, 2<sup>nd</sup> Ed. with a supplementary Chapter, London 1844, p. 124.

**16** *House of Commons*, Report from the Select Committee on Commercial Distress, in: Parliamentary Papers Vol. 8, parts 1-2, 1848, qs. 5390-5391.

The international cooperation discussed above concerned the conduct of monetary policy (convertibility into specie) by setting the interest rate and had a positive feedback in the international monetary and financial system. It did not directly concern the stabilization policy of the international financial system (international lending of last resort). With regard to international lending operations during financial crises, Tooke mentioned a loan of £2,000,000 from Paris to London, through the Barings banking company, granted in July 1839 for a term of three months.<sup>17</sup> Although the 1839 lending operation contributed to building international cooperation to achieve financial stability, Tooke testified that the assistance from France was considered as verging on “national humiliation” in Britain.<sup>18</sup> Clearly the international dimension of the lender of last resort did not match the *Zeitgeist*.

So let us return to the central banks’ interest rate setting. The relationship between the Bank of England and the Bank of France with regard to the interest rate setting deteriorated once Peel’s Act was passed in June 1844 enabling the Bank of England to start a *new* discount policy. The Act of 1844 split the Bank into two departments – the Issue and Discount Departments. The Bank followed a new discount policy as follows: its Discount Department set a “competitive” interest rate in the sense that the Bank rate followed the market interest rate in order to increase its revenues from the discount activities.<sup>19</sup> Because the market rate tended to be unstable, and because the Bank rate followed the market, the Bank rate became in turn unstable. Thomas Tooke repeatedly disapproved the policy of competitive rate. Since 1840, Tooke had anticipated the effects of the

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<sup>17</sup> Tooke, *History of Prices*, Vol. 3, pp. 88-89. Actually, the Bank of France could not legally lend directly to the Bank of England and therefore set up a banking syndicate of ten Parisian banks. On the international lending operation in 1839, see *H.D. Macleod*, *The Theory and Practice of Banking*, Vol. 2, London 1866, p. 119; *Hawtrey*, *The Art*, p. 229; *Clapham*, *Bank of England*, Vol. 2, p. 169. The 1825 operation differed from that of 1839 insofar as French bankers did not *lend* to the Bank of England. Instead, the Bank of France *exchanged* gold against silver on December 1825 for an amount of £400,000 (*House of Commons*, Report from the Secret Committee Appointed to Inquire into the Expediency of Renewing the Charter of the Bank of England, in: *Parliamentary Papers*, Vol. 6, 1832, qs. 800-802; *Ibid.*, q. 5010). Such an international *exchange* of metals does not strictly speaking correspond to an international *lending* operation. It may be noted that, at that time, France was *de jure* in bimetallism and *de facto* in silver monometallism, while Britain was *de jure* and *de facto* in gold monometallism.

<sup>18</sup> Tooke, *History of Prices*, Vol. 3, p. 90.

<sup>19</sup> Director James Morris in *House of Commons*, Reports from the Select Committee on Commercial Distress, in: *Parliamentary Papers* Vol. 8, parts 1-2, 1848, q. 3011; *House of the Lords*, Report from the Lords’ Secret Committee appointed to inquire into the Cause of the Distress among Commercial Classes, in: *Parliamentary Papers* Vol. 8, part 3, 1848, qs. 487-490.

separation between the Issue and Discount Departments and the ensuing Discount Department's policy of competitive rate: "under such separation the fluctuations [of the interest rate] would be more frequent, more abrupt, and sometimes of greater extent" than under the prevailing system of "union" of the Bank of England.<sup>20</sup> In 1844, Tooke was probably familiar with a memorandum the Directors of the Bank of England sent to Robert Peel in February and that March he published his *Inquiry into the Currency Principle*: he restated that "a total separation of the business of Issue from that of Banking is calculated to produce greater and more abrupt transitions in the rate of interest, and in the state of credit, than the present system of union of the departments" of the Bank of England.<sup>21</sup> Evidence showed how Tooke's prediction was right.<sup>22</sup> From September 1844 onwards, the Bank of England's interest rate became highly unstable and procyclical: it fluctuated unprecedentedly between 2 percent during good times and 8 percent and even 10 percent during the crises of 1847, 1857 and 1866.

Across the Channel, on January 14<sup>th</sup> 1847 the Bank of France put an end to its unwavering policy of a uniform rate of 4 percent and raised its rate to 5 percent for eleven months. The rise remained moderate, however, given Threadneedle Street's nervous interest rate policy. The 1848 Report of the House of the Lords and Tooke's testimony in the House of Commons pointed out a notable difference in the interest rate policy between the two sides of the Channel during the 1847 crisis insofar as the Bank of France's policy remained temperate.<sup>23</sup> However, during the 1857 crisis, nervousness became highly contagious. Members of the *Conseil* of the Bank of France finally implemented an active interest rate policy in order to respond to Bank of England's activism. From November 5<sup>th</sup> 1857, and for three weeks, the Bank of France raised its rate to an unprecedented level of 8 percent. This did not calm Threadneedle Street – on the contrary. A French delegation to London in late November 1857 reportedly proposed engaging in *ad hoc* cooperation in order to put an end to the escalation and to temper the aberrations to which the two central banks had been led.<sup>24</sup> So, after

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<sup>20</sup> Tooke, *History of Prices*, Vol. 3, p. 253.

<sup>21</sup> *Idem*, *An Inquiry*, p. 124.

<sup>22</sup> *Idem*, *History of Prices*, Vol. 4, pp. 400-401; *Idem/W. Newmarch*, *A History of Prices and of the State of the Circulation, 1848-1856*, Vol. 5 and 6, London 1857, pp. 597-598.

<sup>23</sup> *House of Lords*, Report from the Lords' Secret Committee appointed to inquire into the Cause of the Distress among Commercial Classes, in: *Parliamentary Papers* Vol. 8 part 3, p. xxxviii; Tooke in House of Commons, Reports from the Select Committee on Commercial Distress, in: *Parliamentary Papers* Vol. 8 parts 1-2, qs. 5390-5391.

<sup>24</sup> A. Plessis, *La Politique de la Banque de France de 1851 à 1870*, Genève 1985, p. 233.

the adverse consequences of the Act of 1844, central banking cooperation was to be (re)built.

In the context of the classical metallic regime, Thomas Tooke favoured the implicit cooperation between central banks through the fixed rate policy in London and in Paris – a cooperation that collapsed with the implementation of the Act of 1844. In the context of the Interwar monetary system, Ralph Hawtrey more explicitly dealt with cooperation among central banks over the setting of the interest rate – and also the provision of international liquidity.

## 2.2 Ralph Hawtrey

Thomas Tooke and Ralph Hawtrey<sup>25</sup> shared similar views – five at least. Firstly, Hawtrey defined the release (absorption) of cash as a situation in which a trader is paying out (receiving) more liquidity than he is receiving (paying out).<sup>26</sup> As applied to the banking system, this corresponds to the matrix of net outflows (inflows) of liquidity and to the adverse clearing mechanism whereby “any bank that lends more liberally than the others finds itself paying debit balances at the clearing” that the central bank organizes.<sup>27</sup> The central bank plays the role of the clearinghouse and hence centralizes a large part of the metallic reserve. Furthermore, the central bank can issue means of interbank settlement – in the form of banknotes or interbank deposits – beyond the amount of its metallic reserve. It can therefore act as lender of last resort by increasing the amount of interbank liquidity during financial crises. This is one reason why Ralph Hawtrey departed from Walter Bagehot who advocated a “natural system” of banking as a system of many banks keeping their own cash reserve – a system inconsistent with a central banking system.<sup>28</sup> Moreover, Hawtrey argued, Bagehot’s *Lombard Street* “understates the Bank’s power” inasmuch as it considers that the Bank of England is one important dealer among others, whereas the Bank actually is the “single wholesale dealer” regulating the amount of its own ad-

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25 The present sub-section mainly rests on Hawtrey’s publications during the 1930s – new editions of previous publications (Currency and Credit, London <sup>3</sup>1930; Gold Standard in Theory and Practice, London <sup>2</sup>1931) and new publications (The Art of Central Banking, London 1932; A Century of Bank Rate, London 1938) – even if Hawtrey’s contributions during the 1910s are worth considering (Good and Bad Trade: An Inquiry Into the Causes of Trade Fluctuations, London 1913).

