Anders Ögren* and Hans-Michael Trautwein

Central Bank Cooperation and Lending of Last Resort in the Scandinavian Monetary Union

Zusammenarbeit der Zentralbanken und Lending of Last Resort in der Skandinavischen Währungsunion

https://doi.org/10.1515/jbwg-2022-0016

Abstract: The functioning of multi-nation monetary unions with several central banks is conditioned by many factors and considerations, such as the capacity to deal with crises, the political will and operational skill to foster financial integration and to develop a mix of rules and discretion in the cooperation between the central banks. The Scandinavian monetary union (SMU) between 1873 and 1931 is a case in point for illustrating the importance of these factors and considerations. We examine the policies implemented in the Scandinavian countries to deal with asymmetries of payments flows and with financial crises at three levels: in an account of major crises that required lending of last resort, in a study of the clearing and settlement mechanism established in the union, and in a survey of contemporary economists' views on lending of last resort and cooperation in the SMU.

JEL-Codes: B 13, E 58, F 45, G 01

Keywords: monetary union, central bank cooperation, banking crises, lending of last resort, Scandinavia, Währungsunion, Zentralbankkooperation, Bankkrisen, Skandinavien

***Corresponding author: Anders Ögren**, Uppsala Universitet, Ekonomisk-historiska institutionen, Box 513, 75120 Uppsala, Sweden, E-mail: anders.ogren@ekhist.uu.se
Hans-Michael Trautwein, Carl von Ossietzky Universität Oldenburg, FK II – VWL, D-26111 Oldenburg, E-mail: michael.trautwein@uol.de

1 Introduction

In the aftermath of the German decision to adopt the gold standard in 1871, the Scandinavian countries quickly followed suit. Moreover, in relation to their switch to gold, Denmark and Sweden founded *Skandinaviska Myntunionen*, the Scandinavian Monetary Union (henceforth: SMU), in May 1873. Two years later, in 1875, Norway joined the union. The decisions concerning the adoption of a common unit of account and the standardization of the metallic content of the coins, followed up on discussions that had taken place at statistical and monetary pan-European meetings in the 1850s and 1860s, which had led to the formation of the Latin Monetary Union (LMU).

The pan-European debates as well as the LMU and SMU have been well studied with regard to the monetary regime as such, i.e. the installation of a common unit of account and the circulation of physical coins with identical metal content.[1] An aspect that has arguably received less attention is the coordination of central bank policies to deal with asymmetries of payment flows and with financial crises within a monetary union. In a single-nation monetary union, such as the German monetary union of the 1870s, the task is clearly assigned to a single central bank and discussed as a matter of developing that institution.[2] Matters are more complex in multi-nation monetary unions, in which several central banks need to cooperate. The functioning of such unions is conditioned by many factors and considerations, such as the capacity (or incapacity) to deal with crises at national levels, the political will and operational skill to foster financial integration, the pooling of reserves, and the potential to increase resilience to critical developments by a specific mix of rules and discretion in the cooperation.

---

1 See for instance *A. Ögren,* Currency Unions, in: *S. Battilossi/Y. Cassis/K. Yago (Eds.)*, Handbook of the History of Money and Currency, Singapore 2019, pp. 1-24; *J. Ljungberg/A. Ögren,* Discipline or International Balance: the Choice of Monetary Systems in Europe, in: European Journal of the History of Economic Thought 29/2, 2022, pp. 218-245.

2 In 1871, when the German empire was founded, it was decided to form a monetary union out of the pre-existing eight currency areas in the territory. The union was based on a “limping gold standard” under the leadership of the Reichsbank. Its function as lender of last resort was considered a constitutive principle of central banking, and the Reichsbank primarily used its clearing system to counteract liquidity crises, rather than bailing out single banks in trouble; see *H.-M. Trautwein,* Le prêt en dernier ressort dans les unions monétaires. Points de vue divergents des économistes allemands aux XIXe et XXIe siècles, in: Cahiers d’Économie Politique 81, 2022, pp. 61-105.

The Scandinavian monetary union is a case in point for illustrating the importance of all these factors and considerations. The central banks of Denmark, Norway and Sweden had a long history of intensive cooperation. In this paper we focus on the discussions about policies implemented within the SMU to deal with asymmetries of payments flows and with financial crises. During the classical era of the gold standard, the Scandinavian countries saw actually only few banking crises that required lending of last resort (henceforth: LLR). As we will explain, most of these could actually be dealt with at national levels, in diverse arrangements, with some international backing from outside the SMU.

Even if there was little lending of last resort between the three central banks, they had – from 1885 onwards – a clearing mechanism in place that could technically serve for this purpose. The mechanism fostered financial integration within the SMU, but was challenged and modified in times of political crisis – first at the dissolution of the political union between Norway and Sweden in 1905, then during and after World War I (henceforth: WWI), when the gold standard was suspended. New measures to cope with the suspension and to manage the aspired return to the gold standard were discussed and implemented. The basic clearing mechanism remained in operation throughout the critical period in and after WWI and during the revival of the gold standard, until the latter collapsed in 1931. As we show in this paper, it kept the SMU alive for a longer period than conventionally defined in the literature. Whether and in how far the clearing and auxiliary mechanisms of cooperation made the SMU economies more resilient to liquidity squeezes and financial crises is a question discussed among the governors of the central banks and by Scandinavian economists at the time. We examine relevant communications and contributions on the base of archival material, primary and secondary literature.[3]

Our paper is structured as follows: Section 2 presents a brief outline of the SMU history. Section 3 provides an account of banking crises and lending of last resort in the SMU between 1878 and 1924. It reveals similarities, but also differences between the banking systems and LLR arrangements in the three member countries. Section 4 details specific features of central bank cooperation with a focus on the evolution of the intra-SMU clearing mechanism and on attempts to maintain common ground under changing circumstances in and after WWI.

3 The archival material cited or quoted in our study is retrieved from the archive of Norges Bank at Norwegian *Riksarkivet i Oslo*, abbreviated: RA-N, and from *Riksbankens Arkiv* in Sweden. The latter is located at the Riksbank headquarters in Stockholm for all documents from 1900 onwards, abbreviated: RBA, while materials from earlier periods are found at *Riksarkivet*, the Swedish national archives, in Arninge, abbreviated: RA-S.

Section 5 reviews comments made by prominent Scandinavian economists on the handling of banking crises and Section 6 examines their divergent views on central bank cooperation in the SMU. Section 7 draws conclusions from our findings.

2 The Scandinavian Monetary Union

The Scandinavian Monetary Union was established by Sweden, Denmark and Norway in the years 1873-75.[4] While each member country continued to issue its own coins and notes, the names and coinage specifications were harmonized and the three national currencies were fixed in terms of gold at par with each other. Moreover, coins of the three countries were made legal tender in the whole union. Circulating them throughout at 1:1 exchange rates, the SMU had effectively a single currency, the Scandinavian crown (*krone* in Danish and Norwegian, *krona* in Swedish). It was therefore called *Myntunionen*, “the coin union”.

The transition of the Scandinavian countries from silver standards to gold had actually been prompted by the German Monetary Union. In the 1860s, the Danish and Swedish governments had considered joining the bimetallic Latin Monetary Union. The Franco-Prussian war of 1870/71 tipped the balance towards the newly created German empire whose decision to adopt the gold standard aroused fears of silver depreciation. Moreover, Germany was rapidly industrializing and becoming a major trading partner for the Scandinavian countries, making monetary integration more attractive for the latter. However, after defeat in the 1864 war over Schleswig-Holstein it was out of question for Denmark to associate with Germany. Looking for a Scandinavian solution, the three Nordic governments signed a treaty to form a monetary union (*Myntkonventionen*) in December 1872. Denmark and Sweden brought it into effect in May 1873; after some parliamentary resistance, Norway joined the SMU two years later.

---

4 For English-language accounts of SMU history see, for example, *M. Bergman/S. Gerlach/L. Jonung,* The Rise and Fall of the Scandinavian Currency Union 1873-1920, in: European Economic Review 37, 1993, pp. 507-517; *I. Henriksen/N. Kærgård,* The Scandinavian Currency Union 1873-1914, in: *J. Reis (Ed.)*, International Monetary Systems in Historical Perspective, Basingstoke 1995, pp. 91-112; *K. Talia,* The Scandinavian Currency Union, 1873-1924. Studies in Monetary Integration and Disintegration (Dissertation, Stockholm School of Economics), Stockholm 2004; *L. Jonung*, The Scandinavian Monetary Union 1873-1924, in: *Ph. Cottrell/G. Notaras/G. Tortella,* From the Athenian Tetradrachm to the Euro. Studies in European Monetary Integration, Aldershot 2007, pp. 76-95; *L.F. Øksendal,* The Impact of the Scandinavian Monetary Union on Financial Market Integration, in: Financial History Review 14/2, 2007, pp. 125-148.

Throughout its lifetime, monetary policy in the SMU was decentralized. The central banks of Sweden, Denmark and Norway – Danmarks Nationalbank, Norges Bank and Sveriges Riksbank – ran their Bank rate policies under the general rules of the gold standard, and not generally in a coordinated fashion. Yet, the mutual acceptance of coins laid down in the treaty of 1873 was soon expanded into unofficial acceptance of bank notes from the other member countries. By the early 1880s, gold coins were *de facto* crowded out from intra-Scandinavian circulation by the freely convertible notes. Gold transfers between the central banks were reduced to a minimum, as the handling of bills of exchange was harmonized and a supplementary agreement on clearing and settlements was in force from 1885 onwards. This agreement allowed the Scandinavian central banks to economize on their reserve holdings, since they could draw on the special accounts they held with each other, free of interest rate charges. It is the base for the claim that, "[w]ith the exception of the Austrian-Hungarian Monetary Union, the [SMU] was the most advanced and deepest example of central bank cooperation before 1914."[5]

Until the outbreak of the world war, the SMU was embedded in a favourable environment of a growing world economy. There were no macroeconomic tensions between the union members that would have made the clearing arrangement unsustainable, despite several economic and political crises (see Sections 3 and 4 below). "As was noted by contemporary observers, the SMU was the most successful of all European currency unions because the exchange rates of the three countries remained fixed."[6] The bliss of equivalence lasted for four decades, until different policies pursued in the member states during and after the war, when gold convertibility was suspended, undermined the strict parities. Even with the depreciation of the Danish and Norwegian currencies in the wake of WWI the union survived. In the literature, the SMU is nevertheless asserted to have ended *de facto* either in 1914, when the classical gold standard was suspended in WWI,[7] or in 1924, when the agreement to exchange token coins end-

5 *Ø. Eitrheim/J.T. Klovland/L.F. Øksendal,* A Monetary History of Norway, 1816-2016, Cambridge 2016, p. 183.

6 *M. De Cecco,* The European Monetary Union: Lessons of Historical Experience, in: PSL Quarterly Review 49/ 196 (Supplement), 1996, p. 68.

7 *Henriksen/Kærgård,* Scandinavian Currency Union, have their definition of the lifespan in the title: 1873-1914. *Øksendal,* Impact, p.125, does not explicitly describe the end of the SMU, but defines the lifespan 1877-1914 in the very first sentence of the paper. *G.F. Rongved,* The Gold War: the Dissolution of the Scandinavian Currency Union during the First World War, in: Scandinavian Economic History Review 65/3, 2017, dates what he considers to be the *de facto* end of the SMU to the years 1916-18 – see below, Sections 4.4 and 6.2.

ed, thereby removing the last remnant of mutual acceptance of foreign crowns at par values.[8]

Of course, any such arrangement as the Scandinavian monetary union must have a practical meaning to make sense, but declaring the SMU dead by 1914 or by 1924 is, in our view, premature. As we will document (in Section 4 below), balance sheets provide clear evidence that the clearing arrangements between the central banks in the SMU persisted until 1931 (at least), and that the union lived on for longer than conventionally believed.[9] The arrangements made room for lending of last resort activities within the SMU despite differing exchange rates. As is evident from the sources, representants of the central bank continued to meet, share information and offer support to each other. Understanding the SMU *without* the gold standard in operation for more than a decade[10] is more complicated, but puts further light on important aspects of central bank cooperation in a monetary union.

3 Banking Crises and Lending of Last Resort

The golden era of the gold standard prior to WWI saw a number of financial crises that originated in core countries, such as the United Kingdom, the United States, France and Germany, and had international repercussions on the peripheries of the world economy. Major critical episodes were, for example, the *Gründerkrise* of the years 1873-78, the Paris Bourse crash of 1882, the Baring crisis of 1890, the U.S. panic of 1893, the New York stock market crash of 1901, and the US banking crisis of 1907. The banking systems in Scandinavia, which

---

8 *Talia*, Scandinavian Currency Union, pp. 177-179 describes the repeal of the legal tender status of Scandinavian token coins by the Swedish parliament in April 1924 rather dramatically as "final nail in the coffin", with "the last vestiges of the [SMU] … abrogated." *Bergman/Gerlach/Jonung,* Rise and Fall, pp. 507, 516 are vague about the alleged end date, setting it to 1920 in the title of their paper, and to 1921 in the text. *Jonung,* Scandinavian Monetary Union, p. 81, on the other hand, defines October 1924 as the end date of the SMU.

9 According to the records at the Riksbank, the SMU did not break up *de jure* until the 1970s, when the Bretton Woods regime of fixed exchange rates had collapsed. By that time, however, the defining elements of the SMU had long since ceased to be in operation. The clearing-related balances between the central banks were no longer recorded officially from 1931 onwards. This is where we set the end point for our study.

10 While Sweden went back on the gold standard as early as 1924, Denmark restored it in 1927 and Norway followed only in 1928.

belonged to the "advanced periphery",[11] were on their whole remarkably resilient to these international turbulences. They suffered relatively few crises, and most of these were primarily of local character, hitting only one SMU country at a time and meeting with different responses from the central banks. In the following we provide brief accounts of the three crises in the golden era that led to lending of last resort: the Swedish railroad crisis of 1878/79, the Norwegian Christiania crash of 1899, and the Danish banking crisis of 1907/08. In addition, we discuss the postwar deflation crisis of 1920-24, which hit all the SMU economies, partly accompanied by intensive attempts of the central banks to recalibrate their cooperation with the ambition to return to the gold standard after its suspension in WWI.

3.1 The Railroad Crisis of 1878/79 in Sweden

Sweden's history of banking crises and lending of last resort can be traced back at least to the international crisis in 1857/58, when Sweden was on a silver standard.[12] In that crisis the Riksbank aided the banking system by issuing additional liquidity, while safeguarding its capacity to maintain the convertibility of the Swedish krona. Unconventional policies were employed, most notably by the decision to accept foreign bills of exchange as part of the legal reserves for note issuance, and based on that, to open an office in Hamburg that issued such *foreign bills of exchange* which qualified as reserves. Eventually the Riksbank turned to foreign capital markets to borrow for sustaining the market with liquidity. Unfortunately, this coincided with attempts made by the National Debt Office (*Riksgäldkontoret*, henceforth: NDO) to import long-term capital for the building of railroads in Sweden.[13] This internal Swedish competition on the German capital market during the crisis probably raised the cost of the loan which in the case of the Riksbank was substantial.

---

11 *L.F. Øksendal*, Monetary Policy under the Gold Standard - examining the Case of Norway, 1893-1914 (Norges Bank Working Paper 2008/14), Oslo 2008, p. 14.

12 See *A. Ögren*, Banking Crises and Lender of Last Resort in Theory and Practice in Swedish History, 1850-2010, in: *H. Rockoff/I. Suto (Eds.)*, Coping with Financial Crises, Singapore 2018, pp. 54-66.

13 The NDO (nowadays called *Riksgälden)* was formed in 1719 as the Diets' Office (*Rikets Ständers Kontor*) to manage government debt on foreign loans. It was restructured in 1789 as the Swedish National Debt Office by King Gustav III to fund the war on Russia. From the late 1850s onwards – after Sweden's last war (which ended in 1815) and a period of financial consolidation – the NDO increasingly borrowed abroad to finance infrastructure, such as railways, (later) hydropower and telephone networks.

The relationship between the NDO and the Riksbank was rather frosty, since the two authorities viewed their respective responsibilities as overlapping. The episode when the NDO had competed with the Riksbank by issuing its own notes from 1789 until 1809 – leading to two official units of accounts and eventually obliging the Riksbank to take over monetary liabilities of the NDO – had not been fully solved until the currency reform of 1854.[14] Nevertheless, the lessons learnt from the LLR activity in the 1857/58 crisis paved the way for a working order between the Riksbank and the NDO which was then for the first time employed in the 1878/79 crisis. The Riksbank would support the banking system by increasing liquidity *Bagehot-style*, whereas the NDO, if necessary, employed international capital markets and set up specific *toxic asset funds* to save single banks in need.

The crisis in 1878/79 was a Swedish version of the American railroad crisis of 1873. It affected those banks that had invested most in the building of private railroads, mainly by buying railroad bonds. The bank with the biggest share of such bonds in its portfolio was *Stockholms Enskilda Bank* (SEB). It had been funded as late as 1856 but grew quickly under its founder André Oscar Wallenberg to become one of the leading commercial banks in Sweden, a position probably owing to the fact that it was the first institute besides the Riksbank that gained the right to establish business in Stockholm, the nation's capital and financial centre.[15] When the crisis began in 1878, the SEB held 30 percent of its free assets as bonds, to be compared with the average ten percent among commercial banks. In the early 1870s, the figures had been even higher, peaking at more than 50 percent in 1872.[16]

As the international economic situation worsened with the crisis in Vienna 1873, followed by falling export revenues from the UK from 1875, profit expectations of railroad companies turned uncertain and bond prices started to fall to levels around 40 percent of their nominal value in 1877/78. Since the SEB held a large share of railway bonds, rumours about the insolvency of the bank started to spread and a run on deposits occurred in December 1878.[17]

---

14 See *A. Ögren*, A Neglected Contribution to Monetary Theory in the Eighteenth Century: Anders Wappengren on Paper Money, Floating Exchange Rates, and Purchasing Power Parity, in: European Journal of the History of Economic Thought 23/6, 2016, pp. 870-896.

15 See *A. Ögren,* The Political Economy of Banking Regulation: Interest Groups and Rational Choice in the Forming of the Swedish Banking System, 1822-1921, in: Business History 63/2, 2021, pp. 271-291.

