Central Bank co-operation in historical perspective
A skeptical view

Marc FLANDREAU*
Chercheur au CNRS, OFCE

N° 96-06
Octobre 1996

* I am grateful to Ph. Cottrell, M. De Cecco, B. Eichengreen, E. Hochreiter, C. P. Kindleberger, Ken Mouré, D. Plihon, L. Scialom, as well as participants to the ARC II seminar, Paris, and to the Evora meetings of the European Association for Banking History for their comments on earlier drafts. The kind cooperation of the Bank of France Archives, of the Bank of England Archives, and of the Rothschild Archives is gratefully acknowledged.

From the sometimes tedious business of going to archives, economic historians derive an embarrassing privilege: they constantly face the risk of being surprised. The surprise may come in many forms, but usually not as a clean "discovery" where new bits of evidence immediately surrender to straightforward interpretation. More often, having travelled for a while in a new territory, they look back at where they have come from and realize that the formerly familiar landscape has become all of a sudden foreign.

This article deals with a surprise of this kind, that grew from a visit to the Rothschild Archives, in the Spring of 1993. As part of an investigation of the Rothschilds' activities on bullion markets I opened a box entitled "Relations avec la Banque de France[0]". The box contained three files relating to gold advances between the Bank of France and the Bank of England. These dealt with three important financial and or exchange crises in their respective economic histories. The first concerned the 1847-1848 episode where the Bank of England provided its French counterpart with much silver, and some gold— a contribution that did not prevent France from suspending specie payments in the midst of the 1848 crisis. The second was on to the 1890-1 events that followed the Baring crisis, where this time France provided Britain with gold and helped to maintain convertibility. The third was about the 1931 failed attempt to support sterling, in a last struggle that resulted in Britain leaving gold and then the world-wide collapse of the gold standard. As time passed, I began to believe that this one-box combination of pre-classical, classical, and post-classical gold standard experiences of co-operation, with strikingly different outcomes reflected some higher principle, the sign that central bank co-operation was probably not so decisive in the operation of the gold standard. Historians tend to believe in signs.

This lead seemed to go in a totally different direction from which other research had taken, under Eichengreen's banner, during the 1980s. Economists, unhappy with the general float that had followed the collapse of the Bretton Woods system, were becoming growingly sensitive to the advantages derived from cooperation (Hamada [1976] and [1979]). At about the same time, a sudden revival of interest in the gold standard led to active research aimed at understanding the "success" of the pre-W.W.I gold standard and its later "failure". Eichengreen had one story for both parts. In a series of papers that culminated with the by-now classic introduction to *Golden Fetters* (Eichengreen [1992]) he claimed that central bank co-operation had been the key to the pre-W.W.I gold standard's smooth operation. Inability to co-operate, by contrast, had led to the interwar collapse.[1]

Eichengreen's view of pre W.W.I gold standard operation is that of a dual functioning. In "normal" times, central banks moved their discount rate in response to shocks arising in their respective money markets.[2] In periods of crisis, however, the whole system was operating in a totally different manner. Central banks supposedly realized that they had common interests, and pooled gold reserves to increase each other's ability to avoid convertibility crises. In Eichengreen's words: "The credibility of the pre-war gold standard rested on international co-operation [...]. Major crises [were] contained through overt, conscious co-operation among central banks and governments. Central banks and governments discounted bills on behalf of the weak-currency country, or lent gold to its central bank. Consequently, the resources any one country could draw on when its gold parity was under attack far exceeded its own reserves; they included the resources of the other gold standard countries. This provided additional ammunition for defending their gold parity" [3].

It seemed to me that Eichengreen's claim was hard to reconcile with the elements found in the Rothschild archives. Had co-operation (in the shape of reserve pooling) been such an essential ingredient of the functioning of the pre-World War I international monetary system, how could it be that the considerable help brought by France to England in 1931 turned out to fail? Or conversely, if co-operation per se had not been enough to save the gold standard in 1931 was it so essential before 1914?

With this in mind, I started investigating central bank co-operation, not only under the "classical" gold standard, but during the broader nineteenth century, and found it rather exceptional.[4] In fact, as I proceed to show, co-operation took place only under very specific circumstances and on the basis of central banks' selfish interest, rather than as a rule or upon recognition of the existence of common goals. Moreover, far from displaying an upward trend towards more co-operation (as Eichengreen argued), I found that central banks' attitude towards each other exhibited important cycles: in practice, three main sub periods (characterized by drastically different outcomes in terms of co-operative behaviour) can be identified. Not incidentally, these respective eras roughly coincided with different settings of the international monetary system, suggesting that the relation between monetary regimes and central bank co-operation should deserve closer scrutiny.

The problem of structures: rules vs. policies

Obviously there are many levels at which the existence and extent of monetary co-operation could be examined. In particular, one could distinguish between co-operation within structures and co-operation about structures. Most economists - apart from those who would describe themselves as the political economists — believe that structures are somehow exogenous, or at least point out that the timing of their change is infinitely longer than that of variables such as agents' behaviour. Political scientists by contrast are keen to endogenize the rules of the game because they rightly believe that the way the rules are set influences the game's outcome. Rational decision makers should care at least as much about the way they define the rules of the game, as they care about adopting a given policy stance.[5]

In monetary matters, co-operation about structures would relate to the (explicit or implicit) setting and definition of "the rules of the game" by international actors who have a power to do so. Co-operation within structures by contrast would refer to the formulation and implementation of the policy stance within those very rules. Given the nineteenth century division of political labour, co-operation about structures would be governments' task, while co-operation within structures would be the responsibility of central banks. Hence it is possible that co-operation occurred within central banks without explicit co-ordination between monetary systems — or vice-versa.

To be sure, this distinction between rules and policies is partly artificial for the two levels are deeply interwoven. Still, it has a heuristical value, because it helps to map the various spheres in which international monetary action could take place. Besides, the fact is that at a structural level, there are grounds for believing that co-operation within the gold standard was a complete failure. The very emergence of the gold standard was a typically uncooperative outcome, that stemmed from a co-ordination failure between the French and the German governments

(Flandreau [1996]). Similarly, Gallarotti [1995] emphasizes that the 1880-1914 period displayed (despite repeated international conferences) very little inter-governmental co-operation, and a general inability to find a co-ordinated solution to the period's one largest monetary problem — the fall in the price of silver on world markets which disrupted a previously stable world exchange-rate system.[6] Such findings (which echo earlier claims by distinguished scholars such as Russell [1898] and Mertens [1944]) are important because they seem to be at odds with the central bank co-operation view. In other words, one has to explain why and how co-operative and uncooperative behaviours could coexist — i.e. co-operation at the policy level along with non-co-operation at the structural level.[7]

Given that the co-operation story was formulated in terms of central banks policies, it is only too natural for the following discussion to focus on the policy level rather than on the structural level, leaving the full study of the interactions between central banks and governments to future research. However, it is useful to keep the distinction in mind because, as will appear in the following discussion, governments and parliaments often interfered with central banks, actions and might thus have to a certain extent influenced the co-operative — or as was the case, non-co-operative — outcome.

Years of co-operation: 1825-1854.

The period before 1854 was characterized by a general success of the attempts toward central bank co-operation, between the Bank of France and the Bank of England. To a certain extent, the pattern of co-operative behaviour was influenced by the complementarities between the French and British monetary systems. While England was on gold, abundant silver production had led the Paris market to operate chiefly on a silver basis.[8] Although arbitrage stabilized the gold-silver exchange rate within relatively narrow margins, substitutability between the Paris and London predominant reserve currencies was imperfect. In London, gold was money. In Paris by contrast, gold was melted down and exported as an asset. The opposite held for silver, a monetary metal in Paris, an asset in London. Hence crisis could be met by swapping non-monetary specie holdings between the two markets.

A second feature that might have facilitated the emergence of cooperative behaviour was the unavailability, at least until the turn of the mid century, of official discount rate moves as a "natural" way to tighten or loosen credit conditions. This was especially true for France, where usury laws prohibited, until 1857, the raising of interest rates above 6 per cent. In practice the Bank of France tried to keep its discount rate close to a long run 4 per cent target. The same held, albeit to a lesser extent, on the English side where (as emphasized by Cottrell [1982], p. 134), "it was only with the 'new' policy of competitive discounting after 1844 that Bank Rate fluctuated widely". Moreover in England and France, public opposition to interest rate hikes was strong and vocal. In both central banks, Governors such as Weguelin or d'Argout still preferred a dose of "quantity rationing" to interest rate changes: with legal, institutional, or ideological resistance to active discount policies, reserve pooling might have been a more likely outcome.