26 Hawtrey, The Art, pp. 146, 161.

27 *Ibid*, p. 153; see also Hawtrey, Currency and Credit, p. 181; *Idem*, Gold Standard, p. 5.

28 Hawtrey, The Art, p. 117.

vances and discounts and modifying the amount of its own demand liabilities at discretion.<sup>29</sup> The understanding of the hierarchical structure of the banking system led Thomas Tooke as well as Ralph Hawtrey, not to share a natural or a legal, but an institutional definition of central banking emphasizing the centrality of the lender-of-last-resort function: “A central bank is a banker’s bank. [...] The real reason for that is not, as is sometimes supposed, that the central bank is usually a bank of issue, with the power of creating currency in the form of its own notes. [...] The central bank is the *lender of last resort*”.<sup>30</sup>

Secondly, Hawtrey showed how the money market is prone to speculative movements and the ensuing spiral of liquidity: the “margin” defined as difference between the collateral value and the bank advance depends upon “the marketability of the shares and the probable extent of the fluctuation in their price”; once the bank loan dynamic is determined by the liquidity of the collateral securities, the “artificial swollen demand” in turn amplifies the rise in price of the collateral; the outcome is that “the volume of liabilities, forming the potential field of bankruptcies, is enlarged”.<sup>31</sup> As an illustration, the practice in the New York call loan market as it operated in the late nineteenth and early twentieth centuries was such that a dealer in stocks and shares borrowed “at call” (meaning that the trader “may be called upon to repay at any time”): “a sudden general fall in the values of speculative shares [...] precipitates a wholesale calling up of loans” and a further decline in share prices.<sup>32</sup> Hawtrey added: “Traders who cannot borrow are driven to sell, and forced sales cause a collapse of prices. The collapse of prices involves a depreciation of traders’ assets and so there arise the commercial failures and, following upon them, the financial failures characteristic of a crisis”.<sup>33</sup> The theoretical conclusion is that a financial crisis is

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**29** Hawtrey, *A Century*, p. 68.

**30** Hawtrey, *The Art*, p. 116, original emphasis; idem pp. 131, 259.

**31** Hawtrey, *Currency and Credit*, pp. 171 f.

**32** *Ibid.*, p. 173.

**33** Hawtrey, *The Art*, p. 132. Historically, on the working of the call loan markets in New York in the late 19<sup>th</sup> and early 20<sup>th</sup> century, the reader may refer to *J. Moen/E. Tallman*, *The Transmission of the Financial Crisis in 1907: An Empirical Investigation* (Federal Reserve Bank of Cleveland Working Paper, no. 14-09, 2014) and *M.A. O’Sullivan*, *Dividends of Development: Securities Markets in the History of US Capitalism, 1866-1922*, Oxford 2016. Analytically, Hawtrey’s analysis of the price dynamics in financial markets is close to Tooke’s theory of expectation of scarcity. One interpretation envisions that Hawtrey’s work tends to generalize Tooke’s theory not only to the financial activity and expectations of rise in security price leading to speculation financed by borrowing, but also to entrepreneurial activity in which businesses make investments (either in fixed capital or in inventory) contingent on expectations about the prices at which it will be possible to sell their output or their inventory (Hawtrey, *The Art*, pp. 155-

the culmination of an unstable process (the cause) – and not an exogenous shock – that triggers credit rationing (the effect).

Thirdly, like Tooke,<sup>34</sup> Hawtrey underscored that speculative movements are not simply determined by the level of the interest rate: “The charge for interest is insignificant in comparison with the prospective rise or fall of price” and speculative movements “occur in those markets where the supply of the product is not readily increased” – by contrast when “supply is readily increased, there is little room for speculation”. Put differently, the “prospects of rising or falling prices [...] play an important part in the borrowing operations of the traders”.<sup>35</sup> On the other hand, Hawtrey suggested a contra-cyclical policy in stating that “the central bank is from time to time faced with the necessity of correcting an excessive expansion by enforcing an actual contraction, or correcting an excessive contraction by inducing an expansion”.<sup>36</sup> Hawtrey did not, however, take a sanguine view and recognized that “the efficacy of Bank rate and of other measures within the control of the banking system is sometimes disparaged on the ground that their influence on borrowers is outweighed by that of the borrowers’ expectations as to business prospects. [...] The danger always is that action will be too late”.<sup>37</sup> In the case of the gold specie standard, Tooke’s rule of fixed interest rate addresses such a danger inasmuch as it creates a significant discrepancy between the Bank rate and the market rate in normal times and it makes it possible to avoid any over-brusque increase in the Bank rate in times of crisis. This may explain why Hawtrey referred to Tooke who advocated “a very large reserve at the outset” of the commercial crisis and then a rise in the Bank rate “only within a moderate degree”.<sup>38</sup>

Fourthly, Hawtrey disapproved the Act of 1844 and the separation of the Bank of England, not simply because of the rule of 100 percent reserve at margin implemented by the Issue Department,<sup>39</sup> but because the Discount Department

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160). Overall, “it is in virtue of the vicious circle of inflation and the vicious circle of deflation that credit is *inherently unstable*” (ibid, p. 168, original emphasis).

<sup>34</sup> Tooke, *History of Prices*, Vol. 3, p. 153.

<sup>35</sup> Hawtrey, *The Art*, p. 160.

<sup>36</sup> *Ibid.*, p. 169.

<sup>37</sup> *Ibid.*

<sup>38</sup> *Ibid.*, pp. 136, 140; Tooke in *House of Commons*, Report from the Select Committee Appointed to Inquire into the Effects Produced on the Circulation of the Country, in: *Parliamentary Papers*, Vol. 4, London 1840, q. 3758.

<sup>39</sup> Hawtrey, *Currency and Credit*, p. 181.

was “to be managed in the same way as any other private bank”.<sup>40</sup> The Bank rate henceforth tended to follow the market rate – downward and upward – instead of being fixed. As seen above, and as Hawtrey pointed out, “one result” of the Act of 1844, in line with “the underlying assumption that the Banking department should be managed in the same way as any other private bank”, was that “the old rule making 4 per cent. the minimum Bank rate was abandoned”.<sup>41</sup> Under Peel’s system (and on Bagehot’s recommendation), if the Discount Department suffered from a shortage in banking reserve, it would have to restore its position in the same way as the other banks, that is, by a sharp rise in its interest rate to a very high level. In turn, the very high Bank rate would intensify the strain on the financial and banking institutions and worsen their insolvency.<sup>42</sup>

Fifthly and finally, Hawtrey stressed that, under the metallic standard, there is (or should be) an integration of two functions of central banking, namely, the centralization of the metallic reserve and the lending in the last resort: “In the days when gold coin was required for active circulation, the lender of last resort became inevitably the holder of the ultimate gold reserve of the country”.<sup>43</sup> On the other hand, under Peel’s system (and on Bagehot’s recommendation), there was a separation of the two functions – the Issue Department holding the metallic reserve and the Banking Department discounting in the last resort. This is another reason why Hawtrey might be sceptical of Bagehot’s *Lombard Street* that fitted into the Peel’s system: The Bank implemented the competitive discount policy in normal times; during financial crises, “the high Bank rate was indispensable for reconciling the function of the Bank as the lender of last resort with its responsibility for maintaining the gold standard. [...] This, at any rate, was Bagehot opinion”.<sup>44</sup> In contrast, Tooke and Hawtrey suggested that the monetary policy should be combined with the financial stability policy in normal as well as in difficult times, that is, throughout the financial cycle.

The above shows how Hawtrey and Tooke shared a similar theoretical framework. Hawtrey did not refer at length to the work of Thomas Tooke.<sup>45</sup> In any rate, after having quoted Tooke’s important theoretical statement on inter-

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<sup>40</sup> Director James Morris in *House of Commons*, Report from the Select Committee on Commercial Distress, in: Parliamentary Papers, Vol. 8, parts 1-2, London 1848, q. 2845.

<sup>41</sup> Hawtrey, *The Art*, p. 138.

<sup>42</sup> Hawtrey, *Currency and Credit*, pp. 157, 184.

