

# The Scandinavian Currency Union, 1873-1924

Studies in Monetary Integration and Disintegration



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Studies in Monetary Integration and Disintegration

Krim Talia

Stockholm School of Economics



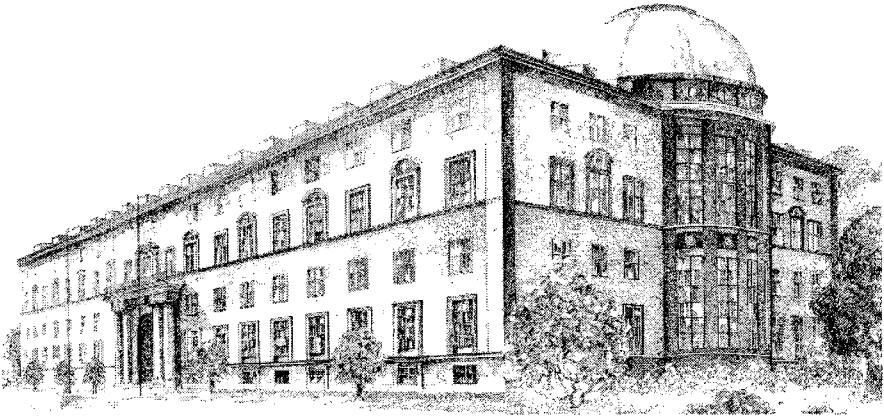
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This book is dedicated to my family.

- |                         |  |
|-------------------------|--|
| My father Mansour Talia | -There is no words to describe my respect and love for you.  |
| My mother Kerstin Talia | -Without your support and never say die attitude, I wouldn't have had the courage to do this!  |
| My brother Aziz Talia   | -I admire and love you! In your presence I feel that everything will work out for the best. You are my rock!                             |
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Stockholm in May, 2004.

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## - Chapter 1-

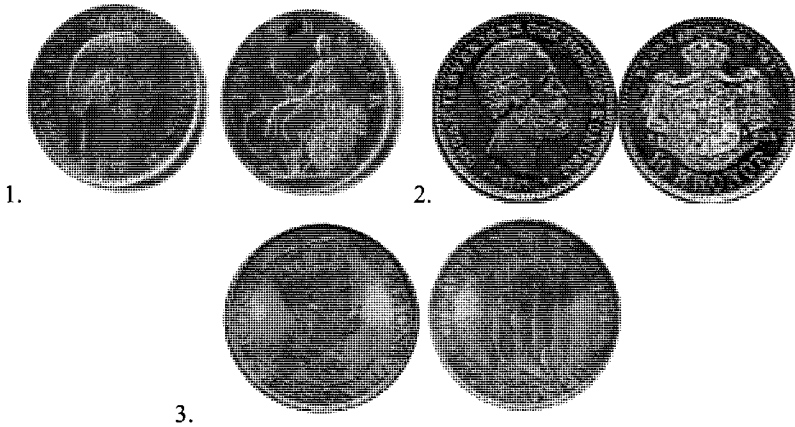
# Four Studies in Monetary Integration and Disintegration

Introduction and Summary

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*Figure 1. Scandinavian Gold Coins.*



*Note: [1]. Danish Scandinavian 10 Kroner from 1873. With Christian IX, King of Denmark [2]. Swedish Scandinavian 10 Kronor from 1875. With the Oscar II, King of Sweden and Norway. [3]. Norwegian Scandinavian 10 Kroner form 1910. With the New King of Norway Haakon VII. (© Copyright Kungliga Myntkabinettet, Box 5428, 11484 Stockholm Sweden, Foto: Gabriel Hildebrand)*

*Figure 2. Scandinavian Gold and Token Coins.*



*Note: [1]. Swedish Scandinavian (Gold) 20 Kroner from 1899. With the Oscar II, King of Sweden and Norway. [2]. Swedish Token Coin (Silver), from 1875. 1 Krona, With Oscar II, King of Sweden and Norway. [3]. Danish Token Coin, (Silver) 1 Krone, form 1875. With Christian IX, King of Denmark (© Copyright Kungliga Myntkabinettet, Box 5428, 11484 Stockholm Sweden, Foto: Gabriel Hildebrand).*

# 1 Introduction<sup>1</sup>

This thesis examines the ebb and flow of monetary integration in Scandinavia during the period 1865-1924. The first fifty of these years were a period of widespread industrialization and ever increasing world wide trade and economic globalization. It was the heyday of the classical gold standard, under whose auspices western economies experienced an unprecedented era of growth, stability and peace. Tragically, however, this “golden” age was followed by the death and destruction of World War I. These events form the backdrop to the history of the *Scandinavian Currency Union 1873 1924* - the subject of this dissertation.

The ever increasing internationalization of the 19<sup>th</sup> century placed new demands on the financial system. A number of European countries responded to the new challenges by cooperating with their neighbours. In 1857, the various German states joined with Austria to adopt the Vereind Thaler as their common currency. Similarly, the Italian states all adopted the lire and in 1865 France, Belgium, Italy, Switzerland and, a few years later, Greece formed the Latin Monetary Union.<sup>2</sup> In 1867, the possibility of instituting a common international currency was seriously discussed at an international monetary congress in Paris.<sup>3</sup> This currency reform movement reaches its apex during the 1870's when most of the world's countries adopted the gold standard.<sup>4</sup> Sweden and Denmark joined in by adopting a common, gold based, currency on May 27, 1873. Two years later, Norway followed suit, thus creating a three country currency area – today remembered as the Scandinavian Currency Union (SCU). All three countries shared a common unit of account, the Krona, based on gold. In time, the SCU evolved into a very comprehensive monetary union: the notes, as well as the gold and token coins, of each country circulated freely at par throughout the area. Until 1914, the Union functioned smoothly. Indeed, one observer, DeCeco, has described it as “*the most successful of all European currency unions*”.<sup>5</sup> After the outbreak of World War I, with its associated suspension of gold convertibility, however, the Union gradually dissolved. Still, to this day, the Krona remains the unit of account in all three countries.

This thesis studies the history of the Scandinavian Currency Union, 1873-1924. It is divided into four analytical chapters, each dealing with a different aspect of the Union, and each written as a separate paper. The conclusions of the thesis challenge existing views of the

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<sup>1</sup> I Thank Martin Korpi and Håkan Lindgren for valuable comments. All errors are my own.

<sup>2</sup> Redish, A. (1994).

<sup>3</sup> Kindelberger, C. P. (1992, p. 69); Chown, J., (1994, p. 86-88).

<sup>4</sup> Gallarotti, G., (1994, p.15-16).

<sup>5</sup> De Cecco, M. (1992, p. 67).

Union and examines new aspects of this episode in monetary history. It poses new questions and exploits and evaluates new sources. The first paper offers an original interpretation of the role of Scandinavianism in the monetary reform of 1873-1875. It argues that its importance has been both exaggerated and misinterpreted. In fact, the monetary integration of those years was principally motivated by economic considerations. The second paper deals with inter Scandinavian monetary cooperation during the period 1873-1914. It argues that the process of monetary integration, later followed by disintegration, during these decades is best understood in the context of a trade off between international financial efficiency and national economic vulnerability. It provides a comprehensive analysis of the motives that underlay the principal extensions of the Union's institutional framework. This includes, the formation, cancellation and renegotiation of the formal, Union based, clearing agreement, as well as the process leading to the free circulation of all Scandinavian notes throughout the currency area. The third paper studies the level of integration and efficiency of the Scandinavian foreign exchange market throughout the period. The paper applies theories and methods from modern economics and finance on a new set of historical financial data. It concludes that the currency union in general and the clearing agreement in particular, significantly increased the degree of market integration. It also concludes that, during most of the period, the Scandinavian foreign exchange market was characterized by perfect arbitrage and efficiency. The final paper challenges the prevailing scholarly view of the dissolution of the Union. It argues that the break up resulted from the macroeconomic shock that the world economy experienced in 1914, caused by the outbreak of World War I. This macroeconomic shock constituted by the war, struck asymmetrically on the Scandinavian currency area. The asymmetry was the result of varying national economic policies and structures and created tensions that required an exchange rate adjustments to be resolved.

In the following sections, previous research on the SCU will be discussed briefly, as will the principal theoretical and methodological approaches utilized in this work. The major findings of the thesis will also be presented, together with some initial reflections and suggestions for further research.

## 2 Previous Historical Research on the SCU and other Monetary Unions

Until recently, the SCU was a largely forgotten episode in monetary history. Current interest in the EMU project, however, has caused a renaissance of interest in monetary unions, the SCU included. The recent research ranges from general overviews of the history of previous monetary unions, and the lessons that can be learned from those experiences, to detailed case studies of particular unions. A brief review of such work pertaining to monetary unions in general and the SCU in particular, will now follow.

In a number of recent articles by Michael Bordo and Lars Jonung, the authors examine the success of various monetary unions in historical perspective.<sup>6</sup> In so doing, they draw a distinction between single nation and multinational monetary unions. The former refers to a situation where the border of the monetary union is identical with that of a single, usually newly consolidated, national state. Examples would be the German Empire and the Kingdom of Italy. Multinational unions, of course, refer to monetary integration among a number of independent national states. In this case, prominent examples are the Latin Monetary Union and the SCU. An important distinction between the two types is that in multinational monetary unions each country retains its central bank. Thus there is no joint monetary authority.

Bordo and Jonung conclude that multinational monetary unions have a pronounced tendency to break up in the face of the foreign and domestic pressures that result from economic and political crises. Among the interesting topics addressed by the authors is what can be learned from the history of monetary unions. They argue that throughout history, political will, and skill, has been essential for the success of monetary cooperation. Monetary unification, they observe, is an evolutionary process. Thus, problems that policy makers must learn to deal with are certain to arise. In short, monetary unions represent a policy learning process, a process that will only go as far as political will allows. Thus it is of interest to examine where such will comes from and why it is sometimes lost. Another interesting aspect is the considerable discretion given to policy makers, usually the central bank, whether or not to retain membership in a union. Clearly, monetary unions can only be understood if political, as well as economic, factors are considered.

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<sup>6</sup> See Bordo and Jonung (1996), (1997), (2001), (2003).

actors, who in this case are central banks, governments and individuals such as political office holders and central bank officials.

### **3.2 Monetary Theory, Unions and Regimes**

Although most people use money daily, very few of them ever contemplate the nature and function of money. In point of fact, money is an institution that decreases the transactions costs associated with trade. Thus, at the heart of monetary theory lies the idea that money performs a set of functions crucial to the success of a modern economy. Economic theory usually endows money with three basic functions - money acts as a store of value, as a medium of exchange and as a unit of account. The design of the monetary system, in turn, determines how effectively these functions are performed. A monetary union can thus be seen as an attempt to develop arrangements that will increase the efficiency of these functions. For example, Cohen (1998) argues that a common currency area can reduce a number of different transaction costs. Indeed, a monetary union can be expected to increase the usefulness of money in all three of its principal functions. First, currency conversion costs are reduced - the medium of exchange function, second, exchange risk cost are eliminated - the store of value function, and third, reducing the number of price quotations to one reduces information costs - the unit of account function. Reducing transaction costs is thus one of the strongest arguments in favour of monetary unions.

A concept related to this discussion and relevant to this thesis is that of monetary regimes. There are two basic types of international monetary arrangements or regimes - fixed and floating exchange rates - supplemented by some hybrid forms such as adjustable pegs or managed float. Historically, however, two monetary regimes have been totally dominant: one based on convertibility into gold or silver and the other based on inconvertible paper, or fiat, money. For the Scandinavian countries, the establishment of the SCU in 1873-1875, in effect, was a transition from one fixed exchange rate regime to another. While the adoption of the new gold based currency no doubt seemed dramatic to contemporaries, the monetary norms, rules and decision making processes, and thus the monetary regime, remained largely intact. Administering a gold standard is quite similar to administering a silver standard. The suspension of convertibility in 1914, by contrast, did constitute a monetary regime change for the whole SCU - from a fixed to a floating exchange rate. This transition placed new demands on the actors and required new decision making procedures. A case study of such a regime change is provided in Chapter 5.



### **3.3 The Gold Standard in Theory and Practice**

A great deal of scholarly effort has been devoted to discovering how the gold standard worked, both in theory and in practice. With its ability to combine low inflation and stable exchange rates with relatively rapid growth, this period has become the holy grail of economics. Previous research on the SCU has also emphasized the role of the gold standard as the basis for the common monetary policy of the three Scandinavian countries. Indeed, some scholars have argued that this commonality is what kept the Union together.<sup>14</sup> Others have been unsure whether to credit the Union or the gold standard with the relative economic prosperity of the period.<sup>15</sup>

History has seen a number of commodity money standards of which the gold standard is one. Sweden has had copper, silver and gold standards. In 1717, England becomes the first country to adopt a (de facto) gold standard. Over the next two centuries most the world gradually followed suit and, by the 1890's, almost all silver or bimetallic standards had been abandoned in favour of gold.<sup>16</sup> This brief presentation of gold standard theory will focus on a few landmarks in the literature. It will first deal with the gold standard as a self equilibrating mechanism and then proceed to the role of central banks.

David Hume's classic analysis of the balance of trade, published in 1752, first described what came to be called the price-specie-flow mechanism. It presented the gold standard as a self adjusting system, relative price movements among countries serving to maintain equilibrium in the balance of trade.<sup>17</sup>

The adjustment process worked as follows. Posit that the money supply in country A increased five fold over night. The prices of labour and commodities in Country A would, of course, increase. Consequently, the inhabitants of other countries would be unwilling to buy products from Country A, while the inhabitants of Country A would be attracted to the now relatively cheap products offered by those other countries. The exports of Country A would fall and her imports would increase, resulting in an outflow of money from Country A. This, in turn, would lead to lower prices in Country A and higher prices in the rest of the world. This process would continue until equilibrium was restored.

The details of this self equilibrating mechanism have been an ongoing topic of debate among students of the gold standard. Some scholars have argued that the gold standard, and

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<sup>14</sup> Heckscher, E. F., ( 1921), ; Bergman, et al. (1992)

<sup>15</sup> Nielsen, A., (1917); Henriksen, I., & Kaergård, N., (1992);

<sup>16</sup> Gallarotti., (1995)

<sup>17</sup> Hume, D., (1752)

other fixed exchange rate systems, maintained equilibrium, not through changes in relative prices, but through interest rate or income level adjustments. According to Eichengren, however, these disputes are superficial. In fact, the competing versions of the adjustment process are fully compatible and need to be merged in order to provide a complete picture of the functioning of the gold standard.<sup>18</sup> On a more general level, there is a scholarly consensus that the adjustment mechanism worked smoothly for the world's core countries. Doubts, however, exist with regard to the peripheral nations.<sup>19</sup>

It is also of interest to note that studies of this period have treated exchange rates as if they were absolutely fixed. In fact, however, exchange rates fluctuated within the zone defined by the upper and lower gold points. These points were the product of transaction costs, such as the costs of information and gold shipping. Officer (1996) has demonstrated that, even though exchange rates frequently deviated from par, they rarely violated the gold points. The observation that gold arbitrage transactions kept exchange rates within the gold points plays a major role in my analysis in Chapter 4, *"Integration and Efficiency on the Scandinavian Foreign Exchange Market"*.

The above referenced debate lacks one important ingredient needed for an understanding of the gold standard, central bank monetary policy. Indeed, there is a vast literature on the role of central banks under the gold standard. The principal question addressed is whether or not it was a managed system and, if the former, was such management an art or a science. The proponents of the science view argue that the central banks of the time had a specific set of rules which, if universally followed, would allow the gold standard to work. The function of the central banks thus was to "follow the rules of the game", a term credited by some to John Maynard Keynes.<sup>20</sup> These rules are the subject of a substantial literature. Central banks following these rules would tend to reinforce the natural workings of the adjustment mechanism. For example, a central bank that was losing gold was supposed to raise the discount rate and/or use open market operations to further reduce the monetary base. These actions would permit adjustment to occur with a more limited physical transfer of gold. Historical studies, however, indicate that central banks frequently violated the rules. In particular, Nurkse (1944) found that the central banks misbehaved during the inter-war, gold standard period.<sup>21</sup> This result inspired Bloomfield to perform a similar study of

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<sup>18</sup> Eichengreen, B., (1985, p. 9).

<sup>19</sup> Acena, P. M., and Reis, J., (2000).

<sup>20</sup> Bloomfield, A. I., (1959, p. 47).

<sup>21</sup> Nurkse, R., (1985, p. 218-219).

the classical gold standard period. Strikingly, he concluded that even during that era the central banks frequently violated the rules of the game by acting to sterilize gold flows.<sup>22</sup> This result suggests that, in practice, the gold standard was a managed system, or art, requiring finger tip sensitivity of the central bankers.<sup>23</sup>

Recent work on the gold standard has highlighted another interesting aspect of the system, its role as a commitment mechanism. Bordo and Rogoff (1996) argue that, at least for the developing countries, the commitment aspect of the gold standard was of the utmost importance. In their case, adherence to the gold standard served as a “Good Housekeeping Seal of Approval”. It signaled that they were committed to following ‘sound’ financial policies. That, in turn, gave them access to the capital markets of the European core countries. In Chapter 5 of this thesis, it is argued that the SCU served a similar function for the Scandinavian countries during the turbulent post World War I period.

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<sup>22</sup> Bloomfield, A. I., (1959).

<sup>23</sup> Eichengreen, B., (1985, p. 14).

## 4 Method and Sources

Every scholarly field has rules and directions intended to assure the accuracy or, at least, the transparency of its results. The complex of these rules and directions is referred to as a *method* or *technique*. In economic historical research, this method regulates the search for, and evaluation of, information, the analysis of such information and the reporting and interpreting of results. It is important to note, however, that economic historians are not primarily dedicated to their methodological toolbox. Rather, the first commandment for good research in the field is to pose interesting questions and discover new knowledge. The precise choice of the method relied on, must therefore be based on the questions being posed and the sources available. Accordingly, this thesis utilizes a combination of qualitative and quantitative techniques in order to generate new knowledge concerning the Scandinavian Currency Union.

The following section presents and discusses the methods employed, and the sources relied on, in this study. Some of the practical problems encountered in working with the sources also will be mentioned.

### 4.1 Qualitative Method and Sources

This thesis is largely based on the analysis of primary material from archival sources. This type of research has the great advantage of allowing scholars to look beyond the, usually rational sounding, public statements made by political office holders and central bankers to justify their decisions. The archival material makes it possible to determine the extent of the personal, group or national self interest, that lurked behind the scenes of policy making. In this particular case, important motives behind the decisions leading first to monetary integration, and later to disintegration, during the period studied can be identified and evaluated. These motives, it turns out, did not always coincide with what theory predicts or previous research claims.

A number of qualitative sources have been collected and evaluated for this study. Chapter 2 utilizes records of the parliamentary debates in the three countries for the years 1865-1875, as well as the debates engaged in at three Scandinavia wide meetings of economists. Chapter 3, to a considerable degree, is based on the minutes and the correspondence of the three central banks. Chapter 5 relies on the Yearbooks of the Swedish Riksbank as well as the annual reports of the Riksdag's Standard Committee of Banking. A

detailed study has also been made of contemporary newspaper coverage of the events studied. In addition, secondary sources have been used throughout the thesis. A number of practical problems arose in the course of collecting all this qualitative material. The first major challenge concerned language. While the three Scandinavian languages are in many ways similar, important differences in syntax and vocabulary were sometimes encountered. This difficulty was compounded by the fact that much of correspondence was hand written and far from easy to read.

The two most important steps in using qualitative historical data are (1) gathering the source material and (2) critically evaluating it. The critical evaluation is intended to separate the wheat from the chaff, truth from propaganda and historical fact from fiction. Three criteria can be utilized in this quest. First, is the source contemporaneous with the facts or events described? Second, is it an independent source? Third, is there some ulterior motive underlying the source? A positive answer to one or more of these questions naturally reduces the value of a source. Clearly, material composed well after the events described, based on another pre-existing source, and/or skewed to influence the reader, is of limited scholarly value. In fairness, however, it should be noted that these same problems also can infect quantitative sources. These too must be subjected to critical scrutiny.

## **4.2 Quantitative Method and Sources**

In this thesis, quantitative data and methods have been used in three different ways: (1) Data has been tabulated and used in figures to be viewed in conjunction with the qualitative evidence, (2) Causality among independent and dependent variables has been tested using Ordinary Least Square (OLS) regressions and (3) tests for the presence of ARMA(p,q) processes within the price series obtained from the Scandinavian foreign exchange markets have been conducted. The latter work relied on model selection and specification tests suggested by Box and Jenkins (1976).

The collection, presentation and analysis of quantitative data has been one of the principal tasks in writing this thesis. Data on inter-Scandinavian trade has been collected and tabulated. This data is utilized in several of the analytical chapters as the background against which qualitative evidence is presented. Chapter 3 presents data on the value of checks drawn on the three Scandinavian central banks during the years 1888-1914. These checks are a good measure of the importance of the Scandinavian clearing mechanism. New series of historical

financial data are also presented. Chapter 4 contains three newly constructed series, one for each of the Scandinavian countries, of the prices of sight sterling bills. These series present monthly data for the period 1879-1914. This data was gathered from newspapers and official records.<sup>24</sup> During this sometimes painstaking work, problems arose when some of the required data was missing from the principal sources. Mostly this simply required further searching, but in five cases an interpolation process had to be used to fill in the missing data.

Chapter 5 contains the first ever estimate of the current account of the balance of payments for all three Scandinavian countries for the period 1914-1924. Locating data on the invisible account items was particularly difficult since the governments had not yet begun to collect and publish such data.<sup>25</sup> Data on the total balance of services was located for Sweden, but not for Denmark or Norway. The most important component of the service account for these two countries, however, was shipping, and data on this sector was available and could be used in the estimates.

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<sup>24</sup>Daily News papers have luckily enough been transferred to micro film and can be found in the Swedish Royal Library (KB)

<sup>25</sup> Denmark started reporting data on its capital account during the 1920s.

## 5 Summarizing the Thesis

This thesis analyses the rise and fall of monetary integration in Scandinavia during the years 1865-1924. It chronicles the history of the Scandinavian Currency Union from its establishment in 1873, through its years of success and expansion, to its decline and ultimate dissolution in 1924. The thesis is divided into four analytical chapters, each dealing with a different aspect of the Union and each written as a separate paper.

In Chapter 2, *Scandinavian Monetary Integration During the 19<sup>th</sup> Century: A study of the Establishment of the Scandinavian Currency Union, 1865-1875*, the establishment of the Union is studied. During the years 1873-1875, Norway, Denmark and Sweden all reformed their monetary systems, adopting a common currency, the Scandinavian Krona, based on gold. This paper provides a summary of the period's debates concerning monetary structure that raged on the international, Scandinavian and national levels, and then relates them to major economic and political events. It is argued that the German adoption of the gold standard in 1871, acted as a catalyst for monetary change, in Scandinavia as well as elsewhere. The paper also demonstrates that the role of Scandinavianism in the monetary reform movement has been exaggerated in the existing literature. Instead, the establishment of the Scandinavian Currency Union was mainly economically motivated. The paper points out that Scandinavianism was merely used as a political means to pursue the economic end of a monetary union. In fact it was a desire to lower transactions costs, as well as the fear of silver depreciation, that explains the adoption of a gold standard and the establishment of the SCU.

Chapter 3, *Scandinavian Monetary Cooperation 1873-1914: A Trade-off Between Efficiency and Vulnerability*, examines monetary cooperation among the Scandinavian central banks during the union period. In 1885, the Scandinavian Currency Union was strengthened by the adoption of a clearing agreement. The agreement was proposed by the Danish Nationalbank, with the aim of improving the efficiency of inter Scandinavian monetary transactions. It gave the central banks the right to draw commission free checks on each other. This was accomplished by the mutual establishment of accounts on which checks of a minimum denomination could be drawn regardless of the balance. In theory, this clearing agreement eliminated the gold points among the three Scandinavian countries, thus maintaining their currencies at par. A further step was taken in 1894 when the Swedish Riksbank and Norges Bank agreed to accept each other's notes at par, an arrangement joined by the Danish Nationalbank in 1901. This, however, marked the high point of Scandinavian monetary cooperation. In 1905 Sweden gave notice of termination of the clearing agreement,

and only after three months of intense negotiations were the three banks able to compromise on a new, more restrictive, clearing mechanism.

The paper argues that monetary cooperation involved a trade off between financial efficiency and economic vulnerability. It establishes that the cancellation of the original agreement can not be attributed solely to the political conflict between Sweden and Norway that raged in 1905. The Swedish Riksbank had for some time been irritated that the agreement had not been performing the function for which it was originally intended. This irritation, however, did not, reach the point of triggering withdrawal from the agreement, until Norway dissolved the political union between the two countries. This act increased the risk for the Riksbank of holding part of its gold reserves in the Norwegian national bank and thus served as a catalyst for the renegotiation of the clearing agreement. The new agreement was less efficient, but also less risky.

Chapter 4, *The Integration and Efficiency of the Scandinavian Foreign Exchange Market 1873-1914: A Quantitative Analysis*, applies theories and methods from modern economics and finance to new sets of historical financial data in order to study the integration and efficiency of the Scandinavian foreign exchange market. Series of the monthly prices of sight sterling bills have been collected and subjected to statistical testing. The results clearly indicate that the degree of integration increased steadily throughout the period 1879-1914. The price differentials recorded among the, geographically separated, national sub markets for this identical asset decreased substantially. It is also clear that market integration took a giant step forward during the 1880's. This striking advance in market integration was undoubtedly related to the establishment of an inter Scandinavian, cost free, clearing mechanism. As previous scholars have noted, this agreement, at least in theory, eliminated the gold points, thus integrating the Scandinavian sub markets more closely than did simple adherence to the gold standard. This study provides the first empirical evidence that the clearing mechanism actually had the effect predicted by theory. It was also possible to exclude the possibility that this increased market integration was the result of some other major institutional or communication innovation. Nonetheless, there is no doubt that the rapid transfer of market information over a well functioning inter Scandinavian telegraph network was an essential prerequisite for effective arbitrage activity.

The question of market efficiency was also addressed in this paper. It concludes that the undoubted progress towards market integration eliminated all systematic patterns in the price differences among the national Scandinavian sub markets. In other words, the over all Scandinavian foreign exchange market was efficient during most of this period.



Chapter 5 is entitled *The Decline and Fall of the Scandinavian Currency Union 1914-1924: Events in the aftermath of World War I*. As established above, the Union worked quite smoothly and, indeed, was partially extended until 1914. The outbreak of World War I, however, triggered a series of events that eventually would lead to the formal cancellation of the Union in 1924. The suspension of convertibility and the export prohibition on gold in 1914, opened exchange rate tensions within the union, and acted as a first nail in the SCU's coffin. Although the countries *de facto* had their currencies valued at different rates externally, the treaty of 1873 made them tradable at par within the union. This conflict, between *de facto* situation and *de jure* regulation, not only opened arbitrage opportunities for the public; but also resulted in opportunistic behavior in the relation between the Scandinavian Central Banks. This study of the break-up of the SCU concludes that the gold standard functioned as a unifying straitjacket on monetary policy and was an important prerequisite for a monetary union without a common central bank. The result also challenges earlier work on the break-up by for the first time providing estimates of the current account of the balance of payments, in the Scandinavian countries for the period 1914-1924.

The study clearly demonstrates that the assertion by Bergman et al.(1992) that the dissolution of the SCU had its roots in a surge in Danish and Norwegian exports, in addition to being counter intuitive, does not stand up to empirical testing. It is also established that during this period Danish and Swedish monetary policy did not diverge significantly. This study suggests that one of the most important factors behind the centrifugal tensions within the Currency Union was the improved Swedish balance of trade following the war. Instead the essay argues that World War I constituted a major asymmetrical shock to the Union. This fatal asymmetry was due to variations in trade policy and economic structure among the three countries that eventually required an adjustment of exchange rates. On the other hand, it is also concluded that the international gold standard system was a prerequisite for the success of the SCU. In the absence of a common central bank, the gold standard provided the requisite constraints on monetary policy, as well as the adjustment process essential for handling trade shocks. Both of these mechanisms were needed to achieve stable exchange rates. From a broader perspective, the decline and fall of the SCU serves as a cautionary tale concerning the difficulties of establishing and maintaining institutions intended to provide stability in a world characterized by continuous change. The paper leaves us with a question: is it really possible to design institutions that can both provide stability and handle flexibility over the long term?

## 6 Some Personal Reflections and an Outline for Future Research

Morgenthau (1978), argued that history may be the only laboratory available for social sciences. In this laboratory we try to understand our present and predict our future. Thus, it is hardly surprising that the establishment of the European Monetary Union has inspired a rebirth of interest in historical monetary unions.

While working on the thesis, it struck me that the challenges facing the three Scandinavian countries in the late 19<sup>th</sup> century were, in a number of ways, similar to those faced by many developing countries today. These similarities are an interesting aspect of the thesis and form the basis for the personal reflections in this brief section.

As noted by Bordo and Rockoff (1996), the commitment aspect of the gold standard was of particular importance to the developing countries of the time, such as the Scandinavian. By adhering to the gold standard, they could signal their determination to follow sound financial policies, thus convincing the capital markets of the European core countries of their credit worthiness. During the financial turmoil of the interwar years, when the gold standard was temporarily suspended, the Scandinavian Currency Union performed a similar function. Today, devices such as currency boards and dollar pegs are important institutional arrangements intended to signal a country's commitment to financial stability and reliability. An interesting question however, is for how long these commitments are relevant and if they at times leave countries worse off in handling necessary adjustments to changing terms of trade. The Argentinean financial crisis in 2002, for example, can serve as a cautionary tale of how costly these commitments can become if not abandoned in time. In Scandinavia the central banks eventually concluded that keeping their commitment would be too costly.

Another interesting and long standing quandary identified in this thesis is the double-edged nature of internationalized capital markets. Increased efficiency on the international financial markets also increases the economic vulnerability of small open economies. This is as true today as it was during the days of the SCU. During the inter war years, awareness of this danger resulted in increased emphasis on the need for international monetary cooperation. In Scandinavia there was serious talk of creating a monetary fund for the region. Although these plans did not materialize, this bold idea can be seen as an early predecessor to the IMF.

It is perhaps more than a coincidence that the establishment of the SCU was sparked by one war and its eventual demise followed in the wake of another. Indeed, it seems to suggest that external shocks are likely catalysts for monetary regime transitions. The history

## *Introduction and Summary*

of the establishment of the SCU clearly indicates that monetary integration is the result both of push and pull factors. Economic benefits, such as the increased financial market efficiency promised by a monetary union, pulled the actors towards integration. However, even though arguments of economic nature were necessary, without the push provided by the fear of silver depreciation following the Franco-Prussian War of 1871, the pull factor would have been insufficiently powerful to create the SCU. One can not help but wonder if not the absence of a such a sufficient push factor might help explain the recent failure of the Swedish political elite to lead the Country into the EMU.

Since this thesis focused on monetary integration and disintegration, during the Scandinavian Monetary Union period, a number of interesting aspects of the SCU were not covered. For one, the trade effects of the SCU have not been subject to any detailed study in this thesis. I hope to get the possibility to take on this work in the future. For example it would be interesting to make a study on the degree of commodity market integration during this period. Here there are great possibilities to make comparative studies including non-SCU countries. It would also be interesting to see what effects the union had on the Scandinavian labor market. I have already collected data on inter-Scandinavian migration and look forward to make a more detailed study of that material.

More generally, I believe that studies, not just on the SCU, but on other historical monetary unions as well, promises to be a fruitful avenue of further research. Having conducted this study I also hope that the lessons of the past will not be wasted. Even if historians never stop reminding their readers that history never repeats itself - sometimes it rhymes.

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- Chapter 2 -

Scandinavian Monetary Integration  
During the 19<sup>th</sup> Century

A Study of the Establishment of the  
Scandinavian Currency Union,  
1865-1875

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ABSTRACT

During the years 1873-1875, Norway, Denmark and Sweden reformed their monetary systems. They adopted a common currency, the Scandinavian Krona, based on gold. The German conversion to the gold standard in 1871 had acted as a catalyst for monetary change, and it sparked intense activity in Scandinavia. This paper demonstrates that the role of Scandinavianism in this reform movement has been exaggerated in the literature. Rather, the establishment of the Scandinavian Currency Union was based on economic arguments and primarily motivated by a fear of silver depreciation. The SCU was a case where Scandinavianism was used as a political means to pursue the economic end of a monetary union.

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## 1 Introduction<sup>1</sup>

The integration of the world economy during the 19<sup>th</sup> century placed new demands on the monetary system. A number of European countries initiated various types of monetary cooperation. In 1857, the German states joined with Austria in adopting the Vereins Thaler as a common currency. The various Italian states followed suit by adopting the Lire. Then, in 1865, France, Belgium, Switzerland and Italy formed the Latin Monetary Union, later adhered to by Greece in 1868.<sup>2</sup> In 1867, an international monetary congress in Paris discussed the possibility of establishing a common international currency.<sup>3</sup> The high tide of monetary integration was reached during the 1870's when a majority of the world's countries adopted a common gold standard.

Sweden and Denmark adopted the gold standard on May 27, 1873, at the same time also establishing a common currency. Norway joined her Scandinavian neighbours two years later, thus creating a three-country common currency area - today referred to as the Scandinavian Currency Union or SCU. The Union was based on the gold standard and a common unit of account: the Krona. The SCU was a comprehensive currency union: notes and coins, token as well as gold, of each country were accepted at par and circulated freely in all three countries. Until 1914, the union worked quite smoothly. According to De Cecco, it was "the most the most successful of all the European currency unions".<sup>4</sup> This paper is a study of this episode of Scandinavian monetary integration during the late 19<sup>th</sup> century.

### 1.1 The Goals of the Paper

Today the SCU is largely forgotten. Few people are even aware that the three Scandinavian countries once had a common currency, and the literature on the subject is sparse. During the 1990's, however, due to the emergence of the EU and the associated plans for an economic and monetary union, interest in past episodes of political and economic integration has been

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<sup>1</sup> I Thank Lars Jonung, Martin Korpi, Håkan Lindgren, Chris Meissner, Jaime Reis, Jeffrey Williamson and Anders Ögren for valuable comments. Also, participants at the fourth Swedish Economic History Meeting in Gothenburg, 2001, and the EHF-seminars. All errors are my own.

<sup>2</sup> See Redish (1994).

<sup>3</sup> See Kindelberger (1992, p. 69), and Chown (1994, p. 86-88).

<sup>4</sup> De Cecco (1992, p. 67).

rekindled. The result has been a number of studies on past monetary unions, including the SCU.<sup>5</sup>

The paper studies the Scandinavian monetary integration of the 1870's. Its over all goal is twofold: first, to examine why the three Scandinavian countries adopted the gold standard in 1873 and, second, to understand why they established the SCU during 1873-1875. To answer these questions, I have studied Parliamentary debates in the three countries, the minutes of three different meetings of Scandinavian economists and, finally, the historical context in which these debates occurred. The study has been limited to a ten-year interval, this period of time being examined and presented with special reference to two principal questions.

1. *What Alternatives Were Considered During This Period?*

2. *What Were the Arguments For and Against the Various Alternatives?*

While studying the debates, I soon discovered that there were two dimensions to this issue. On the one hand, the participants were concerned about finding the best base or standard for their currency. That is, what is the most suitable currency metal and into what metal should notes be convertible? This could also be considered a matter of the domestic convertibility of the currency. On the other hand, there was the question of the appropriate unit of account. That is, how should the Swedish coinage be defined in relation to other existing monetary systems: for example, the German Vereins-Thaler. This question thus deals with alternative external convertibility arrangements for the coinage. The relationship between these two dimensions can be described by the following figure:

**Figure 1: The Two Dimensions of this Question**

		INTERNAL CONVERTIBILITY		
		Alt. 1	Alt. 2	Alt. 3
EXTERNAL CONVERTIBILITY	Alt. 1			
	Alt. 2			
	Alt. 3			

In this simplified diagram, domestic (or internal) convertibility can take any of three different forms. Those under discussion at this time were the silver standard, a bimetallic standard and

<sup>5</sup>See for example de Cecco (1992); Henriksen & Kaergård (1992); Jounung & Bordo (1996), and (1999); Bergman (1996).

the gold standard. At the same time, there was a discussion concerning how the existing currency should relate to other currencies, such as the French franc or the German mark, or whether Sweden should work for a joint system with its neighbours. The above question can thus be reformulated into two sub-questions:

1. *Which alternative internal and external convertibility arrangements were considered?*
2. *What were the arguments for and against the various alternatives?*

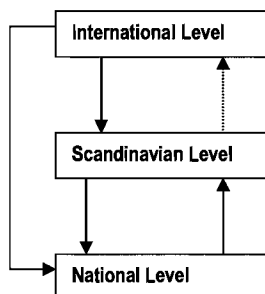
These questions are intended to elicit a presentation of the content of the various arguments for and against various alternatives. As noted above, this question can also be divided into two sub-questions: what were the arguments for and against the various domestic convertibility arrangements, and what were the arguments for and against the various external convertibility arrangements? These various arguments will be discussed in the light of existing research on the gold standard and on other monetary unions.

## **1.2. Sources and Methods**

The period studied stretches from the formation of the Latin Monetary Union in 1865 until the establishment of the Scandinavian Currency Union during 1873-1875. This period, in turn, has been divided into three sub-periods, each with its own distinct character and each adding an ingredient to the final outcome, i.e. the adoption of the gold standard than the establishment of a common currency.

The study is conducted on three different levels: the international, the Scandinavian and the national. These three levels can be seen as relating to each other as follows:

*Figure 2. The Levels of Analysis and Their Inter-Relationship.*



As can be seen in Figure 2, events on the international level are posited to have an effect on events at the Scandinavian and national levels. Using the more familiar concepts of structure

and agents, the international level can be considered to be the structure and the Scandinavian and national levels the agents. The international levels concerns currency issue related events on the European Continent, such as the formation of the Latin Monetary Union, the International Monetary Conference and the German adoption of a gold standard. These events can be either physical or psychological. Physical events refer to matters that are evident and that exist in the physical world, such a war, a contract or covenant, a peace treaty or new legislation. Psychological events refer to changes in the mental processes of the agents. These could include an increased acceptance of the gold standard or a broader vision of the possibilities provided by an international currency.

Events at the Scandinavian level, for whose existence I will argue below, affect events on the national level. Events at the Scandinavian level studied include the two meetings of Scandinavian economists, the correspondence among the three Scandinavian Ministers of Finance and the work of the Scandinavian Currency Commission. I base my argument for a Scandinavian level on the fact that it existed both as an idea and as a physical reality. The Scandinavianist movement originated among the student associations of the 1840's, as part of the widespread National Romantic Movement of the period, and it did in fact result in some practical cooperation among the Scandinavian countries. The meeting of Scandinavian economists discussed in this paper can certainly be viewed as a manifestation of this Scandinavian ideology.

On the national level, I concentrate on the Parliamentary debates in the three Scandinavian countries. Indeed, my study emphasizes this "agent" level. As can be seen in Figure 2, I conceive of events at the national level as affecting those at the Scandinavian level. The creation of the SCU is an example of such an effect.

### **1.3 Previous Research**

The bulk of the existing literature on monetary integration was produced with the explicit aim of analysing the forces propelling the EMU project: that is to say, late 20<sup>th</sup> century monetary integration. The scholars writing on this issue can be divided into two opposing camps. One of these takes a strictly economic approach to explaining European integration, emphasizing the resulting decrease in transaction costs. The other camp, by contrast, views the creation of the EMU as being largely motivated by political factors, and thus principally constituting a step on the road to European political unification.<sup>6</sup>

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<sup>6</sup> See Krugman (1990), Wihlborg, and Willett (1992), De Grauwe (1993), Garret (1993), Burdekin, Eichengreen & Frieden (1993), Østrup (1995) Cohen (1998)

Much of the disagreement results from the fact that money plays an important role in the political, as well as the economic, life of a country. At the core of monetary theory lies the notion that money performs a set of functions crucial to the success of a modern economy. The three basic economic functions of money are to serve as, *a store of value, a medium of exchange, and a unit of account*.<sup>7</sup> Those observers who emphasize economic considerations, see monetary unions as attempts to develop arrangements that perform these three functions as efficiently as possible. Cohen, for example, argues that a common currency area can reduce various transaction costs. Thus, a monetary union increases the usefulness of money in each of its principal functions. First, currency conversion costs are reduced - the medium of exchange function. Second, exchange risk costs are eliminated - the store of value function. Third, limiting the number of price quotations to one reduces information costs - the unit of account function.<sup>8</sup> One of the strongest economic arguments for monetary unions, thus, is that they reduce transaction costs.

Money, however, also plays other roles. A number of historical examples indicate that one important role of money is that of national symbol. When the Soviet Union dissolved, all of the successor states opted to have their own currency. The same is true of the Czech and Slovak Republics, as well as of the former Yugoslav Republics. In addition to any other benefits, it is clear that a separate national currency has strong symbolic value, rather like a flag or a national anthem.<sup>9</sup> Cohen refers to this function of money as being “a symbol of state identity”. He then elaborates on this symbolic role of money by noting that an argument frequently made in the on-going EMU debate is that:

“One gain [...] is the creation of an important symbol for eventual merger at the political level. From its beginnings the EU has, in words of the Maastricht Treaty, made ‘an ever closer union among the peoples of Europe’ its principal and overarching objective. In this context the projected Euro can help promote the imagined community of Europe just as separate national currencies did in the process of state-building in the nineteenth century.”<sup>10</sup>

This suggests that the creation of the EMU might be motivated by aspirations for European political unification. It would thus be part of a state-building process. As will be noted below, some scholars have argued that the SCU was part of just such a state-building process. That

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<sup>7</sup>Calmfors et al. (1996, p. 44).

<sup>8</sup>Cohen (1998, p. 82).

<sup>9</sup>Calmfors (1996, p. 44-45).

<sup>10</sup>Cohen (1998, p. 81).

is, the SCU was a consequence of the Scandinavianist movement's push for a unified Scandinavia. Determining which functions of money were emphasized in the debates of that time can help evaluate the validity of such an argument.

Much of the literature on monetary integration has used the theory of optimum currency areas (OCA) as a starting point. This theory compares the costs and the benefits of a fixed exchange rate between two currencies (Kwai 1987, and Tavlas 1993). Since exchange rate volatility and currency exchange costs are assumed to impede trade, fixing the exchange rate, or establishing a common currency, among trading partners must be beneficial. Since maintaining full employment in the face of asymmetric external macro economic shocks might require exchange rate adjustments, however, the creation of a common currency area entails a trade off between increased adjustment costs and decreased transaction costs. This trade off requires the theory to specify the conditions under which a currency union is economically desirable. The criteria involved were thought to include sufficient labour and capital mobility among the participants, a similar responsiveness of trade to exchange rate variations, and the concentration of the participants' production in similar industries and similar inflation rates.

The prominence of OCA theory within the discipline of Economics was reasserted during the 1990's, and its principal architect, Robert Mundell<sup>11</sup>, was awarded the Nobel Prize in Economics. Politicians, however, often seem to totally ignore OCA theory when deciding on currency unions. That the establishment of the EMU is not the only such example is demonstrated by Cohen in a 1996 study. The theory fails to either predict or explain six historical currency unions. This finding calls for a reconsideration of OCA theory. While the theory can be used to determine whether a union was economically beneficial, it can not tell whether economic considerations were responsible for its creation. There has been a veritable flood of research on the ex ante optimality of the EMU. Recent research, however, has tended to undermine the OCA framework. One challenge has emerged from the work of Lucas (1976). Monetary integration clearly constitutes a fundamental change of policy regime; thus making any ex ante enumeration of OCA criteria to be fulfilled an exercise in futility. Whether or not the OCA criteria would have been satisfied for the SCU, therefore, will not be a topic of this paper. It should be noted, however, that a study by Bergman entitled "*Do Monetary Unions Make Economic Sense - Evidence from the Scandinavian Currency Union*,

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<sup>11</sup>See Mundel (1961)

1873-1913” concludes that the SCU can not be considered to have been an optimal currency area.

