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Lender of Last Resort in a Transitional Economy with a Fixed Exchange Rate:

Financial Crises and Monetary Policy in Sweden under the Silver and Gold Standards, 1834 – 1913

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ABSTRACT

According to the classical view, an economy's lender of last resort should be its central bank. For brief periods of time, the bank might suspend convertibility in order to provide the liquidity needed to support the domestic credit market. Recent experience of financial crises demonstrates the conflict between maintaining a fixed exchange rate and serving as a lender of last resort. The lesson of Sweden's history of crises under the classical specie standard is that a transitional, capital importing economy has to pay closer attention to the specie standard rules than do capital exporting economies. While the Swedish central bank, for a limited time, could support the credit market within the limits of the specie standard, if the crises persisted support mechanisms other than abandoning convertibility were required. The solution adopted was to import high powered money through loans guaranteed by the Swedish State.

JEL: E42; E58; N13; N23

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Introduction

In his paper entitled "*The Lender of Last Resort: Some Historical Insights",* Bordo concludes that successful lender of last resort policies, on several historical occasions, have prevented banking panics.[1] Since banking panics are expensive, avoiding them is certainly a good thing. Unfortunately, supporting banks in distress also is not free. Trust in the banking system may be both more valuable and more costly to achieve and maintain in an economy with illiquid capital markets, since such an economy is likely to suffer from volatility both in the price and in the accessibility of credit. How the lender of last resort activities are administered and financed thus affects not only the banking system but the economy as a whole. This paper examines how such policies were implemented in Sweden under the classical specie standard during the period 1834-1913.

An important aspect of lender of last resort policy in Sweden was the Country's poverty, which resulted in a continuous deficit in the current account from the 1850's until well into the 20th century. Massive capital imports were essential to the financing of the industrial transformation and, thus, specie convertibility was also of crucial importance.[2]

The historical experience of lending of last resort under the gold standard in Europe, including Sweden, is generally described as being compatible with Bagehot's classical prescriptions on the subject.[3] This implies that the country's central bank, being the only issuer of high powered money, injected liquidity into the economy, even when so doing temporarily required abandoning the specie standard.

The question posed in this paper is whether or not this method of supporting the capital markets utilized in strong economies also was applied in transitional economies such as Sweden? If Bagehot's recipe for acting as a lender of last resort could be followed by any country operating under the classical specie standard without concern for the exchange rate, then preserving convertibility would not be a central bank problem. Phrased alternatively, the classical gold and silver standards were sufficiently automatic to be insensitive to pressures on convertibility.

Taking account of the impact and importance of the specie standard leads to the straightforward proposition that transitional economies are more constrained with

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[1] Bordo, M.D. (1989) p. 22.

[2] See Eichengreen, B. & Flandreau, M. (1994)

regard to lender of last resort policies than are stronger economies. While an economy with a strong currency, such as Britain, was able to follow lender of last resort policies in accord with the classical prescription, this was not the case with Sweden. Instead the Swedish authorities had to find alternative ways of providing lender of last resort services, while still protecting the fixed value of a currency that lacked the trust foreign actors accorded to Sterling.[4]

This discussion leads to three questions: 1) Was there any gold or silver standard so trusted by international markets that any currency operating under that system was considered inherently stable?, 2) Were lender of last resort services provided according to Bagehot's classical prescription? and 3) If not, how were such services financed and administered when defending the fixed exchange rate was the primary goal?

The first section of this paper contains an analysis of the theory of lending of last resort lending. Swedish monetary policy under the classical specie standard is then considered. This is followed by an examination of how lender of last resort actually functioned during the nineteenth century, especially during the most severe crises. Finally the paper ends with a discussion of how its findings might contribute to an understanding of how lender of last resort can best be provided in a transitional economy.

Lender of Last Resort in Theory

An implication of including a fixed exchange rate constraint when formulating a theory of last resort lending is that there must be more than one appropriate way of supplying and administering such lending. What the optimal policy is can only be decided on a case by case basis, depending on the state of the economy. Arguably, the theory of last resort lending emerged from a particular economic environment and has changed over time as conceptual difficulties were encountered. According to Bordo, the concept of lender of last resort can be divided into classical and evolutionary approaches.[5] The

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[3] Bordo, M.D. (1989) p. 20

[4] Bills of exchange denominated in Sterling were considered "as good as gold" or even better (Kenwood, A.G. & Lougheed, A.L. (1999) pp. 114-115). The Bank of England's maintenance of the gold reserve was, according to Sayers, *"the nation's and the world's assurance that claims in pound sterling were convertible on demand into gold at a price fixed by law."* (Sayers, R.S. (1976) p. 28).

[5] In his paper, Bordo presents three views on lending of last resort: these can be classified as the classical, the evolutionary and the free banking views. Since the last of these argues that such lending is just another way that central bank intervention contributes to instability, free banking theory can not be said to deal with the question of successful lending of last resort.

classical and the evolutionary approaches are here discussed in greater detail. In addition, there is some discussion of what light the lessons of last resort lending during the 1980's and 1990's throws on the theory applied to the nineteenth century experience.

The classical view on lender of last resort

Bagehot, Goschen and Thornton are often viewed as the originators of lending of last resort theory.[6] In their eyes, a lender of last resort was needed in a system of fractional reserve banking. Preferable it should be the monetary authority responsible for issuing high powered money, i.e. the central bank. Ideally, this lender of last resort would lend freely, albeit at a penalty rate, to solvent, but illiquid, banks with the value of the collateral offered being set at pre crisis prices.

It should be noted that the classic view of lending of last resort, being derived from the writings of Bagehot, was largely based on the English situation. Bagehot's original aim was to create awareness of how the Bank of England, on the basis of experience from 1848 and 1857, could limit the banking crisis of 1866.[7] First as editor of The Economist during the 1860's, and later in his classic book *Lombard Street* (1873), Bagehot gave expression to many insights concerning how the central bank should act to limit the spread of panics and crises resulting from a lack of liquidity and of trust in the financial system.

Bagehot's ideas have since been distilled into four basic rules: 1. The central bank should be the sole lender of last resort. 2. During panics, illiquid banks should be granted loans backed by any collateral that would be marketable under normal conditions. 3. The central bank should provide large loans and advances, but at above market interest rates. 4. The previous three rules should be clearly stated before hand and strictly followed during crises.[8]

There are two reasons why central banks often are labelled as the lender of last resort. First, the function of the ultimate issuing authority is to provide the market liquidity needed to prevent financial crises and collapses of the money stock. Thus, if there is a monopoly issuer of base money, it becomes the issuer a last resort by default.

[6] For an analysis of the historical development of the concept of lender of last resort, see Wood, G.E. (2000) pp. 204-209.

[7] It is therefore somewhat unfair to criticize Bagehot's views from a more general perspective. Regarding Bagehot and central banking see Rockhoff, H. (1986).

[8] Bordo, M.D. (1989) p. 25 Footnote 6. (From Meltzer, A. (1986) "Financial Failures and Financial Policies" in Kaufman, G.G. & Kormendi, R.C. (Ed) *Deregulating Financial Services: Public Policy in Flux.* Ballinger Publishing Company. Cambridge. p. 83), see also Goodhart, C.A.E. (1999) pp. 340-341.

Second, assuming an information advantage of the central bank makes it most suitable to be the lender of last resort. Most probably the central bank will be the first actor to realize that some bank is getting into difficulties that might trigger a general financial crisis. Thus, it is also best that the central bank possess the means to avert such a development.[9]

Bagehot distinguished between crises resulting from internal and those due to external drains. In the first case, the above description applies. In the latter, the central bank should intervene by raising the discount rate, thus preventing the outflow of reserves through the mechanism described by Goschen.[10] Since external and internal drains often coincided, raising the discount rate would both attract foreign capital and, at the same time, lay the foundation for lender of last resort activities. It was also agreed that discount policy was the central banks' least harmful policy tool for decreasing the amount of money in circulation and thus restoring balance between the level of reserves and the amount of notes in circulation.[11]

As a consequence, the description of appropriate lender of last resort policy under the gold standard was closely related to the ”rules of the game” discourse. These concerned how central banks worked to maintain the classical specie standard, a context in which lender of last resort behavior played a natural role. In brief, the rules of the game concept prescribed that central banks should not act to sterilize the effects of international capital flows on the domestic business cycle.