<sup>43</sup> Hawtrey, *The Art*, p. 174.

<sup>44</sup> Hawtrey, *The Art*, p. 139.

<sup>45</sup> Hawtrey, *Currency and Credit*, p. 333; *Idem*, *The Art*, p. 140; *Idem*, *A Century*, p. 31.

est rate and speculative process,<sup>46</sup> Hawtrey underlined that “Tooke’s view [...] did not differ very widely from that which I have advocated”.<sup>47</sup>

Now we can turn to the originality of Hawtrey’s contributions to central banking at the national but mainly at the international level. At the national level, Hawtrey casted light on the action of the Bank of England during the 1825 crisis and he specified that the resolution showed how it was not “sufficient” to discount bills of the type that the Bank of England was accustomed to take. If “banks and financial houses [...] were to be saved, they would have to be enabled to borrow on the security of other assets” to a greater extent than was customarily eligible.<sup>48</sup> There was a broadening of the set of eligible bills or collateral but, if the central bank were to lend freely, it should also lend to solvent institutions.<sup>49</sup>

At the international level, Hawtrey coined the concept of international lender of last resort (ILLR) and recalled the experience of international lending in the last resort under the gold specie standard, especially in 1839 and 1890, when the Bank of England replenished its metallic reserve thanks to the Bank of France’s intervention.<sup>50</sup> Furthermore, Hawtrey argued that it was difficult to implement international cooperation under the gold standard whenever central banks moved away from a policy close to the fixed interest rate policy: indeed, if “the centres so threatened raise the interest rate”, and as soon as such a rise becomes effective in drawing metallic reserve from abroad, the “other countries” will be “unable to spare gold, and must respond by raising the rate of interest in their turn. In a short time credit begins to contract everywhere”.<sup>51</sup> Therefore, if the central bank does not follow something close to the fixed rate policy and raises its interest rate in a threatening manner, and not only moderately when necessary, it becomes difficult for the other central banks to anticipate the trajectory of the central bank interest rate. The door is then open for non-cooperation and greater instability.

Given the disastrous events, from the financial crash in New York in 1929 to the suspension of the gold standard in Britain in 1931, Hawtrey called not only for cooperation with regard to the interest rate setting, but also for an ILLR in the context of the gold exchange standard: “If the central bank is to meet demands for accommodation in excess of its reserves it must itself borrow. The

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<sup>46</sup> Tooke, *History of Prices*, Vol. 3, p. 153.

<sup>47</sup> Hawtrey, *The Art*, p. 367.

<sup>48</sup> Hawtrey, *The Art*, p. 121.

<sup>49</sup> *Ibid.*, p. 228.

<sup>50</sup> Hawtrey, *The Art*, pp. 137-38, 228-29.

<sup>51</sup> Hawtrey, *Currency and Credit*, p. 159.

need arises for an *international lender of last resort*".<sup>52</sup> The main theoretical argument that Hawtrey evoked is the domino effect among countries, the "occurrence of a crisis in one country" being a "danger to all the others".<sup>53</sup> So international cooperation would lead to better control of financial crises, as could have been the case between Paris and London in 1839 and 1890, and between London and New York in 1907.

Then, Hawtrey searched for the relevant institutional design that could provide the Western world with an international lender of last resort (i) in the case of the gold standard and (ii) in the case of an inconvertible key-currency.<sup>54</sup> In the case of the international monetary system based on a metallic reserve (in reference to the gold bullion standard since the 1922 Genoa Conference), the Bank for International Settlements, founded in 1931 and located in Switzerland, could not play that role because it did not centralize the world's metallic reserve, and because the Swiss franc could hardly be considered a world currency. While gold was considered to be an international means of payment, there was currently no international unit of account in terms of gold and no international central bank issuing deposits and holding assets. So the institutional situation was in deadlock and the sole solution at hand was for national central banks to cooperate with respect to loans and transfers of the metallic reserve: "as things are, the function can only be undertaken by a foreign central bank or by a group of foreign central banks in co-operation".<sup>55</sup> On the other hand, Hawtrey emphasized the international constraint that featured the gold standard: if the function of the central bank "as lender of last resort compelled it to grant unlimited discounts and to create unlimited deposits" at the national level, it might, however, be "threatened with unlimited withdrawals of gold".<sup>56</sup>

In the case of an international monetary system based on the currency of a leading financial centre and in supposing such a key-currency inconvertible into gold (probably in reference to the sterling zone since the 1931 British decision to suspend convertibility into gold), Hawtrey made the following recommendation: "A country subjected to a panic-stricken withdrawal of foreign money may legitimately be assisted with credits from the foreign central [bank]" and "in that case, the credits ought to be granted to whatever amount may be

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<sup>52</sup> Hawtrey, *The Art*, p. 228, original emphasis.

<sup>53</sup> Hawtrey, *Currency and Credit*, p. 187.

<sup>54</sup> Hawtrey, *The Art*, pp. 274-75.

<sup>55</sup> *Ibid.*, p. 228.

<sup>56</sup> *Ibid.*, p. 135.

necessary without any definite limit”.<sup>57</sup> Finally, Hawtrey laid down “as a *rule of general application*” for lines of credit among central banks “that if credits are to be granted to a central bank in difficulties at all, they ought to be granted up to the *full amount* needed. There should be *no limit*”.<sup>58</sup> We shall see below that such a rule of conduct foreshadowed Kindleberger’s rule in the case of the dollar system in the Western world from 1958 onwards; we shall also see how Kindleberger specified the implication in terms of the interest rate set by the central bank acting as the international lender of last resort.

### 3 The Dollar System

*The Art of Central Banking* announced that the old-established position of London as the international financial centre was then emulated by New York.<sup>59</sup> At the same period, John H. Williams published an article on the notion of “key-currency” in a context where the international monetary system was shifting from sterling to the dollar system.<sup>60</sup> As Perry Mehrling points out, he was Vice President of the Federal Reserve Bank of New York in 1936 when Charles Kindleberger was appointed there as economist.<sup>61</sup> Kindleberger acknowledged how Williams’s notion of key-currency increasingly drew his attention.<sup>62</sup> In 1944, the Bretton Woods Agreements validated the United States’ leadership within the Western world and adopted White’s Plan in preference to Keynes’s Clearing Union.<sup>63</sup> The dollar system substituted for the gold standard on the one hand, and any programme for full-fledged monetary multilateralism (*à la* Keynes) was abandoned on the other. Afterwards, Charles Kindleberger and Hyman Minsky developed their theory of the ILLR in the context of the wave of the internationalization of banking during the 1960s. Both authors studied the dollar-denominated international banking system and stressed that the International Monetary Fund

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<sup>57</sup> Hawtrey, *Gold Standard*, p. 232.

<sup>58</sup> Hawtrey, *The Art*, pp. 229-30, emphasis added.

<sup>59</sup> Hawtrey, *The Art*, pp. 186, 232, 275.

<sup>60</sup> J.H. Williams, *The World’s Monetary Dilemma: Internal versus External Monetary Stability*, in: *Proceedings of the Academy of Political Science* 16/1, 1934, pp. 62-68.

<sup>61</sup> Mehrling, Kindleberger.

<sup>62</sup> C.P. Kindleberger, *Life of an Economist*, Cambridge 1991, p. 50.

<sup>63</sup> J.M. Keynes, *Proposals for an International Clearing Union*, in: D. Moggridge (Ed.), *The Collected Writings of John Maynard Keynes* Vol. 25, London 1942, pp. 168-195.

could not play the role of ILLR in the way the Federal Reserve could.<sup>64</sup> We shall end our paper with Kindleberger insofar as he synthesized the reflections on the ILLR and even anticipated the rules that the Federal Reserve implemented during the global financial crisis of 2007-09 through the Dollar Swap Line programme.