### 1.3.1 On the Origins of the Scandinavian Currency Union

The SCU has been subjected to study by political historians, historians and economists. In this section, I will examine the body of work on the establishment of the SCU which reflects the above discussion concerning the relative roles of monetary and political forces in advancing monetary integration. Kristian Hvidt (1990) briefly mentions the SCU, placing it in a broad historical and political context. He maintains that a majority of contemporary economists and legal experts viewed monetary union as a rebirth of the Scandinavianism of earlier decades. According to him, this new Scandinavianism envisioned a Scandinavian political union. Hvidt supports his case for a revived Scandinavianism by observing that the creation of the Union was paralleled by attempts to standardize Scandinavian law codes and by the fact that a Scandinavian Law Encyclopaedia appeared in 1876. Hvidt puts particular emphasize on the role played by the liberal Danish politicians, such as A. F. Krieger, and on their attempts to recreate the Scandinaviansim of the 1850’s. This recreation emerged through practical cooperation in a wide range of areas. According to Hvidt, the explanation for this Scandinavianism’s failure outside the monetary sphere lay in the recession of 1877. It did not, as others have argued, indicate a lack of political will or vision.<sup>12</sup>

The Swedish political historian Folke Lindberg (1958) also discusses the connection between the SCU and the Scandinavianist movement of the 1850’s. He points to the large number of Scandinavian magazines, conferences, clubs and associations that emerged during the years after 1870. He notes that these were formed by essentially the same group of individuals who had been active Scandinavianists during their student years in the 1840’s and 1850’s. In addition, these same people, at the same time, initiated practical reforms, such as the postal cooperation agreement of 1869.

“The pioneers of the Scandinavianist movement created the ideological stimulation and the web of inter-Scandinavian personal friendships without which the practical pan- Scandinavian reforms probably never would have been implemented.”<sup>13</sup>

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<sup>12</sup>Hvidt (1990, p. 250-252).

<sup>13</sup>Translation from Swedish “...skandinavismens pionjärer skapade den ideologiska stimulans och det nät av interskandinaviska vänskapsförbindelser, utan vilka de praktiska reformerna i skandinavistisk anda förmodligen aldrig hade kommit till stånd“ Lindberg (1958, p. 46).

Lindberg thus regards the SCU as a product of the Scandinavianist movement: a movement that by then had lost its previous political character.

Axel Nielsen's doctoral thesis, *Den Skandinaviske Montunion* (1917), is the only existing scholarly monograph on the SCU. It was written during the period when the SCU was gradually breaking down. Nielsen considered the SCU to be a piece of "practical Scandinaviansim".<sup>14</sup> He also recognized the connection between the earlier literary and political Scandinavianism and the emergence of the Currency Union. Nielsen does, however, accept that economic incentives also contributed to the establishment of the Union. He emphasizes that outside of Scandinavia (i.e. in Germany), the three Scandinavian currencies were treated as one even before the Union and that this was unfavorable for Sweden. This resulted from the fact that the Swedish coinage had a slightly higher silver content than that of the other two countries.<sup>15</sup> For these small countries, there was an additional incentive. According to Nielsen, it was difficult to preserve the Danish currency in immediate proximity to the great silver market (Germany). During the 1850's, Denmark experienced problems in trying to push German coins out of the provinces of Slesvig and Holstein.<sup>16</sup>

Ingrid Henriksen and Niels Kærgård (1995) argue that the SCU was initiated neither by politicians nor by economists. The coins of all three countries already circulated within what was to become the Union's geographic area. Scandinavia thus already had a de facto currency union. Moreover, as noted by Nielsen, outside of Scandinavia, the three currencies were already considered to be one - especially in Germany. The somewhat greater silver content of the Swedish coinage makes it understandable that the question of a formal common currency was initially raised by Swedish economists and politicians. These authors also discuss the role played by the Scandinavianist movement. The fact that the plans for a Scandinavian political union were never realized leads them to conclude that the SCU simply formalized an already existing state of affairs.

Michael Bergman, Stefan Gerlach and Lars Jonung (1993) set out to answer the question "why did the Scandinavian countries establish a monetary union?"<sup>17</sup> In this quest, however, they failed - i.e. they provide no answer. Thus, the principal interest in their article concerns "the fall", not "the rise", of the SCU.

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<sup>14</sup>Nielsen (1917, p. 26).

<sup>15</sup>Ibid. p. 1.

<sup>16</sup>Nielsen (1917, p. 5).

<sup>17</sup>Bergman et al. (1993, p. 508).



In the most recent article on the SCU, Michael D. Bordo and Lars Jonung argue that the Scandinavian currency reform was motivated by more than the nuisance factor of money (inferior Danish and Norwegian coins) coming into Sweden. They conclude that the Scandinavianist movement played an important role by creating a climate favorable to closer cooperation among the Nordic countries. They do not, however, elaborate further on the exact connection between the political Scandinaviaism of the 1850's and the creation of the SCU some twenty years later. Bordo and Jonung cite the article by Bergman et al. as the source for their discussion of the SCU but, as noted above, that article does not mention Scandinavianism.

Clearly, most scholars believe that there was some connection between Scandinavianism and the creation of the SCU. If they do not do so directly, as in the case of Hvitd who argues that the SCU was part of the vision of a political union, they at least, implicitly or explicitly, attribute considerable importance to the Scandinavianist movement.

### 1.3.2 The Problem Revisited

Some scholars see currency integration as an attempt to realize the economic gains made possible by improving the usefulness of the monetary system with respect to the three basic functions of money. Others, such as Paul De Grauwe<sup>18</sup>, assert that monetary union and currency integration was always driven by political forces. Thus, much of the existing research on the SCU attributes an important role to the Scandinavianist movement. As a consequence, the following question needs to be addressed: *Is the formation of the SCU best understood as a result of the political aspirations of the Scandinavianist movement?*

## 2 Scandinavian Foreign Trade

As noted above, one of the basic functions of money is to serve as a convenient and flexible medium of exchange. Furthermore, one of the main arguments in favour of the monetary union was its ability to reduce the transaction costs of international trade. It is therefore important to determine the distribution of the foreign trade of the three Scandinavian countries. The point, of course, is that it is especially valuable to have simple monetary relations with a country's most important trading partners.

Tables 1 and 2 provide data on the distribution of Scandinavian exports and imports among their most important trading partners. This data makes it clear that the trade of all three

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<sup>18</sup>De Grauwe (1993, p. 656).

countries was dominated by three market categories: the other Scandinavian countries, Germany and Great Britain.

As indicated in Table 1, Great Britain was the most export market for all three Scandinavian countries. Since Great Britain was on the gold standard throughout the period studied, the Scandinavian countries' most important market involved payment in gold. The dominance of Great Britain is especially striking in the Swedish case. No less than 61% of all Swedish exports went to that Country. Thus, a majority of Swedish export revenues were in the form of gold.

*Table 1: Exports from the Scandinavian Countries, 1874.*

Receiving countries	Denmark	Norway	Sweden
Denmark/Norway/Sweden	23%	23%	19%
Germany	35%	19%	7%
Great Britain	42%	40%	61%
France	-	11%	10%
Other	-	7%	3%

*Source: Based on Mitchell, table E2, s. 599, 631 and 654.*

Moving on to the distribution of imports (Table 2), it appears that Great Britain was the most important source of imports for Norway and Sweden, while the majority of Danish imports were German. Unlike Great Britain, Germany was on a silver standard until 1871. Since Scandinavian imports were quite evenly distributed among the three market categories, the bulk of Scandinavian imports were paid for in silver. Thus these countries tended to be paid in gold for their exports and tended to pay in silver for their imports.

It is important to note that inter-Scandinavian trade constituted a large part of the total. For Norway and Sweden, non-domestic Scandinavia constituted the second largest export market. In the case of Denmark, it was the third largest.

**Table 2:** Imports to the Scandinavian Countries, 1874

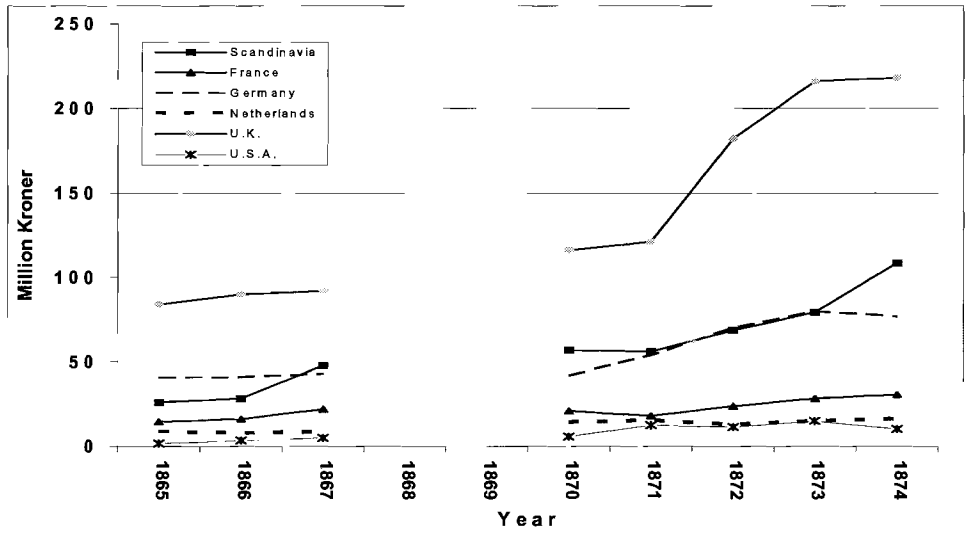
Country of origin	Denmark	Norway	Sweden
Denmark/Norway/Sweden	19%	21%	27%
Germany	46%	32%	24%
Great Britain	31%	35%	36%
France	2%	6%	4%
Other	2%	6%	9%

**Source:** Based on Mitchell, table E2, s. 599, 631 and 654.

If the only goal of the three Scandinavian countries was to minimize their exchange rate related transaction costs, then Denmark should have adopted the German mark and Sweden and Norway the British pound sterling. In this context, it is also interesting to note the extremely modest level of trade with France.

These tables are deficient in one regard. They do not include information on the evolution of Scandinavian foreign trade previous to the reforms of 1873-1875. During the ten preceding years, there had been a sharp rise in the value of trade in general and in particularly with the three markets in the tables. Figure 3 illustrates the development of Swedish trade during this period. It confirms the picture painted by Tables 1 and 2. Great Britain was clearly Sweden's most important trading partner, with Germany and non-domestic Scandinavia sharing a distant second place. In 1866, inter Scandinavian trade increased, and Norway and Denmark together moved into sole possession of second place. They maintained this position until 1871. Then, during 1871-1873, they had to share second place with Germany. Following the establishment of the Currency Union in 1873, however, they once again emerged as Sweden's second most important trading partner after Great Britain.

**Figure 3:** *The Total Value of Swedish Foreign Trade by Country (millions of crowns)*

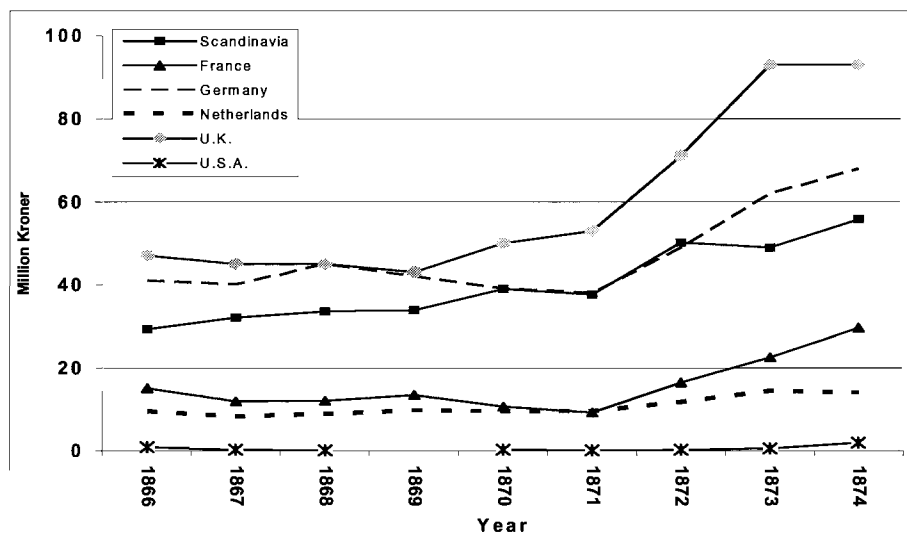


*Source:* Mitchell, table E2, pp. 599, 631 and 654.

The modest value of trade with France is surprising in light of the Swedish Parliamentary debate. As will be further elaborated below, there was a strong lobby in Sweden urging adherence to the French dominated Latin Monetary Union.

The data on Norwegian foreign trade yields a somewhat different picture (Figure 4). Great Britain, Germany and non-domestic Scandinavia were Norway's chief trading partners. The British dominance, however, is not as striking as in the Swedish case, at least not at the beginning of the period. Starting in 1866-1869, the value of non-domestic Scandinavian and German trade started to catch up with that of Britain. From 1869 until 1875, British trade increased rapidly, as did non-domestic Scandinavian trade. German and French trade increased following 1871, probably as a result of the Franco-Prussian War. By 1872, Germany had regained its position as Norway's second largest trading partner. At no time during this period, did French trade play a major role.

**Figure 4:** *The Total Value of Norwegian Foreign Trade by Country (millions of crowns)*



**Source:** Mitchell, table E2, pp. 599, 631 and 654.

Unfortunately comparable data on the distribution of Danish trade is not available. This is a consequence of the way Danish trade statistics were reported.<sup>19</sup> Starting in 1874, however, Danish trade statistics were re-organized into a format that is similar to current usage. Still, the data in Tables 1 and 2 provides a good indication of the distribution of Danish foreign trade immediately preceding the reform.

<sup>19</sup>Henriksen and Ølgaard (1960, p. 22).

## 3 1865-1870 - The Dream of a Universal Coinage and the Trend Towards Gold

During the period 1865-1870, the currency question was dominated by the vision of a universal, international currency. Emperor Napoleon III, who brought up the question at the 1867 International Currency Conference in Paris, initiated this quest on the European Continent. This initiative was to have a tremendous impact on the discussion in Scandinavia. Especially in Norway and Sweden, this idea had great influence during this period.

### 3.1 The International Level

The Latin Monetary Union and the currency issue were high on the political agenda, and not only in Scandinavia. It was also very much a subject of almost frenetic debate and activity on the Continent. The German states had already agreed to adopt the Vereins-Thaler and, in 1857, they joined with Austria in the Munzverein. Similarly, the Lira was established in Italy.<sup>20</sup> The most important development during this period, however, was the formation of the Latin Monetary Union in 1865.

#### 3.1.1 The Latin Monetary Union

Between November 20 and December 23, 1865, delegates from France, Belgium, Switzerland and Italy met to discuss the possibility of establishing a common monetary system. In short order, the delegates reached an agreement acceptable to all the participating countries. It was agreed that the Union would be based on a bimetallic standard, both gold and silver serving as its monetary base. Each participating country was allowed to issue an unlimited quantity of gold and silver coins, which would circulate freely at par throughout the Union. All silver coins with a value less than five francs were considered token coins. Each country's right to issue such token coins was limited to six francs *per capita*.<sup>21</sup> Such a limit was required because the nominal value of the token coins exceeded their metallic value. The resulting seignorage profit created an incentive for each country to issue unlimited amounts of token coins, and then to export them to the other countries.<sup>22</sup> The delegates from Belgium,

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<sup>20</sup>Flandreau (1994, p.71).

<sup>21</sup>Redish (1994, p. 76).

<sup>22</sup>Kindelberger, (1993, p. 68).

Switzerland and Italy all expressed a willingness to establish a *de jure* gold standard. That is hardly surprising since all those countries were already on a *de facto* gold standard. Oddly enough, the French delegates refused to accept such a change. One possible explanation was that the Bank of France was believed to prefer a bimetallic standard. Another possible explanation is that Napoleon III wished to use his agreement to the gold standard as a bargaining chip at the International Currency Conference he intended to call in 1867. He hoped that by agreeing to abandon the bi-metallic standard at that meeting, he could obtain a guarantee that the French Franc would be unit of account for a new international, gold based, currency.<sup>23</sup>

The gold coins that the four participating nations agreed to issue were to be denominated 100, 50, 20, 10 and 5 francs. The alloy used was to be 900/1000 pure gold, with the 10-franc coin containing 3.22580 grams of pure gold.

The convention of 1865 was ratified in July of 1866 and went into effect on August 1 of that same year. It came to play an important role in the discussions on national and international currency issues during succeeding years. This Latin Currency Union was regarded as being relatively successful during its early years, thus inspiring the French Emperor to invite the rest of Europe and the United States to join.<sup>24</sup>

### 3.1.2 The International Monetary Conference of 1867<sup>25</sup>

During the summer of 1867, experts from 19 European countries and the United States were summoned to participate in an international currency conference. The intent was to examine the possibility of establishing a common international, or universal, coinage. The guiding principle of the Conference can be said have been gradualism. The process was to begin with individual countries making modest adjustments in their already existing coinage. Thus there was no aspiration of creating a whole new system. The experts unanimously expressed a willingness to adopt a gold standard based on the French Franc. Thus, when the Conference adjourned on July 6, 1867, they all agreed to urge their governments to issue 5 Franc coins as the basis of a future international currency. Because of their strict adherence to the metric system, with its measurements in tenths, the French delegation opposed the further

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<sup>23</sup>Redish (1994, p. 77).

<sup>24</sup>Kindelberger (1993, p. 69).

<sup>25</sup> This section draws from Nilsson (1994), and Einaudi (2001).

recommendation also to issue 25 Franc coins. They would have preferred the issuance of 10 and 20-Franc pieces.

On the whole, the Conference was seen as major step forward for the French inspired globalization project of the time. It was based on a belief that an international monetary system would advance the civilizing potential of free trade; that is, the integration of the world economy and the spread of peaceful international cooperation.

### **3.2 The Scandinavian Level**

It is now time to shift attention to the Scandinavian level and the second meeting of Scandinavian economists. The first such meeting had been held in 1863, and thus it falls outside the scope of this paper. Both these meetings were attended by distinguished scholars, Members of Parliament and commercial and industrial managers. While the meetings had no formal power, attendance gave the participants substantial influence on the national political stage. One of the more extensively debated issues at all three of these meetings was the currency question.

#### **3.2.1 The Second Meeting of Scandinavian Economists**

This meeting convened in Stockholm of June 26, 1866. Prince Oscar of Sweden, whose presence naturally increased the political weight of the meeting, was in attendance. More generally, it was dominated by the Swedish participants, 143 strong, compared to 44 Norwegians and 36 Danes.<sup>26</sup>

At the meeting, strong arguments were heard in favour of the three countries adopting gold as the basis for a new monetary system. The participants urged the adoption of the French metric system, with the kilogram as the coin weight measure. They also expressed a desire to adopt the French gold franc as the unit of account. This question was the last item on the agenda. The battle stood between the Swede, A. O. Wallenberg, and the Dane, O. Lehrmann. The latter's objection to adopting the gold franc was mainly that the three countries should wait until after France abandoned the bimetallic standard. The alternative proposals under consideration were thus;

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<sup>26</sup>Förhandlingarna vid det andra skandinaviska national-ekonomiska mötet i Stockholm 1866 ( F. vid Skand. M. i Sth. 1866, p. 10-11).



- a) "Considering the many advantages to be gained from basing the coinage on gold, this meeting expresses the hope that the three countries' future common monetary unit will be the French franc", and<sup>27</sup>
- b) "That the three Scandinavian countries should await the abolition of the present double base of the French currency before adhering thereto." <sup>28</sup>

Like Wallenberg, Lehmann considered the franc to be the only coin that stood any chance of becoming an international standard. He argued, however, that waiting was the only sound strategy at that time, if, as he put it, "*we do not wish to submit ourselves to all the drawbacks of frequent monetary changes*"<sup>29</sup>. This because he anticipated that the French currency soon would be changed to monometalism based on gold.

The negotiations in the first section of the meeting culminated in a vote. Each side received ten votes, and the section, therefore, decided to submit both proposals to the general meeting of the entire conference, thus allowing all the participants to vote. This general voting resulted in Wallenberg's proposal winning by 65 votes to 63.<sup>30</sup> The meeting also agreed on a recommendation in favour of adopting the French metric system.<sup>31</sup> At a later session the possibility of forming a Scandinavian customs union was also discussed, but a large majority of the participants were opposed.

### **3.3 The National Level**

#### **3.3.1 Sweden**

During the period 1865-1870, A. O. Wallenberg, an influential banker and Member of Parliament, dominated the Swedish currency debate. He served as the Swedish representative to the International Currency Conference in Paris, and he was the leading advocate of currency reform in the Swedish Parliament during the entire period. Every year he introduced a motion, always with essentially the same content, arguing for adherence to the currency arrangements recommended by the 1867 Conference.

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<sup>27</sup>Translation from Swedish "Enär många fördelar skulle vinnas genom myntets bestämmande i guld, uttrycker mötet den förhoppningen: att den för de tre rikena gemensamma framtida myntenheten må blifva den nuvarande guldfranc." Ibid., p. 17.

<sup>28</sup>Translation from Swedish "att de Skandinaviska rikena borde afvakta, att den nuvarande dubbelheten i det Franska systemet upphörde, förrän de kunde ansluta sig till detsamma" Ibid., p. 17.

<sup>29</sup>Translation from Swedish "vi ej vilja underkasta oss alla olägenheter af täta förändringar" Ibid., p. 16.

<sup>30</sup>Ibid., p. 17.

<sup>31</sup>Ibid., p. 16.

3.3.1.1 A. O. Wallenberg and the Swedish Currency Debate.<sup>32</sup>

The 1860's were a turbulent period in Swedish political life. Finally, in 1866 the Four Estates were replaced with a two-chamber Parliament. But even in this state of flux, there was one certainty in addition to death and taxes. A. O. Wallenberg would introduce a motion in support of currency reform. Starting in 1865, Wallenberg continually fought for what he considered to be one of the most important liberal ideas of the time - the quest for a universal coinage.

As noted above, Wallenberg's annual motions during the period 1865-1870 were virtually identical in terms of content, structure and arguments. His approach to the currency issue is neatly summarized in a quote from 1868:

"The issue is quite simple and can be divided into two questions: first, why should a nation change its currency? And second, what form should such a change take?"<sup>33</sup>

Wallenberg adhered to this logic in all his motions. He normally started by focusing on some of the shortcomings of the then existing Swedish currency, the Riksdaler. One of the Swedish Riksdaler's most important flaws, according to Wallenberg, was that it was so defined as to be approximately 3 öre more valuable than the Norwegian and Danish currencies. This resulted in Swedish losses, as the three currencies were often treated as if they were of the same value. It also caused Swedish coins to vanish from circulation in areas close to the Norwegian or Danish border. Furthermore, the Swedish coins contained a higher percentage of copper than did other coins, thus causing them to wear away more quickly. Wallenberg therefore suggested that the alloy used be changed from 25% to 10% copper. He ironically noted that, past national glories notwithstanding, the Country was too small to have its currency defined in a way that differed from the rest of Europe.<sup>34</sup>

Wallenberg repeatedly stressed the benefits that Sweden could reap from a switch to the gold standard. According to him, silver, because of its greater weight, was an inefficient, and therefore, a costly medium of exchange. He argued that for Sweden, a geographically large country on the periphery of Europe, it was particularly important to have an efficient means of exchange. This was the case because of the higher transport costs, both for internal and for external trade, that a country incurred from using silver, a relatively heavy monetary

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<sup>32</sup>R.T., Motion i FK, 1867, N:o 70, *Angående myntfotens bestämmande i guld, m. m.*, p. 32-34, and, R.T., Motion i FK, 1868, N:o 73, *Angående myntfotens bestämmande i guld*, p. 21-24.

<sup>33</sup>R.T., Motion i FK, 1868, N:o 73, p. 21.

<sup>34</sup>Ibid., p. 21.

metal. He also claimed that, in the case of war, it would be easier to relocate the currency reserve to a safer, inland, location if it consisted of gold. Once again, he was relying on the fact that silver was 15.5 times as heavy as gold per unit of value. In his 1869 motion, Wallenberg noted that 2/3's of the Country's foreign trade was valued in gold based currencies. As noted above, a majority of Sweden's export revenue came in the form of gold currencies. As long as Sweden remained on a silver standard, the accrued gold surplus had to be converted to silver on the international market, transported to Sweden and then minted into Swedish silver coins.<sup>35</sup> Such a process, of course, was both inefficient and costly. Furthermore, Wallenberg argued that the coinage of a small country, if unrelated to that of its large neighbors, would more frequently be melted down once it crossed a national boundary. The resulting need to continuously replace melted coins, would impose unnecessary greater minting costs. These costs, Wallenberg argued, could only be avoided by completely reforming the Swedish currency system. It would require a change both in the unit of account and in the base metal.

Having answered Wallenberg's first question in the affirmative, it is now time to turn to the second question: what form should a monetary reform take? Wallenberg did not lack an answer to this question. He based his thinking on the idea of seeking "the best possible" reform. That is, once it was decided to accept the costs of a change, which were likely to be as great for a minor as for a major change, that change should be the best alternative available. Thus, the Country should not hesitate to pursue the radical reform that offered the greatest benefits and would be likely to serve for a long time. Wallenberg believed that the shortcomings of the existing currency, sooner or later, would force Sweden into monetary reform, and that the apparent choice between maximizing the benefits or minimizing the costs of that inevitable reform was a misconception. As he put it:

"One should always seek the best alternative possible, and especially so in this case. A compromise or minor change in the existing currency system inevitable would entail the same inconveniences and troubles as a major change, which, however, has the prospect of lasting a lifetime."<sup>36</sup>

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<sup>35</sup>R.T. Motion i FK, 1869, N:o 73, p. 13.

<sup>36</sup>R.T. Translation from Swedish "Man bör ju alltid söka det bästa möjliga och i denna fråga är det så mycket större anledning att tillägna sig det bästa, som en jemkning eller mindre förändring i nuvarande myntfot ofelbart skulle medföra samma olägenheter och besvär som en större förändring, hvilken hade utsigt för sig att blifva för mansåldrar bestående." Motion i FK, 1868, N:o 73, p. 21.

What, then, was the best alternative according to Wallenberg? First of all, Sweden should change from a silver to a gold standard. In addition to the arguments based on the weight of the metals, there was a distinct possibility that gold might become the common standard of the civilized world. Wallenberg noted that, in this so-called civilized world, 180 million people used gold as their medium of exchange as opposed to only 60 million who relied on silver. The value of the gold used for payment services in the world exceeded that of silver by a ratio of 18 to 1, and this ratio was increasing year by year.<sup>37</sup> He repeatedly pointed out that at the International Currency Conference of 1867 the European countries and the United States had unanimously agreed on the superiority of gold as a currency metal. In addition, they had agreed on 900/1000 as the appropriate gold coin alloy. Furthermore, they had been almost unanimous in urging that the French gold franc be adopted as the international coinage standard. Unquestionably, the road ahead had been staked out. Waiting for other countries to act, according to Wallenberg, would lead to increased losses resulting from the shortcomings of the Swedish currency. These increased losses would soon exceed the costs of undertaking reform now.

“by waiting until all other countries, including the major European powers, have adopted a gold standard, we will certainly incur losses on the subsequent increase in the price of gold.”<sup>38</sup>

The argument contains a ruthless logic. For a small country, just booking a seat on the train to the Promised Land of a gold standard was not enough. The longer the delay, the more crowded the coach and the higher the fare. This is the point Gallorotti made in discussing the “*Scramble for gold*” during the 1870’s<sup>39</sup>. There is no doubt that it was well understood in Sweden at that time.

Wallenberg also noted that, by waiting, Sweden was failing to contribute to solving the grand problem of a universal currency. Even though it was a relatively low population country, Wallenberg thought the Nation could make an important contribution by spearheading the reform movement.<sup>40</sup>

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<sup>37</sup>Ibid. p. 22.

<sup>38</sup>Translation from Swedish “genom att vänta till dess alla andra och bland dem de stora Mittel-Europeiska nationerna beslutat anskaffa guld istället för silfver, förlorar man på den af denna anledning ofelbart uppkommande förhöjning i guldpriset”. Ibid. p. 22.

<sup>39</sup>Gallarotti (1994, p. 76).

<sup>40</sup>R.T. Motion i FK, 1868, N:o 73, p. 21-24.

Were there, in fact, difficulties associated with adopting a new currency? Yes, indeed! Wallenberg paid special attention to one of these problems, namely the possibility that a currency reform might alter the property rights relationship between debtors and creditors. Solving the problem required announcing in advance that *“every debt must unconditionally be satisfied according to its own terms”*<sup>41</sup>. In principle, this would require that, for a relatively brief period of time following the reform, the old and the new currency should be allowed to circulate side by side. The convertibility problems associated with long term debt was a greater problem for the advocates of reform, especially since the sanctity of private property rights was a corner stone of the existing liberal society. The problem can be explained as follows: When a credit issued a number of years before the reform was to be repaid, say ten years after the reform, should payment be made in the old or in the new currency metal? If it was to be in the new currency, should the rate of exchange at the time of the loan or that at the time of repayment apply? Ironically enough, therefore, the currency reform movement put two cherished liberal objectives in conflict: the facilitating and liberalizing trade versus the defence of private property rights. This conflict, however, did not inhibit a leading liberal politician like Wallenberg from pursuing the goal of Swedish currency reform.<sup>42</sup>

How were Wallenberg's ideas received in the Swedish Parliament? Before the International Currency Conference, the reception was rather cool. In an 1867 committee report on the issue, the committee focused on the difficulties and inconveniences associated with such a reform:

“The substantial difficulties and inconveniences with which every reform is inevitably associated require that such reforms should not be undertaken unless the anticipated benefits can be fully realized. Since the reform is intended to standardize the coinage of various countries, these benefits mainly consist of savings associated with international payments and price comparisons. They are thus limited by the extent of international transactions. A change of Sweden's currency system to accord with that of France, Belgium, Italy and Switzerland, as is now proposed, therefore, would yield relatively small benefits for Sweden since, at least so far, Sweden's trade is directed less at those countries than at the other Scandinavian countries, Germany and England. These latter countries, however, have currency systems based on entirely different principles.”<sup>43</sup>

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<sup>41</sup> Translation from Swedish “hvarje förbindelse skall ovilkorligen infrias enligt dess lydelse” Ibid. p. 22.

<sup>42</sup> Nilsson (1994, p. 74).

<sup>43</sup> R.T. Translation from Swedish. “De högst betydliga svårigheter och olägenheter, hvilka ifrån verkställigheten af hvarje sådan förändring äro oskiljaktiga, måste föranleda dertill, att dylika förändringar icke böra vidtagas utan att de å andra sidan med dem afsedda fördelar i så fullt mått som möjligt vinnas. Dessa fördelar, bestående för så vidt förändringen afser

This quotation is interesting from a number of perspectives. First of all, it raised the question of which monetary functions a universal coinage was intended to satisfy. The committee stressed the store of value and medium of exchange functions. It is also apparent that it rejected claims that the French franc might become a universal coin. Instead they emphasized that the members of the Latin Monetary Union were not Sweden's most important trading partners. The committee, therefore, recommended rejection of Wallenberg's 1867 motion, a recommendation later accepted by both chambers of the Parliament.

Only one year later, however, the tone was distinctly different. The International Currency Conference, attended by Wallenberg and accepting of his views on the appropriate coin alloy, clearly had a huge impact on Swedish opinion. According to an 1868 committee report, the issue had been brought to practical fruition largely thanks to the theoretical preparation and the visionary drive of a few individuals. The report then continued:

"The great importance of a carefully maintained common, or at least similarly based, currency for all peoples who engage in mutual communications and trade is now so widely recognized that the question is only how a change from the varied currency systems now in place can achieve the desired goal. A not unimportant step towards this goal was taken by the unification of their coinage systems that has already been undertaken by France, Belgium, Italy and Switzerland, and which has been formalized by the convention of December 23, 1865 among these countries."<sup>44</sup>

The committee had now totally reversed its views concerning the possibility of the Latin Monetary Union becoming the basis for a universal coinage. The committee now saw the LMU as a first step in the direction of a universal coinage. The seed planted by Wallenberg had thus successfully germinated. The committee did observe, however, that establishing

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öfverensstämmelse i skiljda länders mynt, hufvudsakligen uti lättnad och dermed förenad besparing vid likvider de olika länderna emellan, äfvensom uti en lättare vunden öfversigt af alla slags prisförhållanden, ernås alltså endast af den internationela rörelsens betydenhet. Men genom den förändring af sveriges myntväsende till likhet med det i Frankrike, Belgien, Italien och Schweiz antagna, hvarom nu är fråga, skulle fördelarna blifva jämförelsevis ringa, då Sveriges handelsrörelse ännu åtminstone hufvudsakligen är rigtad icke på dessa länder, utan på de öfriga Skandinaviska länderna, Tyskland och England, hvilkas myntväsende är fotadt på helt andra grunder." Banko-utskottets Utlåtande, 1867, No 8, p. 3.

<sup>44</sup>R.T. Translation from Swedish."Den stora betydelsen av ett gemensamt eller åtminstone på likartade grunder fotadt, noggrant och lojalt genomfördt myntsystem för alla de folk, som sinsemellan hafva samfärdsel och varubyten, är numera så allmänt erkänd, att frågan gäller allenast sättet att genom öfvergång från de särskilda ländernas nu bestående skiljaktiga myntförhållanden kunna nå det åsyftade målet. En icke oviktig början dertill kan anses gjord genom den öfverensstämmelse i myntväsende, som redan är införd emellan Frankrike, Belgien, Italien, och Schweiz samt stadfästad genom den emellan dessa riken den 23 December 1865 afslutade konvention" Sammans. Banko- och Lag-Utskottets Betänkande, 1868, N:o 5, p. 2-3.

uniformity among the LMU countries had been greatly facilitated by the similarity among their currencies, even previous to the Union. Countries with substantial differences among their currencies could not expect such smooth progress. Furthermore, the prospects for a universal coinage were especially clouded by the fact that some countries started on the silver standard, while others based their currencies on gold. Finally the committee noted that a further monetary reform in Sweden was perhaps overly ambitious since the Country had not yet fully adjusted to the monetary decimalization introduced in 1855.<sup>45</sup>

At the end of 1868, however, Wallenberg's quest was finally rewarded when the Swedish Riksdag decided to adopt a new gold coin identical to the French 10-franc coin. This coin, intended to circulate side by side with the existing silver coinage, was to be called the Carolin.<sup>46</sup>

This was certainly a sweet victory for Wallenberg. Thus encouraged, the next year he presented a motion entitled "*On the Formation of a New Currency System Based on the Carolin as the Unite of Account*"<sup>47</sup>. It contained a proposal that Sweden completely reform its system, with the Carolin serving as a base. The motion was dealt with in a committee report of the same year.<sup>48</sup> The committee was entirely in accord with Wallenberg and concluded that:

"Since a reform of the current system is in any case necessary, Sweden should introduce a currency based on gold".<sup>49</sup>

Before such a reform could be implemented, however, the question had to thoroughly be examined by experts in the field.<sup>50</sup> The committee therefore recommended that Parliament appoint a study committee to examine the matter in detail. This committee convened in 1869 and issued its report in 1870.

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<sup>45</sup>Ibid., p. 3.

<sup>46</sup>R.T. Riksdagens underd. Skrifvelse, N:o 40, 1868, p. 7-9.

<sup>47</sup>R.T. Motion i FK, 1869, N:o 73, *Om antagandet af ett myntsystem, grundadt på Carolinen såsom myntenhet*, p. 12-17.

<sup>48</sup>R.T. Sammans. Banko- och Lag-Utskottets Betänkande, 1869, N:o 1, p. 1-21.

<sup>49</sup>R.T. Translation from Swedish "i Sverige bör införas ett myntsystem, grundadt på guld, då i allt fall en förändring af det nuvarande systemet är af behofvet högt påkallad." Sammans. Banko- och Lag-Utskottets Betänkande, 1869, N:o 1, p. 4

<sup>50</sup>Ibid. p. 9-10.

### 3.3.1.2 The 1870 Committee<sup>51</sup>

On August 7, 1870, the Swedish Currency Committee, itself a product of Wallenberg's constant advocacy, issued its report of the prerequisites for a new currency system based on gold. The report contains a thorough examination of the status of the currency issue in Sweden at that time. Its 250 pages include everything from a historical sketch of the currency issue on the European Continent since the 16<sup>th</sup> century, to a discussion of the theoretical and technical understanding of the issue at the time. Mainly, however, it is a good indicator of the contemporary status of the issue in Sweden. The report lists the shortcomings of the then reigning currency system and then discusses the possibility of an international currency based on the French franc. It then presents a rigorous argument for the superiority of gold as a monetary base.

As the report noted, the idea of an international currency originated in the 16<sup>th</sup> century. By the time of the report, however, advances in economic theory had greatly increased interest in the issue, as well as clarifying the potential gains of currency reform.

“As a practical matter, the issue belongs to our century, having only attained true importance during the last decade. It was impossible to implement before the transformation of economic attitudes that, in this century, has changed the trade policies of all countries. It has now become entirely natural, a consequence of the total restructuring of the means of communication which, in this century, has changed the very nature of travel. There are virtually no boundaries to the development of international trade; it has become essential for mankind and thus there can be no cessation in the striving for more convenient mutual contacts. Furthermore, it seems indisputable that one of the primary conditions for facilitating trade is the standardization of weight, measure and coinage systems among trading partners. Indeed, the trend is certainly in that direction, and the standardization of the monetary base appears likely to be the first link the chain that will unite the nations in peaceful cooperation”.<sup>52</sup>

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<sup>51</sup> R.T. Myntkommitténs Bet., 1871, p. 1-251.

<sup>52</sup>R.T. Translation from Swedish "Som en praktisk fråga tillhör hon vårt århundrade, och egentlig betydelse har hon ernått först i det nu förflutna årtiondet. Hon var omöjlig före den genomgripande ombildning af de ekonomiska åsigtterna, som i detta århundrade förändrat nationernas handelspolitik; hon har blifvit helt naturlig efter den fullständiga omskapning af kommunikationerna, som i detta århundrade förändrat arten af människornas samfärdsel. Det internationela utbytet erkänner numera knappast några gränser för sin vidare utveckling; det har blifvit ett livsvilkor för folken, och såsom sådant kan det icke upphöra att kräfvä ökad lättnad för de ömsesidiga förbindelserna. Och det synes vara obestridligt att för utbytet lätthet måste ett för de handlande nationerna gemensamt mått-, mål-, vikt- och myntsystem vara ett af de första villkoren. Till ernående af en sådan gemensamhet syftar onekligen utvecklingens gång, och mynt-enhetens genomförande synes nu vara den första länken att inpassa i den kedja, som skall förbinda folken till fredlig samverkan." Myntkommitténs Bet., 1871, p. 6-7.



This quotation is striking in that the rhetoric and the arguments are so similar to those that are presented in the current EMU debate. It is obvious that the move towards monetary unification already at this stage was regarded as a peace project. Moreover, it notes that economic theory had experienced a period of profound change, a change now referred to as the transition from mercantilism and protectionism to liberalism and free trade. Absent this transition, the adoption of an international currency would have been utterly impossible.

The Committee's report also touches on earlier questions raised by Wallenberg. Agreeing with Wallenberg, the report concludes that Swedish coins were "too good". It found that the Swedish riksdaler was 0.8% more valuable than 1 Norwegian specie unit, 0.9% more valuable than 1 Danish specie unit and 2.0% more valuable than 1 ½ Prussian thalers.<sup>53</sup>

This situation created two problems. First of all, Swedish coins were removed from circulation in favour of coins of lesser value, a phenomena known to economists as Gresham's Law. Secondly, according to the Committee, traders, for the sake of convenience, sometimes ignored these small differences and treated the various coins as identical. This was thought to lead to direct economic losses for Sweden. Losses to the individual agent were small, not to say trivial, but millions of such transactions added up to a substantial burden on the Country's economy.<sup>54</sup>

The Committee concluded that this situation, sooner or later, would force the Country to adopt monetary reform. It, however, stipulated one condition for the implementation of such a reform:

"Any change in the coinage, however, is accompanied by inconveniences and difficulties. A nation should impose these on itself only after careful consideration. It should at least be assured that the new, self-imposed difficulties, will not exceed those that are to be eliminated. Above all, make sure that the change being enacted, despite its drawbacks, will be long lasting."<sup>55</sup>

This idea, that any change will involve costs, and therefore should be implemented only if these costs do not exceed those inherent in the existing system, is crucial to an understanding of the currency issue. No change should be adopted unless it stood a good chance of being

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<sup>53</sup> Ibid. p. 47.

<sup>54</sup> R.T. Myntkommitténs Bet., 1871, p. 55.

<sup>55</sup> R.T. Translation from Swedish. "Men hvarje förändring af myntet medför olägenheter och besvär, hvilka ett folk endast med största varsamhet bör ålägga sig. Det bör åtminstone vara förvissadt derom, att de nya olägenheter, som man underkastar sig, icke blifvar större än de gamla som man velat undanröja, och framförallt tillse, att den förändring som trots sina besvärligheter genomföres, blir ett för en längre tid undångjordt verk." Ibid. p. 55-56.

long lasting. I believe this to be the appropriate guiding principle on this issue, even though it is not precisely defined or quantified. In particular, this principle provides the key to one question that has not yet been discussed: that of timing. When is currency reform possible and when will monetary integration occur?

The Committee concluded that the prospect for the silver standard to remain dominant on the Continent was declining day by day. On the contrary, the superiority of gold was generally accepted and no longer subject to debate. The basis of this superiority, according to the Committee, was gold's outstanding ability to perform the basic functions of money.<sup>56</sup> The Committee attributed two basic functions to money: being a store of value and a medium of exchange.<sup>57</sup> The first of these is crucial for the maintenance of property rights relationships. This point was introduced above, in the discussion of the Wallenberg motions. Any debtor can easily grasp the logic of this argument, since an increase in the value of the base metal will increase his or her debt. The Committee therefore stressed the importance of relying on a base metal of stable value over time. The report argued, however, that the second function, that of a medium of exchange, was more important. According to the Committee, most of the countries that previously had chosen silver had done so because of its superiority over copper as a medium of exchange. The same relationship now existed for gold vis a vis silver. The logic is simple. Increased trade had put countries in a situation where a convenient medium of exchange was essential. Since silver was heavier and harder to transport than gold, it was not the best available medium of exchange. According to the Committee, using these two functions of money as a guide made it possible to define some key characteristics of a good monetary base metal, all of which favoured gold.<sup>58</sup>

- In relation to its weight and volume, gold was more valuable than silver, thus making it a more convenient medium of exchange.
- The chemical properties of gold were superior. Silver coins lost weight while in circulation approximately four times as fast as gold.
- Due to their obviously much greater weight, gold coins were harder to counterfeit.
- The actual minting of gold coins was cheaper than the minting of silver coins.
- Over time, the price of gold has been less volatile than that of silver. This makes gold a superior store of value.

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<sup>56</sup>Ibid. p. 67- 90.

<sup>57</sup>R.T. Myntkommitténs Bet., 1871, p. 67.

<sup>58</sup>Ibid. p. 69.

In addition, the Committee identified some additional arguments in favour of gold that were specific to Sweden. In particular, because Sweden was a geographically large country on the European periphery, low transportation costs for the base metal were especially important. It also noted, that most of Sweden's trade involved gold standard countries.

The Committee concluded its report by urging a conversion to the gold standard, with the French franc as the unit of account. Because of unforeseen events on the Continent, however, the Committee's recommendations were never implemented.

### 3.3.2 Denmark and Norway

As the narrative above makes clear, the currency issue was much discussed in the Swedish Parliament during this period (1865-1870). In Denmark and Norway, however, interest in the topic was much less. In Denmark, and for the most part in Norway, the currency issue only came into focus during the following period.

Still, Norway at least was not totally unaffected by the theoretical arguments in favour of gold as a base metal. Thus, a government sponsored bill permitting the Bank of Norway to maintain part of its reserves in gold was introduced into the Norwegian Parliament in February of 1869. The justification for this change, as presented in the bill, was that the Norwegian Ministry of Finance believed that most Western countries were on the verge of adopting the gold standard. The effect of such a development would be a rise in the price of gold and a fall in the price of silver. Countries remaining on the silver standard would thus see the value of their reserves plummet, forcing them to replace cheap silver with expensive gold. Thus, the Department argued that

“the likelihood of such losses could to some degree be decreased, thus easing the future transition to a pure gold standard. The Department therefore proposes new legislation permitting the Bank of Norway to maintain a portion of its reserves in gold.”<sup>59</sup>

The proposal passed the Parliament later that month, and Norway had started down the path to monetary reform.

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<sup>59</sup>S.T. Translation from Norwegian “...men deptet antar desutom, at risikoen for et sådant tap som ovennevnt kan i noen grad forminskes, likesom også overgangen til gyllmyntfot i sin tid lettes vet en foreløbig forføjning, som deptet vil tillåte seg å foreslå iverksatt straks, nemlig ved gjennom en ny lov å åpne Norges Bank adgang till å ha en del av sin kassebeholdning henliggende i gull.”, O. nr 45; *Den Norske regjering's innstilling av 9 febr.*, 1869; p. 56-69

### **3.4 Concluding Remarks**

This initial period can be characterized as the one when the ideology of gold was born: that is when sentiment switched to gold as the superior currency metal. This switch was motivated by arguments, suggested by economic theory, concerning gold's special ability to perform the basic functions of money. It was determined that gold had been remarkably stable in value over time, and it was noted that, due to its physical characteristics, gold was an especially convenient medium of exchange. It was during this period that the Swedish Currency Committee recommended a switch to the gold standard and the minting of a Swedish gold coin, the Carolin. Similarly, the Norwegian government acted to allow the Norwegian central bank to hold part of its reserves in gold.

