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Monetary policy under the gold standard – examining the case of Norway, 1893-1914

by Lars Fredrik Øksendal

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Monetary policy under the gold standard - examining the case of Norway, 1893-1914

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Abstract

This essay examines Norwegian monetary policy under the final decades of the classical international gold standard regime prior to World War I. While the evidence clearly demonstrates that the commitment to gold convertibility was the overall objective, the character of monetary policy was determined by the inherent tension between Norges Bank's role as the guardian of the nation's most important reserve of foreign exchange and the role as manager of the domestic currency. In order to solve this tension, a core point of monetary policy was to shelter the domestic money supply from changes in the balance of payments. Rather than forcefully reducing domestic circulation during seasonal fluctuations in the flow of gold, Norges Bank operated with a relatively large reserve of notes and foreign securities which took the strain. The effect of this policy was interest rate smoothing and increased freedom for exercising discretionary judgment. Moreover, I present evidence demonstrating that interest rate decisions were influenced by a number of domestic concerns and not only the external balance.

JEL Codes: E42, E52, E58, N13

Keywords: Central banking, Monetary history, Gold standard, Bank rate policy

Preface

The study presented here constitutes a part of my doctoral thesis in economic history at the Norwegian School of Economics and Business Administration (NHH). The theme for my research project, in a broad sense, is the Norwegian monetary policy experience under the classical gold standard, from the early 1870s until the outbreak of World War I. In this particular study, the subject is monetary policy in the two decades following enactment of the new central bank legislation in 1893.

A few words on the format might be appropriate. As the conscientious reader will recognise, this study goes beyond the standard length of articles written for international scientific journals. This is a conscious choice. Although the findings presented here could have been moulded into the specific format of that genre, and might very well be so in the future, much of the empirical evidence and contextual text necessary for my arguments would have been lost.

Preliminary drafts of this study were presented at the 6th Conference of the European Historical Economics Society, Istanbul, September 2005; a joint seminar of economic historians from NHH and the University of Bergen in the autumn of 2005, a faculty seminar at the Department of History and Classical Studies, Norwegian University of Science and Technology in the autumn of 2005, as well as at a seminar for PhD-students at NHH in April 2006 and a staff seminar at NHH in January 2007. I am indebted to professors Jan Tore Klovland, Ola Grytten and Bjørn Basberg; associate professors Stig Tenold, Magnus Lindmark (all NHH) and Pål Sandvik (Norwegian University of Science and Technology); PhD-fellows Monica Værholm (NHH), Gunhild Ecklund (Norwegian Institute of Management), Bjørn Haugstad (Oxford University), and finally Research Director Øyvind Eitrheim, Norges Bank, who all, at differing stages, read the whole manuscript and provided stimulating discussions, valuable suggestions and firm warnings.

1. Introduction and argument

Norway adhered faithfully to the classical gold standard from its introduction in 1874 to its demise at the dawn of World War I. The central bank, Norges Bank, honoured notes in gold and the commitment to convertibility was never questioned. The gold standard coincided with long periods of economic growth, increase in international trade and economic modernisation. Adherence facilitated trade, capital import and integration in international financial markets. As such, the gold standard in the case of Norway can easily be described as a success story.

Norway belonged to a group of countries that adhered to the gold standard, but which has attracted surprisingly little scholarly interest outside the perimeter of national research. The international literature on the gold standard is mainly concentrated on systemic approaches, the role of the core countries of the Atlantic economy or the periphery of Southern Europe or Latin-America. The Scandinavian countries — Denmark, Sweden and Norway — were not a part of the core but had nevertheless little in common with the impoverished periphery. Culturally, politically and economically they had strong links with the core, but their size meant that they had only limited influence in global finance. We can label these countries the *advanced periphery*.

Our knowledge from domestic sources of monetary policy in Norway under the pre-war gold standard is limited as well.¹ According to one source, Keilhau, Norway was among the countries that loyally followed “the rules of the game”. Keilhau neither outlines his understanding of this concept nor substantiates his claim.² However, more recent historical studies have not moved the understanding much beyond this interpretation and his now sixty-year-old postulate still stands as the verdict on Norwegian central banking under the gold standard. The ambition of this study is to fill this gap in Norwegian historiography and at the same time contribute to the international understanding of the advanced periphery under the gold standard.

My point of departure, following the lead given by Keilhau, is to discuss the concept of

¹ The lack of literature applies for Denmark as well. Sweden, however, has been the subject of a number of good studies in recent years. Talia discusses the Scandinavian Monetary Union from a Swedish perspective, Lobell writes on the Swedish foreign exchange rate until 1880, while Ögren's thesis on the Swedish credit market 1834-1913 is a model study. I will return to his study in my discussion. Talia, Krim, *The Scandinavian Currency Union, 1873-1924 - Studies in Monetary Integration and Disintegration*, Stockholm School of Economics 2004; Lobell, Håkan, Vaxelkurs och marknadsintegrasjon, Lund Studies in Economic History 14, Ögren, Anders, Empirical Studies in Money, Credit and Banking, The Swedish Credit Market in Transition under the Silver and Gold Standards, 1834-1914, EHF Stockholm School of Economics. Studies in Economic History no 2.

² Keilhau, Wilhelm, *Den norske pengehistorie*, Aschehoug 1952 pp. 124-5

“rules of the game” in light of the international literature and examine whether it is a framework that gives meaningful insights into Norwegian monetary policy in the last decades of the gold standard. To jump to the conclusion: it is not. Rather than stern rule adherence, the evidence suggests that Norges Bank played a broader game and in fact frequently exercised considerable discretionary judgment. Gold convertibility, although clearly at the forefront of monetary policy, was only one of several objectives of Norges Bank.

My thesis is that the character of Norwegian central banking before 1914 is to be found in the in-built tension between Norges Bank’s two key roles, to preserve the nation’s most important reserves of gold and foreign exchange and simultaneously manage the domestic currency. In order to avoid a situation where external constraints might force the bank to an unwarranted curbing of domestic credit, Norges Bank aimed at sheltering the domestic money supply from fluctuations in the external balance. The bank did this by keeping relatively large reserves of legally backed notes not in circulation and foreign securities as buffers against fluctuations in the gold balance. A part of this policy included monetary sterilisation and husbanding with gold resources. The result was interest rate smoothening and a note circulation mainly determined by the domestic demand for money.

This successfully managed gold standard created latitude for the monetary authorities to pursue discretionary policies. I demonstrate that interest rate decisions were influenced not only by the external balance but also by a number of concerns, most prominently the state of the domestic money market and the business cycle. In practice, the room for exercising some discretionary judgment was present in the long run as well. In the business downturn following the Christiania bust of 1899, Norges Bank maintained domestic discounting at a record high level in the face of dwindling gold reserves, thus easing the impact of the economic cycle.

The external anchor served Norway well in this period. The commitment to gold convertibility was never in question and created credibility for monetary policy. Long-run credibility created latitude for monetary authorities to play a broader game than that argued by Keilhau. In the literature, rules and discretion are often seen as opposites or conflicting principles of policy. In the Norwegian case, rule adherence or credible gold standard commitment was a necessary precondition for creating room for discretionary practices. Had the policy commitment been rendered with less long-term credibility, the history of the Norwegian gold standard experience had been quite different from the one presented in this essay. Thus, the key to understanding the successful Norwegian pre-war gold standard was the combination of a policy credibility that allowed for discretion and a conscious central

bank that managed to solve the in-built tension between its conflicting internal and external functions.

Norway is a country that generally is of interest mainly to Norwegians, and Norwegians are mainly interested in Norway. This is a faith shared with other countries of the advanced periphery — perhaps with the notable exception of Sweden. Nevertheless, the findings presented here ought to be also interesting beyond the confines of national historiography for a number of reasons. Firstly, our understanding of regimes like the gold standard is incomplete as long as the history of the successful adjustment of the advanced periphery is not included. Secondly, the essay demonstrates the importance of moving beyond the fixation with the external balance in the study of central banking under the gold standard and more strongly emphasises the interplay between external and domestic constraints under which central banks laboured. Thirdly, my findings suggest that a small country like Norway had considerably stronger latitude in monetary policy formation than one would assume from the concept of an international system with strong norms for regime adherence. In fact, it might be argued that regime credibility made it possible for Norway to go a long way in the direction of escaping from the trilemma, the notion that monetary autonomy is not conceivable under a fixed exchange rate regime with free capital movements.

2. The classical gold standard – theoretical understanding and historical evidence

The traditional image of the gold standard is the working of a smooth automatic mechanism where balance of payments adjustment is achieved in accordance with David Hume's price-specie-flow mechanism. Government or central bank intervention had no place in the classical liberal understanding. Later, following the publication of the Cunliffe Committee Report (1919), the responsibility of central banks for reinforcing the natural adjustment process of the market was widely acknowledged as a part of the understanding of the operation of the gold standard. In accordance with the so called "rules of the game", a phrase usually attributed to John Maynard Keynes and his attack on the British deflationary policies of the 1920s, central banks responded to declining gold reserves by contracting domestic credit and vice versa.³ The key instrument for achieving the desired effect on the credit market was typically changes in the bank rate, the rate banks paid when they re-discounted commercial papers with the central bank. Increased interest rates in the money market due to higher bank rates would contribute to balance of payments adjustment in two ways: by stimulating an inflow of short-term capital eager to capitalise on the interest rate differential and by reducing domestic demand for consumption and investment goods. Reduced demand would then reduce income and prices, thus reducing imports and strengthening the competitiveness of the export sectors. In the case of a gold inflow, reduced interest rates would give the opposite effects. In this manner, the central bank would speed up the return to balance of payments equilibrium envisaged in the classical Hume-mechanism.⁴

Although still the standard point of departure for researchers interested in the monetary history of the decades prior to 1914, the traditional understanding of the operation of the gold standard does not fit the evidence with reference to either central bank policy or regarding the actual adjustment mechanism believed to be set in motion by that policy. Over the last fifty years or so, a number of scholars have helped nuance our understanding, some by disproving the actual working of the adjustment mechanism, others by questioning the role of central bank policy. Moreover, a number of scholars from different disciplinary angles — economics, political science, history — have tried to establish why the gold standard was a success in this period even when the evidence does not fit the theory. The following examination is not

³ Keynes, John M., *The Economic Consequences of Mr. Churchill*, London 1925

⁴ Bordo, Michael D. and MacDonald, Ronald, Violations of the "Rules of the Game" and the Credibility of the Classical Gold Standard, 1880-1914, *NBER Working Paper* No. 6115

intended to be exhaustive but rather aims at pointing at some important observations.

Alec Ford claimed in the early 1960s that interest rate changes in the money market following gold flows primarily influenced the demand for labour, goods and imports; while changes in the relative level of prices and the “rules of the game”-induced changes in the bank rate played only a subsidiary role in the adjustment process.⁵ Hence, output and level of employment were the real equalising forces. Robert Triffin, in a similar vein, has claimed that due to price and wage rigidities the level of activity was more important for balance of payment adjustments than changes in prices. The cost of adjustment, he argued, was also asymmetric, higher in the periphery than in the industrialised centre.⁶ This reflected the difference between capital importing and exporting countries, as illustrated by Ford:

As at the centre as at the periphery adjustment worked through changes in income and demand. An inflow of long-term capital, for example, tended to stimulate demand, increasing imports and thereby tending to restore balance to the external accounts. But at the periphery exceptionally large fluctuations in income were required. Given the underdeveloped state of the domestic financial markets and even the absence of a central bank there was little scope for interest rate changes to induce accommodating short-term capital flows. The commodity prices facing primary producing countries were dictated by world commodity markets. Hence the burden of adjustment fell squarely on changes in demand, often brought about by fluctuations in employment.⁷

Ford also pointed to the interplay in the balance system for the core countries: typically, increased British capital exports led to a contraction of domestic investments compensated by an increase in foreign demand for British capital goods.⁸ The role of capital exports and imports in explaining the working of the gold standard exposed one of the main weaknesses of Hume’s approach to balance of payments: that the model was built on adjustment through trade. This assumption might hold true for the mid 18th century, but was clearly an oversimplification of the adjustment process in the more complex globalised economies in the decades before World War I. The in-built dynamics of long-term equilibrium in Hume’s

⁵ Ford, Alec, *The Gold Standard, 1880-1913, Britain and Argentina*, Oxford University Press 1962

⁶ Triffin, Robert, Myth and realities of the gold standard, in Eichengreen, Barry and Flandreau, Marc., *The Gold Standard in Theory and History*, Routledge 1985

⁷ Ford, *The Gold Standard, 1880-1913 Britain and Argentina*

⁸ Ford, *The Gold Standard, 1880-1913 Britain and Argentina*

model just did not hold true. A number of countries ran persistent deficits on their current accounts for decades.⁹

The problems of adjustment for the peripheral dependent countries in Mediterranean Europe and Latin-America have been highlighted in recent studies. These countries depended on the export of a limited number of raw materials and foodstuffs, the prices of which were set in international markets and were typically more volatile than their more broadly based import bills. Thus, marked changes in the terms of trade led to strong booms and busts. Moreover, as they had limited opportunities to influence the competitiveness of their exports through contractive monetary policy, adherence to the gold standard was often problematic. Because of their export structure, these countries and in particular the Latin-American ones, often followed a more flexible policy by going off gold from time to time and for long periods basing their monetary system on inconvertible bank notes. However, weak political cultures, mistrust, wars and civil conflicts also contributed to their less than faithful attitude towards the “rules of the game”.¹⁰

Furthermore, Triffin emphasised that central banks in practice took a broader view than gold convertibility.¹¹ This was already acknowledged by Walter Bagehot, who in his influential book on central banking, *Lombard Street*, showed that the state of the economic cycle or domestic financial stability occasionally motivated monetary policy.¹² However, the final blow for a narrow “rules of the game” understanding came with Arthur Bloomfield’s seminal statistical study, where he rebuked most conventional appraisals of monetary policy under the gold standard. For the period 1880-1914, he showed that for 11 European countries the annual changes in foreign and domestic assets of central banks moved in the same direction, as supposed under “the rules of game”, in only 107 out of 319 observations. In 191 instances the moves were inverted and in the rest neutral. This of course does not imply that policy was not aimed at rule adherence, but merely that if there was such a policy the sought after effect was not attained. Instead he outlined quite another image of policy than “automatism” and a minimum of discretion:

Not only did central banking authorities, so far as can be inferred from their

⁹ Triffin, *Myth and realities of the gold standard*

¹⁰ Acena, Pablo Martin and Reis, Jaime, *Monetary Standards in the Periphery. Paper, Silver and Gold 1854-1933*, Macmillan 2000

¹¹ Triffin, *Myth and realities of the gold standard*

¹² Bagehot, *Lombard Street. A Description of the Money Market*, 10th edition, London 1892

actions, *not* consistently follow any simple or single rule or criterion of policy, or focus exclusively on considerations of convertibility, but they were constantly called upon to exercise, and did exercise, their judgment on matters as whether or not to act in any given situation and, if so, at what point of time to act, the kind and extent of action to take, and the instrument or instruments of policy to use. This in turn depended upon their evaluation as to the probable size and duration of reserve movements and of the various factors, domestic and foreign acting upon them, their weighting of various policy objectives when such tended to conflict with each other; and their judgment regarding the probable effects of alternative policy measures.¹³

Thus, for the last fifty years or so scholars have tried to explain how, if the empirics do not fit with theory, we can account for the remarkable success of the classical gold standard. They have indeed produced a number of explanations. Some of these are attempts by economists to reformulate the rules of the game in a way that fits better with the evidence. Others are attempts at reaching a broader kind of understanding of the political economy of the classical gold standard.