Although, lending of last resort tends to sterilize international capital flows, McKinnon described how central banks under the international gold standard were able to maintain convertibility while at the same time serving as a lender of last resort. So doing involved a number of actions. In addition to the basic rules of the gold standard, McKinnon listed two rules concerning lending of last resort. One of these was the so called Bagehot's rule, according to which central banks facing a short run liquidity crisis resulting from an international gold drain were to lend freely to domestic banks, but only at a premium interest rate. The other rule stated that, if free convertibility between gold and the domestic currency had to be temporarily suspended, then the

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[9] Capie, F. & Wood, G. (1995) pp. 215, 223

[10] Bagehot, W. (1866) pp. 236-237, Bagehot, W. (1919) pp. 265-267, 270 *"The notion that the Bank of England can stop discounting in a panic, and so obtain fresh money, is a delusion."*

[11] Sayers, R.S. (1976) p. 28.

central bank was to restore convertibility at the previous parity rate as soon as possible.[12]

McKinnon thus acknowledged the existence of a conflict between adherence to a fixed exchange rate and acting as a lender of last resort. The same can be said of Bagehot when he argued that a thirty percent reserve cover for notes in circulation was insufficient in case of a panic. While a fixed exchange regime complicated lending of last resort, however, it also laid the foundation for how to do it. The traditional definition of last resort lending, derived from Bagehot's argument in *Lombard Street*, is still considered the basis of how it functioned under the classical specie standard. Indeed, recent research also emphasizes that the classical approach, with the central bank being responsible for lending of last resort, is still the best recipe.[13]

Kommentar: emphasizes

The conflict between maintaining a fixed exchange rate and providing lender of last resort services was present also under the classic specie standard. Due to the strong position of the Sterling, the Bank of England might have had the ability to temporarily suspend the fixed exchange rate. Germany, with another strong currency, solved its lender of last problem in an alternative fashion, but that country also violated the rules of the gold standard.[14]

The evolutionary view on lender of last resort

During the last thirty years, the classical approach to lending of last resort has been expanded to what, in this paper, is called the evolutionary view. Goodhart argued that, even in the absence of a government designated central bank, an expanding banking system will eventually confer central bank functions, particularly acting as the lender of last resort, on a single bank. The possibility of incurring credit losses, together with the right of the public to make quick withdrawals or to redeem notes, obviously makes

[12] McKinnon, R.I. (1993) p. 4

[13] Wood, G.E. (2000) pp.222-223. Or in Wood's words: "Reconsideration of the role of lender of last resort shows revision of it to be unnecessary".

[14] Following the implementation of the gold standard in 1871 and the establishment of the Reichsbank as a central bank in 1876, Germany constructed a system of lending of last resort that operated outside the requirements of the specie standards. The Reichsbank operated a type of giro, or checking, system for the transfer of funds. Since these checks were non-note liabilities, the Reichsbank was not required to back them with reserves, the gold cover rules only being applicable to the issuance of bank notes. This giro system guaranteed the liquidity of the credit banks. The Reichsbank provided liquidity by discounting the credit banks' holdings of bills of exchange, thus allowing these to functions as substitutes for Reichsbank notes. The discount rate was volatile, reaching high levels during periods of capital shortage. Nonetheless, this policy allowed the Reichsbank to function as a lender of last resort for the private banking system (McGouldrick, P. (1984) p. 313, Tilly, R.H. (1986) pp. 195-196).

banks vulnerable to a lack of short term capital. The banking system therefore requires the special services of a central bank or, more specifically, of a lender of last resort that can support them in case of difficulties.[15]

The focus of the evolutionary literature has been on the practical difficulties of providing lending of last resort according to the classical recipe. Since the basic function of a lender of last resort is to overcome the public's lack of trust, which is the principal cause of bank runs, Goodhart and others argue that even insolvent banks should be rescued. Underlying this view is an information problem: First, the borderline between illiquidity and insolvency is not as clear as suggested in the classical view. Thus the lender of last resort inevitably will face a difficult problem in deciding which actors on the credit market are worth saving and which are not. This problem is further complicated as the market value of a bank's portfolio fluctuates with the business cycle. Second, bank customers are frequently unable to determine whether their particular bank is just suffering from illiquidity or is actually insolvent.[16]

In light of this information problem, and given the importance of trust in the financial system, the evolutionary view maintains that lender of last resort services should be available to all banks. In thus arguing that even insolvent banks should be assisted, it, of course, differs from the classical view.[17]

The question of moral hazard is one of the most intensively discussed problems with extending lender of last resort services to all credit institutions, regardless of their financial condition. If banks know they will be rescued, what incentive is there for them to administer their affairs prudently? Indeed, the protection offered to actors within the financial sector by the lender of last resort might even encourage the former to speculate and to take unnecessary risks. This, in turn, might actually precipitate a financial crisis.[18] Bordo, however, pointed out that bailouts of insolvent banks were an exception, at least before the 1970s. Thus, lender of last resort services can be said to have been provided in accordance with the classical view during the nineteenth century.[19]

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[15] Goodhart C.A.E. (1987) pp. 3-4

[16] Goodhart, C.A.E. (1999) pp. 343-344

[17] Bordo, M.D. (1989) pp. 9-10

[18] Bordo, M.D. (1998) pp. 16-17, Fisher, S. (1999) pp. 92-94, Freixas, X. et al. (2000) pp. 73-78. Goodhart argues that the prevalence of moral hazard is exaggerated and that it does not constitute a valid reason for refraining from lending of last resort (Goodhart, C. A.E. (1999) pp. 352-356).

[19] Bordo, M.D. (1989) pp. 22-23

Lender of last resort and currency crises

In theory, the central bank is the lender of last report simply because it is the ultimate issuer of high powered money. Thus it is perceived to be the only actor capable of preventing panics by injecting liquidity into the economy.[20] This holds true for economies with strong currencies. In a transitional economy, however, the domestic currency ceases to be high powered if the central bank's commitment to a fixed exchange rate is unconvincing. Under such circumstances, high powered money instead is issued by the central banks in strong currency countries. If the central bank in a transitional economy spends enough reserves by acting as a lender of last resort so as to put the maintenance of the fixed exchange rate into doubt, then the public will exchange its domestic currency for reserves, i.e. for the more stable foreign currency.[21] An advance announcement by the central bank that it intends to support the banking system within the guidelines of the classical system might make its commitment to a fixed exchange rate less trustworthy.

The experience of the more recent bank crises of the 1980's and 1990's, also points to the key problem examined in this paper: how to provide lender of last resort services with a fixed exchange rate in an emerging economy. Briefly put, this experience suggests that there is indeed an incompatibility between a fixed exchange rate and the central bank acting as the lender of last resort. This is especially the case for transition economies where illiquidity is a major concern. If the central bank acts as the lender of last resort, a banking crisis involving a run on bank deposits will be transformed into a run on the domestic currency. Thus, a fixed exchange rate leaves little room for intervention by the central bank, with the exception of reducing its reserve requirements. Even that, however, will put increased pressure on the exchange rate. For an emerging economy, the problem is double faceted: First, the fixed exchange rate can only be sustained with fresh foreign capital. Second, any doubts about the value of the currency makes access to international capital markets more difficult.[22]

The inherent conflict between serving as a lender of last resort and maintaining convertibility has been discussed, and even included in the description of such a lender, for the period of the classical specie standard. It has not, however, been presented as

[20] The idea is that liquidity within a country only can be provided by the central bank, see Wood, G.E. (2000) p. 222.

[21] Fischer, S. (1999) p. 94, Goodhart, C.A.E. (1999) pp. 348-352

[22] Chang, R. & Velasco, A. (1998) pp. 2-5, 35-39, see also Eichengreen, B. (2000).

part of the reality facing vulnerable economies. This may partly be the case because a currency crisis is generally defined as one that forces the currency off its pegged value or, if it is floating, to depreciate drastically.[23] Since this did not occur under the classical specie standard, the assumption has been that exchange rates remained constant and that lending of last resort could be offered in accordance with classical theory. In fact this required that the exchange rate system was stable and that imbalances between economies were automatically adjusted to restore exchange rate parity, thus eliminating the possibility of currency depreciation.

The argument of this paper is that principal features of late twentieth century crises do not differ substantially from the workings of the classical specie standard. The choices available for providing lender of last resort services in a small, emerging economy, such as that of Sweden in the nineteenth century, involved the same set of problems. If the conflict between lending of last resort and maintenance of the specie standard was a harsh reality, the fundamental question raised in this paper is if the classical theory on lender of last resort was followed in Sweden? If not, the question is how last resort lending was financed and administered during Sweden's nineteenth century economic transition?