The period 1865-1870 also was the time of grand monetary visions. At the international level, the "civilized" nations were invited to join a gold franc system, intended to become an international currency. At the Scandinavian level, participants in a semi-official conference recommended a joint switch to gold and to the French franc by all the Scandinavian countries. This despite their opposition to a Scandinavian customs union at the same meeting.

One of the most influential approaches to the emergence of the gold standard is the relative supply approach. This approach, particularly favoured by monetary theorists, attributes the origins of the gold standard to changes in the relative supply of the two main precious metals, gold and silver.

In 1848 and 1851, large gold discoveries in California and Australia instantly increased gold production by a tenfold. These discoveries were soon followed by similar ones in New Zealand and Colorado. The production of gold during the 25 years following these discoveries was as large as the total production of the preceding 250 years. This would make you expect a substantial fall in the relative value of gold. However, this did not happen and the market ratio between gold and silver stood by large unaffected during this period, at approximately 15:1.<sup>60</sup> As we have seen this had been noticed by the Swedish Currency committee in 1871.

In the 1860s and 1870s the world experienced a relative decrease in gold production, even if the production by far exceeded the pre-1848 production. At the same time silver refining methods improved and new silver mines were discovered in the Rocky Mountains.<sup>61</sup>

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<sup>60</sup>Wicksell (1929, p. 33).

<sup>61</sup>Ibid. p. 36.

The result was a sharp increase in the production of silver.<sup>62</sup> The increase of the silver supply caused the price of silver in London to fall.<sup>63</sup> The falling silver price sparked concerns among those silver standard countries interested in stable prices and currency value, and subsequently they opted for gold.<sup>64</sup> The relative supply approach, thus, tries to explain the origins of the gold standard as being a rational choice from the standpoint of monetary stability. This view is supported by the study of the committee report from 1870 and the rest of my study lends even more support to this view.

Another argument for a switch to gold, offered by the Swedish Currency Committee, was that most of the Swedish trade was conducted with countries on a gold standard. In a recent paper by Christopher M. Meissner he argues that nations choose the gold standard to economise on the costs of trade. The trade-offs facing a nation when joining the gold standard very much resembles those involved in deciding whether to join a currency union and the size of the cost savings were directly related to the amount of trade a country have with other gold standard countries.<sup>65</sup> It is evident that this line of reasoning is familiar to the arguments presented by the Swedish Currency Committee.

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<sup>62</sup>The world production of silver rose from 39,875 to 112,500 thousand dollars between 1851 to 1876, estimates made by Soetbeer's, reprinted in Laughlin (1886, p. 218).

<sup>63</sup>Laughlin (1886, p. 224).

<sup>64</sup>Gallaroti (1995, p. 161).

<sup>65</sup>See Meissner (2001)

## 4 The Scramble for Gold, 1871-1873

During these years, as a result of the German adoption of the gold standard in 1871, the currency issue was at the centre of attention in all three Scandinavian countries. The German action deflated the universal currency balloon, and created pressure for immediate action by the Scandinavian governments.

### 4.1 The International Level

During this period events on the international level had a huge impact on the Scandinavian and national levels. The Franco-Prussian War, 1870-1871 and the German switch to a gold standard sparked an immediate reaction in the Scandinavian countries.

#### 4.1.1 The Franco-Prussian War, 1870-1871: Germany Adopts the Gold Standard

*"...then suddenly the political storm broke out; the Empire collapsed, and with it its political and economic ideology. France collapsed, and with it its political and economic influence. The currency question thus entered a new phase."*<sup>66</sup>

*Hans Forsell on the currency issue in 1871.*

In 1870 and 1871, war raged between France and Prussia. France lost the conflict and, with it, its position as the dominant Continental power, even though that position had been based on cultural and economic eminence as much as on military power. The result was a larger and more powerful Prussia, now transformed into Imperial Germany. The German triumph radically altered the balance of power on the Continent, and, by the same token, altered the prospects for a universal currency. An important consequence of the War was a German shift from the silver to the gold standard. It was principally made possible by the payment of the war indemnity in gold, allowing Germany to make the switch at fairly low cost. This switch inevitably affected most the European countries.

With Germany now dumping its silver reserves on the international market, the smaller countries had to act quickly to avoid large losses on their holdings of silver. The first movers to gold had the advantage of getting their silver out before the market was glutted.

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<sup>66</sup>Translation from Swedish "...så brast den politiska stormen lös; kejsardömet föll och dermed dess politiska och ekonomiska idéer. Frankrike föll och dermed dess politiska och ekonomiska inflytande. Myntfrågan inträder härmed i ett nytt stadium" Forsell, H., "Myntfrågans nya ställning", Sv T (1871, p. 398).

Similarly, they could purchase gold for their new reserves before its price shot up. The Swedes and Norwegians had foreseen this possibility as early as 1869.

## **4.2 The Scandinavian Level**

These developments on the European Continent immediately triggered a response by the Scandinavian countries. Steps for a change to gold were undertaken, and the three Ministers of Finance agreed that reform was necessary - and soon! The third meeting of Scandinavian economists was held during this period, and there was general agreement that a switch to the gold standard was essential. By the end of the period, the Scandinavian countries had established a joint currency commission to determine the nature of Scandinavian currency reform.

### **4.2.1 The Ministers of Finance**

On December 4, 1871, the very day of the German currency reform, Danish Minister of Finance Fenger contacted his Swedish counterpart, Waern. Fenger was planning to develop a Parliamentary proposal for Danish currency reform. At the top his agenda was the question of whether or not Denmark should adopt the gold standard in response to events on the Continent.

Quite naturally, Fenger was interested in the opinions of his Swedish and Norwegian colleagues. The resulting correspondence among the Ministers marks the first time that the currency issue was raised to an inter-Scandinavian question at the government level. In a letter to Fenger dated December 31, 1871, the Swedish Minister presented his views on the matter. Waern wrote that he thought it vital for Sweden to switch to the gold standard as soon as possible. In his answer dated January 15, 1872, Fenger expressed his delight that Waern shared his belief that quick action was required. Fenger discussed a possible affiliation with an international currency system and noted that he and Waern also were in agreement on this matter. Fenger wrote:

“I note that the Minister (Waern) and I agree that the French system no longer can be considered a possible universal coin. The basis of this conclusion is that the idea of the franc as a universal coin has encountered opposition in England, the United States and finally now in Germany. It must therefore be abandoned, both for the present and for a long time forward.”<sup>67</sup>

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<sup>67</sup>Translation from Danish “Jeg ser ligeledes, at Hr. Statsraaden [Wærn] er enig i, at en Antagelse af Franksystemet ikke mere kan paatænkes. Grunden hertil ligger for mig væsentlig deri, at Tanken om Franken som Universalmynt efter de Skibbrud,

The French system apparently had ceased to be a viable option for the Swedish and Danish Ministers. This was principally a consequence of the French defeat. The two Ministers, however, also discussed the possibility of establishing a new Scandinavian unit of account.

While the Norwegian Finance Ministry agreed with the Swedes and the Danes on the need for reform, they had a different idea as to how Scandinavia should act. They wanted the three Scandinavian countries to adhere to the German system. They still wished to hold high the Scandinavian flag, however, and argued that:

“...under current conditions, it seems logical that a transition to the gold standard should be accompanied by the adoption of the new German currency system. We do not, however, believe that Norway should take this step alone. Rather, our wish is that the two other (Scandinavian) countries undertake a similar reform and that all three of us should make a joint effort that, together with the switch to gold, will bring the various Scandinavian currencies into accord with each other.”<sup>68</sup>

Thus, while on the one hand, a switch to the gold standard was more urgent than ever, finding the exact form for such a switch was more difficult than ever. Naturally, the discussions continued at the third meeting of Scandinavian economists.

#### 4.2.2 The Third Meeting of Scandinavian Economists in 1872

During the summer of 1872, the third meeting of Scandinavian economists was held in Copenhagen. The principle item on the agenda was the currency question. Once again the debate evolved into a battle between two competing proposals. The participants unanimously agreed on the superiority of the gold standard, disagreeing only on the appropriate unit of account. Should there be a universal or a Scandinavian unit? A. O Wallenberg, and the like minded Norwegian professor Broch, led the side that believed an international coinage was both advantageous and feasible. In opposition stood the Danish central banker Mortiz Levy as the leading proponent of a Scandinavian coinage.

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som denne Tanke har lidt ved Englands, de nord-amerikanske Fristaters og nu tilsidst Tysklands Modstand, maa anses for opgivet baade for Øieblikket og i en lang Fremtid” (Fenger, 15. 1. 1872).

<sup>68</sup>Translation from Norwegian “...at det retteste vilde vaera under de forhåndenvaerande omstendighetet samtidig med innførelse av gullmyntfot tillike å opta den nye tyske, så anser man det dog utvilsomt, at Norge ikke bør ta dette skritt alene, hvis tanken ikke kan finne tilslutning også i de andre to riker, og hvis man med disse kan komme overens om en fælles foranstaltning, der samtidig med ombytning av myntmetall kan tilveiebringe overensstemmelse mellem de tre nordiske lands myntfaesen”, (Helliesen 1.2.1872).



## *Scandinavian Monetary Integration During the 19th Century*

Broch and Wallenberg, both of whom had attended the 1867 International Currency Conference in Paris, were long standing advocates of a Scandinavian adoption of the French gold franc. Realizing that the Franco-Prussian War, and the German adoption of the gold standard in December of 1891, had greatly reduced the feasibility of an international currency based on the French franc, they presented a new proposal:

“When implementing currency reform and switching to the gold standard, the three Scandinavian countries should totally adhere to some currency system that already has been adopted by one or more of the Europe’s more populous nations.”<sup>69</sup>

While Wallenberg maintained that the French system was not yet passé, however, Broch argued at great length (six hours!) for the adoption of the German monetary system:

“If we are to decide which existing currency system should be adopted, the most appropriate would seem to be that of Germany. With her, we ( Danes) have a significant amount of coin utilizing trade in our border areas. Moreover, the German system currently seems to be best available in all respects.”<sup>70</sup>

Thus, Broch concluded that, since Germany was Denmark’s most important trading partner (see above) the most economical course of action for Denmark would be to adopt the German system. The most interesting point he made, however, was that it was especially important to have a currency similar to that of Germany because so much Danish-German trade relied on coins. The general point is that it was particularly important to have a coinage similar to that of one’s neighbors since the trade in border areas relatively seldom made use of means of payment other than coins. Broch’s proposal, however, did not receive any support from the Danish participants. This reaction was probably motivated by the Danish distaste for all things German, ever since their defeat by Prussia in their 1864 war. Moritz Levy started his speech by emphasizing the importance of the issue. “*Next to a change of religion or language, [...] a change of currency is the most radical, since it affects everyone*”.<sup>71</sup> Levy was sceptical of the

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<sup>69</sup>Translation from Swedish “Vid blifvande myntreform och öfvergång till guld de tre nordiska rikena må fullständigt ansluta sig till något myntsystem, som redan blifvit af en eller flera bland Europas talrikare nationer antaget”, *Forhandlingerne ved det tredie skandinaviske national-økonomiske Møde i Kjøbenhavn 1872* ( F. vid Skand. M. i Kbh. 1872), p. 64.

<sup>70</sup>Translation from Norwegian “Spurgte man nu om, hvilket af de bestaaende Systemer man kunde vælge, da laa det nærmest for os at tage det samme System som Tyskland, med hvilket Land vi have en udbredt Grændschandel, i hvilken Mønten spiller en stor Rolle [...] Dertil kom, at den tysdske Mønt nu syntes at skulle blive den nøiagtigste og i enhver henseende bedste...” *Ibid.*, p. 45

<sup>71</sup>Translation from Danish “ efter spørgsmaalet om at skifte Religion eller Sprog var [...] det mest gennemgribende, fordi det berører Alle” ( F. vid Skand. M. i Kbh. 1872), p. 50

alleged convenience of the German system. It was still in its infancy and therefore largely untested, he argued. Indeed, the German mark had not, even within Germany, established itself as a great trading currency. He therefore proposed that the three Scandinavian countries should adopt their own system, with gold as the base and the Riksdaler as the unit of account.<sup>72</sup>

The disagreement was not easy to resolve. Levy, however, had the home field advantage (There were 235, overwhelmingly anti-German, Danish participants, compared to 57 Swedes and 37 Norwegians).<sup>73</sup> Levy was thus able to rally majority support for three resolutions:<sup>74</sup>

- 1) The gold standard should be adopted as soon as possible.
- 2) The decimal system should be adopted.
- 3) A Scandinavian Commission, with participants from all three countries, should be appointed to explore the possibility of establishing a common Scandinavian currency.

Danish antipathy towards Germany thus seems to have accelerated rejection of the German monetary system and advanced the search for a Scandinavian alternative.

#### 4.2.3 The Scandinavian Currency Commission of 1872

In response to the economists' urging, a Commission was assembled in late 1872. The report of the commission starts with the now familiar claim that a common currency in the Scandinavian countries would be helpful for inter-Scandinavian trade.<sup>75</sup> The commission had searched for the system that would offer the least difficult transition, and that would distribute the difficulties of reform evenly between the three nations. The aim, to find the system that offered least difficulties, illustrates a lowered level of ambition in relation to the earlier period's passion for visionary ideas. The report, issued in 1873, recommended a prompt switch to the gold standard, and the adoption of a common currency, a Scandinavian 'Krona'. This conclusion was reached following a review of the pros and cons of the major existing currency systems; that is, the French, the British, and German system.

One flaw of the French system was that it still was based on a bimetallic standard, and in addition to this The French system, as a result of the Franco-Prussian War, was considered an unlikely choice for an international currency.

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<sup>72</sup>Ibid. p. 58.

<sup>73</sup>R.T. F.K., den 19 april, 1873, p. 69.

<sup>74</sup>(F. vid Skand. M. i Kbh. 1872), p. 86.

<sup>75</sup>R.T. Myntkommissionens Betänkande, 1873, p. 1-27.

The British system was based on the gold standard, and as all of the three countries were engaged in lively trade with Britain the commission found this system appealing. However, this system with its pence and shillings; i.e. lack of decimal system, was considered complicated and a transition to the British system would be accompanied by substantial difficulties because of the unfamiliar way of counting. Furthermore, the commission pointed out that the English Central Bank did not accept coins that had lost in weight by wear and tear. The commission therefore did not find the British system likely to become an international system, and therefore it was deemed not suitable for the Scandinavian countries.

The German system was new, and with the Vereins thaler still circulating side by side with the mark it was unlikely to become international. But more importantly, the commission found that a transition to the German system would be difficult to undertake because of the unfavourable mathematical relationship between the Scandinavian and the new German currency

“The difference between the new German unit of account, the Mark, and the existing Scandinavian units of account, renders extreme difficulties for a citizen of a Nordic country attempting to understand the relationship between the two currencies. An transformation between the two would entail a calculation that would be difficult for everyone, insecure for many and impossible for some.”<sup>76</sup>

The commission thus did not find any of the international currency systems suitable for the Scandinavian countries. The Commission instead stressed the on-going rapid expansion of inter-Scandinavian trade, and that making the Scandinavian currencies fully convertible was a relatively simple matter. According to the Commission, the relative silver content of the three currencies was as follows:<sup>77</sup>

*10 Swedish riksdaler contained 63.7614 grams of pure silver.*

*½ Norwegian specier contained 63.2445 grams of pure silver.*

*5 Danish riksdaler contained 63.2050 grams of pure silver.*

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<sup>76</sup>R.T. Translation from Swedish, “Skillnaden emellan den nya tyska räkneenheten, marken, och de hittills i de tre nordiska rikena gällande är af en sådan beskaffenhet, att hvarje värdebestämning af denna räkneenhet för den nordbo, som ville förstå densammans förhållande till hans vanliga värdemätare, skulle medföra nödvändigheten af en beräkning, som för alla blefve besvärlig, för många osäker och för åtskilliga utförbar.”, Myntkommissionens Betänkande, 1873, p. 4.

<sup>77</sup>Ibid. p. 8.

As noted above, these small differences in silver content had been considered a major problem for the Swedish riksdaler. In converting these currencies to gold, the following ratios were established:<sup>78</sup>

*For Sweden.....1:15.81*

*For Norway.....1:15.68*

*For Denmark.....1:15.67*

At the time, the average price of gold in terms of silver on the London market was 1:15.70. The proposal therefore implied a modest devaluation of the Swedish currency.<sup>79</sup>

The Commission's report concluded with the following recommendations:

- 1) The three countries should adopt the gold standard.
- 2) A new unit of account, the Krona, divided into 100 öre, should be created.
- 3) This new currency should be legal tender in all three Scandinavian countries.
- 4) All three central banks should be obligated to accept unlimited quantities of both Krona- and token öre-coins at par.

### **4.3 The National Level**

#### **4.3.1 Sweden**

On March 8, 1873, a government bill entitled "*On the Adoption of a New Coinage System*"<sup>80</sup> was submitted to the Swedish Parliament. The heart of the matter was contained in the introduction:

"...our current system has not only imposed substantial costs because of the way it is defined relative to those of neighbouring countries, it also has deprived us of the benefits of a common currency. Since gold has been adopted as a standard by most important nations, the Scandinavian countries can not pursue conformity among their currencies without jointly adopting the gold standard..."<sup>81</sup>

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<sup>78</sup>Ibid. p. 10.

<sup>79</sup>Ibid. p. 11.

<sup>80</sup>R. T. Kungl. Maj:ts nåd. Proposition, N:o 37, 1873, p. 1-27.

<sup>81</sup>Translation from Swedish, "...att vårt nuvarande myntsystem icke allenast i följd af det förhållande, som egde rum emellan det svenska myntet och grannländernas mynt, förosakade landet en ständig kostnad, utan ock genom sin olikhet med andra länders myntsystem beröfvade oss de stora fördelar, som öfverensstämmelse i myntväsende skulle medföra, samt att, då guldets redan vore af de flesta och mest betydande länder antaget såsom värdeåter, utsigten att genom en myntförändring, vinna en sådan öfverensstämmelse syntes icke kunna ernås med mindre än att dervid guldets antoges till grund för myntsystemet..." Ibid. p. 1.

The proposal presents a brief summary of developments concerning the issue since 1869, when the Swedish Currency Committee had recommended a switch to the gold standard and the adoption of the French franc. It was emphasized that the assumptions that underlay the 1869 Committee's proposals had altered dramatically as a result of the Franco-Prussian War.

Reflecting on the contemporary international political situation, the bill concludes that the French franc no longer had any chance of developing into an international currency. The Germans, by minting a 20 mark gold piece with a value 1.25% below that of the 25-franc coin, had rendered such a development virtually impossible. Indeed, this modest difference in value between the coins created a risk that the franc would be driven out of circulation through the workings of Gresham's Law. This new German coin, in effect, had assumed the same favourable relationship to the franc, which the latter previously had held relative to the British sovereign. That relationship had once been an argument for making the franc an international coin. Under these circumstances, the Commission concluded that there was little or no chance that any international system would emerge.

By contrast, the bill argues that the validity of the 1869 Committee's arguments in favour of a switch to gold was greater than ever. The German move to gold had reinforced those arguments. In addition, Sweden had developed even closer commercial relations with her neighbours. The bill also noted the continuing losses that Sweden was experiencing due to the unfavourable relationship between the currency of Sweden and those of her neighbours. These points all reinforced the argument in favour of a common, or at least closely aligned, Scandinavian currency(ies). The Committee examined the proposal and endorsed immediate adoption of the of Scandinavian Currency Commission's proposal.<sup>82</sup>

The proposal went to the floor of the Swedish Parliament, and it was voted on in both Chambers. It was adopted by 128 votes to 14 in the First Chamber and by 128 votes to 44 in the Second Chamber. The opposition was remarkably weak, very few members speaking against the proposal. In the First Chamber, the only opposing speaker was Wallenberg. He began his remarks by noting the difference between the earlier campaign for an international currency and the current proposal for a Scandinavian alternative.

"Still there is an enormous difference between the struggle to facilitate international trading relations among all European nations by creating a universally accepted currency, and the current proposal to create a currency system as small as possible and having little chance of becoming known in the rest of Europe. If it does become known, it will be for the peculiar reason that a few nations, in 1873, wished

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<sup>82</sup>R.T., *Sammansatta Banko- och Lag-Utskottet Utåtande*, 1873, N:o 1, p. 1-55.

to created yet another new currency system, instead of adhering to one already adopted by a larger nation.”<sup>83</sup>

Walleberg unquestionably was an internationalist. He continued by criticizing the proposal in great detail. Having become an expert on currency issues over the years, he viewed the work of the Commission as lacking in intellectual rigor.

Wallenberg thought that the German alternative had been rejected on insufficient grounds (this indicating a switch in his position since the third meeting of Scandinavian economists). He blamed this reaction to Danish aversion to Germany following the loss of Slesvig-Holstein in 1864.

“The political aversion to Germany, that for obvious reasons, now prevails in Denmark makes it distasteful for the Danes to accept the recently adopted German currency, even though such an acceptance would generate the greatest benefits for Denmark”.<sup>84</sup>

Wallenberg stressed the fact that the proposal contained no limitation on the minting of silver token coins. Such a limitation, he observed, had been introduced into the Latin Monetary Union in order to prevent free riding. By then Wallenberg had worked himself into a frenzy and began to comment on each and every technical detail of the proposal. This tirade, which will not be further elaborated on here, was clearly designed to persuade the members of the First Chamber to vote down the proposal. Failing to accept the logic of Wallenberg’s argument that no reform was better than a second best reform, however, the Chamber passed the proposal. A textile manufacturer made the point as follows:

“I have immense respect for our honourable colleague’s insights and knowledge of the financial system, I respect his great contributions to our banking system and I have never for a moment questioned his patriotism. I can not, however, comprehend why we should now, simply because we can not have the perfect, universal coinage system, reject the improvement that lies in achieving

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<sup>83</sup>R.T. Translation from Swedish, ”Det är likväl en himmelsvid skilnad emellan den sträfvan att, för underlättande af den internationela beröringen med flera bland Europas civiliserade nationer, åstadkomma ett på alla håll känt och antagligt mynt, hvaremot nu frågan gäller att upprätta ett myntsystem så litet som möjligt, och som inte torde blifva bekant i det öfriga Europa. Om ej för den egendomliga företeelsen, att man hos några fåtaliga nationer år 1873 velat grunda ännu ett nytt myntsystem, i stället för att ansluta sig till något som af talrikare nationer redan antagits” F.K., den 19 april, 1873, p. 82.

<sup>84</sup>R.T. Translation from Swedish, ”Den politiska obenägenhet mot Tyskland, som, af lätt begripliga skäl, är rådande i Danmark, gör det motbjudande för danskarne att antaga det myntsystem, som Tyskland nyss antagit; ehuru det i själva verket skulle medföra största fördelarne för Danmark”.Ibid. p. 86.

## *Scandinavian Monetary Integration During the 19th Century*

conformity with our neighbors, with whom, we, especially in our border areas, have such very lively commerce.”<sup>85</sup>

In the Second Chamber, the proposal meet some resistance from members of the Agrarian Party. The system of representation gave the agricultural interests greater influence in that Chamber. One of the leading figures of the Agrarian Party was Jöns Pehrsson, who had been an active opponent of monetary reform throughout this period. It was ironic indeed that Wallenberg and Pehrsson, the former antagonists, were now allies in their opposition to the Scandinavian Currency Union. The attitude of the Agrarian Party is illustrated by the following quotation from Pehrsson:

‘I am unable to see any acute need for a switch from the silver to the gold standard. However Scandinavianist one may be, the possibility of future disagreements can not be ruled out, and these may be difficult to resolve. [...]A proper reading of history indicates that no true success is to be found in the practice of uniting nations with differing interests under a common administration. Here at home, we can see the same phenomenon, various localities having their own special interests ...’<sup>86</sup>

These objections, however, did not suffice to defeat the proposal, and it was adopted by wide majorities in both Chambers.

### **4.3.2 Denmark**

During the 1870’s, the Danish Parliament, the “Rigsdag”, was characterized by a deep division between the two chambers. The first chamber, the “Landsting”, being directly appointed by the King, was dominated by right wing and conservative politicians, while the second chamber, the “Folketing”, being popularly elected, contained a large, and growing, number of left wing members. During the parliamentary year 1872-1873, the left wing party

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<sup>85</sup>R.T. Translation from Swedish, ”Jag respekterar ofantligt den ärade representantens insikter och kännedom i finansväsenet, jag respekterar ofantligt de åtgärder han lyckats vidtaga för utvecklingen av vårt bankväsende, jag har ej ett ögonblick satt hans fosterlandskärlek i tvivelsmål, men jag kan ej inse varför vi, därför att vi nu icke kunna få det superlativa, det bästa, dvs ett universellt mynt, skola förkasta det komparativa, det bättre, som ligger däruti att vi komma till enhet med grannländer, med vilka vi, i synnerhet i gränstrakterna, stå i mycket livlig beröring” F.K., den 19 april, 1873, p. 92.

<sup>86</sup>R.T. Translation from Swedish, ”Jag kan icke inse, att någon absolut nödvändighet förefinnes att nu övergå från silver till guldstandard, och dessutom, huru skandinaviskt sinnad man än må vara, torde man dock nödgas medgifva, att det icke kan vara alldeles omöjligt, att i framtiden förvecklingar kunna uppstå, hvilka kunna blifva svåra att bilägga[...]Vill man rätt läsa historien skall man finna, att ingen verklig lycka ligger deruti, att många stater af skilda intressen sammanslås under samma förvaltning. Vi se redan här hemma hos oss, att de olika orterna hafva särskilda lokalintressen...”, A. K., den 19 april, 1873, p. 22.

attained a majority in the Folketing.<sup>87</sup> The Danish debate concerning the SCU was obviously affected by the tension between the conservative government and the left wing opposition.

The debate in the Folketing revolved around a not unfamiliar theme. This theme had also dominated the debate at the third meeting of Scandinavian economists, as well as that in the Swedish Parliament. It was a conflict between regionalists and internationalists. Was an international, or universal, currency preferable to a Scandinavian one and, if so, was there any reasonable chance that such an international system would emerge? One of the leading figures of the Danish left Bojsen rejected the argument that, in order to satisfy the “demands of the public”, the most modest reform possible should be enacted. The logic behind this argument was that the smaller the reform, the lesser the inconvenient effects on daily life. Bojsen, however, interpreted the public’s concern quite differently. According to him, the public wanted a reform that stood a reasonable chance of lasting and would not require continuous further adjustments.<sup>88</sup> Since he believed the chance for a universal currency still existed, he wished to postpone currency reform.<sup>89</sup> This “wait and see” line of the left was opposed by Bille, editor of the conservative newspaper *Dagbladet*.<sup>90</sup> He argued that:

“He who reaches for too grand a vision often misses a reform that could be useful in his own lifetime. In his pursuit of this goal, he neglects the benefits that could have accrued to himself and his children.”<sup>91</sup>

Bille was thus arguing that by waiting for the ultimate goal, Denmark risked losing the immediate benefits that were available. This line of reasoning is familiar from the Swedish parliamentary debate. Bille also rejected the claim that joining a common currency system with its neighbors would prevent Denmark from adhering to a potential future international system.

“In any future negotiations, we would be able to participate with greater authority. There would no longer be three participants, each with a small system, but the combined weight of the Scandinavian countries. On our own, we would receive less consideration.”<sup>92</sup>

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<sup>87</sup>See Rerup (1989, p.159-65), and Hvidt (1990, p. 199).

<sup>88</sup>F.T. (1872/1873, p.1042-43).

<sup>89</sup>F.T. (1872/1873, p.1050).

<sup>90</sup>Hvidt (1990 p.71, 174).

<sup>91</sup>F.T. Translation from Danish, “Den der stiler efter for stort et Maal gaar ofte glip af en reform, der kunde være til nytte for hans tid og den nærmeste efterslægt og for at naa dette Maal, der ligger i det vide fjerne tilsidesætter han Fordele, som kunde komme ham og hans børn til gode” (1872/1873, p. 1050).



Even if parts of this quotation were overly optimistic, Bille certainly had a point when he argued that a Scandinavian agreement did not prevent future affiliation to an international system. It might, of course, entail the problems of repeated reforms, Bojsen's greatest fear.

Fredriksen, like Bille a right wing liberal, also confronted Bojsen. Fredriksen questioned the argument that it was preferable to wait for a currency system likely to become universal by noting that such waiting ran the risk of incurring large losses from a fall in the price of silver.<sup>93</sup> He also observed that it was interesting that opposition to a Scandinavian currency system came from Bojsen, an avowed Scandinavianist:

"The honourable member [Bojsen], like myself, is part of the so-called political Scandinavianist movement. This issue, however, is of importance not only to political Scandinavianism - which for the time being must be considered to have lost all practical importance. As is evident, persons that do not support political Scandinavianism are glad to take this opportunity to join with the other two Scandinavian nations."<sup>94</sup>

Two aspects of this quote are worthy of notice. The first is that Fredriksen, a declared Scandinavianist, admits that political Scandinavianism was no longer an important force, and that it played no role at the currency convention.<sup>95</sup> The second is that Fredriksen stresses the fact that support for a Scandinavian currency was not limited to Scandinavianists, but included persons of all political convictions. This counters the argument that the SCU was part of a political program aimed at the creation of a unified Scandinavian state. Krieger, the new Minister of Finance, was hard put to listen to the left wing arguments for a wait and see policy. He cut off the discussion on the likelihood of a universal coinage by snapping:

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<sup>92</sup>F.T. Translation from Danish, "Vi kunne i alt Fald tage Del i Fremtidens Forhandlinger om en fælles national Mønt med en ganske anderledes Vægt, naar det er det samlede Skandinavien, der møder med et System, end naar vi ere skilte og staa hver som en Trediedel med sit lille Møntsystem, thi et saadant kan ikke gjøre Fordring paa at komme i Betragtning" (1872/1873, p. 1077).

<sup>93</sup>F.T. (1872/1873, p. 1057).

<sup>94</sup>F.T. Translation from Danish, "Det ærede medlem [Bojsen] hører ligesom jeg til dem, der kaldes politiske skadinaver, og her er ganske vist et forhold, som ganske vist ikke blot interesserer den politiske Skandinavisme, men, saavidt jeg kan fatte, er det ikke blot de Personer, der give sig af med politisk Skandinavisme - der for Øieblikket ikke ligger for og ikke har praktisk betydning - som fremhæve, at de med Glæde gribe enhver Leilighed til anden materiel Tilnærmelse til de tvende Riger" (1872/1873, p. 1059).

<sup>95</sup>F.T. (1872/1873, p. 1059).

“(It is) evidence of unreasonable optimism to believe in the possibility of there being a universal coin in the foreseeable future.”<sup>96</sup>

At least in hindsight, it is clear that he was correct.

The other theme of the Danish debate concerned how the issue had been treated by the Scandinavian Commission. Bojsen argued that Norwegian and Swedish interests had been neglected by an aggressive Danish majority. This, he believed, was likely to cause problems when the Convention was submitted for ratification by the Norwegian and Swedish Parliaments. Bojsen therefore wanted to delay action and await the reception in Sweden and Norway. He also felt that a panel gathered by the Folketing should subject the issue to detailed scrutiny.<sup>97</sup>

Thanks to the left wing domination of the Folketing, a panel dominated by “De Forenede Venstre” (the United Left) was assembled. One month later, on February 27, 1873, the panel presented its conclusions.<sup>98</sup> It had left the original proposal unchanged. Thus, after a second round of debate on March 4, 1873, the Danish Folketing endorsed the proposal by a wide margin. Even Bojsen, the most prominent opponent, voted in favour. Debate was limited to a few technical details.<sup>99</sup> The proposal was forwarded to the Landsting, where it was unanimously adopted on March 27, 1873.<sup>100</sup>

#### 4.3.3 Norway

Norway was the last of the Scandinavian countries to act on the reform proposal. It was presented for scrutiny by the Norwegian Parliament - Stortinget. Norway’s place last in line was not a matter of chance. According to Seip (1981), it was the result of a conscious strategy by Denmark and Sweden. They well knew that the greatest resistance was likely to occur in the Norwegian Storting, and they thought that previous ratification by Denmark and Sweden would increase the chances of a Norwegian acceptance.<sup>101</sup> It was not sufficient, however. On May 8, 1873, the Storting narrowly defeated the proposal by a vote of 58 to 51.

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<sup>96</sup>F.T. Translation from Danish, “[Det er] en sangvinisme, som gaar over alle rimelige Grændser, naar man tror paa muligheden af en saadan universal Mønt i en overskuelig Fremtid” (1872/1873, p.1081).

<sup>97</sup>F.T. (1872/1873, p.1048).

<sup>98</sup>F.T. (1872/1873, p.1095).

<sup>99</sup>F.T. (1872/1873, p. 2594).

<sup>100</sup>F.T. (1872/1873, p. 1070).

<sup>101</sup>Seip (1981, p. 550).

#### **4.4 Concluding Remarks**

The dream of a universal monetary system came to an abrupt end with the Franco-Prussian War of 1870-1871. By losing that War, France also lost much of its political and economic influence. As a consequence, the years 1871-1873 witnessed intense activity on the currency issue. At the international level, the most development was the German adoption of the gold standard. It was made possible by the large war indemnity paid in gold. The German switch put substantial pressure on small countries, such as Norway, Sweden and Denmark, to follow the German example by promptly adopting the gold standard. It was crucial that they quickly began to sell silver and buy gold, before larger countries did the same. The price of silver would fall and that of gold rise. In brief, delay could be very expensive.

At the Scandinavian level, the Ministers of Finance sought each other's views on the matter. Not surprisingly, since they shared the same predicament, they all favoured a quick change to the gold standard. The remaining disagreement concerned which unit of account to adopt. A line can be drawn between Internationalists and Regionalists/Scandinavianists. The former argued that creating a universal currency was still both possible and desirable. The latter, on the other side, maintained that the possibility of a universal franc and currency died with the Prussian defeat of France, none of the other existing currencies stood any chance of becoming universal. Instead, they urged the three Scandinavian countries to join together, creating a common currency called the Scandinavian krona. They motivated such action by the fact that inter-Scandinavian trade was increasing rapidly and by the ease with which it could be accomplished.

The ultimately ineffective resistance to the reform came principally from agricultural interests and the political left. This situation lends support to the claims by De Cecco (1974) and Gallarotti (1995) that the gold standard originated in domestic shifts in political power. Gallarotti argues that monetary practices, like most economic institutions, developed in harmony with world political developments. According to him, the growing attraction of gold over silver partly reflected changing power structures during the 19<sup>th</sup> century. A rising urban-capitalist class (the professions, business and banking) was displacing an agricultural class (peasants and landowners) in the political hierarchy. The victory of gold over silver was thus a reflection of the victory of industry over agriculture and of stable price interests (importers and creditors) over rising price interests (exporters and debtors).<sup>102</sup>

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<sup>102</sup>Gallarotti (1995, p. 151).

## 5 The Birth of the Scandinavian Currency Union, 1873-1875

### 5.1 Sweden and Denmark - Establishing the Union

The Norwegian rejection of the Union, left Denmark and Sweden the choice of forging ahead on their own, or abandoning the Union and starting all over. The Swedish Parliament's Committee on Banking and Law presented its views on the matter in a report dated May 15, 1873:

"The need for a prompt switch to the gold standard has not diminished during the time that has passed since the Swedish Riksdag approved such a change. The dangers of delay are apparent, especially since European economic conditions at present are such as to inspire a justified fear of sudden changes."<sup>103</sup>

This quotation makes it clear that the Norwegian rejection had not affected the principal argument in favour of the reform, namely that the new European situation required swift action in favour of a gold standard. As for the arguments in favour of merging the Scandinavian currencies, these did not seem to carry the same weight as before. According to the Committee:

"The rejection of the Convention by Norway, therefore, is likely only to cause us the inconvenience of losing the benefits that a common unit of account would have brought to trade in the border areas of our western and north-western provinces."<sup>104</sup>

Not surprisingly, Sweden and Denmark decided to proceed with the Union, leaving the door open for a later Norwegian adherence. The fact that Denmark and Sweden were willing to proceed without Norway is strong evidence that the SCU was not the result of a campaign to politically unite the Scandinavian countries. On the contrary, the blow to Scandinavianism inherent in the Norwegian rejection seems to have been of even less concern than the resulting economic inconvenience.

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<sup>103</sup>R.T. Translation from Swedish, "Behovet af en snar öfvergång till guldmyntsystem har under den tid som förflutit, sedan Sveriges Riksdag fattade sitt beslut derom, icke blifvit mindre; våndan af att uppskjuta denna öfvergång framträder allt tydligare då man iaktager, att de ekonomiska förhållandena inom Europa för närvarande gifva anledning till berättigade farhågor för hastiga omkastningar." Sammansatta Banko- och Lag-Utskottet Utlåtande, 1873, N:o 6, p. 2.

<sup>104</sup>R.T. Translation from Swedish, "Norges afslag å konventionen synes derfor välla oss endast den olägenheten, att vi ej komma i åtnjutande af de fördelar, som gemensam räkneenhet och gemensamt skiljemynt skulle bereda i synnerhet våra vestra och nordvestra gränsprovinser." Ibid. p. 2.

## **5.2 Norway Joins the Club**

*Figure 5. Norwegian 1 Krone Silver Token Coin from 1875.*



*Note: This is an example of one of Professor Brochs “educational” transition coins stamped in 1875. Note that it introduces the new unit of account, 1 Krone, but it is divided into the old 30 skillings. (© Copyright Kungliga Myntkabinettet, Box 5428, 11484 Stockholm Sweden, Foto: Gabriel Hildebrand).*

The previously cited Professor Broch, articulated the main Norwegian objection to the proposal of the Scandinavian Currency Commission. He maintained that the time schedule for implementation was too tight. In particular, this applied to the two final steps of the Convention: the adoption of the new decimal unit of account, the Kрона, and the establishment of this new currency as legal tender in all the Scandinavian countries.

According to Broach, the first stage, the adoption of the gold standard, was the most crucial and urgent step. As for the new unit of account, he believed people would require several years to adjust to the decimal system, which was an entirely new way of counting. He also doubted the sense of making the token coins legal tender. He argued that this part of the Convention might lead to the over issuance of token coins for export to the other member countries. This lack of rules limiting the minting of token coins had also been pointed out by Broch’s Swedish counterpart, A. O. Wallenberg. Broch therefore presented an alternative proposal which, in fact, did not differ greatly from that of the Scandinavian Currency Commission. Broch recommended a switch to the gold standard and a split of the existing specie daler into four Norwegian kroner. In effect, this would mean creating a coin that had a

perfect 1 to 1 relationship to the new Scandinavian Krona proposed by the Commission. This krone was to be divisible both into 100 öre and into 30 shilling. The point of the Broch proposal thus was that the shilling and the new öre would coexist (see Figure 5).

The intent was purely pedagogic. Broch was able to gain support for his arguments and his new system was adopted as Norwegian law in June of 1873. By 1875, Broch concluded that this alternative system had served its purpose, and that the Norwegian people were ready for the decimal system. Thus, in 1875, the Norwegian Storting considered the question of whether or not Norway should adhere to the Danish and Swedish Convention of 1873. On March 8, 1873, the Storting voted 82 to 31 in favour of adherence. The SCU thereby came into existence.

### **5.3 Concluding Remarks**

In 1873, Denmark and Sweden established the union despite the Norwegian hesitation. Two years later, however, the Norwegians joined her neighbours and the SCU was formed. The Norwegian argument that they wanted some time to prepare their citizens for the new system is interesting as we recognise the same reasoning in today's debate on the establishment of the EMU and the transition to the Euro. The thought is that during a shorter period the Euro will circulate side by side with the earlier national currency units.

## 6 Concluding Discussion

This paper has outlined the debate on the currency issue, in the International, the Scandinavian and the three national arenas, during the ten-year period 1865-1875. During that time, opinions shifted back and forth, alternative alternatives were floated and a myriad of arguments were presented. The end result was the adoption of a Scandinavian currency based on gold. The reform of 1873-1875 thus had two dimensions.

In all the Scandinavian countries, the switch from silver to a gold standard was motivated exclusively by economic considerations. The German conversion to gold generated fear of a sharp decline in the price of silver. In other words, the Scandinavian countries feared that their silver currency would be unable to fulfil its function as a store of value. This concern was both a necessary and a sufficient reason to undertake the reform. In addition, however, the switch to gold was encouraged by the greater efficiency of gold as a medium of exchange. This, in turn, was a result of gold's much greater value per unit of weight, as well as the concentration of extra Scandinavian trade on gold standard countries. Without the need for, and the willingness to convert to, a gold standard, the chances of creating a new common Scandinavian currency would have been slim indeed, and the SCU probably never would have seen the light of day.

The other dimension of the reform was the adoption of a common unit of account by the three Scandinavian countries. Existing research on the origins of the SCU attributes a substantial role to the Scandinavianist movement. Some scholars have even seen the formation of the SCU as the initial step towards a political union. It is thus reasonable to pose the question: Is the formation of the SCU best understood as a product of the aspirations of the Scandinavianist movement?

The sources provide a strong case against the view that the SCU embodied a vision of Scandinavian political unification. On that basis, I believe that the importance of the Scandinavianist movement for the establishment of the SCU has been greatly exaggerated, or even misrepresented. First of all, no proposals for the political unification of the three countries are to be found in the sources. What is more, the proposal for a Scandinavian customs union was rejected by the second meeting of Scandinavian economists, hardly a sign of support for a political union. It was also the case that Scandinavianists, such as Bojsen, fought against the SCU while non-Scandinavianists supported it. Apparently, economic arguments for and against a currency union overcome sentiments for and against political

unification. Finally, Sweden and Denmark did not hesitate to proceed without Norwegian participation.

On the contrary, many of the arguments for the adoption of a common Scandinavian currency were strictly economic. The volume of inter-Scandinavian trade was great and on the rise, and the way the existing currencies were defined caused losses and resulted in coinage displacement. Still, the adoption of a common unit of account was not the most urgent reform required in 1873-1875. Indeed, I have argued that without the necessity of changing to gold, the SCU might well not have been formed.

Scandinavianism, however, did play an important role in creating the institutional platform that I call the Scandinavian level. The importance of this level is hard to assess, but it evidently played a role in the ventilation of ideas on the currency issue. It also provided for the possibility of immediate joint action when the opportunity arose. This role as an institutional prerequisite is the only one that can be attributed to the Scandinavianist movement.

One way of contrasting the SCU with the EMU is to consider them in terms of ends and means. The EMU is a monetary union where economic means are used to pursue a political end, i.e. the creation of a unified European state. The SCU, by contrast, was a case where Scandinavianism as a political means was used to pursue the economic end of a monetary union.



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## - Chapter 3 -

# Scandinavian Monetary Cooperation 1873-1914

- A trade off between efficiency and vulnerability

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### ABSTRACT

This Paper examines monetary cooperation among the Scandinavian central banks during the union period. In 1885, the Scandinavian Currency Union was strengthened by the adoption of a clearing agreement. The agreement was proposed by the Danish Nationalbank, with the aim of improving the efficiency of inter Scandinavian monetary transactions. It gave the central banks the right to draw commission free checks on each other. In theory, this clearing agreement eliminated the gold points among the three Scandinavian countries, thus maintaining their currencies at par. A further step was taken in 1894 when the Swedish Riksbank and Norges Bank agreed to accept each other's notes at par, an arrangement joined by the Danish Nationalbank in 1901. This, however, marked the high point of Scandinavian monetary cooperation. In 1905 Sweden gave notice of termination of the clearing agreement, and only after three months of intense negotiations were the three banks able to compromise on a new, more restrictive, clearing mechanism. The paper argues that monetary cooperation involved a trade off between financial efficiency and economic vulnerability. It establishes that the cancellation of the original agreement can not be attributed solely to the political conflict between Sweden and Norway that raged in 1905. The Swedish Riksbank had for some time been irritated that the agreement had not been performing the function for which it was originally intended. This irritation, however, did not, reach the point of triggering withdrawal from the agreement, until Norway dissolved the political union between the two countries. This act increased the risk for the Riksbank of holding part of its gold reserves in the Norwegian national bank and thus served as a catalyst for the renegotiation of the clearing agreement. The new agreement was less efficient, but also less risky.