Early examples of central bank co-operation included the 1825 London crisis, which was dealt with through the help of the Bank of France, which took silver from the Bank of England, in exchange for gold, thus providing extra liquidity to both markets. In 1836, the Bank of France again helped the Bank of England, by agreeing that the latter draw bills of credit on Paris for over £400,000.

In 1839, crisis was back on the London market and suspension of specie payments was considered.[9] The Governor of the Bank of France, the Comte d'Argout, happened to be at the time in London, and accepted to support the Bank of England in its attempt to seek assistance from the Paris market by arranging meetings with meading French bankers. The Bank of England objective was to obtain from French banks a credit line on which it could draw to sell Paris bills on the market, thus turning the exchanges away from the bullion export points.[10] T. A. Curtis, former governor of Bank of England, travelled to Paris and met with Delessert and Hottinguer, two leading figures in the financial community. Despite the abundance of gold and idle balances that (as Lévy-Leboyer [1989] claims) prevailed at the time, Delessert and Hottinguer returned that given the importance of the projected rescue package, agreement and material support from the broader banking community and from the Bank of France was required. A meeting at the Governor's room at the Bank was then organized, along with the sub governors and Thomas Baring (who had arrived in the meantime).[11] It was ascertained that the statutes of the Bank of France would not admit of its lending money upon foreign bills or securities, but the Bank could discount bills with bankers who would lend to London through Baring's intermediary. A syndicate of the twelve most prominent Paris bankers was thus gathered.[12] Rothschild, who had (probably not accidentally) been called on at the last minute, refused to come.[13] A first deal was struck, and submitted to Rothschild who declined to participate. The deal was then discussed during the Conseil Général de la Banque de France, and further problems were debated. The ensuing meeting between members of the syndicate revealed centrifugal forces as one more banker tried to opt out.[14] Active pressure from Hottinguer was finally necessary to get everybody on board, and the Treaty between Baring, the Bank of England, and the Paris bankers was finally signed on August 1st. The episode (which provided £2 million to the Bank of England) was reported as having permitted an avoidance as suspension of specie payments.[15]

The negotiation had also revealed that direct schemes with Paris bankers could be quite hazardous, especially in emergencies: discussions had been drawn out over a period of more than ten days.[16] In his final report, Curtis praised Comte d'Argout's "influence and zealous activity [that] contributed to bring the matter in hand to a favorable consideration at the Bank of France"[17], but called for an institutionalization of the relations between the two banks, that would avoid the complexities of dealing with private bankers:

> "I may also state that the circumstances of this negociation and to which my visit may have partially contributed have elicited the expression of a great desire on the part of the Bank of France to be able to establish a direct intercourse and interchange of good services between that establishment and the Bank of England, and the hope that in the approaching renewal of their charter they may be able so far to modify its statutes as to enable it to effect to effect that object by special prescribed power. Such an arrangement might be of the highest advantage to the Bank of England in freeing it in the first place from the necessity of applying to individuals on business when it may be desirable to operate on the foreign exchanges in the second, and therefore in giving greater facility to the intended action, from the powerful mean it would place at the disposal of the Bank of England, and thereby from the immediate and unobserved influence which such friendly and confidential relations between the

two establishments would tend to produce when the situation of either Bank might require the aid and assistance of the other."[18]

The complementarity between silver based Bank of France operations, and gold based Bank of England operations was again displayed during 1846-1847, which was an almost perfect mirror image of the 1839 episode. In December 1846, the Bank of France faced a dramatic fall of its specie reserve, resulting from bad harvests which forced the import of wheat. The Conseil Général decided to undertake specie purchases as a way of avoiding a convertibility crisis.[19] Hottinguer was mandated as an intermediary and not surprisingly, he contracted with Baring. The Barings had to organize a syndicate of London bankers that would supply silver in exchange for French 5 per cent Rentes.[20] It was probably expected that Baring's substantial business with silver based Asia and Northern Europe provided good information on how and where to collect silver.

The statutes of the Act of 1844 allowed the Bank of England to use a measure of silver as a reserve asset (valued at market price), and in practice the Bank was in the habit of purchasing or selling silver with a margin on market price.[21] Moreover, the Bank of England had recently experienced a £1.5 million upsurge in its silver reserve.[22] Hence Baring thought of operating through the Bank of England. This sounded plausible, because the Bank also held foreign securities, and might thus consider favorably the possibility of swapping a commodity asset (silver) against interest bearing assets (French 5 per cent Rentes). Yet the British market was at the time pretty tight, and it was not clear that the Bank of England should embark on an operation on which it had not been consulted.

The Bank of England responded favorably, offering to provide FF. 30 million. According to the archives of the Bank of France: "When the governors of the Bank of England learned that the proposed transaction was for the account of the Bank of France, they reacted with much kindness towards Mr. Hottinguer, and even offered to lower their selling price for silver (which they had held up for some time at 60 1/2 [per oz. standard]) down to 60 3/8. In addition, they opened a 20 days credit line to give the Bank of France the opportunity to get silver at an even lower price, if shipments expected from Mexico permitted."[23] The Bank of France finally took 25 million. According to Juglar [1889], in March 1847, shortly after the deal was cut, the

Imperial Bank of Russia offered to purchase Rentes with gold for up to FF. 25 millions. This allowed the British to swap their Rentes holdings in exchange for gold.[24] Again, both Paris and London markets were eventually able to improve the liquidity of their market, thus avoiding a convertibility crisis.

While the central banks perceived the operations as generally successful, it must be emphasized that the general political climate was not overly favorable to such operations.[25] While the symmetry of the 1839 and 1847 episodes suggests that reciprocity could be expected, parliaments generally resisted. For instance, the 1839 episode was met with French recommendation that assistance to the Bank of England should not be taken for granted in the future, and the Bank of France Charter's renewal on which the government had its say, did not bring the modification that Curtis had hoped.[26] Government's opposition certainly explains part of the secrecy surrounding the 1847 episode. Yet the importance of such resistance should not be over-emphasized. Government resistance to central bank co-operation had not proven impassable and, as we proceed to show, it is precisely during the 1850s and 1860s (i.e. during the golden years of the trade treaties) that — despite the generally "good cordial understanding" between the two countries — central bank co-operation would begin to unravel.

Years of fight: 1855-1885

The years of relative co-operation were followed by a rather long period of conflict.[27] The transition did not take place overnight, but gradually. Yet in the mid-1850s a climate change was perceptible. The last instance of relatively kind relations appears to have taken place in the Spring of 1854. On May 11, the Bank of England had raised its discount rate from 5 per cent to 5.5 per cent. The Bank of France, which at the same time was experiencing an upsurge in its bullion reserve, decided to react by lowering its own rate, bringing it down (from 5 per cent where it was since January) to its long run "target" of 4 per cent. While the move had not been co-ordinated or explicitly co-operative, Hubbard sent a letter to Comte d'Argout thanking the Bank for its action.[28]

Hostilities started soon after, interestingly at precisely the same date when Paris started operating on a predominantly gold basis.[29] In the Summer of 1855, the Bank of France found itself with a quickly declining reserve and sought gold loans to support it without raising its discount rate. The operation was organized secretly in co-operation with French bankers, suggesting that the Bank of France felt that the capital of good relations was not large enough to induce the Bank of England to co-operate, or that it might be less willing to lend its reserve asset.[30] In August 1855, the Bank of France asked a number of French banks and bullion dealers to collect bills of immediate usance payable in London. These banks had their correspondents cashing the bills and sending gold to the Bank of France. This however failed to provide any durable relief. In late September, the Bank thus tried to expand its borrowing. But as the supply of sight bills declined, it turned to collecting bills of longer maturities, and have correspondents discounting them at the Bank of England.