16 See *E. Söderlund,* Skandinaviska banken i det Svenska bankväsendets historia Del I 1864-1914, Stockholm 1964, p. 113.

17 See *ibid.*, pp. 127-132.

Since most of the deposits in the SEB were time deposits, the bank survived the crisis. Political pressure led to the establishment of a *toxic asset fund* officially named the Railroad Mortgage Fund [*Jernvägshypoteksfonden*]. It opened in May 1879, after capital had been raised by the NDO in international markets; consequently, it was the NDO that administered the fund, not the Riksbank. However, the NDO opened accounts in the Riksbank through which the funds were channelled to the banks in need, most notably the SEB. Of the 7.6 mKr. lent by the fund in the first year five million went to the SEB.[18] The bank was consistently more indebted to the fund than all other banks combined, and also the last to repay its loans, in 1894, five years after any other bank. In total thirteen banks received loans, of which the second largest amounted to1 mKr. given to *Wermlands Enskilda Bank* in 1880.[19]

Obviously, the Railroad Mortgage Fund collateralised toxic assets for fresh capital guaranteed by the tax payers by a design similar to those of toxic asset funds employed more recently in history, in Sweden and elsewhere. Voices were raised that such a design rewards excessive risk-taking, illustrated by the fact that those who benefitted most from this programme were those with large holdings of such riskier assets, and that the fund may create problems of moral hazard. It can be argued that setting up the fund was an over-reaction of policymakers and bankers in the 1878/79 crisis, but that is an *ex-post* observation which ignores the asymmetries and incompleteness of information that created difficulties for the management of any serious financial crisis. What was novel in this crisis was the division of labour between the NDO and the Riksbank which considerably lowered the cost for importing capital in comparison with the earlier crisis. Moreover, the Riksbank managed to provide liquidity within the constraints of the specie standard and the SMU.

3.2 The Christiania Crash of 1899 in Norway

Kristianiakrakket, the Christiania Crash, hit the capital of Norway in 1899.[20] It originated with property and stock-market speculation in the course of rapid

---

18 The abbreviation mKr. denotes million crowns *(kronor in Swedish, kroner* in Norwegian and Danish) and will be used for all three currencies in places where no differentiation is required. Here it applies to Swedish kronor.

19 See *Ögren*, Banking Crises, pp. 58-66.

20 Kristiania, alternatively spelt Christiania, was the former name of Oslo until 1924. For a detailed account of the Christiana Crash see *Eitrheim/Klovland/Øksendal*, Monetary History, pp. 237-251; see also *K. Gerdrup*, Three Episodes of Financial Fragility in Norway since the 1890s urbanization. During the 1890s, the population of Kristiania had increased by almost 50 percent to a quarter of a million.[21] The concomitant housing boom was fuelled by the market entry of six "jobber banks" which specialized on term transformation by borrowing short-term in foreign markets and lending long-term to investors in the real estate business, construction industries and other enterprises.[22] In the last two years before the crash, the new banks and some of the established eight banks raised capital by share issues at a value four times higher than prior total bank equity in 1897.[23] Shares could be used as collateral for obtaining bank loans which partly served to acquire more shares. The volume of total bank loans grew by six percent in 1896, 11 percent in 1897, and 19 percent in 1898.[24]

The enormous credit expansion proved to be unsustainable when bank lending rates rose in major foreign markets and the note reserves of Norges Bank began to dwindle with a strong outflow of gold. The Norwegian money market tightened, showing signs of a strong mismatch in many a bank's balance sheets. *Kristianiakrakket*, the crash, started off in June 1899 with the bankruptcy of Chr. Christophersen & Co., a large and highly leveraged conglomerate in the wood, pulp and paper industries. This brought the Diskontobank into trouble, the Aktiebank followed soon, and in the ensuing crash the prices of bank shares fell across the range, wiping out almost all of the previous increase in total bank equity. The six new banks went all out of business and were liquidated within a few years; one of the established banks, Christiania Handelsbank, failed as well, and most of the others suffered major losses.[25] Property prices fell, construction was disrupted and the "real sphere" of the Norwegian economy struggled with the effects of the financial crisis until 1905. *Kristianiakrakket* was perceived as the worst banking crisis in Norwegian history, becoming "the great financial drama of its time until overtaken by the banking crisis of the 1920s."[26]

(BIS Working Paper 142), Basle 2003; *Øksendal,* Monetary Policy, pp. 71-75; *O.H. Grytten/A. Hunnes,* An Anatomy of Financial Crises in Norway, 1815-2010, in: Financial History Review 21/1, 2014, pp. 33-40.

21 *Eitrheim/Klovland/Øksendal,* Monetary History, p. 237; *Grytten/Hunnes,* An Anatomy, p. 39.

22 The six banks were Den norske Diskontobank, Den nordiske Aktiebank, Den norske Industri- og Vexelbank, Christiania Privatbank, Norsk Vexel- og Landmandsbank, and Kristiania Delkrederbank.

23 *Eitrheim/Klovland/Øksendal*, Monetary History, p. 239.

24 *Gerdrup,* Three Episodes, p. 6; *Grytten/Hunnes,* An Anatomy, p. 33.

25 *Eitrheim/Klovland/Øksendal,* Monetary History, pp. 247-248.

26 *Ibid.*, pp. 237.

Even so, the crisis management of Norges Bank was praised widely and loudly, right from its start in June 1899. The business weekly *Farmand*, which had sounded strong warnings far ahead of the crisis, criticizing the Bank for not raising the discount rate to stop speculation and moral hazard, asked forgiveness for having been so harsh. *Farmand* now argued that the Bank's swift reaction to Christophersen's bankruptcy had prevented a panic in which

> "many solvent and solid businesses that were not involved in any speculation, neither directly nor indirectly, would have been knocked down by the blind gales. […] Whatever one thinks of the modalities by which the members of [Norges Bank's] directorate are elected, or of the Bank rate policy it has followed – they have, at any rate, shown themselves to be *Men* [at være *Mænd*] in an hour of deep crisis for the Bank and the Country, and this is in our view the highest praise that we can give them."[27]

The brave action that the *Farmand* article refers to was the immediate support granted to the Diskontobank by way of rediscounting bills, in the belief that the bank was illiquid due to Christophersen's failure but not insolvent. Shortly thereafter, Norges Bank started rediscounting bills of the Aktiebank, though on a smaller scale and linked to consortial execution of orderly liquidation until the end of 1899. The initial package for the Diskontobank proved insufficient towards the end of the year; Norges Bank had to bail it out completely, and let it go out of business in the following year.

> "How much Norges Bank actually lent to the banking system during the crisis of 1899 is not quite clear. […] No other banks [apart from Diskontobank and Aktiebank] are actually named as recipients, but the general image Norges Bank conveys is one of rather free discounting for other banks as well."[28]

The massive LLR in summer 1899 made Norges Bank go significantly beyond the limits that legal reserve requirements set for its issue of bank notes. In order to protect its credibility, it received a large deposit from the Ministry of Finance, based on a government redraw on foreign loans, and it borrowed gold on short notice from Denmark's Nationalbank.[29] It has been argued that *Kristianiakrakket* "was a turning point for Norges Bank and the litmus test for the function as lender of last resort."[30]

27 *Farmand*, 08.07.1899, p. 520.

28 *Eitrheim/Klovland/Øksendal*, Monetary History, pp. 244.

29 *Farmand*, 7.10.1899, p. 804; *Øksendal*, Monetary Policy, p. 75 n. 138.

30 *Ibid.*, p. 75.

Moreover, in view of the temporary loan of Danish gold, it can be added that the episode presented an instance of international LLR within the Scandinavian Monetary Union. It is not on record, whether this was perceived as an embarrassment to Norway. In Autumn 1899, however, a proposal was made to Stortinget, the Norwegian parliament, to augment the financial instruments of Norges Bank. It was argued that – next to meeting increasing demands for liquidity in the regional branches – it was necessary to provide its directors with more room to manoeuvre in times of crisis.[31] A few months later, Stortinget decided to increase the fiduciary note issue by almost 50 percent (from 24 to 35 mKr.).[32]

3.3 The Banking Crisis of 1907/08 in Denmark – and Sweden

In the history of financial crises, the U.S. banking panic of 1907 is commonly regarded as a global crunch that spread from New York, where it originated as the *Knickerbocker crisis*, throughout the world economy. The Danish banking crisis that coincidentally started some months earlier was not caused by the panic in the United States, which came to be only one of the aggravating factors. The financial troubles in Denmark were in various ways similar to those of *Kristianiakrakket* that had hit Norway a few years before. They developed as a real-estate bust on a bigger scale in a more complex banking environment, and they were met by a different type of LLR arrangement. The basic ingredients, however, were the same: strong economic growth and urbanization fostering a credit-financed construction boom that made the financial system increasingly fragile.[33]

In order to understand the Danish crisis, it is essential to note the political importance of Denmark's capital imports during the classical era of the gold standard. The 1870s and 1880s saw a long decline of price levels in the world economy which has been attributed to efficiency gains and cost reductions in production and transport on the real side, and to restrictions of finance by the gold reserve rules on the monetary side. Deflation made Danish farmers suffer, as competitors from the *new world* and other regions with larger economies of scale cut into their sales prospects. Given the risks of falling prices, shareholder

---

31 See e.g. *E. Hagerup Bull*, Om den foreslaaede utvidelse af Norges banks virkemidler, in: Statsøkonomisk Tidskrift 13, 1899, pp. 112-126.

32 *Eitrheim/Klovland/Øksendal*, Monetary History, pp. 252.

33 A comprehensive account of the developments before and during the Danish crisis of 1907-09 is given by Svend Aage Hansen in *K.E. Svendsen/S.A. Hansen*, Dansk Pengehistorie, bind 1: 1700-1914, Copenhagen 1968, chs. 13-16; a brief outline is found in *K. Abildgren*, Danmarks Nationalbank 1818-2018, Copenhagen 2018, chs. 6-7.

capital was short in supply and real interest rates on mortgage loans and land lease finance were high and rising. This became a matter of general concern, since agriculture was the leading sector in the economy and agricultural interest groups had a strong position in Danish politics. Much of the blame for the farmers' economic trouble was put on the gold standard regime which kept interest rates in Denmark higher than elsewhere for fear of gold drains.[34]

In this situation, the state began to take to a policy of *conversions* (*Konverteringer*) with the aim of lowering domestic interest rates by "replacing Danish money with foreign money."[35] Government bonds and state-guaranteed mortgage loans were increasingly issued and sold in foreign markets, mainly in Hamburg and London, but also in Paris, where liquidity was more easily available at low rates of interest. Several conversion campaigns were run between 1886 and 1897, with support from Danmarks Nationalbank. External borrowing helped to create a more favourable financial climate during the deflation period.[36] In the last campaign the share of external funding in total public debt shifted from 36 percent in 1897 to 74 percent in 1898, slowly rising further to 79 percent in 1907-08, the years of crisis.[37]

The last figure indicates that external borrowing by the Danish state was continued into the new century, even though the business climate had changed in the late 1890s. Prices had risen on a global scale, agricultural exports from Denmark to industrializing Germany and England had transformed farming into a prosperous industry. Copenhagen and other Danish cities grew fast in terms of population, manufacturing and commerce. The period was generally perceived as a "building and banking boom". The number of banks increased from 39 in 1890 to 119 in 1908, while the total volume of deposits quadrupled from 150 to

34 Table 13.3 in *Svendsen/Hansen,* Dansk Pengehistorie, p. 317 shows that Denmark's trade balance was continuously in deficit between 1874 and 1895. In those two decades, the trade deficit averaged at 8.7 percent of GDP, on a range from 4.1 percent in 1880 to 12.7 in 1884; it outgrew the gold reserves of the central bank by factor 1.54 on average, ranging from 0.77 in 1880 to 2.21 in 1884 – own calculations based on tables 13.3 and 14.1 in *Svendsen/Hansen,* Dansk Pengehistorie, pp. 317, 337; *K. Abildgren,* Monetary Trends and Business Cycles in Denmark 1875-2005 (Danmarks Nationalbank Working Papers 2006/43), p. 88, table A.9.

35 *Svendsen/Hansen*, Dansk Pengehistorie, p. 347, and pp. 311-330 for a history of the conversions.

36 See table 13.6 and the surrounding comments in *Svendsen/Hansen,* Danske Pengehistorie, p. 329; *Abildgren,* Monetary Trends, p. 94, table A.15.

37 In the same period total public debt rose only by 16 percent, from 183,1 mKr. (1897) to 212,3 mKr. (1908), while nominal GDP rose by 62 percent, from 1,033 (1897) to 1,670 mKr. (1908) – see *Svendsen/Hansen,* Dansk Pengehistorie, p. 348, table 15.6; *Abildgren,* Monetary Trends, p. 88 table A.9.

600 mKr. Commercial banking was dominated by three big institutes: Landmansbanken, Handelsbanken and Privatbanken. Their total capital stock increased from 48 mKr. in 1895 to 101 mKr. 1906; the stock of each of the Big Three surpassed that of Danmarks Nationalbank, the central bank (23 mKr. in 1906).[38] In the late 1890s, two new banks – Detailhandlerbanken and Grundejerbanken – started business in Copenhagen, with support from Privatbanken and Handelsbanken. At first, they served primarily their peer groups, retail traders and property owners, but soon they engaged in the finance of the construction boom. In 1904, these two "builder banks" were joined by Centralbanken, which despite its name was not a public institute equipped with monetary authority, but a private bank "conceived as an ambitious project. Equity was to be financed on a jointly Scandinavian (*fællesnordisk*) base, and the bank considered itself right from the start as a competitor of the big banks."[39]

From 1904 to 1906, the capital stock of the three builder banks increased from 6 to 37 mKr., and their deposits from 21 to 54 million. Both the Big Three and the builder banks refinanced much of their long-term lending by taking short-term loans and selling obligations in foreign markets, to a large extent in Paris. Interest arbitrage made it difficult for Nationalbanken, the central bank, to control the credit expansion by way of Bank rate policies. Contemporary observers blamed the cultural habit of importing capital, inherited from the era of the conversions, for a loss of financial control that in their eyes bedded for the banking crisis.[40]

The Copenhagen housing bubble (called *boligboblen* in Danish) got punctured as early as 1905, when signs of overproduction showed and the numbers of newly built units and construction workers began to fall.[41] The Danish banking system came under stress, as burgeoning trade deficits led to a gold drain in 1906/07 which reduced the note issue and liquidity in the local money market. From May 1907 onwards, and several months before the U.S. banking panic reached Europe, Copenhagen was on the verge of a stock market crash and bank runs, as share prices dropped and Centralbanken was feared to default. A panic was averted, first by "generous note issues" by Nationalbanken that relaxed the

38 *R. Norrby,* Den danska bankkrisen i februari 1908, in: Ekonomisk Tidskrift 10/3, 1908, p. 75; *Svendsen/Hansen,* Dansk Pengehistorie, p. 353.

39 *Svendsen/Hansen,* Dansk Pengehistorie, p. 368.

40 *A. Nielsen,* Den Skandinaviske Møntunion. Et historisk rids, Copenhagen 1917, pp. 67-68; *J. Toftegaard,* [Review of] 'Nationalbankens Historie 1878-1908' af Dr. polit. Axel Rubow, in: Nationaløkonomisk Tidskrift 29, 1921, pp. 99-104; *Svendsen/Hansen,* Dansk Pengehistorie, pp. 337-343, 371-372.

41 See Table 16.1 in *Svendsen/Hansen,* Dansk Pengehistorie, p. 369.

liquidity squeeze in the money market, and then by direct loans from the central bank to Centralbanken and to a consortium of Copenhagen banks that made support purchases of mortgage bonds.[42]

Towards the end of the year 1907, the Knickerbocker crisis in the United States induced an international scramble for liquidity. This reduced Danish banks' access to loans in foreign markets and exposed a considerable mismatch of borrowing short and lending long in the builder banks. With Bank rates in England and Germany standing at 6 percent, Danmarks Nationalbank found itself compelled to raise the discount rate first to 7, then to 8 percent. The climax of the Danish banking crisis was, however, triggered by an unrelated trade conflict with France, which was still richly providing liquidity for Danish borrowers. As Denmark had introduced customs duties on wine imports, the French government retaliated by blocking trade in Danish securities in French capital markets. In February 1908, Grundejerbanken failed to prolong a large loan at the Paris Bourse. On February 6th, the bank suspended all payments, and it was stated at an emergency meeting of the directorates of Nationalbanken and the Big Three that it lacked sufficient collateral to pledge "under normal conditions". That declaration of insolvency sparked general distrust and set off a run on Detailhandlerbanken "in completely European style, though without the dramatic scenes that we know from the big societies, as such is not in the nature of the Danish petty bourgeois."[43]

On Sunday, February 9th 1908, representatives for a consortium of five banks – Danmarks Nationalbank, the Big Three plus no. 4 in Danish commercial banking, Københavns Laane- og Diskontobank – met with the Minister of Finance. It was decided to set up a banking committee that would use a fund of 20 mKr. To issue guarantees to depositors and other creditors of Detailhandlerbanken and Grundejerbanken. Giving guarantees to all creditors (beyond the ranks of depositors) was seen as essential for sustaining the strong standing of Danish borrowers in international financial markets. The government promised to finance half of the fund, the five banks pledged to stand for 10 percent each. The fund was financed by a loan from Hambros Bank in London.[44]

42 *Ibid.*, pp. 374-376.

43 See *Farmand,* 15.02.1908, pp. 92-93 for a lively contemporary description of the panic.

44 For detailed accounts of the events see *Norrby,* Danska bankkrisen, pp. 77-81; *Svendsen/Hansen,* Dansk Pengehistorie, pp. 377-378; *Abildgren,* Danmarks Nationalbank, p. 94. Hambros Bank was founded in London in 1839 by the Danish merchant and banker Carl Joachim Hambro. For many years the Scandinavian countries used Hambros as the sole issuer of their loans in London.