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## 1 Introduction

Globalization of economic activities, integration of international financial markets and increased capital mobility have been one of the most remarkable features of the world in recent years. Retrospectively, however, it is clear that earlier periods have experienced similar trends. One such historical period was the gold standard era. Economists have invariably welcomed increased international capital mobility, arguing that its benefits are indisputable. When capital flows freely, it will gravitate towards the most productive investment opportunities available. In the case of newly industrializing countries, the resulting capital imports often are accompanied by new technologies and business skills. By enhancing the ability of investors to diversify their portfolios, improved capital mobility also reduces the risks they face. Finally, by exposing domestic capital markets to foreign competition, it pressures them to become more efficient. Critics, however, argue that the globalization of capital markets has deprived individual countries, represented by their national institutions and policy makers, of control over their domestic economies. Problems experienced in one part of the world are now more likely to spread internationally, leaving national economies exposed to forces outside the influence of their domestic policy making authorities. An example of such developments is the recent Mexican currency crisis. Thus economic globalization has increased the importance of monetary cooperation. Put somewhat differently, there exists a trade off between efficiency on the one hand and national economic vulnerability on the other hand whenever international capital markets become more closely integrated. This trade off was a major consideration affecting the extension of the Scandinavian Currency Union during the years 1873-1914.

The Scandinavian Currency union (1873-1924) is an early example of international monetary cooperation. In the center of attention in this paper is the continuous extension of this monetary cooperation, of which the establishment of a formal clearing system was the most important. The main agents in this process were the three Scandinavian central banks. For quite some time, the question of cooperation among central banks has been of considerable interest to both economic and political historians. In particular, their attention has been drawn to the turbulent inter-war period.<sup>2</sup> During those years, monetary conferences and other formal efforts to deal with the economic difficulties and disequilibria that followed

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<sup>1</sup> I Thank Martin Korpi, Håkan Lindgren, Hans Sjögren and Anders Ögren for valuable comments. Also, participants at the EHF-seminars. All errors are my own.

<sup>2</sup> See Eichengreen (1992), De Cecco (1995), and Flandreau (1997).

in the wake of World War I, were regularly supplemented with discrete and informal cooperation among central banks. Such efforts had not been as widespread prior to the War. Instead historical evidence suggests that cooperation before 1914 was sporadic and not crucial to the operation of the gold standard system.<sup>3</sup> This might be explained both by the self-correcting capabilities of the gold standard and by the fact that most central banks had not yet accepted their modern responsibilities.<sup>4</sup> Gallarotti (1995) argues that if cooperation can be observed during the gold standard era it typically evolved from each country acting on its own self-interest to preserve convertibility, and not from international agreement. Bordo (1999) summarises the previous research on central bank cooperation under the gold standard by stating that: *“Cooperation and harmonization of policies under the gold standard was episodic and not by design”*.<sup>5</sup>

For quite some time, however, pre-war central bank cooperation flourished in Scandinavia. Indeed, the Scandinavian Currency Union (1873-1924) can be seen as an early example of international monetary cooperation. It was established by Sweden and Denmark in 1873, with Norway joining two years later. The participants adopted the gold standard and a new standard of account (the Krona, sub divided into 100 öre). Following its founding, the Union was repeatedly given new functions at the urging of the three central banks. In 1885, a formal clearing system was adopted and, starting around the turn of the century, the central banks increasingly accepted each other's notes at par. This monetary cooperation among the Scandinavian countries is the subject of this paper. In particular, the actions of the three central banks, the key participants in this process, will be examined in the context of the trade off between efficiency and vulnerability that they faced. The principal purpose of this chapter is to present a comprehensive description of the clearing mechanism, as well as to explain why it was originally created and then renegotiated in 1905. While consisting largely of an historical narrative, the chapter is analytically based in that the story presented is structured by a set of questions that has its roots in economic theory. Questions such as what motivated the functional expansion of the SCU to include clearing and note circulation agreements will be addressed. The content and usefulness of these agreements will also be discussed.

The sources examined for this chapter include the correspondence among the three central banks, internal bank documents and the minutes of the boards of directors.

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<sup>3</sup> Bordo (1999, p. 5).

<sup>4</sup> Reis (1995, p. 14-15).

<sup>5</sup> Bordo (1999, p. 18).



Quantitative data on inter Scandinavian trade and check clearing activity among the banks also will be utilized.

## 2 Theory and Method – An Analytical Point of Departure

Especially since the Nobel Prize in Economics was awarded to Roanald H. Coase (1991) and Douglass C. North (1993), institutional analysis has emerged as one of the most important critiques of traditional neo-classical economic theory. North argues that, for the analysis of economic performance over time, neo-classical theory contains two seriously flawed assumptions: first, that institutions do not matter, and second, that time itself does not matter. Not surprisingly, North's attempts to deal with these short comings have been well received by economic historians. Despite the increasing popularity of the institutional approach, and the ever growing number of articles claiming to be based on it, however, it is frequently claimed that institutionalism is "long on theoretical analysis but short on empirical work".<sup>6</sup> Hopefully, this empirical study of the extension of SCU will demonstrate the practical usefulness of the analytical tool box provided by North.

Perhaps Coase's (1937) most important contribution is his observation that the neo-classical results concerning the efficiency of free markets only hold in the absence of transaction costs. That is, only if bargaining is costless will actors reach the solution which maximizes joint income regardless of institutional arrangements. In reality, however, since bargaining is never costless the inevitable conclusion is that institutions always matter.

The criterion of efficiency most commonly utilized in neoclassical economics is labeled Pareto optimality. It is defined as a situation where, with given factor endowments, technology and individual tastes and preferences, all mutually advantageous exchanges have been made, and society is operating on its production possibility frontier (PPF). This, in turn, implies that all marginal rates of product transformation are equal to all the marginal rates of substitution of all consumers. If any one of these conditions is not met, it will always be possible to make at least one person better off (in his own estimation) without making any one else worse off. Conversely, once Pareto optimality has been achieved, no person can be made better off without someone else being made worse off.

One of the most striking conclusions of traditional neo-classical economic theory is that an economy in general competitive equilibrium, in fact, will achieve Pareto optimality.

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<sup>6</sup> Alston, L. J., et al. (1996, p. 1).

This result, however, turns out to be based on some strong assumptions. Thus, it requires that information and transactions costs are zero, that all resources are fully utilized and privately owned and that all firms strive to maximize profits and all consumers strive to maximize their utility. Clearly, these requirements are never fully met.<sup>7</sup> Problems such as the existence of transaction costs, externalities, public goods or imperfect competition can be counted on to raise their ugly head. Since institutions exist to reduce the uncertainty, and thus the transaction costs, involved in human interactions, their nature and evolution is a matter of considerable interest. From this perspective, the Scandinavian clearing agreement of 1885 is very distinct example of an institution created to reduce transactions costs.

Although economists may have been slow to integrate institutional analysis into their theoretical constructs, they, together with other social scientists, have moved swiftly to apply game theory to the study of interaction among actors.<sup>8</sup> The most widely used such game theory model, the so-called “prisoner’s dilemma”, yields an initially pessimistic perspective on the ability of humans to cooperate. When this game is “played” only once, the dominant strategy for each player is to double cross the others, thus preventing the group from achieving the most efficient, welfare maximizing outcome. When the game is played repeatedly, however, cooperation increasingly becomes an attractive strategy for the participants. Thus Robert Axelrod, in his celebrated work *The Evolution of Cooperation* (1984), is able to present a more positive perspective on the ability of agents to find cooperative solutions, even without the intervention of a coercive state apparatus. Briefly put, Axelrod and like minded scholars, argue that wealth maximizing individuals will usually opt for cooperation as long as the game is repetitive, there is a limited number of players and they possess complete information concerning the past behaviour of the other players.

Douglass North, however, maintains that neither the game theory approach nor the stringent requirements of traditional neo-classical economics can withstand close scrutiny. Individuals inevitably act on the basis of incomplete information, utilizing, often faulty, subjectively derived models. Moreover, the information feedback they receive is typically insufficient to correct these models. In addition, North argues that the game theoretic analysis is inherently static. In fact, not only the information available to individuals, but also their goals and strategies, change over time. He also stresses that new institutions are not necessarily, or even usually, created with social efficiency in mind. Rather, they, or at least

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<sup>7</sup> Rutherford, M., (1996, p. 152).

<sup>8</sup> North, D. C., (1990 p. 12).

the formal rules, are structured so as to advance the interests of those groups or individuals with sufficient bargaining power to influence their design.<sup>9</sup>

Having thus demolished existing theory, is North simply a nihilist, or does he supply an alternate, useful, analytical framework? He argues that the ability of an institution to facilitate cooperation and reduce uncertainty is determined by the motivation of the players (the incentive structure), the complexity of the environment (the degree of uncertainty) and the ability of the players to decipher and order their environment (measurement and enforcement). In this chapter, the use of North's analytical tools will be structured around these three parameters. The nature and change over time of the incentive structure of the players (i.e. the central banks) will be examined, as will the level of uncertainty they faced and their ability to decipher and order their working environment. Briefly put, institutional theory will be used as an empirical filter.

As noted above, establishing the Scandinavian clearing system was a straightforward attempt to reduce transactions costs. The working hypothesis used in explaining the behaviour of the central banks in this context was that they wished to maximize an objective function with efficiency and (in) vulnerability as arguments. A question then arises as to whether or not this conforms to North's assertion that new institutions usually are intended to advance the interests of those who can influence their design. Put somewhat differently, were the banks acting to advance a social interest or did their behaviour reflect the private interests of those who controlled that behaviour?

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<sup>9</sup> Ibid. p. 16.

### 3 The Clearing Mechanism

In 1885, the Danish National Bank and the Swedish Riksbank entered into an agreement intended to facilitate monetary transactions between the two countries. Three years later, in 1888, Norway joined as well. As mentioned earlier this agreement has attracted the attention of economic and political historians, starting when the SCU still existed and continuing up to the present day.<sup>10</sup> It is an interesting example of far reaching central bank cooperation under the gold standard. Indeed, previous research has concluded that this clearing agreement essentially eliminated the gold points between the participants, thus drawing them closer than did the gold standard per se. This agreement, together with the union wide acceptance of the notes and coins of each member country, even caused one observer to describe the SCU as *“the most successful of all the European currency unions”*.<sup>11</sup>

This section will more closely examine the background to the establishment of the clearing mechanism. Who initiated it and what was the motivation? A review of the negotiations leading up to the agreement’s creation will also be provided. Finally, the cancellation and renegotiation of the agreement in 1905 will be described. My analysis will be structured around the three parameters discussed in section 2. By studying the archival data I hope to be able to describe the incentive structure of the players, the level of uncertainty and their ability to order and decipher their environment. The main focus is how the trade-off between efficiency and vulnerability is being handled by the players.

#### 3.1 The Clearing Agreement of 1885

Surprisingly enough, a visit to the archives of the three Scandinavian central banks revealed a virtual absence of inter-bank correspondence during the years following the establishment of the SCU.<sup>12</sup> The first contact between the Nationalbank and the Riksbank occurred in 1866 and resulted in a bank note agreement, but the establishment of the SCU was not followed by any extensive cooperation among the three banks. Indeed during the period from 1873 to late 1877, there is no evidence whatsoever of correspondence, much less of cooperation, among the Scandinavian central banks. At the end of 1877 however, the Nationalbank approached the Riksbank with a request to purchase sterling. The Riksbank’s positive response to this request

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<sup>10</sup> see Nielsen (1917), Rubow (1920), Heckscher (1926), Bloomfield (1959), De Cecco (1992), and Bergman et al. (1993).

<sup>11</sup> De Cecco (1992, p. 67).

<sup>12</sup> See Rubow (1920) who also points out that there were no correspondence between the banks during this period (1920, p. 113).

can be seen as an initial step towards a renewal of connections. Soon thereafter, the Nationalbank inquired as to the willingness of the Riksbank to accept a shipment of Swedish silver token coins at its Malmö, rather than at its Stockholm, office. Once again, the Riksbank acquiesced. During the years 1878-1880, the two banks granted each other a number of modest, short term loans.<sup>13</sup> Neither the Nationalbank nor the Riksbank, however, engaged in any correspondence with Norges Bank before 1884. It was thus in an environment of very limited communication, and with virtually no experience of past cooperation to rely on, that the clearing agreement was conceived and brought into existence.

There were substantial money transactions between the three Scandinavian countries during the period 1879-1884. These transactions can be attributed to trade, exchange rate arbitrage affairs, and lending operations. The transactions inevitably resulted in the need for gold shipments. During the period 1879-1884, the Danish central bank sent and received gold amounting to a total of 91.49 million kroner (see Appendix 1). It remitted 42.97 million kroner and received 48.52 million kroner worth of gold. Putting this number in relation to the Bank's total gold reserves of 45.2 million kroner in 1884, illustrates the magnitude of these gold shipments.<sup>14</sup>

In a letter directed to the two other Scandinavian central banks, the President of the Nationalbank pointed out that these gold shipments imposed considerable, largely unnecessary, costs on all three banks.<sup>15</sup> The Danish central bank thought that something had to be done to solve these problems. Thus was born the idea of a Scandinavian clearing mechanism.<sup>16</sup>

It was readily apparent that the large inter bank gold shipments of the time were both inefficient and costly. The Danish national bank identified two drawbacks. The first of these was the cost of shipping gold. These money transaction costs included postage, packing, security, abrasion and insurance costs, as well as foregone interest income. Secondly, it was noted that these shipments could create a situation where a central bank would be unable to meet its public's demand for money. This might result simply from a large part of the bank's

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<sup>13</sup> Rubow (1920, p. 114).

<sup>14</sup> Hansen, et al., *Dansk penge historie* bind 1, tabell 14.1 (1968, p. 337).

<sup>15</sup> AoR., Letter from Nationalbanken to the Riksbank 12.07.1885., Riksbankschefernas Arkiv, F1A:15.

<sup>16</sup> Not surprisingly the initiative is taken by the Danes. Denmark is considered to have been the most financially matured country in Scandinavia at this time. For an interesting discussion on the development of banking and financial markets of Scandinavia at this time see Lindgren (1997).

gold reserves being in transit.<sup>17</sup> Thus we recognise a situation where money transactions were inefficient and the three central banks experienced a high degree of financial vulnerability. This also tells us something about the incentive structure that motivated this agreement, that is the aim to increase efficiency (reduce transaction costs) and decrease vulnerability.

To deal with these problems, the Nationalbank made the following proposal:

“Each bank will open an account with the others against which one bank can issue assignments against another bank, payable on demand, regardless of whether or not it has a balance with the latter. These same accounts can also be used to deposit claims against the bank in question. No interest will be paid or charged on these accounts, nor will the banks charge any fees on these transactions. The debt of one bank to another will be payable on demand and the bank that demands payment, in part or in full, of its claims will bear all expenses associated with such payment. Payments among the banks will always be made in 10 and 20 kronor coins, unless other means of payment is agreed upon. The assignments issued by the banks on each other may not be for less than 10,000 kronor. No fees will be charged when such assignments are issued, but when they are redeemed a commission of .025% will be credited to the drawee bank”.<sup>18</sup>

This was the embryo of what later would become the Scandinavian clearing agreement. Indeed, the end result contained in the final agreement of November 1885, did not substantially differ from this preliminary proposal. Even a glance at the proposal opens for some initial reflections. First of all, it is clear that the proposed arrangement would increase the efficiency of monetary transactions among the three countries. Second, the proposed ability to write checks on each other regardless of account balances, implies that there was a high degree of mutual trust among the banks. Indeed, such mutual trust was a prerequisite for the establishment of a clearing mechanism. The Nationalbank's letter recognizes this need by explicitly referring to the banks' confidence in each other's solvency:

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<sup>17</sup> AoR., Letter from Nationalbanken to the Riksbank 12.07.1885., Riksbankschefernas Arkiv, F1A:15.

<sup>18</sup> AoR., Translation from Danish. "De tre Banker aabne hverandre en folio-konto, hvorpaa den ene Bank kan udstede Anvisninger paa den anden, betalbare paa anfordring, selv uden at have noget tilgodehavende hos denne; paa samme konto kan der insaettes beløb till vedkommende banks kredit. For beløb indestaende eller skyldige paa denne konto svares ingen rente, ei heller beregne bankerne hverandre nogen kommission af disse omsætninger. Den ene banks gjæld til den anden vil være betalbar paa anfordring, och den bank, der fordrer sit tilgodehavende helt eller delviis betalt, bærer alla med forsendelsen forbundne Udgifter. Betalingen imellem Bankerne erlægges altid i 20 og 10 krone stykker medmindre anden Betalningsmaade aftales. De Anvisninger Bankerne udsæder paa hverandre, maa ikke lyde paa summer under 10.000 Kroner. Ved Udstedelsen af slige Anvisninger beregnes intet Gebyr, hvorimod der ved indløsningen beregnes en Udstællingsprovision af ¼ pro mille, der tillfalder den paastrukne Bank." Letter from Nationalbanken to the Riksbank 12.07.1885., Riksbankschefernas Arkiv, F1A:15.

“Since the three principal banks thus consider that they, under all circumstances, are able to trust in each other’s solvency.”<sup>19</sup>

This quote suggests that the banks (or at least the Nationalbanken) perceived the level of uncertainty as low. The Nationalbank requested that the two other banks should consider the proposal and indicate if they were interested in it. If they responded favourably, the Nationalbank would then initiate discussions concerning the details of such an agreement.

Negotiations among the three Scandinavian central banks commenced in early October of 1885. The negotiators were Central Bank Director Moritz Levy for the Nationalbank, Central Bank Director Helmer Lundgreen for Norges Bank, and Vice President of the Swedish Riksbank Dr. Johan Wolter Arnberg.<sup>20</sup> These representatives agreed on a proposal that each would submit to his board of directors. Their proposal called for each bank to open interest and commission free current accounts in the two other banks. Checks on these accounts could be written even if they contained insufficient funds. In such a situation, the resulting creditor bank could at any time demand payment in Scandinavian gold coins. The debtor bank, however, was also entitled to pay with a covered check drawn on the third bank. Furthermore, any resulting gold transport costs were the responsibility of the creditor bank. The agreement would remain in effect subject to three months notice (see Appendix 2).

The minutes of the negotiations make it clear that the details of the agreement were subjected to extensive discussion.<sup>21</sup> While preparing what was to become paragraph 1 of the clearing agreement, a discussion took place concerning the need for a limit on the size of inter bank debts. It was decided that this question could be left in abeyance. The representatives agreed, however, that none of the banks could be expected to provide any sizable amount of long lasting credit, since that would constrain their ability to pursue their own policy goals. It is obvious that the banks did not consider the agreement to cause any substantial risk exposure for the banks and that there was a high degree of mutual trust between the banks.

A second problem discussed was how to prevent a bank from using checks written on the other two banks to finance interest earning transactions or to increase its gold reserves.

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<sup>19</sup> AoR., Translated from Danish., ”Da de tre hovedbanker ere saaledes funderede, at de under alle forhold bør kunne have fuld tillid til hverandres soliditet” Letter from Nationalbanken to the Riksbank 12.07.1885. Riksbankschefernas Arkiv, F1A:15.

<sup>20</sup> AoR., Riksbankschefernas Arkiv, F1A:15. Internal PM, *Överenskommelserna med Nationalbanken och Norges Bank af åren 1885-1905*, p. 7.

<sup>21</sup> AoR., Riksbankschefernas Arkiv, F1A:15. Internal PM, *Överenskommelserna med Nationalbanken och Norges Bank af åren 1885-1905*, p. 7.

Doing so, of course, would be to seek an unfair advantage in violation of the efficiency enhancing intent of the agreement. This discussion resulted in paragraph 4 of the proposed agreement (see Appendix 2).

Yet another topic of discussion concerned the establishment of a minimum transaction amount. The Nationalbank had suggested a minimum of 10,000 kronor. The minutes reveal that there was some discussion of a higher limit. Such a higher limit, however, was ultimately rejected by the representatives. It was their conclusion that:

“...establishing a higher minimum amount risked denying the intended benefits of the agreement to a large portion of the business community.”<sup>22</sup>

This statement indicates that the agreement was designed to facilitate inter Scandinavian trade and money transactions, and that this service should benefit a wide spectra of the private sector.

The delegates were unable to reach a consensus on the question (later dealt with in paragraph 6 - see Appendix 2) of charging fees for the drawing and cashing of the central bank checks. Both the Swedish Riksbank and the Danish Nationalbank, however, expressed opposition to any such charges. They maintained that freedom from fees would make these checks as accessible to the public as were postal money orders (*postremissväxlar*) within Sweden, and single bills of exchange (*banksolaveksler*) within Denmark. The use of this argument makes it clear that the proposed Scandinavian clearing mechanism was inspired by, and intended to mimic, the national clearing systems already in operation. The Norwegian representative also expressed sympathy for commission free drawing rights, but he made his support contingent on further consultations with his Norwegian central bank colleagues. The eventual outcome was an agreement that each bank could decide for itself whether or not to charge a commission. Any such commission, however, was limited to .025%.

The resulting protocol was signed by the participants on October 12, 1885. After being ratified by the central bank boards in Sweden and Denmark during the same month, the clearing agreement became operational with regard to these two countries.<sup>23</sup> Although the

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<sup>22</sup> AoR., Translation from Swedish, "... genom att sätta minimibeloppet högre riskerade att undanhålla stora delar av näringslivet de fördelar som hade varit målsättningen med överenskommelsen." Riksbankschefernas Arkiv, F1A:15. Internal PM, *Överenskommelserna med Nationalbanken och Norges Bank af åren 1885-1905*, p. 7.

<sup>23</sup> AoR., Riksbankschefernas Arkiv, F1A:15. Internal PM, *Överenskommelserna med Nationalbanken och Norges Bank af åren 1885-1905*, p. 7.



Norwegian central bank board expressed support for the agreement, the Bank did not immediately ratify it. Its hesitation was the result of legal restrictions that prevented the Norwegian Bank from including any surplus in their Swedish and Danish accounts in their reserves. That, in turn, prevented it from using such a surplus as the basis for the issuance of bank notes.<sup>24</sup> In July of 1888, however, after this legal limitation on its note issue had been removed, the Norwegian central bank notified the two other Scandinavian central banks that it would put the 1885 agreement into effect as of August 1, 1888.<sup>25</sup>

To conclude it is clear that this is an example of a cooperation which is established without the existence of an external coercive force. It is an agreement that is initiated, negotiated and established by the banks. Furthermore it is obvious that in the trade-off between increased efficiency and increased vulnerability the central banks at this time gave priority to the goal of increased efficiency on the money market. The main reason to this, I would argue, is that the banks perceived the level of uncertainty of the intentions of the other banks as low and the financial solvency of the other banks as high. However, judging from the fact that the level of communication and cooperation before this point was quite low or none existing, this perception was based on quite meagre information.

Once the clearing agreement had become operational throughout the Scandinavian currency area, there was an immediate increase in cooperation and communication among the three central banks. Indeed, during the years 1888-1905, a number of improvements were made to the original system. Several important innovations concerned paragraph 3 of the agreement. Thus, for example, Norges Bank argued for an increase in the number of branch offices involved. It wanted the (Norwegian) public to be able to write checks on the branch offices in Trondheim and Bergen, as well as on the head office in Kristiana (Oslo).<sup>26</sup> Such an increase in eligible offices, it argued, would significantly contribute to the facilitating of inter-country transactions, which, of course, was the purpose of the system.<sup>27</sup>

Considering the Norwegian banking structure at the time it is not surprising that the Norwegian bank was pushing for an extension of the number of branches included in the agreement. The Norwegian central bank was the only bank in Norway that had been able to

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<sup>24</sup> NoB., Minutes of the Board of Directors, 23.10.1885., Direksjonen I, [s-3160] Serie A.

<sup>25</sup> AoR., Letter from Norges Bank to the Riksbank, 28.07.1888., Riksbankschefernas Arkiv, F1A:15.

<sup>26</sup> AoR., Letter from Norges Bank to the Riksbank, 28.07.1888., Riksbankschefernas Arkiv, F1A:15.

<sup>27</sup> AoR., Letter from Norges Bank to the Riksbank, 10.8.1888., Riksbankschefernas Arkiv, F1A:15.

develop a branch-based organisation. The Norwegian Bank was endowed with a note issuing monopoly and had built up a system of branch offices in all the main Norwegian cities.<sup>28</sup>

The Riksbank, however, was worried that such an increase in the number of offices and clearing accounts would impede the monitoring of inter country balances. I interpret this as a sign that monitoring was indeed important for the banks to be able to assess their degree of vulnerability. Nonetheless, following a further exchange of letters, the Riksbank agreed to the Norwegian request.<sup>29</sup> The following year, the Riksbank also began to accept Norwegian checks at its branch offices in Malmö and Gothenburg.<sup>30</sup>

In July of 1891, the Nationalbank approached the Riksbank with a similar proposal. In view of the close and vibrant business connections between the cities of Malmö and Copenhagen, the Danish bank urged the Riksbank to accept checks drawn on and received at the latter's Malmö branch office. Once again, the Riksbank agreed, and without placing any maximum on the per check amounts to be accepted by the Malmö office. The checks drawn on the Malmö office, however, had to be for at least 5,000 kronor each, and the daily total of such checks was limited to at most 50,000 kronor.

In early 1891, the Nationalbank proposed to the two other central banks that paragraph 5 of the agreement should be modified, lowering the minimum amount per check from 10,000 to 5,000 kronor. The argument, that such an adjustment would be beneficial to inter Scandinavian trade, must have been persuasive since the Swedish and Norwegian banks promptly accepted this Danish suggestion.

In October of 1897, however, the ongoing process of extending the clearing system came to an abrupt halt. The President of the Swedish Riksbank revealed a letter of complaint that his board of directors had received from the Norwegian central bank. Reacting to the Riksbank's refusal on several occasions to accept checks drawn on the other two banks, the Norwegians now wished to amend the agreement to prevent such action. They suggested a new version of paragraph 4 (see Appendix 2), which denied each central bank the right to refuse checks drawn by the public on the other two banks, regardless of the existing balances among the central banks.

If we consider the trade balances in Scandinavia at the time it is not surprising that it was the Norwegians that pushed for such an extension of the agreement. At the time the Norwegian were running continuous trade deficits on the other two countries (see Figure 2).

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<sup>28</sup> Lindgren (1997, p. 204).

<sup>29</sup> AoRa., Minutes of the Board of Directors, 14.8.1888, Sveriges Riksbank, SE/RA/6211/6211.01/A I a 1/182.

<sup>30</sup> AoRa., Special Minutes of the Board of Directors, 4.7.1889., Sveriges Riksbank, SE/RA/6211/6211.01/A I b 1/265.

Both the Riksbank and the Nationalbank in Copenhagen refused to accept this Norwegian proposal. Both banks were concerned about keeping such a large portion of their gold reserves in another central bank. They obviously considered that as too insecure. Clearly the mutual trust that was essential for an effective clearing mechanism had started to erode. It is also a sign that the banks now had become increasingly sensible to the vulnerability aspect of this matter. Indeed, this was the last attempt by any of the parties to extend the clearing agreement. On the contrary, it was an omen of the cancellation of the agreement that was to occur in 1905.

### **3.2 The Dissolution of the Political Union Between Sweden and Norway in 1905<sup>31</sup>**

On June 7, 1905, the Norwegian Parliament (the Storting) dissolved the Country's political union with Sweden. By the influential conservative groups in Sweden, this action was viewed as revolutionary, and it elicited a furious response by politicians and newspapers. The Union, albeit a very loose construction, had existed since 1814. It was limited to having a monarch and a foreign policy in common. Norway had enjoyed domestic self rule since the very inception of the Union.

Starting in the early 1890's, however, earlier tensions between the two countries deepened. This largely was a result of growing Norwegian nationalism. The principal nationalist party, Venstre, demanded that Norway should be allowed to conduct its own foreign policy, starting with the establishment of an independent consular service. In response an opposing, conservative Swedish nationalism erupted. Its adherents wanted Sweden to establish its superiority in the Union by denying the Norwegian demands. Not surprisingly, this deadlock brought on a number of political crises during the 1890's.

In 1895, both Sweden and Norway began to strengthen their respective armed forces in what could be considered an arms race within the Union. The most provocative action taken was the Norwegian modernization of the old fortresses at Fredriksten and Kongsvinger, together with the construction of a number of smaller fortifications along the Norwegian - Swedish border.

The conflict became acute in the fall of 1904. By then, Sweden had managed to alienate even the most ardent Norwegian unionists by its negative stance towards a separate Norwegian foreign policy and representation. During the early months of 1905 the rhetoric

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<sup>31</sup>This summary of the political events is based on Øystein Sørensen (2004), [http://www.nb.no/baser/1905/tema\\_soren.html](http://www.nb.no/baser/1905/tema_soren.html)

continued to escalate. In May, the Storting passed legislation creating a separate Norwegian consular service, knowing full well that (the Swedish) King Oskar II would reject it. An insurmountable confrontation between the Norwegian government and the King, and thus between Norway and Sweden, was thus a reality.

The Swedish Riksdag accepted the principal of dissolution, but objected to the unilateral Norwegian declaration of June 7. At the request of the Swedish government, a referendum was held in Norway. The results were, to say the least, overwhelming. 368,208 votes were cast in favour, and 184 votes against, the dissolution of the Union. Although women did not have the franchise, a petition in favour of dissolution was signed by approximately 250,000 Norwegian women.

Discussions concerning implementation of the dissolution of the Union commenced in Karlstad, Sweden, on August 31 (see Appendix 3). The negotiations were far from problem free, with the question of the border forts being particularly sensitive. The Swedish position was that the forts should be razed and a demilitarized zone on both sides of the border be established. The situation became sufficiently tense that both sides started a clandestine military mobilization. In fact, both the negotiators and the populations at large were prepared for the outbreak of hostilities. Fortunately, however, long and tough negotiations eventually yielded an agreement. Thus, on October 16, 1905, the Swedish Riksdag recognized Norway as a fully independent country. The agreement was signed, and King Oskar II abdicated the Norwegian throne, on October 27. The Union had been formally dissolved.

As the following section will indicate, this political turmoil also had an effect on the monetary relationship between the Scandinavian countries. Thus, also in 1905, the agreement of 1885 was replaced by a new clearing agreement more limited in scope.

### **3.3 The Cancellation and Subsequent Renegotiation of the Clearing Agreement**

*Figure 1. Bror Karl Johan Langenskiöld*



*Note: President of the Swedish Riksbank (1901-1912).*

This section will examine the cancellation, and subsequent renegotiation of the clearing agreement, starting with the events following the dissolution of the political union between Sweden and Norway in 1905. The crucial question, of course, is why the agreement was cancelled.

On June 14, 1905, only a few weeks after the Storting had thrown down the gauntlet by voting for separate Norwegian consulates, the President of the Riksbank, Karl Langenskiöld made it clear that even if the Riksbank acknowledged that the agreement had been of some use, his enthusiasm was muted. He addressed his board of directors as follows:

“The agreement between the Swedish Riksbank and the Nationalbank in Copenhagen, later adhered to by Norges Bank, according to which each of the three banks opened an account with the other two against which assignments could be drawn regardless of the balance in the account, has now been in effect for 20 years and has undoubtedly been of some use. Experience, however, indicates that the agreement has been of only modest importance for the regular trade among the three Nordic countries, but has instead principally facilitated transactions among private banks both with regard to foreign arbitrage operations and for temporary advances from one country to another. This is apparent also from the very substantial fluctuations in these accounts that regularly occur. The requirements of regular trade can be satisfied with a less comprehensive agreement than the one currently in effect, and,

since the above mentioned fluctuations can create not insubstantial problems for the Riksbank, it seems doubtful that retaining this agreement in its present form is advantageous for the Riksbank.”<sup>32</sup>

The Riksbank argued that the agreement mainly had been useful for arbitrage transactions and short term advances among the private banks in the three countries. This tells us something about the motivation or incentive structure of the Riksbank. The fact that the Riksbank also played a role of a commercial bank in competition with other private commercial banks on the Swedish financial market, may help explain the unwillingness of the Swedish central bank to provide this free of charge service to the Swedish private banking sector.<sup>33</sup> A service that in the eyes of the Riksbank mainly had been used to perform profitable arbitrage affairs by her competitors. For regular commercial transactions the agreement obviously had been of less use.

President Langenskiöld then continued:

“Considering, in addition, the political events of recent days, which may lead to uncertainty and various types of disturbances, I must conclude that the protection of the Riksbank’s gold reserves makes it desirable to give notice of termination for the present agreement. Given the prescribed notice period of 3 months, the agreement would then cease to apply as of September 15.”<sup>34</sup>

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<sup>32</sup> AoR., Translation from Swedish. ”Den öfverenskommelse mellan Sveriges riksbank och nationalbanken i Köpenhamn, som sedermera också biträds af Norges bank, och enligt hvilken hvar af de tre bankerna öppnade för de två andra ett konto, hvar på dessa kunde utställa anvisningar äfven utan att hafva något tillgodohafvande hos den bank, på hvilken anvisningen utfärdades, har nu ägt bestånd i 20 år och utan tvifvel i viss mån verkat till nytta. Öfverränskommelsen har dock, enligt vunnen erfarenhet, varit af mindre betydelse för den regelbundna handeln de tre nordiska länderna emellan och synes fastmer i främsta rummet hafva underlättat de privata bankinrättningarnas inbördes transaktions aktioner dels i afseende å arbitrageaffärer på utlandet, dels med hänsyn till tillfälliga försträckningar från det ena landet till det andra. Detta belyses äfven av det högst betydliga växlingar på samma räkningar, som regelbundet förekommit. För att tilgodose den regelbundna handelsomsättningens fordringar kräfvades icke en så omfattande öfverenskommelse, som den nuvarande, och då de ofvannämnda växlingarne kunna medföra icke obetydliga olägenheter för riksbanken, synes tvifvelaktigt om ett bibehållande af denna öfverenskommelse i dess nuvarande form är för riksbanken förmånligt.” Minutes of the board of Directors, 14.6.1905, Direktionens Protokoll, AIA:5.

<sup>33</sup> The Swedish Riksbank had served as the commercial bank of Stockholm for a long time (see Lindgren (1997, p. 203)). This changed, however, with the new Riksbank law of 1897 the Riksbank partly gave up its role as a commercial bank in order to obtain the monopoly to issue bank notes. see Brisman (1931, p. 211). It did however keep some of its commercial activities.

<sup>34</sup> AoR., Translation from Swedish., ”Då här till komma de senaste dagarnes politiska tilldragelser, som kunna framkalla osäkerhet och rubbningar i olika riktningar, finner jag det för skyddandet af riksbankens guld-kassa önskvärt att den nuvarande öfverränskommelsen uppsäges och att på grund av den föreskrifna uppsägningstiden af 3 månader, öfverränskommelsen må upphöra att gälla den den 15 nästinstundande september.” Minutes of the Board of Directors, 14.6.1905, Direktionens Protokoll, AIA:5.

Clearly the political turmoil had undermined the Riksbank's trust in its fellow central banks. It was now time to adopt a more cautious attitude in order to protect the Bank's gold reserves. Following Langenskiöld's lead, the Riksbank's board of directors voted to cancel the agreement of 1885.

When this decision was reported to the central banks of Denmark and Norway, however, no mention was made of the political considerations. Rather, the abrogation of the agreement was justified on the grounds that it mainly benefited arbitrage operations rather than normal commercial transactions:

"The agreement among the three Nordic central banks that was signed in November of 1885 was no doubt a major step forward at the time. Being adapted to the economic conditions of that time, however, it does not seem to us in the Riksbank to be well suited to the current, more developed, banking situation. 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, these just mentioned anomalies have become even more serious. In conclusion, it seems that an unlimited obligation to honour these assignments can not, under all circumstances, be defended".<sup>35</sup>

This statement makes it clear that the Riksbank no longer wished to provide the commercial banks with a free service that principally was being utilized by the private banking sector for arbitrage transactions. The Bank was intent on re-establishing control by setting limits on the volume of checks that could be drawn on these accounts.

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<sup>35</sup>AoR., Translation from Swedish, "Den öfverenskommelse mellan de tre nordiska hufvudbankerna, som undertecknades i November 1885, var utan tvifvel på sin tid ett stort steg framåt, men afpassad för dåtidens ekonomiska rörelse har den synt oss i Riksbanken icke lämpad för nuvarande mer utvecklade bankförhållanden. Skyldigheten för hvarje af bankerna att oberoende af mellanvarande räkningars ställning inlösa hvarandras anvisningar, den vidsträckta rättigheten att på sådan räkning göra insättningar, förbudet att vid utställandet af anvisningar beräkna provision, och synnerligast den sedan 1897 från Norge uttalade uppfattningen att bankerna även vore skyldiga att alltid lämna anvisningar på hvarandra, oberoende af ställningen, hafva gjort dessa bankernas inbördes räkningar till en afgiftsfri giroräkning för allmänheten, där bankerna själfva förlorat ledningen och bestämmanderätten. I den mån bankförhållanden utvecklats och de privata bankerna vunnit i kapitalstyrka har nyssnämnda missförhållande ytterligare tillskräpts. Det förefaller slutligen som om en inlösningsskyldighet utan limit icke under alla omständigheter skulle kunna försvaras." Riksbankschefernas Arkiv, F1A:15. Internal PM, *Överenskomelserna med Nationalbanken och Norges Bank af åren 1885-1905*, p. 14.

In addition to the arguments provided above they also argued that following the establishment of an agreement to accept each other's notes had facilitated inter-country commercial transactions and had reduced the volume of gold shipments. The Riksbank thus suggested a new agreement that they wanted to be negotiated with the other two banks separately.

After three months of intense negotiations the three banks managed to establish a new clearing agreement of more restricted scope, not allowing the drawing of cheques without the existence of a surplus. To facilitate the providing of surplus-balance on the accounts each bank had the right to claim mutual crediting to an amount of up to half a million Kronor every week.

As to the true motives underlying the cancellation of the original agreement, it is clear that the Riksbank felt that it no longer served its intended purpose. The Bank's irritation that the clearing mechanism was mainly used to finance arbitrage transactions, however, did not lead it to cancel the agreement until the political unrest of 1905 occurred. In other words, although unhappiness with the role of the agreement and concern over the imbalances among the national accounts were festering problems, it was the political conflict between Sweden and Norway that served as the catalyst for action. The fact that the Riksbank negotiated a new agreement, not only with Norges Bank, but also with the Nationalbank, is proof that the Riksbank's actions were motivated by economic as well as political considerations. I have suggested that the competition between the Riksbank and the private banking sector help us to understand this development. In this context it is interesting to note that the claim made by North on the fact that institutions often reflect the interests of those with the bargaining power to devise new rules and not necessarily the interests of the society as a whole applies quite well to this example. In the renegotiated contract the central banks had the right to take commission when issuing cheques.

Another change that most definitely affected the incentive structure of the Riksbank was the reform concerning the note issuing rights in Sweden 1897. When private notes were abolished, the reserve requirements of the Riksbank changed. This resulted in a complex system based on a combination of a fiduciary reserve and a reserve ratio. The latter gave a stronger link between gold holdings and the note issue. A minimum requirement was set to 25 million in gold holdings.<sup>36</sup> The reserve ratio was stipulated in the following way, if the value of the gold reserve increased then the Riksbank's right to issue notes increased with the double

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<sup>36</sup> Jonung (1984, p. 374).



amount. However, if the foreign assets component of the gold reserve increased the Riksbanks right to issue notes only increased with a 1:1 ratio. The gold in the vaults of the Norwegian and Danish central banks was only of course an important part of the Riksbanks foreign assets component. Thus it seems that the Riksbank had entered a situation where it had an incentive to increase its domestic gold reserve and calling home foreign assets. This might serve as an additional explanation to why the Swedish Bank was so eager to renegotiate the Agreement of 1885.

The agreement was left unchanged between the Norwegian and Danish banks.

### **3.4 Summary**

In 1885, the efficiency of the Scandinavian currency union was greatly increased by the fact that the three banks of issue came to an agreement whereby they were mutually allowed to draw cheques on each other free of commission. This was made possible by the opening of accounts upon which checks could be drawn within a fixed amount, and no interest had to be paid on the amount drawn, even if the account showed no credit balance. The original motivation for the agreement was to facilitate monetary flows within the Union, thereby reducing the need for costly inter bank gold shipments.

During ensuing years, the agreement was steadily extended. First the number of bank branches where checks could be drawn or deposited was increased. Later the minimum value of the checks was reduced in order to accommodate a wider range of commercial transactions.

After Sweden had abrogated the original treaty in 1905, it was made permissible to charge a commission on the checks. The principle motivation behind the Riksbank's action was irritation over the fact that the agreement principally had become a means by which private banks could finance profitable arbitrage transactions. I have also mentioned that after the reform in 1897, the Riksbank entered a situation where it had an incentive to decrease the foreign asset component of their gold reserve. In addition, the Riksbank came to feel that keeping part of its gold reserves in the vaults of the other central banks was risky. This sense of political risk, as well as declining trust in the other central banks, was sparked by the conflict between Sweden and Norway that eventually led to the dissolution of their political union in 1905.

## 4 The Agreements Concerning the Circulation of Banknotes, 1894-1901

This section will provide a closer look at the agreements dealing with the joint circulation of bank notes in Scandinavia. First, a short history of these agreements is provided, starting with the very earliest cooperation in 1867 (before the formation of the SCU) and culminating in the successful establishment of agreements guaranteeing the free circulation of the notes of all three countries throughout the entire currency area. Norway and Sweden agreed to accept each other's notes at par in 1894, with the Danish central bank joining them in 1901. Thus, in that year, the Scandinavian Currency Union reached its highest level of development.

The note agreement acted as a complement to the learning mechanism. It effectively increased the efficiency of money transaction in the area. However, it may be argued that this agreement satisfied the need for increased efficiency in another segment of commercial life, that is, for travellers and smaller cross-border business activities.

### 4.1 A Brief History of Scandinavian Money Circulation Agreements

In January of 1867, Johan Gustav Schwan, a wholesaler and member of the Riksbank's board of directors, reported to the board on an official trip he had undertaken. While in Copenhagen, he had been approached by Maritz Levy, a director of the Nationalbank, with a proposal that the Nationalbank would start accepting Swedish bank notes. Levy suggested the following conditions: The Nationalbank would purchase Swedish notes, for a fee, up to some maximum amount. These notes would then be remitted to the Riksbank at the latter's expense, to be paid for with bills drawn on Paris, London or Hamburg. Since the Swedish private (*enskilda*) banks were entitled to issue notes, the Riksbank was to specify which such notes were to be accepted. The account between the two banks would be commission free, but would accrue interest at the rate of 3% per annum. On January 24, the Riksbank's board of directors generally accepted these terms.<sup>37</sup>

According to the Riksbank minutes, on July 27, 1876, Dr. Arnberg noted that, as the board was well aware, the Bank had for some considerable time followed the practice of accepting the notes of the Nationalbank at par and without commission. This, even though the cost of returning them to Denmark was significant. The Bank, therefore, had proposed that the Nationalbank compensate the Riksbank for the postage and insurance costs associated with

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<sup>37</sup>AoRa., Special Minutes of the Board of Directors, 10.1.1867., Sveriges Riksbank, SE/RA/6211/6211.01/A 1 b 1/248.

this otherwise free service. This request, however, had been rejected. Dr. Amberg therefore thought it appropriate for the board of the Riksbank to reconsider the policy of accepting Danish notes at par. He also noted that from the beginning of the year until July 27, the Riksbank had incurred postage and insurance costs for shipping Danish notes amounting to approximately 530 kronor. Nonetheless, the board decided to continue the existing policy.

As the above narrative demonstrates, the mutual circulation and acceptance of bank notes between Denmark and Sweden was of a quite early origin. It is unclear, however, exactly when the Riksbank started to accept the notes of Norges Bank, although it must have been before April of 1889. A letter from the Norwegian central bank to the Riksbank dated April 2, 1889 contains the following question:

“Will the notes of Norges Bank be accepted at par, in addition to at the Riksbank’s main office, also at some or all of the branch offices?”<sup>38</sup>

The implication is that the Norwegian bank was aware that its notes already were being accepted at par at the Riksbank’s head office in Stockholm. The Riksbank responded on April 5, 1889 that Norwegian notes in fact were being accepted at par both in Stockholm and at all of the Bank’s branch offices. In its policy of honouring other Scandinavian bank notes, however, the Riksbank stood alone. At that time, neither Norges Bank nor the Nationalbank was prepared to accept the notes of the Riksbank, or each other, at par. While the question had been raised in an 1889 letter from the board of Norges Bank to one of its branches, no action had been taken.<sup>39</sup>

## **4.2 The Note Circulation Agreements of 1894 and 1901**

On March 5, 1894, Norges Bank decided to start accepting Riksbank notes at par at all its offices. Thus, from then on Swedish and Norwegian central bank notes circulated freely in both countries, even in the absence of a formal agreement. In the case of Denmark, however, the question of reciprocal acceptance first came up in a letter from Norges Bank to the Nationalbank dated April 24, 1889, inquiring whether:

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<sup>38</sup>AoR., Translation from Norwegian., ”Hvorvidt Norges Banks sedler inl6ses til pari foruten ved Riksbankens hovedkontor ogs6 ved nogle eller alle avdelningskontorer” Letter from Norges Bank to the Riksbank, 02.04.1889., Riksbankschefernas Arkiv, F1A:15.