Not surprisingly, the Bank of England reacted to the drain that it experienced by raising its discount rate from 4 1/2 to 5 per cent on October 1, and again to 6 per cent on October 6.[31] While the press related the Bank of England's moves to the Bank of France's secret operations, British monetary authorities tried to minimize the conflict. In a letter dated October 9, the governor Weguelin emphasized that both past relations and current necessities impelled the two banks to co-operate rather than to fight. The outflows of gold from both banks' reserves had, according to him, one single cause, namely the foreign expenditure of the French and British governments to wage the Crimean war. The interest rate rises by the Bank of England had not beeen caused (he claimed) by the Bank of France's secret operations, but merely resulted from the increased demand for gold made upon the Bank of England "at a moment when her available resource was on the decline" (but what was the effect of the Bank of France's secret operation if not precisely "increasing the demand for gold made upon" the Bank of England?)[32] Weguelin concluded with a call for intensified exchange of information, a clear hint that the Bank of England was not overly happy about its counterpart's secretive operations: "If the Bank of England, M. le Comte, can at any time provide you with information which you are desirious of knowing, I need not inform you of the perfect readiness with which it will be given"[33].

The Bank of France apparently tried to use this overture to seek the Bank of England's active assistance, and the Belgian press mentioned that Charles de Rothschild (a London Rothschild) had connected with the governors of the Bank of England.[34] The archives of the Bank of

England indeed show that James de Rothschild and his son Alphonse (newly appointed *Régent* of the Bank of France) met the Governor of the Bank of England, with a letter from d'Argout, asking to borrow between £ 2 and 3 million in gold. In his reply to d'Argout, Weguelin kindly but firmly refused to provide help, lecturing the French on the Act of 1844, which according to him prevented the Bank of England from using its reserve for operations of foreign support[35]. "Allow me to add" he concluded, "that it would have given me the highest satisfaction, if I could have had the mean of conducting an arrangement in favor of the Bank of France similar to that in which the Bank of England was indebted to its assistance in the year 1839".[36] Reciprocity had failed to materialize.

With co-operation at bay, fight was the only avenue, and the Bank of France replied in kind, raising its discount rate from 4 to 5 per cent and subsequently to the 6 per cent ceiling to meet the British policies.[37] At the same time, it kept borrowing gold on an even greater scale. Contemporaries clearly perceived that these moves had offsetting consequences, leading each bank to further action. In London for instance, Bagehot remarked:"Few persons venture to anticipate that the export of gold will be stopped by the present further rise in the value of money, but it is generally considered that a wholesome influence will be exercized in that direction, *although the movement of our bank is to a certain extent counteracted by that of the Bank of France*"[38]. And so were the efforts of the Bank of France counteracted by those of the Bank of England, especially because the latter did not limit its action to interest rate hikes but also sought to discriminate against the kind of bills that the Bank of France did purchase.[39] With no room for further interest rate hikes, and England's refusal to co-operate, the Bank of France's situation was becoming critical.

As the fight between the two banks developed some authors started to advocate a co-operative outcome. Walter Bagehot, in a paper in the *Bankers'Magazine* (November 1855) spelled out the basic argument for an international lender of last resort: "In the present cordial good understanding between France and England, it becomes the duty of both, to unite their strength in every way not to divide it. *I have often thought that an intimate correspondence upon emergencies between the two Banks of France and England might be beneficial to both*; and if the existing charters of either do not now admit it, an alteration or power to accomplish that object might be given for their mutual advantage".[40] In retrospect, Bagehot's analysis sounded like a sad echo to the visions of the Curtis Report.

Thus the Bank of France kept purchasing gold on an extensive scale in 1856 and 1857. It did so under fierce criticism from the British economic and financial press, which pictured the Bank of France's reluctance to use its discount rate as illegitimate. These attacks sounded paradoxical on the surface, for in the past, the Bank of England had been quite happy with the Bank of France attempts not to move its discount rate. They were also somehow unfair, for without help from England and no possibility to further raise the discount rate, the Bank of France had no other choice than to seek gold advances at a rate at least as large as the fall in its reserve. This "dangerous and losing game" as a correspondent to *The Economist* called it, could only work if the Bank could induce Paris bankers to tighten credit, which it did to some extent.[41]

Relief was finally provided by the removal in France of the interest rate ceiling in the midst of the 1857 world-wide financial crisis which European central banks entered in a totally uncoordinated manner. While the monetary difficulties of the past two years had led the Bank of France to be relatively prudent and thus comparatively better prepared than other banks, it was certainly not prepared to help London out, and in October 1857, the Bank of England had to suspend the Act of 1844.[42] Clearly, a regime of competitive interest rate increases was emerging out of the old system of credit rationing and reserve pooling.[43]

Interestingly, co-operation failure between France and England was accompanied by partial co-operation within the periphery of the silver bloc, namely between Hamburg and Austria. During the 1850s, Hamburg had become the main intermediary in trade between northern Europe (North Germany, Sweden, Denmark, Norway) and England. English merchants sold goods to Scandinavians and got paid through bills accepted by Hamburg houses. Scandinavia and northern Germany then sold goods on world markets in time to cover the acceptances of their Hamburg correspondents. With the advent of the crisis, Scandinavian importers were caught short of being able to pay back their credits. Hamburg houses that had accepted bills were now called upon to take up their acceptances. Insolvency threatened.[44] Bankers thus turned to the Bank of Hamburg to cash their bills: the Bank's reserves collapsed. Suspension of specie payments was under way.

Help was first sought from Berlin whose market was closely related to Hamburg, but the Bank of Prussia (itself caught in the midst of the crisis) refused to provide specie (Juglar [1889], p. 493).[45] Finally, rescue came from Vienna. After years of unbalanced budgets and seigniorage finance, Austria was in a regime of inconvertible paper, which partly insulated it from shocks in convertible nations: moreover, the Bank of Austria held at the time a sterile silver reserve that could be profitably used in foreign support: 10 million of marks banco in silver were loaned by the Bank of Austria (presumably through a transfer of bonds) to the Bank of Hamburg. A train (Silberzug) was sent to provide relief and its mere arrival calmed markets down (Kindleberger [1996]). The 10 million were immediately absorbed by those houses that had most violently experienced the initial pressure and a general collapse was avoided.[46]

The record of the 1860s was no better, although it seemed to open with a ceasefire, materialized by the famed swap of gold and silver between the Bank of France and the Bank of England. The 1860 swap had been engineered by the British, in the wake of persistent gold purchases by the Bank of France on the London market. While tensions on the money market were increased by the US crisis triggered by the onset of the Civil War, Europe was at the same time experiencing renewed pressure due to its trade deficit against Asia, which had to be settled in silver. This was creating substantial difficulties for the London market, which played a key rôle in intermediating between Asia and Europe (Hughes [1960]). At the same time the Bank of France which was fighting to increase its gold reserve, also held a sterile silver reserve, which it could not be used in payments without triggering a run, because silver was undervalued in Paris (Kindleberger [1996]). The Bank of England thus realized that a swap might be possible, and would temporarily check French attempts. It thus offered the Bank of France to exchange 50 million FF in silver against 50 million in gold. The way the French were approached, however, helps to show how things had changed since the end of the co-operative era. A message was sent to the Conseil Général stating that if the French asked for a swap, the British might accept. Clearly prestige was involved: the Bank of England had found a way to mitigate the bully's action by waiving a red handkerchief in a direction that suited London, but it did not want to appear to be begging.[47] In the following months, the Bank of France disposed of its remaining silver reserve, swapping it with the Italian *Banca Nazionale* (9 millions) and the Imperial Bank of Russia (31 millions).

Contrary to what has often been argued (Cottrell [1982], Kindleberger [1996]), these operations had nothing to do with the basic motive of the co-operative model. Swaps did not result from the enlightened perception that they provided some kind of public good.[48] Instead, central banks acted very much as merchants who find mutual benefits in exchanging assets. Before and after the 1860 and 1861 operations the Bank of France had made similar exchanges with private banks such as the Rothschild (who acted as intermediary for the Bank of England-Bank of France 1860 swap): in these instances, the Bank of France was selling the appreciated metal to the arbitrageurs in exchange for coins made of the depreciated metal, thus sharing the benefit of the arbitrage with private bankers.[49] Swaps with foreign central banks, which were similarly made at market price plus a possible commission were by no means different.

While it may be that the Bank of England had to some extent hoped that the 1860 swap serve as a first step back towards co-operation, the Bank of France kept (until the mid 1860s) obtaining gold through purchases of London bills that were then discounted at the Bank of England, hoping to take the Bank of England off guard (Flandreau [1995]). This repeatedly led the Bank of England, once the cause of the drain was identified, to raise its discount rate, thus forcing the Bank of France to follow suit. Gold purchases took place in 1861, and again in 1864. They were discontinued only after 1865 when tension on the Paris market receded. But again, this did not serve as a prologue to increased cooperation: the 1866 Overend Gurney panic was met with splendid indifference on behalf of the Bank of France, although the easiness of the Paris market at the time might have rendered co-operation feasible.