The banking committee was given far-reaching competences in the administration of the insolvent banks. At first it was praised for the quick success of the consortial bailouts in restoring confidence in the banking system. Within a short time, however, public opinion changed. It was argued that the commercial banks in the committee dominated the state's representatives, served their partial interests in reducing competition by liquidating the builder banks rather than restructuring them,[45] rolled over costs of rescuing deposits on the state, and obstructed investigations into their own involvement in the speculative business that had bedded for the crisis. The banking committee was disbanded in 1910 and replaced by a liquidating fund that set lower limits for the government's liability. Another result was the first Danish commercial banking act, drafted by 1912 but entering into force only in 1920. From then on, "the commercial banks were subject to supervision, capital and liquidity requirements and provisions regarding accounts and audit."[46] By that time, however, an even bigger crisis was lurking around the corner.

For the records, it should be noted that in 1907, "the year of the deepest international financial crisis in a generation", Norway was unaffected to the extent that Norges Bank remarked in its annual report "that 1907 in economic terms has been an exceptionally favourable year".[47] This was not the case for Sweden. The 1907 crisis affected its economy significantly, though not as much as it hit Denmark. It is estimated that 25 percent of the more than eighty commercial banks found themselves in distress, and 5 percent were liquidated, due to the crisis. It is worth noting that one of the main reasons for the crisis in Sweden was a sudden stop of international, including Norwegian, capital flows into the Swedish banking system.

Already in the summer of 1907, well before the run on Knickerbocker in New York, the Riksbank and the NDO collaborated in raising a loan on international markets to provide the market with liquidity. The crisis was mainly met by discounting bills of exchange. There was no targeted rescue operation of any kind, and – unlike in 1878/79 – only high-quality bills of exchange were discounted in

45 By the end of the year 1908, all three builder banks were liquidated or taken over by one of the Big Three.

46 *Abildgren*, Danmarks Nationalbank, p. 94; see also *P.H. Hansen*, From Growth to Crisis. The Danish Banking System from 1850 to the Interwar Years, in: Scandinavian Economic History Review 39/3, 1991, pp. 20-40.

47 Cited after *Eitrheim/Klovland/Øksendal*, Monetary History, p. 255.

the spirit of Bagehot's rule.[48] It was even remarked that "[i]t is doubtless true that, at a time of pressure, the rules requiring careful scrutiny of bills offered for discount at the Riksbank were more scrupulously observed than at regular times."[49]

A possible explanation why there was no bailout of single banks in the 1907 crisis is the monopoly of bank-note issues that the Riksbank effectively had from 1903 onwards. As this was believed to put further stress on the Riksbank's reserves and, hence its possibility to maintain the gold standard, the Riksbank tended to see responsibilities for lending of last resort to single banks as a threat.[50] The 1907 crisis, important as it was, became overshadowed by the monetary turbulences of WWI and by the deep crisis that occurred after the war.

3.4 The All-Scandinavian Deflation Crisis of 1920–24

The banking crisis that affected Sweden most strongly, and the other two countries even more, started two years after the end of the war. It followed a period during which economic circumstances were exceptionally favourable for the Scandinavian countries. There was more demand from the belligerent countries for produce from neutral Scandinavia than could be met. The exports were largely paid for with gold, an issue that came to put pressure on the collaboration within the SMU (see Sections 4.4 and 6). This led to an appreciation of the Scandinavian currencies, coupled with strong asset price inflation and negative real interest rates, which in Sweden amounted to more than -20 percent in 1917 and -40 percent in 1918. After the war, the situation changed drastically. Exports declined, not only due to the end of WWI, but also because the revolution in Russia made Sweden lose an important market. Capital flows turned negative in 1919, just when the Riksbank initiated deflationary policies with the aim of restoring the gold standard at pre-war parity. If WWI was marked by negative real interest rates, the early 1920s turned into the opposite direction. Real interest rates rose to 25 percent in 1921, remained at 20 percent in 1922 and slowly de-

48 See *A. Grodecka-Messi/S. Kenny/ A.Ögren,* Predictors of Bank Distress: The 1907 Crisis in Sweden, in: Explorations in Economic History 80, 2021, https://doi.org/10.1016/j.eeh.2020.101380, 17.06.2022.

49 *A.W. Flux,* The Swedish Banking System, in: National Monetary Commission, Vol. XVII, Senate Document no. 576, Washington 1910, pp. 128-129.

50 See *A. Ögren,* The Political Economy; *Grodecka-Messi/Kenny/Ögren,* Predictors of Bank Distress; *S. Kenny/A. Ögren,* Unlimiting Unlimited Liability: Legal Equality for Swedish Banks with Alternative Shareholder Liability Regimes, 1897-1903, in: Business History Review 95, 2021, pp. 193-218.

clined to 10 percent in 1923. The formerly expanding banking sector was hit by the interest-rate shock of the century.[51]

With a number of important banks on the brink of bankruptcy, the 1878/79 recipe for crisis management was employed again. The NDO set up the toxic asset fund while the Riksbank focused on the readoption of the gold standard. There was evidently a trade-off between making capital available to rescue banks and pursuing a deflationary policy to restore the gold standard at pre-war parity, a step that was eventually taken in 1924. This may be one of the reasons why the state promoted the fund solution, striving to include the private sector through the banking system itself.

Right at the first signs of financial distress, Victor Moll, the governor of the Riksbank, started consultations with the directors of the major commercial banks, the NDO and the financial supervisory authority (*Bankinspektionen*). The plan launched by the Government – or rather the heads of Bankinspektionen, the NDO and the Riksbank – was to set up a toxic asset fund, *AB Kreditkassan*, for which the commercial banks should provide one third of the capital and three of the five board members should be appointed by the Government. The original objective was to save one commercial bank, *Sydsvenska Kreditaktiebolaget*, at a total cost of 15 mKr. – in analogy to the fund solution chosen in 1878/79 for saving Stockholms Enskilda Bank. Yet, the bailout of Sydsvenska Kreditaktiebolaget was only a first sign of what was to come. After just one year, by April 1923, AB Kreditkassan had spent 83 mKr. for rescuing four more banks, at amounts ranging from 8 to 32 mKr. A significant part of the fund's means was in direct support of companies threatened by insolvency. The debate surrounding the fund's creation was centred on the responsibilities of the banks and the question to what extent it might be more efficient and morally justifiable to directly save the industrial companies in need. In the end, the fund pumped 77 mKr. directly into different industries. When AB Kreditkassan was dismantled in 1928 it had lost almost 71 of the invested 160 mKr.

A major difference between AB Kreditkassan of 1922 and the Jernvägshypoteksfond of 1879 was the intention to integrate representatives of the commercial banks into state-led LLR. It is questionable, however, to what extent this was socially efficient, as the commercial banks came to make less capital available than demanded and withdrew their capital as soon as possible, while de-

51 See: *M. Lönnborg/A. Ögren/M. Rafferty*, Banks and Swedish Financial Crises in the 1920s and 1930s, in: Business History 53/2, 2011, pp. 230-248; *S. Kenny/A. Ögren/L. Zhao*, The Highs and the Lows: Bank Failures in Sweden through Inflation and Deflation, 1913-1927 (unpublished manuscript).

fining the design of AB Kreditkassan so as to gain full influence over the rescue operation without providing adequate means.[52]

25 Swedish banks were in distress during the postwar deflation crisis, four of them went bankrupt. The Danish banking system was hit harder, as 57 banks had to be liquidated or reconstructed.[53] The causes for the crisis were essentially the same as those described for Sweden. From September 1920 onwards, the strong fall in prices for Danish exports brought many farms and industrial companies into financial difficulties, in particular those that had been borrowing heavily at the banks during the wartime export boom.[54] In addition to the deflationary impulses of the export slump, the Government and the Nationalbank began to run deflationary policies with the aim of restoring the gold standard. Deflation caused a general rise in real debt, and financial conditions deteriorated considerably because many banks had large risk exposures to individual borrowers.

From 1921 onwards, commercial banks all across Denmark faced severe liquidity problems and the Nationalbank started to provide assistance. In the case of smaller troubled banks, it bought shares to stabilize the stock price level in the capital market. "[T]he Bank went even further and helped put up share capital in new banks founded in areas where a local bank had failed. [...] In case of large banks, these were assisted even when they were not only illiquid but also insolvent."[55] The most spectacular case was Landmansbanken, the biggest bank in Scandinavia both then and now (renamed *Den Danske Bank* in 1976). After an investigation into rumours about the bank, bank inspector Holmer Green ascertained in July 1922 that it had lost about 70 percent of its equity of 160 mKr. The Government considered Landmansbanken too big to fail and asked the Nationalbank to deposit 30 mKr. in reserves in the bank. Two months later it became evident that Landmansbanken had to be bailed out and reconstructed. Equity was written down to 10 mKr. and a consortium of the Nationalbank, the State and a number of large joint stock companies invested 100 mKr. in preferred shares and reserves. The bank was saved only when the state declared full guarantee of all claims against the bank in 1923 and then recapitalized it in 1928 when its bad assets had been transferred into a toxic asset fund.

52 *Ögren*, Banking Crises, pp. 63-66.

53 See *S. Knutsen*, From Expansion to Panic and Crash. The Norwegian Banking System and its Customers 1913-1924, in: Scandinavian Economic History Review 39/3, 1991, pp. 41-69.

54 For the following account of LLR in Denmark 1921-25 see *Hansen*, From Growth to Crisis, pp. 36-40; *Abildgren*, Danmarks Nationalbank, p. 95.

55 *Hansen*, From Growth to Crisis, p. 38 – sentences quoted in reverse order.

The LLR activities of the Nationalbank appear to have been generous in the first years of the deflation crisis, despite the accusations of moral hazard that had been raised against similar schemes in the aftermath of the 1907/08 crisis (see Section 3.3). Systemic risk loomed large and was taken seriously. Once again, the Nationalbank tried to involve commercial banks in LLR, once again with mixed success. The attitude of the Nationalbank towards banks in distress changed markedly in and after 1924. In coordination with the Bank Inspection and the Finance Ministry, the central bank let two large Copenhagen banks go into liquidation, after having kept them afloat previously.[56] As in the case of Sweden, the turn to more cautious LLR can be largely explained by a deflationary stance of monetary policy taken with the aim of re-establishing the gold standard. The latter was attained in 1927, three years after Sweden.

Compared to its Scandinavian neighbours, Norway was hit most severely by the post-WWI deflation crisis. Accumulated losses in the banking system were twice higher (in absolute figures) than those in Sweden and Denmark. 129 banks had to close down as a consequence, only few were reconstructed.[57] The wartime boom and postwar bust in Norway played out along lines similar to those of the other Nordic countries, but postwar inflation was higher, deflation started slightly later and the ensuing banking crisis became more protracted. It reached its peak in 1923/24 only, when three of the largest banks failed and were placed under public administration, only to be liquidated later.[58] Another difference is the temporal distance between the deflation impulses of the postwar export slump and the return to the gold standard, respectively. While these impulses came shortly after one another in Sweden and Denmark, Norway saw an inflationary interlude from 1923 until 1925 before deflation was to pave the way back to the gold standard, which was restored in 1928 only. So, it has been argued that monetary policies to restore the pre-war regime cannot be blamed for the severity of the Norwegian banking crisis of the early 1920s.[59] Yet, much of the blame for it is put on the timidity of Norges Bank in its lending of last resort.

The records of monetary policies and bank rescue operations in the years 1920-24 give the impression that Norges Bank was active and at the same time

---

56 The two banks in question were *Københavns Disconto- og Revisionsbank* and *Andelsbanken* which failed in 1924 and 1925, respectively.

57 See *Knutsen,* From Expansion to Panic, pp. 55-58, 65.

58 For a detailed account see *Eitrheim/Klovland/Øksendal,* Monetary History, pp. 310-320. The major banks that failed were *Foreningsbanken* (merged from *Andresens Bank* and *Bergens Kreditbank* only shortly before) and *Centralbanken for Norge* in 1923, and *Den norske Handelsbank* in 1924.

59 *Ibid.*, pp. 301-303.

dragging its feet. From 1921 onwards, discount rates were raised higher and kept high for longer than in most other countries, partly to counteract the fall in the external value of the Norwegian krone. Eitrheim, Klovland and Øksendal maintain nevertheless that "the contractionary impulses emanating from the bank through its discount rate policy were neutralised by its expansionary liquidity operations."[60] The net supply of liquidity from Norges Bank to the banking sector amounted to 338 mKr. in the period 1920-23. However, as Knutsen points out, the increase in lending to the banks "was simultaneously compensated by a similar decrease in loans to other debtors, in particular municipalities and private enterprises."[61] All in all, the policy stance of Norges Bank was contractive just when the banking crisis was developing in the first wave of deflation. This time, there was not much support from the Ministry of Finance, no swift and coordinated initiatives of the kind taken in the Christiania Crash of 1899 (see Section 3.2).

Moreover, Norges Bank reduced its liquidity from 1923 onwards, when it found that *(i)* the number of banks in distress had become too large, *(ii)* little support was forthcoming from those private banks that were not in trouble, and *(iii)* it became increasingly difficult to ascertain whether banks in distress were facing temporary problems of illiquidity only, or whether they were in fact insolvent. The chosen way out of these difficulties was the Bank Administration Act, passed in March 1923. It permitted to place illiquid banks under public administration, i.e. in a state of receivership that protected them from their creditors. For most of the 67 commercial and savings banks that were put under public administration, it became a deadly cure. All of the large banks were eventually liquidated, even though it was reported that the three big banks that failed in 1923/24 were in fact solvent at the time.[62] Eitrheim, Klovland and Øksendal, present-day historians at Norges Bank, conclude cautiously:

> "It is [...] not obvious that a policy of fuller commitment at an early stage to support basically solvent banks would have resulted in greater losses for the monetary authorities [...]
> [I]n retrospect it seems that the actual policy of rather timid support measures did not imbue much confidence in the general public as to the authorities' handling of the crisis [...]

60 *Ibid.*, p. 322.
61 *Knutsen,* From Expansion to Panic, p. 57.
62 *Eitrheim/Klovland/Øksendal,* Monetary History, pp. 325-28.

> In general, the liquidity support from Norges Bank was not insubstantial, but not sufficient, to avert the banking crisis. A halfhearted response is in such cases perhaps the worst possible option."[63]

4 Central Bank Cooperation

From the 1870s, the early years of the *classical* gold standard, until 1931, the end of the inter-war gold standard, the Scandinavian monetary union saw relatively few episodes of financial crisis that required sizable lending of last resort. With the exception of the post-WWI deflation crisis, when banks in all member countries came under major distress at about the same time, the crises in the SMU were severe only in one country at a time (as described in the previous section). In retrospect one might thus expect to see international LLR within the SMU, since the monetary union implied a pooling of reserves that would help to give the central bank of the crisis-stricken country room to manoeuvre even under the reserve restrictions of the gold standard. Yet, with the exception of the loan from Denmark's Nationalbank to Norges Bank in 1899, no such intra-union cooperation in LLR is on the records. If there was international LLR, it was carried out in the traditional fashion of transnational borrowing *outside* the union, from commercial banks in Hamburg or London, mostly in a division of labour with the Ministry of Finance or, in the case of Sweden, with the National Debt Office.

The absence of intra-union LLR indicates that it was neither necessary nor desired, even though a clearing and settlement mechanism was in place from 1885 onwards, through which the three central banks could have effectuated mutual assistance by granting adequate credit lines. The primary objective of that system, however, was to facilitate intra-Scandinavian trade. A strong side-effect – intended or not, and even dominating the trade effect – was financial market integration; Lars Fredrik Øksendal has demonstrated this convincingly:

> "The most important contribution of the SMU clearing mechanism was to reduce the cost of financial transfers. These lower barriers created a more elastic response to short-term changes in demand for money in Scandinavia, thereby deepening the relationship between the banking communities in the three countries."[64]

It is a counterfactual to conjecture that more (severe) banking crises would have occurred in Scandinavia, had not the clearing system provided a pivotal ele-

63 *Ibid.*, p. 327.
64 *Øksendal,* Impact, p. 147.

ment of elasticity in the supply of liquidity within the rigid framework of the gold standard. In this sense, it may be considered as a mechanism – intended or not – to proactively reduce the need for lending of last resort. It has, on the other hand, been conjectured that the clearing mechanism facilitated the emergence of banking crises.[65] It is, at any rate, worthwhile to take a closer look at the ups and downs in the cooperation between the Scandinavian central banks in operating their clearing system for almost half a century, both when the monetary union worked on the base of 1:1 exchange rates and when parity was abandoned after 1914.

4.1 The Conclusion of the Intra-Union Clearing Agreement

In summer 1885, the governor of Danmarks Nationalbank, Moritz Levy,[66] proposed to his colleagues at the other two central banks to do something about the high costs and risks of the gold shipments across the union.[67] Levy suggested to economize on such reserve movements by establishing a clearing mechanism. Representatives for the three central banks – Levy for the Nationalbank, Helmer Lundgreen for Norges Bank and Johan Wolter Arnberg for the Riksbank – met in Copenhagen on October 12th 1885 to develop a proposal of an "agreement between the three Nordic central banks with the aim of facilitating the circulation of money between the three countries" that they would present to their respective boards. The draft of the proposal, which was signed by the three directors on October 13th, contained 14 articles and was accompanied by explanatory notes, recorded and signed the day before.[68]

65 "[F]or some, opportunity equals temptation. A number of ephemeral banks in Kristiania in the late 1890s were largely funded by short-term borrowing abroad and engaged in long-term commitments at home, an unhealthy growth strategy that provided for much sorrow to come when the boom burst in the summer of 1899." *(Eitrheim/Klovland/Øksendal,* Monetary History, p. 185)

66 Moritz Levy was Royal Governor of Danmarks Nationalbank from 1861 until his death in 1892. He was a prime mover in establishing the SMU in the 1870s and a supporter of the policy of capital imports in the 1880s.

67 *Nielsen,* Historisk Rids, p. 52 provides the values of the gold shipments sent and received by the Nationalbank in the years 1879-84; on the base of these figures, *Talia*, Scandinavian Currency Union, p. 101, calculates that total value of the gold shipments was twice higher than the bank's total gold reserves in 1884.

68 Forslag til Overenskomst mellem de 3 nordiske Hovedbanker, 13.10.1885; I Anledning af det af Nationalbanken fremsatte Forslag, 12.10.1885, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0642.