<sup>39</sup>NoB., Internal PM, *Expos6 vedr6rende de skandinaviske seddelbankers gjensidige inml6sning av sedlar*. [Ac/IR 6.11.1929].

“the notes of Norges Bank and the Swedish Riksbank are being accepted by the Nationalbank and its branch offices and, if so, are they being accepted at par?”<sup>40</sup>

The Nationalbank replied on April 27 that the Bank and its branches were not accepting these notes, but that other Danish banks were doing so with a 1% discount on Norwegian and ½% discount on Swedish notes.

Almost seven years later, on March 31, 1896, the Norwegian central bank wrote the Danish national bank requesting that:

“The Nationalbank, on condition that Norges Bank reciprocates, be willing to accept, possibly with limits, the notes of Norges Bank at par.”<sup>41</sup>

The response of the Nationalbank was prompt, but negative. The Danes reported seeing no pressing reason for entering into such an arrangement. It took five years for them to reassess their position. Finally, in a 1901 letter to Norges Bank, they reported that they now were:

“... of the opinion that since that time (1896) certain changes have occurred in the circumstances that could be considered determinative in this regard. Attention should especially be paid to the consequences of the revocation of the right of the private Swedish banks to issue notes that will take effect during the next few years. Since it is thus possible to consider the time to be suitable for a renewed consideration of the problem at hand, the Nationalbank would be grateful for information as to the concerns that the question can raise, and whether such an arrangement currently exists between Norges Bank and the Swedish Riksbank, including information on the division of costs in connection with the shipment of notes”.<sup>42</sup>

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<sup>40</sup>NaB., Translation from Norwegian, “ hvorvidt Norges Banks og Sveriges Riksbanks Sedlar Innløses av Nationalbanken og dens avdelingskontorer, samt i bekræftende fall, om innløsningen skjer til pari eller ikke” Letter from Norges Bank to Nationalbanken, 24.04.1889, Norges Bank, Fragmenter af Nationalbankens korrespondance med Norges Bank.

<sup>41</sup>NaB., Translation from Norwegian, “Nationalbanken, såfremt Norges Bank hensluttet sig hertil, med eller uten begrensning også vilde være villig til å motta Norges banks sedler till pari” Letter from Norges Bank to Nationalbanken, 31.03.1896., Norges Bank, Fragmenter af Nationalbankens korrespondance med Norges Bank.

<sup>42</sup>NaB., Translation from Danish, “...av den anskuelse, at der siden den tid (1896) er skjedd visse forendringer i de forhold, der i denne henseende kunde virke bestemmende, og man skall særligt henlede opmærksomheden på de betydningen av ophevelsen av de private svenske bankers sedelutstedelsesrett, der vil tre ikraft i løpet av få år. Da man derfor må anse tidspunktet for å være egnet for en fornyet drøftelse av det omhandlede spørgsmål, vilde det være Nationalbanken meget kjaert til veiledning ved de overveielser, som saken kan gi anledning til, å få oplysning om, hvorledes dette forhold for tiden er ordnet mellem Norges Bank og Sveriges riksbank, navnlig også med hensynt til fordelingen av omkostningene ved forsendelsen av sedlar.” Letter from Nationalbanken to Norges Bank, 24.04.1901., Norges Bank, Fragmenter af Nationalbankens korrespondance med Norges Bank.

It is obvious that Nationalbanken had seen the fact that Sweden had private note issuers in the Enskilda banks as a potential problem for instituting a note circulation agreement where the three countries central banks accepted each others notes at par. However, now when that was going to change, the Danish bank was interested in entering a similar arrangement as the one established between Norway and Sweden in 1894. That is clearly expressed in the following quote:

“Of the Nationalbank’s notes, hardly any large amount circulates in Norway and the same seems to be the case with Norwegian notes in Denmark. Nonetheless, in view of the common monetary unit and the long standing convention concerning the reciprocal drawing of assignments, and with regard paid to the close relationship in many aspects among the three countries, not least the frequent travel from one country to the other, we would appreciate if an arrangement such as that in question, also could be reached concerning the Nationalbank.”<sup>43</sup>

Shortly thereafter, the note circulation was extended so as to also include Denmark. All three countries now accepted each other’s notes at par. The Currency Union had thus reached its most developed stage, with coins and notes circulating freely throughout the union and with a well functioning clearing mechanism in operation.

### **4.3 Summary**

It is quite clear that Nationalbanken and Riksbanken had established a cooperation on note circulation even before the establishment of the Scandinavian Currency Union. The Riksbank and Norges bank came to an agreement to accept each others notes at par in 1894. Nationalbanken agreed to a similar arrangement in 1901 and then the Scandinavian Currency Union reached its most developed stage. However, there are indications that the Swedish Riksbank accepted the other two banks notes even earlier than 1894. It should be noted that these agreements concerning note circulation and the mutual acceptance of notes were

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<sup>43</sup>AoR., Translation from Danish., “Av Nationalbankens sedler er der neppe noget stort belop i cirkulasjon i Norge, og det samme synes vaere tilfellet med hensyn til norske sedler i Danmark; men i betragtning av den felles myntfot og av den allerede i en lengere årrekke bestående konvensjon om utstedelse av anvisninger på hinannen og endelig av hensyn til den naere forbindelse, hvori de tre land på mange måter står med hinannen, ikke minst ved de tallrike reisende fra det ene land til det annet, vilde det vaere oss kjaert, om en ordning som den omhandlede kunde treffes også for Nationalbankens vedkommende.” Letter from Nationalbanken to the Riksbank, 02.08.1901., Riksbankschefernas Arkiv, F1A:15.

informal. No contractual obligations existed. Rather the banks simply declared their intentions in this regard and then adjusted their practice accordingly.

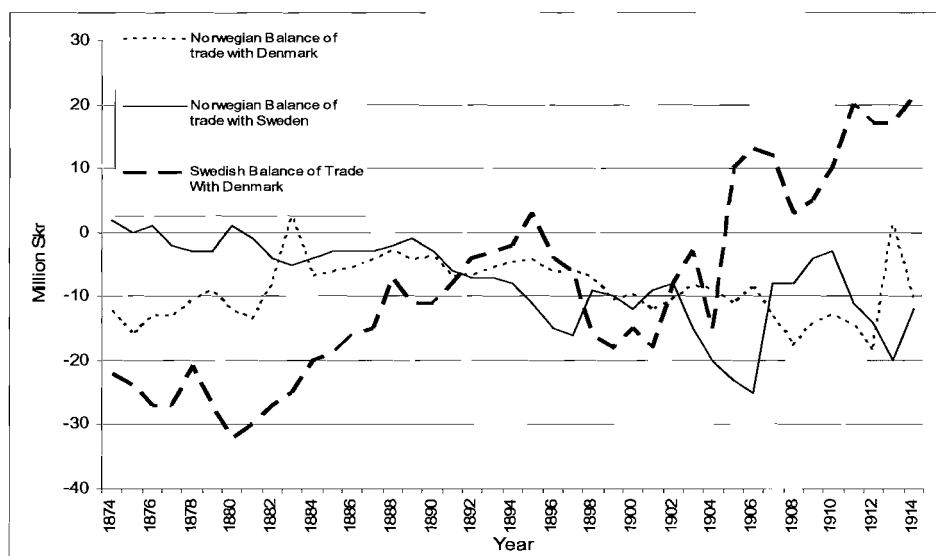
## 5 Data on the Inter-Scandinavian Trade- and Check-Balance

The extent to which the clearing mechanism was utilized through the drawing of checks on the central banks is naturally a matter of considerable interest. This section will present and analyze data on the volume of checks written against the three banks. These figures will assist in determining the extent to which the clearing mechanism was relied on by the public. The direction of the monetary flows, as well as the reasons for the occurrence of imbalances among the accounts, is also of interest.

It is also important to keep in mind that this data played a key role in the attempt of the banks to comprehend (decipher) their environment. Substantial shifts in the data might affect how the banks perceived their interests vis a vis the clearing system. That, in turn, could be expected to influence how they wished their agreements with the other banks to be designed.

The data on inter Scandinavian trade balances can be expected to yield information on monetary flows during. From such data presented in Figure 2, it is apparent that Norway was running trade deficits vis a vis both Denmark and Sweden throughout this entire period. That, in turn, implies that at least Norway benefited from the clearing agreement. Not only did it allow Norwegian exporters to lower their transactions costs, until the renegotiations of 1905 they also draw could draw checks even in the absence of positive account balance. Of course, these deficits also meant that the other two banks had a considerable part of their gold reserves in the vaults of the Norwegian bank. Thus it is hardly surprising that Norges Bank continuously lobbied for an extension of the clearing agreement. They were able to reap the benefits of greater efficiency without incurring increased vulnerability.

**Figure 2.** *Inter-Scandinavian trade balances 1874-1924 (Million Skr.)*



**Source:** *Norwegian trade balance with Denmark and Sweden based on Mitchell, table E2, p. 631-632. Swedish trade balance with Denmark based on Mitchell, table E2, p. 654-655.*

Moving on to the case of Sweden, virtually without exception she ran a surplus with Norway and a deficit with Denmark until 1905. In that year, however, a major shift occurred in the trade balance between Sweden and Denmark. From then on, Sweden experienced a surplus with her southern neighbour. This also meant that the Swedish central bank had more of its gold in the vaults of the other banks than vice versa. It is hardly a coincidence that it was in that same year of 1905 that the Riksbank forced a renegotiation of the clearing agreement. On the contrary, it seems apparent that the changing trade situation caused the Riksbank to experience a sense of increased vulnerability. Consequently, the Bank acted to place restrictions on account imbalances. Of course, this development does not explain why the Riksbank wanted to introduce commissions on the drawing of inter bank checks.

While this trade data is certainly of considerable interest, however, it must be remembered that it does not present a complete picture of the inter Scandinavian money flows of the period. It omits both invisibles and the capital account. Moreover, the qualitative evidence presented above suggests that the clearing mechanism was of particular importance for the arbitrage transactions conducted by private banks. Thus, it is essential that the actual central bank clearing accounts be subjected to careful scrutiny.

Table 1 presents data on the volume of checks drawn against each of the three central banks, with the exception of the (unfortunately unavailable) balances between the Riksbank and Norges Bank.

**Table 1:** *The Value of Checks Drawn on the Three Scandinavian Central Banks, 1888-1914 (Millions of Skr.).*

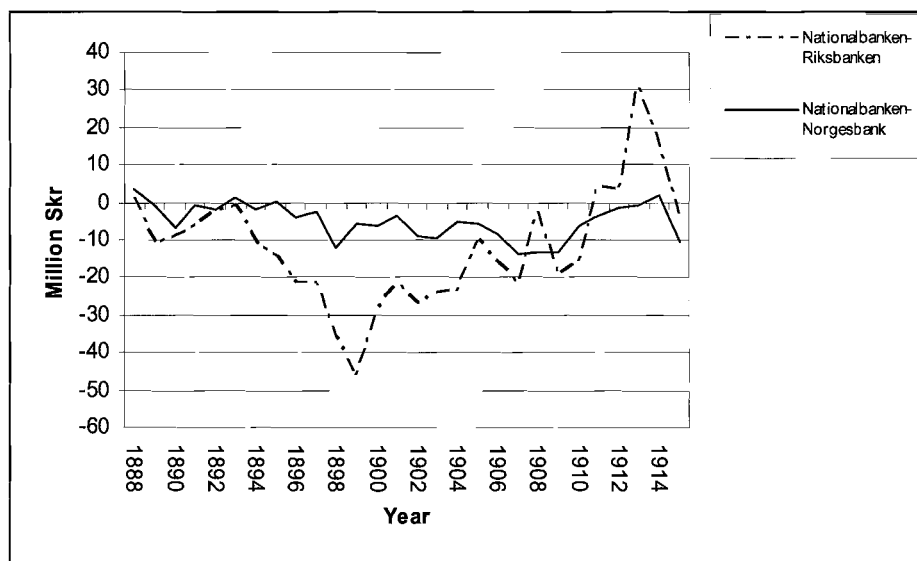
<b>Year</b>	<b>Checks Drawn on the Nationalbank to be Cashed by Riksbanken</b>	<b>Checks Drawn on Riksbanken to be Cashed by Nationalbanken</b>	<b>Checks Drawn on the Nationalbank to be Cashed by Norges Bank</b>	<b>Checks Drawn at Norges Bank to be Cashed by the Nationalbank</b>
1888	21,550	20,179	10,649	6,867
1889	11,682	22,939	5,746	6,693
1890	13,370	22,160	4,893	11,686
1891	10,994	17,366	8,282	8,925
1892	16,635	19,104	6,921	8,511
1893	17,057	17,999	13,038	11,893
1894	15,836	26,129	9,386	11,344
1895	15,839	30,440	13,624	13,115
1896	12,656	33,944	9,432	13,495
1897	11,089	32,259	8,400	10,938
1898	9,544	45,535	6,314	18,597
1899	5,630	52,290	8,402	14,059
1900	13,263	41,902	7,874	14,078
1901	22,217	43,634	14,442	18,047
1902	15,687	42,679	7,353	16,378
1903	22,669	47,013	5,935	15,541
1904	20,800	44,486	11,919	17,066
1905	27,993	37,802	11,732	17,245
1906	12,617	28,401	11,713	20,090
1907	9,467	30,802	6,033	19,845
1908	14,955	17,260	3,369	16,800
1909	4,635	24,051	3,367	16,606
1910	4,366	20,110	0,099	6,183
1911	8,122	3,562	0,040	3,562
1912	8,750	5,522	0,217	1,676
1913	35,133	3,820	0,438	0,807
1914	18,322	3,592	2,625	0,863

Source: *Nielsen (1917), p. 57,62.*



Clearly a substantial volume of checks was drawn during this period, indicating frequent utilization of the clearing mechanism. The data also provides an overview of the direction of monetary flows within the Union. During this period, the volume of transactions between Sweden and Denmark was substantially greater than that between Denmark and Norway. Figure 3 graphically illustrates the annual checking account balances between the Nationalbank and the two other Scandinavian central banks.

**Figure 3.** *Annual Checking Account Balances Between the Nationalbank and the Riksbank and Norges Bank.*



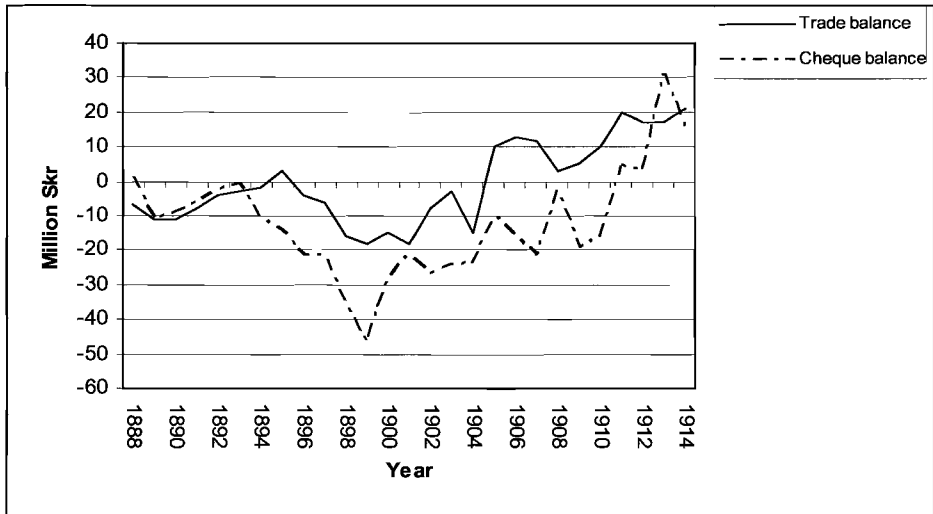
**Source:** *Nielsen (1917), p. 57,62.*

Clearly, the Nationalbank consistently ran a surplus on its checking accounts in the two other central banks. This, in turn, implies a substantial flow of funds from Norway and Sweden to Denmark during most of this period. It also means that the Danish central bank, at least periodically, held a large portion of its gold reserves in the other two banks.

The question of why this occurred remains to be answered. As indicated by the correspondence among the banks, the Riksbank believed that the clearing agreement had come to be used mainly for arbitrage transactions, rather than the inter Scandinavian trade it

had originally been meant to facilitate. Figure 4, displaying data on both the Swedish trade and checking balances with Denmark, lends credence to this interpretation.

**Figure 4:** Swedish Trade and Checking Balances with Denmark, 1888-1914.



**Source.** Checking balance [Nielsen (1917), p. 57,62.] Trade balance [Mitchell (19, table E2, p. 654-655)]

The figure reveals that, even though Sweden was running a trade surplus with Denmark starting in 1905, its checking balance remained in deficit. Moreover, during numerous years the two balances moved in opposite directions, further indicating that the flow of funds from Sweden to Denmark had sources other than the trade imbalance.

Rubow commented on this situation in his monograph on the Danish Nationalbank:

“As indicated, the explanation for this situation can not be found by studying the assignments, and since Danish imports from Sweden were considerably larger than her exports, the cause does not lie in the commerce between the countries. It must therefore be sought in strictly financial transactions.”<sup>44</sup>

The reasonable implication is that these transactions involved interest or exchange rate arbitrage. In addition to the quantitative data, the qualitative evidence from both the

<sup>44</sup>Translation from Danish., “Forklaring paa dette forhold kan man som antydnet ikke finde ved en Undersøgelse af Anvisningerne, og da Danmarks Vareimport fra Sverrig var adskilligt større end Exporten, ligger Aarsagen ikke i Vareomsætningen mellem Landene, og den maa derfor søges i rene Finanstransaktioner” Rubow (1920, p. 132).

Riksbank's minutes and its correspondence tends to support such an interpretation. Nevertheless, establishing a definitive explanation of the motives underlying the drawing of these checks is not possible with the existing data.

A more detailed analysis of the effects of the clearing agreement on the Scandinavian capital market, or more precisely on the Scandinavian foreign exchange market, will be presented in Chapter 4 entitled *Integration and Efficiency on the Scandinavian Foreign Exchange Market: A Quantitative Study*.

## 6 Concluding Discussion

It has been argued that during the gold standard period, central bank cooperation and harmonisation of policies was episodic and not by design. The Scandinavian experience, however, offers an interesting exception to this rule. In 1885, the Scandinavian Currency Union was supplemented with a clearing agreement among the three central banks. The agreement, intended to improve the efficiency of inter Scandinavian monetary flows, was initiated by the Nationalbank, the Danish central bank. Under the agreement each of the banks was entitled to draw checks on the other two, free of any fees or commissions. Each bank had an interest free account with the others on which these checks, of a minimum denomination, could be written regardless of the account balance.

In theory, this clearing agreement eliminated the gold points among the Scandinavian countries and thus maintained their currencies at par. A further step towards monetary integration was taken in 1894, when the Swedish Riksbank and Norges Bank agreed to accept each other's notes at par, an arrangement adhered to by the Danish Nationalbank in 1901.

In 1905, Sweden withdrew from the 1885 agreement. Three months of intense negotiations among the three banks followed, resulting in the establishment of a new, more limited, clearing agreement. It was no longer permissible to draw checks that exceeded a bank's account balance. In order to reduce the likelihood of insufficient balances, however, each bank was entitled to a credit of up to 500,000 crowns per week from each of the other two banks.

Studying data on trade and check balances raised the question whether or not the clearing agreement was beneficial to all, or to any, of the SCU countries. It is clear that a substantial volume of checks was drawn throughout the entire life of the agreement, 1888-1914. It was also demonstrated that substantial imbalances existed in the clearing accounts and, furthermore, that these imbalances can not exclusively be attributed trade surpluses or deficits. Instead, both qualitative and quantitative evidence suggest that most of the monetary transactions within the clearing system involved financial arbitrage transactions.

This paper established that the cancellation of the original clearing agreement can not solely be attributed to the ongoing political conflict between Sweden and Norway. Rather it suggests that the dissolution of the political union between the two countries in 1905 brought to a head the Riksbank's already existing worries over having part of its reserves in the vaults of foreign central banks. This increased concern with the vulnerability aspect of monetary

cooperation thus served as the spark that ignited the pre-existing irritation over the fact that the agreement had ceased to play its original intended role.

This paper argues that international monetary cooperation is best understood as involving an inevitable trade off between financial efficiency and vulnerability. This trade off, in turn, influences the design of the institutions intended to increase such cooperation. In the case of the Scandinavian clearing mechanism, it appears at first blush that in 1905 a more efficient institution was replaced with a less efficient one. Once it is realized that the central banks were not trying to optimize efficiency as such, however, but rather were seeking an optimal combination of high efficiency and low vulnerability, the design of the new agreement becomes much more comprehensible.

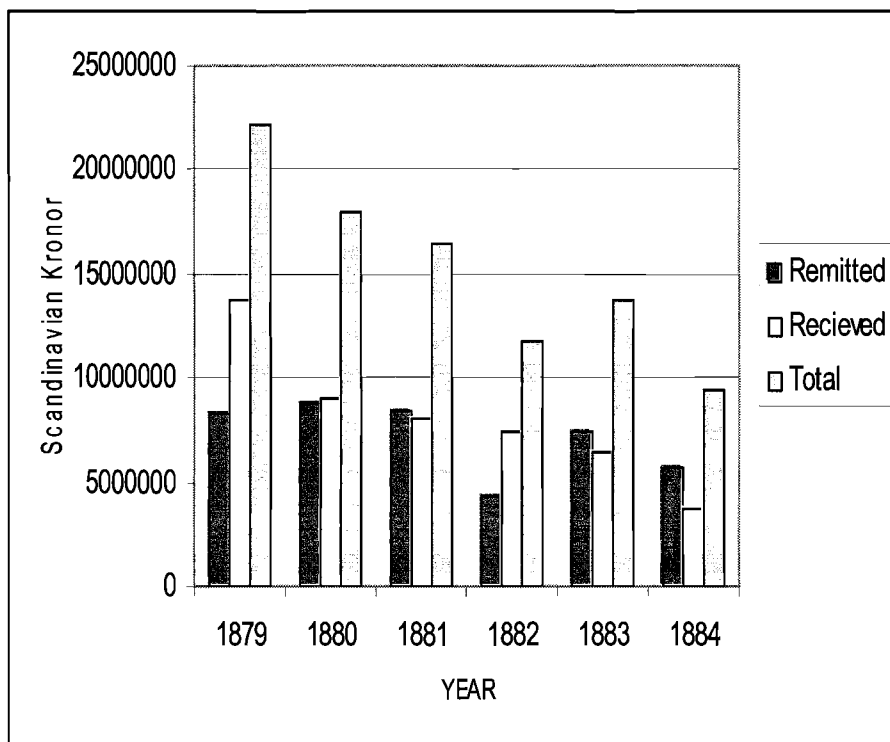
This episode thus tends to confirm North's assertion that the structure of an institution can only be explained in light of the incentive structure of those who negotiated it (the players, to use North's nomenclature). For example the change in the Riksbank's incentive structure following the reform of the Swedish banking system in 1897, explains the banks eagerness to renegotiate the Agreement of 1885. After the reform an increase in the foreign assets component of the gold reserve only increased the Riksbanks right to issue note with a 1:1 ratio; whilst if the value of the domestic gold reserve increased, then the Riksbanks right to issue notes increased with the double amount.

The paper also suggests that the Riksbank's still ambiguous role on the Swedish financial market in 1905 helps explain the Bank's determination to renegotiate the clearing agreement. The Riksbank had not yet matured into a modern central bank. The fact that it was still competing for market shares with the private banks helps explain why the Riksbank was dissatisfied with private banks being able to use the clearing agreement, free of charge, to finance their profitable arbitrage transactions. From this perspective, it is not surprising that the Riksbank was eager to introduce fees on the drawing of checks into the new clearing agreement.

Thus the clearing agreement is an interesting example on how institutions not necessarily is instituted to promote the aggregate well being of societies, but rather reflects the interests and motives of those groups and individuals with sufficient bargaining power to influence the outcome. It also serves as a reminder that the trade off between efficiency and vulnerability that constrains current projects to further integrate world financial markets is nothing new.

## Appendix

**Appendix 1.** The amount of Scandinavian gold coins remitted and received by the Nationalbanken to/from the other two banks during the period 1879-1884.



**Source:** Letter from Nationalbanken to the Riksbank, AoR. 12.07.1885., Riksbankschefernas Arkiv, FIA:15

Appendix 2. Agreement of November 1885 Among the Danish Nationalbank and the Swedish and Norwegian Central Banks for the Purpose of Facilitating Transactions Among the Three Countries. (In Swedish and in a English translation).

Appendix 2.1: Öfverenskommelse, af nov. 1885, mellan den Danske Nationalbank samt de svenska och norska statsbankerna. I syfte att lätta omsättningen mellan de tre länderna (Swedish).

I:o

Hvar och en af de tre bankerna öppnar för de två andra särskildt konto, hvar på dessa kunna utställa vid anfordran betalbara anvisningar, äfven utan att hafva något tillgodohafvande hos den bank, på hvilken anvisningen utfärdas. På samma konto kan desslikes insättas belopp till vederbörande banks kredit

II:o

Å belopp, som endera banken har innestående eller är skyldig på detta konto, erlägges icke någon ränta; ej heller beräknas någon kommission för omsättningarne på dessa räkningar.

III:o

Anvisningar på dessa konti äro betalbara vid bankernas i de tre hufvudstäderna färlagda kontor; hvarje banks styrelse obetaget att hvar för sig bestämma, huruvida dylik anvisning må vid andra kontor inlösas.

IV:o

Ingen af bankerna ör berättigad att endast till egen fördel utställa anvisningar på de andra bankerna utöfver sitt tillgodohafvande

V:o

Anvisningarna må icke lyda på mindre belopp än 10000 kronor

VI:o

För utställande och inlösen af anvisningarna beräknas ej någon afgift.

VII:o

Utfärdad anvisning skall alltid aviseras den bank, på hvilken densamma är utställd.

VIII:o

Bankernas skulder till hvarandra äro betalbara vid anfordran.

IX:o

Den bank, som indrager tillgodohafvande, svarar för den med dess försändande förenade utgift och risk.

X:o

Har den bank, hvars skuld skall betalas, ett motsvarande tillgodohafvande hos den tredje banken, äger densamma rätt att betäcka skulden medelst anvisning på denna.

XI:o

I öfrigt och för så vidt ej annat aftal i särskildt fall träffas, erlägges betalningen bankerna emellan alltid i 20 och 10 kronestycken.

XII:o

Vid utgången af Hvert Kvertal sänder Nationalbanken i Köpenhamn till Norges bank ochn Sveriges Riksbank ett utdrag af dess ifrågavarande räkningar hos densamma.

Likaledes sänder Sveriges Riksbank till Norges Bank ett utdrag af räkningarna dessa två banker emellan.

XIII:o

Öfverenskommelsen, som upphör 3 månader efter å någondera sidan skedd uppsägning, är afslutad under förbehåll att de myndigheter, under hvilka de respektive bankerna lyda och, där så erfodras, respektive regeringar till densamma lämna bifall; och så snart sådant erhållits, träder öfverenskommelsen i kraft.

XIV:o

För den händelse, att emot förmodan en af kontrahenterna skulleblifa hindrad att biträda öfverenskommelsen, träder den dock i kraft för de andra ifrågavarande bankerna.



*Scandinavian Monetary Cooperation 1873-1914*

Appendix 2.2 Agreement of November 1885 Among the Danish Nationalbank and the Swedish and Norwegian Central Banks for the Purpose of Facilitating Transactions Among the Three Countries. (English translation).

I

Each of the three banks will open a special account for each of the other two against which the latter can issue assignments payable on demand, even if they have no balance with the bank against which the assignment is drawn. The banks may also make deposits into their accounts.

II

No interest will be paid or charged on balances or deficits in these accounts; nor will any fees be assessed for transactions on them.

III

Assignments on these accounts are payable at the three capital city offices of the banks: the board of each bank may independently decide if such assignments are to be payable at additional offices.

IV

None of the banks are entitled to draw uncovered assignments on the other banks solely for its own benefit.

V

The assignments may not be for amounts of less than 10,000 kronor.

VI

No fees will be charged for the drawing or cashing of the assignments.

VII

The bank on which an assignment is drawn will always be so informed.

VIII

Inter banks debts will be payable on demand.

IX

The bank demanding payment will be responsible for the associated costs and risks.

X

If the bank which is required to pay its debt has a sufficient balance with the third bank, then the former will be entitled to pay its debt with an assignment on the latter.

XI

Otherwise, and absent a separate agreement in a particular situation, payment among the banks will always be made with 20 and 10 kronor coins.

XII

At the end of each quarter year, the Nationalbank in Copenhagen will send Norges Bank and the Swedish Riksbank an accounting of their transactions with the former. Similarly, the Swedish Riksbank will send an accounting to Norges Bank concerning the transactions between those two banks.

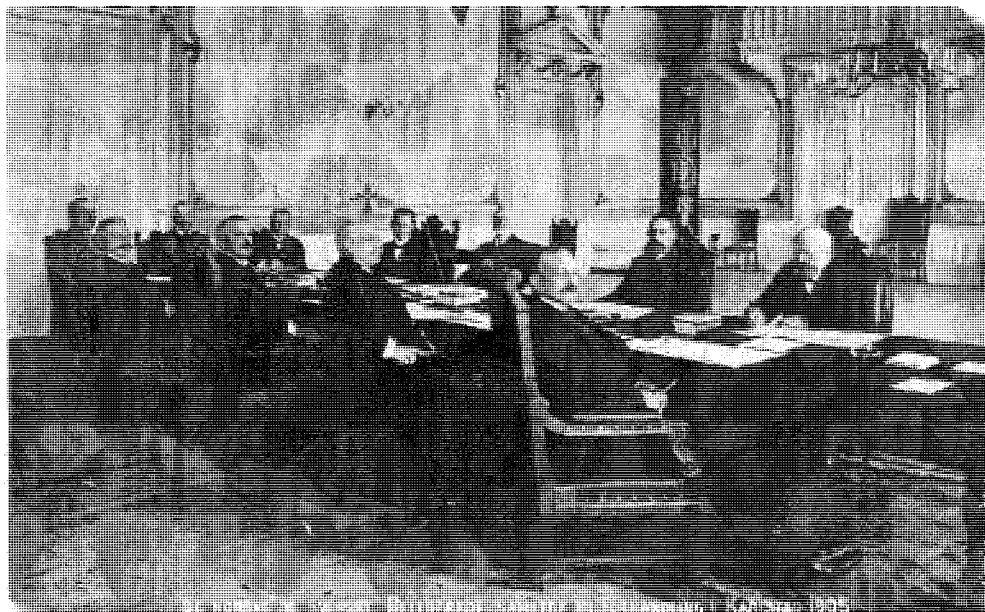
XIII

The agreement, which will terminate three months after any of the parties gives notice of withdrawal, is concluded on condition that the authorities under which the respective banks operate and, when so required, the respective governments have given their approval. As soon as such approval is received, the agreement will take effect.

XIV

In the unlikely event that one of the parties is prevented from adhering to the agreement, it will still take effect for the other banks in question.

Appendix 3. The Negotiations in Karlstad.



Nasjonalforsamlingen i Oslo, Stortingsbygningen, Norsk politisk 334a

*Note: The two delegations inside the Free Mason Lodge in Karlstad. The Norwegian representatives are seated on the right side of the table. From the right, they are Jørgen Løvland, Christian Michelsen (prime minister), the President of the Storting (Parliament) Carl Berner, former cabinet member Benjamin Vogt, and one of the Norwegian secretaries Andreas Urbye, formerly government attorney in Tromsø. On the Swedish side of the table, from the right: Hjalmar Hammarskjöld (later prime minister), Prime Minister Christian Lundeberg, Foreign Minister Fredrik Wachtmeister, Karl Staaff (later prime minister), secretary Carl Berg and - at the end of the table - secretary and later foreign minister Johannes Hellner.*

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- Chapter 4 -

The Integration and Efficiency  
of the Scandinavian Foreign Exchange Market  
1873-1914

- A Quantitative Analysis

Krim Talia\*

Stockholm School of Economics

ABSTRACT

This paper applies theories and methods from modern economics and finance to new sets of historical financial data in order to study the integration and efficiency of the Scandinavian foreign exchange market. Series of the monthly prices of sight sterling bills have been collected and subjected to statistical testing. The results clearly indicate that the degree of integration increased dramatically during the period 1879-1914. The price differentials recorded among the, geographically separated, national sub markets for this identical asset decreased substantially. It is clear that market integration took a giant step forward after the establishment of the Scandinavian clearing mechanism in 1885. This study provides the first empirical evidence that the clearing mechanism actually had the effect predicted by theory. The question of market efficiency was also addressed in this paper. It concludes that the undoubted progress towards market integration eliminated all systematic patterns in the price differences among the national Scandinavian sub markets. In other words, the over all Scandinavian foreign exchange market was efficient during most of this period.

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## 1 Introduction<sup>1</sup>

The evolution of financial markets, especially their increasing integration, has been a vibrant field of research for economists and economic historians for many years. The core of this work consists of studies analyzing the prices of identical assets on geographically separated markets.

According to conventional wisdom, the late nineteenth and early twentieth century was characterized by stable exchange rates and well integrated capital markets. In a classic account, Paul Einzig (1962) describes the functioning of European foreign exchange markets during this epoch as follows:

“The establishment of closer relations between banks in various centres led to a considerable increase in the volume of exchange arbitrage to take advantage of discrepancies in rates quoted in various centres, and also in the volume of interest arbitrage. By the early years of the 20<sup>th</sup> century the foreign exchange system reached a very advanced stage.[...]. The technique of the operations became highly refined and was described in detail in innumerable practical books and articles. In each market there were a number of highly skilled foreign exchange operators. By the outbreak of the first World War the modern Foreign Exchange system was well in operation all over the five continents.”<sup>2</sup>

The present study examines the development of market integration and efficiency on the Scandinavian foreign exchange market during the period 1873-1914. The establishment of the Scandinavian Currency Union (1873-1875) made prices in Sweden, Denmark and Norway directly comparable. Shortly thereafter, during the years 1885-1888, a clearing mechanism was established and an agreement on note circulation was reached, thus tying the countries even more closely together financially. The role of this new clearing mechanism in the process of market integration is of particular interest for this study. Previously, it has attracted the attention of numerous economists such as Nielsen (1917), Heckscher (1926), Bloomfield (1959), De Cecco (1992), and Bergman et al. (1993). They all agree that the clearing mechanism effectively eliminated the inter-country gold points, resulting in closer integration than that produced by the gold standard per se. Nielsen (1917) claimed that the clearing mechanism created a common Scandinavian market for money and credit:

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<sup>1</sup> I Thank Lars Jonung, Martin Korpi, Håkan Lindgren, Håkan Lobell and Daniel Waldenström for valuable comments. Also, participants of the EHF-seminars All errors are my own.

<sup>2</sup>Einzig (1962, p. 184-185).

“The free of charge drawing of cheques have been used for interest rate arbitrage, which have increased the capital flows between the Scandinavian countries. In this way the clearing mechanism has contributed to the creation of a common Scandinavian capital market and thereby indirectly to shape the economic development in the three countries.”<sup>3</sup>

Thus these institutional developments can be expected to have increased the level of market integration in Scandinavia during this period. That, in turn, should have been reflected in a convergence of the prices of identical assets among the countries.

The efficiency of the Scandinavian market for foreign capital will also be examined. The efficient market assumption asserts that, at any given point in time, asset prices will reflect all available information. The principal corollary of this assumption is that price movements will not display any predictable trend or pattern. Thus, past price movements can not be used to predict future prices. Instead, prices movements will be characterized by what is referred to as a *random walk* pattern. That is, they are intrinsically unpredictable. This random walk is often compared to the path a sailor might follow out of a bar after a long hard night drinking. This study therefore examines whether or not developments in Scandinavia resulted in a foreign exchange market characterized by perfect arbitrage.

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<sup>3</sup>Translation from Danish. “...men af andre blev Gireringen benyttet til Rentearbitrage, og den har, netop fordi den var omkostningsfri, fremmet Kapitaloverførsler fra ét Land til et andet og bidraget til ud af de tre Lande mere og mere at skabe et særligt skandinavisk Penge- og Kapitalmarked og derigennem indirekte bidraget sit til at forme den økonomiske Udvikling” Nielsen (1917, p. 58).

## 2 Theory and Methodology

Measuring the degree of integration of financial markets presents both theoretical and empirical difficulties. The search for the best such measure has resulted in a number of approaches. Market integration is usually defined in terms of the degree to which the “law of one price” (LOP) is satisfied. The LOP asserts that, in the presence of trade and with the exhaustion of all arbitrage opportunities, price variations among markets is limited to transactions costs. This might be labelled the price criteria for market integration. Empirical work on the subject began with studies of the interest rate convergence, as well as the remaining divergences, among geographically separated capital markets. This approach, however, was found to have inherent problems of interpretation.<sup>4</sup> Instead the level of the capital flows among markets has been utilized as an alternative measure of capital market integration. The mere presence of such flows, however, is neither a necessary nor a sufficient condition for the existence of market integration. Consequently, in this study price convergence is used as the yardstick for measuring market integration. Clearly, however, this measure is not without problems. The most important practical difficulty has been the shortage of flow data on identical assets in different markets.

The process of market integration is driven by the search for profitable arbitrage opportunities. Thus the concept of arbitrage is central to this study. Arbitrage can be defined as “the opportunity to buy an asset at a low price then immediately selling it on a different market for a higher price”. That is, actors strive to benefit from inter market price differentials for an identical good (in this study, foreign bills). A less formal definition is offered by Lobell (2000): “A buyer or seller in location C, chooses to do his transaction with market A or B, depending on where the most favourable deal can be made”. Lobell argues that arbitrage, by transferring goods from a market with excess supply to one with excess demand, effectively eliminates price differentials.

As arbitrage opportunities are exploited, and thereby extinguished, prices are equalized except for the relevant transactions costs. These include cost such as those for: information gathering, transportation, insurance, commissions, as well as foregone interest. As Lobell argues:

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<sup>4</sup>For a discussion on the shortcomings of the interest rate approach, see Neal (1985), and Dooley and Chinn (1995).

“The size of the costs of arbitrage will determine a pair of commodity points or, as in this case, ‘sterling bill points’. The range between the points will constitute a range within which the prices of identical foreign bill could differ without giving rise to profitable arbitrage transactions. The size of the transaction costs will determine to what degree prices will converge, or in other words, to what degree the markets are integrated.”<sup>5</sup>

In this study, data from the markets in Copenhagen, Oslo and Stockholm, where foreign bills were traded, has been utilized. This data can yield information on how institutional changes and improvements in information and transportation technology affected the degree of integration on the over all Scandinavian foreign exchange market. Price differences existing among the individual national markets provide a measure of their separation or lack of integration.

The efficiency of the Scandinavian market for foreign exchange is subjected to a test based on the well established theoretical conclusion that efficient markets display random walk behaviour. That is, there should be no detectable time series pattern in the price differences among the markets studied. The concept of a random walk can be traced to the doctoral thesis of the French mathematician Louis Bachelier “The Theory of Speculation”, published in 1900. The efficient market hypothesis (EMH), in turn, originated in a 1965 article entitled “Proof that Properly Anticipated Prices Fluctuate Randomly” by Paul Samuelson. The concept was made operational by Eugene Fama in his 1970 article “Efficient Capital Markets” where he noted that in efficient markets “*prices fully reflect all available information*”. Fama distinguished three levels of efficiency: weak, semi-strong and strong. Weak efficiency means that prices reflect all available information. Semi-strong efficiency means that all new information is immediately and without bias reflected in prices. Strong efficiency means that all information is reflected in prices. Thus, in the latter case, not even insiders can reap above average profits. If a non-random walk price pattern is detected, a market can not be classified as fully integrated or efficient.

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<sup>5</sup>Lobell (2000, p. 153-54).

A frequently used technique for estimating time series components is the ARMA( $p, q$ ) method. This approach consists of two elements:

**Eq. 1.** 
$$Y_t = \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \dots + \alpha_p Y_{t-p} + \varepsilon_t$$

This auto-regressive model AR( $p$ ) tests whether or not a variable can be described as a linear function of its previous values. Here  $p$  denotes the order of the auto-regressive structure.

The second element is a moving average model MA( $q$ ):

**Eq. 2.** 
$$Y_t = \varepsilon_t - \beta_1 \varepsilon_{t-1} - \beta_2 \varepsilon_{t-2} - \dots - \beta_q \varepsilon_{t-q}$$

This model is used to test whether or not a variable can be described as a function of its previous forecast errors. Here  $q$  denotes the order of the moving average structure.

Thus, an ARMA( $p, q$ ) model is a combination of an AR( $p$ ) and an MA( $q$ ) model:

**Eq. 3.** 
$$Y_t = \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \dots + \alpha_p Y_{t-p} + \varepsilon_t - \beta_1 \varepsilon_{t-1} - \beta_2 \varepsilon_{t-2} - \dots - \beta_q \varepsilon_{t-q}$$

Neal (1985) used this technique to study the efficiency of the arbitrage among spatially separated markets. He compared the price of a given share of stock as quoted on its domestic exchange with its price on a foreign exchange.

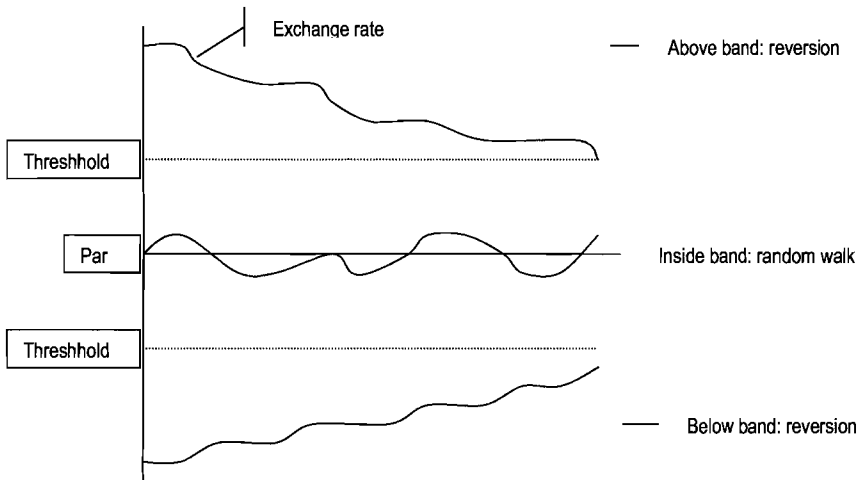
Lobell (2000) studied market integration and efficiency in Sweden during the period 1834-1880 by comparing prices of 90 day sterling bills as quoted on the geographically separated sub markets in Stockholm and Gothenburg. He applied the ARMA( $p, q$ ) technique to investigate two different phenomena. First the efficiency - or the increase in efficiency - of the separate Swedish markets is estimated. Second, the long run trend towards the spatial integration of the Stockholm and Gothenburg markets into a single national market is studied.

It might be argued that random walk theory is not directly applicable to the study of spatial integration and efficiency based on series of price differentials. In the presence of transactions costs, however, arbitrage will not be profitable unless the price differential

exceeds those costs. Without available profit opportunities, prices or price differentials moves within the transaction cost range and will thus assume any value with equal probability.<sup>6</sup>

Taylor and Prakash (1997), argue that within the band, between the gold points, the price process follows a driftless random walk. These dynamics is depicted in Figure 1.

**Figure 1:** *Exchange Rate Adjustment in Theory*



In the spirit of Heckscher's (1916) concept of commodity points, it is assumed in this study that these dynamics are equally applicable to other price processes. By so doing, his concept can be rendered operational for the analysis of arbitrage efficiency. Perfect arbitrage, that is a situation where price differentials never exceed the transaction costs of arbitrage, thus implies that price differential fluctuations will be random and free of time series patterns.