The early 1870s were characterized by thorough transformations in the shape and structure of the international monetary system: yet non-co-operative patterns seemed to persist. Germany's 1871 decision to move to gold and exploit France's bimetallic system as a way of disposing of its silver Thalers in exchange for gold at a fixed rate led the French administration to retaliate by limiting silver coinage (Flandreau [1995]). However, with the proceeds of the War Indemnity that Germany had imposed to France and which had been paid mostly through international bills, Germany had acquired the means to get gold from London, either by directly discounting British bills in London, or by acquiring British bills in exchange for Dutch, German, or Belgian ones and then getting gold from London.[50]

Although the Bank of Prussia (which was in charge of these operations) attempted to get gold indirectly through purchases in the open market, the Bank of England soon experienced the effects of Germany's policies. Indeed, since the Germans were bidding for gold, less deposits were made at the Bank of England, thus rendering the reserve more sensitive to other withdrawals.[51] This became especially perceptible when the growing financial distress in the US developed during the autumn, bringing a second source of drain. As a result the Bank of England raised its discount rate not only to meet current demands,[52] but also to signal its desire to oppose further losses from the London market.[53] The effect of these increases (which the Bank of England was ready to push as high as 9 per cent in mid-November) was quickly felt.[54]

These moves – as well as the perception by the Germans that the Bank of England was ready to go as far as necessary to refrain Germany's purchases in the wake of a growing crisis – led the Bank of Prussia to moderate its purchases. As *The Economist* described it: "The German money market is already exceedingly perturbed, and it quickly sympathizes with ours here. If, therefore by a sudden demand for a large sum of gold the German Government were to cause a perturbation [in London], it would soon find that it had inflicted great difficulties on its own people, and it would be greatly blamed. We may be sure, therefore, for the present that this government will not act rashly."[55] . And again a few weeks later commenting on the decisions to limit purchases it wrote: "[Purchases have] almost avowedly been suspended from a desire not to hurt the English money market and through it the German. If the Berlin Government had taken 1 000 000 £ of gold a fortnight ago (and it possessed cash and securities by which easily have done so) the first result would have been a panic here and the second a recoil in Germany, which would have caused vast evil there. To avoid this, the Berlin Government suspended its operations; but it may be taken for granted that it has only suspended them" [56]

Finally, it is very important to remark that the fairy that leaned on the Gold Standard's cradle was one of competition, not one of co-operation. France's attempt to bloc Germany's reform had led the Germans to try to get gold from London. And this had in turn led the Bank of

England – in the wake of the American crisis – to raise its discount rate to unprecedented levels, to force the Germans to delay their purchases.[57] This view had been the motto of Disraeli's famous Glasgow speech, where he blamed the golden sirens for having led to dramatic increases of the Bank rate by popularizing the idea (to him, wrong) that a gold standard regime was preferable for the world at large.[58]

Yet this outcome was not inescapable, but rather the product of co-operation failure. France while inconvertible, might have lent gold resources to Britain – but this would have eased Germany's reform. Moreover, Kindleberger [1989] reports that the Bank of England was at the same time dismissing the "ridiculous rumour" that it had thought of applying for a loan to the Bank of France. Similarly, the Germans, instead of learning through Bank rate about the Bank of England's decided policy, might have preferred to co-ordinate directly with London for their gold purchases. And indeed they offered to open an automatic credit line that would provide greater security to the London market, thus moderating precautionary interest rate increases in London. But the German overture, which is recalled by Clapham [1945] was met by rebuttal: "The Bank is not" answered the British, "nor has been in want of such aid and need not avail itself of the arrangement you so kindly suggest".[59]

In conclusion, the spread of the Gold Standard, in the early 1870s, far from founding a heyday of co-operation, sounds more like the rehearsal of the difficulties of the interwar years.

Expanding co-operation? 1890-1914

The bank wars of the 1850s and 1860s, and the Anglo-German fight over gold in the early 1870s, were followed by a long period of mutual neglect. The French crash of 1882, which resulted from stock market speculation left other centres relatively untouched, and in fact did not really threaten convertibility either at home, nor abroad. Central bank co-operation had to wait until 1890 to experience some revival in the midst of the Baring's collapse. Before disclosing Baring's position, the Bank of England made a number of international arrangements. In particular, it obtained £3 million in gold from the Bank of France (roughly FF. 75 million) and £1.5 million from the Bank of Russia. The French help came through discounting of British bills, and since it was not in the habit of the Bank of France to discount foreign bills, the

Rothschild bank was used as an intermediary — ironically as the Barings had done in the past.[60] France's short term advance was renewed until February 1891, when the French finally got reimbursed.[61] According to Patron, in his memorandum "The Bank of France in its relation to national and international credit", the FF. 75 million provided by the French were enough to reassure markets and were never actually *used.* They supposedly crossed back the channel in unopened boxes.

As had been the case before 1848, central bank co-operation in the midst of the Baring crisis was met by political resistance. As Kindleberger describes it, William Lidderdale (Governor and the Bank) and the City had been uneasy about asking for Gallic (and Russian) help. He quotes Clapham's remark (Clapham [1945]): "Suppose that for some political-financial reason, they had been unwilling to oblige?"[62] On the French side, the 1890 transaction resulted in hostile interpellation in the Chambre des Députés. But the Minister of Finance replied that such help had been necessary to prevent harmful repercussion on France of a more important crisis in London.[63]

Interestingly, the Baring episode was a transition between an old regime and a new one. While opening an era of more regular co-operation, it also seemed reminiscent of the pre-1848 instances where interventions had to operate through the agency of one or several international bankers.[64] In fact, this type of arrangement was mandatory because leading European central banks — contrary to smaller ones — were not in the habit of commonly discounting foreign bills.[65] After 1890 however, the Bank of France as well as other central banks, tended to introduce measures that would facilitate direct interventions on foreign markets.

This movement has to be related to a world-wide trend in the international monetary system, by which an increasing portion of central bank reserves were held in foreign bills (Lindert [1969]). While this might have been initially motivated by a desire to save on non-interest bearing gold holdings (Eichengreen and Flandreau [1996]), it also meant that statutes or practices had to change, and that central bank had now a means of influencing directly foreign markets.

This evolution took a specific turn in the case of France, for its central Bank had accumulated a considerable amount of gold, that allowed her to adopt a counter-cyclical operation, letting gold flow out in periods of international monetary unrest, and getting gold back when pressure receded. Such policies were further facilitated by France's monetary system, a bimetallic regime by law, but a gold standard in practice, with the Bank of France being able to sell gold at varying prices: this setting permitted the Bank of France to avoid using the discount rate on a regular basis. To a certain extent, the Bank of France found itself (although for totally different reasons) back in the pre-1855 situation. As a result, it began to repeatedly help out foreign banks, central or commercial, either through discounting, or by not tightening credit when French banks were lending abroad.

Such actions began in 1898 when the Bank of France co-ordinated with the Bank of England to provide German banks with gold as a way of easing the pressure in the Berlin money market.[66] In 1902 and 1903 again, the Bank of France decided not to react when gold was shipped abroad, to England and Germany. According to Billoret [1969], this experiment determined a psychological upheaval in the Bank of France's perception of the international effects of its domestic policies. The Bank's annual report for 1903 mentioned that, "by letting a few dozen of millions flow out, (this representing a tiny fraction of our reserve), we could manage to avoid a more substantial loss, a tightening of the London money market, and through the solidarity of financial centers, an eventual increase of our discount rate".[67] In other words, the main argument in favour of co-operation seemed to be emerging through a Darwinian process, i.e. not through conscious behaviour, but through the ex post perception that the costs of help could be smaller than the returns. This attitude however, cannot be interpreted in the simple framework of the co-operation model. Indeed, in this model, a country that would adopt unilaterally co-operative measures would find itself worse off. The Bank of France, by contrast, was discovering that given its specific situation, unilateral cooperation could pay.[68]

Between 1906 and 1910, the Bank of France supplied gold to London on a regular basis, through the channel of direct discounting of British bills. As mentioned above, this reflected a rather remarkable change from France's earlier policies: foreign bills discounting first tacit, became avowedly in 1909, and in 1910, statutory.[69] This new breed of interventions acted at two levels. First, by standing ready to discount foreign bills, the Bank of France could act as an international lender of last resort, holding its discount rate for foreign bills lower than the foreign rate of the market on which they were payable. Second, by active open market interventions (e.g. in 1906, 1909, 1910), the Bank of France could help to contribute to the fine tuning of the global money market, thus reducing the risk of a panic.[70]

The crisis of 1907 illustrated the full thrust of the machinery at work. When the Autumn pressure from New York became acute, the Bank of France supplied London with 80 millions in gold Eagles. At the same time, the Bank started heavy discounting of London bills, which it took at a lower rate than the Bank Rate in England. While this allowed the Bank of France to make a profitable investment in £ bills, it also contributed to stabilizing the storm that threatened to extend to the French monetary community.[71] At the same time, the Bank of Austria was helping the Reichsbank to weather the consequences of the international monetary crisis.