The main items in the 14 articles can be summarized as follows, using capital "B" for signifying that the banks in question are the three Scandinavian central banks:

1. Each of the Banks opens accounts for the other two on which it can issue cheques payable on demand, even if it does not have a credit balance with the Bank on which the cheque is drawn (Art. 1).
2. No interest is charged on debits, no fees are charged on transactions (Art. 2). No Bank is entitled to use uncovered drafts on another bank for its own profit alone (Art. 4).
3. The minimum amount of a cheque is 10,000 Kr. (Art. 5). No fees are charged to the public for the issue and encashment of cheques (Art. 6). The drawee Bank is always notified of issues of cheques (Art. 7).
4. Debts to another Bank are payable on the latter's demand (Art. 8), always in coins of ten or twenty gold crowns, unless otherwise agreed (Art. 11). The costs and risks of the payment are borne by the crediting Bank (Art. 9). Interbank debts can alternatively be settled by drawing on credit balances of the indebted Bank with the third Bank (Art. 10). The Banks exchange quarterly statements of accounts with each other (Art. 12).
5. The agreement takes effect as soon as the respective authorities have given their approval (Art. 13). "In the unlikely event that one of the Banks is hindered to join the agreement", the other Banks will nevertheless bring it into operation (Art. 14).

The commentary notes that accompanied the proposal for winning the approval of the respective authorities relate to articles 1 and 4-6. The comment on the first clause justifies that no limit was set for overdrafts:

> "It was agreed to leave this to be seen in practice, assuming that one Bank will not for a longer time hold a large balance to its credit at another Bank without the prospect of disposing of it before long."[69]

The motivation for article 4 was to ensure that the central banks do not use the clearing mechanism for "interest-bearing investments, increases of reserve funds or other gains that are incompatible with the objective of the agreement which exclusively aims at facilitating the circulation of money between the three countries."[70] To this end, the minimum amount for transactions should not be set higher than 10,000 Kr. The Danish and Swedish sides argued against

69 I Anledning, in: RA-N, box S-3161/D/L0642.
70 Ibid.

charging any fees, in order to make the mechanism as attractive as the national clearing systems in operation.[71] The representative for Norges Bank made this conditional on the consent of "his colleagues" on the board of directors. It was preliminarily agreed to charge fees no higher than 0.25 percent in case such request was made by any of the three parties.

That request was never made, since Norges Bank was not at the start when the Nationalbank and the Riksbank began to operate the clearing mechanism in January 1886. In a letter to the Norwegian Ministry of Finance, Norges Bank explained that – even though its board and body of representatives as well as Stortinget had given their consent to the agreement – it preferred to wait until a new Bank Act would allow it to include credit balances in other SMU Banks into its reserve fund, the legal base for note issues on which it earned interest.[72] A few days after Stortinget had passed the act in July 1888, Norges Bank joined the operations of the clearing system, and no fees were charged as long as the agreement of 1885 was in force.

In retrospect it is noteworthy, how fast and smoothly the preparations for the agreement were made. There is archival evidence of communications between the three Banks between the meeting in mid-October and the final conclusion of the agreement around November 26th 1885, but they were confined to regulating minor technicalities.[73] The only substantial change, requested by the Swedish side, was to add a clause to article 13 that the agreement can be terminated with three months' notice of withdrawal. This was accepted without further ado.[74] On the whole, the exchanges transpire a sense of mutual trust between the three banks in their determination to make the intra-Scandinavian payment system more efficient.

The next step was the decision to accept bank notes at par between Norges Bank and Sveriges Riksbank in 1899, to which Danmarks Nationalbank also agreed to in 1901. This decision seems to have been made unilaterally, in a letter from the

71 The notes refer to postal money orders (*postremissväxlar)* in Sweden and single bills of exchange *(banksolaveksler)* as well as cheques drawn on the provinces in Denmark.

72 Efter Foranledning af Nationalbanken…, in: RA-N, box S-3161/D/L0642. The letter is not dated, but was apparently written in 1887; see also *Nielsen,* Historisk Rids, pp. 44-45; *Talia,* Scandinavian Currency Union, pp. 104-105. *Svendsen/Hansen,* Dansk Pengehistorie, p. 309 report that the corresponding legal provision of including balances at the Riksbank and Norges Bank into the Danish reserve fund had been made in February 1886, right after the start of the operations.

73 On 26.11.1885, Arnberg, the head of the Riksbank, sent signed copies of the agreement to the other two Banks and expected them to reciprocate, in: RA-N, box S-3161/D/L0641.

74 An English translation of the agreement is provided by *Talia,* Scandinavian Currency Union, pp. 129-130.

governor of the Nationalbank to his colleague at the Riksbank: "In connection with previous correspondence regarding the redemption of Sveriges Riksbank's and Norges Bank's banknotes, we do not omit announcing that Danmarks Nationalbank has decided from mid-September of this year to redeem these at par."[75]

4.2 The Clearing Mechanism at Work

In his "historical sketch" of the SMU, written in 1917, the Copenhagen professor Axel Nielsen made an early assessment of the 1885 agreement, which lasted until 1905, when the conditions of clearing and settlement were renegotiated.[76] Nielsen stressed that the original aim of reducing gold flows between the SMU countries was achieved to an impressive degree. As compared to gold shipments of about 90 mKr. sent and received by Danmarks Nationalbank in the six years between 1879 and 1884, there were no shipments at all between the Nationalbank and the Riksbank in the following twenty years, and the shipments to and from Norges Bank amounted to only 11 mKr. or less. This implies a reduction of gold flows by more than 96 percent over the period 1885-1905, and Nielsen pointed out that the flows between the Riksbank and Norges Bank were also drastically reduced. He observed that not all of the decrease in gold shipments can be attributed to efficient clearing; changes in the reserve rules that permitted to back up domestic note issues with credit balances in other Scandinavian central banks also played in. Moreover, the use of credit balances at the third bank for settling debts in the second worked surprisingly well. Triangular clearing apparently absorbed most of the asymmetries in the drawing of cheques on each other. Comparing the periods 1888-96 and 1897-1905, Nielsen reports that the values of cheques drawn by the Nationalbank on the Riksbank and Norges Bank grew by 8.6 and 10.3 percent, respectively, while the growth rates in the other direction were 117.6 percent and 75.0 percent.[77]

The records of the Riksbank underline how uncommon any kind of specie transactions were after 1885. In the period up to 1901 silver coins were transferred between the Nationalbank and the Riksbank, but these transfers amounted never to more than 3 percent of total transactions (in 1892), at an average of 1.7 percent. Between Norges Bank and the Riksbank such transfers were only conducted for four years and never for more than 1 percent of total transactions. Gold ship-

75 Letter from Søren Christian Knudtzon to Karl Langenskiöld, dated 21.08.1901, in: RB-A.
76 *Nielsen,* Historisk Rids, pp. 51-60.
77 *Ibid.,* p. 57.

ments were even rarer, only occurring once in 1898 between the Nationalbank and the Riksbank, at a value corresponding to 7 percent of total transactions.[78]

Another effect stressed by Nielsen was the narrowing of the gold points on intra-Scandinavian exchanges from "2/3 p.m." (appr. 0.067 percent) to practically zero. As drafts and debits were free of charges, it was the clearing agreement, and not the gold crown standard of the union *per se*, that brought intra-Scandinavian exchange rates to exact parity. It did so by crowding gold out of circulation. The effectively guaranteed 1:1 exchange rates made interest rate arbitrage an attractive business that soon outsized goods-based transactions.

> "It is true that the [central] Banks themselves were not permitted to use account transfers to make interest-bearing investment, but the transfer system was used by others for interest-rate arbitrage, and it has, exactly because it was free of charge, promoted capital transfers from one country to another and contributed to *create* out of the three countries more and more a *specifically Scandinavian money and capital market* and thereby indirectly forming the economic development that is somewhat unique with regard to its speed."[79]

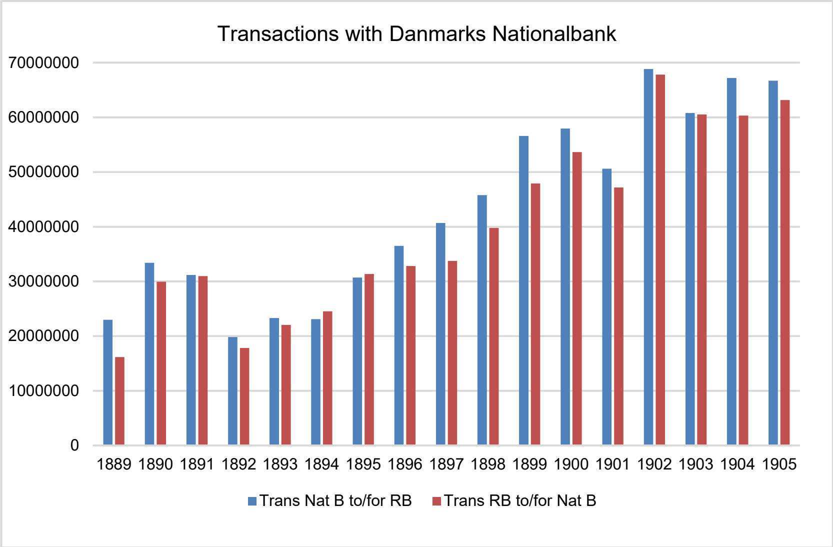
As Norges Bank's later governor Nicolai Rygg declared retrospectively in 1928: "The borders between the countries were completely levelled out."[80] Nielsen claimed that financial integration made discount rates in the SMU converge steadily over time, even though Bank rate policies were not coordinated. Recent empirical research on all these developments has essentially confirmed Nielsen's 1917 assessment.[81]

Going by the low frequency of (documented) correspondence between the Banks, the 1885 agreement appears to have been a frictionless framework for the clearing of payments and settlements of balances during the first decade. The only change was a lowering of the minimum amount per cheque from 10,000 to 5,000 Kr. in 1891. The initiative was again taken by governor Levy at the Nationalbank who argued that this expansion of the user groups was in the interest of intra-Scandinavian trade and that "in the light of the hitherto made experience, it will hardly cause any inconvenience for the three Banks."[82]

Fig. 1 illustrates the success of the clearing arrangement by the strong increase in total transactions between the Riksbank and the other two Banks within the first

78 *Riksdagstryck,* Bankoutskottet, Memorial No. 1, Sveriges Riksbanks verksamhet, 1885-1931.
79 *Nielsen,* Historisk Rids, p. 49.
80 *N. Rygg,* Spörsmålet om skandinavisk myntunion, in: Nordisk Tidskrift 4/7, 1928, p. 492.
81 See, for example, *Talia,* Scandinavian Currency Union, pp 143-154; *Øksendal,* Impact, pp. 134-148; *H. Lobell,* Foreign exchange rates 1804-1914, in: *T. Jacobson/R. Edvinsson/D. Waldenström (Eds),* Historical Monetary and Financial Statistics for Sweden, Stockholm 2010, pp. 302-333.
82 Letter by *Levy* to Norges Bank, 24.01.1891, in: RA-N, box S-3161/D/L0641.

16 years. The differences in the volumes show the relatively great importance of the Copenhagen capital market and the Nationalbank for this arrangement.



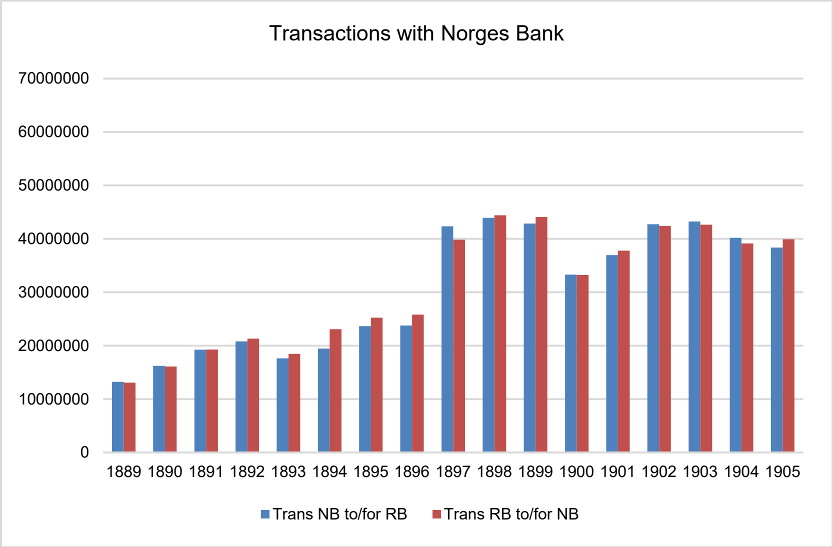


Fig. 1: Total Transactions Reported by the Riksbank in Relation to the Nationalbank and Norges Bank, 1889-1905, in Swedish Kronor (Skr.). Sources: *Riksdagstryck, Bankoutskottet* (Swedish Parliamentary Prints, Standing Committee on Banking), 1888–1931.

The Clearing Mechanism Challenged and Reformed

Some cracks in the consensus on the benefits of unlimited clearing started showing in 1895, when an Oslo bank complained that the Riksbank had refused to sell drafts on Norges Bank.[83] The latter inquired first with Stockholms Enskilda Bank, the bank that had attempted to buy the cheques, and then with the Riksbank. The SEB confirmed to have observed the Riksbank's refusal to sell drafts on Kristiania (Oslo) and Copenhagen, suspecting that the Riksbank feared excessive strain on its liquidity. In a letter from Norges Bank to the Riksbank, dated November 26th 1895, governor Karl Gether Bomhoff insisted that the Norwegian side, "ever since the times when the [1885] agreement took effect, proceeded on the understanding that the issuing of cheques should never be refused," to avoid "any shadow of doubt about the regular and steady functioning of the agreement sneaking into the business world." Bomhoff's Swedish counterpart Arnberg replied that the Riksbank had not failed in meeting demands for drafts on Norges Bank, "even when we had information that they stemmed from transaction which to some extent counteracted our own operations." Arnberg maintained that the cited refusal had concerned a cheque that amounted to far less than 5,000 Kr. and therefore did not qualify under the rules of the 1885 agreement. He also insisted that it had nothing to do with concerns about the Bank's reserves (as insinuated by the SEB).

The matter was not settled with this. It came up once more in October 1897, when Bomhoff wrote to the Riksbank that the latter was reported again to have refused selling drafts on Kristiania.[84] In order to dispel doubts that the Banks would fully accommodate any demand for making payments through the clearing system, he now suggested to both the Riksbank and the Nationalbank to amend article 4 of the 1885 agreement in the following way:

> "None of the Banks is entitled to make drafts in excess of its credit balances in the other Banks solely for its own benefits; but everybody shall in the framework of the present agreement be able to acquire drafts against payment in cash, no matter how the Banks' mutual balances stand."

83 The correspondence between Norges Bank, Christiania Bank og Kreditkasse, Stockholms Enskilda Bank and the Riksbank in the period 06.10.-29.11.1895 is found in: RA-N, box S-3161/D/L0642.

84 Letter by *Bomhoff* to Sveriges Riksbank, 06.10.1897, in: RA-N, box S-3161/D/L0642. The following correspondence of 1897 is found in the same box.

Governor Arnberg reacted in two letters (of October 5th and 12th 1897).[85] In the first letter he maintained that the Riksbank had sold cheques for drafts on Norges Bank without refusal, but had "let our banks know that it cannot do so at any amount without equivalent coverage." In the second letter he clarified that the Riksbank accommodated all demand for drafts on Norges Bank as long as these were paid in Swedish bank notes, not in pound sterling or French Francs. Arnberg complained that foreign creditors of the Norwegian government were attempting to use the Swedish central bank for making profits on exchange-rate arbitrage by such business. This might indirectly reduce Sweden's gold reserves. In both letters, Arnberg appealed to Bomhoff's understanding by asking whether Norges Bank would react any differently if it were in the same situation.

The General Council of the Riksbank (*Riksbanksfullmäktige*) officially rejected, by letter of October 16th 1897, the Norwegian request for an amendment of the 1885 agreement on the grounds that it was not legitimized to incur such extensive obligations which, moreover, could adversely affect the Bank's policies and business transactions. The council found the clauses laid down in the 1885 agreement to be fully sufficient for making the intra-Scandinavian circulation of money as beneficial as it was intended.

In 1905, however, the Riksbank was no longer satisfied with the clearing agreement. On June 14th it made use of the termination clause that it had proposed to integrate into article 13. It cancelled its participation in the operations under the 1885 agreement at three months' notice.[86] Just a week earlier, the political union between Sweden and Norway had been dissolved in a rather hostile atmosphere.[87] The Riksbank did not mention the political situation in the cancellation letter to the Norwegian colleagues, and they cancelled the agreement with the Danish side as well. The reason put forward was the fear of losing control over banking business in the domestic sphere. This was spelt out clearly in an internal memorandum at the Riksbank, in which the 1885 agreement was considered to have become inadequate with the "more developed banking situation" twenty years later:

85 Apparently Bomhoff had informed Arnberg privately in advance of Norges Bank's letter of 06.10., since the first response by Arnberg is dated 05.10.

86 Letter from the Riksbank to Norges Bank, 14.06.1905, in: RA-N, box S-3161/D/L0641.

87 From 1814 until 1905 Norway and Sweden were in a union under the King of Sweden and common foreign policy conducted by the Swedish government. In all other aspects, Norway was autonomous, but with the rise of shipping to a leading sector in the Norwegian economy, an increased interest in running more liberal trade policies than Sweden contributed to political splits that finally ended in the Norwegian declaration of independence on 07.06.1905. For a few weeks, it looked as if both countries might go to war with each other.