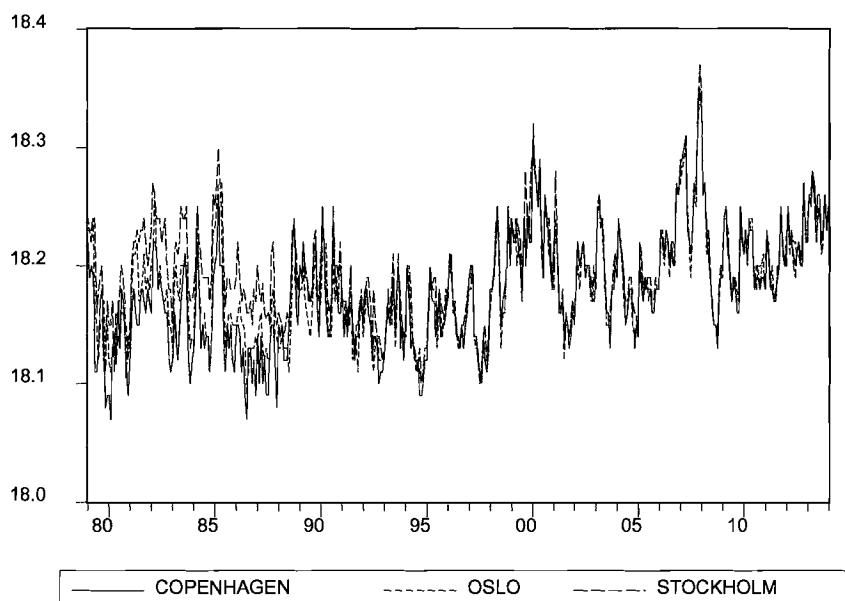
The present study takes inspiration from this earlier work and applies the techniques developed by Neal and Lobell to the Scandinavian markets for foreign exchange during the period 1879-1914.

<sup>6</sup>See also Heckscher (1916) Neal (1985), Officer (1996), Prakash & Taylor (1997), Obstfeld and Taylor (1997) Ejrnaes and Person(2000), Lobell (2000).

### 3 Measuring the Integration and Efficiency of the Scandinavian Foreign Exchange Market, 1873-1914

As noted above, there is reason to believe that the Scandinavian foreign exchange market experienced increased integration and improved efficiency during the years of the Scandinavian Currency Union, 1873-1914. This section is devoted to an empirical investigation of these developments. Three price series of sight sterling bills, one for each country, will be utilized.<sup>7</sup> It has been possible to construct these series on a monthly basis for the period 1879-1914 (see Appendix 1) from information contained in daily newspapers and official statistical reports. The prices for the first trading day of each month were used. On five occasions no such data was available, then the price have been interpolated as an average of the previous and the following trading day's price quotes. Figure 2 displays these series of sight sterling bill prices in the three Scandinavian capitals.

**Figure 2.** *Prices of Sight Sterling Bill in Copenhagen, Oslo, and Stockholm, 1879-1914.*



**Sources:** Sweden (*Göteborgs Handels och Sjöfartstidning* and *Post och Inrikes Tidningar*.) Denmark (*Sydsvenska Dagbladet*, *Göteborgs Handels och Sjöfartstidning* and *Statistisk Årbog*) Norway (*Statistisk Årbog*)

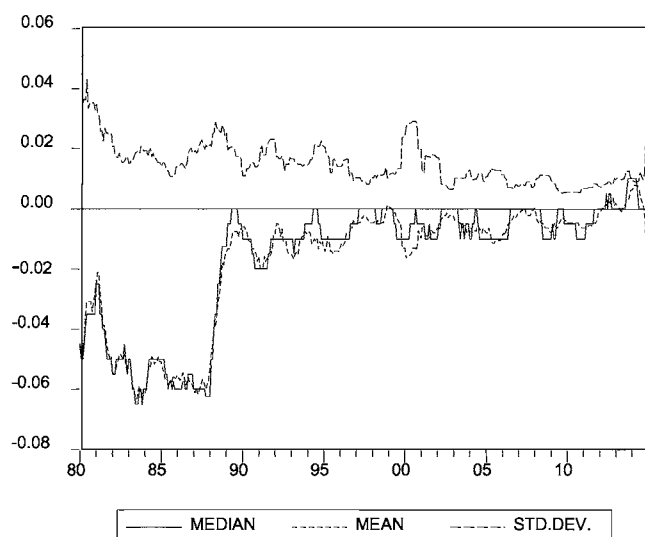
<sup>7</sup>In this study I have made use of the price series of the sight bill or the avista bills. This meant that the buyer of British pounds in the Scandinavian center (say, Copenhagen) paid in Scandinavian kronor immediately, but received the pounds only after shipping the bill across to the British island and "presenting" it in London. Time bills is different from sight bills, for example, a 90-day sterling bill would involve an additional 93-day lag before receiving pounds—90 days inherent in the bill itself plus three "days of grace."

### 3.1 The Analysis of Market Integration

This section the focus on the spatial integration process affecting the Scandinavian market for foreign exchange. Price differentials between the national markets are examined pair wise. First the spatial market integration between Copenhagen and Stockholm is addressed, followed by that between Oslo and Stockholm and finally between Copenhagen and Oslo. The degree of spatial integration is measured in terms of the price differential on geographically separated markets for an identical asset.

Merely glancing at Figure 2 clearly indicates that, even though the price series generally followed each other closely, during these decades, there were occasions when prices deviated among the markets. These occasions were especially frequent during the early part of the period. The results of a detailed study of market integration between Copenhagen and Stockholm presented in Figure 3, makes it apparent that the prices of sight sterling bills deviated substantially between these cities until the late 1880's. Starting in 1888, however, they began to converge. Three measures of market integration are presented in Figure 3. These are the one year moving average, the median and the moving standard deviation of the absolute price differentials observed between Copenhagen and Stockholm.

**Figure 3.** *Annual Moving Averages of Market Quotes, 1879-1914. Means, Medians and Standard Deviations of the Absolute Price Differential Between the Copenhagen and the Stockholm Exchange (Monthly observations)*



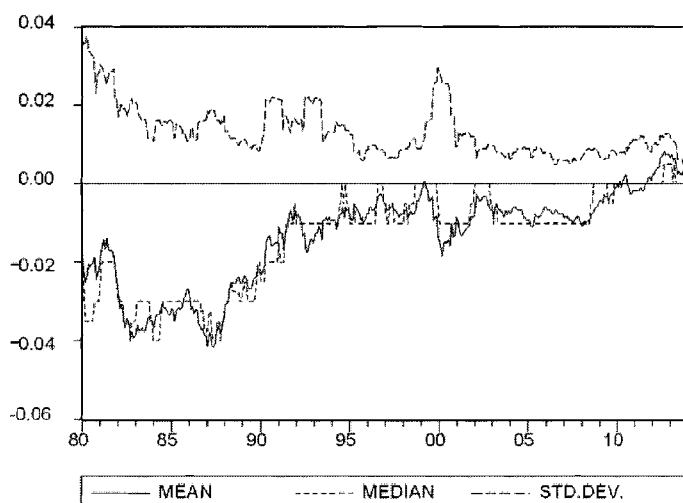


**Sources:** Sweden (*Göteborgs Handels och Sjöfartstidning* and *Post och Inrikes Tidningar*.) Denmark (*Sydsvenska Dagbladet*, *Göteborgs Handels och Sjöfartstidning* and *Statistisk Årbog*).

In conclusion, it is apparent that the degree of market integration between Stockholm and Copenhagen increased continuously during this period. It is also interesting to note that the pace of integration accelerated following the adoption and extension of the Scandinavian clearing mechanism during the late 1880's.

Figure 4 displays the results of repeating the analysis, this time for Oslo and Stockholm. A similar pattern emerges. Although Oslo and Stockholm were more integrated than Copenhagen and Stockholm at the beginning of the period, once again the rate of integration accelerated after Norway adhered to the clearing agreement in 1888.

**Figure 4.** Annual Moving Averages of Market Quotes, 1879-1914. Means, Medians and Standard Deviations of the Absolute Price Differential Between the Stockholm and the Oslo Exchange (Monthly observations)

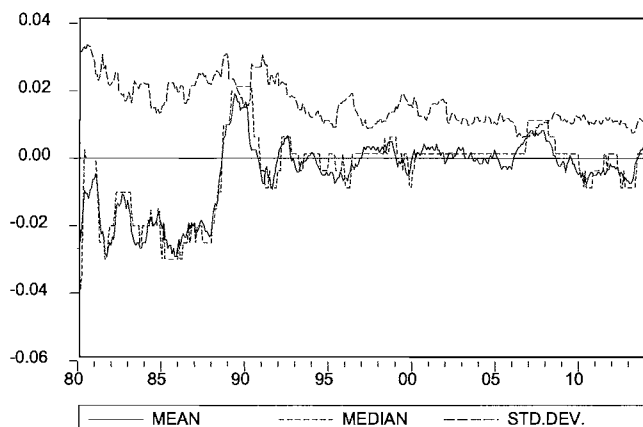


**Sources:** Sweden (*Göteborgs Handels och Sjöfartstidning* and *Post och Inrikes Tidningar*.) Norway (*Statistisk Årbog*)

It is interesting to note that the prices of sight sterling bills were consistently higher in Stockholm than in either Copenhagen or Oslo.

Figure 5 shifts attention to the last pair of markets studied, those in Copenhagen and Oslo.

**Figure 5.** Annual Moving Averages of Market Quotes, 1879-1914. Means, Medians and Standard Deviations of the Absolute Price Differential Between the Copenhagen and the Oslo Exchange (Monthly observations)



**Sources:** Denmark (*Sydsvenska Dagbladet*, *Göteborgs Handels och Sjöfartstidning* and *Statistisk Årbog*) Norway (*Statistisk Årbog*)

All three markets follow a strikingly similar pattern. The level of integration between Copenhagen and Oslo increased sharply during the late 1880's and early 1890's. Starting in 1891, these two markets were the most closely integrated in Scandinavia. In order to facilitate further discussion of the process of market integration, the entire period will be divided into pre- and post- market clearing mechanism sub periods in the following section.

### 3.1.1 Was Increased Integration a Product of the Clearing Mechanism?

Table 1 summarizes the price differences for sight sterling bills among the national Scandinavian foreign exchange sub markets. It contains the average of the absolute price differentials, the standard deviations and the maximum and minimum differences observed, as well as the range of such differences. As argued by Neal (1985), these variables reflect the principal aspects of integration between each pair of markets.

**Table 1. Summary Statistics Concerning Sterling Bill Integration in Scandinavia, 1879-1914**

<i>Name</i>	<i>Average</i>	<i>Median</i>	<i>Standard Deviation</i>	<i>Maximum Difference Observed</i>	<i>Minimum Difference Observed</i>	<i>Range</i>
<b>A. The complete period (monthly January 1879-January 1914)</b>						
Copenhagen-Oslo	-0.004834	0.000000	0.018682	0.040000	-0.070000	0,11000
Copenhagen-Sthlm.	-0.018079	-0.010000	0.025762	0.030000	-0.130000	0,16000
Oslo-Stockholm	-0.013266	-0.010000	0.018922	0.050000	-0.080000	0,13000
<b>B. Pre clearing agreement period (monthly January 1879-December 1888)</b>						
Copenhagen-Oslo	-0.017708	-0.020000	0.023567	0.040000	-0.070000	0,11000
Copenhagen-Sthlm.	-0.047250	-0.050000	0.025428	0.030000	-0.130000	0,16000
Oslo-Stockholm	-0.029542	-0.030000	0.021054	0.050000	-0.080000	0,13000
<b>C. Post clearing agreement period (monthly January 1889- January 1914)</b>						
Copenhagen-Oslo	0.000299	0.000000	0.013251	0.040000	-0.060000	0,10000
Copenhagen-Sthlm.	-0.006859	-0.010000	0.014757	0.020000	-0.100000	0,12000
Oslo-Stockholm	-0.006777	-0.010000	0.013313	0.040000	-0.070000	0,11000

**Sources:** *Sverige* (Göteborgs Handels och Sjöfartstidning and Post och Inrikes Tidningar.) *Denmark* (Sydsvenska dagbladet and Statistisk Årbog) *Norway* (Statistisk Årbog)

Panel A contains statistics for the entire period. These statistics indicate that the price of sight sterling bills, on average, were approximately 2 öre/£ sterling higher in Stockholm than in Copenhagen. Compared to Oslo, these prices were approximately 1½ öre/£ sterling higher in Stockholm.

In panels B and C, the entire period is divided into pre-clearing agreement and post-clearing agreement sub periods. This partition was motivated by the result, reported in the previous section, indicating that the adoption of a joint clearing mechanism in the area had a substantial positive impact on the level of market integration. A comparison of the results for the two sub periods reveals a remarkable increase in the level of market integration. The mean of the absolute price differentials between Copenhagen and Stockholm decreased from nearly 5 öre/£ sterling before the adoption of the market clearing mechanism to approximately 0,5 öre/£ sterling afterwards. A similar result is obtained for the two other market pairings. Thus, all the results support the conclusion that market integration was much greater with, than without, the market clearing mechanism. Causality, however, can only be established by

excluding the possibility that some other major, integration enhancing, institutional or communications innovations occurred at the same time.

In his study of the integration of the Swedish foreign exchange market between 1843 and 1880, Lobell (2000) concludes that major improvements in communications technology revolutionized the transfer of information between the markets in Stockholm and Gothenburg. In 1843, it took approximately three days to convey information from one of the cities to the other. In 1856, however, a telegraph connection was established, drastically reducing the time required. After a direct telegraph link between the two cities became available in the late 1856, information could be transferred almost instantaneously.

Is it possible that the leap in integration of the Scandinavian foreign exchange market was simply a byproduct of the newly established telegraph system? The answer is yes, and no. The striking increase in integration observed during the late 1880s can hardly have been the result of a telegraph system that was in place by the late 1860s. The first telegraphic link between Sweden and Denmark was opened in January of 1855.<sup>8</sup> After that date, news and information could be transferred in a small fraction of the time (days and even weeks) previously required. In 1869, The Great Northern Telegraph Company (Det Store Nordiske Telegraf Selskab), based in Copenhagen, was created through the merger of the three dominant Scandinavian telegraph companies. The goal of the new merged company was to improve and shorten the Nordic telegraph network and to establish new lines, to Scotland in the west and Russia in the east. By the 1870's, Scandinavia was connected by telegraph to every corner of the world.<sup>9</sup> Clearly, this telegraphic network can not be the explanation for the sharply improved market integration of the late 1880s. Nonetheless, the existence of the Scandinavian telegraph net was a prerequisite for the sharp increase in integration. Without it, arbitragers would not have been able exploit the opportunities produced by the new clearing mechanism.

Just as the telegraph can be ruled out as the principal cause of greater integration because it appeared too early, the telephone can be ruled out because it appeared too late. According to Algott (1965), telephones were first widely used by traders on the Stockholm exchange during the speculative years of World War I.<sup>10</sup> Thus, it is possible to discard the possibility that the dramatic increase in Scandinavian market integration was the result of an innovation in communications technology that facilitated the transfer of price information. In

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<sup>8</sup>Thavanainen (1997, p. 33).

<sup>9</sup>Ibid. p. 35.

<sup>10</sup> Algott (1965 p. 42).

addition, no major institutional innovation, other than the introduction of the clearing mechanism, has been identified.

### **3.2 The Measurement of Market Efficiency<sup>11</sup>**

In this section, the possible existence of any detectable patterns in the time series of price differences among the national Scandinavian sub markets is investigated. Unless these series display random walk behaviour, there must have been unexploited arbitrage opportunities among these markets. That, in turn, would mean that they were not fully integrated or efficient.

Initially, the efficiency on the Scandinavian foreign exchange market is tested using an ARMA(p,q) estimation technique. The degree of efficiency of market arbitrage is measured by the extent to which the observed price differentials are within the limits established by the existing transaction costs. The presence of an ARMA(p,q) process in the price differential series indicates an element of inefficiency in the market. Model selection and specification tests follow the procedure proposed by Box and Jenkins (1976). Analysis of the price differentials between Copenhagen and Stockholm reveals the presence of ARMA(p,q) processes. This result suggests that there remained unexploited arbitrage opportunities between these two Scandinavian exchanges. Since previous analysis has concluded that the Scandinavian national sub markets for foreign exchange experienced a substantial increase in integration over time, it is of interest to determine if arbitrage efficiency on the over all Scandinavian market also was improving. On the highly reasonable assumption that the process of integration is driven by the search for profitable arbitrage opportunities, it can be concluded that there also was an increase in trading designed to take advantage of discrepancies in the prices quoted on the various Scandinavian exchanges.

A analysis of arbitrage efficiency over time can be performed by applying a *rolling regression* technique (see Lobell 2000). This is done by running 385 AR(1) regressions with a moving window of 48 (four years worth) of observations from the market price series. This procedure yields results that are comparable over time. Significant AR(1) terms in the sub-samples indicates the presence of arbitrage inefficiency. As noted by Lobell (2000), the principal disadvantage of this technique is its failure to measure the *degree* of inefficiency. It will only indicate the presence, or absence, of perfect arbitrage.<sup>12</sup> For purposes of this study,

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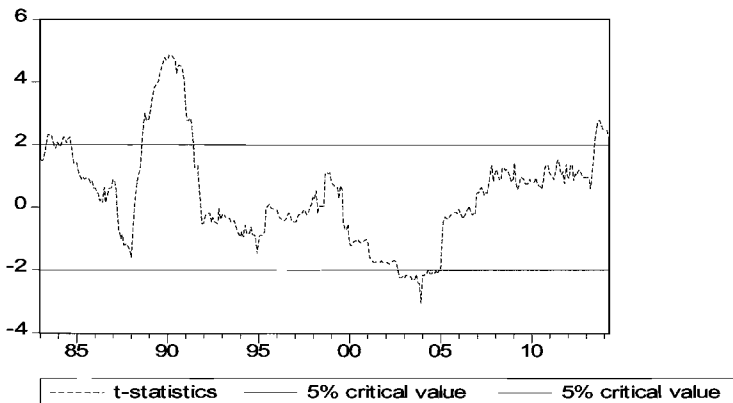
<sup>11</sup>I am grateful to Kent Johansson and Håkan Lobell for help with the programming procedures in Eviews.

<sup>12</sup>Another drawback of this technique is that it does not allow for the usual diagnostic testing because of the high number of regressions conducted.

therefore, it is only possible to determine whether or not integration among the national foreign exchange sub-markets had proceeded far enough so that the over all Scandinavian market can be credited with having perfect arbitrage during the 1879-1914 period.

Just as in the analysis of market integration, this analysis is performed pair wise for the three sub markets; first Copenhagen versus Stockholm, then Copenhagen versus Oslo and finally Oslo versus Stockholm. The results of the Copenhagen versus Stockholm test are presented in Figure 5. The curve in the figure displays the t-statistics for the coefficients in the 385 moving sub sample AR(1) regressions. A 95 per cent ( $-2 \geq t \geq 2$ ), significance level was chosen. The critical t values are shown as straight lines in figures 6-8

**Figure 6.** Coefficient *t*-statistics for 385 AR(1) Regressions Run on a Moving Sample of 48 Monthly Price Differentials Between the Copenhagen and Stockholm Exchanges, 1879-1914



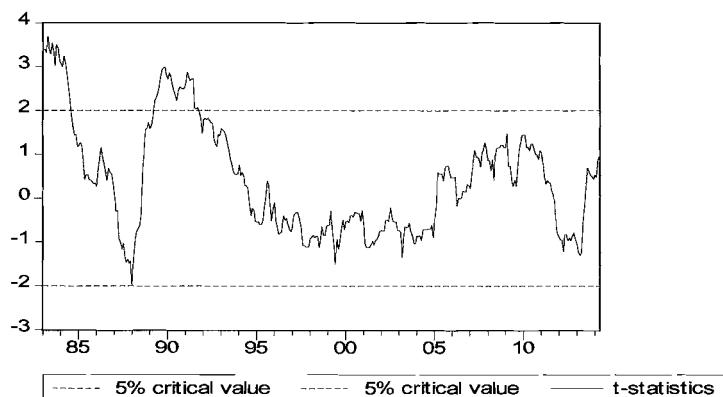
**Source:** Sweden (*Göteborgs Handels och Sjöfartstidning* and *Post och Inrikes Tidningar*.)Denmark (*Sydsvenska Dagbladet*, *Göteborgs Handels och Sjöfartstidning* and *Statistisk Årbog*)

Figure 6 suggest that for most of the period 1879-1914, there was perfect arbitrage between the markets in Copenhagen and Stockholm. This conclusion follows from the fact that the t-statistics generated by the AR(1) regressions fall within the critical value thresholds, and thus that the price differentials fluctuated randomly. A temporary change in the dynamics of the price differential series, however, can be observed during the years 1889-1891. For those years, highly significant AR(1) coefficients were obtained, indicating the presence of a time series pattern in the data. How can this, albeit brief, period of unexploited arbitrage opportunities be explained? The most likely answer is that the dramatic decrease in transactions cost resulting from the establishment of the clearing agreement was not fully

exploited initially. This atypical interlude, however, does not alter the over all picture. It is still the case that the two markets were characterized by perfect arbitrage and efficiency during most of the period studied.

When attention is shifted to the price differentials between the Copenhagen and Oslo markets, as presented in Figure 7, the conclusion remains the same.

**Figure 7.** Coefficient *t*-statistics for 385 AR(1) Regressions Run on a Moving Sample of 48 Monthly Price Differentials Between the Copenhagen and Oslo Exchanges, 1879-1914

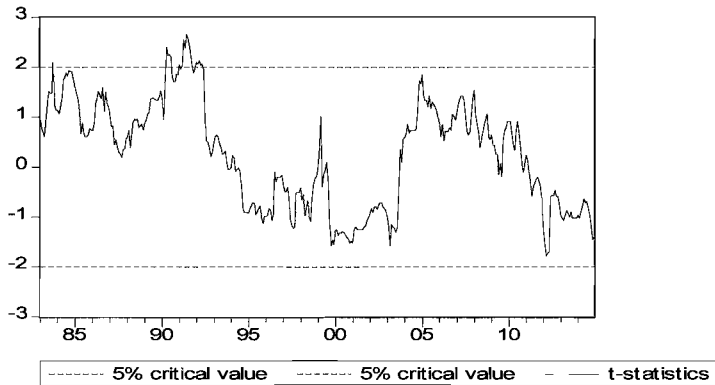


**Sources:** Denmark (*Sydsvenska Dagbladet*, *Göteborgs Handels och Sjöfartstidning* and *Statistisk Årbog*) Norway (*Statistisk Årbog*)

The results displayed in Figure 7 clearly indicate that the two markets were characterized by perfect arbitrage during this period. For most years, the series displays the random walk behaviour that is characteristic of pricing processes that lie with the commodity point thresholds. Once again, however, statistically significant AR(1) coefficients are observed for a brief period following the establishment of the clearing agreement. As before, this result indicates that some arbitrage opportunities between the two markets remained unexploited during that short period.

The final rolling regression, dealing with Oslo versus Stockholm price differences, yields a similar result. As shown in Figure 8, once again it is a case of a pair of markets mainly characterised by perfect arbitrage and efficiency.

**Figure 8.** Coefficient  $t$ -statistics for 385 AR(1) Regressions Run on a Moving Sample of 48 Monthly Price Differentials Between the Oslo and Stockholm Exchanges, 1879-1914



**Sources:** Sweden (*Göteborgs Handels och Sjöfartstidning* and *Post och Inrikes Tidningar*.) Norway (*Statistisk Årbog*)

As noted in section 3.1, the price of sight sterling bills was consistently higher in Stockholm than in the neighbouring capitals. This difference, however, seems to have lain within the transaction cost thresholds. Thus, it seems clear that arbitrage efficiency was not just improving; starting in 1892 the markets can be characterized as perfectly efficient in the weak sense of Fama.



## 4 Concluding discussion

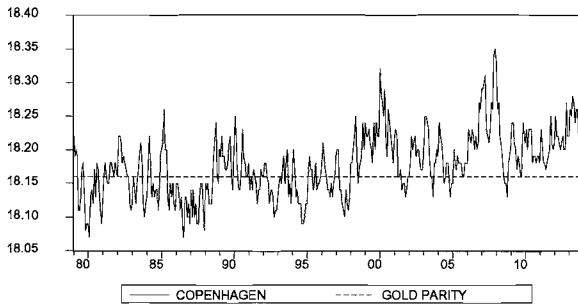
This paper has studied the integration and the efficiency of the Scandinavian market for foreign exchange. This has been done by collecting and statistically testing series of monthly prices of sight sterling bills. It has established that the market underwent a continuous process of increasing integration throughout the period 1879-1914. The price differences recorded among the, geographically separated, national sub markets for this identical asset decreased substantially. It also has been demonstrated that the process of market integration leapt forward during the late 1880s. This rapid advance towards greater integration on the Scandinavian market for foreign exchange was related to the establishment of an inter-Scandinavian, cost free, clearing mechanism. As previous research has noted, at least in theory this agreement eliminated the gold points and integrated the Scandinavian sub markets more closely than did mere adherence to the gold standard. This study provides the first quantitative evidence that the clearing mechanism in practice had the effect predicted by economic theory. Thus, for example, the average sterling bill price difference between Copenhagen and Stockholm declined from almost 5 öre/£ sterling to approximately one tenth that level following the introduction of the Scandinavian clearing mechanism. It was also possible to exclude the possibility that this increased market integration was the result of some other major institutional or communication innovation. Nonetheless, there is no doubt that the rapid transfer of market information over a well functioning inter Scandinavian telegraph network was an essential prerequisite for effective arbitrage activity.

The question of market efficiency was also addressed in this paper. It was concluded that, for most of the period studied, the random walk behavior typical of price processes within the limits of the commodity points was observed. Indeed, starting in 1892, the Scandinavian foreign exchange market was characterized by perfect arbitrage. Only during a few years before that, but shortly after the establishment of the clearing mechanism, were statistically significant AR(1) coefficients, indicating the presence of a time series pattern, detected. The explanation for this brief anomaly probably can be found in the dramatic decrease in arbitrage transactions costs that followed the establishment of the clearing agreement in 1885. It simply took some time for the actors on the market to fully exploit these new opportunities. However that may be, however, this brief period of less than perfect arbitrage does not change the overall picture. It is still the case that the Scandinavian foreign exchange market was characterized by perfect arbitrage and efficiency for the great majority of the period studied.

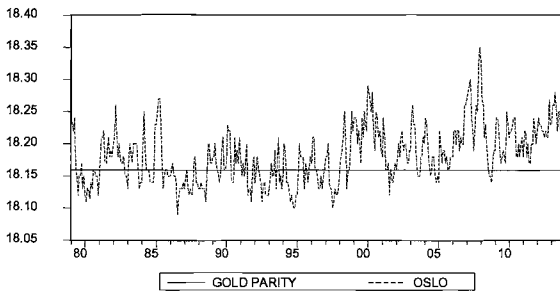
## Appendix

### Appendix 1: Prices of Sight Sterling Bills in Copenhagen, Oslo and Stocholm,1879-1914 (monthly).

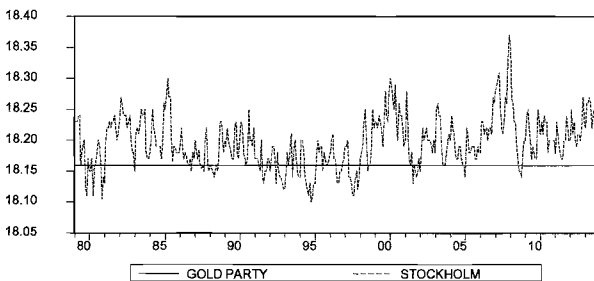
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## - Chapter 5 -

# The Decline and Fall of the Scandinavian Currency Union 1914 – 1924

Events in the Aftermath of World War I

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### ABSTRACT

In 1873, Denmark, Norway and Sweden formed the Scandinavian Currency Union (SCU) and adopted the gold standard. The Union worked fairly smoothly during the next thirty years and was partly extended until 1914. The outbreak of World War I triggered a series of events that eventually would lead to the formal cancellation of the union in 1924. The suspension of convertibility and the export prohibition on gold in 1914, opened exchange rate tensions within the union, and acted as a first nail in the SCU's coffin. Although the countries *de facto* had their currencies valued at different rates externally, the treaty of 1873 made them tradable at par within the union. This conflict, between *de facto* situation and *de jure* regulation, opened arbitrage opportunities for the public; but also resulted in opportunistic behaviour in the relation between the Scandinavian Central Banks. This study of the break-up of the SCU finds that the gold standard functioned as a unifying straitjacket on monetary policy and was an important prerequisite for a monetary union without a common central bank. It also challenges earlier work on the break-up of the SCU, by suggesting that the most important factor behind the centrifugal tensions within the Currency Union was the improved Swedish balance of trade following the outbreak of Word War I. The fact that wartime trade performance differed between the three countries made the currency area face an asymmetric external shock that required an exchange-rate adjustment – causing the fall of the union.

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## 1 Introduction<sup>1</sup>

*"Two main questions face students of monetary unions: why are they formed and why do they break apart?"*<sup>2</sup>

The principal goal of this essay is to determine how and why the SCU disintegrated. The break up of the Union was a gradual process, initiated by the outbreak of World War I, and culminating in the formal abrogation of its remnants in 1924. This study recounts the principal events and mechanisms at work during the decade preceding the final dissolution. The conclusions reached are compared to those of previous work on the subject. The essay also discusses the efforts made to save and preserve the Union, based on the contemporaneous correspondence among the three Scandinavian central banks. This investigation of the process leading up to the dissolution of 1924 also has generated additional questions to be discussed; for example, how did the Union survive as long as it did considering the fact that it apparently did more harm than good for some years before its demise.

Analytically this study is closely related to other work on monetary regimes and monetary regime switches. Not surprisingly, it begins with a search for a definition of the somewhat diffuse term "monetary regime". According to Barry Eichengren, a useful first step is to divide the term into its two sub components.<sup>3</sup> Political scientists have defined a "regime" as the "the norms, rules and procedures that guide the behaviour of states and other important actors".<sup>4</sup> Another perspective is offered by Stephen Krasner. According to him, a "regime" consists of "principles, norms, rules, and decision-making procedures around which actors expectations converge in a given issue-area".<sup>5</sup> In this particular case, these actors are the governments and the central banks of the three Scandinavian countries, and the "issue-area" is the monetary system. Such an interpretation then shifts attention to the other component requiring a definition, i.e. "monetary". The word "monetary" obviously is the adjective form of "money". Thus, for example, when Eichengren discusses the term he stresses the three

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<sup>1</sup> I thank Michael D. Bordo, Lars Jonung, Martin Korpi, Håkan Lindgren, Håkan Lobell, Chris Miessner, Mike Rafferty, Jaime Reis, Hugh Rogoff and Anders Ögren for valuable comments. Also, participants at session no. 39, at the XIII Economic History Congress, in Buenos Aires 2002 and the EHF-seminars All errors are my own.

<sup>2</sup>Bergman et al (1993, p. 507).

<sup>3</sup>Eichengren (1992, p. iv).

<sup>4</sup>Keohane (1980, p. 152).

<sup>5</sup>Krasner (1982, p. 185).

basic functions of money identified by economic theory: money as a store of value, as a medium of exchange and as a unit of account. A monetary regime, thus, “[is] a set of rules or procedures affecting money’s ability to provide one or more of this functions”.<sup>6</sup> Simply put, a switch from a fixed to a floating currency, which obviously affects its ability to act as a store of value, constitutes a change in monetary regimes. It is apparent that the search for a definition of the term monetary regime inevitably leads into the twilight zone between political science and economic theory.

The so-called “institutional” approach has shown itself to be fruitful in dealing with issues that overlap the boundary between political science and economic theory. During recent years, Douglass C. North has been one of the most influential institutional scholars. He emphasizes the importance of a country’s institutional framework for its economic performance. According to North, norms, rules and procedures constitute the formal and informal institutions that govern the behavior of actors.<sup>7</sup> Thus, one of the first tasks of this essay will be to specify the most important rules and regulations governing the SCU, as well as to identify the principal actors involved. Since the principal topic is institutional change, however, it is not enough just to describe the functioning of the Union during periods of stability. The onset of World War I constituted a major change in the institutional framework within which the three countries operated. The study thus concerns a situation where an existing institutional framework is rendered unstable.

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<sup>6</sup>Eichengreen (1992, p. ix).

<sup>7</sup>North (1990).



## **1.1 Previous Research**

Until recently, the SCU was a virtually forgotten episode. Interest in the history of monetary unions, the SCU included, however, has experienced a renaissance in light of the EMU.

As noted above, Michael Bergman, Stefan Gerlach and Lars Jonung (1993) argue that the most important question concerning monetary unions is why they break apart. After examining the collapse of the SCU, these authors conclude that its demise was set in motion by the onset of World War I:

“After the outbreak of war, Denmark and Norway experienced a sharp rise in foreign exports that was not shared by Sweden. As a result of this, monetary growth in Denmark and Norway as measured by notes in circulation was higher than in Sweden in 1914-1916 – causing an inflow of Danish and Norwegian notes into Sweden.”<sup>8</sup>

Thus, the failure of Sweden to match the growth in exports achieved by Denmark and Norway lay at the root of the Union’s downfall. This contrasting export experience led to a similar divergence in monetary growth rates. This, in turn, eventually caused the Danish and Norwegian exchange rates to fall below par. This version of the failure of the SCU has been very influential and has served as a point of reference for all subsequent studies of the Union.

Thus, for example, Ingrid Henriksen and Niels Kaergård (1995) argue that the break up of the SCU resulted from divergent rates of growth of money and prices among the Scandinavian countries during the period 1915-1920. One of their principal references is the Bergman, Gerlach and Jonung (1993) study.

Moreover, two papers by Michael D. Bordo and Lars Jonung (1996 and 1999) reiterate this position: the break up was caused by divergent monetary growth rates. In these papers, however, the authors conclude that the divergence was the result of a more expansionary monetary policy in Denmark and Norway than in Sweden. Once again, however, Bergman et al, serves as the principal reference, although it is unclear from where Bordo and Jonung obtained their data.

Clearly, a closer look at the Bergman et al paper is well motivated. Of particular interest is the evidence used to support the divergence hypothesis, including the alleged sharp growth in Norwegian and Danish, but not Swedish, exports. Remarkably enough, however, no foreign trade data of any kind is presented in the paper. As for the claim that Denmark and

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<sup>8</sup>Bergman et al. (1993, p. 514).

Norway followed a more expansive monetary policy than did Sweden during this period, it is based on the following monetary growth data from Table 1 in the Bergman paper:

**Table 1:** *Money Growth of the Scandinavian Countries. Annual average percentage growth rates.*

Period	Money Supply			Notes in Circulation		
	Denmark	Norway	Sweden	Denmark	Norway	Sweden
1873-1914	5.1	4.7	5.5	2.7	2.5	3.0
1914-1916	12.2	20.0	11.8	17.6	27.3	14.4
1915-1920	18.1	24.2	18.0	19.9	21.5	16.0

**Source:** *Bergman et al. (1995), p.511.*

Even a glance at Table 1, however, makes it clear that the money supply figures do not support the contention that Denmark and Norway, in contrast to Sweden, followed an expansionary monetary policy. Rather, the Table suggests that Norway experienced a substantially higher rate of monetary growth than did either Denmark or Sweden. Indeed the two latter countries seem to have shared very similar monetary supply growth rates throughout the entire period.

Shifting attention to the growth of notes in circulation tends to confirm the picture of Norway as a country with more rapid monetary growth than her neighbors. It is also true that Danish exceeded Swedish growth. During the years 1914-1916, however, the difference in growth rates between Norway and Denmark was greater than that between Denmark and Sweden. Still, this variable provides the only shred of evidence provided in support of the assertion that the demise of the SCU resulted from a divergence in monetary growth rates, whether caused by a rapid growth in exports or by a more expansive monetary policy in Denmark and Norway. Moreover, the fact that the rate of increase of notes in circulation is a highly dubious measure of whether a country is pursuing an expansionary monetary policy does not strengthen the arguments of Bergman et al.

This brief survey indicates that there is good reason to believe that the demise of the SCU had causes other than those proposed by Bergman et al. Before considering such alternative causes (which will be discussed in section 3 and 4), however, it is necessary to describe the institutional arrangements that constituted the Union and how they functioned over the three decades preceding 1914.

## 2 The Institutional Setting

The Scandinavian Currency Union was established during the years 1873-1875, and it functioned quite smoothly until 1914. These decades generally coincided with the heyday of the classical gold standard (1880-1914).<sup>9</sup> During this period, Western countries enjoyed steady economic growth, stable exchange rates and low inflation.

Since the Scandinavian countries participated in the gold standard system, it is appropriate to examine the workings of that system and its economic effects.

The other crucial institutional aspect is the formal rules and regulations of the Union: that is of the Treaty signed by the three countries during 1873-1875, together with later amendments. The principal features of the Treaty, i.e. the legal framework of the Union, are discussed in the following section.

The principal players in the Union were the parliaments and the central banks of the three countries. The Swedish central bank (the Riksbank) frequently and freely interacted with the Danish Nationalbank and the Norwegian Norges bank. At the national level of analysis it would be difficult to treat parliament and centralbanks as uniform agents. In this study, however, using a Scandinavian level of analysis, it is quite reasonable to treat the three countries as uniform entities.

### 2.1 The Rules of the Game – Gold Standard and Currency Union

#### 2.1.1. The Gold Standard

The classical gold standard rested on three pillars: (i) the free importation and exportation of gold, (ii) the right to redeem bank notes for a fixed amount of gold and (iii) a fixed relationship between gold reserves and the quantity of bank notes in circulation. A basic introduction to the concepts and functions of the classical gold standard are contained in David Hume's 1752 essay on the balance of trade.<sup>10</sup> Here, Hume presented the logic behind what was later to be called the price-specie-flow mechanism. It held that the gold standard was a self adjusting system. Relative price movements, as well as the physical transfer of gold between countries, restored equilibrium in the balance of trade. Hume used a thought experiment to illustrate this mechanism. Suppose that the gold supply in a given country, in this case Britain, was to increase five fold over night. What would happen? Being well versed

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<sup>9</sup>Scammell (1965, p. 104).

<sup>10</sup>Hume (1752).

in the quantity theory of money, Hume asserted that the prices of goods and labor would rise to “exorbitant heights”. As a result, no neighboring country would be able to buy British goods, while foreign goods would be relatively cheap in Britain. Consequently, British imports would rise, while the foreign demand for the now expensive British products would decline. Naturally, the result would be an outflow of gold from Britain. That, in turn, would reduce the Country’s gold reserves, and thus, since the money stock of a gold standard country is directly related to those reserves, lower its money supply. The resulting decline in British prices would continue until a new equilibrium with foreign prices was established.<sup>11</sup>

Hume’s highly simplified description of the gold standard and its price-specie-flow-adjustment mechanism has since been questioned and modified by numerous economists. The concept of the gold standard as a self-adjusting system, however, has retained a powerful, almost mystical, influence. A debate has raged as to whether the adjustment mechanism operates through the balance of trade (Mill), through short term, interest determined, capital flows (Marshall) or through changes in incomes (Ford and Ohlin).<sup>12</sup> Eichengren, however, argues that this dispute is only superficial. He believes that the various alternatives are entirely compatible and that taken together they provide a more complete picture of the functioning of the gold standard.<sup>13</sup> In any case, the self-equilibrating mechanism was crucial for the creation of a uniform, Union wide, monetary policy. As will be argued below, such a uniform monetary policy was a prerequisite for the survival of a monetary union without a common central bank.<sup>14</sup>

### 2.1.2. The Monetary Union

The principal features of the Treaty establishing the Scandinavian Currency Union can be summarized as follows:

- The krona, divided into 100 öre, was adopted as the unit of account.
- Gold was adopted as the monetary standard and it thus became the basis of the currency system.

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<sup>11</sup>Ibid., p. 41.

<sup>12</sup>McKloskey and Zecher (1985, p. 63).

<sup>13</sup> Eichengren (1985, p. 9).

<sup>14</sup>Triffin (1964), Whale (1937), Williamson (1964), McCloskey and Zecher (1976) have challenged the view that money supply has a connection to the real economy by postulating a mechanism whereby balance of payments deficits or surpluses equilibrate the money market.

### *The Decline and Fall of the Scandinavian Currency Union 1914-1924*

- Scandinavian kronor and gold were to be freely interchangeable at par at all three central banks. The principal gold coin denominations were 10 and 20 kronor. The 10 kronor coin was to contain 4.032258 grams of pure gold and the 20 kronor coin twice as much.
- The central banks were required to accept gold for minting at par.
- Scandinavian kronor (gold coins, token silver coins and, later, bank notes) were to be legal tender for all persons and all transactions in the three countries.

The SCU was strengthened by the introduction of a formal clearing mechanism in 1885. This arrangement allowed each central bank to settle international balances by drawing drafts at par on the others. Finally, in 1901 the Union was broadened to include the circulation of bank notes among the three member states.<sup>15</sup>

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<sup>15</sup>By World War I informal institutions were also an important part of the operations of the union. These are not discussed in this paper, but will be considered in future work.

### 3 Three Nails in the SCU's Coffin

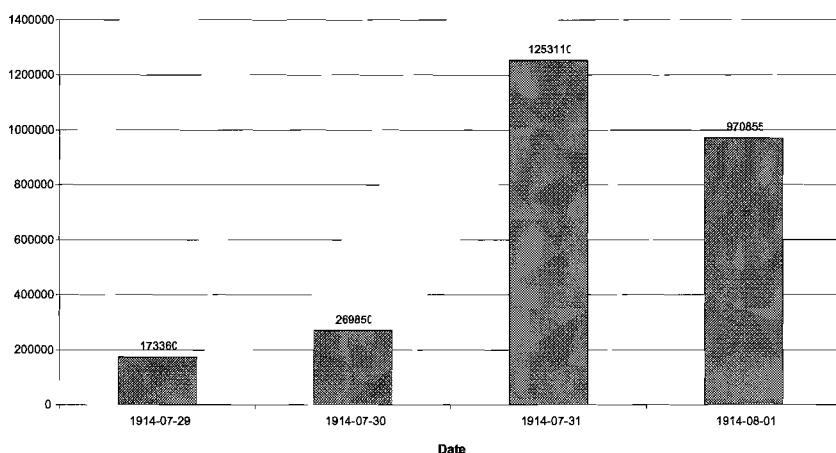
The events that precipitated World War I are well known. In brief, the conflagration was ignited in Sarajevo on June 28, 1914, when Gavrilo Princip, a nineteen-year old Serbian revolutionary fired two shots. One of these killed Archduke Franz Ferdinand, the nephew and heir of Emperor Franz Joseph of Austro-Hungary. The other shot killed Ferdinand's morganatic wife, the Archduchess Sofia. Austria-Hungary held Serbia responsible for the deed. On July 5<sup>th</sup>, the Austrian government requested and received a German "blank check" of support for any action taken against Serbia. On July 28, Austria declared war on Serbia. Honoring its commitment to Serbia, Russia responded by mobilizing its armed forces. This, in turn, caused Germany on July 31 to demand a cessation of Russian preparations for war. When Russia ignored the warning, Germany on August 1 declared war on Russia, France then came to the support of its Russian ally by declaring war on Germany. The Great European War had begun.

The progress of the conflict on the Continent was followed with intense interest in the Scandinavian countries. Although the Nordic countries were able to stay out of the War, it certainly affected them. The outbreak of the War was like the launching of a "three-stage" rocket that eventually led to the dissolution of the Scandinavian Currency Union. Three major events acted like three nails in the Union's coffin. Thus the story of the SCU's demise began on August 2, 1914.

#### **3.1 The Suspension of Convertibility and the Banning of Gold Exports - Nail Number One**

As noted above, the SCU included bank notes. A prerequisite for the functioning of a system including bank notes was public confidence that the seemingly worthless pieces of paper (fiat money) could instantly be redeemed for gold at any of the three central banks. The Scandinavian central banks continuously backed the system with gold held in their vaults. These gold holdings are better known as the gold reserve. The effect on these reserves of the start of World War I was to be the first nail in the Union's coffin. Figure 1 illustrates the striking increase in gold outflows from the reserves of the Swedish Riksbank associated with the outbreak of the War.

**Figure 1.** *Quantity of Banknotes Presented for Exchange at the Riksbank from July 29, 1914 until August 1, 1914 1<sup>st</sup> of August 1914.*



*Source: Calculations based on information contained in Government Bill 1914, No: 268.*

Clearly, events on the Continent had sparked a run on the Riksbank's gold reserves. A loss of trust in Swedish bank notes had occurred.<sup>16</sup> The public now preferred the certainty of gold to the uncertainty of paper. The inevitable consequence was a reduction in the reserves.

The Scandinavian central banks, the guarantors of a viable financial system, followed these developments with rising concern. The following section will examine the motives and actions of the Riksbank's Board of Directors, as well as the consequences of those actions.

<sup>16</sup>The gold standard in Sweden (and elsewhere) was always vulnerable in some ways as the backing was not one to one, but a ratio of the notes in circulation. For a discussion of the Swedish case see Ögren (2000).