### 3.1 Hyman Minsky

One influence on Hyman Minsky<sup>65</sup> was John Maynard Keynes<sup>66</sup> and his theoretical approach according to which “strong endogenous destabilizing processes exist in an economy that [...] uses capital intensive production techniques, and is financially sophisticated”.<sup>67</sup> In contrast, “within the [neoclassical] theory there is no possibility for the endogenous development of situations that require lender of last resort interventions”.<sup>68</sup> Another influence was Joseph Schumpeter (Minsky’s first PhD advisor) and his evolutionary and institutional conception of the economy. Minsky applied such a conception to banking economics and argued that “the likelihood that lender of last resort intervention will be necessary depends upon the asset structure of the banking system”.<sup>69</sup> Theoretically, he paid attention to speculative movements and price dynamics in specific markets such as stock and real estate markets and mentioned the beauty contest à la Keynes (1936) in passing.<sup>70</sup> More particularly, his concern was about the ex-

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**64** C.P. Kindleberger, *Manias, Panics, and Crashes. A History of Financial Crises*, New York 1978, p. 222; H.P. Minsky, *Global Consequences of Financial Deregulation*, Wallenberg Forum, Financial Fragility and Global Growth 02.10.1986, p. 30, in: Hyman P. Minsky Archive, Paper 378, [https://digitalcommons.bard.edu/hm\\_archive/378/](https://digitalcommons.bard.edu/hm_archive/378/), 8.3.2022.

**65** The present sub-section rests on Minsky’s published works, unpublished manuscripts, and papers prepared for various conferences between the late 1950s and the mid-1980s. All these sources are available in Hyman P. Minsky Archive ([http://digitalcommons.bard.edu/hm\\_archive](http://digitalcommons.bard.edu/hm_archive)) at the Levy Economics Institute of Bard College.

**66** H.P. Minsky, *John Maynard Keynes*, New York 1975.

**67** *Idem*, *Financial Instability and the Failure of Standard Economics*, in: Hyman P. Minsky Archive, Paper 283, 1976, p. 6.

**68** *Idem*, *Central Banking and Money Market Changes: A Reprise* (Paper prepared for the American Economic Association Meetings, Dallas 29.-30.12.1984), p. 2, in: Hyman P. Minsky Archive, Paper 394.

**69** *Ibid.*, p. 5.

**70** H.P. Minsky, *Financial Stability Revisited: The Economics of Disaster*, in: *Reappraisal of the Federal Reserve Discount Mechanism*, Board of Governors of the Federal Reserve System Vol. 3, 1972, pp. 95-136, here: p. 12; *Idem*, *The Instability and Resilience of American Banking, 1946-1978*, in: *Speech prepared for a Conference at the Faculty of Economics and Commerce*, 08.02.1979, p. 26, in: Hyman P. Minsky Archive, Paper 118; *Idem*, *Monetary Policies and the*

pansion of new institutions and instruments in financial markets and the rapid accumulation of banks' indebtedness – what he called the “position making” activity of banks.<sup>71</sup> These considerations may explain why Minsky did not so much focus on “the decline in asset values [and] the forced changes in portfolios” during the financial crisis, as on the “preparation of the environment for [such a deflationary spiral]”.<sup>72</sup> Historically, as we shall see, Minsky did not particularly refer to the call loan market that had grown enormously during the 1920s and collapsed in the 1930s, but his contributions noticeably pertained to the U.S. banking system prevailing in the 1960s and 1970s.

From the theoretical standpoint, Minsky underlined that a run on a banking institution is “the proximate cause of its terminal difficulties” and is determined by the “banking structure”.<sup>73</sup> Banking institutions not only finance their holdings of long-term assets with short-term liabilities but, more dramatically, they attempt to amplify the leverage effect through financial innovations and new kinds of debt so as to increase financial profitability. Speculation not only corresponds to the expectations on the part of banks' borrowers about asset prices or collateral valuation, but also to the expectation on the part of banks' lenders about the ability of banking institutions to increase and roll over their outstanding debt and the sustainability of new types of paper that banks issue in the money market. Importantly, Minsky's position-making effect goes beyond the balance-sheet effect: the problem is not simply the sequential-service constraint at any

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International Financial Environment (Conference on European-U.S. Relations, Centro di Studi Italiani, 19-20.05.1983), p. 11, in: Hyman P. Minsky Archive, Paper 377; *Idem*, *Stabilizing an Unstable Economy*, New York 1986, p. 51.

**71** *Idem*, *Suggestions for a Cash Flow-Oriented Bank Examination* (Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 01.-02.05.1975), pp. 150-184, here: p. 150, in: Hyman P. Minsky Archive, Paper 17; *Idem*, *Financial Instability*, p. 15; *Idem*, *The Instability*, p. 6.

**72** *Idem*, *Longer Waves in Financial Relations: Financial Factors in the More Severe Depression*, in: *American Economic Review* 54/3, 1964, pp. 324-335, here: p. 325.

**73** *H.P. Minsky*, *Central Banking*, p. 9. The banking structure is related to “speculative finance” whereby expected gross cash flows exceed the payment commitments by a margin of safety. Minsky (*Financial Instability*, p. 11) defined the “margin of safety” as “the excess of the inflow of cash over committed outflow, the excess of the value of assets over that of debts, and the cash that is superfluous to operations owned by the debtor”. Speculative finance applies to banking institutions. It stands between hedge finance, whereby expected gross cash flows exceed gross payments on debts and firm's liability structure is fully covered by receipts, and Ponzi finance, whereby payment commitments exceed cash and the firm increases its liabilities to pay interest on outstanding debts. See *Minsky*, *The Instability*, pp. 19-29; *Idem*, *Global Consequences*, pp. 7-9.

point in time and self-fulfilling bank runs *à la* Diamond and Dybvig<sup>74</sup>; the problem is the dynamics and extension of short-term indebtedness of banking institutions through financial innovations and throughout the upward phase of the financial cycle. Therefore, what Minsky expounded is a theory of *recurrence* of financial cycles set in motion by financial innovations and the leverage technique – and not simply a theory of *occurrence* of banking runs at some point in time.

From the historical viewpoint, Minsky examined the evolution of the banking structure in the United States and focused on the position-making activity implemented in the banking system and money market during the 1960s and the 1970s.<sup>75</sup> From the Second World War to the late 1950s, banking institutions held in their portfolios a substantial proportion of Treasury securities as collateral for deposits. Their position making consisted in operations on the asset side of their balance sheet by selling Treasury securities when they had a liquidity deficiency. In such a banking structure, the role of the central bank as lender of last resort was circumscribed and unaffected by the money market. From the early 1960s onwards, *giant banks* began to use the money market actively by issuing new types of liabilities (namely, negotiable certificates of deposit) especially in the event of liquidity deficiency. Their position making thenceforth consisted in operations on the liabilities side by increasing their leverage through the negotiable-debts market. That was the start of an endless process of financial innovations (deposit certificates, commercial papers, repurchase agreements, securitization, debts collateralized by securitized credit, and so forth) that endogenously increased the indebtedness opportunities of banking and financial institutions.

Such changes in the banking structure strongly impacted the policy of the central bank as lender of last resort. The endogenous process set in motion by financial innovations and the leverage technique was the driving force behind the intervention of the central bank and its format implemented during banking crises. In this regard, passages from Minsky's 1957 article are worth quoting in full since they predicted the intervention of the Federal Reserve – and its evolution – from the 1966 banking crisis to the 2007-09 global financial crisis: "The evolutionary changes in the money market result in both new kinds of assets and new kinds of financial institutions".<sup>76</sup> These "institutions of the money market are constantly changing and as a result of these innovations, the next

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74 D.W. Diamond/P.H. Dybvig, Bank Runs, Deposit Insurance, and Liquidity, in: *Journal of Political Economy* 91/3, 1983, pp. 401-419.

75 Minsky, *Financial Instability*; *Idem*, *The Instability*.

76 H.P. Minsky, Central banking and Money Market Changes, in: *Quarterly Journal of Economics* 71/2, 1957, pp. 171-187, here: pp. 185-186.

financial crisis will never be just like the last one. What is required to counteract the effects of such evolutionary developments is a broadened view of central bank responsibilities”.<sup>77</sup> Such a broad view includes the maintenance of the stability of “a broad segment of the financial market. Hence as new financial institutions develop and as new types of paper appear on the money market, such institutions and paper would not necessarily be ineligible for central bank aid in time of crisis”.<sup>78</sup>

These excerpts implicitly state that the central bank is not only (1) the lender of last resort, but also the (2) “market maker” or the “dealer” of last resort since the banking system is based on securities markets and is impacted by financial innovations.<sup>79</sup> Daniel Neilson underlines that Minsky<sup>80</sup> not only developed the concept and even coined the word “residual market maker” applied to the central bank.<sup>81</sup> The resolution of the 1966 banking crisis provided an illustration of Minsky’s 1957 article: “The crunch of 1966 was the first serious financial disruption of the postwar era [and] did assure the money market that banks which used a money market instrument such as negotiable certificates of deposits would be protected against a run on this instrument by Federal Reserve behaviour. The action of the Federal Reserve in 1966 legitimized the use of negotiable certificates of deposits by banks”.<sup>82</sup> Thus, the Federal Reserve was not only the lender of last resort, not only the dealer of last resort, but also what we may call the *certifier* in last resort of financial innovations and of new types of paper.