> "The obligation of each bank, independent of account balances, to cash each other's assignments, the broad right to make deposits to such accounts, the ban on charging fees for the issuing of such assignments and, in particular, the position expressed by Norway since 1897 that the banks are always required to honour assignments on each other regardless of account balances, has converted these inter-bank accounts into a commission-free giro account for the public, outside of central bank control. To the extent that banking conditions have evolved and the private banks have increased their capital strength, [...] an unlimited obligation to honour these assignments can not, under all circumstances, be defended."[88]

The Riksbank's main concern was the cost-free use of the clearing system that private banks were making to carry out transnational arbitrage at the expense of the Riksbank's note-issuing capacity. The background, however, was not simply the evolution of commercial banking, but political will in Sweden. When the Riksbank was granted the monopoly of note issue in 1897, it received permission to increase the note issue by the double amount of any rise in the domestic gold reserve, whereas a rise in the foreign asset component of the reserve fund gave it the right to increase the note issue at a 1:1 ratio only.[89]

The political context concerning this stand should not be overlooked. As the Norwegian wish to leave the political union with Sweden grew stronger, the Riksbank worried about what would happen to Swedish claims on Norwegian banks and especially Norges Bank in the break-up. The Riksbank governor maintained in a letter to the Nationalbank, dated July 7th 1905, that there was no binding agreement for the sale of cheques nor for the redemption of bank notes at par:

> "It is true that neither Danmarks Nationalbank nor Sveriges Riksbank have acknowledged any obligation for the three central banks to always sell cheques to be drawn on each other, but the current agreement is in fact perceived by the public as if such an obligation existed, and this view has received support in Norway. Moreover, a refusal to sell cheques can be eluded and circumvented by payment to resp. accounts.
>
> There is also no agreement on the mutual redemption of banknotes, an agreement that the Riksbank could not enter into, but the public is served in any case as if such an agreement existed. [...] Should a private bank for some speculative purpose present [...] a few hundred thousand in Danish or Norwegian banknotes, the Riksbank would not consider itself obliged to receive them in par, and in the same way we find it advantageous if the central banks reserve a certain right of review with regard to purchase and sale of assignments."

88 Överenskommelserna med Nationalbanken och Norges Bank af åren 1885-1905, p. 14, in: RA-S, Riksbankschefemas Arkiv, FIA:15, cited in *Talia,* Scandinavian Currency Union, p. 111 (his translation).

89 See *Talia,* Scandinavian Currency Union, pp. 112-113.

Apparently, Danmarks Nationalbank and Norges Bank were not beset by such worries, which again underlines that the decision by the Riksbank may have been motivated by the break-up of the political union between Sweden and Norway. Shortly after the Swedish cancellation letter, Nationalbank governor Knudtzon invited Norges Bank to continue working with each other on the base of the 1885 agreement, "unaffected by the cancellation undertaken by Sveriges Riksbank."[90] Even the Swedish side came, after some negotiations, around to continuing its participation in the clearing system, albeit under more restrictive conditions. A few days before the old agreement would have been terminated on September 15th 1905, the Riksbank signed bilateral agreements with the other banks. Here we summarize the content of the renegotiated agreements in general terms:[91]

1. Each Bank opens an account for the other Bank. The Banks exchange quarterly statements of accounts with each other.
2. No interest is paid on deposits, no fees are charged on transactions.
3. When cheques are drawn on the account in the other Bank, the issuing Bank notifies the drawee Bank of these issues.
4. Each Bank owns the right to demand payment from its credit balances which can be effectuated in Scandinavian gold coins or by settlement with credit balances of the other Bank.
5. Whenever its credit balance with the other Bank falls below one million Crowns, each Bank is entitled to demand mutual crediting up to 500,000 crowns per week, unless otherwise agreed. Whenever the other Bank's credit balance exceeds two million crowns, each Bank is entitled to demand mutual debiting, but not to reduce the other Bank's credit balance below two million crowns, unless otherwise agreed.
6. The agreement is terminated at three months' notice, if either of the two sides cancel it.

Some of the stipulations correspond to articles in the 1885 agreement, but the renegotiated agreement was clearly more restrictive, as it did not allow the drawing of cheques beyond narrowly defined credit.

90 Letter from the Nationalbank i Kjøbenhavn to Norges Bank, 22.07.1905, in: RA-N, box S-3161/D/L0642.

91 A Swedish copy of the agreement, sent by the Riksbank to Norges Bank on 08.09.1905 is found in: RA-N, box S-3161/D/L0642. Apparently, the details of the new agreement were not reported to the public; *Nielsen* (Historisk Rids, p. 70) complained that they were "almost completely kept secret."

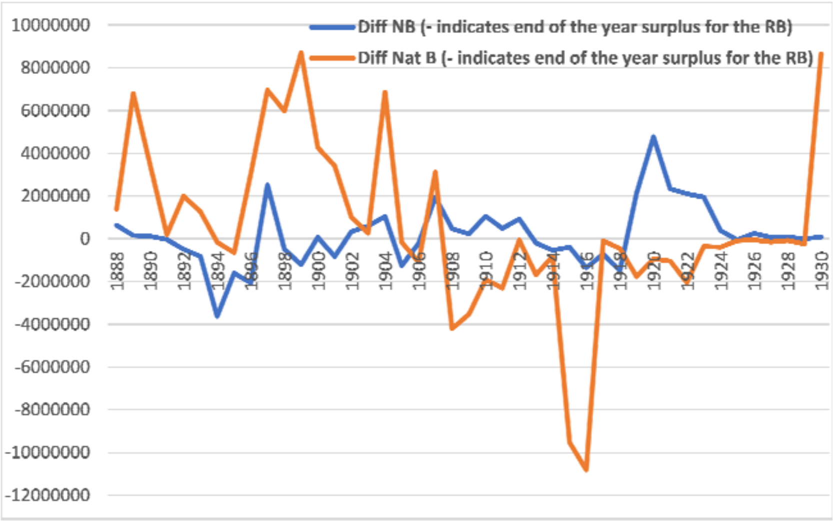


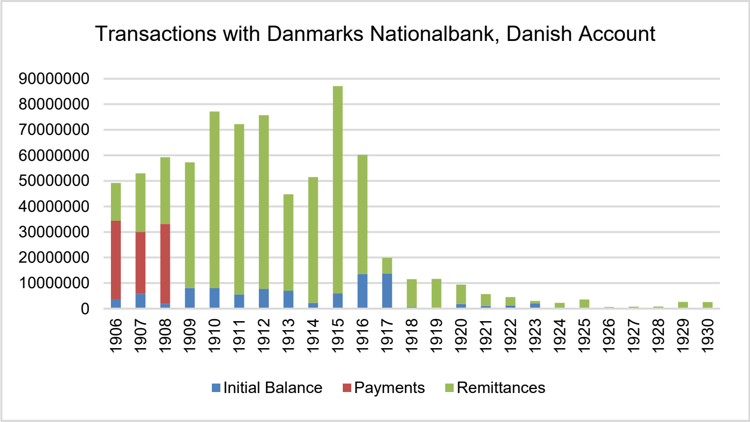
Fig. 2: End of the Year Recorded Net Surplus (+) or Deficit (-) for the Nationalbank and Norges Bank Towards the Riksbank, in Swedish kronor (Skr.) Sources: *Riksdagstryck, Bankoutskottet*, 1888–1931.

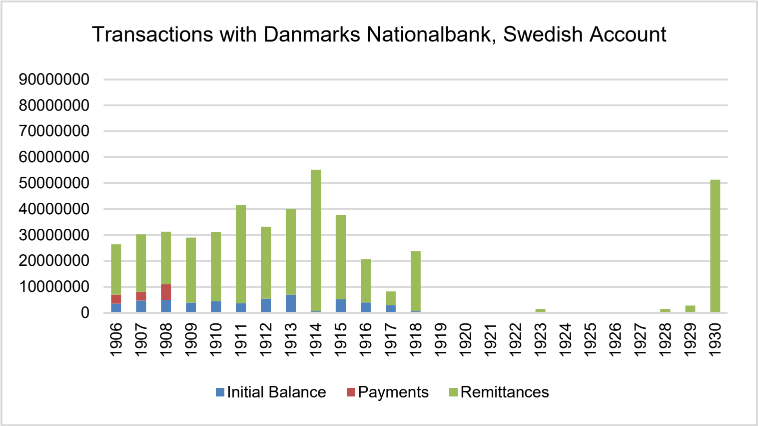
Figure 2 shows that the 1905 reform did not stop the SMU Banks from overdrawing their accounts at the partner banks. The record of end-of-the-year balances for Nationalbanken and Norges bank towards the Riksbank reveals that the system permitted to run sustained deficits and that this continued after 1905. It indicates that the Riksbank continuously borrowed from the until the 1907/08 crisis, after which the net lending relationship was reversed consistently until a large Danish surplus was produced in the final year 1930 (see Section 4.4). Figure 2 demonstrates, moreover, that Norges Bank was by no means a notorious borrower at the Riksbank. In this light the harsh tone of the Riksbank towards Norges Bank is difficult to explain purely on financial grounds.

The fact that the Scandinavian central banks could support each other with credits in an arrangement that made transfers of specie and bank notes almost obsolete while contributing to exchange-rate stability between the Scandinavian currencies was observed with great interest outside the SMU. Between 1906 and 1910 various academics and representatives of banks from member countries of the Austrian-Hungarian and Latin monetary unions contacted the Riksbank to inquire about the SMU clearing mechanism.[92]

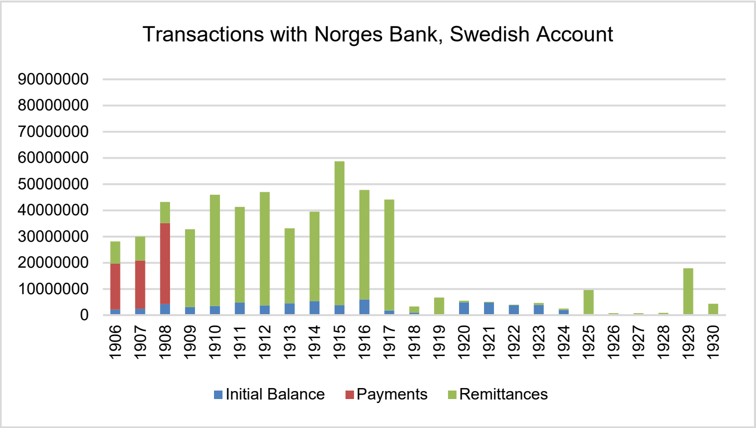
92 The correspondences are all found in: Riksbankens Arkiv (RBA): exchanges *(1)* between Alfred Kondor, Vice-Director of the Budapester Giro- und Cassen-Verein and Langenskiöld in letters

Figure 3 shows two things about the total amounts of transactions as reported by the Riksbank after 1905: First, the volumes traded with the Nationalbank were roughly twice higher than those traded with Norges Bank, indicating the role of ~~Coppenhagen~~ as the financial centre of Scandinavia and the pivotal role of the Danish central bank for the SMU. Second, the volumes transacted through the SMU clearing mechanism did not substantially decline with the 1905 reform, but only towards the end of WW1.





dated 10., 16., 29.11. and 08.12.1906; *(2)* between Paul Hammerschlag, Director of the Wiener Giro- und Cassen-Verein and Fredrik Grönwoll, Assistant Director at the Riksbank in letters dated 10., 24.02. and 02.03.1909; *(3)* between Professor Maurice Ansiaux, Instituts Solvay and Grönwoll in letters dated 17.05., 26.06., 28.07. and 16.08.1909; *(4)* between the governors of the Banque Nationale de Belgique and Sveriges Riksbank in letters dated 30.12.1909, 13. and 20.01.1910.



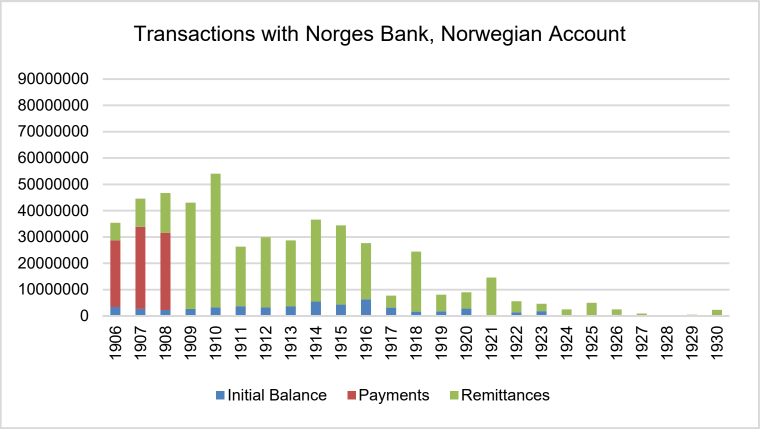


Fig. 3: Total Transactions Reported by the Riksbank in Relation to the Nationalbank and Norges Bank, in Swedish kronor (Skr).Sources: *Riksdagstryck, Bankoutskottet*, 1888–1931.

4.3 Cooperation Off the Gold Standard – and the Return to the Latter

The outbreak of WWI in August 1914 caused a rush in all Scandinavian countries to convert currency into gold. Within the first week of the war, convertibility was suspended across the SMU to prevent panics and gold drains. At first, and for some time to come, suspension was seen as a temporary measure only, yet further steps in the departure from the gold standard were taken soon thereafter, some of them remaining in effect for a long time. Sweden set an export ban on gold in November 1914, followed by Denmark and Norway, and the

Riksbank stopped converting gold into bank notes in February 2016. The latter measure may look paradox, given the Riksbank's earlier fixation on holding a strong reserve position, but it was logical in the context of the wartime export boom that the Swedish economy experienced to an even greater extent than the Scandinavian neighbours. Not only did the boom create a huge surplus in the Swedish trade balance, it also attracted foreign capital in search for a safe heaven and for extra profits from exchange-rate arbitrage.

In combination with the suspension of gold convertibility, the wartime boom introduced a fundamental challenge to the SMU, as the inter-Scandinavian exchange rates began to deviate from parity (see Figure 4). The Danish and Norwegian kroner traded at values below the Swedish krona, and this opened opportunities for arbitrage when the Riksbank returned to converting gold into bank notes (though not the other way) in late 1915. The krona rose in value, not only against the other SMU currencies, but also against the pound sterling, the US dollar and the reichsmark. Since gold was redeemed at the pre-war parity, extra profits could be made by buying Swedish bank notes and exchanging them for other currencies. Gold inflows rose to a point at which the Riksbank saw itself forced to introduce the gold blockade in February 1916, now suspending convertibility both ways.

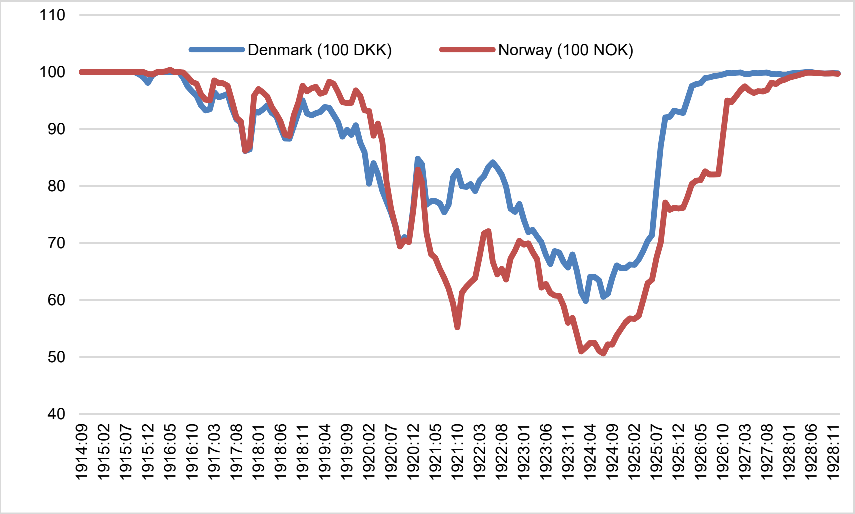


Fig. 4: Exchange Rates: Amounts of Swedish Kronor for 100 Danish and Norwegian Kroner, Respectively, September 1914-December 1928. Source: *J. Bohlin*, From Appreciation to Depreciation – the Exchange Rate of the Swedish Krona, 1913-2008, in R. *Edvinsson/T. Jacobsson/D. Waldenström (Eds)*, Exchange Rates, Prices and Wages, 1277-2008, Stockholm 2010, pp. 340-411.

With the Swedish gold blockade, the cooperation through the SMU convention came under pressure. While Denmark and Norway received gold for their net exports to belligerent countries, they ran persistent and rising trade deficits with Sweden. As the exchange rates began to deviate from par, the Riksbank charged increasing exchange fees on purchases of Danish and Norwegian kroner. This made it attractive for the other two central banks to settle debts at the Riksbank with gold, which was still accounted for at the pre-war parity. In a letter exchange in January 1916, the governors of Norges Bank and the Nationalbank even expressed the hope that the use of gold in the SMU clearing would help to bring the three currencies back to par again, thus eliminating the exchange fees.[93] Yet, the gold settlements raised concerns at the Riksbank about the further viability of the SMU arrangements and gave rise to intense and partly conflictual communication between the central banks in 1916/17.[94]

At the initiative of the Riksbank, the governors of the SMU Banks met in Stockholm in February 1916 to consult about restrictions on gold inflows to the union. It was decided that the other two Banks also introduce gold blockades (effectuated in April 1916), and that the national export bans on gold would not stand in the way, if the central banks agreed internally to settle balances in gold – an option to be used sparingly. This worked until September 1916, when rising trade imbalances in the SMU led to requests by Norges Bank and the Nationalbank to use gold for settlement. Another meeting was called for, this time in Gothenburg, geographically located at convenient distance from all three capitals. At the meeting in October 1916, the conditions for further operations of the settlement mechanism were re-defined:

> "1) Each of the three Nordic Central Banks is entitled to pay its debt to another central bank in minted Scandinavian gold coin, whenever it wishes to do so. The transport fees are paid by the Bank that requests the settlement.
> 2) Credit demanded by one Bank from another with reference to the 1905 agreement are subject to the discount rate that the latter Bank quotes for the former Bank's notes, to be debited to the Bank that demands the credit.

93 Letters from Norges Bank to the Nationalbank, dated 05. and 11.01.1916, and from the Nationalbank to Norges Bank, dated 07.01.1916, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641.

94 Norges Bank's part is documented in an extract of the directorate's communications related to the SMU from 1916 until 1920: Ad Myntkonventionen, etc. Kort resumé av direktionsuttalelser under krigen, in: RA-N, Norges Bank, Statistisk avdeling, box S-4063/D/L0155. *Rongved,* Gold War, pp. 250-260, has a fuller discussion of the background and interaction on the "gold issue".