Among the latter, Charles Kindleberger's theory of hegemonic stability has become a recurrent point of departure. He explained the success of the gold standard prior to 1914 with the presence of a hegemonic power, the United Kingdom, with responsibility for policy coordination and maintaining the system. The subsequent breakdown of the gold standard in the interwar years is explained in terms of a hegemonic vacuum.¹⁴ The perception of hegemony has been challenged by Barry Eichengreen. He claimed in *Golden Fetters* that the main explanations for the success were to be found in the concepts of cooperation and credibility. The gold standard was, he claimed, a multipolar system where the central banks of the core countries — the United Kingdom, France and Germany — cooperated and jointly exercised a hegemonic function. The contemporary public trust in the compliance of the central banks to take the necessary steps to maintain gold convertibility regardless of costs rendered the system with a strong credibility. Thus, the collapse of the interwar years is explained by lack of central bank cooperation and a weakening of the economical and

¹³ Bloomfield, Arthur I., *Monetary Policy under the International Gold Standard 1880-1914*, Federal Reserve Bank of New York 1959

¹⁴ Kindleberger, Charles P., *The World in Depression, 1929-1939*, University of California Press 1984

ideological foundations of credibility.¹⁵

The problem with these analyses is that what Kindleberger and Eichengreen really want to do is to explain the interwar years. Their understanding of the gold standard prior to 1914 is a by-product or reversed image of their research on the subsequent period. Since both a strong hegemonic power and increased central bank cooperation probably could have reduced the frictions of the 1920s and 1930s, there had to be hegemony or cooperation in the previous, more successful period. Thus, two of the most well known explanations of the classical gold standard lack sound empirical footing. This is underpinned by Marc Flandreau who claims that “*In a pre-1914 mirror, the alleged collapse of central bank cooperation, which according to Eichengreen took place in the interwar period, looks very much like business as usual*”.¹⁶

Quite contrary to Kindleberger and Eichengreen, Gallarotti claims that before 1914, the United Kingdom had neither the resources nor the ambition to play the role of a hegemonic power. Moreover, central bank cooperation was limited to *ad hoc* supply of liquidity in times of crises. According to Gallarotti, the gold standard was a system built from below, where adjustment took place as decentralised processes within the market. The monetary regime was deeply embedded in the prevailing liberal norm structures. The perception of an international order was not part of the monetary regime but became a reality through the linkage of national currencies to a common anchor, gold. He explains the success in terms of a reinforcing interplay between strong stabilising forces and economic liberalism as a common normative framework. Among the stabilising forces he lists the comparatively low level of warfare and internal disturbances, the limited number of major financial crises, economic growth and increased trade. Moreover, free movements of labour, goods and capital made adjustment easier. Furthermore, the core countries also eased adjustment by exporting capital. Low risk expectations gave an elastic response to an increase in the demand for international capital. In addition, a comparable degree of parallel economic development in the core countries sustained a fixed exchange rate system.¹⁷ Thus, in this account, the gold standard myth is dressed bare and the accomplishments explained by happy circumstantial externalities.

These broader explanatory frameworks have not stopped economic historians or economists interested in history from pursuing a better theoretical understanding of the gold

¹⁵ Eichengreen, Barry, *Golden Fetters. The Gold Standard and the Great Depression 1919-1939*, Oxford University Press 1992

¹⁶ Flandreau, Marc, Central Bank cooperation in historical perspective: a sceptical view, *Economic History Review*, L 4 (1997) pp. 735-763.

¹⁷ Gallarotti, Giulio M., *The Anatomy of an International Monetary Regime. The Classical Gold Standard 1880-1914*, Oxford UP 1995

standard. Important parts of these studies are built around the theoretical understanding derived from Kydland and Prescott that rules are preferable to discretion.¹⁸ Hence, the key to the success of the gold standard was the credibility of the monetary authorities' commitment to maintaining the gold standard. As long as the perception of commitment was unchallenged, the authorities had some freedom in the short run to take a broader, discretionary view of monetary policy, including interest rate policy. In consequence, it is possible to imagine reconciliation between the evidence of discretionary practices and the theoretical understanding of the gold standard as a monetary rule. Kydland and Bordo have explained the gold standard as a contingency rule or a rule with an escape clause in the event of a major emergency such as war. The commitment gave credibility to the policy regime and moderated exchange rate fluctuations.¹⁹ The resumption of gold convertibility in England after the Napoleonic wars, in the United States after the Civil War and in a number of countries in the 1920s testifies to the importance of perceptions of credibility. However, as a general explanatory framework for the gold standard period, the contingency rule has its limitations. The greatest problem is ironically the peaceful nature of the last part of the long 19th century (1815-1914); history has not been kind enough to render economists with a sufficient number of major wars to test the assumption against.

A more promising point of departure in the search for reconciliation between theory and practice might be to interpret the operation of monetary policy under the gold standard with regard to the literature on target zones. The fluctuation band between the gold export and import points constitutes the target zone. As long as the exchange rate fluctuated within the band, the commitment to gold was in fact maintained and gave short-run leverage for monetary authorities to pursue discretionary policies.²⁰ The evidence certainly shows that most countries that adhered faithfully to the gold standard enjoyed a high degree of foreign exchange rate stability and few violations of the gold points. Given that a target zone interpretation made room for discretion, it remains to examine the timeframe for discretion and how this scope was actually used by monetary authorities.

Another interpretation of the working of the gold standard is derived from the monetary

¹⁸ Kydland, Finn E. and Prescott, Edward C., Rules Rather Than Discretion: The Inconsistency of Optimal Plans, *Journal of Political Economy* 85 (1977)

¹⁹ Bordo, Michael and Kydland, Finn E., The gold standard as a commitment mechanism, in Bayoumi, Tamim, Eichengreen, Barry and Taylor, Mark P. (eds.), *Modern Perspectives on the Gold Standard*, Cambridge University Press 1996

²⁰ Eichengreen, Barry, International Monetary Arrangements for the 21st Century, Brookings Institution 1994; Bordo and MacDonald, Violations of the "Rules of the Game" and the Credibility of the Classical Gold Standard, 1880-1914

theory of the balance of payments.²¹ The core of this theory is that the balance of payment reflects the difference between the national demand for money and the national supply of money. Thus, a balance of payments surplus implies domestic demand for money in excess of supply and visa-versa. Given that the world economy was integrated and prices thus set in international markets, adjustment policies in the “rules of the game” tradition would only be effective to the degree that they influenced the international price level. Whether or not such policies were actually followed, was thus of no consequence; for small countries like Norway the effect would have been nil, and even for major countries like the United States or United Kingdom the adjustment effect working through changes in the international price level would have been minor. Demand for money was influenced by the level of national income and interest level, and the balance of payment merely reflected whether domestic supply was sufficient, in excess or too limited to meet this demand. Thus, a business cycle upturn typically led to an inflow of gold in order to bolster monetary supply. On the other hand, an excessive credit expansion above the international growth rate would be checked by an outflow of gold. In their seminal study, McCloskey and Zecher argue that an interpretation of the operation of the gold standard on the basis of the monetary theory fits nicely with the evidence from the United Kingdom and the United States for the period 1880-1913.²²

Any new study of the working of the gold standard, regardless of whether the approach is system, country specific or purely theoretical, will take the existing body of knowledge as the point of departure. Thus, the literature renders me with a set of approaches – some old, some new – to work with. Nevertheless, theories have a certain likeness to a very rough hiking map, they can give an overall idea of direction, but in the end it is your intuition and reading of the terrain that will decide whether you will get through. Moreover, in analysing the gold standard experience, the literature provides a number of differing and at times even conflicting maps for guidance. Thus, the importance of established approaches lies not with providing any full-fledged framework for interpretation, but in the questions they make you ask.

I hope my examination will add to our understanding of the complexity of the workings of the gold standard. My findings support the numerous studies that in the wake of Bloomfield have nuanced our understanding of the gold standards. Bloomfield, Ford, Triffin and others demonstrate that the actual operation of the gold standard does not support any “rules of the

²¹ McCloskey, Donald and Zecher, Richard, How the gold standard worked, in Frenkel, Jacob and Johnson, Harry (eds.), *The Monetary Approach to the Balance of Payments*, George Allen and Unwin 1976

²² McCloskey and Zecher, How the gold standard worked

game” approach and often even went contrary to what one would assume would be the result. I confirm that this also applies to Norway and I provide insights into how monetary policy was actually carried out in a small country like Norway. In particular I demonstrate how day-to-day policy was influenced by a number of concerns and led by practical men rather than monetary theorists. The monetary approach, by emphasising the interplay between flows of foreign exchange and the domestic money market, provides an interesting interpretation which is closer to the empirical evidence than the traditional understanding. In my study, I further explore the target zone approach, but argue that in the Norwegian case, the bank’s reserve measurements might be seen as a more operational target zone than gold points.

All systemic accounts and theoretical approaches provide insight into the gold standard. Although I think Eichengreen stresses *cooperation* beyond that warranted by the evidence, his emphasis on the importance of political credibility is valid. In the case of Norway, the credibility of the monetary authorities is in fact the key to how the central bank managed to establish room for discretionary policies in the longer run. This can also be seen in light of the important contributions of Kydland and Bordo in their writings on the gold standard as a commitment mechanism. The perspectives of Gallarotti also influence my understanding of the gold standard; in particular how he highlights the gold standard as a decentralised system of national currencies linked together through a common external anchor with limited central coordination or policing. Here I think my framework of interpretation; monetary policy under the gold standard as derived from the inherent tension between external and domestic concerns is valuable, and will help move the research agenda away from a focus on the external balance alone. Moreover, Gallarotti’s emphasis on the benevolent external framework in understanding the success of the gold standard stresses the importance of not assessing a monetary regime without taking the contemporary context into account. Monetary regimes do not usually exist in a vacuum, but correspond to the prevailing attitudes in society. As such, both Kindleberger and Eichengreen in their writing on the inter-war period highlight the trouble ahead arising from too much discrepancy between monetary regime and society.

3. A sketch of economic structures and development in Norway in the second half of the long 19th century

In the final decades before War World I, Norway belonged to a small group of countries in North-Europe that have been labelled the *impoverished sophisticates*.²³ Sophisticated clearly fits the bill, while impoverished probably is off the mark. The Scandinavian countries at the turn of the century had *per capita* national product just a little below that of core European countries like France and Germany. The standard of living, life expectancy, literacy rate, educational level and level of economic development was much closer to the European core than to the periphery and in some instances even exceeding the core. A more reasonable label might be the *advanced periphery*. Furthermore, these countries enjoyed strong political, economic and cultural links with the European core, notably Germany and the United Kingdom.

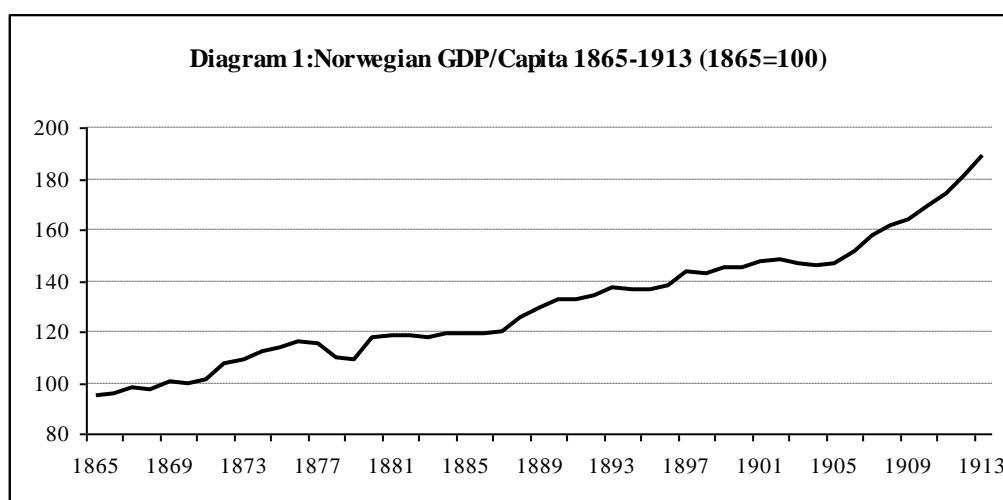
Other features also distinguish them from other peripheral countries. They were small and very open economies. In the early 1890s, exports and imports constituted more than 60 % of the Norwegian GDP and by 1913, this share had increased to close to three quarters. However, like other peripheral countries, Norway was strongly dependent on a limited number of export industries. The demand for Norway's traditional exports — fish, timber and shipping services — was strongly subject to the international trade cycles. The price volatility of raw materials and freight services made Norway suffer more severely during downturns than countries with more advanced export structures or stronger home markets.

In terms of industrialisation, Norway was clearly a latecomer relative to the core. Although some inroads had been made earlier in the century, notably in mechanical engineering and the textile industry from the 1850s onwards and in the mechanical pulp wood industry from the 1870s, by the early 1890s, Norway was still largely a primary sector dominated economy. This however, was to change. The 1890s presented a breakthrough for the kind of advanced industrial processes linked to the second industrial revolution as chemical pulp and later paper became important export industries. By the turn of the century, manufacturing had surpassed agriculture and fishery measured in terms of national income — another fifty years, however, would pass before the same thing happened with regard to employment. From 1905 until the war, Norwegian industrial modernisation accelerated based on the development of hydro-

²³ Sandberg, Lars G., The Case of the Impoverished Sophisticate: Human capital and Swedish Economic Growth before World War I, *The Journal of Economic History*, 43 (March 1979)

electrical power and electrochemical and electrometallurgical industries. The modernisation demanded a massive inflow of capital, typically in the form of foreign direct investments. According to the factory survey of 1909, the foreign share of paid up capital in Norwegian industrial plants was 38.8%.²⁴

In terms of economic cycles, Norway was hit hard by the long depression of 1873-1896. In the early 1870s, the country had enjoyed an unprecedented export-led boom. The optimism of the flourishing upturn was replaced by two decades of lower growth rates, volatile terms of trade and more unstable economic cycles. Moreover, her traditional export of fish and timber suffered from supply side challenges due to a dwindling resource situation. Furthermore, the merchant marine, the key to the previous boom, fell into dire straits. Squeezed between falling freight rates and the advance in steamship technology, the majority of ship-owners opted for continued reliance on sail-technology and introduced cost cutting measures to stay competitive within a falling market. This adaptation subsequently made one of the country's leading industries fall behind the countries at the technological frontier.



Grytten, Ola H. (2004). "The gross domestic product for Norway 1830-2003", 241-288, Chapter 6 in Eitrheim, Øyvind, Klovland, Jan Tore and Qvigstad, Jan F. (eds.), *Historical Monetary Statistics for Norway 1819-2003, Norges Bank Occasional Papers No. 35, Oslo, 2004*

Although the economic performance improved with the end of the long depression, the country was still subject to rather volatile international trade cycles. The last part of the 1890s was characterised by a major domestic real estate boom in the capital Christiania and a subsequent bust in 1899. The impact of the bust depressed business activities for years and forced the central bank to launch several major rescue operations to save banks that had run

²⁴ Stonehill, Arthur, Foreign ownership in Norwegian enterprises, *Samfunnsøkonomiske studier nr. 19*, Statistisk Sentralbyrå 1967 pp. 32-36

into difficulties. From 1905-1906 onwards the process of industrial modernisation led to a new unprecedented growth period, with an average increase in GDP *per capita* of 3 % for the period 1905-1914 against an average growth of only 0.8 % for the period 1890-1905.

Another important structural feature that had impact on monetary policy was Norway's balance of payments. Until the end of the 1880s Norway usually enjoyed a small surplus on her balance of trade and services. From 1890 this changed. She subsequently ran persistent deficits in 24 out of 25 years at annual averages of 3.4 % of GDP and 19.4 % of gross investments.²⁵ Thus, Norway clearly must be regarded as a structural importer of long-term capital in this period. In the 1890s the long-term capital import was dominated by public borrowing, with major international bond issues for railway construction and defence purposes as well as urban development. Moreover, the publicly owned Kongeriket Norges Hypotekbank which furnished the rural communities with real estate mortgages was funded by placing bonds in the international market. After 1905 capital imports were characterised by a strong element of foreign direct investments.

The role of the financial sector in the economic development in this period has been subject to some controversy. Sejersted, in an influential review article, argues that Norges Bank hampered the growth of the commercial banking sector by continuing to function as a commercial bank and building a network of branches in the larger towns. Not until the Christiania bust did the bank take on the functions of a true central bank: rediscounting for the private banks and assuming responsibility for the liquidity of the financial system.²⁶ His point has been taken further by Hodne who argues that the note issue monopoly enjoyed by Norges Bank in fact effectively prevented the development of a strong commercial banking sector. Moreover, he hypothesises that the underdeveloped state of commercial banking might have had a retarding influence on industrial development and economic growth.²⁷ Egge agrees that the commercial banking sector was underdeveloped, but regards this more as a result of relative economic backwardness rather than the source of it. However, he argues that the structure of the banking sector, in particular the weight of the saving banks, had economic consequences as they seldom had professional management and operated more with an eye to the safety of depositors than to commercial profit.²⁸

²⁵ Grytten, The gross domestic product for Norway 1830-2003

²⁶ Sejersted, Francis, Fra monopolbank til seddelbank, *Historisk tidsskrift* 1968

²⁷ Hodne, Fritz, *Norsk økonomisk historie*, Gyldendal 1981, pp. 373-410

²⁸ Egge, Åsmund, Transformation of Bank Structures in the Industrial Period: The case of Norway, *Journal of European Economic History* 1983

Nordvik takes issue with these assessments. A number of countries developed strong commercial banks without the aid of note issuing rights and he finds no intrinsic reasons why Norwegian commercial banking should not have developed based on competition for deposits with the saving banks. If commercial banks indeed were more profitable, the initial advantage enjoyed by the dominant position of the saving banks ought to have been eroded as they could successfully have outbid the latter for deposits. Nordvik also finds that the Norwegian economy was well served with the existing credit networks and that a strong commercial banking sector was not a prerequisite for sustained development. In this he stressed that many of the bigger and medium sized saving banks actually functioned as commercial banks with respect to the credit services they provided to commerce and industry. Moreover, he finds it rather doubtful that there was an unmet demand for credit in the country in the 19th century that a stronger commercial banking sector might have exploited. Nordvik finds that the relative slow growth rate after 1880 is less about the financial system and more about the slow response to the changing real economic circumstances, in particular the weakened resource base in the fisheries, falling freight rates for sailing ships and more limited possibilities both for export-based and home-based manufacturing than in her neighbouring countries. In all, economic development in Norway until the eve of World War I was based on organic growth centred on the exploitation of Norwegian raw materials in addition to improved steam-ship technology. Swedish style investment banks were not a prerequisite for this development and the strong growth of commercial banking from 1895 onwards “*proved in general to be adequate for the Norwegian economy*”.²⁹ In this perspective, the massive inflow of foreign capital in order to fund the strong investment drive based on exploiting cheap, but capital-intensive hydro-electrical power, Nordvik argues, was the exception that proved the rule.³⁰

My own position is close to that of Nordvik. The litmus test must be whether there were any significant economic possibilities that were not realised only on account of the structural weaknesses of the financial system? I fail to identify those. In general the image is that the financial system developed in tandem with the demands of a growing economy. Norway, in the last half of the 19th century despite sluggish performance for two decades after 1875, caught-up with the core without developing investment banks or a particularly strong commercial banking sector. The Gerschenkronian perspective, where relatively backward countries develop investment banks to foster rapid growth, has been challenged in recent

²⁹ Nordvik, Helge W., *The Banking System, Industrialization and Economic Growth in Norway, 1850-1914*, *Scandinavian Economic History Review* 1993:1

³⁰ Nordvik, *The Banking System, Industrialization and Economic Growth in Norway*

years.³¹ No overall models exist that can explain why countries developed differing financial structures or whether economic take-offs depended on a previous financial revolution. What remains is set of national histories of the development of financial sectors where one might find strong cross-country parallels, but nothing that fits all. In the case of Norway, the financial sector might have been relatively backward in a comparative perspective, but it nevertheless served the needs of a growing economy.