Another step – the international step – that Minsky scrutinized was the establishment by U.S. commercial banks of overseas branches that also issued negotiable certificates of deposit.<sup>83</sup> After that the Franklin National Bank suffered substantial losses in foreign exchange transactions in 1974, its London branch (just like its New York office) had outstanding deposit certificates that it could not roll over. As runs took place in the money market in London (and in New York), the Franklin National Bank had no choice but to demand liquidity at the Federal Reserve’s discount window and “all of the deposit type liabilities of Franklin National Bank, *including the certificates of deposit at the overseas*

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**77** *Ibid.*

**78** *Ibid.*

**79** *W.H. Buiter/A. Sibert, The Central Bank as the Market-Maker of Last Resort: From Lender of Last Resort to Market-Maker of Last Resort*, in: *A. Felton/C. Reinhart (Eds.), The First Global Financial Crisis of the 21<sup>st</sup> Century*, London 2008, pp. 171-178; *Mehrling, The New Lombard Street*.

**80** *Minsky, Financial-Instability Hypothesis*, p. 31.

**81** *Neilson, Minsky*, pp. 84, 91.

**82** *Minsky, Financial Instability*, p. 21.

**83** *Ibid.*

*branch*, were validated. [...] The Federal Reserve would then have had to intervene as a lender-of-last resort or see a crumbling of the international financial structure that would be certain to lead to a deep depression”.<sup>84</sup> Minsky thus predicted that the “failure” of the Franklin National Bank in 1974 “may be symbolic of what awaits us”, namely, the offshore extension of the position-making activity and the intervention of the Federal Reserve as the ILLR. Retrospectively, “this extension of protection meant that after 1974 the international financial markets were given a green light for expansion”.<sup>85</sup>

In addition to the overseas branching of U.S. commercial banks, Minsky described other vectors of banking internationalization.<sup>86</sup> One was the Eurodollar markets that Kindleberger scrutinized early and through which non-U.S. commercial banks issued liabilities denominated in dollars.<sup>87</sup> Another vector was the securitization technique, whose various components could be scattered internationally: “Securitized instruments have become international assets. The integrity of the ‘security’ depends upon the wisdom and integrity of the original borrower, the creator of the paper, the trustee, the underwriter, and the ultimate holder. *The various parties can be in different countries*”.<sup>88</sup> Such a description is quite suggestive when one considers the banking structure in the early 2000s on the eve of the global financial crisis.

Whatever the channel of banking internationalization, the broadening of (1) the lender-of-last-resort function to (2) the market-maker-of-last-resort function becomes tricky once the perspective is enlarged internationally. During the 1974 banking crisis, the Federal Reserve operated to a widening of counterparties (London branches of U.S. banking companies) and of collateral (securities issued outside the U.S. jurisdiction). Such a broadening raised a highly sensitive question of whether the Federal Reserve would have endorsed – and should endorse – the role of market maker in last resort at the international level. Minsky raised this questioning as follows: “The emergence and *internationalization of securitized financial instruments*, together with the continued growth of offshore banks, means that there is a vast pool of dollar-denominated and other currency-denominated assets which lies outside the formal domain of responsibility of the

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<sup>84</sup> *Ibid.*, p. 27, emphasis added.

<sup>85</sup> *Ibid.*, p. 26; H.P. Minsky, *Stabilizing an Unstable Economy*, New York 1986, p. 72.

<sup>86</sup> *Idem*, *The Dollar: U.S. Must Be Seen as an Ailing Bank*, in: *The Money Manager*, 24.04.1978, pp. 1-4; *Idem*, *Central Banking*; *Idem*, *Money and the Lender of Last Resort*, in: *Challenge*, March/April 1985, pp. 12-18 (Hyman P. Minsky Archive, Paper 31); *Idem*, *Global Consequences*.

<sup>87</sup> C.P. Kindleberger, *The Eurodollar and the Internationalization of United States Monetary Policy*, in: *Banca Nazionale del Lavoro Quarterly Review* 22, 1969, pp. 3-15.

<sup>88</sup> Minsky, *Global Consequences*, p. 27, emphasis added.

Federal Reserve. [...] The question of who is the ‘They’ that will act as lenders of last resort for *securitized assets and offshore banks* remains entirely open”.<sup>89</sup> As we shall see below, Kindleberger indirectly answered this question in suggesting central bank swap lines whereby a central bank (say, the Federal Reserve) provides international liquidity (the dollar) to other central banks against currencies as collateral. Such an institutional design precisely allows the two functions to be separated: the lender-of-last-resort role (issuing international liquidity) could be extended internationally, while the market-maker-in-last-resort role (bearing asset and counterparty risks) could be confined nationally.

Given the extension of the domain of intervention of the lender of last resort, Minsky dealt at length with moral hazard: “There is an open question of how the U.S. central bank can fulfill its duties as lender of last resort without encouraging banks to adventure; there is a ‘moral hazard’ problem with regard to the protected multibillion-dollar banks that does not exist for smaller banks. They can bias their asset and liability innovations toward instruments that can compromise their liquidity and equity and expect to be protected”.<sup>90</sup> Minsky drew the conclusion from the view that financial crises are the result of a long process – the financial cycle – and he stated that moral hazard should be addressed through permanent banking regulation both nationally and internationally. Without significant banking regulation, the (international) lender of last resort would pave the way for the next financial crisis and create “time bombs”.<sup>91</sup> After the Franklin National episode in 1974, “the Federal Reserve had to recognize that a new and better system of regulation of overseas branches of the United States banks was needed” through, for instance, capital requirements.<sup>92</sup> Another solution was to regulate and reduce the size of “giant banks” and “to separate the three functions – domestic banking, overseas banking, and trust activities – into separate organizations. [...] Reforms to constrain those banks which are so big that they can force the hand of the Federal Reserve are in

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<sup>89</sup> *Ibid.*, p. 28, emphasis added.

<sup>90</sup> Minsky, *Money and the Lender of Last Resort*, p. 17.

<sup>91</sup> *Idem*, *Financial Instability*, p. 25.

<sup>92</sup> *Ibid.*, p. 28. The solution of capital requirement at the international level started to be envisioned in the early 1980s by the Basel Committee on Banking Supervision (C. Goodhart, *The Basel Committee on Banking Supervision: A History of the Early Years, 1974-1997*, Cambridge 2011; A. Drach, *Liberté surveillée: Supervision bancaire et globalisation financière au Comité de Bâle, 1974-1988*, Rennes 2022), but Minsky (*H.P. Minsky, Financial Instability and APT Bank Supervision* (Annual WEA Conference, San Francisco 1992), p. 25, in: Hyman P. Minsky Archive, Paper 470) mentioned the Basel Committee only in passing.

order. The only effective control is dissolution”.<sup>93</sup> All things considered, the lender-of-last-resort intervention is far from being the panacea: “Each time a run occurred an instrument or an institution that had grown rapidly over the preceding boom was the focal point of the disturbance. Each time a run occurred the Federal Reserve intervened to facilitate the refinancing of the threatened position. Thus the Federal Reserve legitimized by its protection the new instrument or the new institution”.<sup>94</sup>

With regard to the ILLR institutional design, Minsky dithered between unilateral intervention of the Federal Reserve and cooperation among central banks. While Minsky (1976, 1978) was quite optimistic about the Federal Reserve’s capacity to intervene promptly and actively within the international field, Minsky (1979) became sceptical about this capacity and called instead for cooperation among central banks: “It seems clear that in any future financial crises involving international banking the lender of last resort operations [...] will have to be shared – and it is not at all sure that the required cooperation among the central banks [...] will be forthcoming”.<sup>95</sup> As previously seen, Hawtrey called for cooperation because of the feature of the gold standard.<sup>96</sup> Later, Kindleberger worried about the lack of leadership in the Western world during the Interwar period.<sup>97</sup> Similarly, Minsky pointed out the need for cooperation because of the supposed decline in the dollar and the erosion of U.S. leadership: “The world economy is not very robust when the traditional and experienced center cannot lead. In some ways the rapid decline of the financial strength of the United States makes the 1980’s like the 1920’s, when Great Britain, the leader of the world’s financial structure for a century prior to World War I was no longer a robust enough economy to shoulder the responsibilities for world financial stability”.<sup>98</sup> So the Federal Reserve was deemed to be unable to “act as a lender of last resort” and to “do the job of containing a financial crisis” at the international scale.<sup>99</sup>

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<sup>93</sup> Minsky, *Financial Instability*, pp. 35, 37.