Did that mean that the world was heading to a more co-operative era, as some contemporaries have argued, and as Eichengreen claims ?[72] This is far from certain. It is true that the 1907 crisis had to a certain extent demonstrated the advantages of adopting co-operative behaviour. And indeed, people such as Luzzatti were actively campaigning for some kind of institutionalization of the ad hoc co-operations that had taken place in 1907. He went as far as envisioning an international division of co-operation, where Austria would help Germany, where Italy, Russia, and France would help Britain, and where Britain would help the United States. This westward flow of co-operation, was according to him the best way to provide for the observed eastward flow of financial distress, which quite poetically, he called a monetary Gulf Stream.[73]

However, many economists, and many politicians were not prepared to endorse Luzzatti's proposal. At the economic level, Raffalovich [1908] claimed that an international lender of last resort would encourage moral hazard, so that systematic co-operation and automatic credit lines would only destabilize the international monetary system: discipline was necessary.[74] At the political level, deep tensions were also perceptible during the run up to World War I. Eichengreen implicitly suggests including the whole period 1907-1914 as past of the same movement towards more co-operation. But I have trouble including the years preceding one of this century's most deadly conflicts in a supposed era of international co-operation.

The Agadir crisis, followed by the wars in the Balkans showed that there were increased tensions in Europe. And these tensions had monetary implications. Central banks in France and Germany were induced by their governments to accumulate a war chest that could be used in case of conflict. Gold generosity receded. France became more reluctant to discount foreign bills, and in fact, French banks suddenly called back their Berlin holdings. Liquidity crisis in Berlin was only avoided through the help of American capital.This did not look like co-operation.

Conclusion. Mirror images of the gold standard

Two important conclusions can be drawn from this story. First, it should be clear that central bank co-operation was definitely not the predominant pattern in the pre-1914 period. Yet the stability of the exchange rates between the leading European financial centres (London, Paris, Hamburg, and later Berlin) is not a phenomenon that is circumscribed to the classical gold standard era, but instead emcompasses most of the nineteenth century. Hence one must reject the view that central bank co-operation was an essential ingredient of the working of the gold standard in the pre World War I period. There were episodes of central bank competition without collapse of convertibility (as during the 1870s), which seemed to be the reverse image of the 1931 episode alluded to in the introduction, and where co-operation proved unable to prevent a dramatic convertibility crisis. Of course, it could be that less co-operation was needed before 1914, and more after. But the t-stat of a hypothetical regression of convertibility on co-operation, provided that one considers a large enough sample, is very close to zero.

Secondly, I believe that the evidence reported here suggests some possible interpretations of the condition that led to the emergence or failure of central bank co-operation. Two factors appear to have mattered. One is the degree of substitutability between reserve assets, and more broadly, the nature of the monetary regimes involved. The 1839 and 1847 co-operations between France and England for instance appeared to result from the fact that the monetary metal in London was not the one predominantly used in Paris. The only serious instances of central bank co-operation in the 1850-1880 period were between silver standard Hamburg and inconvertible paper currency Austria, and the 1860s swaps. The help given by Austria to

Germany in 1907 had a similar flavour, for Austria, although it had by then stabilized its exchange rate in terms of gold, did not actually give specie in payment, and thus was ready to swap bullion for bills. Finally, France's help to Germany or Britain, after 1890, was certainly related to the fact that the French central bank held at the time a considerable reserve, thus allowing it to disregard the short-term fluctuations of its specie holdings. On the other hand, it seems that legal restrictions on the range of instruments available to central banks also played a role. The unavailability of discretionary discount rate policies before the 1850s in France, or their possible avoidance after 1885, due to the specific nature of France's gold standard were certainly important factors, although the change in interest rate legislation in 1857 suggests that such institutional features are, over the long run, endogenous.

In all cases, co-operation had not resulted from the bilateral realization of common interests, or of the detrimental effects of unilateral action (as the co-operation story would have it). Instead, it had resulted from the unilateral perception by some given central bank that since it held an asset that could increase the liquidity of other markets without deteriorating its own situation (as the swap operations exemplify it) unilateral co-operation obviously dominated other possible strategies. This might explain why co-operation took place on an ad hoc basis, sometimes succeeding, sometimes failing, but in any case never becoming the keystone of the international monetary system. In a pre-1914 mirror, the alleged collapse of central bank co-operation, which according to Barry Eichengreen took place in the interwar, looks very much like business as usual.

References

Lord Ashburton [Alexander Baring], 1847, "The Financial and Commercial Crisis Considered".

Bagehot, Walter "The gold purchases by the Bank of France", 1855 November, in *Bankers Magazine*.

Billoret, J.-L., *Système bancaire et dynamique économique dans un pays à monnaie stable: France 1800-1914*, Unpub. Diss. Nancy.

Böhme, H., 1968, *Frankfurt und Hamburg: des Deutsches Reiches Silber-und Goldloch und die Allerenglishste Stadt des Kontinents*, Frakfurt am Main: Europaïsche Verlagsanstalt.

Clapham, 1945, *The Bank of England: a History* .2 vols., Cambridge: Cambridge University Press.

Cottrell, P. S. "London, Paris and Silver 1848-1867" in Slaven and Aldcroft, *Business, Building and Urban History*, 1982.

Eichengreen, Barry, 1984, "International policy coordination in historical perspective: a view from the interwar years", NBER Working paper, No 1440.

Eichengreen, Barry, 1989, "Credibility and Cooperation under the Gold Standard", Working paper, University of California at Berkeley, Department of Economics.

Eichengreen, Barry, 1992, *Golden Fetters: the Gold Standard and the Great Depression*, New York, Oxford University Press.

Eichengreen, Barry, 1994, "Central Bank Cooperation and Exchange Rate Commitments: the Classical and Interwar Gold Standards Compared", *Financial History Review*.

Eichengreen, Barry, and M. Flandreau, 1996, "The Geography of the Gold Standard", in Eichengreen et al. eds. *Currency Convertibility*, London: Routledge.

Flandreau, Marc, 1995, *L'or du monde: la France et la stabilité du système monétaire international, 1848-1914*, Paris: L'Harmattan.

Flandreau, Marc, 1995, "Was the Latin Union a Franc Zone?", in J. Reis ed.*International Monetary Systems in Historical Perspective*, London: Macmillan.

Flandreau, Marc, 1996, "Les règles de la pratique: la Banque de France, le marché des métaux précieux, et la naissance de l'étalon or", *Annales: Histoire Sciences Sociales*.

Gallarotti, G., 1995, *The Anatomy of an International Monetary Regime, the International Gold Standard*, Oxford: OUP.

Hamada, Koichi, 1976, "A Strategic Analysis of Monetary Interdependence", *Journal of Political Economy*, 84, pp. 677-700.

Hamada, Koichi, 1979, "Macroeconomic Coordination and Strategy under Alternative Exchange Rates", in R. Dornbusch and Jacob Frankel (eds.) *International Economic Policy: Theory and Evidence*, Baltimore: John Hopkins U. P.

Hughes, J.R.T., *Fluctuations in Trade, Industry and Finance, A study of British Economic Development, 1850-1860*, Oxford: Clarendon Press.

D. Morier Evans, 1859, *The History of the Commercial Crisis 1857-1858*, London: Groombridge.

James Harold, 1995, *International Monetary Cooperation since Bretton Woods*, Washington: IMF and Oxford University Press.

Kauch, P., 1950, *La Banque Nationale de Belgique, 1850-1918*, Bruxelles: Banque Nationale de Belgique.

Kindleberger, Charles, 1996, *Manias, Panics, and Crashes: a History of Financial Crises*, London: Macmillan, 3rd edition.