³¹ See for example: Forsyth, Douglas J., and Verdier, Daniel (editors): *The Origins of National Financial Systems: Alexander Gerschenkron Reconsidered*, Routledge 2003

4. Institutional settings for central bank policy

Norway became an independent kingdom in personal union with Sweden in 1814. At the same time she adopted a liberal constitution based on a relatively wide franchise where free-holding farmers made up the vast part of the electorate. While foreign affairs were decided by a Swedish-dominated cabinet, Norway enjoyed full sovereignty in all domestic questions, including monetary policy.

Shortly after independence, Norges Bank was chartered as the country's first bank and granted note-issuing monopoly. A prolonged period of deflationary policy followed in order to establish currency convertibility. Silver convertibility at par value was first accomplished in 1842. In 1874 Norway followed the general European move and adopted the gold standard.³² The financial sector developed slowly in Norway and Norges Bank continued to be the most important commercial bank even well into the 1870s. At the onset of the period covered by this paper, the banking sector had matured and Norges Bank had started to withdraw from general commercial banking.

Although Norges Bank was a private bank, the shareholders had no influence over the bank whatsoever. There was no general meeting of shareholders and all members of both the supervisory body and the board of directors were appointed by the parliament. The shareholders' weak position reflected how the bank had originally been constructed based on forced contribution from the taxpayers. Although major shareholding positions had been accumulated through time, there was no political will to give "the moneyed interests" any influence. They had to settle for annual dividends. Moreover, the bank reported annually to the parliament and the bank's statements were thoroughly scrutinised and debated by that body. As a number of bank directors also from time to time served as members of parliament, these debates often give insights to both the monetary thinking of the time and the close relationship between the central bank and parliament.

Furthermore, throughout the 19th century, the bank had a weak leadership structure. By an act of political horse trading, the head office had been placed in Trondhjem, a provincial city in the middle of the country, far away from the main commercial and financial markets in the capital Christiania.³³ The governing body consisted of local merchants and civil servants who

³² Øksendal, Lars Fredrik, The Norwegian debate on the gold standard and monetary integration in the 1870s, *Scandinavian Economic History Review*, Volume 54, Number 2 / July 2006

³³ One of the arguments for Trondhjem was actually the distance from the political centre of the country thereby creating a greater bulwark against any potential government interference with the bank.

served in a part-time capacity only. Their commercial insight and judgement were probably a stronger point than their understanding of monetary policy. Furthermore, the bank's branches enjoyed a strong level of autonomy. They had their own boards, the right to set their own interest rates and lend within their allotted quota. Most of the bank's resources were employed by the branches and the head office held only a limited reserve. The branch in Christiania which had far more resources than the head office and often tended to clash with the board of governors on policy issues, notably so in the early 1890s, represented a particular problem from a governance point of view.

New legislation for the central bank and a new legislative framework for monetary policy were enacted in 1892, and effective as of January 1st 1893.³⁴ The new law ended more than a decade of discussion on banking legislation. The new law introduced the Bank of England-style differential system for note issuing: in addition to issuing notes based on its gold reserves on a one-to-one basis, the bank could issue 24 million kroner without gold backing. The change from the proportional system to the differential system has been regarded by some historians as a major positive step. It has been claimed that the old system, where notes were issued proportionally (5:2) to the gold holdings, created a monetary strangulation mechanism as the bank had to redraw more notes than the actual reduction in monetary reserves.³⁵ This certainly would have been the case if Norway had actually operated a pure proportional system. However, the system was a mixed proportional system. For gold reserves above a certain level, the bank issued notes on the basis of one-to-one. For the period 1873 to 1892 the gold reserves were below that level in only one month (March 1878) and then only by a minor amount.³⁶ Monetary policy in this period might in principle have served as a strangulation mechanism but this would have been a result of how policy was conducted rather than the mechanism itself. However, what was important was that the change to the pure differential system increased the legal fiduciary note issue by some five million kroner and thus gave the board of directors more room to manoeuvre. With subsequent legal amendments, the fiduciary notes issue was further increased to 35 million kroner in 1900 and 45 million kroner in 1912.³⁷

The most important new features of the law in the long run were the strengthening of the

³⁴ Parliamentary proceedings: Odelstingsproposisjon no. 8 (1892) Om en ny lov for Norges Bank

³⁵ Hodne, Fritz og Grytten Ola H.; *Norsk økonomisk historie i det 19. århundre*, Fagbokforlaget 2000 p. 229-31

³⁶ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank – uttalelse fra direksjonen

³⁷ Parliamentary proceedings: Odelstingsproposisjon no. 17 (1899/1900) Om endringer i Lov om Norges Bank; Odelstingsproposisjon no. 32 (1912) Om endringer i Lov om Norges Bank av 23. april 1892

head office with a full time governor appointed by the king and the end of much of the autonomy of the branches with the introduction of a unitary bank rate for the whole country. Further, the bank was permitted to keep domestic and foreign bonds. In 1897 the head office moved to the capital, Christiania. These changes were important for the gradual modernisation and maturation of central bank thinking in Norway throughout the 1890s and into the new century.

Some words on the composition of the bank's balance might be enlightening. Notes issuing was limited by the legally stipulated fiduciary sum and the bank's gold reserves. Up to one third of the gold reserves might be kept with foreign agents. This was foreign exchange rather than gold proper, but functioned legally as gold reserves for note backing purposes. The note reserve was the difference between notes in circulation and legally backed notes. Foreign bonds and foreign bills of exchange did not constitute a part of the gold reserves but served as an additional buffer that could be sold for gold at short notice. The note reserve and this additional buffer constituted the bank's actual operational reserves.

Another important institutional feature of monetary policy in this period is the membership in the Scandinavian Monetary Union, which Norway joined in 1877. According to the convention, coins — both full bodied and tokens — circulated freely and were legal tender in all three Scandinavian countries. The economic impact of this was rather limited since there was close to no gold circulation in the three countries. More important, however, were the later provisions for acceptance of notes at par and sale of drafts free of charge on the neighbouring central banks. The result was an elimination of the gold points between the Scandinavian countries and the creation of an integrated regional market for short-term credit.³⁸ Nearly all transfers between the countries, except cash-based transactions, took place through the central banks and rendered the central banks with a very special position in these foreign exchange markets.

After having discussed the international literature and established a contextual framework it is time to turn to the Norwegian evidence. My first point of departure (section 5) is to re-examine two conflicting interpretations of the operations of the balance of payments under the gold standard, the traditional “rules of the game” understanding and the newer monetary approach to the balance of payments, in light of the Norwegian data. This exercise gives important insights into the structure of and relationship between key Norwegian monetary variables. These insights are explored further in section 6 in a comprehensive structural

³⁸ Øksendal, Lars Fredrik, The impact of the Scandinavian Monetary Union on financial market integration, forthcoming *Financial History Review*

analysis of the three variables domestic credit, notes in circulation and foreign exchange reserves. Section 7 examines further the monetary thinking in the later part of the long 19th century. In section 8 I discuss the use of monetary instruments and interest rate policy, the later based on a close scrutiny of all 43 interest rate decisions in the period. In the last section (9), I enter into an overall discussion of my findings.

5. Some lessons from the past: Re-examining “the rules of the game” and the monetary approach

One eyeball measure for compliance with “the rules of the game” is to follow in the footsteps of Bloomfield and examine the direction of the movements in foreign exchange reserves and domestic assets. Based on a “rules of the game” approach, the hypothesis is that these would move in the same direction. A central bank would typically react to an outflow of gold or foreign exchange by curbing domestic lending; thus resulting in the variables moving in the same direction. According to Bloomfield, of the 21 annual Norwegian observations for the period 1893-1913, flows and domestic lending went in the same direction nine times, ten times in opposite directions and two indicated negligible results.³⁹ Thus, these results do not give comprehensive evidence of any “rules of the game” approach.

5.1 Re-examining Bloomfield

Bloomfield’s analyses are based on yearly data. Analyses at this level might lead both to misinterpretations and risk of losing sight of monetary adjustment policy in the shorter run. In order to get a better picture, I have followed in his footsteps and examined the relationship between foreign reserves and domestic central bank credit based on monthly and quarterly data derived from the Historical monetary project of Norges Bank, as well as weekly data from the financial journal *Farmand* for the period January 1893 to June 1914.⁴⁰ In addition, I have performed the same exercise for the relationship between foreign exchange reserves and note circulation.

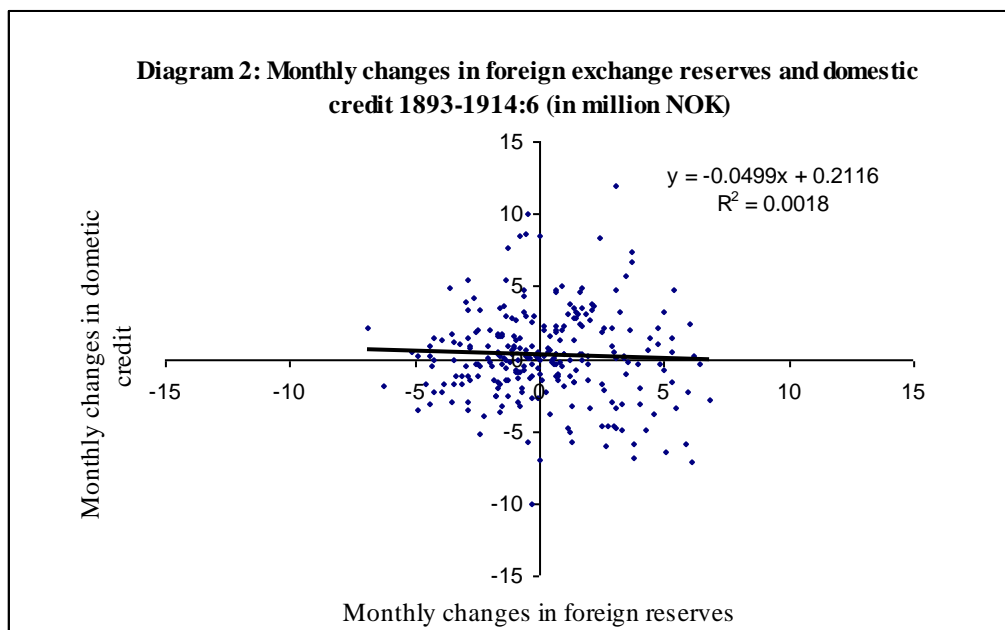
5.2 Foreign exchange reserves versus domestic credit

In general, my closer examination confirms the view heralded by Bloomfield. On a monthly basis, 134 out of 258 changes went in the same direction while 124 went in the opposite direction. Moreover, I find indication of a pretty clear seasonal pattern in the observations giving further arguments against a “rule of the game” approach. For example, out of 21 possible observations for the month of June in the period 1893-1913, 19 went in the same direction. Correspondingly, all the observations for July went in the opposite direction.

³⁹ Bloomfield, *Monetary Policy under the International Gold Standard 1880-1914*

⁴⁰ Klovland, Jan Tore, Monetary aggregates in Norway 1819-2003, 181-240, Chapter 5 in Eitheim, Øyvind, Klovland, Jan Tore and Qvigstad, Jan F. (eds.), *Historical Monetary Statistics for Norway 1819-2003, Norges Bank Occasional Papers No. 35, Oslo, 2004*

January, April and November also displayed the same bias as June, while for February only four observations went in the same direction. I will return to the importance of seasonal variations later on. However, the direction of changes is indeed a very crude benchmark. In order to explore the size of the changes as well I have plotted these observations in the diagram below.



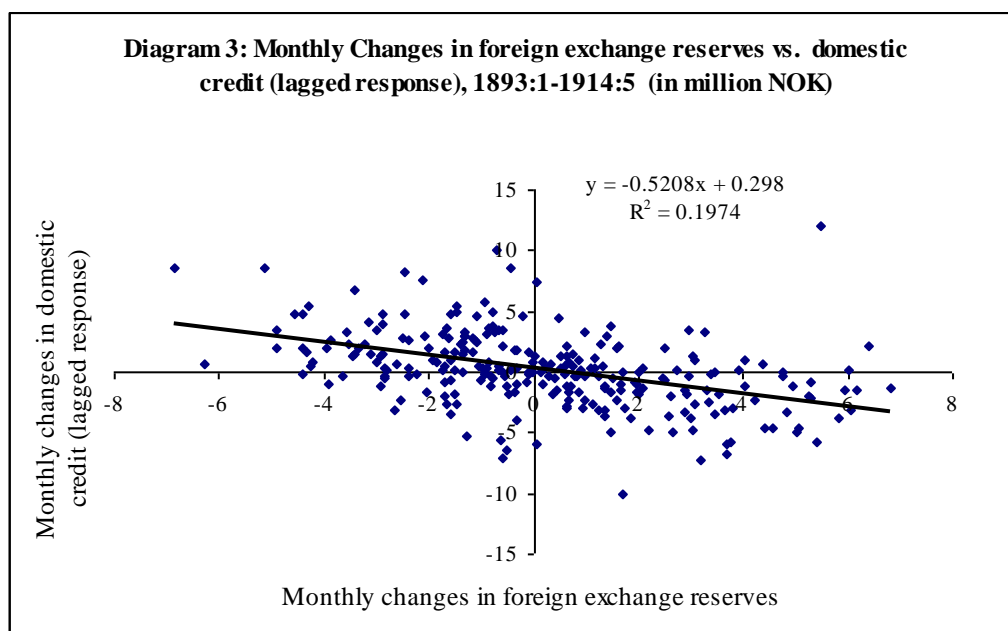
Source: Klovland, Jan Tore, Monetary aggregates in Norway 1819-2003, chapter 5 in Eitrheim, Ø., Klovland, J. T. and Qvigstad J. F. (eds.), *Historical Monetary Statistics for Norway 1819-2003*, *Norges Bank Occasional Papers* no. 35, Oslo, 2004

The results clearly give added weight to Bloomfield's case against the traditionalist interpretations of the gold standard. The theoretical expectation from a "rules of the game" approach would have been a regression line with a positive slope; i.e. central bank foreign reserves and domestic credit moving in the same direction. Here the regression line is slightly negative and the R-square value, which indicates the explanatory power of the regression line, is extremely low. The correlation coefficient is -0.04. Moreover, these findings are not significant, with a P-value of 0.50. Thus, the relation between reserves and domestic credit is not in accordance with theory.