> 3) The Banks keep each other informed about their purchases of gold in terms of quantities, prices and sources, ... and about their minting of gold coins."[95]

In the following months, Norges Bank and the Nationalbank shipped large amounts of gold to the Riksbank, much to the latter's dismay – as expressed in an agitated letter exchange between governors Moll and Bomhoff.[96] Yet another meeting was arranged to take place, this time in Stockholm in April 1917. The Riksbank prepared for it by urging the Swedish government to renegotiate the SMU convention.[97] In a letter to the King, the General Council pointed out that the Riksbank was abstaining from buying gold in the markets, even when offered at prices below parity; but the SMU convention would oblige it to accept gold from Danmark and Norway to settle debts at par value, even though their currencies traded below par. The Riksbank council complained that the Nationalbank and Norges Bank continued to send gold with reference to the SMU convention, but contrary to informal agreements made in the year before. It insisted that this amounted to a rollover of both the gold price risk and the exchange rate risks on the Riksbank – in modern terms: to non-cooperative behaviour that could be described as moral hazard.[98] The letter ended with the request to have the government renegotiate the convention, so as to revoke the legal tender status of the Scandinavian gold crown and the convertibility of gold into currency. The proposition was accompanied by an expert memorandum, written by Uppsala professor David Davidson to substantiate this demand (see Section 6.3).[99]

At the April 1917 meeting, however, the Danish and Norwegian delegations declared that their governments would not consider any alterations of the SMU convention, at any rate not in the uncertain economic situation during the war. They argued that a strict enforcement of the gold export ban would be sufficient, with the sole exemption of intra-SMU transactions in which the crediting Bank consents to settlements in gold. A new agreement was reached by which

95 Letter from Nationalbanken i Kjøbenhavn to Norges Bank, dated 18.10.1916, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641.
96 Documented in RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0642, and reported in *Rongved,* Gold War, p. 255.
97 Riksbanksfullmäktige, Till Konungen, 10.02.1917, in: RBA.
98 While the term "moral hazard" had been around in the literature on insurance, it was adopted to other economic contexts only after the Riksbank proposition of 1917, e.g. in Frank Knight's famous 1921 treatise on "Risk, Uncertainty and Profit"; see *D. Rowell/L.B. Connelly,* A History of the Term "Moral Hazard", in: Journal of Risk and Insurance 79/4, 2012, pp. 1051-1075.
99 *D. Davidson,* P.M. rörande den skandinaviska myntkonventionen, 06.02.1917, in: RBA.

the borrowing Bank should pay interest on debt in excess of three mKr., at rates 2.5 - 3 percent lower than the official discount rates of the crediting Bank.[100]

In the end, the clearing agreement was neither terminated nor reformed as proposed by the Riksbank. The Danish and Norwegian Banks continued to settle balances by sending gold and they borrowed at low interest.[101] The postwar reversal of the balances in favour of Norges Bank apparently helped to tone down the conflict (see Figure 2) – and some of it appears to be linked to specific LLR interaction between the Swedish and Norwegian Banks.

The intra-SMU gold settlements and loans in the years 1914-18 may be considered as involuntary lending of last resort – based on moral hazard or not. The Riksbank complied grudgingly with the requests of the other Banks, hoping for better times and a restoration of the gold standard. After the war, however, the Scandinavian countries followed different courses with regard to a return to the gold standard, and their economies fared differently in their terms of trade with the rest of the world. The Swedish krona continued appreciating and there was broad political consensus to return to pre-war price levels at the earliest convenience, to reverse the redistribution of real incomes caused by wartime inflation (see Sections 3.4 and 6.4 - 6.7). In Denmark and Norway, the restoration of the gold standard at pre-war parity looked more difficult than in Sweden, because the kroner kept falling in value against the Swedish krona and the US dollar, the gold proxy (see Figure 4). By September 1924, the Danish and Norwegian kroner had fallen to 0.6 and 0.5 Skr., respectively. Clearly the Swedish decision in 1919 to re-establish the gold standard at pre-war parity and subsequent deflationary policies contributed to these developments.

The Riksbank took various initiatives to mitigate pressures on the SMU. In May 1919, governor Moll expressed his concern about the volatility of Scandinavian exchange rates. He suggested that the three SMU Banks harmonise their exchange-rate policies and support their coordination by setting up a common fund to which each Bank should contribute 20 to 25 mKr. (corresponding to 3 percent of the Riksbank's liabilities).[102] Strangely enough, given that the gold standard was essentially out of operation, Bomhoff declined on behalf of Norges

100 Letter from Nationalbanken i Kjøbenhavn to Norges Bank, dated 24.04.1917, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641.

101 See *Rongved,* Gold War, pp. 255-256.

102 Letter from the Riksbank to Norges Bank, dated 19.05.1919, in: RBA.

Bank with the argument that such an investment would unduly restrict the note issue in relation to Norway's gold reserves.[103]

Yet, Moll did not give up. In the 1921 crisis, the Riksbank offered support to Norges Bank. In a letter dated October 22nd 1921 Moll wrote to governor Rygg: "As it is also in the interest of Sweden that the Norwegian krone does not depreciate too much in value, I have asked myself if anything could be done on our part to help prevent a further decline and to possibly bring about a rise." He proposed to have the Riksbank make one million £ St. available for Norges Bank, drawable on London. The objective was to preserve the SMU, and it was time to act, as "[t]he low value of the Norwegian krone reduces the prospects for the Scandinavian currency convention to enter into force again."[104] The Riksbank made the same offer to the Nationalbank, and both banks accepted to make use of such overdraft facilities in their SMU accounts at the Riksbank.[105] The surplus balances of Norges Bank in the Riksbank during the period 1921-24 reflect to some extent non-utilized overdraft credit.

An additional mode of support between the central banks was the monetisation of other Scandinavian countries' sovereign debt. This option, too, was brought up in the correspondence between Moll and Rygg in Autumn 1921. Referring to Norway's flotation of new sovereign debt Rygg wondered if the Riksbank would be interested to invest and Moll immediately agreed to take on Norwegian treasury bonds for five million Nkr.[106]

The aforementioned measures can be considered as inter-Scandinavian lending of last resort, this time by the initiative, and not against the intentions, of Sveriges Riksbank. There is thus evidence that LLR took place in the monetary union even when it was off the gold standard, and with the objective to keep the union working. The divergence of the intra-SMU exchange rates provides an important background for understanding central bank cooperation after WWI. Even if the volumes of transactions in SMU clearing shrank drastically after the war (see Figure 3), there were frequent exchanges and regular meetings between the central bank governors. It is evident from archival material that the situation was believed to be of temporary character, and that the monetary union was expected to regain its full effectiveness once all three Scandina-

103 Letter from Norges Bank to the Riksbank, dated 22.05.1919, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0642.

104 Letter from the Riksbank to Norges Bank, dated 22.10.1921, in: RBA. In October 1921, one million £ Sterling amounted to about 17 mSkr. and almost 31 mNkr.

105 Letter from the Riksbank to Norges Bank, dated 26.11.1921, in: RBA

106 Letter from the Riksbank to Norges Bank, dated 28.10.1921, in: RBA.

vian countries re-adopted the gold standard. The Riksbank, which was the forerunner in that process, provided its Danish and Norwegian counterparts with advice in correspondence and conferences. It is noteworthy that the names and acronyms of the national currencies (Dkr., Nkr. or Skr.) were hardly ever referred to; instead, monetary values were consistently quoted in terms of the general unit of account “Kr.” (for kronor /kroner).

By 1928, all three countries were back on the gold standard, and there were discussions about revitalizing the SMU clearing.[107] A reform of the convention was envisaged, but not realized. Transactions in the clearing mechanism picked up in 1929/30 and even flared up in the Swedish account of transactions with the Nationalbank in 1930, showing a strong deficit of the Riksbank (see Figures 2 and 3). The onslaught of the Great Depression and the international collapse of the gold standard in 1931 changed everything, including the modes of cooperation between the Scandinavian central banks. The reporting of the intra-SMU transactions and balances was discontinued after 1930.

5 Scandinavian Economists on Lending of Last Resort

Throughout the period under review (1873-1931), the discourse about monetary policies in the Scandinavian countries was not confined to communications between the central banks. The ties between the Banks and the academic communities were strong enough to expect lively debates about lending of last resort and cooperation in the SMU. The search for a common currency was a key topic at the first officially recorded meetings of Scandinavian economists in 1863 and 1866, and the primary lecture at the 1872 meeting, given by the Norwegian Ole Jacob Broch, covered the transition to gold in the plans for a Scandinavian monetary union.[108] These *inter*national meetings (later called Nordic meetings) and their published minutes actually preceded the formation of the national societies and journals.[109] Monetary matters were frequently discussed

107 See *Rygg,* Spørsmålet, pp. 495-498 and Section 6.7 below.

108 See *Nielsen,* Historisk Rids, pp. 6-17; *T. Davidsen*, 25 nordiske nationaløkonomiske møder – tidspunkter og temaer, in: Nationaløkonomisk Tidskrift 122/3, pp. 491-498.

109 The respective years of foundation were for Denmark: Nationaløkonomisk Forening 1872, Nationaløkonomisk Tidskrift 1873; for Sweden: Nationalökonomiska Föreningen 1877, Ekonomisk Tidskrift 1898; for Norway: Statsøkonomisk Forening 1883, Statsøkonomisk Tidskrift 1887; see

by academic economists and representatives of the banking systems. From 1900 onwards, economists played a prominent role in policy advice and public debates. They did so most prominently in Sweden, where such household names as Knut Wicksell, Gustav Cassel and Eli Heckscher preached and published widely and deeply on matters of monetary policy.[110]

Considering this prolific environment and the time span of more than 50 years, and adding that the SMU was widely seen as a praiseworthy piece of "practical Scandinavism",[111] it is surprising that only few scientific publications, and even fewer debates, dealt at some depth and length with issues of LLR, clearing and other central bank cooperation.[112] We present some of the most noteworthy contributions in the order of Sections 3 and 4, i.e. first taking a look at discussions of lending of last resort, then setting the focus on cooperation in the SMU.

5.1 Early Norwegian Views: Hertzberg and Kiær

The *Farmand* comments on Norges Bank's handling of the Christiania crash (as reported in Section 3.2) illustrate a pattern in public discussion of LLR actions that can be seen across the whole SMU for most of the time: The respective central bank was blamed for having fuelled the boom, which was seen as the cause of the crisis, by not restricting the money supply in time; and it was then praised for having managed the crisis effectively, if not efficiently. Yet, there was also more systematic thinking about lending of last resort as a constitutive element of central banking. Early examples are found in the theses put forward by Ebbe Hertzberg and Anders Nicolai Kiær when they competed for a chair at the Uni-

Kærgård, Økonomernes nordiske samarbejde, in: Nationaløkonomisk Tidskrift 134/1, 1996, pp. 105-112.

110 See *L. Magnusson,* The Economist as Popularizer: The Emergence of Swedish Economics 1900-1930, in: *L. Jonung (Ed.)*, Swedish Economic Thought. Explorations and Advances, London 1993, pp. 82-108; *B. Carlson/L. Jonung,* How did the great Swedish Economists consider their Role in public Debate?, in: *M. Bellet/S. Gloria-Palermo/A. Zouache (Eds.)*, Evolution of the Market Process. Austrian and Swedish Economics, London 2005, pp. 35-56. *Rongved*, Gold War, p. 250 points out that in Denmark and Norway "the communities of economists were generally smaller and – more importantly – far less influential."

111 *Nielsen,* Historisk Rids, p. 26.

112 The SMU was not a topic at the Scandinavian resp. Nordic meetings in 1881 and 1888, and then the Nordic meetings were discontinued until 1920. So there was little direct interaction between Scandinavian economists in the heydays of the clearing mechanism.

versity in Oslo in 1877.[113] These two "leading Norwegian experts on central banking [...] attacked the principles of the currency school and embraced a stand more in tune with the banking school and influenced by *Lombard Street*."[114] They criticized the "rigid legalism"[115] in what they saw as overly strict limitations of the bank-note supply by the gold reserves of Norges Bank. Hertzberg and Kiær argued that abiding by the reserve rules tended to make monetary policy procyclical. Øksendal reports that "Kiær believed it to be the task of the central banks to contribute to smoothing interest rates by moderating the fluctuations in the market rate", quoting Kiær as follows:

> "The bank leaderships can, when they keep a watchful eye on the economic cycles, particularly those who influence the money market and the note circulation, accomplish much by restricting lending in times of speculation and by discounting as liberally as possible in hard times."[116]

5.2 Davidson on the Uses of Interbank Clearing

In 1899, the year of the Christiania crash, Uppsala professor David Davidson made a similar point in an exchange with Isidor Heckscher in *Ekonomisk Tidskrift*, the economic journal that Davidson had founded in the same year.[117] While Heckscher (the father) advocated strict limits for central banks' note issues that are not fully backed by gold reserves, Davidson argued that "[t]he most dangerous effect of a fixed limit for the uncovered stock of bank notes will show itself [...] during crises, and this effect can produce unpredictable damage."[118] He reminded Heckscher of the international crisis of 1857, in which large-scale damage to the Swedish economy could be avoided only by a trick in circumvention of such legal restrictions. The trick was to create a "credit association" (*Kreditförening*) that drew

113 See *Øksendal,* Monetary Policy, pp. 52-55. Hertzberg won the chair and ended up, after some dramatic turns in life, as Chief National Archivist, whereas Kiær became Chief National Statistician, "recognised as the father of public statistics of Norway", making a number of contributions to statistic science" (*Ibid.,* p. 52, n. 63).

114 *Ibid.,* p. 51.

115 *Ibid.*, p. 54.

116 *Ibid.,* p. 55.

117 Isidor Heckscher was a Danish-Swedish scholar of economics and law, the first consul general of Denmark in Sweden, and the father of the better known Eli Heckscher. The Ekonomisk Tidskrift goes nowadays under the name 'Scandinavian Journal of Economics'.

118 *D. Davidson*, Omsättningsmedlens elasticitet och centralbankens diskontopolitik, in: Ekonomisk Tidskrift 1, 1899, p. 141.

bills on a delegated representative in Hamburg. Coming from an external market, these bills could be discounted at the Riksbank, only to lengthen the latter's balance sheet on the asset side, thus allowing it to issue more bank notes.

> "At the same time as the bank's action thus was described as somewhat unlawful, there were few who would not admit that this was necessary for the welfare of the economy."[119]

If the central bank is able to reduce risks of overspeculation in boom times by raising the discount rate in time, Davidson concluded a few pages further down,

> "it will not imply any risk to even give the central bank fully free hands with regard to note-issuing rights. [...] If the central bank does not observe those principles with regard to discount rate, even a fixed reserve quota will not provide any protection."[120]

As the banking system had made progress in the two decades after the Hertzberg-Kiær competition, the issue of regulating bank-note issues had lost much of its relevance:

> "However wise the discount rate policy of the central bank, economic crises cannot be avoided. If note issue is limited, business will create other media of exchange, in particular transferable deposits (giro) and checks. At the outbreak of speculation mania, fully sufficient access to general media of exchange other than bank notes will be had, as long as general confidence lasts. [...] During a period of speculation it is those deposits that increase, and the increase happens essentially by the increased lending on the banks' side."[121]

In a lecture given to *Nationalekonomiska föreningen*, the Swedish association of economists, in February 1898, Davidson had suggested that this control problem offered its own solution. With reference to Germany, where the *Reichsbank* had managed to concentrate the interbank clearing business in its hands, he argued that the central bank could monitor payment transfers in the economy. This would make discount rate policy more effective and help to improve financial and monetary stability.[122]

---

119 *Ibid.*, p. 143.

120 *Ibid.*, p. 146.

121 *Ibid.*, pp. 147-158.

122 *D. Davidson,* Bankreformen och näringslivet, Nationalekonomiska föreningens förhandlingar under förra halfåret 1898, Stockholm 1899, pp. 24-37. For an account of the use of the clearing system that the *Reichsbank* made in its LLR activities see *Trautwein,* Le Prêt, pp. 74-79.

5.3 Cassel's Critique of the Riksbank's Policy in the Crisis of 1907/08

While David Davidson worried about legal restrictions that would hinder the Riksbank from acting as lender of last resort, Gustav Cassel doubted its political will to do so. He demanded legal obligation. In his book on "The Riksbank during the crisis of 1907-1908", Cassel praised the clause in the Bank Act by which credit balances of the Riksbank in foreign banks allowed for a 1:1 note issue, whereas the domestic gold reserve permitted twice as much. This provision should have a countercyclical effect in the sense that sudden needs to repay foreign short-term debt – as it occurred in the global scramble for liquidity in 1907/08 – strangle domestic demands for liquidity only half as much as an equivalent gold drain.[123]

> "Thus, there should not be any legally fixed proportion between reserves of foreign exchange and domestic note circulation. [...] The support that the Riksbank gave the private banks during the recent period of crisis in their repayments of foreign debt has been presented as a gesture of goodwill. It was obviously, however, nothing but its absolute duty to give such support. [...]
> As long as it is presented with fully acceptable bills, the central bank must continue rediscounting them at whatever rate of interest. It is moreover evident that, if the Riksbank refused to continue rediscounting, the capacity to meet payment obligations would be seriously reduced all across the nation, even for solvent companies. This would produce enormous losses, not least for the Riksbank itself."[124]

Declaring lending of last resort an "absolute duty" of the central bank, Cassel made three demands for reform of the Riksbank's policies.[125] The first is a substantial increase in foreign-exchange reserves of the Bank, either acquired by foreign borrowing of the National Debt Office (see Section 3.1 above) or provided by a perpetual fund of treasury bills. The second demand concerns a revision of the Bank Act that would expand the note-issuing rights of the Riksbank for better accommodation of liquidity needs. The third is the demand for professionalization of the central bank's management:

> "In meeting its obligation to maintain our currency's parity with gold the Riksbank did not exercise the foresight required to inspire undisturbed confidence. Nor can it be said that the Bank's directors had a clear notion of the central bank's duty to accommodate loan

123 *G. Cassel*, Riksbanken under krisen 1907-08, Stockholm 1908, p. 26.
124 *Ibid.*, pp. 28-29. Cassel did not specifically mention the use of credit balances in the other Scandinavian central banks within the framework of the clearing arrangement.
125 *Ibid.*, pp. 83-90.