Kindleberger, Charles, 1992, *Financial History of Western Europe*, Oxford: Oxford University Press.

Lévy-Leboyer, Maurice, 1989, "Central banking and Foreign Trade: the Anglo-American Trade Cycle in the 1830s", in J.-P. Laffargue and C. P. Kindleberger, *Financial Crises: Theory, History, Policy*, Cambridge: Cambridge University Press and Maison des Sciences de l'Homme.

Luzzatti, Luigi, 1908, *Une conférence internationale pour la paix monétaire*, Compte-rendu de l'Académie des Sciences Morales et Politiques, Paris: Picard.

Mertens, Jacques, 1944, *La naissance et le développement de l'étalon or*, Paris, Presses Universitaires de France.

Morgan, E. Victor, 1943, *The Theory and Practice of Central Banking 1797-1913*, Cambridge: CUP.

Patron, Maurice, *The Bank of France in its Relation to National and International Credit*, US National Monetary Commission.

Patterson, R.H., 1871, "On the rate of interest ...during commercial and monetary crisis", *Journal of the Royal Statistical Society*, XXXIV.

Plessis, Alain, 1985, *La politique de la Banque de France de 1851 à 1870*, Genève: Droz.

Pressburger, Siegfried, 1966, "Oesterreichische Notenbank 1816-1966", Oesterreichische NationalBank, Vienna.

Redish, Angela, 1996, "The peristentce of bimetallism in France", This Journal,

Russell, H. B., 1898, *International Monetary Conferences*, New York, Londres : Harper & Brothers.

Say, Horace, 1847, "La crise financière et la Banque de France", *Journal des Economistes*, XVI.

Sayers, R.S., 1936, "Supposed Continental Support of the Bank", in *Bank of Enland Operations, 1890-1914*, London: P.S. King & Son, Ltd.

Schumpeter, J. A., 1954, *History of Economic Analysis*, Oxford: Oxford University Press.

Viner, Jacob, 1937, *Studies in the Theory of International Trade*, Cambridge, MA: Harvard University Press.

Wood, Elmer, 1939, *English Theories of Central Banking*, Cambridge, MA: Harvard University Press.

[0]. Archives Rothshild, 131 AQ 122.

[1]. As H. James [1995] put it: "Barry Eichengreen has emphasized the cooperative rather than hegemonic nature of the international gold standard before 1914".

[2]. Movements of the reserve, as well as knowledge of seasonalities, expected bullion imports and exports, and of course discount rate changes abroad conveyed information about these shocks, and served as a basis for decision making.

[3]. *Golden fetters*, p. 7-8. Note that this view comes as a radicalization of Eichengreen's earlier analysis (e.g. Eichengreen [1984]): "The very actions of central banks suggest that their objectives were not in fact so easily reconciled by the operation of gold standard constraints. Discount rates tended to move together, not inversely as the "rules of the game" would suggest. Central banks sterilized international gold flows more often than they intervened to reinforce their impact on domestic markets. These and other actions resemble the outcome of a non cooperative game, in which the participants act to neutralize rather than accomodate the efforts of their counterparts. Yet on occasion central banks and governments managed to achieve cooperative solutions to their problems, such as when they negotiated swap arrangements, earmarked gold, or extended international loans. Both central banks and governments clearly recognized their interdependence, if they did not always succeed in coordinating their actions" (p.2) ". The 'dual functioning theory' might be thought of as an attempt to reconcile this earlier view with latter claims.

[4]. This seems to be consistent with Viner's claim that central banks' behavior towards each other oscillated between neglect and hatred (Viner [1937]): "Cooperation between central banks", he wrote, "was during this period exceptional rather than an established policy. On the contrary, it appears that ordinarily the central banks either paid little attention during this period to what was going on in other money markets, or else engaged in competitive increases of their discount rates and in raids on each other's reserves at a time of actual or anticipated credit stringency".

[5]. Some economic historians, such as Douglas North, also emphasize the endogeneity of institutions and their historical dimension.

[6]. See Flandreau [1995] for a description of the pre-gold standard monetary order.

[7]. As is often the case, the period was full of calls for increased international co-operation, which proved, a contrario how limited effective co-operation was. Fo instance Schumpeter (Schumpeter, [1954], p. 1077) remarked that during the 1892 international monetary conference "Julius Wolf a German economists proferred a new idea, namely that an international gold reserve be deposited in a neutral country and that international banknotes be issued on the basis of this reserve - the idea that, although in an entirely different form was to be partly realized by the international monetary fund of Bretton Woods fame".

[8]. Most authors (for instance Redish [1996]) have incorrectly characterized the bimetallic system as exhibiting global switches from one metal to the other one. In Flandreau [1995], I show to the contrary that the bimetallic system was characterized by a regionalization of circulation of gold and silver monies in France. For instance, gold supply shocks tended to drive silver out of the circulation of the regions that were most closely connected to international bullion markets (e.g. Paris). Only when such shocks persisted were other regions also contaminated.

[9]. On the crisis of 1839 see McLeod's *Banking*, Vol. 2, p. 143.

[10]As the final contract between the Bank of England and the French bankers stated that its aim was "de rectifier les changes avec le Continent, principalement avec Paris, et pour faire cesser les demandes continuelles d'espèces qui lui sont faites pour l'export" (Bank of England Archives, G4/62).

[11]. Baring having missed the boat, Curtis began the negotiations alone with Delessert and Hottinguer "[Delessert and Hottiguer] declared it would be impossible for them to give their names singly or even together for a transaction which involved such large sums and which might extend over a prolonged period. They said they did not want to provoke observation on the extent of their obligations; that Paris was a place where every transaction was known and canvassed, and that it would be impossible for them to conceal the extent of the operation; that therefore if the transaction was to take place it must be done in conjunction with several

Houses, a limit being placed to the amount with each House" (Curtis Report, Bank of England Archives, G4/62, 138).

[12]. The initial syndicate included André and Cottier; Baguenault & C°; Delessert & C°; Davillier; D'Eichtal & fils; Rougemont & C°; De Rothschild Frères; Hottinguer; Jaques, Lefebvre & C°; Mallet frères & C°; Perier frères; Pillet Will & C°.

[13]. Rougemont, being abroad was also excluded from the negotiation. This attitude vis-à-vis Rothschild probably resulted from the competition between their network and Baring's in international credit. Indeed, N.M. Rothschild had been an intermediary for the earlier, more limited, credit lines that Paris bankers had granted to the Bank of England since 1836 (see Lévy-Leboyer [1989]). On bankers competition in credit lines to central banks during the 1850s see Flandreau [1995].

[14]. Hottinguer was reported to have said to Curtis that if the hesitant banker (whose identity was not disclosed) refused to sign, others would follow suit. It would be interesting to know to what extent the centrigugal forces can be traced to the exclusion of Rothschild from the syndicate.

[15]. Technically, the syndicate accepted that Baring would draw on them. Annuities (of a value larger than the credit line) were supplied as a collateral. The credit line (which brought French banks a "commission" on top of the interest rate) could be renewed after three months, except if French banks announced their refusal to extend it one month before maturity. The elements presented here (on the basis of Bank of England Archives) may be compared with second hand information Viner [1937], p. 274, and the references he provides. Viner also reported that Additional help came from Hamburg (the other large silver market) and brought an extra £ 900 000.

[16]. Between July 20 (when it was decided that Curtis would travel to Paris) and August 1st when the Treaty was finally signed. This suggests that Lévy-Leboyer [1989] might have gone a bit too far when he wrote, summarizing the episode: "Drain was halted, thanks to the £ 2 million loan negotiated in Paris by T.A. Curtis [...], the more easily as Continental markets

were oversupplied with gold and idle funds after the 1838 run on Belgian Banks and the pause in railway construction".

[17]. Indeed, the Bank of England "resolved that the cordial thanks of this court be presented to the Count d'Argout Peer of France and Governor of the Bank of France for the kind readiness with which he undertook to accompany Mr Curtis to Paris, with the view of facilitating the arrangeemnt contemplated by the Minute of the Court of the 20th and of thegreat interest he evinced in the success of the negociation" (Bank of England Archives, G4/62)

[18]. Curtis Report, Bank of England Archives, G4/62. Curtis concluded: " The difficulties which I have been witness of in the negociations to which the Report refers bring me to the conviction that it is both expedient and desirable as soon as it is possible by the re-arrangements of the statutes of the Bank of France no time should be lost in concluding upon terms of agreement with that establishment".