In order to examine the possibility of any lagged response to changes in the foreign exchange reserves, I have inserted a one-month lag for domestic credit.⁴¹ However, the results displayed beneath are even further removed from the theoretical expectations with a clearly negative slope of the line and a correlation coefficient of -0.44. The R-square value is higher

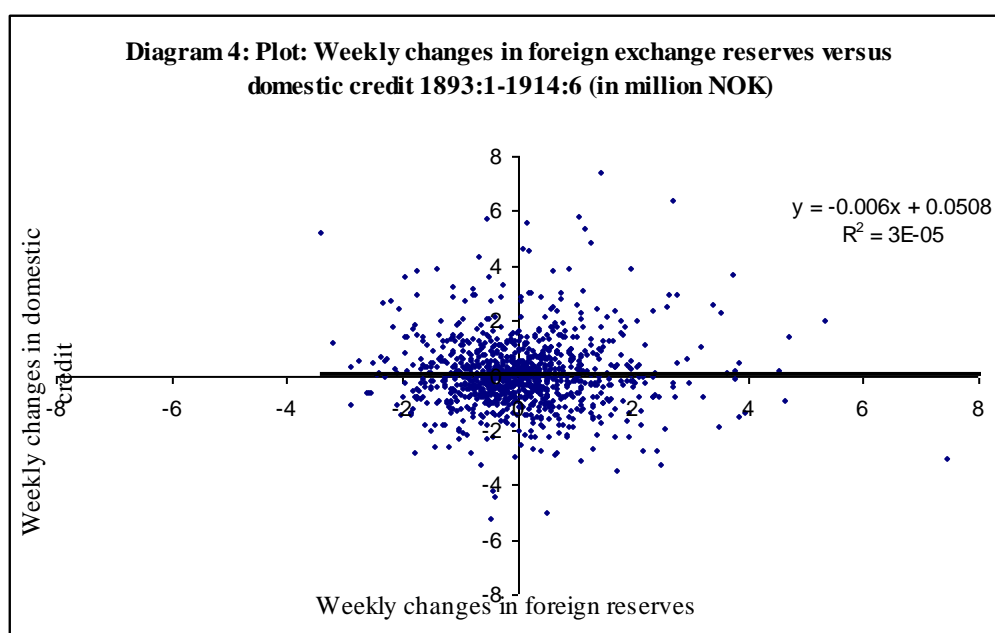
⁴¹ Change in domestic credit t , change in foreign exchange reserves t_{-1}

at 20%, but still not very strong. However, the result is statistically significant at a 1% level. Thus, rather than curbing credit in the wake of an outflow of gold, we can observe a tendency, albeit a weak one, for credit expansion on behalf of the central bank. However, one ought to be careful in reading too much out of these findings both on account of the weak explanatory power of the regression and the risk that the observed results reflect re-occurring seasonal changes rather than lagged responses.



Source: Klovland, Monetary aggregates in Norway 1819-2003

Nevertheless, the tendency for credit expansion in the wake of a gold outflow or the other way around observed for the monthly data set is confirmed when applying weekly data. Below (diagram 4), I have plotted weekly changes in the foreign exchange reserves versus changes in domestic credit. Not surprisingly the result is an almost perfect “buck shot”; a nearly horizontal regression line with an extremely low explanatory value. Not surprisingly, the result is not statically significant. This is a reasonable result given that one hardly could expect central bankers to respond to changed reserves in the same week they were reported.



Source: Farmand 1893-1914

Accordingly, I have inserted time lags of one, two, three and four weeks. The correlations coefficients displayed in the table below show the same tendency of an invert response for domestic credit to changed foreign exchange reserves, albeit with very low explanatory power (R-square values between 1 and 7%). The explanatory power besides, the results are statically significant. Thus, it seems that there is a weak tendency pointing in the direction of increased central bank accommodation to the demand for domestic credit in the aftermath of gold outflows.

Table 1: Changes in foreign exchange reserves versus changes in domestic credit

	Correlation coefficients
1 week time lag	-0.27***
2 week time lag	-0.18***
3 week time lag	-0.09***
4 week time lag	-0.11***

Source: Farmand 1893-1914 (***) denotes statistically significant at a 1 % level)

Thus, analyses based on high frequency data give no indication of any “rules of the game” approach in monetary policy. If there is a tendency, it is quite the reverse one from the traditional theoretical expectation. This might be interpreted as evidence which points in the direction of the monetary approach to the balance of payments where flows of gold or foreign

exchange merely reflect whether domestic demand for money is served by domestic sources or not. However, I believe it would be wrong to make such an assumption based on high frequency observations. The monetary approach requires a stable demand for money and the observations discussed here are subjected to strong seasonal changes in demand. Although some of the weekly observations, in particular those connected with the annual peaks in the demand for money that were regularly accommodated by short-term capital flows from abroad, might be understood in this light, it will be not be meaningful to make this assessment for all observations. The monetary approach gives more meaning when applied to annual changes and I will return to this later on.

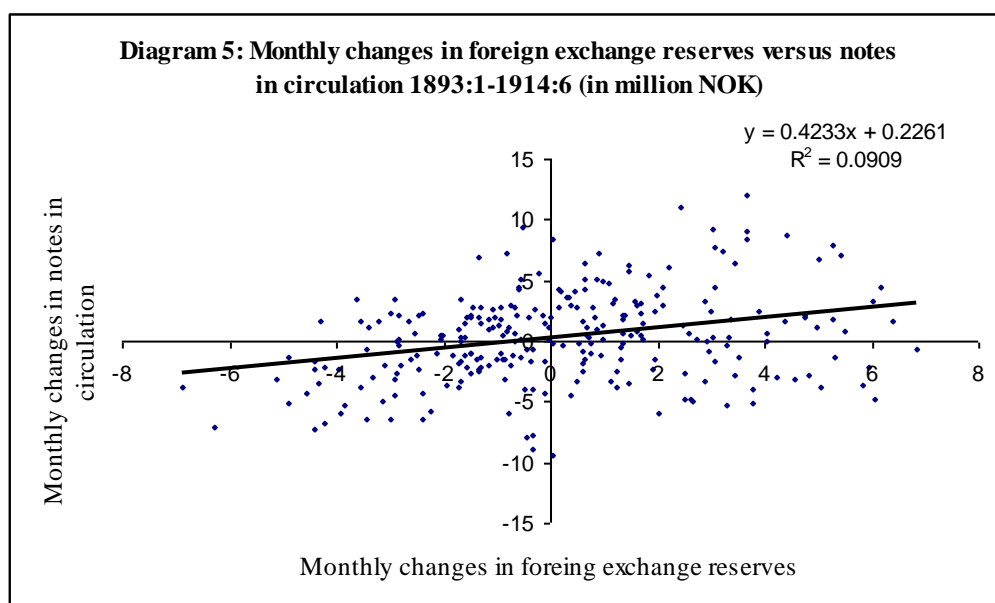
A more enlightening way to judge the tendency to invert reaction is to think in terms of what is actually happening in the real economy. If we disregard purely financial movements, flows of gold reflected the activities of the foreign trading sectors. Foreign exchange bought import goods and importers needed to fund their inventory of such goods through short-term credit. Correspondingly exporters reduced their financial exposure when they received payment for their goods and foreign exchange flowed in. The differing seasonal peaks in the activity of the imports and exports sectors, which I will return to later, clearly made this feature more pronounced.

Thus, my findings in the footsteps of Bloomfield using less aggregated data give no indication of a central bank that responded to changing foreign exchange reserves with a “rules of the game” curtailing of domestic credit. If there is a lesson — and the data on this is clearly on the weak side — it is that the central bank responded to the demand for credit from the trading sectors, thus a bank that played a broader “game”.

5.3 Foreign exchange reserves versus note circulation

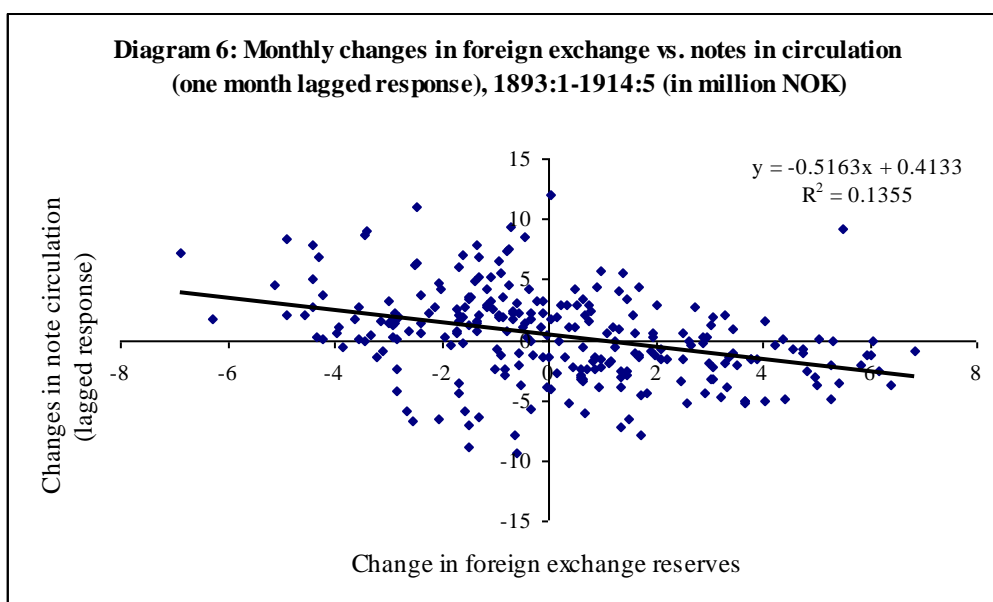
Another, more indirect, route to take in order to test for a “rules of the game” approach is to examine the movements in foreign exchange reserves and notes in circulation. Under a bullion standard the basis for the central bank’s note issue is its holding of the metal in question. Inflows of gold would in theory lead to an expansion of the note circulation as economic agents changed gold or foreign currency into notes. Even in cases where the agents chose to keep the money deposited with the central bank or had it transferred to a private bank, one would expect an expanded note circulation as a result of increased central bank lending capacity. However, one would in the latter case expect a time lag before increased capacity materialised in the form of actual lending. Exchange of foreign currency or gold for cash would on the other hand immediately be recorded in the central bank’s accounts.

Outflows of gold would have the contrary effect; agents changed notes or bank deposits into foreign currency.



Source: Klovland, Monetary aggregates in Norway 1819-2003

Using data for notes in circulation rather than for central bank domestic credit gives a somewhat different picture than the results discussed in the previous sub-section. In diagram 6, I have plotted monthly changes in foreign exchange reserves against monthly changes in the note circulation. The regression line is slightly positive with a correlation coefficient of 0.30. However, the explanatory power of the regression line is low (R-square value of 9.1 %). The finding is statistically significant at a 1% level. The difference between the impact on domestic credit and note circulation probably reflects “cash for currency or *vice versa*” transactions; as long as some parts of the inflow or outflow of foreign currency changed hand on a cash basis, there would be an automatic bias for the variables notes in circulation and foreign exchange to move in the same direction. This bias would of course not been present in comparison between changes in foreign exchange and domestic credit. When I introduce a delayed response (diagram 6), the effect of “cash for currency” is eliminated and we can observe a tendency for note expansion in the month following an outflow of gold (or *vice versa*). The explanatory power is still rather weak (R-square value of 13.5 %), with a correlation coefficient of -0.37. However, the result is statically significant at a 1 % level.



Source: Klovland, Monetary aggregates in Norway 1819-2003

The same difference between non-lagged observations and lagged response observations is also present when applying weekly data, as displayed in the table of correlation coefficients below.

Table 2: Changes in foreign exchange reserves versus changes in note circulation

	Correlation coefficients
No lag	0.28***
1 week time lag	-0.14***
2 week time lag	-0.15***
3 week time lag	-0.12***
4 week time lag	-0.13***

Source: Farmand 1893-1914 (***) denotes statistically significant at a 1 % level)

For both monthly and weekly data, the lagged responses clearly show the same patterns as for domestic credit when we move beyond the immediate effect. Accordingly, the effect, albeit not very strong, of changed foreign exchange reserves on the note circulation, was the opposite of what one would assume from the perspective of the “game”.

Thus, my examination of more frequent data supports the original findings of Bloomfield; the variables do not act in accordance with the notion of “the rules of the game”. Henceforth, we need to dig deeper into the sources to reach an understanding of monetary policy formation from 1893 onwards.

5.4 Lessons from the monetary approach

In the search for a better understanding of monetary policy under the gold standard, the traditional “rule of the game” theory based on the price-specie flow mechanism and the monetary approach to the balance of payments stand as opposing interpretations. The findings presented here clearly point out that there is little support from the Norwegian data for the former view either in the long or short run. However, the fact that one interpretation is wrong is not automatic approval of the opposing one. Although there is a tendency in data for the kind of inverse relationship between the variables corresponding to what one might expect from the monetary approach, caution ought to be observed for a number of reasons: Firstly, the tendency is not very strong. Secondly, applying the monetary approach on high frequency data is rather problematic as long as the approach assumes a stable demand for money function and the Norwegian data is subject to strong seasonal changes in demand. Thirdly, the monetary approach is more concerned with the overall money supply than with the relationship between foreign reserves and central bank credit in the shorter run.

Thus, yearly analyses of the sources of monetary supply are probably a better level of examining whether the monetary approach can give insights into the Norwegian gold standard experience. McCloskey and Zecher have analysed the source for the changes in money supply for the United Kingdom and the United States for the period 1882 to 1913 based on the monetary approach. Their result showed a very differing picture for the two countries: for the whole period seen as one, gold flows contributed to almost all change in the British money supply while virtually all changes in the American money supply were attributable to other, domestic sources.⁴² I have followed in their footsteps and undertaken the same analysis for Norway for the period 1893-1913, using data from Historical Monetary Project of Norges Bank.

The rate of change of the money supplied attributable to foreign exchange flows was calculated as:

$$100 \left[\log \left(M_{t-1} + \frac{M_t}{H_t} R_t \right) - \log M_{t-1} \right]$$

where, M is the total money supply (M2); H is high-powered money and R is the annual net flow of foreign exchange. Thus, the equation shows how changes in the foreign exchange (R), by working through the money multiplier (M/H), influence the development of the money

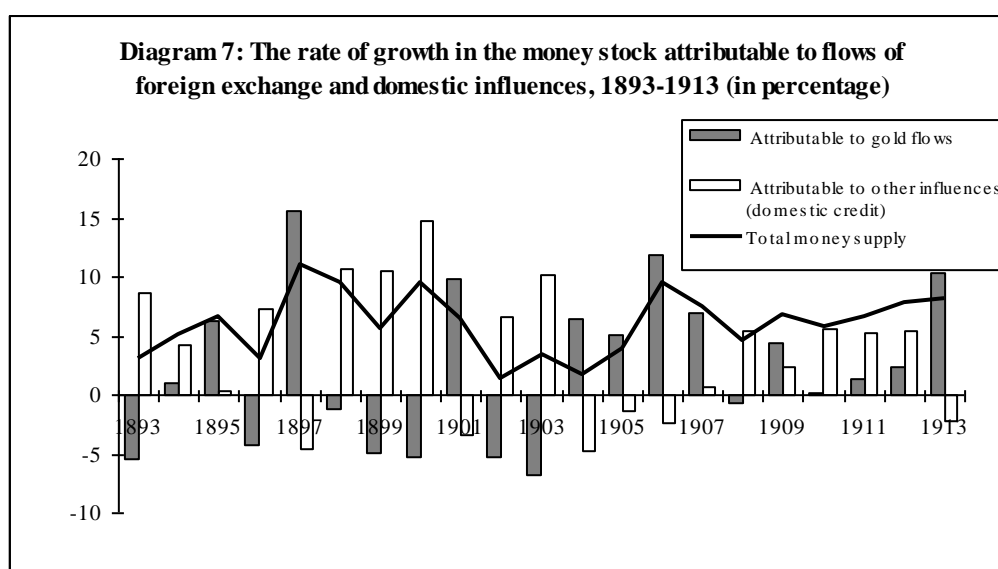
⁴² McCloskey and Zecher, *How the gold standard worked*, pp. 380-381

stock. The rate of change attributable to domestic sources was calculated straight forward as the arithmetic difference between the annual rate of growth in the money supply (calculated as $100[\log M_t - \log M_{t-1}]$) and the part attributable to foreign exchange flows. For the whole period this gives the following average annual rates of change (percentages, standard deviations in brackets):

Money supply attributable to flows of foreign exchange	2.26	(6.47)
Money supply attributable to domestic influences	3.79	(5.59)
Total money supply	6.05	(2.69)

The growth in the total money supply in the two decades in question was well ahead of the combined growth of the real economy (2.54 % average annual growth) and the underlying inflation (1.52 % average annual growth in the implicit price deflator). This difference partly reflected the still ongoing monetisation of the Norwegian economy.⁴³ For the whole period, roughly two fifths of monetary expansion steamed from flows of foreign exchange, three fifths from domestic sources. Compared with the findings of McCloskey and Zecher, Norway is placed somewhere between the United Kingdom and the United States.