Swedish Monetary Policy during the Nineteenth Century

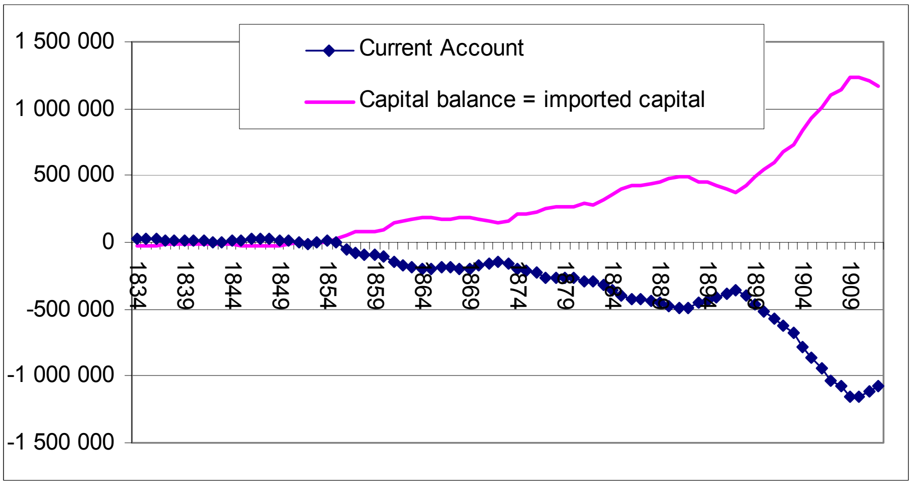
The ability of the Swedish central bank, the Riksbank, to implement monetary policy was constrained by two considerations. The first was the monetary regime, that is the choice of a fixed or a floating exchange rate. The second was the state of the economy, that is the need for foreign borrowing to finance Swedish imports. The silver standard was re-established in 1834. It was then replaced by the gold standard in 1873, a monetary regime that was retained until the outbreak of World War I.

As can be seen in Figure 1, Swedish trade, as represented by the current account, did not provide for the inflow of any foreign reserves. Until the crisis of 1857, capital flows affecting foreign reserves were principally trade related. Starting in 1858, after the Parliamentary decision of 1853/54 calling for accelerated Swedish railroad construction,

[23] Bordo, M.D. & Schwartz, A.J. (1996) p. 2

however, Swedish capital imports principally consisted of National Debt Office borrowing.[24]

Figure 1: Cumulative Current Account Balances and Foreign Debt, 1834-1913. 1000's SEK



Sources: Lindahl, E., Dahlgren, E. & Kock, K. (1937) pp. 268-269, Schön, L. (1999), Sveriges Riksbank (1931) pp. 54-71

Until the borrowed funds were required by the government, the National Debt Office invested then on the domestic capital market, often as loans to banks and other financial actors. The Riksbank reacted negatively to this policy, arguing that the fluctuations in the money supply resulting from the National Debt Office's investments weakened the Bank's ability to maintain the specie standard. Starting in 1876, the National Debt Office channeled most of its borrowed funds through the Riksbank.[25]

The question thus arises as to whether the international capital markets had such complete faith in the classical specie standard as an exchange rate regime that the risks of currency depreciation were ignored? As might be expected, investors on the

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[24] Flodström, I. (1912) pp. 812-815, Schön, L. (1989:1) pp. 19-20, Schön, L. (1989:2) pp. 243, 249, 255. The importance of foreign capital to Swedish industrialization has been a controversial subject. In 1947 Gårdlund's study of industrial financing during the period 1830 - 1913 concluded that Swedish firms had been largely independent of foreign capital. Only modest amounts of foreign direct credits were utilized by the industrial companies studied by Gårdlund (Gårdlund, T. (1947) p. 128). This result has since been questioned, especially by Schön, who pointed to the great importance of foreign capital to Swedish industrialization (Schön, L. (1989:2) pp. 238-242).

[25] Nilsson, G.B. (1994) pp. 258-259, Nygren, I. (1989) pp.192-211, RbFSP No 252 June 15, 29 1876, RbR No 429 April 15 1875, June 26 1876. In 1875, the Parliament "decided" that the Riksbank and the National Debt Office were to consult with one another concerning the dispersal of the funds. This "decision" was reached after the Riksbank had pressured Parliament to decide which actor was ultimately responsible for the Swedish currency (see RbR No 429 April 15 1875).

international capital markets were just as concerned with exchange rate risks as they are today. Regardless of whether the monetary standard was gold or silver, all foreign loan contracts were defined in the lender's domestic currency (see Figure 2 below). Thus, even in the nineteenth century, the monetary policy of central banks acting as lenders of last resort was the subject of great concern.

Figure 2: Bond Issues of the National Debt Office and the Riksbank, 1858-1879

Date	Lenders from	Total loan amount in denominated Currency
Jan 28 1858	Germany	7.6 M Thaler, according to the German Coinage Act of January 24 1857 (§1).
Jan 29 1858	Germany	9 M Hamburger Banko, set in (Cologne) Kölnische Mark Silver (§11). Loan taken by the Riksbank to support the credit market.
April 1860	Germany (and the Riksbank).	10 M Thaler (8.4 M Thalers Borrowed abroad), according to the German Coinage Act of January 24 1857 (§1)
Dec 29 1861	Domestic loan	3 M Rdr Rmt. Riksdaler Specie and Riksdaler Rmt (relationship 1:4)
Oct 23 1863.	England, France and Germany	2 M Livre Sterling. (§1). All payments set to be conducted in English currency.
1865	Domestic loan	8.1 M Mark Hamburg Banko, or 2.7 M Rdr Silfver Specie. (§1) Set in a fixed cours of Cologne (Kölnische) silver as standard. (§10)
Dec 15 1865.	Germany	9 M Vereins Thaler Courant. According to German currency standard of January 24 1857. (§1)
1868	England	1.15 M £ St. Swedish currency not mentioned. (§2)
1870	Domestic loan.	40 M Rdr Rmt.
1872	Domestic loan.	24 M Rdr Rmt
May 26 1874	Denmark	12 M Rdr Rmt (of the 1872 year loan) (= 12 M SEK). Payable in Swedish and Danish currency (1:1) according to currency union of 1873, or gold bullion (at the fixed course of 2480 SEK/kg).
June 22 1875	Austria and Germany	5.625 M German Reichsmarks according to German coinage act of December 4 1871 (equals 50 M SEK).
June 15 1876	England	2M £St. Swedish currency not mentioned.
May 29 1878	England and France	1.5 M £ St or 37.65 M Fr. Fixed course set between £ and Fr (1£=25 Fr 10centimes) for all transfers in connection to the loan. Swedish currency not mentioned.

Sources: RbFP No 152 February 11, 24 1858, RGKLKO No 9060 1858 – 1879, RGKLKT No 9061 1858 – 1872.

The loan contracts reflect the view of the international capital market on different currencies. If a loan was placed in Germany, the principal and the interest payments were set in German currency and, consequently, the loan was denominated in that currency. If any of the lenders were British, even if German or French lenders were involved, however, the bonds were denominated in Sterling.[26] Not surprisingly, this

[26] RGKLKO No 9060 1858-1879, RGKLKT No 9061 1858-1872. Ingress or §1 in all contracts. In order to satisfy the providers of the 1878 loan, the National Debt Office guaranteed a fixed exchange rate between Sterling and the French Franc.

indicates the lenders' preference ranking among currencies. The very real concern of the lenders resulted in the Swedish State, as the borrower, having to bear the exchange rate risk.

The threat of currency depreciation clearly existed under the silver, as well as the gold, standard. Thus, the monetary authorities had to display prudence with regard to the exchange rate. Since the entire foreign debt was denominated in foreign currencies, Swedish currency depreciation would worsen the Country's debt burden and, perhaps, even endanger its ability to repay the loans. In that perspective, the Swedish shift to the gold standard in 1873 served as a signal to foreign lenders and investors that, as a debtor country, Sweden was determined to honor its commitments. [27]

The overriding objective of the Riksbank monetary policy at all times was to maintain the specie standard. As with any fixed exchange rate, it was secured by central bank reserves. As long as the note issue was limited to what these reserves could support, pressure on the fixed exchange rate was relieved. Thus it should be kept in mind that, in an international context, the prudence of central bank actions were primarily judged in terms of the preservation of an adequate reserve to note ratio. Clearly, a decline in the size of the reserves signalled the need for Riksbank action to preserve convertibility.[28]

By definition, if the money stock in circulation was too large in relation to reserves then either reserves had to be increased or the money stock decreased. The monetary policy tools available to the Riksbank all affected the reserve to money stock ratio. The Bank could buy or sell non-reserve assets. In principal these were to be sold to increase reserves, but they could also be sold domestically as money supply altering open market operations or abroad to affect the exchange rate.[29] The interest rate charged to discount bills, as well as the ones on deposits in and loans from the Riksbank, were changed in step with the business cycle. In times of increased demand for reserves, the Riksbank raised funds abroad, not in order to increase its note issue but to build confidence in its ability to redeem its notes.