[19]. The Bank had apparently first considered sales of Rentes as a way to obtain gold. It was feared however that this would further drain the reserve, so that a more direct operation was found preferable. See Horace Say [1847].

[20]. Kindleberger refers to 3% Rentes, which we believe is a mistake.

[21]. As described by Viner, variations of the gold-silver ratio in London were too small to compensate a rational speculator for durably holding large quantities of silver. Hence the Bank of England had sought to obtain the right of issuing note on the basis of silver, i.e. collect seigniorage as a counterpart of its providing extra liquidity to the silver market. The Bank of England however, would stop this practice in 1850, with a minor resumption in 1860 as part of the swap with the Bank of France recalled below.

[22]Lord Ashburton (Alexander Baring), *The financial and commercial crisis considered*, 1847, p. 38.

[23]. Archives de la Banque de France, "Opérations avec les banques étrangères". See also Flandreau [1995]. The elements in the Bank's arcives allow to answer an old question raised by Viner who asked: "It would be interesting to know whether the Bank of France consulted with the Bank of England before engaging in this transaction, as it came at a most embarrassing time

for the latter". Viner's speculation reflects much confusions that can be found in the literature on that topic. These are due to a general lack of evidence from primary sources thus forcing to rely on second hand accounts, quite speculative themselves. Viner who (incorrectly) assumed that the Bank of France had purchased gold, not silver also wrote: "It does not appear however that the Bank of England was a direct party to this transaction, and it, in fact, indirectly gave assistance to the Bank of France in that year". Moroever, the account here helps clarifying Kindleberger's ([1996], p. 205): "The Bank of France borrowed 25 million francs from British capitalists in the second half of 1846, according to French sources (Juglar [1889]); a British source states that the sum was borrowed from the Bank of England itself in January 1847. At that point the emperor of Russia offered to buy 50 million francs of the French 3 per cent rente to assist in financing the heavy imports of wheat needed by France (and Britain). France benefited, since the French used half the money to pay off the British advance".

[24]. It is not fully clear in my sources (neither first nor second hand) whether the Baring syndicate held the Rentes and got silver from the Bank of England by discounting bills or whether the Rentes were effectively held by the Bank of England. This explains my prudent phrasing.

[25]. See Flandreau [1995] where the Bank of France's opinion about the 1847 episode is described.

[26]. See the *Bankers' Circular*, November 19, 1841.

[27]. Somewhat surprisingly, the period that began with the California and Australia gold discoveries instead of bringing about easier cooperation, opened a phase of violent fights between the main European banks of issue.This comes as a surprise given that authors such as Kindleberger emphasized the lender of last resort role of new gold discoveries, since these brought about extra liquidity into the system. Writing about the late nienteenth century gold discoveries, Kindleberger remarked: "The surge of gold production [...] served as a lender of last resort by pouring high-powered money into the system"

[28]. The May 11 letter read:"M. Le Comte, à deux heures aujourd'hui j'ai communiqué par télégraphe l'intelligence que nous avions haussé le taux de l'escompte à 51/2% et à 3 heures et

quart, j'ai reçu la nouvelle que la Banque de France avait baissé le taux d'escompte à 4%. Agréez M. le Comte mer remerciemens (sic) très sincères et l'assurance de ma considération distinguée" (Bank of England Archives, Cou/610, Hubbard to Comte d'Argout, 11.5.1854). Cottrell [1982] has based on the 1854 episode the view that central bank co-operation of the pre-1848 kind extended to the 1850s. According to Cottrell: "Co-operation between Threadneedle Street and the Rue des Petits Champs was not a new development [...] By the early 1850s co-operation, at least of an intermittent form, was a well-established practice. The two banks exchanged information and by 1854 telegraphed each other news of changes in their discount rates on a regular basis" (p. 132). This seems a bit far-fetched: the telegraph between Paris and London was only established in 1852, and between 1851 and 1854, 4 changes in the Paris Bank rate had taken place: there had not been much scope, in any case, for telegraphing each other "on a regular basis". Moreover there is not much evidence, beyond the letter of May 1854 of "regular" flows of information between the Bank of France and the Bank of England. .

[29]. Flandreau [1995]. At the same time however, silver dominated in other regions.

[30]. In London, it was quickly realized that the Bank of France was behind the drain that was taking place on the gold market. The identity of the intermediary was debated in the press: The Times argued that the first contract had been achieved by Saint Paul. According to the Daily news, the first contract was with Raphaël who would have declined a second one then taken by the Rothschild. See Flandreau [1995].

[31]. "The unsettled state of our financial relations, produced to a great degree by gold purchases on account of the Bank of France, has naturally directed attention to the mode in which these operations have been carried out. At first, the severe drain caused by heavy remittances to Paris was attributed to other influences than those uimmediately connected with this movement, and Russia, as well as Austria, were alleged to be draining from us supplies of the precious metals to recruit their own exhausted resources. It is now, however, ascertained, that the great bulk, if not the whole of the bullion taken from the bank of England and the public market, is for the bank of England, whose specie reserves have latterly experienced a great and continuous declension.. Some small portion of gold and silver may have go,ne through Hamburg an

Amsterdam to St Petersburgh, and in the two former places sales of securities may have been arranbged to augment the supply; but it is not probable that any large amount will be found to have disappeared through those channels, although it is understood that the Csar requires material assistance and would be only too glad to negotiate a loan for a much higher sum than he couldd ever hope to raise by these surreptiotious means" (Bankers magazine pages 681-682).

[32]. Bank of England Archives, Cou/610. Weguelin to d'Argout.

[33]. Bank of England Archives, Cou/610. Weguelin to d'Argout.

[34]. *Indépendance Belge*, October 21, 1855, reported in Plessis [1985]. Charles de Rothschild was in charge of the London Mint, which was one more reason for having regular contacts with Rothschild frères.

[35]. "Sir, We had the honour of receiving from the hands of M. le Baron James de Rothschild who was accompanied by his son M. Alphonse de Rothschild your letter of [12 this month?]. I beg to assure you that nothing could be more [acceptable?] to the Bank of England than the [tone?] of this communication and the intermediary that you were good and [right?] to choose [...]. [We discussed?] the possibility of cooperating with the Bank of France in financing £ 2 or 3 million of bullion. By the Act of Parliament which regulates the issue of Bank of England notes, it is parctically speaking incumbent on the Bank of England to maintain, under all circumstances, a stock of about £ 9 million in bullion, [plus?] the actual amount with which the Bank has to deal to all financial purposes, and at a moment of considerable mercantile excitement, a figure of about £ 2.5. This position, without further aggravation is one of so much insufficiency that the board of directors has today decided to raise the rate of discount to 6 per cent for bills having not more than 60 days to run, and for those exceeding that term, and for those exceeding that term and under 95 days to 7 per cent. This restriction has come without reference to the purposed operation of the Bank of France, which was not communicated to the board" (Bank of England Archives, Cou/610, Weguelin to d'Argout).

[36]. Ibid.

[37]. See W.B. [1855], p. 681.

[38].p. 681, *The Bankers magazine*, November 1855.

[39]. Interestingly Newmarch and Tooke pictured this attitude as sophisticate. This is telling of the non-cooperative state of mind that prevailed at the time: "The directors of the Bank of England were not backward in protecting their own establishment, not merely by raising the rate of discount in order to render the Paris operations more costly; but also by adopting other precautions against the class of bills known or believed to be employed as a means of artificially withdrawing gold to the Bank of France". Newmarch and Tooke, *History of Prices*, Vol VI, Section 20: "System pursued by the Bank of France in 1855-56 for the purpose of procuring temporary artificial addition to its bullion reserve"

[40]. Bankers' Magazine, p. 684. Bagehot quoted "one writer, whose opinion on any financial question would at all times command attention", saying. A similar ring may be found in the following quote from Somers [1857]: "The manner in which the various commercial nations deal with the great mediums of exchange seems dictated by caprice rather than by any intelligent principle, and so far from adopting some general systemin the interests of all, their monetary policy is conceived in hostility one to another". However Viner ([1937], p. 275) argued that in this specific case, what Somers had in mind by monetary policy was the choice of a monetary regime, rather than day to day operations, i.e. "policies about structures" rather than "policies within structures".

[41]. In "Les règles de la pratique" I study the informal regulation of the money market that the Bank of France was able to implement.