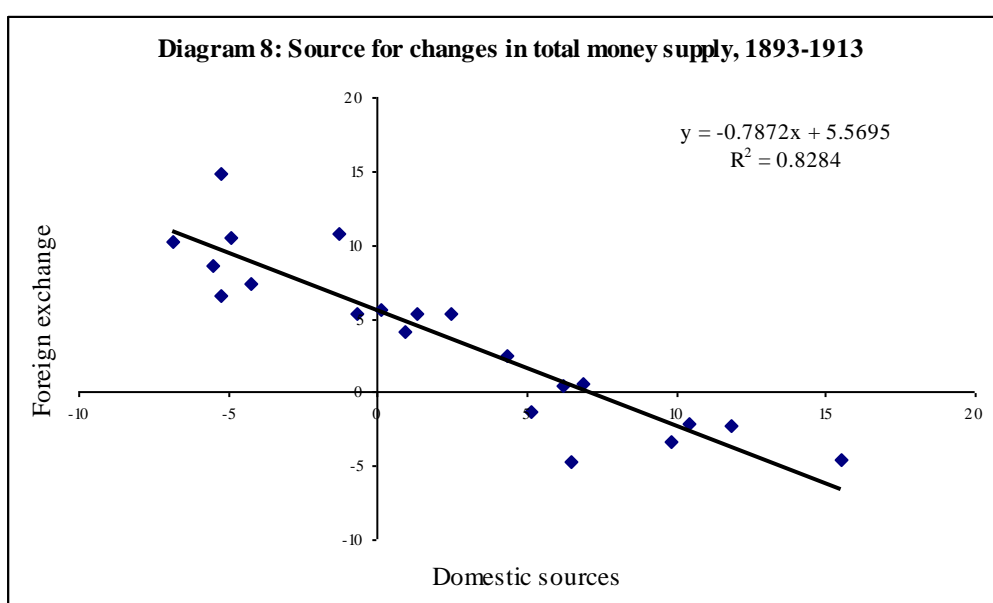
However, the most important findings from this exercise are not found on the aggregate level, but in the yearly data. The diagram below displays the contribution to monetary growth by the two sources for each year as well as the actual growth figure of the total money supply.



Source: Klovland, Monetary aggregates in Norway 1819-2003

⁴³ However, the tendency was that difference between growth in M2 and growth in real GDP and prices was falling

The development of money supply follows the patterns of the business cycles: increased rate of monetary expansion in the 1890s, lower level in the troubled years in the beginning of the century and again a higher level of expansion after 1905. This is as expected. Note also how domestic sources maintained the money stock against a strong outpouring of foreign exchange (with the exception of 1901) in the troubled years. What is remarkable is the strong inverse relationship between the sources for monetary expansion with a correlation coefficient of -0.91. In the plot of the two variables below the explanatory power of the regression line is very strong with an R-square value of 83 %. However, the finding is not statically significant with a P-value of 0.52.



Source: Klovland, Monetary aggregates in Norway 1819-2003

These findings might be understood in light of the monetary approach to the balance of payments; when the demand for money is in excess of domestic supply, demand is met by an inflow of foreign capital. Although I believe the perspectives taken from the monetary approach clearly help enlighten the understanding of monetary history in the long run, it may often be overly simplistic. Take for instances the years 1902-03: terms of trade are worsening, the balance of trade and services is in the red and foreign exchange pours out. To interpret the outpouring of foreign exchange in these years, a result of an overfed domestic market must be quite wrong. Rather, it is the domestic monetary authorities that respond to an outflow of foreign exchange by increasing domestic lending to meet the demand for money.

An alternative method of analysing the source of change in the money supply is to apply a simple accounting framework used extensively by Friedman and Schwartz in their seminal

study of American monetary history.⁴⁴ In this model, the sources of changes in the stock of money (M2) are attributed to the separate movements in three variables; the monetary base, the ratio between bank deposits and currency held by the public (the currency ratio), and the ratio between the deposits and the banks' own reserves (the reserve ratio). The currency ratio can be seen as reflecting the behaviour of the public, while the reserve ratio that of the banking sector. The movement in the monetary base (currency in addition to deposits in the central bank but exclusive of treasury deposits) variable reflects the behaviour of the central bank. Moreover, this variable consists of two sub-components, the development of foreign reserves and domestic central bank credit respectively.

Table 3	Contribution to rate of change in M2 by:					Contribution to change in H by:	
	Growth rate M2	Currency ratio (D/C)	Reserve ratio (D/R)	Interaction term	Monetary base (H)	Foreign reserves (FR)	Domestic credit (DC)
1893	-2.0	0.6	-0.9	0.0	-1.7	-5.1	3.5
1894	3.4	3.7	-4.4	-0.2	4.3	0.9	3.4
1895	3.8	-4.2	0.1	0.0	7.8	6.3	1.5
1896	4.1	1.7	3.9	0.1	-1.6	-4.0	2.4
1897	8.0	-2.7	-3.7	0.1	14.2	16.2	-2.0
1898	10.2	2.7	0.7	0.0	6.8	-1.2	7.9
1899	5.9	6.4	-1.0	-0.1	0.5	-4.5	5.0
1900	10.1	5.4	2.9	0.2	1.6	-4.7	6.3
1901	4.5	8.3	-2.2	-0.2	-1.3	9.6	-10.9
1902	1.9	1.2	0.3	0.0	0.5	-5.1	5.5
1903	1.7	4.1	0.5	0.0	-2.9	-6.3	3.4
1904	3.6	3.5	-1.7	-0.1	1.9	6.6	-4.7
1905	4.0	-4.1	0.6	0.0	7.6	5.3	2.4
1906	7.3	4.1	0.1	0.0	3.2	11.6	-8.4
1907	9.4	1.6	1.7	0.0	6.1	6.8	-0.7
1908	2.3	3.4	0.1	0.0	-1.1	-0.7	-0.4
1909	8.2	1.6	1.2	0.0	5.5	4.2	1.2
1910	5.7	-2.8	1.7	-0.1	6.8	0.1	6.7
1911	6.1	-2.1	-1.4	0.0	9.6	1.3	8.3
1912	7.3	0.7	0.2	0.0	6.4	2.4	4.0
1913	7.5	0.3	-1.2	0.0	8.4	10.5	-2.1
Average	5.4	1.6	-0.1	0.0	3.9	2.4	1.5
Standard deviations	3.1	3.4	2.0	0.1	4.5	6.4	5.1

Source: Klovland, Monetary aggregates in Norway 1819-2003

The findings using this accounting framework are summarised in the table displayed below.⁴⁵ The overall growth rate of the money supply is slightly below the result from using

⁴⁴ Friedman, Milton, and Schwartz, Anna J., *A Monetary History of the United States, 1867-1960*, Princeton University Press 1963 pp. 776-808. I am indebted to Jan Tore Klovland for recommending this analytical framework.

⁴⁵ The data employed are from Norges Bank's Historical Monetary Statistics except for the data for cash holding by the private bank sector and the data for the private banks deposits with Norges Bank which have been taken from an earlier study made by Klovland. Klovland, Monetary aggregates in Norway 1819-2003; Klovland, Jan Tore, *Quantitative studies in the monetary history of Norway*, part 1, appendix A, Monetary Statistics, 1819-1983, unpublished paper, Norwegian School of Economics and Business Administration, 1984

the monetary approach.⁴⁶ The benefit of this framework is that we are able to separate the variable “domestic sources” into the behaviour of the public and that of the central bank. Changes in the foreign exchange are negatively correlated with changes in all three of the domestic sources for growth in the monetary supply. However, the strength of the inverse relationship differs strongly. While the correlation coefficient for foreign reserves versus the currency ratio and the reserve ratio are (-0.23) and (-0.43) respectively and statistically significant at the one percent level, the same measure against domestic central bank credit is (-0.71), but not statistically significant. Consequently, although one finds a negative relationship between foreign exchange flows and the changes in dispositions of the public that influence the money supply as expected under the monetary approach, this relationship is clearly stronger when it comes to the influence of the actions of the monetary authorities. Although the finding for the strong inverse relationship between international reserves and domestic is not statistically significant, (which is not surprising given the limited number of observations), this nevertheless supports the notion that the central bank, at least in the shorter run, responded to outflows of foreign exchange by expanding credit in order to meet the demand for money.

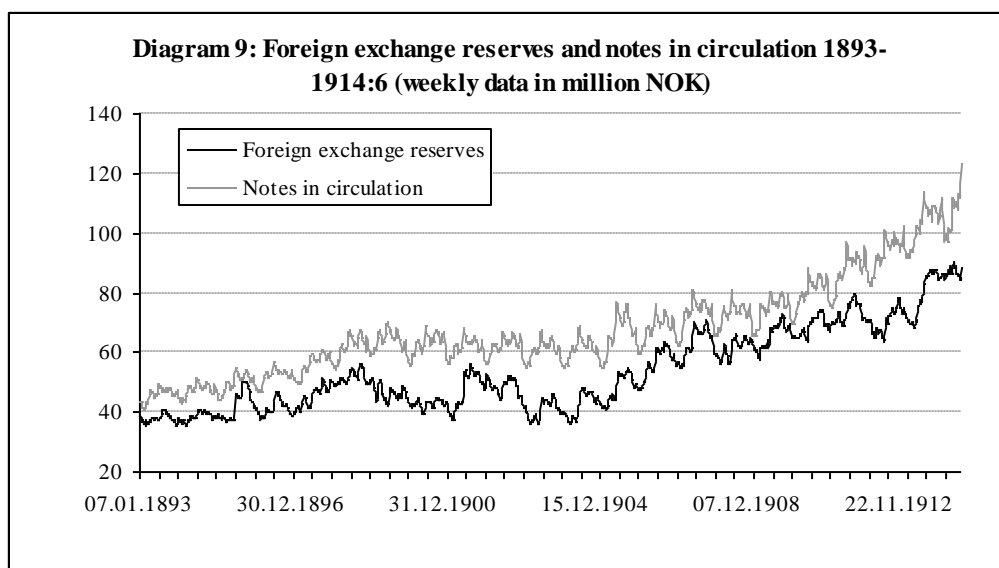
Although the numbers indicate support for the monetary approach, I believe this theory is too narrow for understanding the workings of the gold standard. Flows of foreign exchange were not merely a response to whether domestic monetary demand was met by domestic supply, but also reflected changing fortunes for the export sector. Only in a long-term perspective can the monetary approach give meaningful insight as demonstrated above. Moreover, the results from the non-theoretical accounting framework of Friedman clearly demonstrate that the domestic credit policy of the central bank played an important role. It might even be tempting to argue that central bank domestic credit in the shorter run played the role ascribed to flows of foreign exchange in the monetary approach to the balance of payments; i.e. the movements in central bank credit mirrored whether the demand for money was met by private (domestic and foreign) sources or not.

⁴⁶ The difference reflects that while the monetary approach calculation are based on annual averages of monthly observations I have had to use end-of-year observations in the accounting framework observations due to the lack of monthly observations of the private banks' cash holdings and deposits with the central bank.

6. The structure of key monetary variables

The examination above confirms Bloomfield's findings and indicates a central bank that indeed played a broader game. These insights are explored further in the examination of the structure of key monetary variables presented in this section.

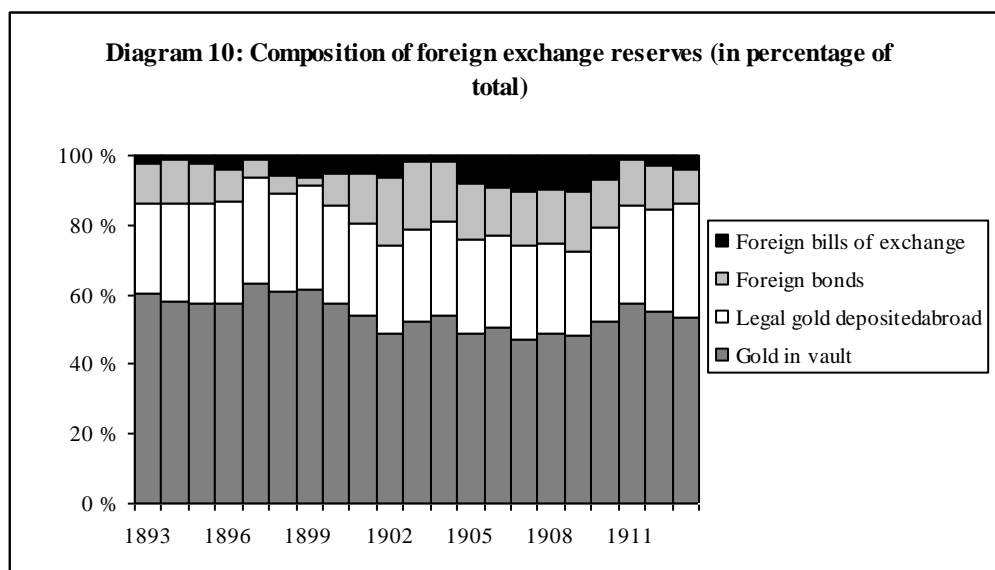
Although there is no indication of any “rule of the game” approach, the evidence neatly testifies to the long-term relationship between foreign assets and notes in circulation. Over the whole period covered, notes in circulation on average increased at an annual rate of 3.4 % while foreign exchange reserves increased by 3.5 %. Such long-term correspondence is not surprising, given the very nature of a gold standard regime; legally an expansion of the note stock had to be, at least partly, backed by larger holdings of gold. However, the patterns of development between the two variables differ markedly (diagram 9). For notes we can identify two periods of strong growth, from the early 1890s until 1899 and then again from 1906, roughly corresponding to the business cycles. The period in between is characterised by stagnation and reflects the prevailing depressed business conditions in the aftermath of the 1899 real estate bust. For the whole period, the seasonal variations in the note circulation are remarkably robust.



Source: Farmand 1893-1914

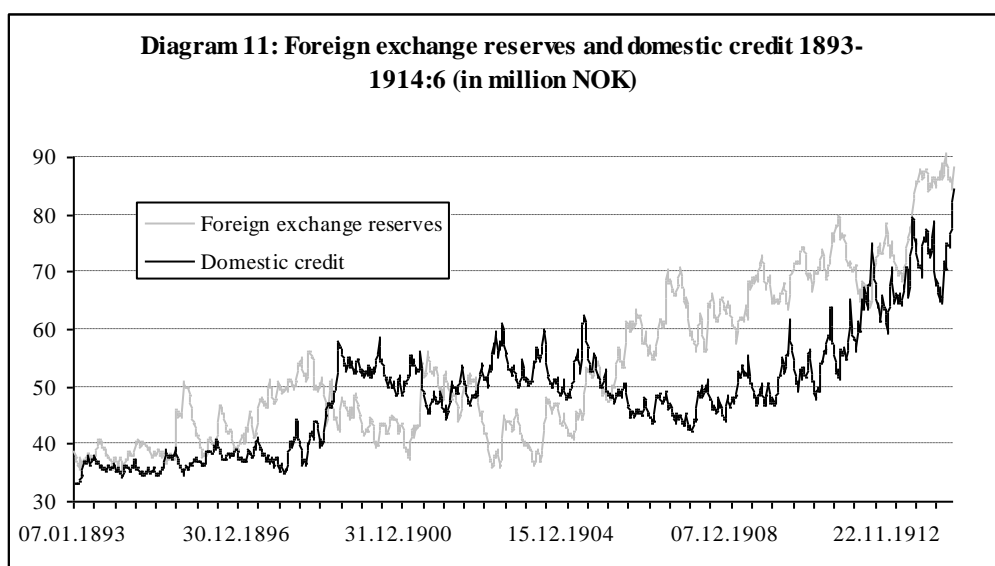
The pattern of development for foreign exchange reserves, on the other hand, is clearly more volatile. A long period of strong growth in the reserves can be identified for the period from 1906 until the outbreak of the war, coinciding with the period of foreign direct investment inflow and strong domestic economic performance. The earlier period is

characterised by strong fluctuations. The seasonal changes are also more volatile. Notice also the variation in reserve holdings in the period dominated by a stagnating note circulation.



Source: Norges Bank Annual Reports 1893-1913

The long-term correspondence between notes and reserves is less pronounced if we only take into account legal note-backing gold reserves, as these only rose at an annual average rate of 3.0 %. This reflected the shifting composition of foreign exchange reserves away from gold and into foreign bonds and bills of exchange. I will subsequently return to this point in the discussion of the development of monetary policy instruments.



Source: Farmand 1893-1914

The annual long-term growth rate for central bank domestic credit (3 %) is lower than the growth rate of the other two variables discussed here. The patterns of development also differ.

Domestic credit was remarkably stable throughout the 1890s, but increased strongly in 1898/99 and maintained this higher level throughout the troubled first years of the new century. This indicates a central bank willing to accommodate the demand for credit even in times of diminished foreign exchange reserves, and thus serves as further evidence against a limited, rule based approach to monetary policy. Central bank lending peaked in 1905 and was subsequently reduced until the end of 1908, corresponding roughly to the first stage of massive foreign investments. In the last five years before the war, domestic lending increased strongly and corresponds to a period of greater re-discounting for the private banking sector.