<sup>94</sup> *Ibid.*, p. 32.

<sup>95</sup> Minsky, *The Instability*, pp. 28-29.

<sup>96</sup> Hawtrey, *The Art*.

<sup>97</sup> C.P. Kindleberger, *The World in Depression, 1929-1939*, Berkeley 1973.

<sup>98</sup> H.P. Minsky, Will “They” Let “It” - A Financial Crisis and Deep Recession - Happen?, 1983, p. 8, in: Hyman P. Minsky Archive, Paper 434.

<sup>99</sup> *Ibid.* In the late 1970s and early 1980s, academics seemed to share the opinion that U.S. leadership was in the decline. In political science, Keohane’s *After Hegemony* (R.O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy*, Princeton 1984) wondered how international cooperation and stability could be maintained without hegemonic power. In

In the meantime, Minsky corrected his prediction as to the Federal Reserve's capacity to serve as ILLR and mentioned swap lines among central banks notably in the case of dollar-indebtedness of foreign (say, European) commercial banks.<sup>100</sup> Thus, if a commercial bank issuing Eurodollars is subject to a run, it can obtain dollar liquidity at the central bank of its own jurisdiction; in turn, “the ‘swap’ arrangements between its central bank and the Federal Reserve, and the terms upon which its central bank will make U.S. dollars available determine the availability of central bank dollar refinancing”.<sup>101</sup> Through this institutional design, “the Federal Reserve is the de facto lender of last resort to the international financial structure [and] to the world dollar denominated banking system, regardless of where the banks that have the dollar book are domiciled”.<sup>102</sup> Then, the question is not of whether the Federal Reserve has the capacity to act as ILLR but the problem concerns the discrepancy between its responsibilities and its control over the international financial structure.<sup>103</sup> As seen in this section, Minsky recommended international regulation of the financial cycle in the long run, whereas, as will be seen in the next section, Kindleberger suggested rules of ILLR in the very short run of the financial crisis.

### 3.2 Charles Kindleberger

Kindleberger<sup>104</sup> discovered in writing *Manias, Panics, and Crashes*,<sup>105</sup> the work of Minsky on financial instability as an endogenous phenomenon. Later Kindle-

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international monetary economics, Kindleberger (*C.P. Kindleberger, Systems of International Economic Organization*, in: *D.P. Calleo (Ed.), Money and the Coming World Order*, New York 1976, pp. 15-39 [*C.P. Kindleberger, International Money: A Collection of Essays*, London 1981, p. 314]) considered that “the dollar is finished as an international money, but there is no clear successor”. Later, Kindleberger (*C.P. Kindleberger, The Dollar Yesterday, Today, and Tomorrow*, in: *Banca Nazionale del Lavoro Quarterly Review* 38, 1985, pp. 295-308, here: p. 296) admitted that he had been “clearly wrong on the notion that the dollar is finished”.

**100** Minsky, Central Banking.

**101** *Ibid.*, p. 9.

**102** *Ibid.*, p. 10.

**103** *Ibid.*, p. 12.

**104** In previous research, we have examined Kindleberger's works on financial crises and lender of last resort nationally and internationally (*Carré/Le Maux*, Bernanke and Kindleberger; *Idem*, Kindleberger in Retrospect: Federal Reserve's Dollar Swap Lines and International-Lender-of-Last-Resort Rules, in: *Industrial and Corporate Change, Yearly Issue on Macroeconomics and Development* 31/2, 2022, pp. 448-463). The present sub-section aims to show how it constitutes a key achievement regarding the ILLR rules to be found in the late twentieth century.

**105** *Kindleberger, Manias*, pp. 15-19.

berger recognized that “[Hyman Minsky] had produced a model of economic and financial instability beautifully applicable to historical data. *Manias* has a serious message as it offers an alternative to the classic monetarist doctrine that markets are always right and governments mostly wrong, and to the theory of rational expectations that also believes that markets get prices right.”<sup>106</sup> After the publications of *Manias*, Minsky started to quote Kindleberger in a paper prepared for a conference on financial crises,<sup>107</sup> and paid tribute to him for emphasizing the importance of lender of last resort intervention – especially in the international financial arena.<sup>108</sup> This being said, Kindleberger’s approach was somewhat different from Minsky’s approach to business cycles. Kindleberger acknowledged himself that he was “not interested in the business cycle as such”, the recurrence of financial expansion and contraction, but mainly “in the financial crisis that is the culmination of a period of expansion and leads to downturn”.<sup>109</sup>

Even if *A History of Financial Crises* – the subtitle of *Manias* – does not propose a completely original theoretical framework, it may be seen as an innovative contribution inasmuch as it infused the financial instability hypothesis as a key for interpreting banking and financial history. Contrary to Friedman and Schwartz and to Bernanke,<sup>110</sup> Kindleberger did not believe that the Great Depression was simply the result of a monetary policy mistake or that banking panics were exogenous shocks.<sup>111</sup> Rather, Kindleberger outlined the role of the speculative process in certain markets of goods, securities or real estate, leading to an upward and then a downward spiral of liquidity – as the New York call loan markets illustrated during the 1920s.<sup>112</sup> Therefore, bank credit played a role throughout the real and the financial cycles: the credit dynamic is not simply to be considered once the specific adverse events occurred (*causa proxima*); its understanding makes no sense without considering the endogenous process driven by speculative movements and financial instability (*causa remota*). In

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**106** Kindleberger, *Life*, p. 195.

**107** H.P. Minsky, *The Financial-Instability Hypothesis: Capitalist Processes and the Behavior of the Economy* (Paper prepared for the Colloquium Financial Crises and the Lender of Last Resort, Bad Homburg, 21.-23.05.1979), in: Hyman P. Minsky Archive, Paper 46.

**108** *Idem*, *Global Consequences*, p. 36.

**109** Kindleberger, *Manias*, p. 3.

**110** M. Friedman/A.J. Schwartz, *A Monetary History of the United States, 1867-1960*, Princeton 1963; B.S. Bernanke, *Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression*, in: *American Economic Review* 73/3, 1983, pp. 257-276.

**111** Kindleberger, *Manias*, pp. 70-71; *Idem*, *Manias, Panics, and Crashes*, Basingstoke 1996, pp. 60-61.

**112** *Idem*, *Manias*, pp. 9-10, 15-16, 107-108.

other words, Kindleberger's theoretical framework belongs to the tradition of the endogenous approach as opposed to the exogenous approach. This being stated, it has been subject to a threefold misunderstanding.