[42]. On the more limited impact of the 1857 crisis on France than on other countries, see D. Morier Evans [1859] and Juglar [1889].

[43]. The change in monetary policy was not circumscribed to France. Other continetal nations such as Belgium also modified their interest rate laws in the aftermath of the 1857 crisis.

[44]. As Evans [1959] described: "soon discount became impossible, and so completely had the bill of exchange [...] lost its value in the estimation of the public, that a payment in hard silver was regarded as alone legitimate", D. Morier Evans, *The history of the commercial crisis 1857-1858*, p. 39.

[45]. According to Böhme [1968], support was also sought from Paris, London, Amsterdam, Copenhagen, Dresden, Hanover. All declined to help.

[46]. Once the dust settled, London provided complementary relief to the Scandinavian money market. A second loan of 5 million Mark Banco was provided on December 29 (*Oesterreichische Notenbank 1816-1966*. p. 91).

[47]. Cottrell rightly emphasizes that the existence of intermediaries with insider information on the difficulties faced by both banks proved essential in the scheme. See e.g. the letter of December 4, 1860 (B. Dobree to Germiny): "Permit me to say that the presence of your colleague M. Charles Mallet tended largely to bring about a speedy and happy termination of the mission". I believe however that Cottrell is wrong to analyze the operation as evidence of cooperation. On prestige, see also Kindleberger [1996], p. 205 ff.

[48]. As a matter of fact, the operation with the Bank of Russia (whose intermediary was the Bank Dutfoy Kinen) almost failed when the Czar attempted to block it apparently for political reasons (Flandrerau [1995]).

[49]. On these operations, see Flandreau [1995].

[50]. See e.g. *The Economist*, (August 23, 1873), :"If that government [Germany] wants gold from this market [London], it can take it quite independently of the general exchange account between this country and the rest of the world. It can take it by mean of the proceeds of the indemnity a large new transaction, which will provide for what it requires".

[51]. According to *The Economist*, the Germans "[avoided] a direct withdrawal from the Bank but [bought] bullion in the open market to such an extent as to prevent any influx into the Bank so that a slightest demand from other quarters is afterwards sufficient to produce a great effect [...]" (*The Economist*, August 23, 1873).

[52]. "[Germany] is bidding actively against us for the supply of bullion in the markets of the world. We have to pay more than usual to attract money from abroad, because abroad that same money is wanted more than usual" (*The Economist*, November 8, 1873).

[53]. "We do not say the [German] demand [for gold] will revive, but it would be prudent to expect it and provide for it" (?). We must remember that its demand will assuredly recur before long, and as soon as better times arrive" (November 8 1873, *The Economist*)

[54]. "The operation of a high rate of discount has never been seen more clearly than during the past week. The effect, like that of all rises in price, is intensified by the electric telegraph; every country which has money is now instantly warned that money is very valuable here, and every country which is likely to draw money from here is also warned how costly an operation will be" (*The Economist*, November 15, 1873): this way they can get gold not only from the Continent but also from Australia and Canada.

[55]. November 8 1873, *The Economist*.

[56]. December 13, *The Economist*.

[57]. From this point of view, the British policy was to a certain extent a success. "The downward course of the money market has continued this week, as the Bank rate has been lowered from 5 to 4 1/2 per cent, and the market rate has fallen equally; and as long as the german demand for gold on coinage account is suspended, we may be sure that the market will continue to be easy, and the rate of interest will tend to fall. The German demand is the main force which has raised our rate of discount so often and so rapidly, during the last two years, ana if it ceases to operate, we may be sure that we shall not see the effects which it has so often produced" (December 13, *The Economist*).

[58]. (December 13, *The Economist*) "The cardinal fact is that which Mr Disraeli admirably popularized at Glasgow, the operation of the German Government have caused a scarcity of gold throughout the world; and as almost all the large financial business in the world is transacted in gold this scarcity causes incessant difficulty; and as also the whole banking community have much to pay — that is, are under a heavy contract to deliver gold if required — there is a difficulty in finding gold enough to maintain a reserve in support of the obligation, and credit is strained in consequence. For the moment, Germany is not buying gold in the market [...] But as far as is known or is probable, her coinage of gold is not nearly at an end".

[59]. See Kindleberger [1996], p. 207.

[60]. Rothschild Archives, Paris, 132 AQ 122. See also*The Economist*, November 15th, 1890. "Early in the week, it was announced that arrangements had been made by which its stock of gold would be increased by £3,500,00. Of this amount £1,500,000 has been obtained by the sale of the Russian Government of Treasury bonds held by the bank, while through the good offices of Lord Rothschild, the Bank of France has agreed to lend the Bank of England £2,000,000 of gold for a certain definite time. The transaction with the Bank of France is supposed to have taken this shape because that institution is debarred by its statutes from buying securities in the same way as the Russian ministry of Finance has done; but, be that as it may, the French institution has manifested an accomodating disposition in regard to the loan, which has been made on very reasonable terms"

[61]. Sayers [1936] argues that the Russian loan had been repaid at about the same time.

[62]. Kindleberger [1989], Clapham [1945], vol. 2, p. 291-294.

[63]. *Journal Officiel, Débats Parlementaires*, 5ème leg., session ordinaire, 1891, I, p. 16 ff.

[64]. Although, as suggested by the Rothschild attitude during the 1839 episode, this help could be subordinated to complex strategies between competing banks. See *Governor's Statement*, November 20 1890: "The Bank is greatly indebted to Messrs N.M. Rothschild & Sons for using their influence with the Bank of France to induce the governors to part with so much gold, and for the assistance they gave in carrying out the transaction of the specie" Bank of England Archives, G4/113,

[65]. In "Was the Latin Union a Franc Zone?" I argue that it was the reluctance of the Bank of France to discount foreign bills that caused the smaller integration of the Latin Uninion members money markets between 1860 and 1880. The Bank of Belgium by contrast did discount foreign bills (French, German, British). Finally, German financial centers displayed (even before Germany's unification) a fair amount of integration, precisely because of cross discounting behavior.

[66]. See Billoret [1969]. See also *Revue d'Economie Politique*, XIII [1899], p. 165 and Bloomfield, "Monetary Policy under the Gold Standard", 1880-1914, p. 57.

[67]. Banque de France, Compte-Rendu des Opérations pour 1903, p. 5.

[68]. On this account it can be remarked that Sayers emphasized that the Bank of England never *asked* for French help.

[69]. See Archives Rothschild for some elements on the technical aspects of foreign bills discounting. In England the Banf of England could and did hold foreign securities. "Opinion of Freshfield that there is no law against the Bank discounting or investing in Foreign bills or securities: it is a question of policy and not of law" July 17 1867.

[70]. For instance, in 1906, the Bank of France discounted £3 million in English bills at a rate 1 point above the Paris bank rate, but beneath the London one. Billoret argues that this was done at the request of the Bank of England, but Sayers denies it, with typical francophobia.

[71]. Quite significantly, while Eichengreen has made of this episode the focal point of his cooperation story, Sayers argued that helping England was the own selfish interest of the French. As he put it: "This enabled [the Bank of France] to pose very gracefully as a fairy god mother" of the international monetary system. However, it must be recalled that the cooperation story predicts that if only one player adopts a cooperative attitude he will lose from that. This is the essence of the fre-rider argument. Obviously Sayers and Eichengreen do not have the same model in mind.

[72]. According to Billoret [1969], the Bank of France attitude during the 1907 crisi contributed to popularizing the idea that a lender of last resort was a desirable feature of any modern banking system, and thus was indirectly responsible for the creation of the Federal Reserve System.

[73]. Luzzatti's proposal appeared in the Neue Freie Presse of Vienna (see Schloss [1958]), and in French as "Une conférence internationale pour la paix monétaire" (1908). It is doubtless that other versions exist.

[74]. Automatic drawing rights would "diminueraient la responsabilité des coupables [...] qui doivent [...] payer leurs fautes et ne guérir qu'à leurs propres frais". Similarly, the fear of having one country exploiting the others through automatic credit line systems (the famous inflationary bias of decentralized clearing systems) kept at bay proposals to develop reserve pooling arrangements. Such scheme, which had failed between Belgium and France in the 1890s (Kauch [1950]), had only been met with success in a 1886 arrangement of the

Scandinavian monetary union. However, the fear of being exploited by debtors, led the Scandinavian to set upper boundaries to drawing rights (1905) before charging fees on debtor positions (1910).