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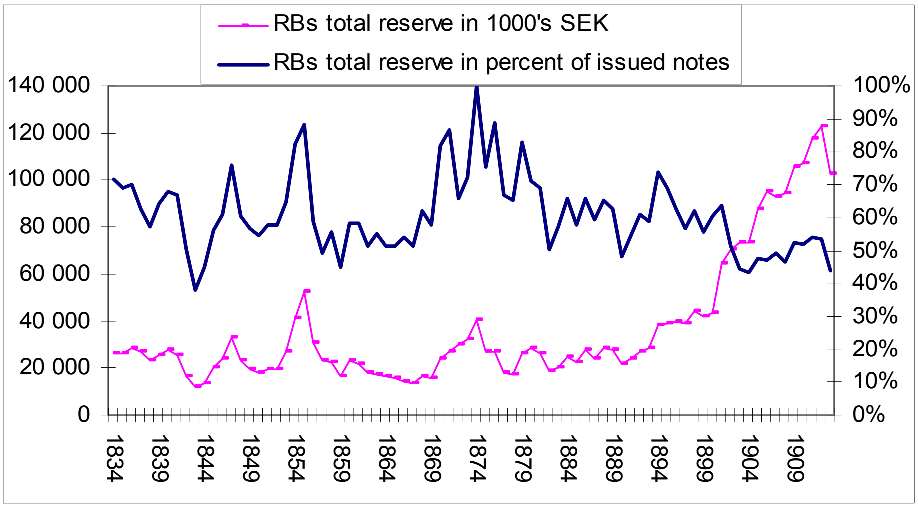
[27] See Eichengreen, B. & Flandreau, M. (1994) p. 11

[28] BaU 1859/60 No 2, 1867 No 1, 1870 No 3, Davidsson, D. (1931) pp.145-146, RbFP No 169, 172 Mars 25, May 22 1875, January 15, 24 1878, RbFSP No 252 April 22, June 17, 25, July 12 1875

[29] In 1872 the Riksbank instigated a reserve fund outside of the reserves, consisting of secure assets, to be used when needed in an outspoken sterilizing manner (RbFP No 166 August 1 1872). From the 1840s, and especially from the 1870s, the Riksbank actively worked to affect the price of the Swedish currency by intervening on the domestic market for foreign bills of exchange, see Lobell, H. (2000).

Simply decreasing the money supply was not problem free since it required the reduction of credits to private borrowers. Nonetheless, throughout the period 1834 - 1913, the Riksbank periodically intervened directly on the domestic credit market by "strangling credit".[30] This deflationary policy thus was one of the options utilized throughout the period to protect the specie standard.[31]

Figure 3: The Reserves of the Riksbank at Current Prices (1000 SEK), and the Percentage Reserve Backing of Its Note Issue, 1834-1913



Source: Sveriges Riksbank (1931) pp. 54-71

As the above figure makes clear, the nominal value of the Riksbank's reserves remained surprisingly stable during the period 1834 - 1901. The foreign loans that poured into Sweden starting in the late 1850's did not help to fortify the reserves for the Riksbank until the closing years of the century. By 1855 the economic boom of the early 1850's had allowed the Riksbank to accumulate a level of reserves that was not to be exceeded in nominal terms until 1901. Similarly, the boom of the 1870's allowed the Riksbank to increase its reserves. Conversely, the crises of the late 1850's and late 1870's were both characterized by declining reserves and, contrary to the "rules of the game", by reduced backing for the notes in circulation.

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[30] Starting in the 1870's, the Riksbank attempted to decrease its note circulation by raising its interest rates, both on deposits and for discounting. Nonetheless, during most crises the Bank had to directly reduce its note circulation by cancelling credit (see Brisman, S. (1931) pp. 189-191).

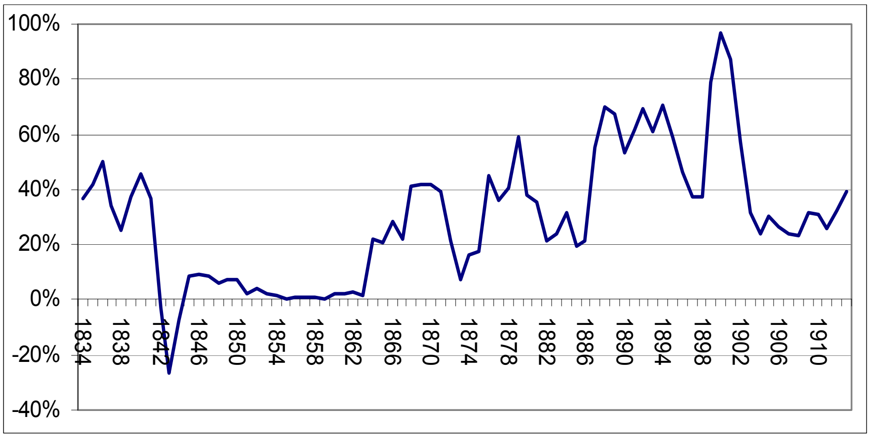
[31] The politics of the time also made it possible to maintain specie convertibility at all costs in total disregard of the negative economic consequences of such a policy, including lower output and higher unemployment. See Eichengreen, B. & Iversen, T. (1999) pp. 122-123.

The Lender of Last Resort in Nineteenth Century Sweden

The most obvious way the Riksbank could support distressed banks acting as a classical lender of last resort was to temporarily suspend convertibility through excessive note issue. As can be seen in Figure 4 below, officially this only occurred during the 1840's. In the crisis of 1843, the Riksbank can be said to have adopted certain lender of last resort characteristics since, for a period of two and one half years, it exceeded its legal note issuance limit by more than twenty percent.

It is possible that the Riksbank unofficially followed Bagehot's prescription for brief periods during other crises. These turned out to be too deep and too prolonged, however, to allow as great a reduction of reserves as the Riksbank had permitted during the early 1840's.[32]

Figure 4: The Riksbank's Unutilized Rights to Issue Notes as a Percentage of Issued Notes, 1834-1913



Source: Sveriges Riksbank (1931) pp. 45-49, 52-59, 62-69

A clear implication of Figure 4 is that sometime in the 1860's or 1870's an underlying change occurred that from then on made it possible for the Riksbank to maintain a higher level of unutilized issuance rights than previously. Although it is tempting to conclude that this change was the adoption of the gold standard in 1873, in fact this is unlikely. Rather, it seems probable that the increase in note issuance and lending by the private banks and the foreign capital imported by the National Debt Office made the economy less dependent on Riksbank notes.

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[32] The principal reason for the shrinkage of Riksbank reserves during the early 1840's, however, was not the crisis per see, but the forced redemption for silver of all Riksbank notes circulating in Finland (see Davidsson, D. (1931) pp. 205-217 and Ögren, A. (2003) Chapter 5).

The National Debt Office supplied credit to the banking system from the late 1850's until the early years of the twentieth century. However, since it had to cancel credits when the State required funds, the Office did not function as a lender of last resort.[33]

The commercial banking system began to emerge during the 1830's, and by the 1860's it had become nationwide. It depended mainly on note issuance until the 1860's, when deposits became its principal source of financing. Nonetheless, from the late 1850's until 1900, more private commercial bank notes than Riksbank notes were in circulation.[34]

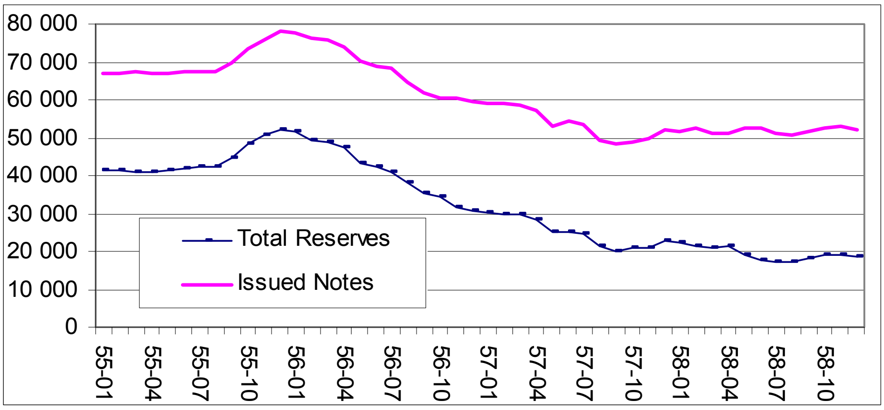
One feature of the Swedish note issuing experience that has attracted attention is the system's reputed stability.[35] Unfortunately, however, this was not always the case. Some Swedish banks in fact encountered financial difficulties during international crises. Despite the fact that both the law and the bank charters explicitly stated that the Enskilda banks were not entitled to official assistance, some banks were helped during the unusually deep crises of 1857/58 and 1878/79. Consequently, these crises have been subjected to especially detailed study.

Lender of last resort during the crisis of 1857/58

Figure 3 above showed that the reserve holdings of the Riksbank reached their maximum in 1855. After that year, a decline set in during the late 1850's. Starting in early 1856, the Riksbank reserves and, as a result, issued notes decreased rapidly. Indeed, between December 1855 and all time low of the crisis in August 1858 the reserves shrank to a third of its original size.