> demands without limits in times of crisis, or at least to prove having the capacity to do so […] The first condition for improving the governance of the Riksbank is to emancipate ourselves from mindsets inherited from the times of secret committees, and to learn to appreciate the value of experts' criticism, based on a generally insightful involvement of the country's business community."[126]

5.4 Wicksell's Three Requirements

Knut Wicksell made similar demands, even if in more general terms, in his 1908 article on "A lesson on banking legislation: What can be learnt from the American crisis."[127] According to Wicksell, "[a] good bank ought to fulfil three requirements, it shall be *solvent, liquid* and *flexible*."[128] Wicksell's Swedish word for "flexible" is *kulans*, which has the more specific meaning of "forthcoming" or "accommodating", and he explained that a bank fulfils that criterion "if it is under any circumstances prepared to satisfy all reasonable requests for loans, *i.e.* with suitable collateral and at an *adequate* – that is, not too high nor too low – rate of interest."[129] In times of crisis, the supply of credit needs to be *elastic* rather than restricted by reserve rules.[130]

Wicksell argued that regulations of banking were inadequately focused on liquidity requirements. He aimed at demonstrating that the flexibility (or elasticity) requirement "which at first sight might look like a paradox, actually is at the core of it all, providing the basic foundation for both solvency and liquidity."[131] According to him, a "well concentrated banking system is by and large automatically liquid, if only the public fully trusts the banks."[132] This will be the case if the banking system fulfils the criterion of flexibility in terms of an unrestricted, yet not unconditional, supply of credit. The systemic condition is to keep interest rates at a level at which investment equals planned saving such that the value of money remains stable. This is difficult to achieve for the banks, as they often

126 *Ibid.*, pp. 89, 87.
127 *K. Wicksell*, En lektion i banklagstiftning – några lärdomar af den amerikanska krisen, in: Ekonomisk Tidskrift 10, 1908, pp. 41-54; for a more detailed discussion of that article see *M. Boianovsky*, Wicksell on the American Crisis of 1907, in: Journal of the History of Economic Thought 33/2, 2011, pp. 173-185.
128 *Wicksell*, Banklagstiftning, p. 42.
129 *Ibid.*
130 Wicksell made this point even more forcefully in comments on *D. Davidson*, Bankreformen, pp. 37-38.
131 *Wicksell*, Banklagstiftning, p. 42.
132 *Ibid.*, p. 44.

lack the information or incentives to adjust their lending rates in time to prevent a credit boom. Most booms, however, tend to turn into a confidence crisis sooner or later, with increased demands for both loans and liquidity from the banks.

> "What are the banks to do now? Refuse credit, or lend only at prohibitive conditions, such that the supply is practically cut off, cancel or stop to renew old loans, etc. – all of it to improve the cash situation? It is well known that such a policy is dangerous – dangerous for the business world, and dangerous for the banks themselves. Traders and manufacturers who are refused credit will go bankrupt and their securities provided as collateral to the banks will become worthless or fall in value below the borrowing limits.
> When, in consequence, distrust is directed towards the banks themselves, and anxious investors flock together in demanding cash for their deposits only to hide it in their chests, the disaster will definitely be complete, with the potential of taking any dimensions. The right policy is, on the contrary, the direct opposite: full accommodation, free and unrestricted credit to the last cent (öre), certainly at an interest rate that in line with the circumstances is higher than normal, but without any unnecessary difficulties, without arbitrariness or hassle."[133]

Wicksell thus defined full elasticity of the loan supply at times of crisis as a basic requirement of sound banking.[134]

In his classical treatise on *Interest and Prices* and in his *Lectures on Political Economy*, Wicksell had described financial evolution as a trend towards centralized credit under the control of a central bank.[135] However, his extreme assumption "that the whole monetary system of a country is in the hands of a single credit institution", the "Ideal Bank", explicitly served to simplify the analysis of monetary stability in a pure credit economy. This simplification, together with his optimistic belief that banking crises could generally be prevented by price-level stabilization, may have kept Wicksell from closer analysis of financial stability *inside* the banking system, for which the emergence of a flexible lender of last resort is a basic requirement. His ideas of organizing monetary policy ideally in an institution that, in the general interest of stability, is strictly separated from private business interests were made more explicit in his visions of a "true central bank" for the Scandinavian monetary union to which we return below.

---

133 *Ibid.*, p. 49.

134 *Wicksell* (*Ibid.*, p. 49) advocates Bagehot's rule, but adds that the banks should raise their deposit rates along with the lending rates. This would facilitate the preservation of reserves in the banking system.

135 *K. Wicksell,* Geldzins und Güterpreise, Jena 1898, tr.: Interest and Prices, London 1936, pp. 71-80; *K. Wicksell,* Föreläsningar i nationalekonomi, II, Stockholm 1906, tr.: Lectures on Political Economy, vol. II, London 1935, pp. 87-126.

6 Scandinavian Economists on the Monetary Union

Contemporary academic publications on the SMU were few and mostly limited to the decade between 1916 and 1926, when the gold standard was suspended and gradually restored. Two classical pieces stand out. The first is Axel Nielsen's "historical sketch", to which we have already referred in the above; his little book, *Den Skandinaviske Møntunion*, was published in 1917 and has been described as "the only existing scholarly monograph" on the SMU.[136] The second is Knut Wicksell's article on "The Monetary Problems of the Scandinavian Countries", originally published in *Ekonomisk Tidskrift* in 1925, but made known more widely through "Interest and Prices", the English translation of Wicksell's classic *Geldzins und Güterpreise*, to which it was appended in 1936.[137] Our account begins with Nielsen and ends with Wicksell. Since most academic writings on the SMU during and after WWI engaged in the debates about the "gold issue" (*Guldspörsmålet*), we also draw attention to relevant contributions by Davidson, Cassel, Eli Heckscher och Oskar Jæger.

6.1 Nielsen's Practical Scandinavism

The opening chapters of Nielsen's treatise on the Scandinavian monetary union recapitulate its Latin Union prehistory and the early years in detail, showing that "it was not at all easy to put this piece of 'practical Scandinavism' into effect."[138] The period from 1873 until 1885 is described as a currency union with a common unit of account, but little inter-circulation of cash. According to Nielsen, it is only in 1885, with the establishment of the clearing and settlement system, that the union took a "mighty step" towards the goal of fostering trade and development in Scandinavia.[139] We have reported in Section 4.2, on how favourably Nielsen assessed the first decade of the clearing mechanism at work. Here follow a few words on how he commented on the later developments until 1917.

136 *Talia,* Scandinavian Currency Union, p. 48; contrary to Talia's assertion Nielsen's little book was not his doctoral thesis. Nielsen was a long-established professor at the University of Copenhagen, when he wrote it.
137 *K. Wicksell,* Valutaspörsmålet i de skandinaviska länderna, in: Ekonomisk Tidskrift 27, pp. 205-222, tr.: The Monetary Problem of the Scandinavian Countries, Appendix I in: Interest and Prices. A Study of the Causes Regulating the Value of Money, by *K. Wicksell,* London 1936, pp. 197-219.
138 *Nielsen,* Historisk Rids, p. 26.
139 *Ibid.*, p. 42.

Nielsen regarded the 1905 reform of the 1885 clearing agreement as a turning point in the cooperation between the three SMU Banks. He showed some understanding for the Riksbank position that was based on fears of losing control over the national reserves in a system of transnational payments without fees and limits.

> "The directors of the Nationalbank did not share these concerns – it was an irony of fate that it was the Nationalbank, and not the Riksbank, that later came to demand a fee [for the issuance of cheques] – but then, in 1905, the position of Denmark was more favourable."[140]

In the years between the reform and WWI, explained Nielsen, the Swedish economy was forging ahead in industrialization and exports, while Denmark, after holding a strong net lender position vis-à-vis the other two countries, was now falling behind. The debit balances of the Nationalbank made it introduce fees. These induced a shift from the SMU clearing system to private interbank clearing and an increased use of (Danish) bank notes in cross-border payments.[141] Moreover, according to Nielsen, the opportunities for interest-rate arbitrage, which had contributed to the emergence of an integrated money market in Scandinavia, were decreasing from 1905 onwards, due to a general capital shortage in the three countries, exacerbated by the termination of the Danish conversion policies. The Danes exported large amount of gold coins to Sweden and Norway to settle their debts, a retrogressive development in Nielsen's view, and clearly against the intentions behind the 1885 clearing agreement.[142] On the last four pages of his treatise, Nielsen commented on the increasing complexity of the relations between the SMU Banks during the world war, in particular in a situation in which all three of them had too much gold rather than too little, and yet the parity between the three crown currencies was lost. He summarized the puzzlement in Denmark about this in terms of hopes "that the three central banks would not glide away from each other; on the contrary, they should establish a far more thorough cooperation."[143]

140 *Ibid.,* p. 61. *Nielsen* pointed out (on p. 63) that the Riksbank did not demand fees even a decade later. He complained, however, that the full contents of the 1905 agreement (which we have summarized in Section 4.3) were never made known to the public – at least not until the writing of his "historical sketch" in 1917.

141 *Ibid.,* pp. 64-67; see also *A. Nielsen,* Die Nordische Münzunion, in: Weltwirtschaftliches Archiv 26, 1927, p. 295.

142 *Nielsen,* Skandinaviske Møntunion, pp. 63-70.

143 *Ibid.,* p. 73.

6.2 Swedish Dogmatism?

Section 4.4 has shown that there was much communication between the SMU banks from 1916 onwards, but to which extent this fostered cooperation between them is a matter of debate. In his recent article on "The Gold War", Gjermund Forfang Rongved argues that Swedish economists played an important role in what he describes as "de facto dissolution of the Scandinavian currency union during the First World War."[144] He suggests that Davidson, Cassel, Heckscher and Wicksell formed "a movement inspired by the quantity theory [that was] far more influential on central bank policy [in Sweden] than was the case with economists in Norway and Denmark", and "that the gold problem was considered more problematic in Sweden because of the more influential economic-theoretical environment."[145] Rongved presents those academic interventions in the "gold war" rather indirectly by some general observations and through the lens of the correspondence between the governors of the Riksbank and Norges Bank. In what follows we provide a more direct assessment of the relevant contributions, in so far as they touch upon the cooperation in the SMU.

Before we examine those contributions, some general observations are in place. It is true that the aforementioned Swedish economists were highly critical of operating the SMU clearing agreement on pre-war conditions, once that gold convertibility had been suspended and the value of gold in terms of goods prices had become unstable; they took indeed recourse to the quantity theory of money for arguing these points. It is also true that the Swedish economists acted as advisors to the Riksbank, and that they were prominent in public debate, even in the other Scandinavian countries. It should be noted, though, that their views were shared by Danish and Norwegian economists.[146] More importantly, the Swedish economists did not have a decisive influence on the outcome of what Rongved describes as "gold war". In the end, the clearing agreement was neither terminated nor reformed in accordance with the proposals of the academic advisors; their objections to gold settlements and low interest rates on inter-Bank loans were simply ignored.[147] The three central banks continued to settle balances by both sending gold and borrowing at low interest rates; the postwar reversal of the balances in favour of Norges Bank apparently helped to tone down

144 *Rongved,* Gold War, p. 243.

145 *Ibid.,* pp. 244 and 252.

146 These were mainly, but not exclusively, Axel Nielsen and Oskar Jæger, two active figures in their respective academic communities.

147 See e.g. *K. Wicksell,* Skandinaviens penningväsen, in: Statsøkonomisk Tidsskrift 31, 1917, p.174; *Rongved,* Gold War, pp. 255-56, and Section 4.4 above.

the conflict (see Figure 2 and Section 4.4). It should also be remembered that the Riksbank had on two earlier occasions, in 1895 and 1905, taken a similarly restrictive stance towards the SMU clearing arrangements without any advice from economists (see Section 4.3). In those days, the real issue at stake was to keep control of the national money supply, free from counteracting influences through the backdoor of inter-Scandinavian arbitrage. Precisely this was also the concern of Davidson, Wicksell, Cassel and Heckscher roughly a decade later. In the context of the present paper, however, the differences between their positions towards a postwar reform of the SMU are of greater interest than the temporary similarities in their positions on the wartime "gold problem".

6.3 Davidson on the Gold Problem

The formally strongest objection to continuance of the SMU arrangements came from Davidson in a four-page memorandum, dated February 6th 1917, written on behalf of the Riksbank and circulated to the Swedish Government as well as to the other Scandinavian central banks.[148] Davidson invoked principles of international law to suggest that the SMU convention was no longer binding, since the value of gold had fallen by about 30 percent since the beginning of the war. Hence, the assumption of high stability of the standard of value, on which the monetary union was based, had lost its ground. According to Davidson, however, the union could easily be continued if two basic clauses of the 1873 convention were revoked: the legal tender status of each country's coins throughout the union, and the convertibility of gold into currency. The three central banks would conclude special agreements to operate their clearing mechanism under considerations of monetary stability in their realms. Alternatively, if those clauses were not revoked, the convention could be supplemented by rules for Bank rate policy, restrictions of minting coins etc., to safeguard the value of money. Yet, Davidson found it "impossible to formulate such general rules by way of legal restrictions," especially with regard to their effects on exchange rates.[149]

Davidson's memorandum served the Riksbank to propose to the King (i.e. to the Swedish government) that the general suspension of the Swedish krona's convertibility into gold and *vice versa* be extended to close "the backdoor for an

---

148 *D. Davidson,* P.M. rörande den skandinaviska myntkonventionen, 06.02.1917, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641.
149 *Davidson,* P.M., p. 3.

unlimited invasion of gold into Sweden."[150] As pointed out in Section 4.4, the Riksbank council complained about a rollover of risks on the Riksbank that amounted to moral hazard.

6.4 Heckscher and Wicksell on Moral Hazard

Eli Heckscher gave the moral hazard argument (brought forward by the Riksbank council, not by Davidson himself) the specific twist of Gresham's law for monetary unions. In a lecture on "The Nordic Currency Union" delivered to the Danish association of economists in November 1921, Heckscher argued that, if different national currencies have legal tender status throughout the union but trade at different exchange rates with the rest of the world, notes, coins and bills denominated in the currency of lowest value will crowd the currencies of other member states out of circulation. The country with the most inflationary policy will then determine monetary conditions in the whole union.[151]

Shortly after the Riksbank proposition, Knut Wicksell had given the moral concerns with the inter-Scandinavian "gold question" yet another twist in a lecture delivered to the Norwegian association of economists in April 1917.[152] He criticized that the Scandinavian countries did not run a well co-ordinated policy to stop gold imports from the rest of the world driving up prices in the SMU to "insanely boosted levels", in Denmark and Norway actually more so than in Sweden. He suggested

> "to remember that a moderation or lowering of the general price level would obviously benefit the many people who are living in modest circumstances: workers, lower-level employees, pensioners, etc., now suffering to such a high degree from the sky-high rises of goods prices, compared to which their own incomes have not risen at all, or only insufficiently."[153]

Praising Norway and Denmark for their older democratic traditions, Wicksell wondered why such unfair redistribution effects of gold inflows had received less attention there than in Sweden. The chairman at the meeting, Oslo professor Oskar Jæger, fully agreed with Wicksell, adding that the inflation problem could be alleviated if the Scandinavian countries used their gold reserves for

150 *Riksbanksfullmäktige,* Till Konungen, 10.02.1917, in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641.

151 *E. Heckscher,* Den Nordiska Myntunionen. Foredrag i Nationaløkonomisk Forening den 28.11.1921, in: Nationaløkonomisk Tidsskrift 20/3, pp. 14-21.

152 *Wicksell,* Skandinaviens penningväsen, pp. 169-206.

153 *Ibid.*, p. 172.

imports of goods from other countries. A year before, at the association's meeting in 1916, Jæger had in a talk on "the gold issue" applauded the Swedish gold embargo and criticized the authorities and public opinion in Norway for practicing "fetish worship of gold", based on "metallistic superstition", instead of employing the "dead freight" of gold for increasing goods supplies and thereby reducing the price level. Wicksell had written articles along similar lines in 1914 and 1915.[154]

6.5 Cassel on Excessive Note Issues

All these arguments were essentially based on quantity-theoretical reasoning, defining inflation as a purely monetary phenomenon caused by excessive supplies of money. This argument was made most articulately by Gustav Cassel in a lecture on "high prices and a glut of bank notes" that he gave to the Swedish association of economists in September 1916.[155] Cassel presented both his purchasing-power parity theory of exchange-rate determination, which at the time began to earn him the reputation of one of the world's foremost experts in monetary matters, and the conviction that wartime inflation in Sweden and elsewhere was not caused by the scarcity of goods, but by an excessive issue of bank notes. He pointed out that Norway and Denmark, despite joining Sweden in its gold embargo decision in Spring 1916, suffered from higher inflation and hence lower exchange rates than Sweden. According to Cassel, this could have

154 "The idea that a certain percentage of gold-backing could guarantee the purchasing power of bank notes is nothing but an old prejudice, lacking any real justification. [...] A *locked-up* gold reserve, however large, cannot prevent any fall in the value of bank notes if they are issued in excess of demand [...] *at normal prices*." (*K. Wicksell,* Ekonomiska gåtor. Än en gång Riksbankens guldkassa, in: Ekonomisk Tidskrift 17/1, p. 32). See also *Idem,* Riksbankens guldkassa, in: Ekonomisk Tidskrift 16/10, 1914, tr.: The Gold Reserve of the Riksbank, in: *B. Sandelin (Ed.),* Knut Wicksell. Selected essays in economics, Vol. II, London 1999.

155 *G. Cassel,* Dyrtid och sedelöverflöd, in: Nationalekonomiska Förhandlingar 1916, Stockholm 1917, pp. 1-18. In a follow-up article, Cassel declared that he was not an advocate of the quantity theory, asserting that he "by nature was strongly averse to dogmatic formulations", and that he "from the very beginning had rejected the quantity theory as overly dogmatic and aprioristic" *(G. Cassel,* Riksbanken och dyrtiden, in: Ekonomisk Tidskrift 19/8, 1917, p. 291). The sorting of Cassel's arguments under the quantity-theory label was made by Heckscher at the 1916 meetings (*E. Heckscher,* [comment] in: Nationalekonomiska förhandlingar 1916, Stockholm 1917, pp. 33-45.) Cassel's self-characterization notwithstanding, his views were henceforth considered as quantity-theoretical, and rather simplistic at that.

been avoided if the two countries had restricted their note issues in cooperation with the Riksbank "to keep the Scandinavian crown at a certain standard."[156]

6.6 The Sceptics on Postwar Prospects for the Scandinavian Monetary Union

The opinions of Scandinavian economists on the problems that the wartime "gold issue" posed for the SMU arrangements appear to have been relatively uniform. In the context of this paper it is therefore all the more interesting to see how they diverged on the prospects of the Scandinavian monetary union *after* the war. They did indeed diverge substantially, but can be divided into two groups: the sceptics and the advocates.