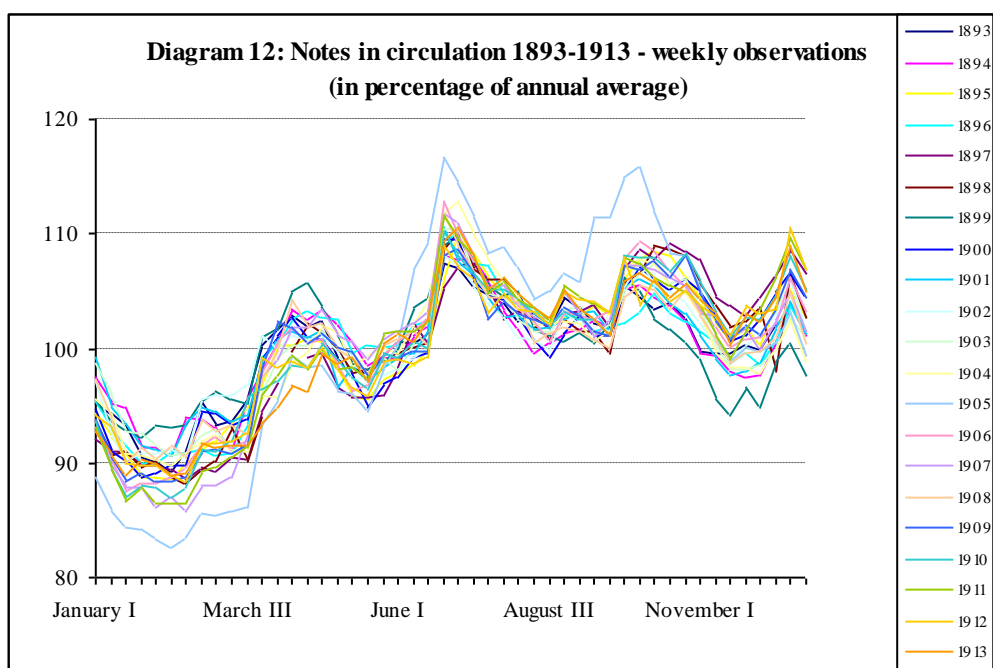
6.1 The demand for notes

The demand for notes was strongly influenced by four factors – two long-term and two short-term. The two long term trends were in response to economic growth and, at least for the 1890s, increased monetisation of the economy. These have been discussed earlier. In addition, variations in the long-term growth trend, i.e. the business cycle, also influenced the demand for notes in the shorter run. However, the strongest impact came from the seasonal variations in the demand for money. The seasonal variations were remarkably consistent throughout the period — even surprisingly so given that we consider weekly observations. Diagram 12 displays the 48 weekly observations for the period 1893-1913 expressed in percentages of the annual average.⁴⁷

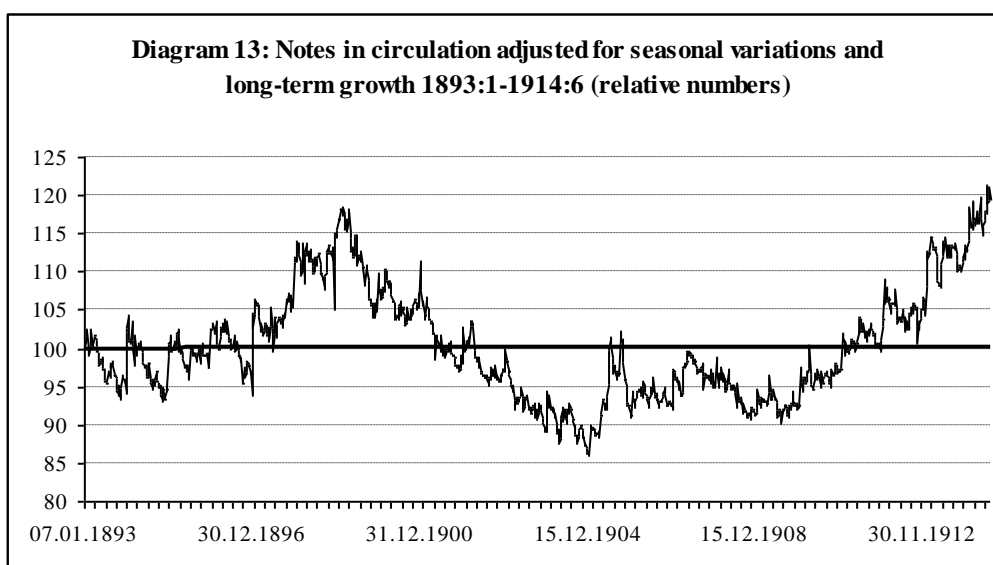
A clear pattern is established which reflects the economic cycles of the year. Notes in circulation relative to annual averages are at their lowest point in the beginning of the year. In February and March economic life began to blossom after the dormant winter period with the annual outfitting of both the merchant marine and the fishery fleet, the latter in anticipation of the important northern fisheries. The circulation temporarily peaked in April with the payment of the quarterly customs duties. The period March to April was often referred to as the “spring pinch” due to the combination of high demand for notes and low export earnings. May was a quiet period before the circulation reached its annual high point by the end of June, with midsummer being both an important date for settling debts and the time of the annual market for timber. During the following summer months the circulation gradually declined. By the end of September circulation rose again, both because of the annual harvest and the funding

⁴⁷ Note that in years when the growth in note circulation deviates strongly from trend growth, this will influence the value of the observations, notably so for observations in the beginning and end of the year, relative to all observations. However, this weakness in the data does not disturb the overall pattern displayed in diagrams 12, 14 and 19.

of the import season. The last peak was connected with the Christmas season and winter solstice, another traditional settlements day.⁴⁸



Source: Farmand 1893-1914



Source: Farmand 1893-1914

An illustration, albeit a rather blurry one, for the impact of the business cycle on the demand for notes, is to adjust the observations of weekly circulation both for long-term growth and seasonal variation. The picture that we observe reflects our understanding of the long-term business cycles. Moreover, it gives us additional information on the more short-run

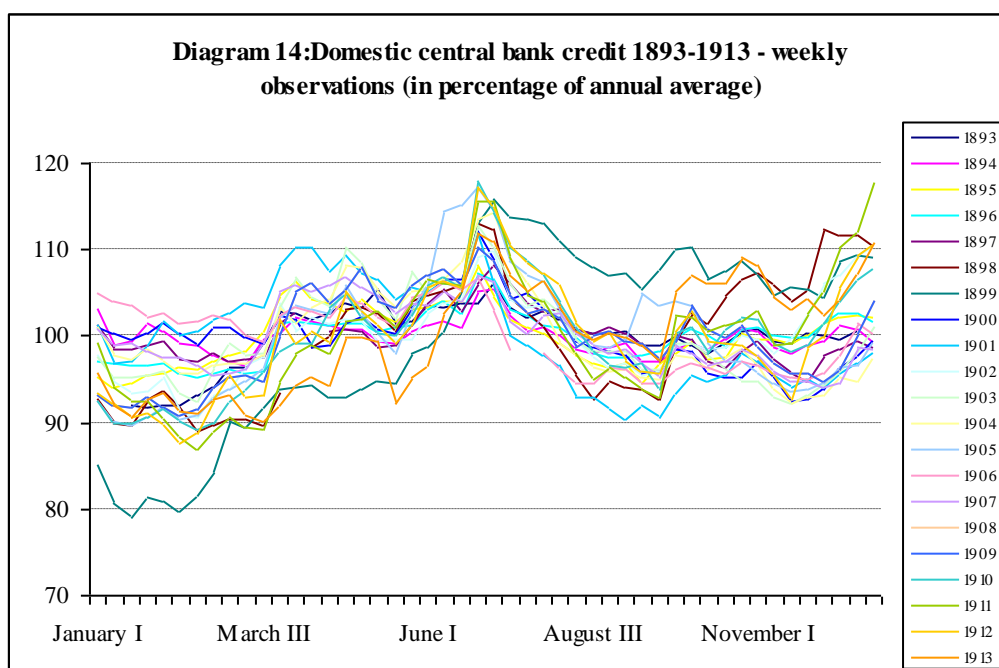
⁴⁸ Farmand 11.1.1896

fluctuations or cycles, notably so for the early period of the 1890s and the period of depressed business climate in the beginning of the century.

6.2. The demand for central bank credit

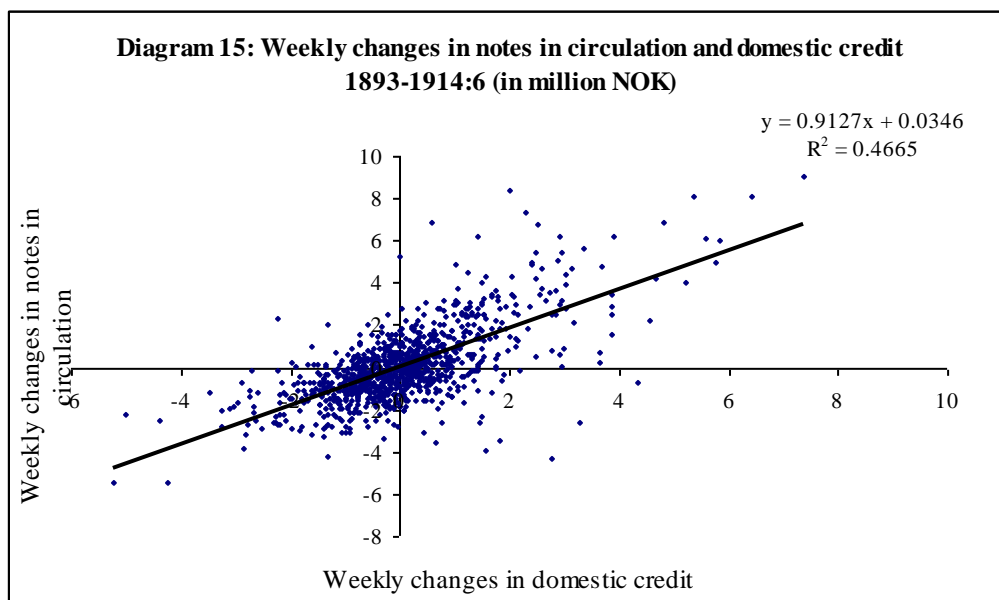
In our period the central bank steadily built down its portfolio of long-term lending engagements, and concentrated on providing short-term credit through discounting commercial papers and promissory notes. With the exception of the Christiania-crisis of 1899, the bank was not involved in re-discounting for the private banking sector on a substantial scale until the final years before the war.

The central bank was only one of several outlets for satisfying the demand for credit, as opposed to the situation for notes where it enjoyed a virtual monopoly of cash-based means of payments. However, the seasonal fluctuations (diagram 14) to a large extent mirrored those of the demand for notes with peaks in March/April, June and October. One reasonable interpretation of this is that peaks strained the private money market and made the central bank accommodation more desirable. Nevertheless, although a pattern is recognisable, the demand for central bank credit showed greater variations than for notes; suggesting a more uneven rhythm related to business cycle variations in the ability of the banking sector to meet the demand for money. Thus, to understand the fluctuations in the demand for central bank credit one must take into account both the peaks in demand for money as well as the more general state of the money market.

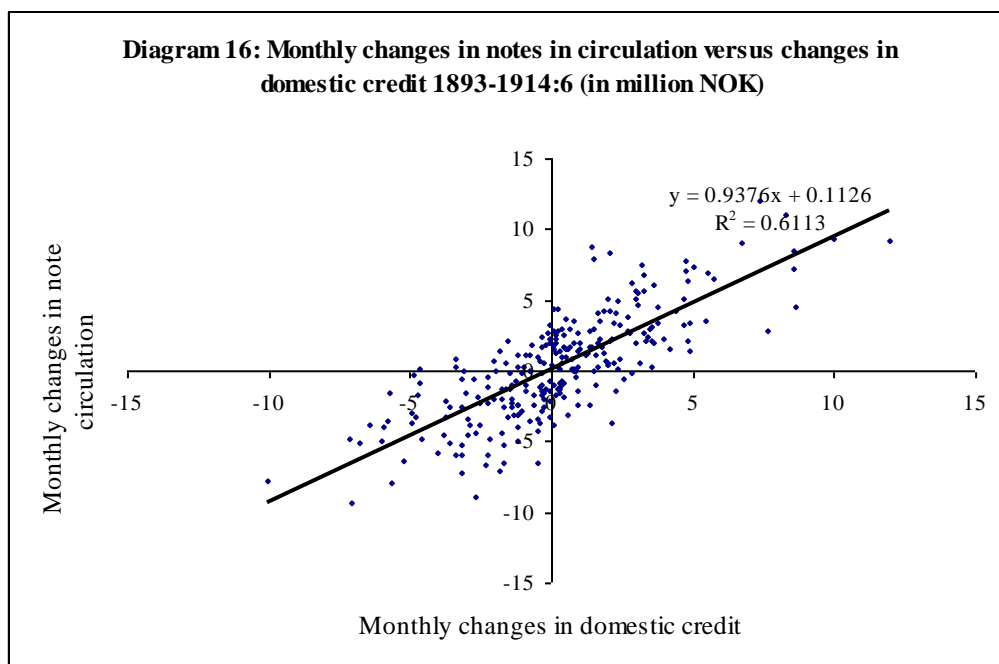


Source: Farmand 1893-1914

The strong correlation between the demand for notes and central bank domestic credit is seen in diagram 15: the weekly observations of changes in the two variables display a correlation coefficient of 0.68 and R-square value of 46.7%. The finding is statistically significant at a 1 % level.



Source: Farmand 1893-1914

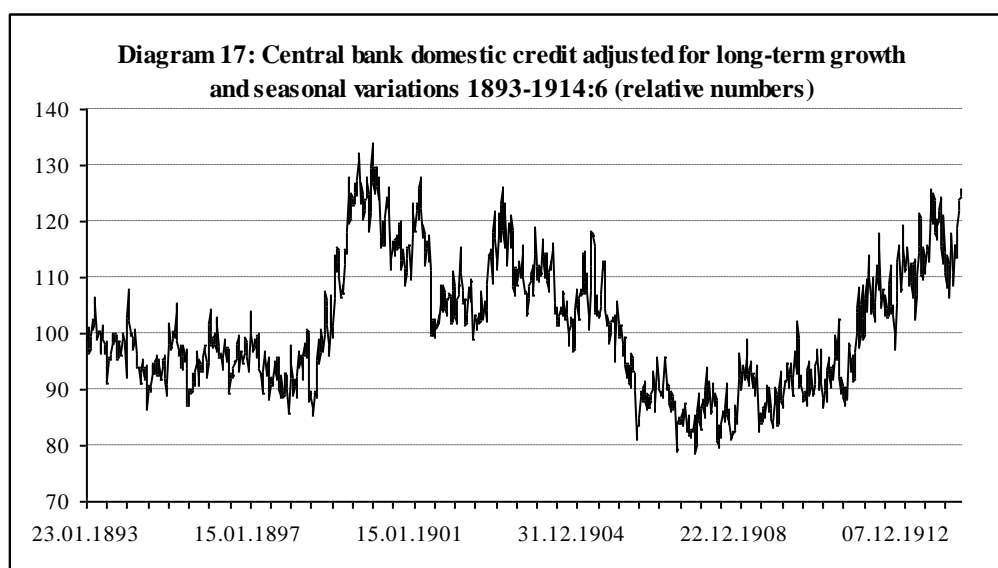


Source: Klovland, Monetary aggregates in Norway 1819-2003

Moving on to monthly data (diagram 16), the relationship becomes even stronger with a correlation coefficient of 0.78 and R-square value of 61.2%. The result is statically significant at a 1 % level. However, for quarterly data (not displayed here), the correlation becomes

weaker (0.66) and with less explanatory power for the regression line (R-square value of 44.1%). Moreover, the result is not statically significant with a P-value of 0.92.