[33] Nygren, I. (1989) pp. 176-183. This happened both in the crisis of 1857/58 and in that of 1878/79.
[34] Ögren, A. (2000) pp. 33-37
[35] Jonung, L. (1984) p. 373, Jonung, L. (1989) p. 29, Schuler, K. (1992) p. 32

Figure 5: Monthly Data on Riksbank Reserves and Note Issue, January 1855 – December 1858. 1000's SEK

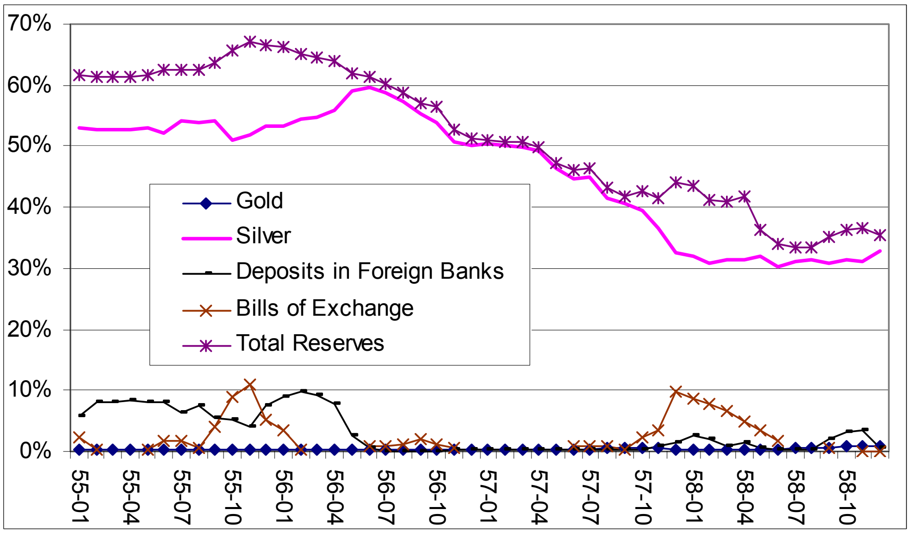


Source: Finanskommittén 1858, Vol I.

In September of 1857, the crisis hit the Hamburg credit market, resulting in the widespread cancellation of Swedish credits. In order to restore trust, the Riksbank worked actively with the actors on the Stockholm capital market. The members of the Stockholm Stock Exchange formed an association to provide credit in cash or Hamburg bills on good collateral. Given the situation in Hamburg, no single firm could perform this service. The credit association established its own banking firm in Hamburg, the Riksbank giving it credence by buying and discounting its bills of exchange. In practice this was a domestic arrangement that served to maintain liquidity within Sweden. By establishing this firm outside of Sweden, the Riksbank was able to treat its bills as reserves. Thus, the Riksbank could support the domestic credit market without formally reducing its reserve to money stock ratio. These activities of the Riksbank, however, were criticized by the Standing Committee on Banking and by the Parliament. Besides lacking legal support, it was felt that they put the currency under unnecessary stress.[36]

[36] Davidsson, D. (1931) pp. 148-151, 155-159

Figure 6: Monthly Data on the Riksbank's Total and Disaggregated Reserves as Percentages of Issued Notes, January 1855 – December 1858



Source: Finanskommittén 1858, Vol I.

Figures 6 demonstrates how the Riksbank tried to offset some of the effects of the outflow of reserves by reducing the backing of its notes below the peak level of late 1855. The impact of the Riksbank purchasing bills from its own Hamburg firm starting in September 1857 can clearly be seen in its ability to keep notes in circulation. Despite the constraints imposed by specie convertibility, the Riksbank obviously had some room for manoeuvre during the crisis.

The minutes make it clear that despite the determination of the Board members to provide sufficient liquidity to prevent credit market deterioration, issuing notes without regard to reserves was not considered a solution. Even so, the Riksbank's actions during the crisis of 1857 took it to the brink of bankruptcy.[37] When four British trading companies with important ties to Sweden suspended their payments in November of 1857, the Riksbank publicly declared its determination to support the credit market. Instantly seven hundred thousand of the Riksbank's unutilized issue rights of one million SEK were committed to providing additional credit. Despite the drastic

[37] Nilsson, G.B. (1989) p. 10. One member of the Board suggested that the Riksbank exceed its legal limit to issue notes by counting as reserves also the future interest to be earned on bonds the Bank held as backing for its notes. This proposal did not receive support from other Board members (RbFP No 151 December 10 1857).

circumstances the Riksbank retained its interest rate at 5%, well below international levels.[38]

Much of the discussion among the Board members of the Riksbank concerned how the money supply could be increased without, at least technically, reducing the reserve cover. Some members argued for classifying all of the Riksbank's assets as reserves. Another possibility for supplying money was to supplement the buying of gold and silver from the public with accepting these metals as collateral for loans, thereby finessing Gresham's Law. In December of 1857, the Board of the Riksbank effectively devalued the currency by paying an add on over par amounting to more than two percent when buying domestic silver. This higher price was justified as accounting for the greater cost of importing silver from abroad.[39]

While the National Debt Office injected liquidity on four different occasions during 1856 and 1857, its cancellation of credits also had severe consequences. When the crisis was most acute in December of 1857, the Office's only funds were a government grant designated for saving Skåne Enskilda Bank.[40]

The deep and prolonged crisis of 1857 illustrated the need for a State lender of last resort. The largest bank of the time, Skåne Enskilda Bank in southern Sweden, had kept increasing its lending until the summer of 1857, thus putting its reserve under increasing pressure. In October, the Bank turned to the international capital market in Hamburg but concluded that the eight and one half percent interest rate available was too high. In Stockholm interest rates were at eight percent and in Copenhagen they had reached fifteen percent. Skåne Enskilda Bank made do by utilizing a previously approved Hamburg credit and by obtaining a loan from Stockholm Enskilda Bank.

In December, the financial distress deepened as all Swedish credits in the Hamburg capital market were cancelled. A general distrust of Swedish private bank notes began to grow, especially in Copenhagen. There Swedish bank notes were accepted only at a substantial discount reflecting their perceived riskiness. The problem was especially serious for Skåne Enskilda Bank. Not only was this Bank located close to Copenhagen,

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[38] RbFP No 151 November 19 1857

[39] RbFP No 151 December 10, 17 1857. The Riksbank included in its reserves silver and gold it held as collateral. This was officially motivated by the borrowers having sold them to the Riksbank, subject to the right of repurchase by repaying their loans.

[40] Nygren, I. (1989) pp. 178-179

thereby increasing its note circulation in Denmark, it was the single largest note issuer among all Swedish private banks. The result was a rapid decline in the Bank's reserves.

On December 5, 1857, Skåne Enskilda Bank turned to the domestic Swedish capital market but managed only to obtain two small loans from other private banks. With the capital markets in Copenhagen and Hamburg being closed, the Bank had no option but to call on the ultimate lender of last resort, the Swedish State.

Two days later the Bank telegraphed the Minister of Finance threatening to suspend the redemption of its notes. Within three days, a hasty meeting among the Standing Committee on Supply, the National Debt Office, the Board of the Riksbank and the Minister of Finance had resulted in the granting to Skåne Enskilda Bank of a credit, guaranteed by the Riksbank, in the substantial amount of two hundred thousand SEK. In total, Skåne Enskilda Bank was provided with a credit of one half million SEK. It was collateralized by Mortgage Association bonds and a personal note from a Bank representative in Stockholm. The Mortgage Association, in turn, received the collateral Skåne Enskilda Bank held as backing for its outstanding loans.[41] None of these financial assets were sellable on the secondary market during the crisis.

Just when the crisis reached is climax, the King and Parliament instructed the Riksbank to borrow the sum of twelve million SEK on the Hamburg capital market. Despite the prohibition of State support for the Enskilda banks included in the 1846 law, the Standing Committee on Banking primary viewed the Enskilda banks as the recipients of this emergency credit. The decision authorized the Riksbank to include the entire loan sum in its reserves as soon as the loan contract had been signed, with written instructions immediately to issue Riksbank notes to an equivalent value.[42]

To administer these borrowed funds, the Riksbank established a special State Loan Fund (*Statslånefonden*). The Riksbank was given Parliamentary permission to exceed the legal interest rate limit of six percent when lending these funds.[43] The resulting nine

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[41] Kock, K. (1931) pp. 162-169. The actual representative of the bank in Stockholm refused to guarantee the credit in person, instead the founder of the Stockholm Enskilda bank, A.O. Wallenberg, stepped in. See also Brisman, S. (1934) pp. 102-103, 105-106, Nilsson, G.B. (1989) pp. 9-29, Schön, L. (2000) p. 165.

[42] RbFP No 152 January 7, 28 1858. Some Riksbank board members questioned the idea of supporting the Enskilda banks whom they blamed for the problems of the credit market.