Heckscher belongs to the sceptics' camp. He stated apodictically in 1921 that the SMU was dead and could not be revived unless the gold standard were restored:

> "It seems to me that a continuance or rather renewal of the currency union is not thinkable under any other conditions; and the friends of economic Scandinavism should therefore be clear about the fact that the gold standard is the only way towards realizing this piece of practical Scandinavism. [...] If the choice is to be made between a monetary union without gold standard on the one hand, and the gold standard without monetary union on the other, there cannot be any doubt that the latter is to be preferred."[157]

Despite his strong words about "unthinkability", Heckscher conceded that a monetary union could be viable even under a fiat money standard, if the member states ran a "joint monetary policy". This would require merging the three Scandinavian central banks into one, which he apparently believed to be out of the question. With hindsight, Heckscher's position comes across as outmoded metallism, but it has also been interpreted as a "prescient understanding" of the need to commit to a time-consistent rule for monetary policy.[158]

Davidson wrote many articles on postwar debates about monetary regimes and the return to the gold standard. He remained rather short and agnostic, however, on the viability of continuing (or restoring) the monetary union, with or without gold. In the few passages he wrote about the topic, he speculated

156 *Cassel,* Dyrtid, p. 17.

157 *Heckscher,* Nordiska Myntunionen, p. 26.

158 See *K. Fregert,* Belling the Cat: Eli F. Heckscher on the Gold Standard as a Disciplinary Device, in: History of Political Economy 45/1, 2013, pp. 39-59.

about various possible scenarios. In 1917, for example, he discussed Cassel's proposal for a gradual lowering of inflation in Sweden as a potential problem, if the Swedish krona would keep rising against the Danish and Norwegian kroner. Expecting that the other two countries would end their ban on inter-Scandinavian gold exports as soon as the war was over, he suggested that Sweden initiate a timely and gradual devaluation of the krona to restore inter-Scandinavian parity rather than being forced into calamities of one sort or another.[159] After the war, in April 1923, Davidson discussed the prospects of Sweden returning to the gold standard. As in most of his articles on the postwar money order, he set the focus on Sweden's monetary relations with the United States and "England", but ended this one on a Scandinavian note. He suggested that Sweden's return to the gold standard would be triggered automatically if Denmark and Norway ended their bans on gold exports, a move soon to be expected.[160] Davidson did not dig any deeper into the complexities of restoring the SMU clearing system with one country back on the gold standard, while the other two would use gold for settlements of foreign debt only.

In June 1923, Cassel delivered a lecture at the London School of Economics in which he fervently argued against any attempts to restore the SMU:

> "[I]n the case of the Scandinavian Monetary Union I believe that it would be sound policy at once to recognize the uselessness of any effort to restore the union. No doubt the present economic difficulties of Denmark and Norway are to a not inconsiderable degree due to a distrust in the future, caused by a fear of that further deflation which would be necessary in order to bring the currencies of these countries into parity with the Swedish crown. The maintenance of a fictitious union is therefore a very serious hindrance to economic recovery of the countries mentioned."[161]

Cassel's argument was based on his purchasing-power parity theory of exchange-rate determination. Since gold had attained a stable market value in the postwar years, Cassel surmised that it was on the way to regain its function as general standard of value. Any state could then restore the gold standard immediately at the current exchange rate in the market, provided it can preserve the internal purchasing power of its money. "The only essential part of the gold standard", he contended, is "keeping the value of the currency of the country at a constant par with gold."[162] Internal and external monetary stability would then

159 *D. Davidson,* Sedelöfverflöd och "dyrtid", in: Ekonomisk Tidskrift 19/9, 1917, p. 318.
160 *D. Davidson,* Striden om Sveriges myntfot, in: Ekonomisk Tidskrift 25/4, 1923, p. 134.
161 *G. Cassel,* The Restoration of the Gold Standard, in: Economica 9/4, 1923, p. 177.
162 *Ibid.,* p. 173.

coincide. If reviving the SMU implied a return to the pre-war parities of the Scandinavian crowns, as Cassel obviously presumed, the required deflation would not only obviate economic recovery in Denmark and Norway. It would also hinder these countries from regaining internal and external monetary stability.

6.7 The Advocates on Postwar Prospects for the Scandinavian Monetary Union

Compared to Cassel's plea for abandoning the SMU for the sake of internal monetary stability, Nielsen took the contrary position in an article on "the problem of the Nordic Currency Union" published in 1927, when Denmark had reintroduced the gold standard and Norway was about to follow suit.[163] As in his 1917 "historical sketch" of the SMU (outlined in Section 4.2), Nielsen argued that the clearing agreement of 1885 had been of vital importance for economic development in pre-war Scandinavia. He added that it was implicitly based on the understanding that mutual crediting served to safeguard parity of the three currencies, thus producing uniform exchange rates vis-à-vis the rest of the world. This led him to the conclusion that the SMU clearing should be reinstated by way of a "parity agreement":

> "Actually, there exists no significant barrier to concluding an agreement, by which all central banks of the three Nordic countries commit to ensure absolute parity by issuing remittances free of charge drawing on the other central banks. Such an agreement would have to be guaranteed by state convention, lest the central banks revoke it as they did by their internal agreements in 1905."[164]

Nielsen emphasized that the original SMU convention had never ceased to be in force, not even during and after the war, and the reasons were running deeper than in merely economic terms. He saw a chance to reform the SMU in widespread political inspiration taken from "the Scandinavian idea, expression of a sense of belonging."[165]

The most articulate and analytically strongest advocate of the Scandinavian monetary union before, during and after WWI was Wicksell. Ever since his earliest writings on monetary theory, he treated the SMU as a partly real, partly

163 *A. Nielsen*, Zum Problem der Nordischen Münzunion, in: Weltwirtschaftliches Archiv 26, 1927, pp. 293-304.
164 *Ibid.*, pp. 303-04.
165 *Ibid.*, pp. 299.

potential role model for rational monetary policy. In the opening pages of his 1898 classic on “Interest and Prices”, Wicksell motivated his interest in monetary theory by the search for a stable standard of value as a matter of contractual justice and fair distribution of incomes and wealth.[166] In his view, the market value of gold was too volatile to guarantee the stability required for a functional standard. The task should instead be accomplished by an interest-rate policy that aims at keeping the general price level constant. In the last chapter of “Interest and Prices”, Wicksell discussed the prospect of a worldwide cooperation of central banks with the aim of stabilizing the value of money. The “suspension of the free coinage of gold […] would mark the first step towards the introduction of an ideal standard of value” in “an international paper standard”:

> “Neither a central bureau nor international notes would be necessary. Each country would have its own system of notes (and small change). These would have to be redeemable at par by every central bank, but would be allowed to circulate only inside the country. It would then be the simple duty of each credit institution to regulate its rate of interest, both relatively to, and in unison with, other countries, so as both to maintain in equilibrium the international balance of payments and to stabilise the general level of world prices. In short, the regulation of prices would constitute the prime purpose of bank rate, which would no longer be subject to the caprices of the production and consumption of gold or of the demand for the circulation of coins. It would be perfectly free to move, governed only by the deliberate aims of the banks.”[167]

Obviously, Wicksell did not envisage a worldwide monetary union with a single central bank and a single currency. Yet, he saw the SMU as a step towards global stabilization of the value of money, praising the 1885 clearing arrangement for its effect of reducing the reserve restrictions on monetary policy.[168] In a long review essay on “the monetary problems of the future”, Wicksell reiterated his praise for the SMU in 1904.[169] He argued again that “the notion of so far-reaching a centralization as a single note-issuing bank for the whole world would constitute, quite needlessly complicates a problem that can probably be solved far more simply,” namely by coordination of the central banks as practiced in the SMU.[170]

166 *K. Wicksell,* Geldzins und Güterpreise, Jena 1898; tr. Interest and Prices. A study of the Causes Regulating the Value of Money, London 1936, pp. 1-4.
167 *Ibid.*, pp. 193-194.
168 *Ibid.*, p. 187.
169 *K. Wicksell,* Framtidens myntproblem, in: Ekonomisk Tidskrift 6, 1904, 82-106; tr.: The Monetary Problems of the Future, in: *Sandelin (Ed.)*, Knut Wicksell, pp. 12-31.
170 *Ibid.*, p. 24.

During WWI, Wicksell changed his mind. In a 1917 paper on "the Scandinavian monetary system after the war", he pointed out that the suspension of the gold standard and the "conformity of interests among the Scandinavian countries" had made it advantageous to run a "joint monetary policy."[171] He argued that "there will be a definite need for *new institutions* to regulate and supervise this joint action [...] I cannot really see any decisive obstacle to the establishment of a true *central bank* for all three countries, with its seat in Gothenburg, for example."[172] The Scandinavian central bank should be a "purely *state* (i.e. here, interstate) *institution*" without private shareholdership and business interests, strictly concentrated on stabilizing the price level by adjusting the discount rate.

Yet, the inflation differentials and non-par exchange rates that had made the Scandinavian currencies move apart during the war presented serious obstacles. Given these, how could Wicksell's principles of contractual justice and fair distribution be met in the postwar restoration of the SMU, not to speak of the transition towards a single Scandinavian central bank? Wicksell pleaded fervently – in numerous articles, memoranda and lectures – for a return to the pre-war price level. It was to be reconstituted, at least for the fixed-term contracts on loans, wages and other monetary transactions, a significant part of which remained based on pre-war terms into the 1920s. In order to avoid disruption and other difficulties that could arise in the required process of deflation, Wicksell proposed schemes of indexation and bank-note stamping.[173] In a draft on "the restoration of the Scandinavian monetary union" he concretised some details in November 1923:

> "This step can in my opinion be taken at any time, for example in the following form. Denmark and Norway *recall* during a certain period their present bank notes and replace

---

171 *K. Wicksell,* Det skandinaviska penningväsendet efter kriget. Bidrag till frågan om ett ekonomiskt närmande mellan de skandinaviska länderna. Inlägg av skandinaviska ekonomer, Stockholm 1917, pp. 227-241; tr.: The Scandinavian Monetary System after the [First World] War, ch. 21 in: *Sandelin (Ed.),* Knut Wicksell, pp. 71-80; see also *Jonung,* Scandinavian Monetary Union, pp. 93-94.

172 *Wicksell,* Skandinaviska Penningväsendet, pp. 78-79. A few months earlier, on October 7th 1916 the governors of the three central banks had actually met in Gothenburg to discuss possible amendments of their cooperation – see Section 4.4. In preparation of that meeting, the Swedish delegation had proposed an agenda, in which the second item was to discuss the question whether "an agreement concerning: joint discount-rate policy and joint exchange-rate policy [is] desirable and possible" – in: RA-N, Norges Bank, Direksjonsarkivet II, box S-3161/D/L0641. The one-page minutes of that meeting do not mention any discussion of the item – *ibid.*

173 For a comprehensive assessment of Wicksell's views and schemes see *M. Boianovsky,* Wicksell on Deflation in the Early 1920s, in: History of Political Economy 30/2, 1998.

> them with others of a new type – or, pending further notice, simply with stamped notes – at a rate as close as possible to the present exchange rate with Sweden, or rather slightly higher, so that, for example, 100 old Danish notes are exchanged for 71, and 100 old Norwegian notes for 62 new (or stamped) notes of the same nominal value. These new notes, which after the said period will be exclusively valid, should become *convertible* right from the beginning, though not in gold or dollars but in Swedish bank notes at par – whereafter the monetary union with all its pre-war agreements between the central banks [...] could immediately come into force in all its aspects, with only one exception: pending further notice, gold would be bought or sold at a changing spot rate."[174]

Shortly before his death in 1926, Wicksell speculated in the final paragraphs of his paper on "the monetary problem of the Scandinavian countries", about prospects for a re-establishment of the SMU:

> "I, for my part, firmly believe in such a union. This monetary union – with such further regulations as were added to it either by express agreement or by the force of established practice, and which led to the three countries having essentially the same monetary system – may be said to have constituted a small-scale pattern for that future regulation of the world's monetary system on a uniform basis which so long has been a favourite idea of economists."[175]

7 Conclusion

With hindsight, Wicksell's views on the evolution of cashless payment systems, *rational monetary policy* and central bank cooperation are generally regarded as prescient. Many of his ideas have influenced modern macroeconomics, both in the mainstream and in less orthodox quarters.[176] His recommendation that central banks should coordinate their policies to stabilize the value of money is

174 *K. Wicksell,* Den skandinaviska myntunionens återställande, in: *L. Jonung/T. Hedlund-Nyström/C. Jonung (Eds.),* Att uppfostra det svenska folket. Knut Wicksells opublicerade manuskript, Stockholm 2001, pp. 177-178.

175 *Wicksell,* Valutaspörsmålet, p. 218.

176 "Interest and Prices", the title of Michael Woodford's influential treatise on the "Foundations of the Theory of Monetary Policy" in terms of dynamic stochastic general equilibrium modelling, echoes the title of Wicksell's pathbreaking work; see in particular *M. Woodford,* Interest and Prices, Princeton 2003, ch. 4. A strongly different approach to macroeconomics that uses Wicksell's classic as point of departure is *A. Leijonhufvud,* The Wicksell Connection. Variations on a Theme, in: Information and Coordination. Essays in Macroeconomic Theory, New York 1981. Both approaches to "Wicksellian macroeconomics" are discussed in *H.-M. Trautwein,* Leijonhufvud on New Keynesian Economics and the economics of Keynes, in: Oxford Economic Papers 72/4, 2020, pp. 923-945.

standard fare. His vision of a monetary union of several nation states working under a single central bank has materialized eight decades later, not in Scandinavia, but in the shape of the European Central Bank which governs a much larger currency area. It can even be argued that TARGET2, the clearing and settlement system operated by the Eurosystem, shares basic characteristics with the SMU clearing established by the 1885 agreement. In Wicksell's lifetime, his ideas were considered as unrealistic, if not outlandish. When he lectured to the Norwegian economists' association in 1917, the governor of Norges Bank, Nicolai Rygg, made a long comment in which he pointed out that the demand for a joint discount-rate policy may have been made "by some individuals, but certainly not by any Scandinavian country as such".

> "Representatives for the three Nordic countries had conducted consultations about this, but arrived at the result that it was not feasible. [...] On this point, [...] the demand was not even made. [...] As the issue has been presented today [by Wicksell], it looked rather easy to handle. Going more deeply into the matter, it would be discovered that discount-rate policy interferes in so many ways in each nation's individual life; it interferes strongly in the respective country's trade policy, and that is clearly not a common policy. If a common discount-rate policy were established it would be impossible to avoid to affect the individual nations' interests in the most sensitive ways."[177]

Rygg's comment on Wicksell reveals the limits of central bank cooperation in the Scandinavian Monetary Union on and off the gold standard. In retrospect, the cooperation of the SMU Banks through their clearing and settlement mechanism may look like an instrument that they could have used more freely for lending of last resort and other handling of asymmetric demands for liquidity. Yet, the SMU framework was used only exceptionally for international LLR at times of crisis: for a Danish stand-by loan during the Christiania crash of 1899 (see Section 3.2), by the borrowing of last resort that Norges Bank took recourse to in the years 1916-18, largely against the will of Sveriges Riksbank, and by the Swedish intermediation of large sterling loans to the other Banks in 1921 (see Section 4.4). Obviously, the use of a clearing mechanism for systematic and cooperative handling of crises needs to be embedded in a wider cooperation in discount-rate management, banking regulation, if not also in industrial and trade policies. The time for such comprehensive cooperation had not come, not even in Scandinavia around the turn of the 20th century. Before WWI, most crises could be handled at the national level, with fiscal backstops that relied on *trans*national lending of last resort by foreign *private* banks. Different develop-

177 See *Wicksell*, Skandinaviens Penningväsen, p. 191.

ments in the real economies of the three Scandinavian countries made political interests diverge in the last decade before WWI, and then all the more so during and after the war.

Yet, it should not be underestimated that the clearing mechanism of the SMU was an advanced framework of early cooperation between central banks, much admired at the time in other countries. By making short-term financial markets in Scandinavia more efficient, it appears to have reduced the risks of liquidity squeezes and, hence, the need for lending of last resort. Even in difficult times, when the political union between Sweden and Norway broke down, when the gold standard was suspended during the war, and when the SMU convention was believed to be *de facto dead* (several times over), the clearing mechanism remained in operation, and the cooperation was extended to consultations about interest-rate coordination and exchange-rate stabilization.

Marc Flandreau has expressed a "sceptical view" of central bank cooperation during gold standard times, concluding that "cooperation had been exceptional, never reciprocal, and always failed to institutionalize. The attitude of central banks towards each other was found to oscillate between hatred, neglect, and indifference."[178] Central bank cooperation in the Scandinavian Monetary Union was indeed exceptional in various aspects, in particular in the clearing arrangements. Yet, it clearly disproves Flandreau's other claims: It was reciprocal and it was institutionalized. Even if there were tensions now and then, in particular between the Riksbank and Norges Bank, "hatred, neglect, and indifference" are hardly the right words to characterize the attitudes of Danmarks Nationalbank, Norges Bank and Sveriges Riksbank in their cooperation.

Bionotes

Anders Ögren
is Professor of Economic History at the Department of Economic History and Director of Uppsala Centre for Business History at Uppsala University (Sweden). His main fields of research are Business History, Financial and Monetary History and the History of Economic Thought. His most recent publication is "Discipline or International Balance: The Choice of Monetary Systems in Europe" (with Jonas Ljungberg), in: The European Journal of the History of Economic Thought 29/2, 2022, pp. 218-245 (Open Access, https://doi.org/10.1080/09672567.2021.1946121)

178 *M. Flandreau,* Central Bank Cooperation in Historical Perspective: a sceptical View, in: Economic History Review, L, 4, 1997, pp. 735-763, here: p. 737.

Hans-Michael Trautwein
is Professor of International Economics at the Carl von Ossietzky University of Oldenburg in Germany. His research interests comprise studies of international integration and transnational governance, and the evolution of macroeconomic thinking. Trautwein has published widely in international journals and collected volumes; he is co-editor of the European Journal of the History of Economic Thought.