### 3.1.1 The Riksbank Suspends Convertibility

*Figure 1.1: Queue Outside the Riksbank on August 2, 1914.*



*Note: People making a queue outside the Riksbanks office at Helgeandsholmen. A police is patrolling to keep the crowd at bay. People from different social stratas are represented and seem to be waiting paittently while chating with each other. I saw similar scenes outside Argentinian banks in Buenos Aires when I attended The XIII Congress of the International Economic History Association, on 22-26 July, 2002. (© Stockholms Statsmuseum,Faktarumet. F81651, "Kö utanför Riksbanken vid krigsutbrottet 1914". K Helgeandsholmen).*

On August 2, 1914, the Board of Directors of the Riksbank sent a letter to the Standing Committee on Banking of the Riksdag (Parliament). The Board noted the decline in Swedish gold reserves during the last several days (see Figure 1) and expressed its concern over this "extraordinary" development. It then presented its policy recommendation as follows:

"There are reasons to believe that the gold outflow from the Riksbank during the last days have not yet reached an end; and as the gold reserve of the Riksbank, during the current political and financial circumstances, should not be allowed to shrink any further, the board of directors are of the opinion



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that measures to protect the gold reserve immediately have to be taken [...]. After a long scrutiny of all of the issues affecting circumstances, the board has found that the only way of giving the reserve an immediate and effective protection is to suspend the convertibility of banknotes into gold.”<sup>17</sup>

Apparently the Board believed that protecting the Riksbank's gold reserves was their sacred duty and that the only effective means at their disposal for doing so was to suspend convertibility. While this is a drastic measure, it was not unusual in case of war. The Riksbank had lost gold worth almost 2.7 million kronor in only four days (see Figure 1.1.). This amount represented 2.6 per cent of its total reserves.<sup>18</sup> Whether or not the consequent suspension of convertibility was an over reaction has been debated ever since. Quite recently, for example, Haavisto and Jonung (1995) offered the following description of these events:

“No financial panics in terms of gold outflows or runs on banks occurred [...] Therefore, the decisions by the Central Banks to suspend the gold convertibility should be explained by excessive precautionary motives”<sup>19</sup>

It does seem clear that the outbreak of the War occasioned an outflow of gold. Whether or not A 2.6 percent reserve loss may seem small, but it is, of course, possible that the outflow would have continued, and have grown substantially larger, had the Riksbank not acted swiftly and firmly.

Undoubtedly, the suspension of convertibility meant that one of the pillars of the 1873-1875 agreement among Denmark, Norway and Sweden, had been abandoned. It also meant that Sweden had withdrawn from the international gold standard system. Why then was the defense of the gold reserve considered so crucial that it justified the taking of such extreme measures? The Board of Directors justified their recommendation as follows:

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<sup>17</sup>SPP., Translation from Swedish, ”[ att ]... anledning icke finnes att antaga, att den under de senaste dagarna inträffande guldutströmningen från banken nått sitt slut, och då riksbankens gulförråd under nuvarande internationella politiska och finansiella förhållanden icke finge tillåtas att ytterligare nedgå i någon avsevärd mån, vore fullmäktige av den övertygelse, att åtgärder till gulförrådets skyddande måste ofördröjligen vidtagas. [...] Efter ett noga övervägande av alla på frågan inverkande omständigheter hade fullmäktige funnit den enda utvägen att bereda riksbankens gulförråd ett effektivt och genast inträdande skydd vara en omedelbar suspension tillsvidare av sedlarnas inlösen med guld.” Governmental Bill, No: 268, (1914, p. 3-4).

<sup>18</sup>The outflow added up to 2.667175 million skr and the gold reserve in August 1914 was 103.2429 million. The outflow thus constituted 2.6 per cent of the gold reserve at the time.

<sup>19</sup>Haavisto and Jonung (1995, p. 250).

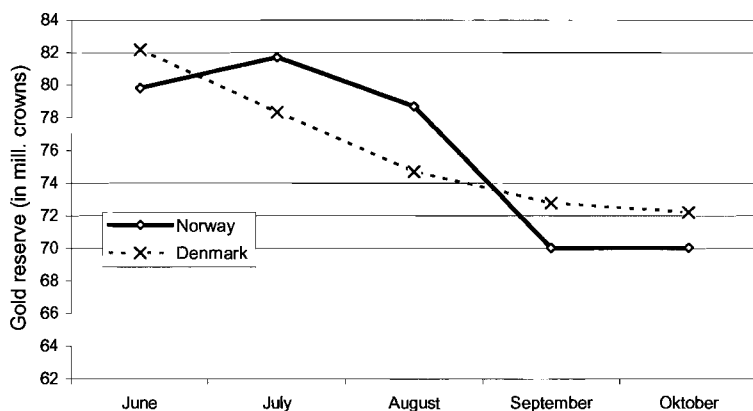
“The gold reserve of the Riksbank is the financial backbone of the country and its further demise could under the current circumstances undoubtedly, have fatal consequences for the ability to meet demands posed on the state by trade and industry”<sup>20</sup>

The matter was scrutinized by the Banking Committee and later presented to the entire Parliament. The suspension was accepted by both Chambers without debate.

### 3.1.2 The Suspension of Convertibility in Norway and Denmark

The experience of Norway and Denmark was similar to that of Sweden. Both countries suffered a substantial loss of gold reserves during the months following the outbreak of war.

**Figure 2.** *Norwegian and Danish Gold Reserves in Millions of Kronor (1914)*



**Source:** *Ekonomisk Tidskrift, Statistiska Medelanden, 1914.*

During the days preceding, and immediately following, August 1 the central bank of each of the two countries faced the same problem as that of their Swedish counterpart. Not surprisingly, their response was also the same.

When the directors of the Danish central bank arrived at work on the morning of August 1, 1914, they were greeted by a mob that required police supervision to keep at bay. The people demanded that their bank notes be converted into gold. The Bank's response was

<sup>20</sup>SPP., Translation from Swedish, "Riksbankens gulförråd vore landets finansiella ryggrad, och dess ytterligare försvagande i avsevärd grad skulle under nu rådande förhållanden otvivelaktigt leda till de mest ödesdigra följder såväl för statsverkets förmåga att möta förestående anspråk som för näringslivet i dess helhet" Governmental bill no: 268, (1914, p. 3).

a temporary suspension of convertibility, formalized through the Sunday Law of August 2, 1914.<sup>21</sup> In Norway, the experience was similar, but there the suspension of convertibility was delayed until August 4.

The “temporary” suspension of convertibility in the Scandinavian countries was repeatedly extended during the following ten years. Furthermore, in order to safeguard their gold reserves, the three countries prohibited the exportation of gold. This prohibition removed another pillar of the gold standard system: the free movement of gold among countries. Such free international gold transfers had been an important condition for maintaining stability in the exchange rates among gold standard countries.

The suspension of convertibility and the prohibition of gold exports effectively incapacitated the stabilizing mechanism of the gold standard. Moreover, it freed monetary policy from the constraints of the gold standard.

### **3.2 The Divergence of Exchange Rates Within the Union - Nail Number Two**

As noted above, the suspension of convertibility was a serious blow to the SCU. Indeed, it undermined one of the fundamental prerequisites for stable exchange rates. Throughout the gold standard era, exchange rates among the participating countries had been relatively stable. Exchange rate movements had been constrained by the upper and lower gold points. When the right to convert bank notes to gold at a fixed price was suspended, this exchange rate control mechanism also ceased to function. In addition, wartime conditions made the shipping of gold more difficult and risky, and consequently more expensive, than had previously been the case. Thus the gap between the upper and lower gold points became wider, allowing for wider swings in exchange rates.

The Scandinavian countries were by no means alone in making their currencies inconvertible after World War I broke out. In fact, most countries suspended convertibility, as well as prohibiting gold exports, in order to protect their gold reserves. In a speech before the German Parliament on March 10, 1915, the Minister of Finance declared that while the depreciation of the mark could have been prevented by allowing the export of gold, under wartime conditions it was more important to maintain large gold reserves.<sup>22</sup>

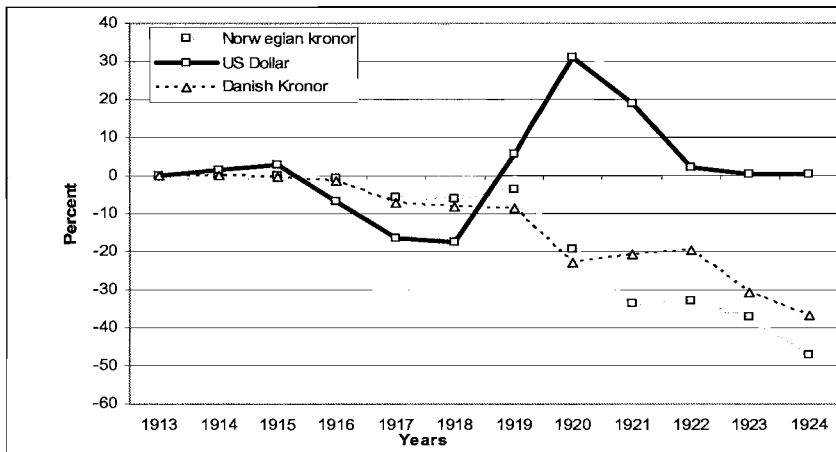
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<sup>21</sup>Ussing (1926, p. 60).

<sup>22</sup>Östling (1945, p 27).

During 1915, the Danish and the Norwegian krona began to depreciate relative to their Swedish counterpart. By the end of the year, the Danish krona had fallen to 97 per cent and the Norwegian Krona to 98 percent of par (see Figure 3).

**Figure 3.** *The Exchange Rate of the U.S. Dollar, the Danish Krona and the Norwegian Krona versus the Swedish Krona, 1913-1924 (Deviations from pre war par in percent)*

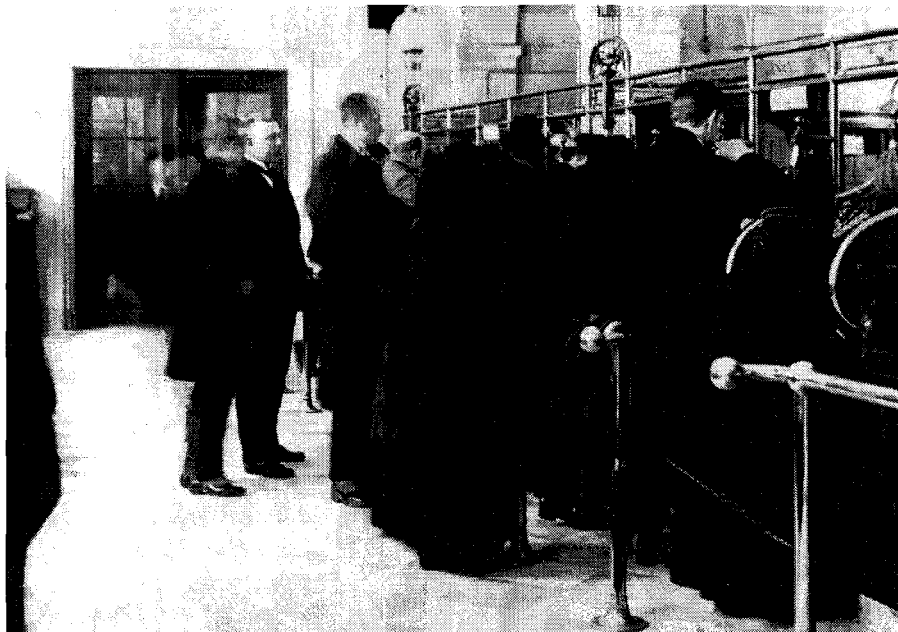


**Source:** *Calculated on the basis of information provided in Sveriges Riksbank 1668-1918-1924: Bankens tillkomst och verksamhet. Del V.*

As is illustrated in Figure 3, the Danish and Norwegian krona both continuously lost value relative to the Swedish currency throughout the War. This trend accelerated dramatically during the post war period. By the end of the period studied, they had lost approximately 40 percent of their value in terms of the Swedish krona. This divergence of exchange rates within the SCU created arbitrage opportunities that eventually caused the demise of the Union.

### 3.2.1 Private Arbitrage Opportunities

*Figure 3.1: Convertibility Temporarily Restored in 1915.*



*Note: People rushing to the tiles, taking the opportunity exchange notes to gold in 1915.*

*(© Stockholms Statismuseum, Faktarumet. A15247, "Första dagen för Guldutväxling". K Helgeandsholmen).*

The divergence of exchange rates within the Union resulted in a bizarre situation. Scandinavian kronor (kronor issued in Denmark, Norway and Sweden) *de jure* all had the same value within Scandinavia. *De facto*, however, the Swedish krona was valued higher than the others. The inevitable consequence was the shipping of Danish and Norwegian notes to Sweden.

At the end of 1915, the Swedish Riksbank decided that the time was right to restore convertibility into gold ( See Figure3.1).<sup>23</sup> This return to gold, however, did not last very long. According to the Riksbank's Yearbook for 1915, the Bank's surplus holdings of Danish and Norwegian notes had risen from 44.9 million kronor in 1914 to 72.3 million Kronor at the end of 1915. This increase was explained by the Board of Directors as follows:

<sup>23</sup> AoR., Letter the Riksbank to Nationalbanken, 29.12.1915., Riksbankschefernas Arkiv, F1A:16.

“In Denmark it became more profitable to hoard the Swedish notes when doing business in Sweden [...] And to use their Danish notes”.<sup>24</sup>

The Danish public was hoarding Swedish notes and using the less valuable Danish notes for transactions in Sweden, where they were accepted at par in accord with the agreement of 1901. This behaviour is what economists refer to as Gresham's Law.

The problems of the Riksbank were not limited to these arbitrage transactions. The Swedish krona was appreciating not only relative to the currencies of Sweden's neighbors, but also relative to gold. Since the Riksbank continued to adhere to the gold standard rule requiring the purchase of gold at par, this situation resulted in a steady inflow of gold to be exchanged into Swedish bank notes. The net effect was that the Riksbank incurred considerable losses buying gold at the old parity price which was substantially higher than the world market price of gold in terms of Swedish kronor. Not surprisingly, the Standing Committee on Banking expressed its concern over this development.

Since the US dollar was fixed against gold throughout this period, it can be used as an indicator of how the Swedish krona was priced in terms of gold. Figure 3 makes it clear that the Swedish krona appreciated in terms of gold during the War.

The Riksbank's Board of Directors described these events as follows:

“In this way they have been able to acquire Swedish Kronor at par, and thereby they have avoided paying the higher appreciated rate on Swedish Kronor currently running on the currency markets in Copenhagen and Oslo. In other words they have transferred the rate loss to the Riksbank. A loss that the trader would have been forced to carry if the Scandinavian Currency Treaty of 1873 had not existed”<sup>25</sup>

The Swedish response to this unfavourable situation was to stop purchasing gold at a loss. On February 8, 1916, the Swedish Riksdag freed the Riksbank of its legal obligation to accept gold for the minting of coins or to exchange gold for bank notes at par. This action is referred

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<sup>24</sup>SYR., Translation from Swedish, “Det blev i Danmark härav fördelaktigare att vid likvider till Sverige dels ur rörelsen uppsamla svenska sedlar[...] Dels använda danska sedlar”. Riksbankens Årsbok., (1915, p. 16).

<sup>25</sup>Translation from Swedish, “Härigenom har man skaffat sig svenska kronor till parikurs, under det att man, om denna utväg icke stått till buds, hade nödgats betala den i Köpenhamn respektive Kristiania gällande överkursen på svenska kronor. Man har med andra ord på Sveriges riksbank överflyttat den kursförlust, som vederbörande i Danmark eller Norge måste bära själva, om den bestämmelsen i myntkonventionen, som tillägger danskt och norskt guldmynt egenskapen av lagligt betalningsmedel i Sverige, icke funnits.” Simonsson (1931, p. 45).

to as the gold blockage ('guldspärrningen'). Together with the prohibition of gold exports, it effectively and definitively unlinked Sweden from the gold standard system. For this blockage to be effective, Sweden had to persuade the two other Scandinavian countries to follow suit and, if possible, to agree to an amendment of the Treaty of 1873. The Board of Directors thus tried to get the two other countries to agree to a suspension of Article IX of the Treaty. This article required that gold coins minted in any of the countries in accordance with the Treaty of 1873 were legal tender in all three countries.<sup>26</sup>

Denmark and Norway reluctantly agreed to a central bank meeting in Stockholm on February 23 and 24, 1916. On the 15<sup>th</sup> and 17<sup>th</sup> of April, respectively, Denmark and Norway enacted legislation freeing their central banks from the obligation to buy gold. In addition, the public was no longer permitted to have their gold minted into Scandinavian coins. In addition, the three countries reached an agreement on the distribution of gold export licenses. The general policy was that licenses were only to be issued with the agreement of the recipient central bank. Since a ban on the export of gold had been imposed in all of the countries in 1914, there seemed to be no problem concerning the shipment of gold by the public. In fact, however, the problem of gold shipments was not yet fully resolved.

### 3.2.2 The Central Banks and the Gold Shipment Mystery

The clearing agreement of 1885 specified that central bank clearing accounts were to be settled either with foreign currency or with Scandinavian gold coins. Eventually, this stipulation was to create an opportunity for free riding within the Union. During World War I, the inter-Scandinavian balance of trade shifted in favor of Sweden. Together with the arbitrage induced inflow of Danish and Norwegian bank notes, this resulted in Sweden running a surplus on the clearing account. As noted above, the 1885 agreement allowed Denmark and Norway the option of settling their accounts either with foreign currency or with Scandinavian gold coins. Since the ban on issuing and exporting Scandinavian gold coins applied only to the public, the central banks had the opportunity of buying gold at the low (compared to the Swedish parity) world price, minting it into gold coins and then shipping these coins to be used at par in Sweden. From the end of July 1916 to the end of July 1917, the *Riksbank's* holdings of Scandinavian gold coins increased by 31.2 million Swedish kronor. Since Norway had stopped minting gold coins, the majority of these coins were

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<sup>26</sup>SYR (1916, p. 5).

unquestionably of Danish origin. Small wonder, then, that Swedish economists accused Denmark of disloyal and unfair behaviour.

The prominent Swedish economist Gustav Cassel was the first to comment on this practice in his book *Dyrtid och sedelöverflöd*.<sup>27</sup> His criticism was then reiterated and sharpened by the Danish professor Axel Nielsen. The latter accused his own central bank of engaging in disloyal and opportunistic behavior.

The manager of the Danish central bank, Carl Th. Ussing, responded to these charges in his book *Nationalbanken, 1914-1924*.<sup>28</sup> He placed the blame on the Norwegians. Apparently Scandinavian gold coins amounting to 18 million kronor had been paid by the Danish central bank to cover Danish debts to Norway. It was the Norwegian central bank that later used these coins to pay off their debts to the Riksbank.

The Riksbank was extremely unhappy with these transactions since they, thanks to the strongly appreciated Swedish krona, could have bought the gold much cheaper on the world market. Consequently, on January 19, 1917, the Riksbank sent a letter to Norges Bank requesting that the latter stop making payments in Scandinavian gold coins. The Norwegians, however, refused the request and continued sending gold coins to the Riksbank.

Determined to achieve a major revision of the Treaty of 1873, Sweden responded by calling for another central bank meeting. Accordingly, representatives of the various central banks met in Stockholm between the 17<sup>th</sup> and the 19<sup>th</sup> of February 1917 in order to discuss the gold shipment issue.

It is possible to calculate the loss caused by the Norwegian imports during the period 1914-1917 by calculating the difference between the value of the net import of gold from Norway and the price of that gold if Swedish would have bought that gold on the world market. As noted above the price of the dollar could be regarded as the worldmarket price of gold during the period. The result of this calculation is presented in Table 2.

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<sup>27</sup>Cassel (1917).

<sup>28</sup>Ussing (1926, p. 101-111).



**Table 2:** Calculation of the Swedish Loss Caused by Norewgian goldimports 1914-1917

Year	Index SKr/\$ (index year 1909)	Netimport of Gold From Norway (Skr)	Worldmarket Price(Skr)	Swedish Loss (Skr)
1914	101,3333	0	0	0
1915	102,9333	8,117,000	8,355,099	238,009
1916	93,33333	5,000,000	4,666,667	-333,333
1917	92,74	34,000,000	28,378,667	-5,621,333
<b>Total Swedish Loss:</b>				<b>-5,716,568</b>

**Source:** Swedish Riksbanks Yearbook 1914-1918 and Norges Banks Archive.

It is obvious that Sweden was harmed by the fact that it had to accept overpriced gold from Norway. The cost was approximately 5,7 million Skr. The majority of the costs were caused in 1917. In 1917 the total population in Sweden was 5,79 million. Which gives a cost of 97 öre per capita.<sup>29</sup>

Following Swedish threats to unilaterally leave the Union, the three countries agreed to strictly enforce the prohibition on exporting Scandinavian gold coins. By July 13<sup>th</sup>, this covenant had been ratified by all three countries.<sup>30</sup> By now, the SCU had lost most of its functions. One aspect of the Union, however, lingered on as a historical anomaly. It concerned the status of token coins.

### 3.3 The Smuggling of Token Coins within the Union - The Third and Final Nail

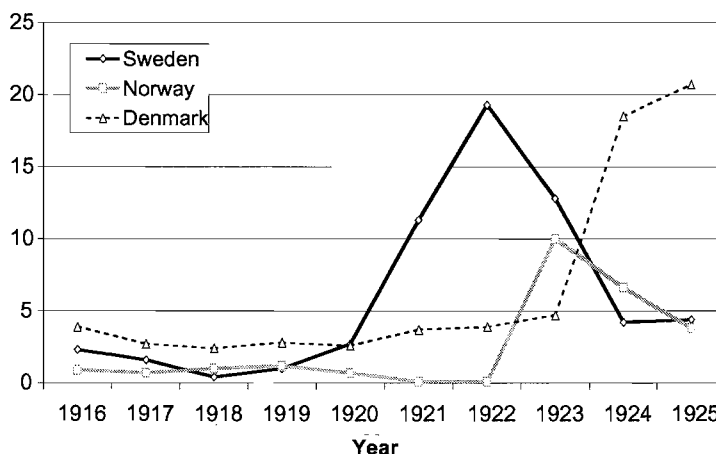
Once the gold coin problem had been resolved, the situation within the "Union" stabilized, but only briefly. A new arbitrage problem loomed on the horizon. This time it was the result of a difference between the *de jure* and the *de facto* value of token silver coins.

The Treaty of 1873 had mandated that token silver coins issued by all three countries were to have legal tender status throughout the Union. This, now anachronistic, clause remained in effect and, together with the rapid depreciation of the Norwegian and Danish currencies, opened the way for renewed arbitrage. Profits could be made by exporting Norwegian and Danish silver coins to Sweden. Figure 4 illustrates the dramatic increase in this export activity between 1920 and 1922.

<sup>29</sup>The Swedish GDP this year is estimated to 1229 Skr. If this is put in relation to the GDP/Capita in Sweden 1999, wich was 225200. The 97 öre in 1917 would be equivalent to 175 skr per capita in 1999; wich would be a substantial subsidy from each swede to Norway.

<sup>30</sup>Östlind (1945, p. 42-45).

**Figure 4:** *The Value of Scandinavian Token Coins Held by the Three Central Banks in Million Skr. (For Norway and Sweden the amounts are as of December 31 and for Denmark they are for July 31 of each year).*



**Source:** [Sweden] Amounts are calculated on the basis of information provided in *Sveriges Riksbank 1668-1918-1924: Bankens tillkomst och verksamhet. Del V*, [Norway and Denmark] *AoR, Internal pm on the Scandinavian Currency Union 1926, Riksbankschefernas Arkiv. F1A:16*.

Figure 4 shows that the value of Scandinavian token coins held by the *Riksbank* increased from 2.7 million kronor at the end of 1920 to 19.3 million kronor at the end of 1922. The figure also indicates that in 1923 the *Riksbank* adopted a policy of returning Scandinavian token coins to their country of origin in return for gold. Consequently the value of token coins held by the Danish and Norwegian central banks started to increase rapidly. This dramatic development resulted in a central bank conference in Kristiania<sup>31</sup> between October 29 and 31, 1923. The representatives of the three countries all agreed to recommend to their own government that the last vestiges of the SCU be abrogated. The situation was described in the following terms:

“Since shortly after the outbreak of the world war the three countries suspended the convertibility of their banknotes into gold and prohibited the export of gold, exchange rate differences between Danish, Norwegian and Swedish Kronor have occurred. Today the considerable differences between the currencies have triggered a smuggling of token coins that are causing inconveniences for our neighbouring countries, as they are obliged to convert the coins into gold at the former par rate,

<sup>31</sup>Current-day Oslo.

according to the covenant of 1873 (§ XI), when the coins are sent back by the Swedish treasury administration”.<sup>32</sup>

Since none of the countries considered the existing situation to be beneficial to its interests, government approval for final dissolution of the Union was easily obtained. In 1924, the Swedish government introduced a parliamentary bill that repealed the legal tender status of Scandinavian token coins. It was enacted on April 11, 1924 and took effect as of October 6<sup>th</sup> of that same year. The SCU was no more.

## 4 What Caused the Divergence in Exchange Rates?

The previous discussion has determined that the decline and fall of the SCU was largely due to the centrifugal forces released by diverging exchange rates within the Union. This section will consider the underlying forces behind this divergence. To begin with, movements in the dollar exchange rates of the three Scandinavian currencies during this period will be examined. This will be followed by an analysis of the balances of trade, including, for the first time, an attempt to calculate the current accounts of the three countries. Their capital accounts also will be examined. The claims made in previous research that monetary policy lay behind the divergence of exchange rates will then be revisited. Finally, the lessons of this analysis will be summarized in an attempt to determine what in fact caused the collapse of the SCU.

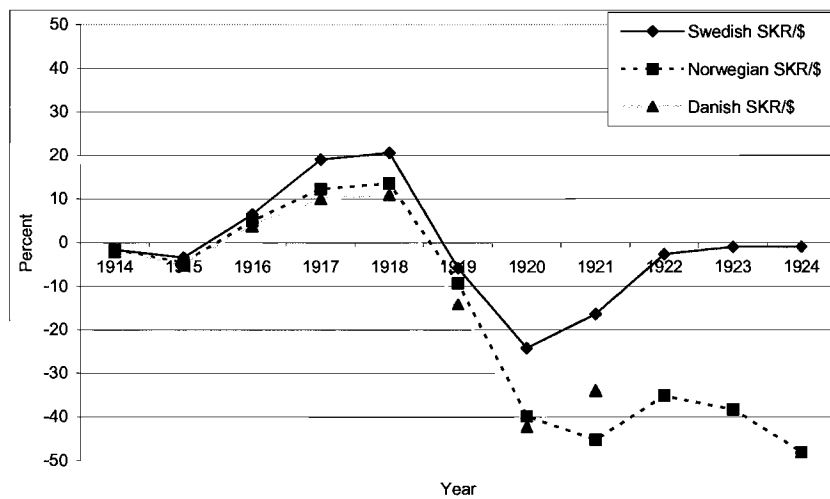
### 4.1 Diverging Exchange Rates

In section 2 it was established that it was the divergence in exchange rates that put serious strain on the Union. The difficulties arose principally because the market prices of the three Scandinavian currencies differed, while the Union treaty required that they be interchangeable. Figure 5 displays the prices of the three Scandinavian currencies in terms of the US dollar (relative to pre war par, measured in percent). Since the dollar was the only currency that remained convertible into gold throughout the entire period, the dollar to kronor exchange is of particular interest. Indeed, dollar prices are the equivalent of gold prices.

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<sup>32</sup>SPP., Translation from Swedish, "Sedan de tre rikena kort efter världskrigets utbrott inställt inlösningen av sedlar med guld samt infört guldexportförbud, hava efterhand skiljaktigheter inträtt i värdet på svensk, dansk och norsk krona till den svenska kronans fördel. Den numera avsevärda kursskillnaden mellan å ena sidan svensk samt å andra sidan dansk och norsk valuta har givit upphov till smuggling som givetvis medför allvarliga olägenheter framförallt för våra gränsländer, vilka jämlikt myntkonventionen ( art. XI) äro pliktiga att från den svenska finansförvaltningen inlösa de insmugglade mynten med guld och således till ett betydligt högre värde än de äga i präglingslandet.", Governmental Bill No: 11, (1924, p. 6).

**Figure 5:** *The Dollar Exchange Rates of the Danish, Norwegian and Swedish Kronor, 1914-1924 (Percentage deviations from par).*



**Source:** Sweden (Calculated from information provided in *Sveriges Riksbank 1668-1918-1924: Bankens tillkomst och verksamhet. Del V.*). Denmark (Calculated from daily quotations contained in *Statistisk Årbog 1914-1924*). Norway (Calculated from data contained in *Statistiske Oversikter 1948*)

It is apparent that the outbreak of World War I caused the Scandinavian currencies to depreciate in relation to the dollar, and therefore to gold. During 1915, however, they instead rose relative to gold. This rise in value was most pronounced for the Swedish currency which therefore, as previously seen in Figure 4, diverged upward relative to the other Scandinavian currencies. When the War ended, all three Scandinavian currencies declined substantially relative to their pre war gold parity. By 1920-1921 they had lost between 30-40% of their gold value. At this point, Sweden was the first to strive for a return to parity, something which was achieved in 1924. Somewhat later, in December of 1926 Denmark was able to return to convertibility at par, with Norway following in May of 1928.

#### **4.2 The Balance of Trade**

World War I had a substantial impact on international trade, including that of the neutral Scandinavian countries. The most striking effect concerned Sweden, which changed from being a long standing trade deficit, to a trade surplus, country starting in 1914. As shown in Figure 6, these surpluses continued as long as the War lasted. Denmark also experienced an

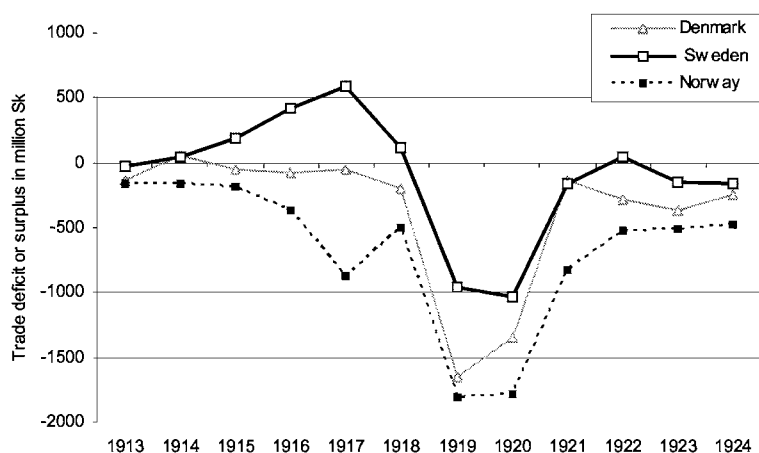
improvement in her balance of trade, but it was not nearly as great as in the case of Sweden. Norway, on the other hand, saw its trade deficit continuously increase during the War. Indeed, over the course of the War, Norway accumulated a total deficit exceeding 2 billion Scandinavian kronor.

The Swedish experience largely can be explained by her abundant supply of natural resources vital to the combatants, especially iron ore and forests. In addition, Swedish imports declined as a result of the Country's cool attitude towards the Entente powers. In this important regard, Sweden differed from her Scandinavian neighbours. Thanks to their more open and cordial relationship with the Entente powers, Denmark and Norway were better able than Sweden to maintain the flow of imports from those countries.<sup>33</sup> These developments utterly contradict the claims made by Bergman Gerlach and Jonung (1993). They argued that the outbreak of the War favoured Danish and Norwegian exports. This, in turn, supposedly resulted in monetary growth, which then caused the currencies of the two countries to fall below par.

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<sup>33</sup>Ussing (1926, p. 87).

**Figure 6:** Balance of Trade from Sweden, Denmark and Norway, 1913-1924.



**Source:** Sweden (Calculated from data in *Sveriges Offentliga Statistik, Handel; Berättelse för år 1913-1924 av Kommerskollegium*). Denmark (Calculated from data in *Henriksen & Ølgaard Danmarks udenrigshandel 1874-1958*). Norway (Calculated from data in *Statistiske Oversikter 1948*)

It seems reasonable to conclude that the Union was a currency area shaken by an asymmetric shock resulting from the War and its aftermath. The source of this asymmetry can be found both in differing economic structures among the three countries, and in policy differences.

#### 4.3 Estimates of the Current Account of the Balance of Payments, 1914-1924

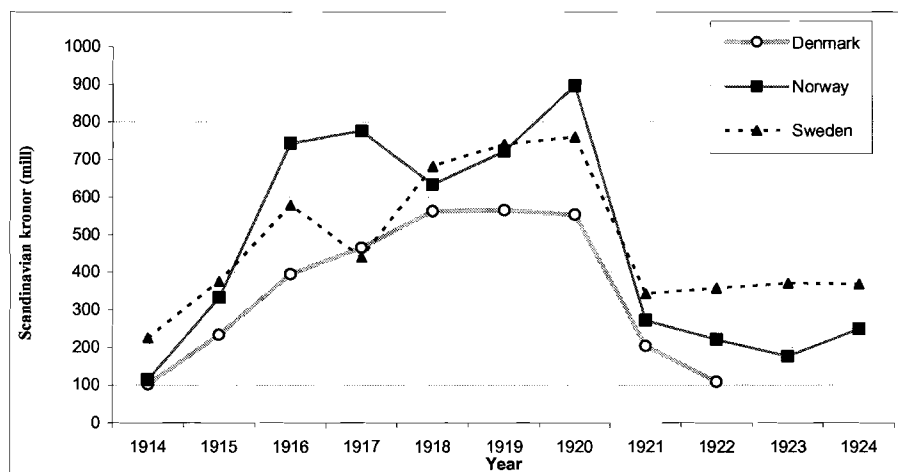
It is not enough merely to demonstrate that the balance of trade experiences of the three Scandinavian countries diverged during this period. All of them experienced rising gold reserves during the War. Swedish and Danish gold reserves more than doubled, while those of Norway increased by over 50 percent (see appendix 1). This suggests that all of the countries experienced a positive trade balance during the War. Figure 6, however, suggests that this was true only of Sweden. What explains the conjunction of trade deficits and gold inflows? Or put differently, how can simultaneous gold inflows and trade deficits be reconciled? Perhaps the trade figures omit invisible items, as well as some capital movements. The following section will be devoted to answering this question by estimating the current account of the balance of payments 1914-1924.

### 4.3.1 Searching for the Invisible

Finding data on invisible items for this period is difficult, and not just rhetorically. For one thing, governments had not yet started collecting and publishing data on their balance of payments the way they do today (Denmark started reporting data on its capital account during the 1920s). Movements in the exchange rates of the three countries during this period, however, can not be understood without considering the role of services. I have succeeded in locating data on the total balance of services for Sweden, but not for Denmark or Norway. The most important component of the service account for these countries, however, was shipping, and data on this sector is available.

Figure 7 displays the series that will be used as estimates of the invisibles component of the balances of payments. In the case of Sweden, it is the estimates of the entire service component as calculated by Lennart Schön. For Norway, gross freight earnings minus disbursements abroad, is used as a proxy. As to Denmark, only the series of gross freight earnings is available.

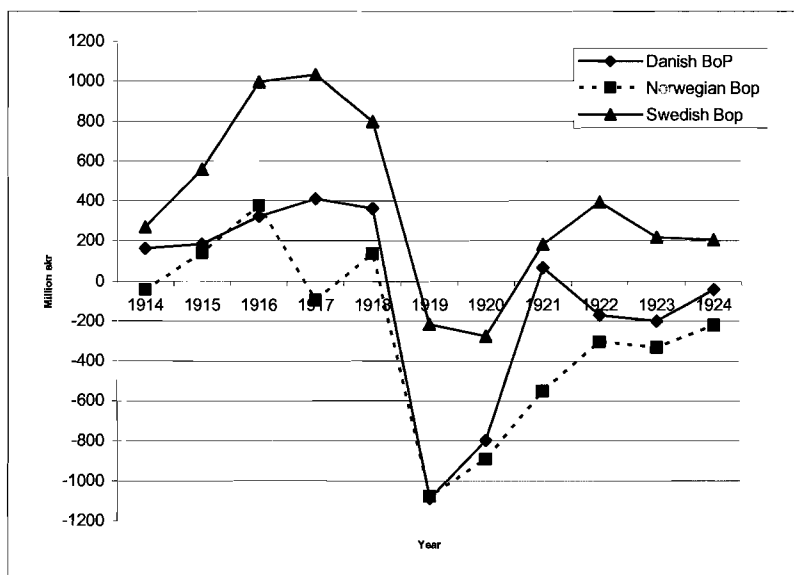
**Figure 7:** *Estimates of the Invisibles Component of the Balance of Payments for the Scandinavian Countries, 1914-1924. Sweden (Calculations based on series of the entire service component 1914-1924, as estimated by Schön). Denmark (Gross freight earnings 1914-1922) Norway (Gross freight earnings minus disbursements abroad 1914-1924)*



**Source:** Sweden (Calculations on the entire service balance made by Lennart Schön). Denmark (Calculations based on E. Cohn; *Danmark under den store krig –en økonomisk oversigt* [1928]). Norway (Calculations based on *Statistiske Oversikter* [1948])

Figure 7 indicates that all three countries apparently experienced a favorable service balance during the War. The single most notable result is the dramatic increase in Norwegian freight earnings during the first half of the period. After 1920, the invisible balance seems to have declined for all three countries, but, even then, it continued to make a positive contribution to their overall balance of payments. Adding these invisible earnings to the trade balances, yields at least crude estimates of the current accounts of these countries.

**Figure 8:** *Estimates of the Current Account of the Balance of Payments of the Scandinavian Countries, 1914-1924.*



**Source:** Sweden (Calculated on the basis of balance for the entire service sector provided by Schön and data from SOS, *Handel; Berättelse för år 1913-1924 av Kommerskollegium*). Denmark (Calculations based on E. Cohn; *Danmark under den store krig – en ökonomisk oversigt* [1928], and from Henriksen & Ølgaard *Danmarks udenrigshandel 1874-1958*). Norway (Calculations based on data from *Statistiske Oversikter* [1948])

The results displayed in Figure 8 suggest that the improved balances associated with increased demand for Scandinavian goods and services helped the Scandinavian krona appreciate above its previous gold parity starting in early 1916. This, in turn resulted in a substantial inflow of gold into Sweden. Between early December 1915 and February 1916, the gold reserves of the Riksbank increased from 113 to 160 million kronor (see Appendix 1). This inflow, however,



was not sufficient to lower the Swedish krona back to par. Instead, it remained above that level throughout the War. Denmark and Norway also experienced favorable balances of trade during the war years. Following the armistice, however, the balance of payments of each of the three countries fell dramatically. Not surprisingly, these declines were accompanied by a decline in the dollar values of the Scandinavian currencies.

#### **4.3.2 The Capital Account**

In order to complete the estimates of the balances of payments, data on the capital accounts of the three countries is required. Data on the war time capital accounts of the three countries, however, have proved virtually impossible to obtain, making any attempt to construct capital balance series futile. Nonetheless, some general hints on the capital balance for the three countries have been located. For Denmark, Einar Cohn has provided some information (1961). Cohn estimates that the Danish banks increased their holdings of foreign assets by nearly 600 million kroner between 1914 and 1918. He also estimates that Danish bonds with a face value of 400 million kroner were repurchased from abroad. For Sweden, there is an indication that approximately 355 million kroner of Swedish bonds had been repurchased by the end of 1918.<sup>34</sup> As to Norway, her net foreign assets increased by 544 million kroner.<sup>35</sup>

#### **4.4 Monetary Policy**

In section 1.1, it is noted that previous work on the demise of SCU offers two alternative explanations for the money supply divergence that eventually caused the fatal exchange rate tension. Bergman, Gerlach and Jonung (1993) suggested, without however citing any references, that the money supply divergence resulted from a sharp increase in Danish and Norwegian exports, and that this development eventually sealed the fate of the SCU. The fact that the authors presented no quantitative evidence in support of their argument, as well as the fact that it flies in the face of standard economic theory, motivated the effort to estimate the balance of trade and the balance of payments of each of the Scandinavian countries during this period. The results of these calculations clearly contradict the claims of Bergman et al. Indeed, it is apparent that Sweden experienced the most favorable balance of trade during the War. The other explanation offered for the money supply divergence focused, not on changes

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<sup>34</sup> AoR., Letter from the Riksbank to Nationalbanken. 4.2.1916., Riksbankschefernas Arkiv, F1A:16.

<sup>35</sup> Statistisk Sentralbyrå (1965, T. 25, pp. 184-185, r. 16).

in the real economy but on the supposedly more expansive monetary policies pursued by the Danish and Norwegian central banks. This explanation also deserves closer examination.

#### 4.4.1 Divergences in Monetary Policy?

The preliminary discussion of this monetary policy explanation in section 1.1 concluded that the evidence in its favour was unconvincing. The principal weakness of the evidence offered was that it indicated a divergence between Denmark and Sweden, on the one hand, and Norway, on the other hand. The only evidence supporting the claim that Denmark and Norway were pursuing more expansive monetary policies than Sweden, concerned the volume of bank notes in circulation. There is, however, little reason to believe that the volume of bank notes in circulation is a satisfactory measure of the expansiveness of central bank monetary policy. Distinguishing an expansionary monetary policy from the consequences of economic growth requires data on the ratio of notes in circulation to the level of reserves. In the case of a growing economy, a more favourable balance of trade can result in an inflow of reserves. This, in turn, can lead to an increase in notes in circulation without any intentional action by the central bank.

Table 3 clearly demonstrates that as measured in terms of the notes in circulation to gold reserves ratio, Norway was pursuing a much more expansive monetary policy than were her neighbours. As a result, the reserve backing of the Norwegian notes decreased substantially. Indeed, a closer look at the actions of the Norwegian central bank clearly indicates that it exceeded its tax free right to issue notes between August 7, 1914 and April 7, 1915.<sup>36</sup> Denmark and Sweden, on the other hand, did not increase their notes in circulation to gold reserves ratios. In fact, these ratios started to decline following the outbreak of war (see Appendix 1, which contains monthly data on gold reserves and notes in circulation for each of the Scandinavian countries).

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<sup>36</sup>ET:s Ekonomisk tidskrift, (Statistiska medelanden) 1914-1915.

**Table 3.** *Monetary Growth in the Scandinavian Countries Measured in Terms of Notes in Circulation to Gold Reserves Ratios. Annual Average Percentage Rates of Change.*

Period	Notes in Circulation/Gold Reserves		
	Sweden	Norway	Denmark
1914-1916	-1,4	16,1	-8,9
1914-1920	2,8	13,3	1,5

*Source: Ekonomisk Tidskrift, Statistiska medelanden, 1914-1920*

The evidence provided in table 3 contradicts the assertion that both Denmark and Norway at this time were pursuing a more expansive monetary policy than was Sweden. Norway was doing so, but monetary policy in Denmark and in Sweden was very similar. Since Denmark thus was not following a more expansionary policy, the appreciation of the Swedish currency compared to those of the other two countries can hardly have been the result of such policies. Consequently, the role of the substantially improved Swedish balance of payments must be considered. When that is done, it becomes clear that the break up of the currency union was the result of an asymmetric shock. In the absence of a proper policy response, the resulting tensions assured the collapse of the Union.

## 5 Central Bank Cooperation - Monetary Policy During a Time of Uncertainty

Monetary policy can be defined as the actions taken by a central bank to influence the availability and the cost of money and credit. Central banks can pursue monetary policy in two principal ways: through open market operations and through variations in the discount rate. The first of these tools of monetary policy has been utilized by the Swedish central bank for some considerable time. Lobell (2000) recounts how the Riksbank has actively worked to affect the price of the Swedish currency by intervening in the domestic market for foreign bills of exchange as far back as the 1840s and, especially, since the 1870s. The second tool of monetary policy is the varying of the discount rate - the interest rate charged by the central bank on its loans to financial institutions. This is probably the best known policy tool possessed by central banks.

Studying the correspondence among the central banks during this period has made it possible to determine the forms of cooperation practiced and the types of policy tools used. It is then possible to answer the question of whether or not the banks were trying to save the Union during the difficult times following the outbreak of war by coordinating their monetary policies.

The following section will provide evidence of attempts to save the Union. During this period, there in fact was cooperation with regard both to discount rate setting and open market operations. In addition, the three Scandinavian central banks shared market information on matters such as gold prices and discount rates.