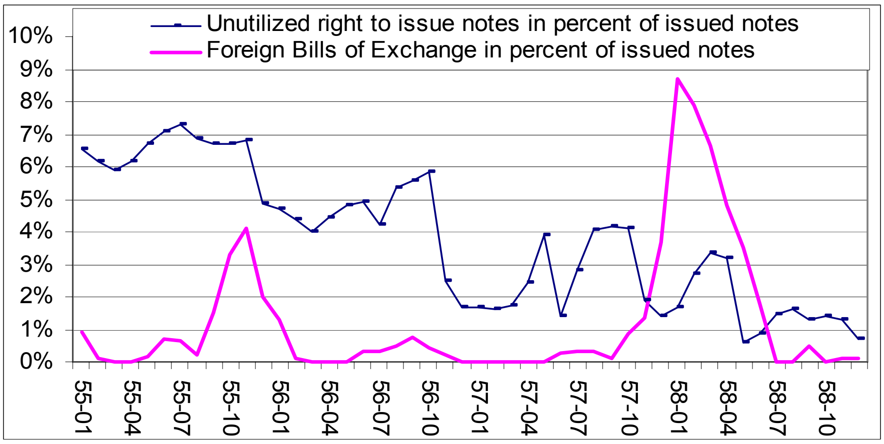
[43] RbFP No 152 February 2, 4, 11 1858. In England it was said that an interest rate of 7% would draw gold from the moon (Goodhart, C.A.E. (1999) p. 342).

percent rate, however, did not prevent the entire sum from being dispersed within a year.[44]

Since the fund was intended to support the domestic credit market, its loans were short term, repayable in less than three years. Meanwhile, the foreign lenders paid close attention to the exchange rate risk. The eleventh paragraph of the loan contract between the Riksbank and the lenders in Hamburg prescribed that both interest and principal were to be denominated in the Mark Hamburg Banko, and its equivalent in Cologne silver.

This loan to the Riksbank was finalized on January 28, 1858, the day before the National Debt Office signed a contract for a twenty million SEK bond loan, not in Hamburg but in Frankfurt am Main. This latter loan was designated to finance construction of the Swedish railway system, but much of it became immediately available to the credit market and to the Riksbank. The very first paragraph of this loan agreement specified that the principal and all loan payments were to be fixed in the German Vereinsthaler, all other valuations of the Swedish currency being disregarded.[45]

Figure 7: Monthly Data on the Riksbank's Unutilized Rights to Issue Notes and Foreign Bills of Exchange as Percentage of Issued Notes, January 1855 – December 1858



Source: Finanskommittén 1858, Vol I.

[44] How this was done is not entirely clear. The Riksbank deposited the capital from the Fund in various of its own departments and branches. The General Ledger of the Fund does not reveal what happened to the Fund's assets in Sweden. It began by placing seven million four hundred thousand SEK with the Deposit Department of the Riksbank between February and April. In its own accounts, however, this Department only reported one hundred sixty five thousand SEK from the Fund during the year. RbDA No 4352, Pag. 1810 1858, RbFP No 152 February 4, 8, 11, 1858, RbSLF No 4812 Pag.306 1858, Pag. 306 1859, RbSLFH No 4817 1858.

[45] RbFP No 152 February 11, 24 1858, RGKLKT No 9061 1858 §1.

Figure 7 illustrates the efforts of the Riksbank to maintain liquidity by redeeming bills drawn on Hamburg. Since the Riksbank issue notes under a differential system that allowed it to issue a fixed amount of notes in excess of its reserves, the Bank effectively abandoned the requirements of the specie standard from December 1857 until June 1858. This is apparent from the fact that if bills of exchange had not been treated as reserves the Riksbank would have exceeded its note issuing rights. The use of the bills was limited to bridging the time gap between the decision to borrow internationally and the arrival of the funds. Still, the question remains: would the Riksbank have been able to maintain the specie standard if the Riksbank and the National Debt Office had been unable to borrow high powered money abroad?

In the aftermath of the crisis there was Parliamentary criticism of the Riksbank. It was argued that seeking large foreign loans, by raising doubts concerning the Riksbank's solvency, undermined confidence in the Swedish currency.[46] Perhaps as a consequence of this criticism, the Riksbank did not intervene to support the domestic credit market during the crises of the 1860's. Instead to stuck to its principal objective; preserving convertibility regardless of domestic credit conditions.[47]

Lender of last resort during the crisis of 1878/79

The most severe Swedish financial crisis under the gold standard was that of 1878 and 1879. Although 1873 witnessed the emergence of an international crisis, it was the very zenith of the Swedish boom. During these good years, the Swedish credit market seemed largely insensitive to the discount rate increases implemented by the Riksbank, and in September 1873 the Bank's note issue exceed permissible levels. Instead of decreasing the money supply, however, the Bank increased its reserves by dipping into the reserve fund. Since these assets largely consisted of National Debt Office Bonds that were sold abroad, thus bringing in fresh capital, the effect was further credit market expansion.[48]

While the economy boomed, the banks extended credit freely. The favorite investment vehicle of the time was private railway bonds. These were issued to finance the construction of private railways that connected to the principal State owned

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[46] Davidsson, D. (1931) pp. 163, 166-167

[47] Davidsson, D. (1931) pp. 136, 147-150, 155-158, 163, 166-167 see also Ögren, A. (2000) p. 95 note 43.

[48] RbFP No 167 June 5, September 18, October 23, 25 1873, RbFSP No 251 September 25 1873, see also Ögren, A. (1995) pp. 7, 26

network. As a result, these bonds become one of the major components of private bank portfolios.[49]

As the economy slid into recession in 1875, the private railway bonds rapidly depreciated to half their nominal value. The greater the share of bonds in a bank's holdings, the greater the doubts about its solvency. One of the best known and highly respected private banking firms, C.G. Cervin was forced by it large railroad bond portfolio to suspend payments as early as 1875.[50]

From the start of the recession in January of 1875 until final crisis, the Riksbank actively supported the credit market within the constraints of the specie standard. When the currency came under pressure in February of 1875, the Riksbank had to open a note redemption office in Copenhagen to prevent its notes from trading below par.[51] Despite increased foreign credits, raised interest rates and utilization of the reserve fund to bring in reserves from abroad, in July of 1875 the Riksbank secretly decided to decrease its lending and thus reduce the money supply.[52]

Discounting the commercial banks' bills of exchange based on Hamburg credits affected the reserves of the Riksbank. In October 1875, the Board of the Riksbank discussed the possibility of ceasing to discount these bills. This possibility was rejected, however, since it would not only deprive these banks and bankers of a source of credit, but it also would undermine public confidence in the credit market. The Riksbank therefore continued to discount such bills, but at a discretionary lower rate of exchange.[53]

During the recession, the private commercial banks reduced their lending to such an extent that the circulation of Riksbank notes, instead of decreasing, actually increased. The Board of the Riksbank noted that this development helped support the domestic credit market but, since reserves had decreased, it could not continue. In December of 1877, the Riksbank requested that the National Debt Office facilitate the importation of

[49] Söderlund, E. (1964) p. 113

[50] This particular banking firm, although placed under bankruptcy administrator, was ironically one of the few to survive this crisis.

[51] RbFP No 169 January 20 1875, RbFSP No 252 January 14, February 18, April 22 1875. According to the Board of the Riksbank, the decision to open an office in Copenhagen was motivated by a desire to protect the Riksbank's credit worthiness (RbFSP No 252 February 18 1875).

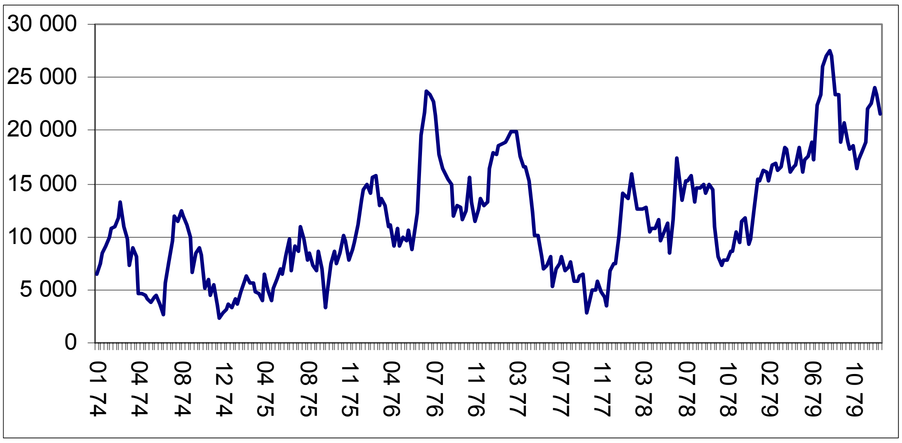
[52] RbFP No 169 Mars 25, May 22 1875, RbFSP No 252 June 17, 25 July 9, 12 1875.