The first one is about the role of credit in the business cycle. The literature on monetary macroeconomics considers that Charles Kindleberger and the New Keynesians both endorsed the credit view (as opposed to Friedman and Schwartz's money view) to explain the economic depression.<sup>113</sup> So it is claimed that Kindleberger's thinking was in tune with the New Keynesian paradigm, which focused on credit intermediation rather than on the money stock to explain changes in financial conditions. Such an interpretation needs, however, to be nuanced. In line with Friedman and Schwartz and with Cagan,<sup>114</sup> Bernanke adopted the exogenous approach and hence assumed that, in the economic depression, causality runs from banking panic to a decline in output: here, bank runs are viewed as exogenous shocks and the credit supply is considered *after* bank runs occur.<sup>115</sup> In line with Tooke, Hawtrey and Minsky, Kindleberger replied that the causality runs from financial fragility to banking panics: there, financial instability that culminates in bank runs is viewed as an endogenous process and the credit supply is considered *before* and *after* bank runs occur.<sup>116</sup> In other words, whereas Bernanke considers a series of banking crises as the "proximate cause" of the monetary contraction and economic downturn,<sup>117</sup> Kindleberger stresses that the unstable price dynamics in some asset markets as *causa remota* is already in motion when *causa proxima* occurs.<sup>118</sup>

The second (and related) misunderstanding is about the theory of financial crises and banking panics. In a chapter on financial crises, Frederic Mishkin claimed that Kindleberger did "not supply a rigorous theory of what character-

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**113** B.S. Bernanke, Credit in the Macroeconomy, in: Quarterly Review, Federal Reserve Bank of New York 18/1, 1993 pp. 50-70; C. Borio/N. Kennedy/S.D. Prowse, Exploring Aggregate Asset Price Fluctuations Across Countries: Measurement, Determinants and Monetary Policy Implications (Bank for International Settlements Economic Papers 40, April 1994); B. Eichengreen/K. Mitchener, The Great Depression as a Credit Boom Gone Wrong (Bank for International Settlements, Working Papers 137, September 2003).

**114** Friedman/Schwartz, A Monetary History; P. Cagan, Philip, Determinants and Effects of Changes in the Stock of Money, 1875-1960, New York 1965.

**115** Bernanke, Non-Monetary Effects, p. 272.

**116** Kindleberger, Manias, 3<sup>rd</sup> ed., p. 61.

**117** B.S. Bernanke, The World on a Cross of Gold: A Review of Golden Fetters: The Gold Standard and the Great Depression, 1919-1939, by Barry Eichengreen (1992), in: Journal of Monetary Economics 31/2, 1993, pp. 251-267, here: p. 251.

**118** Kindleberger, Manias, p. 107.

izes a financial crisis”.<sup>119</sup> But Kindleberger with Minsky rather stressed that a full characterization of a financial crisis is problematic for the reason that it is highly difficult to know what financial innovations will be in the future and *a fortiori* what their effects will be on the financial and banking system. Instead, Kindleberger and Minsky supplied a theory of the causes of the financial crisis – while Mishkin with Bernanke supplied a theory of the effects of the financial crisis. As an extension to Mishkin’s comment and in a paper on the ILLR, Barry Eichengreen agreed with Kindleberger’s *Manias* that “international financial markets are inherently unstable”, but he doubted it was “the most illuminating way of posing the issue”.<sup>120</sup> Eichengreen then argued that: “Market participants have strong incentives to make full use of all available information. Money managers, for example, are generously compensated if the funds they manage perform well and harshly penalized if they perform poorly. Making full and efficient use of all the relevant information available underlies the rational behavior that we believe leads to good performance. The more interesting question is whether rational agents have incentives to adapt their actions to those of other market participants in ways that result in herding behaviour”<sup>121</sup> – such as self-fulfilling bank runs, rational herding arising from payoff externalities, principal-agent problems, and information cascades.<sup>122</sup> Eichengreen implicitly restated the interpretation that Kindleberger supposedly adopted the “irrationality” hypothesis.<sup>123</sup> Actually, what Kindleberger stated is that “each participant in the market is acting rationally” and speculation in specific markets acts in “destabilizing ways” that look “irrational overall”.<sup>124</sup> Therefore, associating Kindleberger with the irrationality hypothesis as opposed to rational herding deeply misses a more fundamental theoretical distinction, namely: financial crises as unexpected events, exogenous shocks, or sunspots *versus* financial crises as the culmination of a long process.

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119 F.S. Mishkin, *Asymmetric Information and Financial Crises*, in: R.G. Hubbard (Ed.), *Financial Markets and Financial Crises*, Chicago 1991, pp. 69-108, here: p. 70.

120 B. Eichengreen, *Reflections on Financial Instability and the Need for an International Lender of Last Resort*, in: *Mershon International Studies Review* 41/2, 1997, pp. 340-345, here: p. 340.

121 *Ibid.*, p. 341.

122 A. Devenow/I. Welch, *Rational Herding in Financial Economics*, in: *European Economic Review* 40/3-5, 1996, pp. 603-615.

123 O.J. Blanchard/M.W. Watson, *Bubbles, Rational Expectations, and Financial Markets*, in: P. Wachtel (Ed.), *Crisis in the Economic and Financial Structure*, Lexington 1982, pp. 295-315, here p. 295; Bernanke, *Non-Monetary Effects*, p. 258.

124 Kindleberger, *Manias*, p. 41.

The third misunderstanding lies in the field of international political economy. Kindleberger's contributions have been obscured by Robert Keohane's interpretation and have been associated with the so-called "hegemonic stability theory" – a phrase that Kindleberger explicitly rejected.<sup>125</sup> Actually, Kindleberger expounded two kinds of argument explaining the need for a leadership. The first is that, because of the free riding problem in the international arena, the leading country should mostly or partly share the burden.<sup>126</sup> The second argument is that there is an international monetary hierarchy and that the leading institution should operate in consequence in the most efficient manner as the stabilizer of the internationalized banking system.<sup>127</sup> Once these two arguments in Kindleberger's writings have been distinguished, it is possible to assess their respective accuracy. In the light of the resolution of the global financial crisis of 2007-09, the first argument does not appear relevant: the European Central Bank accepted to pay higher rate than the market rate and, inasmuch as the Federal Reserve received substantial profits from the Dollar Swap Line programme, it did not disproportionately share the burden and hence was not strictly benevolent (in the sense given by the literature on international political economy). In contrast, the second argument is far more interesting: the Federal Reserve endorsed the role of the stabilizer in providing international liquidity and in decreasing the volatility of the dollar interest rate at the international level.<sup>128</sup> Furthermore, as we shall see below, the Federal Open Market Committee implicitly applied Kindleberger's rules of ILLR. All in all, the association of Kindleberger's contribution to international political economy with the hegemonic stability theory should be handled with care.

Once all sorts of misunderstandings have been cleared up, one can appreciate how Kindleberger came to advocate the action of an ILLR through currency swap lines. The central bank swap framework stands in the context of the international monetary hierarchy that leads the U.S. monetary authorities to take their responsibilities, and in the context of banking internationalization whereby non-U.S. commercial banks issued liabilities denominated in dollars. Hence,

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**125** Keohane, *After Hegemony*; C.P. Kindleberger, *International Public Goods without International Government*, in: *American Economic Review* 76/1, 1986, pp. 1-13, here: p. 10; *Idem*, *Life*, p. 180.

**126** *Idem*, *World*, p. 28.

**127** *Idem*, *The Politics of International Money and World Language*, in: *Essays in International Finance* 62, Princeton 1967 [*Idem*, *International Money*, pp. 26, 30.]

**128** E. Carré/L. Le Maux, *The Federal Reserve's Dollar Swap Lines and the European Central Bank during the Global Financial Crisis of 2008-2009*, in: *Cambridge Journal of Economics* 44/4, 2020, pp. 723-747.

the ILLR is not mere cooperation but a discretionary action of the leading monetary institution (say, the Federal Reserve), which sets the rules of conduct for the international financial system. These rules concern both quantity and price.

With regard to *quantity*, the allotted amount should be unlimited: “the crucial feature of an international central bank, is the availability of unlimited amounts of assistance through rediscounting in a period of crisis. [...] Lines of credit must be unlimited”.<sup>129</sup> This echoes Hawtrey’s suggestion seen above. With regard to *price*, the swap interest rate should not be a penalty rate (meaning that it should be a moderate rate) in order to mitigate the insolvency problem: the central bank swap facility “is better at lending freely” and “it lacks the penalty rate”.<sup>130</sup> This echoes Tooke’s rule, which stands in a different monetary regime, but is similarly consistent with the contra-cyclical principle. Finally, we can sum up Kindleberger’s rules of ILLR as follows: lending unlimitedly and quickly, against currency swaps among central banks, without a penalty rate.