### **5.1 Searching for a Common Gold Policy and Sharing Market Information**

At the beginning of the period, the correspondence among the central banks largely dealt with a single issue, when was it the right time to resume convertibility? This question totally dominated the correspondence of the first two war years. It clearly indicates that the banks wanted a return to convertibility to be coordinated. In a letter dated March 16, 1915, the Swedish Riksbank inquired of the Danish Nationalbank whether they had considered the question of a return to convertibility:

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“Caution requires that the suspension of note convertibility imposed by most banks be lifted more or less simultaneously. In any case, the Riksbank should not lead the way in the resumption of note convertibility, at least not without foreknowledge that the two other Scandinavian note issuing banks are prepared to follow her example. Please inform me as to the views on this question held within your Bank.”<sup>37</sup>

The Swedish Riksbank clearly wanted assurances from its fellow Scandinavian central banks that, if she returned to convertibility, she would not be left alone as the only supplier of gold in Scandinavia. The Danish Nationalbank responded two days later:

“The question you raised in your letter of the 16<sup>th</sup> of this month was recently discussed by the management of the Nationalbank. We unanimously agreed that the time is not yet ripe for a resumption of note convertibility since the desire to hold gold still exists among the public (the flow has not to any great degree reversed back to the Nationalbank), and this desire can turn into a panic in response to some event in the War. It would be unfortunate if the suspension of convertibility had to be reimposed. If one of the three Scandinavian banks was to resume convertibility while the other two maintained their suspension, the danger that such a bank would encounter a run would, of course, be considerably increased, especially if that bank’s country did not ban gold exports.”<sup>38</sup>

Clearly there was an understanding among the banks that a resumption of convertibility must be coordinated, otherwise there was a risk that one bank acting alone would be subjected to a run.

Early in the period, they also discussed a puzzle they called the dethroning of gold. It referred to the fact that the value of their fiat currencies had started to rise above that of gold. In a letter to the Danish central bank, the Riksbank expressed its surprise:

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<sup>37</sup>NaB., Translation from Swedish, “Försiktigheten kräver att den av flertalet banker inställda sedelinslösningen någorlunda samtidigt återupptas, i varje fall bör Sveriges riksbank inte gå i spetsen för sedelinslösningens återupptagande. Ätminstone inte utan att i förhand veta att de två öriga skandinaviska sedelbankerna äro beredda att följa exemplet. Vill ni delgiva mig den uppfattning man inom eder bank hyser angående detta spörsmål.” Letter from the Riksbank to Nationalbanken, 16.3.1915., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

<sup>38</sup>AoR., Translation from Danish, “Det I deres Skrivelse af 16 ds. berørte spörsmal har fornyl[ig] været under Behandling i Nationalbankens Direktion med det Resultat, at vi var enige om, at Tiden endnu ikke var inde til at genoptage Seddelindlösningen, idet Lysten til at ophobe Guld vistnok endnu eksisterer i Befolkningen (Sølvet er endnu ikke i større Omfang vendt tilbage til Nationalbanken) og denne Lyst kan blive til panik ved en eller anden Begivenhed paa Krigspladserne. Uheldigt vilde det da virke, om Seddelindlösningen paany maatte suspenderes.- Hvis en enkelt af de 3 skandinaviske Banker genoptog Seddelindlösningen, medens de 2 andre opretholdt Suspensionen, vilde selvfølgelig Faren for et run paa en saadan Bank være betydeligt forøget, i Særdeleshed hvis vedkommende Banks Land intet Guldudførselsforbud har” Letter from Nationalbanken to the Riksbank, 18.3.1915., Riksbankschefernas Arkiv, F1A:16.

“... as a measure of value, gold has been a complete flop, and it will soon be dethroned. I would be very grateful if you could inform me both whether such an opinion has emerged in Denmark and whether within your bank it has been concluded that recent experience gives cause for modifying the until now dominant belief that gold is the only sound basis for a country’s coinage ...”<sup>39</sup>

Unquestionably, the central banks now had entered uncharted waters in a world turned upside down. The banks promptly responded by initiating talks concerning these problems. Thus, for example, they discussed the possibility of initiating a common gold policy. Later, on the 23 and 24 of February 1916, a Scandinavian central bank meeting was held in Stockholm. Representatives of the three banks gathered to discuss issues such as the timing of a resumption of convertibility, the requirement that the banks buy gold at a set price and the importance of preventing gold exports. No formal decisions concerning these questions were made at the meeting. Nonetheless it resulted in a more frequent exchange of information on the prices and quantities of gold and foreign currencies bought by the banks. The banks also agreed to sell and buy currencies and gold among themselves.

The cooperative spirit of the times is evident in the following exchange of letters between the Danish and the Swedish central bank:

“...while informing your esteemed Bank that the proposal presented to the Parliament concerning the abolition of the government’s gold minting obligation and our Bank’s obligation to buy gold has now been adopted, we take this opportunity to add the following: The negotiations between the Riksbank and the Nationalbank have been based on the desirability of a joint gold policy in order, for example, to prevent the Riksbank’s refusal to purchase gold at the regular price from being undermined by the sellers obtaining the desired means of payment by selling the gold in Denmark. A consequence of this must be that the two Banks reduce the price of gold in a reasonably coordinated manner to prevent a higher price in one of the countries from resulting in attempts to collect means of payment in that country to be used in the other. We therefore take this opportunity to suggest that the two banks confidentially notify each other, as soon as possible, of the prices paid for gold and the quantities purchased”.<sup>40</sup>

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<sup>39</sup>Nab., Translation from Swedish “...guldets har som värdemätare gjort fiasco, guldets detronisering är förestående. Jag skulle vara mycket tacksam, om Ni ville meddela mig dels om en dylik mening framkommit i Danmark, dels om man inom Eder bank funnit anledning av den senaste tidens erfarenheter att justera den hittills rådande uppfattningen att guldets är den enda dugliga grundvalen för ett lands myntsystem...”. Letter from the Riksbank to Nationalbanken, 23.1.1915., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

<sup>40</sup>AoR., Translation from Danish, “...I det vi meddeler den ærede Bank, at et Riksdagen forelagt Forslag om Ophævelse af den nugældende Guldmontningspligt for Staten og Guldkobsligt for Vor Bank nu er vedtaget, tillader vi os at henstille

The Riksbank responded as follows:

“... hereby inform you that here in the Riksbank there is total agreement with your view concerning the desirability of a common gold policy on the part of the Scandinavian central banks. Reaching an agreement on a common price for gold will be difficult to achieve since the Riksbank does not maintain a fixed price at which it purchases gold. Currently we purchase no gold whatsoever for its own sake”.<sup>41</sup>

This exchange of letters ushered in a period of intensive exchange of market information among the three banks. This included information on the quantity of bills repurchased by the banks. The most frequent interaction was between the Swedish and Danish central banks. The following section contains evidence on yet another form of information sharing and policy coordination that was practiced by the three banks during the period 1914-1924.

## **5.2 Discount Rate Coordination**

Discount rate adjustments constitute one of the principal tools of monetary policy. The study of the correspondence among the Scandinavian central banks during this period reveals some limited efforts to coordinate the setting of discount rates. Mainly it consisted simply of sharing information on each bank's intentions concerning its discount rate. The actual setting of that rate was motivated either by international market events or by developments on the domestic money market. The international aspect was principally a question of following market trends on the major European capital markets. Thus, for example, if the Bank of England changed its discount rate, the Scandinavian banks often followed suit. On the

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folgende: Da Forhandlingerne om Sagen mellem Riksbanken og Nationalbanken have haft til Forudsætning det ønskelige i en fælles Guldpolitik, for at f. Eks. Foremaalet med Riksbankens Vægring ved at aflage Guld til vanligt Pris ikke skulde modvirkes derved at sælgerne skaffede sig de ønskede Betalningsmidler ved at sælge Guldet i Danmark, synes en Konsekvens heraf at maatte være at de to Banker nogenlunde følger hinanden i prisnedsættelsen på Guldet, for at ikke et højere prisniveau i det ene land skall medføre forsøg paa i dette Land at hente Betalningsmidler til Brug i det andet Land. Vi tillader os derfor at henstille, om det ikke vilde være formaalstjenligt, om de to Banker gav hinanden fortrolig Underretning, saasntart ske kunde, om den Pris til Hvilken man aftaget Guld og i hvor store Kvantiteter” Letter from Nationalbanken to the Riksbank, 15.4.1916., Riksbankschefernas Arkiv, F1A:16.

<sup>41</sup>AoR., Translation from Swedish, ”... härmed meddela att man här i riksbanken fullständigt delar eder uppfattning rörande önskvärdheten av en gemensam guldpolitik från de skandinaviska centralbankernas sida. Att överenskomma om ett gemensamt pris på guld kan svårligen låta sig göra, därför att riksbanken icke håller något fixt pris, till vilket banken köper guld. Guld för guldets skull köpa vi överhuvud taget icke för närvarande.” Letter from the Riksbank to Nationalbanken, 18.4.1916., Riksbankschefernas Arkiv, F1A:16.

domestic side, the discount rate was likely to be raised if there was a dramatic increase in notes in circulation.

The correspondence among the Scandinavian central banks makes it clear that they kept each other informed about their discount rate intentions. They realized, of course, that such changes by one bank would affect the relationship among the Scandinavian currencies. This section will present some examples of this type of information sharing.

In March 1916, the Director of the Swedish Riksbank, Victor Moll, wrote to his Danish colleague:

“Here in Sweden during the last twelve months, the question of lowering the Riksbank’s discount rate, which has been unchanged at 5.5% since January 7, 1915, has been under consideration on several occasions. The judgement, however, has always been that the public good would be served best by not making any change. A continuing increase in the money supply over time in this Country, however, is resulting in demands that the discount rate be reduced. Within the Riksbank, therefore, consideration is being given to reducing the discount rate from 5.5% to 5% as of April 1. It would be very helpful for us to know if within your Bank this question has recently been considered and what your view is of the current conditions on the money market.”<sup>42</sup>

This is a typical example of domestic market conditions affecting discount rate policy. It is also typical that the Swedish bank would inform the other Scandinavian central banks of its intentions.

A letter of July 1917 from the Riksbank to the Nationalbank informs the Danish Bank of the Riksbank’s intention to raise her discount rate in order to reduce the money supply. Moll writes:

“The Riksbank is discussing the question of an increase in the discount rate because the inflow of notes to the Bank since midyear is not considered satisfactory. Naturally we would be pleased if the

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<sup>42</sup>NaB., Translation from Swedish, ”Man har i Sverige under senast förflutna tolv månader vid flera tillfällen till övervägande under hand förehaft frågan om nedsättning av riksbankens diskonto, vilket alltsedan den 7 januari 1915 stått oförändrat vid 5,5 %. Men dessa överväganden ha alltid utmynnat i den mening, att man bäst gagnade det allmänas intressen genom att icke vidtaga någon ändring. Emellertid gör sig här i landet, allt efter som tiden går, en allt rikligare penningtillgång, åtföljt av krav på räntenedsättning, gällande. Man är därför inom riksbanken betänkt på att möjligen från och med den 1 april sänka diskontot från 5,5 till 5 % det skulle vara oss mycket värdefullt att få erfara, om man inom eder bank till äventyrs nyligen haft före denna fråga, samt vilken uppfattning man hyser angående ställningen på penningmarknaden.” Letter from the Riksbank to Nationalbanken, 22.3.1916., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.



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three Scandinavian banks could act together. The increase here would preliminarily take place next Thursday, July 19".<sup>43</sup>

It is interesting to note that the Riksbank expresses a belief that a coordinated change in the discount rate would be advantageous. Nonetheless, this is a discount rate change motivated by the state of the domestic money market.

Most of the information sharing among the Central banks was done through letters or telegrams. In November of 1916, however, it appears that the telephone was used:

"It is unfortunate that the telephone today worked so poorly that it was impossible to carry on a conversation. Since we understood, however, that their question was whether, in view of the Norwegian discount rate increase, we intended to raise our discount rate, we telegraphed that at the present time we do not intend to do so".<sup>44</sup>

A letter of June 1921 from the Riksbank to the Nationalbank concerns a discount rate change motivated by developments on the international capital market:

"The question of a further reduction in the discount rate has become timely because of the reduction in London. The Norwegians have suggested that a reduction should be decided on Saturday, July 2. Before deciding on a reduction, however, we wish to see the effects of the midyear as they appear in the weekly report of July 2. This report will not be available until the following Monday afternoon. We therefore had planned to decide the question on July 5. If the reduction comes a day sooner or later seems to us immaterial. That the reduction should be limited to half a percentage point, seems apparent to me".<sup>45</sup>

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<sup>43</sup> NaB., Translation from Swedish, "Riksbanken diskuterar frågan om en diskontoförhöjning med andledning därav att återströmmningen av sedlar till banken efter halvårsskiftet ansetts icke tillfredställande. Naturligtvis vore det för oss angenämt om ett samgående i denna fråga av de tre skand centralbankerna kunde äga rum förhöjningen här skulle eventuellt äga rum nästa torsdag den 19 juli." Letter from the Riksbank to Nationalbanken, 16.7.1917., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

<sup>44</sup> NaB., Translation from Danish, "Det var beklageligt, at Telefonen i Dag virkede saa daaligt, at det var umuligt at faa en Samtale igang, men da vi dog forstod, at Deras Forespørgsel gik ud paa, om vi paa Grund af de skete Forhøjelse af Diskontoen i Norge agtede at forhøje Diskontoen herhjemme, telegraferede vi at vi ikke for Tiden agte at forhøje Diskontoen". Letter from the Riksbank to Nationalbanken, 9.11.1916., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

<sup>45</sup> NaB., Translation from Swedish, "Frågan om ytterliggare diskontonedsättning här har nu blivit aktuell genom nedsättningen i London. Från norsk sida har man satt ifråga, att nedsättningen skulle beslutas Lördagen den 2 juli. Innan vi besluta nedsättning, vilja vi emellertid se verkningarna av halvårsskiftet sådana de visar sig av veckorapporten av den 2 juli. Denna rapport föreligger först måndag e.m. Vi hade därför tänkt fatta beslut i frågan tisdagen den 5 juli. Om nedsättning kommer någon dag förr eller senare, anser vi likgiltigt. Att nedsättningen bör begränsas till en halv procent, synes mig givet".

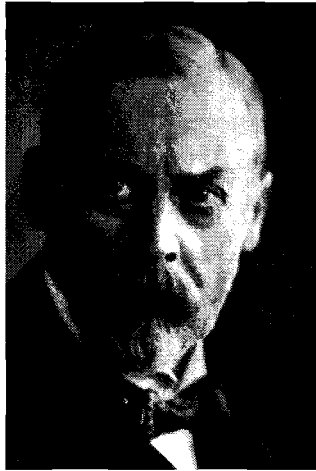
This is an example of a discount rate change motivated by developments on the international market. The quote indicates that the setting of the discount rate, at this time, was not a very exact science. This section has presented evidence on, and examples of, the frequent exchange of information among the three Scandinavian central banks during this period. The following section will discuss attempts to coordinate another type of monetary policy.

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Letter from the Riksbank to Nationalbanken, 28.6.1921., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

### 5.3 Open Market Operations and Plans for a Scandinavian Monetary Fund

*Figure 9. Victor Moll.*



*Note: The President of the Swedish Riksbank 1912-1929. Moll initiated the idea of a Scandinavian Monetary Fund.*

This section will examine the open market operations of the Scandinavian central banks. As noted above, this tool of monetary policy had long been used by them. During this period, the central banks began the use of open market operations to attain convergence among the Scandinavian exchange rates. Indeed, they aspired to establish a joint fund that could be used to buy and sell currency in the open market, thus affecting the price of the Scandinavian currency in a desired direction.

The first evidence of such thinking can be found in a 1917 letter from the Riksbank to the Nationalbank:

“On condition of maximum Danish cooperation concerning (currency) exports from Denmark to Sweden, the Riksbank is willing for the time being to buy Danish currency in Stockholm. If, in addition, the agreement newly reached among the Danish banks concerning currencies is strictly followed, the result is likely to be a reduction in the discount on Danish kronor in Stockholm”.<sup>46</sup>

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<sup>46</sup>NaB., Translation from Swedish, ”Under förutsättning att från dansk sida visas största möjliga tillmötesgående beträffande exporten från Danmark till Sverige, är riksbanken villig att under den närmaste tiden köpa dansk valuta i Stockholm. Om härtill det i dagarna mellan de danska bankerna träffade valuta avtalet strängt upprätthålles, bör följden bliva en nedgång av disagiot i Stockholm på danska kronor.”. Letter from the Riksbank to Nationalbanken, 1917 (No date probably August) Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

Here, the Riksbank unilaterally offers to assist the Nationalbank in its efforts to support the Danish krona vis a vis the Swedish currency. The goal is to eliminate the problems that arose as a result of the divergence of Scandinavian exchange rates (see section 3).

In 1919, discussions commenced concerning the possibility of establishing a more structured form of cooperation. The initiative for this interesting idea of a coordinated effort to affect the price of Scandinavian kronor came from the Swedish central bank. The President of the Riksbank, Victor Moll, suggested to his Scandinavian colleagues that if they each contributed a sum of 20-25 million kronor to a fund for open market operations in currencies, they would be able to affect their prices (See Figure 9). They might, he argued, be able to halt, or even reverse, the increasing price of foreign currency that had followed the end of the Armistice. In fact this idea can be seen as an embryo to a Scandinavian Monetary Fund. In a letter to his colleagues, Bomhoff in Norway and Winter in Denmark, the Swedish director Moll reflected as follows

"..in the Riksbank we observe with concern the ongoing increase in the prices of foreign currencies, thereby making imports more expensive and counteracting the decline of the price level. The procedure for setting exchange rates is as follows: at 10:45 AM, the Riksbank receives exchange rate suggestions from the private banks. On the basis of these, together with the Riksbank's own telegrams from abroad, the Bank sets the rates at 11 AM. During the War, we almost without exception followed the recommendations of the private banks. Lately, however, in order to counteract rising rates, we have often set the exchange rates below the suggestions of the banks. We have then sold substantial amounts of foreign currency at those lower rates. It seems to us that it is a common Swedish, Danish and Norwegian interest to oppose the ongoing increase in exchange rates. Success in this effort, of course, would become much more likely if the three central banks worked together. In order to achieve an effective result it is, however, necessary to supply substantial amounts of foreign currency. It has occurred to me that each of the central banks might be prepared to commit currencies to a sum of 20 or 25 million kronor. An agreement concerning the actual setting of rates is probably not attainable, nor should it be necessary. If all three banks were simultaneously to act as reasonably significant sellers (of foreign currency), the rates would undoubtedly be affected. I am also writing to Director Bomhoff of Norgesbank concerning this question".<sup>47</sup>

<sup>47</sup>NAB., Translated from Swedish, "...vi se i riksbanken med bekymmer den fortgående stegringen av härvarande kurser på utländska valutor, varigenom importen fördyras och prisnivåns nedgång motverkas. Kurssättningen tillgår såhär, att riksbanken kl 10:45 från privatbankerna mottar kursförslag. Med ledning av detta och riksbankens egna kurstelegram från utlandet bestämmas kurserna av riksbanken kl 11. Under krigstiden ha vi nära nog undantagslöst följt privatbankernas förslag. På sista tiden ha vi emellertid för att motarbeta kursstegringen ofta satt kurserna under bankernas förslag, samt sålt betydande belopp valutor till de sålunda bestämda lägre kurser. Det vill synas oss, som det vore ett gemensamt svenskt danskt norskt intresse att motarbeta den fortgående kursstegringen. Utsikten att lyckas häri skulle givetvis bliva långt större, om de tre centralbankerna arbetade gemensamt för detta intresse. För att vinna ett effektivt resultat måste man emellertid vara beredd

It is interesting that the Swedish Central bank director held such high hopes for the possibilities of a joint effort and that he was sketching on such a bold idea for a far-reaching Scandinavian monetary cooperation. The Norwegian reply arrived two days later. The Norwegian central bank agreed that the appreciation of foreign currencies had created a problem. Scandinavian imports were becoming more expensive and the (desired) deflation was halted. The Norwegian Bank, however, did not believe it was in a position to put aside a substantial portion of its foreign reserves for the purpose of holding down foreign exchange rates. As Bomhoff put it:

“It would, of course, be highly desirable to be able - at least to some degree - to correct this situation, but it would be difficult considering the substantial importation of goods that is occurring now that the War is over. For our Country, this will cause a major reduction of our foreign assets, a large portion of which are required to pay for ships under construction. Unfortunately, Norgesbank is unable to devote any amount worth mentioning to assist in holding down exchange rates. The rules controlling the Bank's issuance of notes require the holding of foreign assets equal to at least 50% of our gold reserves, if our issuance rights are to be fully utilized. Best Regards Bomhoff.”<sup>48</sup>

The Danish reply took longer, but at least it was somewhat more encouraging. On June 13, the Riksbank received its answer:

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att tillhandahålla valutor till betydande belopp. Jag har tänkt mig möjligheten, att en var av de tre centralbankerna skulle vara beredd att avlåta valutor till ett belopp av 20 å 25 miljoner kronor. Någon överenskommelse rörande själva kursställningen kan väl knappast träffas och torde icke heller vara av behovet påkallad. Om alla tre banker samtidigt uppträdde som säljare i nogorlunda stor skala, skulle kurserna härigenom utan tvivel påverkas. Jag tillskriver samtidigt direktör Bomhoff, Norges bank, rörande denna fråga.” Letter from the Riksbank to Nationalbanken, 19.5.1919., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

<sup>48</sup> AoR., Translated from Norwegian, ”Det vilde selvfølgelig være meget ønskelig at kunne – ihvertfald i nogen grad – rette paa dette forhold, men det vil vel falde vanskelig, netop paa grund af den betydelige indførsel af varer, som nu efter krigets slutning paagaar. Dette vil for vort lands vedkommende i høi grad reducere tilgodehavendet i utlandet, af hvilket ogsaa en vaesentlig del kraeves til betaling for skibe under bygning. For Norges banks vedkommende vil det desvaerre ikke være mulig at avse noget naevnevaerdig beløb som bidrag til at holde valutakurserne nede. Ifølge de for bankens seddelutstedelse gjældende regler, maa der nemlig holdes et tilgodehavende i utlandet paa mindst 50% af guldbeholdningen i eget vaerge, hvis man skal kunne utnytte utstedelseretten helt. MVH Bomhoff.” Letter from Norges Bank to the Riksbank, 22.5.1919., Riksbankschefemas Arkiv, F1A:16.

“...while we agree with you that an effort to reduce the price of foreign currencies should be made, we believe that the amount you have proposed for this purpose, 25 million kronor, would not have any great effect in the desired direction.”<sup>49</sup>

Obviously, the Danish central bank was sympathetic to the Swedish proposal, but felt that the amount suggested was insufficient to produce any substantial effect on exchange rates. Victor Moll accepted this criticism, agreeing that such an amount would not have any long term effect on the exchange rate of currencies important to the Scandinavian countries, such as the dollar. As he put it:

“I agree with you that the amount that I proposed (25 million kronor from each of the three banks) is not large if the purpose is to affect the exchange rate in a given direction for a considerable time. By making foreign exchange available, however, a not inconsiderable reduction in exchange rate has recently been achieved by the Riksbank together with the other central banks. We do not intend to supply foreign currency to any great extent. The rate that is the most interesting, and the greatest cause for concern, is that of the dollar. Controlling it, however, surely exceeds our joint ability. The dollar exchange rate is determined neither here nor in Copenhagen, but in New York and London. Furthermore, it is not possible to pick out one rate independent of its relationship with other rates, and to influence it much in one direction for any length of time”.<sup>50</sup>

So in the end this structured cooperation was never formalized and the banks reached no agreement concerning a joint fund intended to regulate the exchange rates among their countries.

This failure, however, did not put an end to their efforts to influence exchange rates through open market operations. A letter sent by the Riksbank to the Nationalbank in late

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<sup>49</sup> AoR., Translated from Swedish, “...medens vi var enige med Dem I, at der burde gøres et forsøg paa Nedbringelse af kurserne paa de udenlandske Valutaer, mente vi paa den anden side, at den Beløb, som De foreslog till dette Øjemed, 25 Millioner Kroner, ikke vilde Kunne have nogen Stor Virkning i den ønskede Retning” Letter from the Riksbank to Nationalbanken, 13.6.1919, Riksbankschefernas Arkiv, F1A:16.

<sup>50</sup> NaB., Translation from Swedish, ” Jag är enig med eder därom, att det av mig föreslagna beloppet (25 mill.kr. från var och en av de tre bankerna) icke är stort, om det gäller att under en längre tid framåt i viss riktning påverka kurserna. Därigenom att riksbanken och nationalbanken på sista tiden ställt valutor till förfogande, har emellertid en ej obetydlig kursnedgång åstadkommit. Något direkt utbud av valutor i större skala ha vi icke för avsikt att göra. Den kurs, som intresserar mest och som mest ger anledning till oro, är ju dollarkursen. Men att reglera den, det överstiger säkerligen våra gemensamma krafter. Dollarkursen bestämmes varken här eller i Köpenhamn utan i New York och London. Och desutom kan man icke taga ut en viss kurs ur sitt sammanhang med övriga kurser och påverka den särskilt i viss riktning under någon längre tid.” Letter from the Riksbank to Nationalbanken, 17.6.1919., Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921.

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1920 reveals a continuing effort by the banks to assist each other in their attempts to steer exchange rates.

“We have followed the recent increase in the value of Danish and Norwegian kroner with satisfaction. In our opinion, it is a joint Scandinavian interest that these values approach the value of the Swedish krona. We can not with certainty say what is causing the increase. If the increase is the result of deliberate actions by the central banks, and if you believe there is a chance that the increase will last, then we, to the extent possible, wish to support your efforts. Please let me know if you think it is desirable that we try to advance your intentions by purchasing Danish kroner or through other means”.<sup>51</sup>

It is apparent that the Swedish Riksbank was still trying to influence the price of the Scandinavian currencies through open market operations, despite the fact that its proposal for a common fund had been turned down by the other two banks.

It is obvious that the Scandinavian central banks used various tools to harmonize their monetary policies. The three banks sought to coordinate their monetary policies so as to reduce the tension caused by diverging exchange rates. It is evident, however, that their efforts were insufficient to assume the stabilizing role previously played by the gold standard. The policy measures devised might have replaced the constraint place by the gold standard on monetary policy but, in the end, pressing national concerns were considered more important than putting Humpty Dumpty back together.

In 1922, Viktor Moll reflected on what he, and his country had learned from its experience with the SCU:

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<sup>51</sup>NaB., Translation from Swedish, ”Vi hava här med tillfredsställelse iakttagit den senaste tidens stegring av värdet på danska och norska kronor. Enligt vår mening är det ett gemensamt skandinaviskt intresse, att nämnda värde närmar sig värdet på svenska kronor. För oss är det omöjligt att tillförlitligt bedöma orsakerna till stegringen. Om stegringen har sin grund i planmässiga åtgärder från nationalbankens sida och om Ni anse utsikt finnes, att stegringen kan bliva bestående, skulle vi i den mån ske kan, vilja stödja era åtgärder. Jag anhåller vänligen, att ni meddela mig om ni anse det önskvärt, att vi söka befordra era avsikter genom köp hör av danska kronor eller på annat sätt.” Letter from the Riksbank to Nationalbanken, 18.12.1920., *Fragmenter af Nationalbankens korrespondence med Sveriges Riksbank 1904-1921*.

### *The Scandinavian Currency Union 1873-1924*

“For half a century Sweden has had a monetary convention with Norway and Denmark. The Conformity of the Currency has been of great advantage to the economic connections between the three countries. But under the pressure of the conditions brought about by the war, this convention was shattered like glass. [...] With this experience before our eyes, it can easily be understood, that we in Sweden entertain no hopes of solving present currency-problems by international conferences and conventions. We are afraid of conventions, the consequences of which we cannot foresee. They will restrain our free action and in all probability, like the Scandinavian currency-convention, break to pieces, when they are most needed.”<sup>52</sup>

It is quite clear that Viktor Moll, who just a couple of years earlier had such high expectations for the possibilities of international monetary cooperation that he had suggested a Scandinavian monetary fund, now had lost all faith in international monetary conventions. This bitter experience might explain why the union was never resurrected after the three countries returned to the gold standard a couple of years later. It is also interesting to note that none of the countries has entered into any such close monetary cooperation since.

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<sup>52</sup> AoR., Memo handed to Montagu Collet Norman at a Visit to Bank of England, 1.6.1922. “P.m. Låmnad av Moll till Norman vid besök i Bank of England den 1 juni 1922”. Riksbankschefernas Arkiv, F1A:16.



## 6 Why Wasn't the Union Dissolved Sooner?

One of the principal contributions of this essay are the questions that it raises. One of these is why did the Union persist as long as it did, considering that it probably did more harm than good once convertibility had been suspended. This section will present various answers or approaches to this puzzling question. First, it is argued that the Union was retained because change itself would impose substantial costs. This fact, together with the expectation that the War would be brief, laid the basis for a painful waiting game - waiting for the return of normalcy. It is also argued that the SCU was preserved to signal the determination of the three countries to return to the gold standard. That is, the SCU functioned as a “*Good Housekeeping Seal of Approval*”. Finally, it is argued that even if the attempts to save the Union (see section 5) seem irrational and a waste of resources in retrospect, they may not have seemed so at the time. History has to be read forwards, not backwards. The scholar has to put himself in the place of the actors in order to understand their behaviour.

### 6.1 The Costs of Change and the Expectation of a Swift Return to Normalcy

Why did the Union persist as long as it did, even after it was doing more harm than good? This question is similar to that posed by D.C. North: How do we account for the survival of economies with persistently poor performance over long periods of time?<sup>53</sup> North's answer hinges on the concept of “path dependence”. This term is partly adapted from studies of technological change and technological lock-ins. North, however, applies it to his theory of institutions and institutional change. The logic is quite straightforward: in a world without transaction costs (i.e. contracting, information and enforcement costs), inefficiency can not persist in the long run. In the real world, however, there are a myriad of transaction costs. These make it costly to establish a more efficient institutional framework. This, in turn, results in inertia, and thus in institutional lock-ins and path dependence. The continued survival of the SCU can be seen in this light. The high cost of establishing the Union, together with the expectation that normalcy (i.e. the gold standard) would soon return, provided a powerful argument for maintaining the SCU even after it had become a net burden.

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<sup>53</sup>North (1990, p. 92).

## **6.2 The Scandinavian Currency Union as a “Good Housekeeping Seal of Approval”**

In an influential paper by Bordo and Rockoff (1996), it is argued that peripheral countries adopted and adhered to the gold standard rule of convertibility as a signal to other countries of their intention to follow a sound fiscal policy. This would allow gold standard countries to borrow on the international capital market at lower interest rates than could countries on a silver or fiat standard. This, the paper concludes, was a powerful motive for adopting the gold standard. The authors provide a survey of the historical background to the adoption of the gold standard by nine important peripheral countries during the period 1870-1914. On this basis, they argue that a large number of developing countries, including Mexico, Russia and Japan, chose gold in order to borrow more cheaply. Bordo and Rockoff thus proclaim the gold standard to be a “Good Housekeeping Seal of Approval” for peripheral countries.

The fact that adherence to the gold standard by peripheral countries facilitated their borrowing from the European core countries might also help explain why the three Scandinavian countries were so reluctant to bury the SCU. Evidence for that possibility can be found in a newspaper article from 1923. It begins by pointing to the increased support for dissolving the Union from prominent Swedish economists, such as Gustav Cassel and Eli F. Heckscher. The most interesting part of the article, however, comes at the end where reference is made to a statement from the annual convention of the Norwegian Banking Association:

“Here in Sweden, prominent economists - Professors Cassel and Heckscher - have repeatedly and forcefully argued that the time is now ripe for a final dissolution of the Scandinavian Currency Union, especially because Norway and Denmark are incapable of raising their currencies to parity with the Swedish. This line of reasoning, however, has not persuaded the Swedish authorities. Instead they have accepted the Danish and Norwegian position that it is best to wait and not to preempt developments by dissolving the currency union. This position was also strongly argued at the annual meeting of the Norwegian Banking Association. There, for example, it was stressed that - the abolition of the currency union is more than a question of piety. Attention also has to be paid to the world at large and how such an action would be perceived abroad. Thus, there is reason to believe that an abolition of the currency union would be interpreted abroad as a sign that the attempt to bring the Norwegian krona up to parity with the Swedish one had been abandoned. Such an impression certainly would not be beneficial for Norway's credit”.<sup>54</sup>

<sup>54</sup>Translation from Swedish, [Underscoring by author] ”Här i Sverige har av ledande nationalekonomer – professorerna Cassel och Heckscher – vid upprepade tillfällen med skärpa framhållits, att tiden nu vore inne för en definitiv upplösning av skandinaviska myntunionen, detta särskilt på grund av att Norge och Danmark icke äro i stånd att få upp sina valutor i paritet

This statement by the Norwegian Banking Association makes the point that the abolition of the SCU would signal foreign countries that the effort to return the Norwegian krona to its pre war parity had been abandoned and that this would increase the cost of Norwegian borrowing abroad. Clearly it was believed that the existence of the SCU as a formal institution signaled that the Scandinavian countries wished to return their currencies to pre war parity and, thus, were prepared to follow responsible fiscal policies.

### **6.3 Central Banking as an Art Form - the Case for Bounded Rationality**

Fully understanding an historical event requires an imaginary journey back in time. The actions of the parliaments and central banks of the three countries might be considered irrational when viewed in hindsight. In fact, however, the retention of the Union can only be understood by putting oneself in the position of the actors at that time. On August 1, 1914, the future was a tabula rasa, and the actors could only make predictions based on their own understanding of the situation. What experiences was a Scandinavian central banker likely to rely on at the outbreak of World War I?

The Scandinavian countries had adopted the gold standard during the 1870s and, since then, they had enjoyed approximately forty years of low inflation, steady growth and fixed exchange rates. During this period, they had learned to operate and manage the gold standard. As Bordo has noted, an important benefit of the gold standard was that it provided a stable monetary anchor and a mechanism to ensure that the monetary authorities followed time consistent policies. Thus, the gold standard was a system dedicated to stability. It consisted of three principal rules: the unencumbered import and export of gold, the maintenance of a fixed relationship between the size of the gold reserves and the quantity of notes in circulation, and, a guarantee of the right to redeem notes for a fixed amount of gold.

In 1914, these rules started to change and change rapidly. Within a few months, central bankers were trying to navigate on unknown seas where the old charts were

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med den svenska. Detta resonemang har emellertid icke vunnit anslutning på ansvarigt svenskt håll, utan man har härvidlag följt den danska och norska uppfattningen, att man bör se tiden an och inte föregripa utvecklingen genom att upphäva myntunionen. Denna ståndpunkt hävdades för övrigt starkt vid norska bankföreningens årsmöte. Där vid framhålls bl. a., att upphävandet av myntunionen icke endast är en pietetsfåga; man måste också taga hänsyn till utlandet och huru man där kommer att uppfatta ett dylikt steg. Man har nämligen anledning att förmoda, att ett upphävande av myntunionen i utlandet skulle komma att uppfattas såsom ett tecken på att försöken att föra den norska kronan upp i paritet med den svenska uppgivits. Och ett sådant intryck skulle säkerligen icke vara gagneligt för Norges kredit." *Nya Dagligt Allehanda*, 29.10.1923.

inadequate. Their unfamiliarity with managing a fiat standard made them unable to foresee future problems. Central banking had become an art, not a science. It was conducted virtually on a day to day basis, without any clear view of the future. Problems were tackled as they occurred. Indeed, these problems were often the result of central bank actions taken to deal with a previous problem. By viewing the situation from their perspective, this thought experiment unquestionably contributes to an understanding of why the SCU survived as long as it did.

## 7 Concluding Remarks

The decline of the Scandinavian Currency Union was a lengthy process, lasting an entire decade. This essay has demonstrated that three crucial developments contributed to the Union's eventual demise: i) the suspension of convertibility, together with a prohibition of gold exports, ii) the emergence of exchange rate tensions within the Union and iii) the smuggling of Scandinavian token coins.

What were the principal mechanisms at work? First of all, the suspension of convertibility, and the accompanying ban on gold exports, prevented the gold standard from functioning. The improved wartime Swedish balance of payments did not result in any equilibrating gold flows, thus permitting the Swedish currency to appreciate. The clause of the 1873 Treaty requiring the Scandinavian Krona to be traded at par throughout the Union, converted the higher value of the Swedish Krona into an arbitrage opportunity, both for the central banks and for private individuals. Soon, Danish and Norwegian notes and gold started to flow into Sweden.

This problem was resolved by an agreement among the central banks to strictly enforce the export prohibitions already in existence. This action succeeded in halting the flow of gold and notes into Sweden, but, as the exchange rate differential continued to widen, a new problem arose. The last remaining aspect of the Union, the clause that granted legal tender status to Scandinavian token coins, wherever they had been minted, resulted in the smuggling of Danish and Norwegian token coins into Sweden. These coins were later returned to the Danish and Norwegian central banks by the Riksbank in return for gold, but, of course, with a net profit for the latter. Since none of the countries viewed this situation as beneficial, the last remnants of the Treaty of 1873 were abrogated without objection in 1924.

What are the principal contributions of this essay? For one thing, it clarifies the picture of post World War I events. In addition to a definitive date for the termination of the SCU, there now exists a credible survey of the break up process and its mechanisms.

The essay questions the evidence provided, and the conclusions reached, in previous work on the demise of the SCU. It is demonstrated that the assertion by Bergman et al, that the dissolution of the SCU had its roots in a surge in Danish and Norwegian exports, in addition to being counter intuitive, does not stand up to empirical testing. It also has been established that during this period Danish and Swedish monetary policy did not diverge significantly. Instead the essay argues that World War I constituted a major asymmetrical shock to the Union. This fatal asymmetry was due to variations in trade performance and economic structure among the three countries that eventually required an adjustment of exchange rates. On the other hand, it is also concluded that the international gold standard system was a prerequisite for the success of the SCU. In the absence of a common central bank, the gold standard provided the requisite constraints on monetary policy, as well as the adjustment process essential for handling trade shocks. Both of these mechanisms were needed to achieve stable exchange rates.

This paper has also examined the efforts of the Scandinavian central banks to uphold the union during the turbulent period that followed the war. Different policy devices were being used to handle the centrifugal forces of diverging exchange rates. In the end however, these efforts were given up and the union was dissolved.

From a broader perspective, the decline and fall of the SCU serves as a cautionary tale concerning the difficulties of establishing and maintaining institutions intended to provide stability in a world characterized by continuous change. Is it really possible to design institutions that can both provide stability and, handle flexibility over the long term?

## APPENDIX

**Appendix 1.** Scandinavian gold reserves and notes in circulation (Monthly Data in Million Kroner)

Year-Month	Swedish Gold Reserve	Norwegian Gold Reserve	Danish Gold Reserve	Swedish Notes in Circulation	Norwegian Notes in Circulation	Danish Notes in Circulation
1914-jan	103,3352	72,84	76,203	205,296	99,737	140,557
1914-feb	104,257	71,126	77,942	213,872	101,515	143,895
1914-mar	104,165	67,795	79,875	233,146	107,368	146,575
1914-april	104,134	73,1	79,337	219,1837	110,806	153,026
1914-maj	104,918	74,088	82,025	226,5554	113,484	157,273
1914-juni	105,4298	79,827	82,172	238,9713	124,094	159,836
1914-juli	103,9745	81,717	78,341	228,4327	122,547	156,473
1914-aug	103,2429	78,691	74,706	279,6151	140,234	194,187
1914-sept	103,4504	70,019	72,771	294,5804	135,288	211,349
1914-okt	103,941	70,045	72,212	284,0298	132,591	224,178
1914-nov	104,429	72,591	81,35	283,7177	131,466	211,079
1914-dec	108,5373	69,65	94,827	304,0576	134,152	206,628
1915-jan	105,592	74,961	104,794	267,4793	123,876	194,02
1915-feb	113,1654	82,066	104,869	276,9045	128,681	199,272
1915-mar	113,3404	99,381	107,135	292,3875	138,792	211,429
1915-april	113,4256	106,701	107,152	278,3769	141,452	209,059
1915-maj	113,4434	116,038	107,047	275,5407	134,921	208,288
1915-juni	113,4509	122,311	107,093	293,3206	146,328	214,985
1915-juli	113,4015	125,839	107,029	276,1603	143,607	204,325
1915-aug	113,4015	130,904	107,023	282,0702	144,05	203,267
1915-sept	113,4148	130,087	106,704	309,5337	149,202	220,468
1915-okt	113,3765	136,066	106,496	308,7192	156,138	231,479
1915-nov	113,2945	133,462	106,763	302,6003	152,752	221,157
1915-dec	124,5715	131,928	111,318	327,8859	162,166	220,45
1916-jan	142,278	123,292	111,446	293,5966	152,03	213,426
1916-feb	160,9077	134,045	119,857	303,5873	167,457	236,103
1916-mar	160,813	153,493	132,613	331,6056	205,63	247,169
1916-april	164,9906	205,697	139,562	322,3919	222,276	255,588
1916-maj	166,3105	216,638	144,239	328,8117	211,563	262,628
1916-juni	166,1314	216,877	151,579	352,475	222,821	263,31
1916-juli	165,9176	114,821	161,455	324,7926	215,326	245,013
1916-aug	165,7578	114,836	161,098	345,5467	224,857	249,542
1916-sept	170,9469	113,874	155,644	386,8845	244,009	268,388
1916-okt	177,9519	111,216	150,121	375,984	237,038	281,472
1916-nov	182,3804	110,079	145,369	380,7446	240,592	277,601
1916-dec	183,5196	123,237	159,877	417,5174	251,661	284,864
1917-jan	186,5823	121,185	162,351	376,1326	234,006	266,369
1917-feb	191,3738	125,12	164,794	393,4675	254,937	275,791
1917-mar	193,1729	131,176	164,183	438,8255	280,737	303,499
1917-april	194,281	130,05	172,71	434,3326	284,675	300,903

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1917-maj	202,9414	129,977	179,921	433,3377	279,185	298,61
1917-juni	202,7012	129,909	197,349	466,0213	295,503	304,189
1917-juli	204,6381	129,846	195,113	442,4134	293,63	289,308
1917-aug	204,5012	129,656	194,295	467,083	300,072	287,067
1917-sept	214,5543	122,594	190,517	520,9621	310,745	303,036
1917-okt	223,4942	117,779	189,275	522,6316	308,105	326,905
1917-nov	226,3992	114,923	178,601	535,0008	309,331	325,762
1917-dec	244,4573	116,393	173,922	572,723	326,425	337,864
1918-jan	235,9612	116,422	173,706	524,6622	308,049	328,896
1918-feb	235,2584	118,421	173,541	560,2	320,856	332,603
1918-mar	258,0708	122,304	184,835	630,6686	349,477	350,978
1918-april	257,6798	122,202	184,113	614,8889	358,304	347,702
1918-maj	258,6931	120,09	184,111	624,9948	356,59	344,943
1918-juni	257,9988	119,992	188,866	667,5178	371,213	372,435
1918-juli	257,3982	122,72	189,778	645,1683	372,008	365,335
1918-aug	263,3964	122,586	186,582	688,6632	383,612	391,908
1918-sept	273,6027	122,434	188,182	761,6776	400,909	402,425
1918-okt	274,4585	122,293	188,373	761,0339	411,772	424,167
1918-nov	283,3604	122,143	187,643	783,989	410,183	440,201
1918-dec	285,5664	121,98	194,624	813,5339	436,316	450,035
1919-jan	279,7993	121,873	187,3	720,983	416,577	430,845
1919-feb	288,2025	121,779	187,202	721,6479	416,339	421,235
1919-mar	288,0615	148,842	186,921	750,6929	432,088	434,464
1919-april	287,4441	148,655	186,732	722,1792	434,067	434,08
1919-maj	290,0129	148,562	186,39	702,57	429,454	433,971
1919-juni	288,9277	148,423	187,783	727,9496	433,332	435,995
1919-juli	288,3477	148,342	187,38	683,1351	428,902	428,551
1919-aug	300,3358	148,148	186,87	694,1607	435,175	435,67
1919-sept	300,086	148,253	187,483	751,0867	428,756	455,616
1919-okt	299,7035	148,104	191,405	732,8118	439,205	481,407
1919-nov	299,9549	147,886	212,169	723,4855	430,306	471,743
1919-dec	281,1586	147,724	226,892	747,5622	454,306	489,347
1920-jan	271,4758	147,594	226,842	673,2549	413,542	474,747
1920-feb	265,2443	147,51	226,741	685,5364	412,305	475,131
1920-mar	261,0622	147,414	226,608	741,6224	450,046	524,217
1920-april	261,0107	147,417	226,578	718,2733	444,838	521,678
1920-maj	261,0128	147,397	227,487	708,291	430,954	515,651
1920-juni	261,07	147,379	228,03	736,4577	440,684	528,66
1920-juli	261,2915	147,369	227,849	724,782	458,3	541,192
1920-aug	261,3574	147,344	227,579	742,1924	466,521	542,338
1920-sept	279,3813	147,352	227,6	779,7671	478,097	559,468
1920-okt	282,4102	147,325	227,589	772,808	478,45	578,045
1920-nov	282,3533	147,296	227,586	752,8385	453,417	555,22
1920-dec	281,7771	147,283	227,582	759,8773	478,376	556,706

*Source: Ekonomisk Tidskrift 1914-1920 (Statistiska medelanden)*

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Sjöstrand, S-E. och Petrelius, P.,(red)

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