[53] RbFSP No 252 October 14 1875. The decision stated that "bank and banker bills of exchange on foreign credits were to be sparingly discounted at the lower rate established by the Board." See also Söderlund, E (1964) p. 99).

capital, thereby easing the situation on the domestic capital market, by placing bonds abroad. By January 1878, the Riksbank was turning down requests for loans even when collateral considered to be of high quality by the Board was offered.[54]

The question is to what extent the Riksbank was prepared to inject liquidity to support the capital market without regard to its reserve position? Figure 8 below reveals that the Riksbank came closest to exceeding its rights to issue during the boom of 1874 and the recessions of 1875 and 1877. At no time, either during boom or during recession, however, did the Bank actually exceed its note issuing limits. Indeed, even when refusing to discount bills in early 1878, there was some margin left for further note issuance.

Figure 8: Weekly Data on the Riksbank's Unutilized Rights to Issue Notes in 1000's of SEK, January 1874 – December 1879



Sources: BaU No 1 1875 – 1880, RdRB 1875 – 1880

In December of 1878, one of the major Swedish banks, Stockholm Enskilda Bank, was subjected to a run. Despite the Bank's heavy involvement with railroad bonds, it managed to survive. The initial run ended on December 7, after King Oscar II made a symbolic deposit of ten thousand SEK. When the run re-started and dragged on into 1879, the Bank received a respite from the fact that it mostly had time deposits payable only after six months notice.[55]

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[54] RbFP No 170-172 July 1, November 25 1876, March 22, July 12, November 29 1877, January 15, 24 1878, RbFSP No 252-253 June 17, July 9, December 16 1875, June 15 1876 July 5, September 24, November 15 1877, RbR No 429 December 11 1876.

[55] Nilsson, G.B. (2001) pp. 351-358. In 1879, the National Debt Office cancelled its credits due to a shortage of funds and expected future receipts. The effect on Stockholm Enskilda bank was especially severe because, in addition to the loans of the Bank, its founder and principal owner, A.O. Wallenberg,

As pressure mounted, in February 1879 the dominant ”laissez faire” ideal was abandoned in order to prevent further deterioration of the credit market. The Minster of Finance’s pronouncement that support for the banks would ”*free the capital that had been made illiquid*” implicitly acknowledged that intervention was needed to relieve the existing credit crunch.

The solution was the establishment of a special, time limited, fund to provide the banks with lending of last resort. Since railway bonds, for which a functioning secondary market no longer existed, had become the major problem, the fund agreed to issue loans secured by such bonds. Hence, the Fund was named the Railroad Mortgage Fund (*Jernvägshypoteksfonden),* and was to be administered by the National Debt Office.[56]

After months of bureaucratic manoeuvering, the required legislation was finally enacted on May 17, 1879. In brief it stated that loans were to be provided against the security of railroad bonds, promissary notes or IOUs from Swedish railway companies. The total amount of capital at the fund’s disposal amounted to twenty three million SEK. At the suggestion of the National Debt Office, unsold bonds from previous flotations were to be used to raise the capital as required. This meant that the Fund was to first approve loans and then obtain the necessary funds. Credit institutions in need of loans were to file applications specifying the amount they wished to borrow, what collateral they had to offer and what kind of payment plan they had in mind to the National Debt Office no later than June 1, 1880.[57] Formally, the flexibility of the Fund was further limited by the fact that the collateral offered had to be evaluated by

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had a personal debt of 250,000 SEK, collateralized by railroad bonds, to the Office. Having repaid 50,000 SEK, Wallenberg was allowed extend the rest of his loan and with only half of the collateral originally pledged. This after Wallenberg makes reference to this Riksbank credit of 200,000 SEK secured by bonds in the same (Gefle-Dala) railroad company (RGKLP No 4462 January 16, 23 1879).

[56] Kprop 1879 No 29 pp. 1, 7-10. One result of the lender of last resort activities during the 1878/79 crisis was the consolidation of the commercial banking system at the expense of banking firms and banking houses, who declined during this crisis. This development raises the interesting question of the general effect of last resort lending on the structure of the credit market (see Boksjö, A. & Lönnborg-Andersson, M. (1994) pp.16-18).

[57] RdSkr No 53 pp. 2-3. The State was to be fully repaid for this commitment and any eventual profit was to be used to repay the loans used to build the State railways or other State debts. The Railroad Mortgage Fund eventually generated a surplus of just over 155,000 SEK (RGKJHFH No 7907 1894 pp. 3-4, 7). The Fund’s upper limit had been reduced from thirty to twenty three million SEK at the instigation of those groups in the Parliament who blamed the commercial banks for creating the crisis and who wished to devote the saved amounts to alternative, non credit market, approaches to providing lender of last resort services. Thus, through the *Sågverksegarnas Garantiförening* (Saw Mill Owners’ Guarantee Association), the saw mill industry was provided with a fund of three million SEK to be lent on the

representatives of the Royal Railway Traffic Board (*Kungliga Styrelsen för Statens Järnvägstrafik*) before any loan was granted.[58]

The Law did not prescribe whether the Debt Office was to raise funds by selling bonds on the domestic or on the international market. It was thus left at the Office's discretion. It was feared that bonds floated domestically would be used by private parties as collateral for international loans. This, in turn, might damage Sweden's crediting standing and make foreign capital unnecessarily expensive.[59] For once, the Riksbank was charged with administrating the placement of National Debt Office's bonds and thus of raising capital from foreign banking firms.[60]

Although it can be argued that the Fund was established too late, it unquestionably was significant in saving one important bank, Stockholm Enskilda Bank, from bankruptcy. The Stockholm Enskilda Bank had already applied for a loan of five million SEK even before it had officially started accepting applications. In response, the Railroad Mortgage Fund lent the Bank four million SEK, two and half million of which were dispersed within a few days of the establishment of the Fund. The first payment of one million SEK was made on June 4, 1879. Since the Stockholm Enskilda Bank needed funds immediately, the National Debt Office had no time to either evaluate the collateral or to raise the money abroad. Instead the Office borrowed the funds to be lent from the Riksbank.[61]

By July of 1879, the Fund had approved loans of over four million SEK to the Stockholm Enskilda Bank, but the Bank limited it self to four million.[62] By that time, the

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security of stored timber. The remaining four million SEK were allocated to the purchase of the private *Hallsberg-Motala-Mjölby* railway by the State (StU No 53 pp. 3-5).

[58] RGKLP No 4462 May 26, June 5 1879. All this was done to prevent misuse of the Fund. Nonetheless, the railway bonds were valued at close to their nominal value, that is at approximately twice their current market value. A special collateral valuation board was also used by the emergency fund established to assist the banks during the crisis of 1992.

[59] StU No 46 pp. 9-13, 16-17. The Standing Committee on Supply wanted the National Debt Office to raise 86 % of the capital within the country, probably not an optimal solution at a time when credit was in short supply.

[60] RGKJHFM No 8514 pp. 23-27

[61] RGKLP No 4462 May 30, June 3 1879, RGKJHFH No 7893 1879 pp. 40-41, RGKJHFM No 8514 p. 23. In order to lend such a large amount so quickly, the National Debt Office had to violate the regulations. For a time it even accepted the Bank's own promissary notes as collateral. Two of the Offices's board members noted their reservations in the loan protocol.

[62] Gasslander (1962) pp. 29-30, RGKJHFM No 8514 pp. 23-24, RGKLP No 4462 May 30, July 24, 31 1879. Once the Fund came into being, Wallenberg switched the railroad bonds he had provided as collateral for his personal loans from the National Debt Office and the Riksbank over to his own bank, Stockholms Enskilda Bank. The certificate of deposit he received from Stockholms Enskilda Bank was

situation on the capital market had started to improve, as can be deduced from the lower interest rates charged by the Fund.[63]

Figure 9: Borrowers from the Railroad Mortgage Fund

Date Granted	Date Paid	Bank	Collaterals (nominal value) in percent of loan	Loan Amount (SEK)
June 3 – July 24 1879	June 4 1879 – Jan. 31 1880	Stockholm Enskilda Bank	149%	4 000 000
June 12 & Nov. 13 1879	18/6 & 5/12-1879	Stockholm Handelsbank	249%	775 000
June 12 & Aug. 7 1879	June 23 & Aug. 16 1879	Göteborg Köpmannabank	200%	350 000
June 19 1879	July 5 1879	Göteborg Inteckningsgaranti AB	277%	50 000
June 19 1879	July 17 1879	Södermanland Enskilda Bank	200%	115 000
July 24 & Nov. 13 1879	Aug. 4 & Dec. 30 1879	Kalmar Enskilda Bank	207%	470 000
Aug. 13 1879 & May 27 1880	Sept. 12 1879 & July 1 1880	AB Gefle Bank	131%	80 000
Aug. 21 1879	Oct. 1 1879	Sundsvall Enskilda Bank	111%	540 000
Oct. 23 1879	Oct. 31 1879	Kristinehamn Enskilda Bank	134%	180 000
	March 6 1880	Gotland Enskilda Bank	100%	30 000
June 16 1880	July 1 1880	Wermland Enskilda Bank	350%	1 000 000
June 16 1880	July 7 1880	Ulricehamn Folkbank	219%	50 000
July 8 1880	July 26 1880	Skaraborg Län Enskilda Bank	100%	200 000

Sources: RGKJHFH 1879, 1880, RGKJHFL and RGKLP 1879, 1880

A total of thirteen banks received loans from the Fund. Over half of the total of 7.56 million SEK lent, however, went to Stockholm Enskilda Bank alone. That Bank was also the last to repay its loans, waiting as long as possible to do so.[64]

The principal financier of the Railroad Mortgage Fund was the Riksbank. At least 1.4 million SEK were lent directly to the National Debt Office and instantly passed on.[65] In

then used to back those loans, while the bonds were offered as collateral when Stockholms Enskilda Bank applied for a loan from the Railroad Mortgage Fund (RGKLP No 4462 June 12 1879).