Importantly, given that the ILLR *à la* Kindleberger does not directly provide international liquidity to commercial banks but to other central banks, the moral hazard problem is confined: that is, “among the close-knit insider group of the Bank for International Settlements the chances of abuse seem minimal”.<sup>131</sup> Then, the central banks receiving international liquidity from the leading monetary institution (say, the Federal Reserve) have to set rules of conduct to address moral hazard at their own domestic level. Kindleberger did not explicitly analyse how central banks receiving international liquidity should in turn distribute it within the banking system of their own jurisdiction. Gregory Moore shows that, at the domestic level, Kindleberger did not advocate the rule of penalty rate but a policy close to constructive ambiguity through which the central bank maintains some ambiguity regarding its decision to intervene and the conditions related to loans it grants to each commercial bank.<sup>132</sup> From the historical standpoint, the constructive-ambiguity argument could be envisaged in the Victorian era and under the gold specie regime; from a theoretical standpoint, the constructive-ambiguity policy triggers a rise in uncertainty, which is not the purpose of the lender of last resort. So the constructive-ambiguity argument

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<sup>129</sup> Kindleberger, *The Politics* [*Idem*, *International Money*, pp. 28-29].

<sup>130</sup> *Idem*, *Manias*, p. 225.

<sup>131</sup> *Ibid.*

<sup>132</sup> Moore, Kindleberger; *Idem*, *Solutions to the Moral Hazard Problem Arising from the Lender-of-Last-Resort Facility*, in: *Journal of Economic Surveys* 13/4, 1999, pp. 443-476; Kindleberger, *Manias*, p. 173; *Idem*, *Key Currencies*, p. 60.

appears quite out-of-date and becomes less appropriate once the ILLR provides unlimited liquidity to central banks.

In any rate, the key point is the articulation of the domestic and international levels, at least, once we consider the distinction mentioned above between the function of (1) lender of last resort and that of (2) market maker of last resort<sup>133</sup> or dealer of last resort.<sup>134</sup> At the sole *domestic* level, both functions (1) and (2) are integrated insofar as the credit system is significantly based on the securities market.<sup>135</sup> For instance, the Bank of England provides funding liquidity and market liquidity at the same time by providing sterling liquidity and by purchasing private and risky securities to British commercial banks. Here, the moral hazard problem is concentrated. At the *international* level, the central bank swap arrangement separates the function (1) of issuing international liquidity and the function (2) of sustaining market liquidity in last resort. For instance, the Federal Reserve provides dollar liquidity to the Bank of England and, then, British commercial banks receive loans in dollars from the Bank of England against private security collateral. Thus, under the central bank swap design, the Federal Reserve only took on the function (1) at the international level and bore little – if any – counterparty risk. The Bank of England, being unable to issue dollars, takes on the function (2) at its own level of jurisdiction and plainly bears counterparty and asset risks.<sup>136</sup> Overall, the Federal Reserve only assumes the role of issuer of international liquidity and transfers counterparty and asset risks to other central banks. There, the moral hazard problem is dispatched. In suggesting the central bank swap arrangement, Kindleberger indirectly answered Minsky's question previously noted about who in last resort should accept securitized assets from international commercial banks.<sup>137</sup>

The endogenous approach proposed by Minsky and Kindleberger implies that the ILLR intervention is crucial among developed market countries where the banking and financial system is highly sophisticated and integrated, notably through the issue of dollar-denominated deposits and securities. In contrast,

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133 *Buiter/Sibert*, Central Bank.

134 *Mehrling*, The New Lombard Street.

135 *L. Le Maux*, Financial Structure Changes and Central Bank Policy, in: *Journal of Economic Issues* 51/4, 2017, pp. 1054-1073.

136 Bordo, Humpage and Schwartz (*M.D. Bordo/O.F. Humpage/A.J. Schwartz*, The Evolution of the Federal Swap Lines since 1962, in: *IMF Economic Review* 63/2, 2015, pp. 353-372, here: p. 366) have a different interpretation in claiming that, under the Dollar Swap Line arrangement in 2007-09, “the foreign central banks acted as the lender of last resort [1]; the Federal Reserve acted as the financier [2]”.

137 *Minsky*, Global Consequences, p. 28.

Frederic Mishkin, who shares the exogenous approach, claims that the need for an ILLR rather concerns emerging market countries: in developed market countries, central banks can mitigate a financial crisis “both with expansionary monetary policy and with a lender-of-last-resort operation”; in emerging market countries, because of low inflation-fighting credibility and poor regulatory practice, central banks “are much less likely to have this capability” and “thus there is a strong argument so that an international lender of last resort may needed to cope with financial crises in these countries”.<sup>138</sup> The 2007-09 global financial crisis revealed that the European Central Bank, the Bank of England and the Swiss National Bank had not the capability to lend enough dollar liquidity to European commercial banks facing important dollar-denominated obligations and that they deeply needed ILLR intervention from the Federal Reserve.

Finally, Kindleberger’s approach in terms of hierarchy of money suggests that the ILLR is not a crisis manager as the International Monetary Fund might be, but it stands at the apex of the international monetary and financial system as the Federal Reserve does. Stanley Fischer, who had been the student of Kindleberger at the Massachusetts Institute for Technology (MIT), expounded a different view and recommended the intervention of the International Monetary Fund as the ILLR: “It is possible to conceive of an institution that does not have the ability to create money acting usefully as both crisis manager and crisis lender”.<sup>139</sup> Then, Fischer referred to Kindleberger’s institutional conception of the ILLR: “Others would argue that without the ability to create *unlimited* amounts of money, the would-be lender of last resort lacks credibility and thus cannot stabilize a panic. Those who take the latter view [Kindleberger’s view] should interpret the argument of this paper [Fischer’s paper] as being that there is a useful role to be played by an institution that can be both crisis manager and crisis lender, even if – according to their own definition – it cannot be a lender of last resort”.<sup>140</sup> Nonetheless, Kindleberger would have wondered how an ILLR without the power to create international liquidity could be contemplated. Actually, the Federal Reserve under Chairman Bernanke did apply Kindleberger’s rules of ILLR in the aftermath of the Lehman Brother failure in September 2008.

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138 F.S. Mishkin, Lessons from the Asian Crisis, in: Journal of International Money and Finance 18/4, 1999, pp. 709-723, here: p. 714.

139 Fischer, On the Need, p. 90.

140 *Ibid.*, emphasis added, see also p. 94.

## 4 Conclusion

John Fullarton, a theoretical companion of Thomas Tooke, wrote about the aftermath of the 1839 crisis in Britain that had come from the United States: “Our American losses are still fresh in every man’s recollection; and circumspection and *moderation* are the order of the day. But let us not deceive ourselves by supposing, that this is to last for ever. The flame is only suppressed. It is wonderful, how soon even the severest lessons of experience are forgotten, where there are strong temptations to mislead”.<sup>141</sup> Theoretically, Fullarton’s assertion emphasizes that banking and financial crises are the result of a long process silently producing financial vulnerabilities – which creates the myth of any sort of moderation. Historically, Fullarton’s assertion fitted into an international context in which British banking institutions borrowed short term in London and lent long term in the U.S. capital markets. Thus, the Bank of England was the *London* lender of last resort at the centre of the international financial system. A century later, the streams of international capital were reversed. As Kindleberger outlined in the 1960s, the U.S. banking system borrowed short term in New York and lent long term in the European capital markets. The Federal Reserve was then the *New York* lender of last resort for the Euromarkets and international dollar-denominated banking system. A half-century later, the streams of international capital reversed again. During the 2000s, European commercial banks borrowed short term in the U.S. and lent long term on the U.S. capital markets – thus creating a banking glut. Finally, the Federal Reserve was the *global* lender of last resort for the U.S. as well as European banking companies. The European Central Bank, the Bank of England, the Swiss National Bank *et al.* became the conveyor belt of the Federal Reserve’s international lending policy. The endogenous process driven by financial innovations and banking internationalization tended to accelerate the stream of international capital and, according to authors studied in the present paper, it strengthened the need for the ILLR (*à la* Kindleberger) or calls for the “dissolution” of giant banks (*à la* Minsky).

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141 J. Fullarton, *On the Regulation of Currencies*, London <sup>2</sup>1845, p. 173, emphasis added.

## Bionotes

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