The bulk of short-term lending to industry and commerce was of course supplied by the private commercial banks, the deposits of which grew at an annual rate of 7.2 % in the period 1893-1913. However, in the years 1901 to 1905 the lending capacity of the commercial banks stagnated as deposits grew at annual rate of only 1.3 %; thus reflecting the troubled years of the beginning of the century.⁴⁹



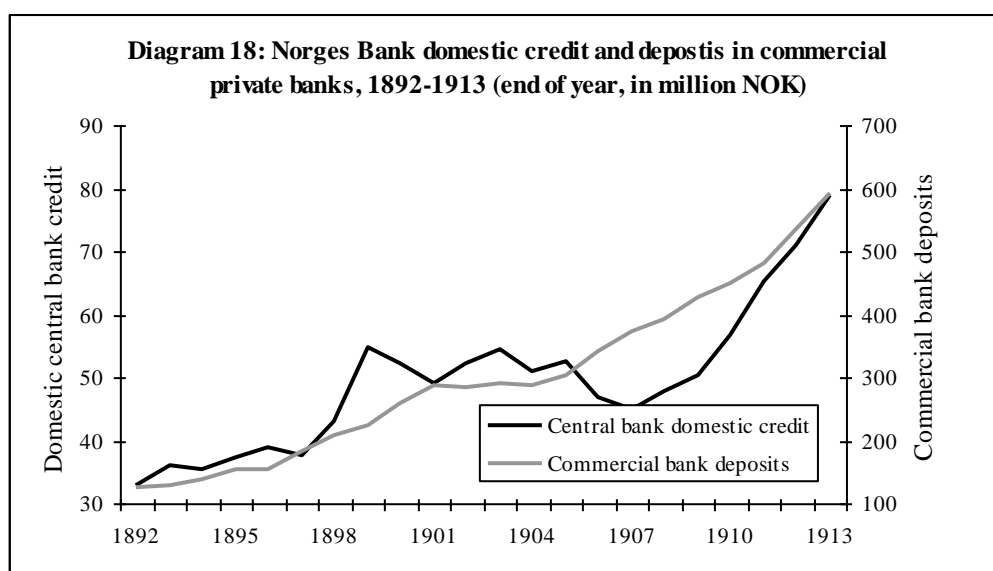
Source: Farmand 1893-1914

In diagram 17, the development of central bank domestic lending are showed adjusted both for long-term growth and seasonal variations, thereby producing an image of the varying cyclical demand for central bank credit. Of particular interest is how the bank responded to the cyclical downturn in the beginning of the century. While domestic lending in the 1890s clearly converged around the trend, it increased strongly relative to trend from the autumn of 1898 onwards. Thus, central bank lending did not only accommodate seasonal variations in the demand for credit, but also provided much needed financial facilities for short-term lending in cyclical downturns either by increasing direct discounting to the public or

⁴⁹ In many cases the business profile of the major saving banks in the bigger cities resembled that of the private commercial banks and had an important role in providing short-term credit for commerce and industry in many local communities. Although deposits in urban saving banks grew at a higher rate (2.9 % annually) than in the commercial banks in this period, the discounting activity of the former fell by more than 30 % from 1901 to 1905 based on end-of-year balance observations. Most of the increased lending capacity in the urban saving banks ended up in mortgages on real estate. Thus, the part of the saving bank sector most oriented towards lending to commerce and industry showed the same patterns as for the private commercial banks. Norwegian Central Bureau of Statistics, Tabeller vedkommende Norges Sparebanker 1901-1905, Norges offisielle statistikk, fjerde rekke no. 43.

indirectly by re-discounting for the private banking sector. That this strong growth started as early as in 1898 indicates that Norges Bank did not only come to the rescue of the financial sector in the aftermath of the bust in June 1899, but probably to some extent had helped fuel the boom and thus probably enjoys its share in the “blame game”. Notice also how the role of central bank lending was reduced in the first half of the pre-war growth period as foreign currencies flowed in and the lending capacity of the private banks improved.

The importance of central bank domestic credit during the cyclical downturn at the beginning of the century is also evident from diagram 18 below; Norges Bank maintained discounting at a high level at the same time as the lending capacity of the commercial banks stagnated.



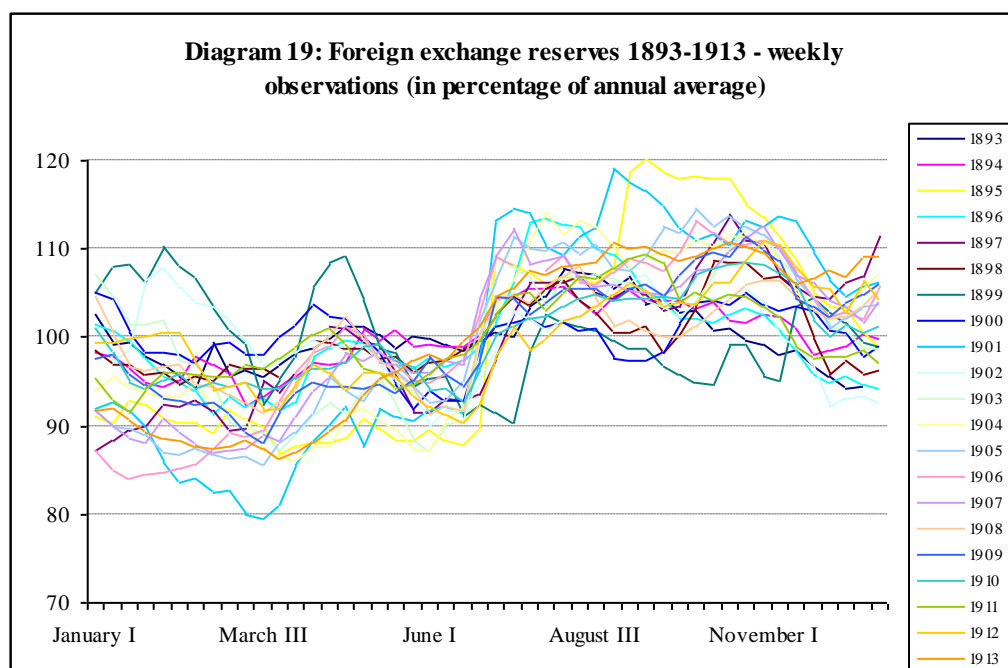
Source: Klovland, Monetary aggregates in Norway 1819-2003

6.3. Changes in the foreign exchange reserves

Changes in the foreign exchange reserves were strongly influenced by three factors; long-term capital imports, short-term capital movements and the balance of trade and services. The latter further depended on the prevailing Norwegian terms of trade and variations in the riches nature produced. For the fisheries in particular, both the annual catch as well as the price paid in international markets were of importance. Correspondingly, a bad harvest led to an increase in corn imports, which strongly influenced the size of the import bill. The prospects for the harvest were eagerly reported in the financial press.

When comparing the seasonal changes in foreign exchange reserves over time we can easily conclude that they are a contrast to the neat, consistent picture of seasonal changes in the note circulation. However, despite greater annual volatility, a general image of the

movements emerges. The reserves are lower in the first half of the year and higher in second part. This overall seasonal trend reflects the structure of the export sector. As discussed earlier, the merchant navy and fishing fleet were equipped in February and March and foreign exchange earned by these sectors started to flow in by mid-summer. Thus, a time-lag existed between the sectors' demand for circulating means and the inflow of foreign exchange earnings from them. Comparing the two charts of seasonal changes, we see that the strong inflow of foreign exchange in late June coincides with the yearly peak in the note circulation. However, there is no causal relationship between the variables: the former reflected the income of some sectors, the latter the demand for cash by others.⁵⁰ Among the latter, the timber merchants themselves became contributors to the foreign exchange inflow throughout the late summer and early autumn. The reduction in the reserves in the autumn corresponded with the strong import phase of the season.



Source: Farmand 1893-1914

No data on balance of payments exist for Norway prior to World War I. This makes it difficult to estimate the level of long-term capital imports. Nevertheless, from known sources, like the balance of trade and the accounts of the central bank, we know that it must have been substantial. For the whole period 1893 to 1913, the country ran a total deficit on current

⁵⁰ However, some of the increase in the foreign exchange reserves in late June reflected short-term financial inflows in response to the seasonal demand for money. However, this can hardly be explained by the price-specie flow-mechanism, but is more reasonably understood in light of the monetary approach to the balance of payments; i.e. demand for money higher than domestic supply producing an inflow of foreign exchange.

account of 818 million kroner, 569 million of which fell before 1906. The differing phases in the long-term capital inflow have been briefly mentioned earlier. Until 1905 long-term capital imports were dominated by public lending abroad. From the most important of public agencies there are solid data for bond issuing. Between 1890 and 1914 the government issued bonds with a nominal value of 307 million kroner of which only 40 million kroner were issued after 1905. The net amount of outstanding government bonds increased from 115 million kroner in 1890 to 358 million kroner in 1914. In 1899 only 5 % and in 1914 less than 2 % of the bonds were held domestically. In the same period, Hypotekbanken, a publicly owned bank, increased the amount of its outstanding bonds from 80 to 220 million kroner. In 1890, more than half the bonds were held domestically, but this share was later reduced and at my points of observation in 1899 and 1914 lay around 25-30 % of the total.⁵¹ No comprehensive account exists for the bond issuing by local government agencies, but the two major municipalities, the cities of Christiania and Bergen, issued actively in international markets.

Public borrowing allowed the country to sustain a higher level of imports and domestic economic activity, in particular with regard to infrastructure investments, than what would otherwise have been the case. The impact on monetary policy, however, differed. Most of the governmental loans went to purchase investment goods abroad, notably railway material and military equipment, although some money was clearly used directly for construction purposes in Norway. As a result, most of the currency in question never actually entered the reserves of the central banks, but were kept abroad by the government. However, there were a number of cases where loans intended to be employed abroad were partly transferred to Norges Bank; in particular in the 1890s causing short-term easing of the domestic money market. For Hypotekbanken, close to all money was withdrawn to Norway and thereby, although not simultaneously, influencing the circulation through the bank's lending. We have no time series of the amounts actually transferred, but for some years, the financial weekly *Farmand* calculated the total of all public loans actually transferred to Norway:

⁵¹ Klovland, Jan Tore, Bond markets and bond yields in Norway 1820-2003, 99-180, Chapter 4 in Eitrheim, Øyvind, Klovland, Jan Tore and Qvigstad, Jan F. (eds.), *Historical Monetary Statistics for Norway 1819-2003*, *Norges Bank Occasional Papers No. 35*, Oslo, 2004

Table 4	Public loans abroad actually transferred to Norway (in million NOK, current values)
1894	21
1895	32.6
1896	21.7
1897	13.5
1898	17.3
1899	43.7
Total	149.8

Source: Farmand 22.1.1898, 28.1.1899 and 3.2.1900

Unfortunately, the paper did not continue these series, but based on this six-year period the known inflow deriving from public loans was substantial, at an annual average of 2.7 % of GDP. The two clear peaks, in 1895 and 1899, correspond to the two peaks in foreign exchange reserves observed for the period.

No comprehensive accounts exist for private capital import. However, after 1906 the level must have been high. The foreign exchange reserve entered into its strongest growth period, while public bond issuing abroad clearly was at a lower level than earlier. The strength of foreign ownership in industrial enterprises also testifies to the importance of private capital imports. Some FDI took also place earlier than 1905 but not on the same level as in the later period. During the boom of 1898 and 1899 foreigners invested heavily in real estate mortgages in Christiania.⁵² In particular, foreign insurance companies went into the booming real estate market. According to Farmand, one German company was exposed to more than five million kroner in mortgages.⁵³

Even more difficult to assess is the extent of short-term capital movements. One source of short-term movements was the adaptation of exporters and importers. Typically, an exporter might delay transmitting income earned abroad for some time to take advantage of interest rate differentials. Similarly, an importer, based on the same economic rationale, might transmit ahead of the actual time of payment. These movements, which derived from actual transaction either in goods or services, probably created some disturbances for the central banks. However, what was of the utmost importance for the Norwegian money market and hence for monetary policy was the role played by the banking sector with regard to short-term capital movements.

Although no accounts exist for the extent of the short-term movements, from the early

⁵² Farmand 3.2.1900

⁵³ Farmand 28.1.1899

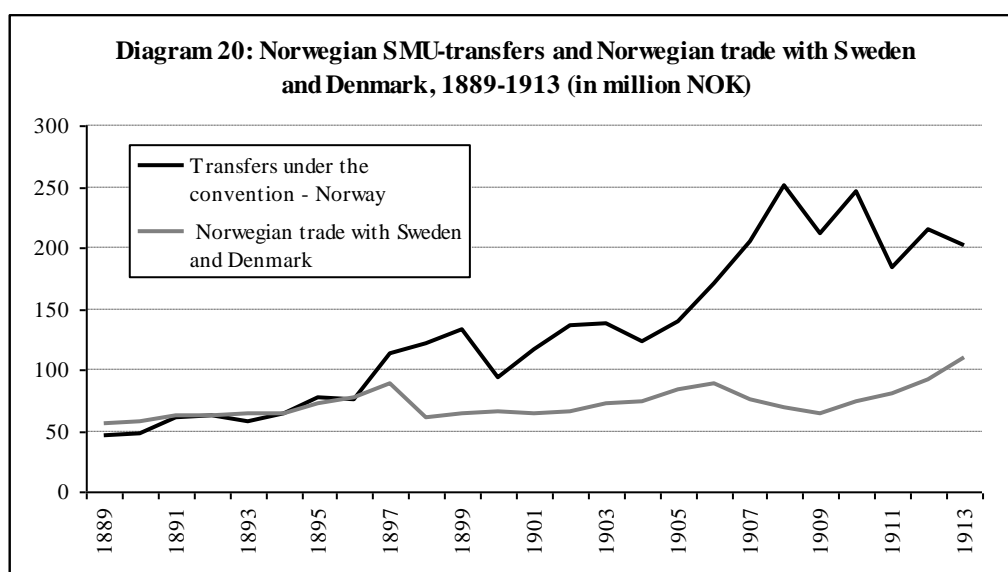
1890s the financial press reported that the major Norwegian banks were visibly involved on a rather impressive scale. The trend was also clearly upwards: in the annual reports for 1909, 1910 and 1911 Norges Bank even complained that the operations of the private banks represented a governance problem and asked for legislation in order to compel the banks to publish their foreign holdings.⁵⁴ The banks were involved in short-term movements in a number of ways. They responded to interest rate differentials by placing money on short notice abroad, notably in Sweden and Denmark but also in Germany. In times of a lukewarm domestic market, surplus capital was shifted abroad even without favourable interest rate differentials. At the time of high domestic demand for discounting and loans, the process turned the other way around and the lending capacity of the banks increased either by repatriation of own resources or by borrowing abroad. In this manner the private banking sector had the ability to influence domestic money circulation independently of the central bank.

Of particular importance was the increasingly integrated Scandinavian market for short-term credit. Traditionally, the major Norwegian banks had regularly shifted capital on short notice to the other countries to help them overcome seasonal peaks in the demand for money. Most noticeable were the annually recurring transfers to Copenhagen in connection with the two major Danish settlement days, 11th of June and 11th of December — the latter by the Danes sardonically referred to as “Old Nick’s birthday”. Of particular importance for the establishment of a more integrated Scandinavian financial market was the provision for drafts between the central banks free of charges. The SMU had probably no impact on long-term capital movements, as the existence or not of a commission in the region of $\frac{1}{4}$ or $\frac{1}{8}$ of a percentage point had no practical influence on the profitability of the investment in the long run. Here the absence of major foreign exchange risk expectations embedded in the gold standard itself was evidently more important for investor confidence. However, for banks eager for short-term profits on the interest rate differential of 50 or 100 basis points or just desiring to employ unused means for a short duration, the size of the commission was vital for the profitability of the whole operation.

Although lacking sufficient data on short-term movements, diagram 20 illustrates both the extent and the pattern of development albeit, not the direction of the movements — at least within the Scandinavian region. I have compared the gross Norwegian transfers through the monetary union with the gross trade in goods with the two neighbouring countries. From 1896

⁵⁴ Norges Bank - Annual Reports 1909-1911

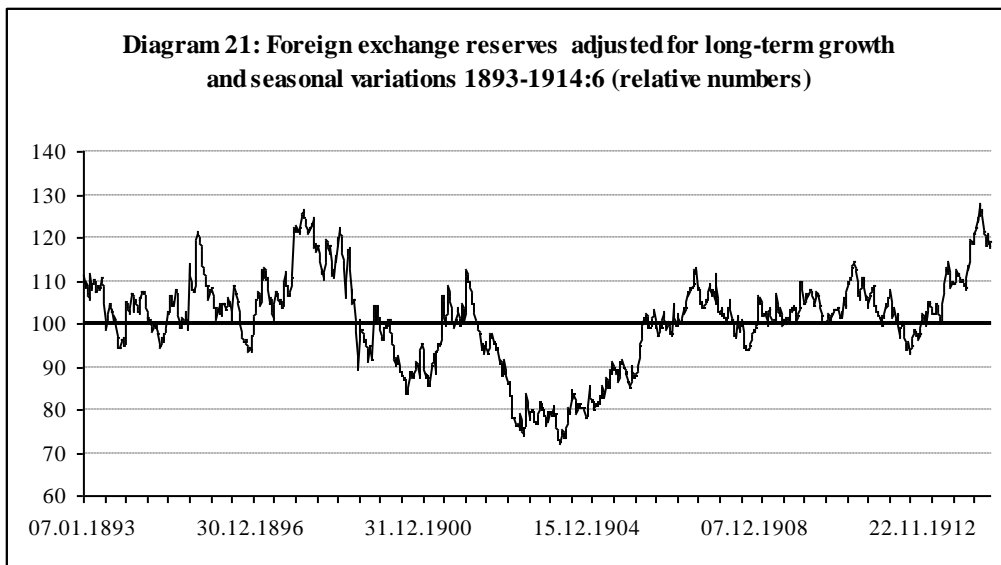
onwards the level of transfers are constantly higher than required to cover gross trade. There is also a tendency for gross transfers to increase much more rapidly than the value of trade. Some of the residual between transfers and trade might be explained by freight services, but not by much as the earnings of the merchant navy were chiefly in pounds sterling. The residual is thus an indication of the level of capital transfers and among them predominantly short-run movements. The residual also shows a clear pattern with clear peaks in the late 1890s and for the period after 1906. One disclaimer here might be in order; the figures for gross transfers before and after 1909 are not comparable as there was some double counting prior to 1910. At least some of the reduction in the transfer volume that year can be explained by the elimination of this source of error.⁵⁵ However, even after admitting for this weakness in the data, the extent and pattern of development is clearly recognisable. Moreover, in absence of other reliable sources, this diagram represents an important contribution to our understanding of the impact of the SMU in creating a more integrated financial market in Scandinavia.