[63] RGKLP No 4462 August 24 1879. In late July, the National Debt Office lowered the rate of interest on its loans to the Railroad Mortgage Fund to five percent, since loans at that rate were readily available to the Fund from other sources.

[64] In 1890, the account heading for loans from the Fund also was changed from “various borrowers” to “Stockholm Enskilda Bank”. RGKJHFH No 7903-7906 1890 pp. 18-19, 1891 pp. 18-19, 1892 pp. 18-19, 1893 pp. 20-21.

[65] RGKJHFL No 4851 pp. 22-23, 26-27. These payments were one million SEK on June 4 and 400,000 on October 1 on 1879. They were originally registered as a special entry labeled “The Riksbank”, but this was later changed. Since the Riksbank in fact lent to the National Debt Office which, in turn, lent to the Fund, it is possible that the total credit provided by the Riksbank exceeded these amounts.

addition, the Riksbank bought 3.5 million SEK of National Debt Office bonds issued to finance the Fund in 1879.[66]

Although the activities of the Riksbank in connection with credit market difficulties were important, the Bank can not be considered to have been a lender of last resort in the classical sense. As it made perfectly clear, the principal task of the Riksbank was to maintain convertibility. In January of 1878, the Bank refused to provide credit, even against the very best collateral, on the grounds that there simply was not enough money.[67] It held to the view that its responsibility for the specie standard prevented it from committing itself to always providing even very well secured credit.[68]

The Riksbank continued to focus on maintaining the specie standard and, therefore, relied on other actors, usually the National Debt Office, to import foreign funds when the domestic credit market was in distress.[69] These bond loans were intended primarily to finance the domestic infrastructure investments, and lower interest rates was the official reason for placing them abroad.[70] Nonetheless, a number of them, such as those issued during the recessions of 1890, 1899 and 1907, were closely related to distress on the Swedish money markets.[71]

Lender of Last Resort in a Transitional Economy: the Argument Refined

If lending of last resort is to succeed according to the classical formula, the injection of liquidity by the central bank must restore faith in the value of collateralized assets and the stability of the financial market. Otherwise it will just lead to an exhaustion of central bank reserves. For strong economies with a trusted and sought after currency, such as Sterling during the nineteenth century, the best lending of last resort policy is surely to stabilize the money stock in accord with the classical view.[72] In these cases,

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[66] RGKLHFM No 8514 p. 23. In addition to the Riksbank, two other principal actors were instrumental in providing funds for the Railroad Mortgage Fund, the banking firm of Ehrlanger & Söhne, Frankfurt am Main and C.J. Hambro & Son, London.

[67] RbFP No 172 January 15, 24 1878.

[68] RbR No 430 February 26 1880. In response to Wallenberg's Parliamentary proposal (No. 37) concerning a guaranteed right to borrow from the Riksbank against certain specified types of bonds.

[69] RbFSP No 252 June 15, 29 1876, RbR No 429 April 15 1875, June 26 1876, December 11 1877, Schön, L. (2000) pp. 262-263, Simonsson, K.G. (1931) pp. 40-41.

[70] Generally speaking, Swedish interest rates were considerably higher than those in England and Germany (Lindahl, E., Dahlgren, E. & Kock, K. (1937) p. 274).

[71] RbFSP No 252 June 15, 29 1876, RbR No 429 April 15 1875, June 26 1876, December 11 1877, Schön, L. (2000) pp. 262-263, Simonsson, K.G. (1931) pp. 40-41.

[72] See Freixas, X. et al. (2000) and Wood. G.E. (2000).

however, there is no need to worry about the exchange rate. For a capital importing, transitional economy, however, the problem is more complex.

If a modification of the classical lender of last resort concept is to be suggested for transitional economies with fixed exchange rates, it should be that the central bank can lend freely during crises only as long as the value of the currency is not under pressure. If it is, and maintaining the exchange rate is considered the principal goal of monetary policy, then the State should borrow on the international market. Such borrowing does not put pressure on the fixed exchange rate. It does, however, raise questions about public finance, thus increasing the importance of a generally prudent economic policy.

There are three reasons why the State as a whole, not just the central bank, should act as the lender of last resort: 1) The State is more trustworthy as an international borrower because it has the ability to impose taxes, an important collateral for foreign lenders. This fact also increases the importance of a well functioning tax system in transitional economies. 2) The State as a whole is in a better position to bear the risk of accepting the dubious collateral offered to lenders of last resort. The central bank acting alone would exchange reserves for collateral of little or even no market value. 3) The State as a single actor is better suited to bearing the exchange risk, a risk that foreign lenders will not accept. If the State commits itself to borrowing, it is important that fiscal as well as central bank policy be directed at preserving the fixed exchange rate.

Research emphasizing the close relationship between financial and currency crises in transitional economies has led some scholars to advocate the creation of an international body to function as the lender of last resort. Three assumptions underlie their position: 1) International capital mobility is beneficial to the development of transitional economies, but 2) In times of financial panic markets, especially international ones, cease to be rational and they lose their ability to effectively allocate capital and yet, 3) The ultimate goal of such countries' monetary policy remains exchange rate stability.[73]

The question is, how could Sweden, a nineteenth century transitional economy, successfully rely on international capital markets in times of crisis? Although the cost was higher, it was still possible to borrow on the international market. Is it possible that international capital markets have become less rational in the twentieth, than they were

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[73] Fischer, S. (1999) pp. 88-89, 91, 94-96. Fischer argues that international capital is extremely volatile and contagious in the sense of being susceptible to panic. Goodhart adds the assumption that the IMF, or some other international body, would be better suited to act as lender of last resort than a regionally strong economy, see Goodhart, C.A.E. (1999) pp. 356-358.

in the nineteenth, century? That hardly seems possible. One important lesson to be drawn from the Swedish experience, however, is that risk sharing is important. Sweden was considered an investment option by international lenders because the Swedish State bore the risks of currency depreciation and bad collateral. The remaining risk was that Sweden would not repay its debts out of future income. The Country's fiscal policies, however, seemed to be in good order, and thus the promise to repay was considered trustworthy. Perhaps it is more important for transitional economies to develop sound fiscal policies than to create an international lender of last resort.[74]

Conclusions

There is no doubt that the overarching concern with the specie standard played a role in the Riksbank not being required to always provide credit against specified collateral, even though the classic view of the lender of last resort required such a commitment. Thus, the switch from the silver to the gold standard does not constitute a dividing line in the Riksbank's lender of last resort policy. The massive importation of capital that began in the late 1850's made it dangerous for the Riksbank to support the credit market by suspending convertibility. A currency devaluation always brought with it large costs when the monetary standard was to be re-adopted. The growing foreign debt also meant that a depreciated currency would result in more expensive loans. The Swedish ability to violate the rules of the classical specie standard thus decreased as the Country became increasingly dependent on foreign capital.

The Riksbank was only able to support the credit market the way it did during the crisis of 1857 because as yet there was little foreign debt. Nonetheless, when the Riksbank came close to bankruptcy (i.e. close to depreciating the currency), it turned to the international capital market. During the crisis of 1878/79, the Riksbank put the maintenance of the specie standard first. The Riksbank did initially support the credit market during the recession of 1875, but as the crisis continued, it refused to let its reserves become exhausted. In both of these crises, the collateral accepted for lending of last resort had no market value whatsoever.

On both occasions, the Riksbank began by supporting the credit market, but as the crises dragged on, the Bank turned to the international capital market to raise high

[74] One question that arises in the context of an international lender of last resort is whether or not maintaining a fixed exchange rate is always so important that it is preferable for a domestic central bank

powered money. The risks of acting as a lender of last resort, including that of a depreciated currency, were borne by the Swedish State. The lesson of this experience seems to be that initially the central bank in a transitional economy with a fixed exchange rate can respond to a crisis in the classical manner; that is it can use up reserves to maintain the money stock. If the crisis persists, however, and the fixed rate of exchange has to be defended, then funds must be imported from abroad in order to build up reserves. While this is not an entirely original observation, it can be hoped that international capital markets are more rational than widely thought and might yield better results than an international lender of last resort.

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to refrain from lending of last resort activities in a crisis in order to protect it?

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