Source: Norwegian Historical Statistics 1948 and Norges Bank - Annual Reports 1894-1914

Diagram 21 displays the development of foreign exchange reserves of Norges Bank adjusted for both seasonal variations and long-term growth expressed in relative numbers. As for the note circulation and domestic credit, this variable also corresponds to our understanding of the development of the economic cycles with peaks in the late 1890s and after 1906. Notice again the strained nature of the bank reserves in the beginning of the century compared with the overall growth trend.

⁵⁵ Norges Bank - Annual Report 1911

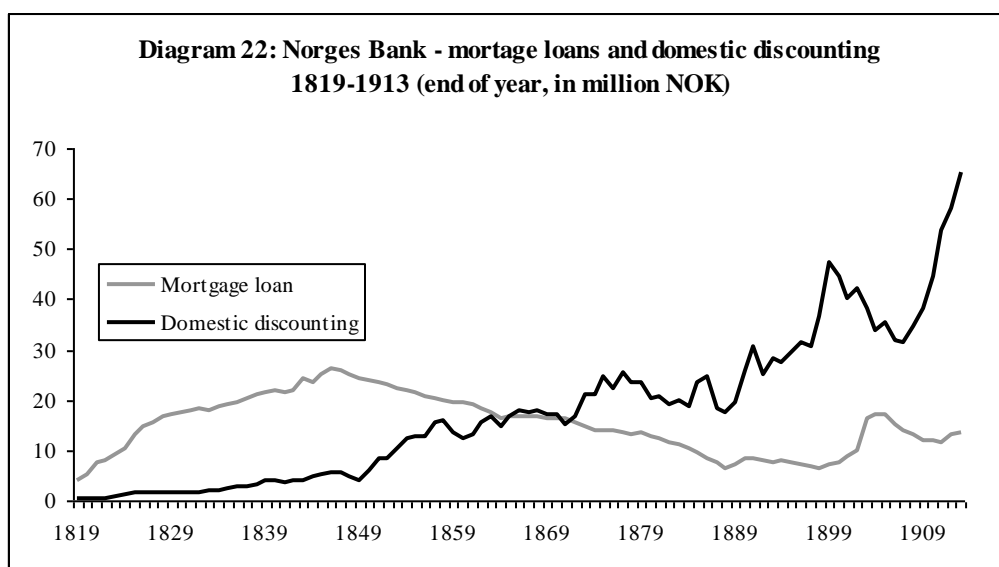


Source: Farmand 1893-1914

7. THE UNDERSTANDING OF MONETARY POLICY

Although the data give little support for any “rules of the game” approach to monetary policy, this does not imply that policy consideration was not informed by this kind of thinking. As we know, results are not necessarily the best benchmark for evaluating intentions. The aim of this subsection is to analyse the understanding of monetary policy at the onset of the 1890s.

The fact that the defence of currency convertibility and the redemption of notes on demand were the responsibility and the ultimate objective of the central bank was never in question. The struggle to attain silver parity from 1816 to 1842 was a part of the national *mythos* and the standing of the currency at par with those of the major countries a symbol of the nation’s achievements. Moreover, the common liberal belief structure that several scholars point to as fundamental for the success of the gold standard, was deeply embedded among the prevailing elites across the political lines that otherwise divided Norwegian society. However, whether this commitment materialised in the actual formation of monetary policy is not necessarily self-evident. In England, one of the most central economic debates of the first part of the 19th century, the currency school versus the banking school, can be viewed as an argument over the practical implications of this commitment. I will return to the influence of the English debates later on.



Source: Klovland, Monetary aggregates in Norway 1819-2003

A rigid “rules of the game” approach does not inevitably follow from the commitment to gold convertibility. One important modifier is that the theoretical interpretation of the commitment may differ. Another is that institutional features might have produced

sentiments affecting policy formation. In the case of Norway, most of these sentiments derived from the long period where Norges Bank was the country's single or dominant bank, and were based on the notion that the bank had a special obligation not only to defend the currency but also to furnish the economy with credit. For a long time, real estate mortgages were the most important item in the bank's portfolio. Historically this reflected the underdeveloped state of the Norwegian economy in the first half of 19th century. While the demand for long-term funding of agriculture had been strong, reflecting both new inheritance legislation and increased capitalisation of farming, the demand for short-term commercial discounting had clearly been less pronounced. If the embryonic central bank had decided to concentrate on discounting they would not have been able find sufficient outlets for its funds. Thus, long-term lending on rural and urban real estate was in fact necessary to put the bank's notes in circulation. Another expression of the limited demand for discounting in the first decades of the bank's operation is that most of what was entered in the books as discounting was disguised long-term lending through a practice of "roll-over" discounting. Long-term central bank lending in the early 19th century was not only a Norwegian feature, but played a role in more mature countries like Denmark and even England.⁵⁶ From a central bank perspective this was nevertheless worrisome. Any bank's assets have to match its obligations, and more so for a central bank. With major parts of its fund immovable in long-term lending, Norges Bank ran the risk of being caught in a liquidity trap at times when its funds were most called for, in particular in times of financial crises. This risk was acknowledged and long-term lending declined from 1850 onwards and was surpassed by short-term lending in the mid-1870s. However, the legacy of the role of long-term lender survived for a long time. In the late 1880s, Norges Bank — in clear violation of "good central bank behaviour" — even increased its long-term lending in order to secure income during a business cycle downturn. Well into the 1890s, parliamentary backbenchers representing rural interests called for long-term loans.

Another legacy was the broad commitment to support business not only in times of crisis, but in general, through cheap credit. This commitment took several forms, from the "low-interest lobby" as the extreme version to a more general apprehension that high interest rates were harmful to business. In the latter form, the commitment was also a part of monetary policy throughout the period covered in this article. The long lasting strength of this legacy probably reflects the strong representation of practical men of business and

⁵⁶Sejersted, Fra monopolbank til seddelbank; Sejersted, Francis, Norges Bank og høykonjunkturen i 1840-årene; in *Demokratisk kapitalisme*, Pax 2002

politicians on the board of directors and on the governing bodies of the branches.

This legacy became even more important when one takes into account the role the central bank rate played in the domestic money market. In England, the *Bank of England's* bank rate was generally above the prevailing market rates reflecting the role of the bank as a safe harbour for the financial community in times of distress; i.e. discounting facilities were available, but at a price. That this was the ideal was confirmed by professor Hertzberg in his study of central banking.⁵⁷ However, in Norway, Norges Bank's rate was in fact the market rate and private banks very seldom departed from the lead provided by the central bank. The bank also did its business directly with the commercial community, and did not, with the notable exception of the crisis of 1899, re-discount on a substantial level for the private banks until after 1905.⁵⁸ Thus, both with regard to the role of lender of last resort and retreat from ordinary banking business, the emergence of a proper central banking approach was slow to mature.

Furthermore, a "rules of the game" approach, where interest rates are used to offset changes in the gold reserves requires a belief in a certain kind of causal association between interest rates, domestic money supply and balance of payments. In the early 1890s this was not an understanding shared by all. The evidence suggests that while the board of directors acknowledged the role of the bank rate as an important regulatory tool, they also to some degree relied on a more quantitative regulation of the credit volume. In parliament, speakers claimed that at some branches it was at times difficult to discount even commercial papers of the best quality. The liberal Member of Parliament and later Prime Minister, Gunnar Knutsen, called for a more active use of the bank rate to regulate the money market.⁵⁹ In this period there were also clashes between the board and the branch in Christiania over rate policy. The latter was strongly influenced, Farmand reported, by the call from business for "reasonable interests" and met both unjustified and outright silly claims.⁶⁰ According to Farmand, the latter had been dominated by an advocate of cheap money, "*the in banking questions rather incompetent and unknowledgeable consul Lunde*", who claimed that even a 10 % bank rate was not sufficient to influence the money market.⁶¹

⁵⁷ Hertzberg, Ebbe, *En kritisk fremstilling af grundsætningerne for seddelbankers indretning og virksomhed med særligt hensyn til de skandinaviske seddelbanker i deres nuværende skikkelse*; Kristiania 1877, p 63

⁵⁸ Skånland, Hermod, *Det norske kredittmarked siden 1900*, Samfunnsøkonomiske studier nr. 19, Statistisk sentralbyrå 1967, p. 132

⁵⁹ Parliamentary proceedings: Stortingstidenene (1893) pp. 2131-7

⁶⁰ Farmand 21.11.1891

⁶¹ Farmand 10.12 and 17.12.1898

The governing principles of Norges Bank had from the onset, as pointed out by Sejersted, been characterised by ideas that can be associated with the English currency school.⁶² The note issue should take place within strict limits and the bank should always have secure reserves to back the issue. Thus, the note should be the virtual circulating representative of the gold coin. In contrast to this view, advocates of the banking school advocated that there was no risk of over-issuing of notes, i.e. inflation, as long as the increased issue was based on the discounting of real commercial papers, i.e. the real bill doctrine. Whether there was a direct intellectual link from the great monetary controversies in England to policy formation in Norway is beyond the scope of this study. However, the outcomes shared the same root: a desire for order in the aftermath of the inflationist years during the Napoleonic wars.

However, by the 1870s the influence of strict currency school thinking had been diminished and more banking-inspired approaches had increased in importance. In two theses published in 1877, two of the leading Norwegian experts on central banking, Ebbe Hertzberg and A. N. Kiær, attacked the principles of the currency school and embraced a stand more in tune with the banking school and influenced by *Lombard Street*.⁶³ According to Hertzberg, there were no limits to how large the note circulation could be as long as the central bank maintained its creditability, including the redemption of notes into gold, and the volume of notes was sustainable vis-à-vis the economy.⁶⁴ The alleged close relationship between note circulation and gold circulation was “*a superstition of the commercial world that constituted an almost unbreakable barrier to common sense*”.⁶⁵ The result of the superstition was that the central bank reacted to a temporary imbalance in the gold reserves by forcing through a reduction of domestic credit, leading to an economic standstill. Even in times of no risk of gold flows the bank might react to an increased note circulation by

⁶² Sejersted, *Fra monopolbank til seddelbank*

⁶³ With notable exceptions of the debates on the introduction of the gold standard, and in particular the question of membership in the Scandinavian Monetary Union, the body of Norwegian contemporary literature from the 19th century on monetary policy is limited. However, in 1877 a competition was organised by the University for a Chair in economics over the theme “*A critical appraisal of the organization and activities of banks of issue with a particular emphasis on the current state of the Scandinavian banks*” with Hertzberg and Kiær as the foremost contenders.

Biographical notes: *Ebbe Hertzberg* (1847-1912), Norwegian scientist, civil servant and politician with a broad scholarly record in law, history and economics. He was a professor of economics and statistics 1877-1886, member of the conservative cabinet of April 1884, and Chief National Archivist 1906-1912. He was a member of numerous public commissions. *Anders Nicolai Kiær* (1838-1919) is recognised as the father of public statistics in Norway and made a number of contributions to statistical science. He was head of the Statistical Office in the Ministry of the Interior 1867-1876 and Director of the Central Bureau of Statistics 1876-1913.

⁶⁴ Hertzberg, *En kritisk fremstilling*, p. 27

⁶⁵ Hertzberg, *En kritisk fremstilling*, p. 46

curtailing domestic credit purely on legalistic grounds. This was a misled policy:

When the bank ensures that it only render notes to solid men of business, which of course is a maxim it should never refrain from, it is absolutely protected: these notes will, as there are no extraordinary payments to made abroad, return to the bank as deposits and liquidation of loan after they have served their role in the domestic exchange (of goods and services).⁶⁶

In times of financial crises a forced contraction of credit might make the crisis deeper.⁶⁷ Instead of the legalistic approach Hertzberg explained how the note circulation primarily reflected, as we have witnessed earlier in this examination, the economic life of the country and how the relationship between the domestic demand for notes and the demand for gold for export in fact was rather weak.⁶⁸ Kiær also argued that there was no risk of over-issuing of notes as long as the commitment to redemption in gold was intact: “*The note circulation regulated itself in accordance with demand and any superfluous notes would soon return to the bank*”.⁶⁹ That this was the case, was clearly visible through the correlation between the changes in the note circulation and the structural shifts in the requirements of business for means of exchange; patterns that recurred regularly year after year.⁷⁰ If the bank increased the note stock beyond the point that could be sustained by domestic transactions, some of the notes would clearly return to the central bank either directly as deposits or payments on loans from the public or indirectly from the private banking sector as it would attempt to reduce its holdings of cash. However, there would be a limit to how far the central bank could go in reducing the interest rate as the increased lending would lead to higher price level, reduced competitive power, and increased imports resulting in an outflow of gold.⁷¹

Kiær explicitly stated that his analyses of the relation between note stock and circulation demand departed from the teaching of the currency school.⁷² Accordingly he is also critical of the English bank act of 1844. The act was based on the wrong set of assumptions:

⁶⁶ Hertzberg, *En kritisk fremstilling*, p. 43

⁶⁷ Hertzberg, *En kritisk fremstilling*, p. 47

⁶⁸ Hertzberg, *En kritisk fremstilling*, pp. 44-45

⁶⁹ Kiær, A. N., *Om seddelbanker: en kritisk fremstilling af grundsætningerne for seddelbankers indretning og virksomhed med særligt hensyn til de skandinaviske seddelbanker i deres nuværende skikkelse*; Christiania 1877, p. 44

⁷⁰ Kiær, *Om seddelbanker*, pp. 44-45

⁷¹ Kiær, *Om seddelbanker*, pp. 46-48

⁷² Kiær, *Om seddelbanker*, p. 49

When one in this manner had wanted to make the note circulation (...) metallic, one had disregarded that the circulation of coin and the metallic reserve are two very differing phenomena. Depending on the differing position of the balance of trade one soon had a large, soon a smaller reserve of gold in the vaults of the central bank. The movements in this considerable part of the (nation's) gold holdings did not correspond to the movements in the circulation of cash means of payment which was (...) dependent on the domestic exchange, thus as likely to the move in the opposite as in the same direction as the metallic reserve.⁷³

Moreover, experience had demonstrated that trust in the self regulative-mechanism in the system often led to wrong policies. In a situation where the central bank had large gold reserves and consequently a large note reserve — legally backed notes not in circulation — the bank might misinterpret the state of the money market and lend at a lower rate than the situation really required. In the eyes of Kiær, the real demand for circulating means of payments should determine the central bank lending — not legalistic perception.⁷⁴

Both Hertzberg and Kiær were highly critical of the policy of Norges Bank and what they believed to be a rigid legalism when it came to the relationship between notes and gold. Under certain circumstances, Norges Bank had to withdraw notes from circulation equivalent to two and even two and half times the outflow of gold.⁷⁵ Hertzberg argued that Norges Bank in this manner strangled both commerce and itself: “*The legal provision made the bank immobile.*”⁷⁶ The only reason that the present system had not led to severe crises was that the legal relationship between notes and gold had been violated; the last time this had happened was as late as March 1877.⁷⁷ According to Kiær, the prevailing limits on the note issue seemed to demand the piling-up of an excess of gold in the bank:

As evidence thereof, it should be sufficient to point to the fact that the maximum limit (on the note circulation) in recent years repeatedly has been or been close to breached, although it is likely that the domestic exchange on the majority of these

⁷³ Kiær, *Om seddelbanker*, p. 100

⁷⁴ Kiær, *Om seddelbanker*, p. 101

⁷⁵ Kiær, *Om seddelbanker*, p. 104

⁷⁶ Hertzberg, *En kritisk fremstilling*, p. 87

⁷⁷ Hertzberg, *En kritisk fremstilling*, p. 87. See also essay 2 in this dissertation for more information about that episode.

occasions could have carried a larger note stock.⁷⁸

The result had been strong fluctuation in the bank rate, notably so in June-July of 1875 and December 1875-January 1876. Comparing these fluctuations with the movements of the note circulation, “(...) *one gets the strong impressions that these substantial fluctuations in the discount rate have more to do with arbitrary chosen limits on the note issue than is desirable*”.⁷⁹ Kiær believed it to be the task of the central banks to contribute to smoothing interest rates by moderating the fluctuations in the market rate:

The bank leaderships can, when they keep a watchful eye on the economic cycles, particularly those who influence the money market and the note circulation, accomplish much by restricting lending in times of speculation and by discounting as liberally as possible in hard times.⁸⁰

The two authors give important insights in contemporary monetary thinking and the role of monetary policy.⁸¹ Both challenged the currency school and what they perceived as legalism in existing Norwegian practice. The note circulation should not be governed by legal constraints, but by the requirements of the economy. In assessing that the note circulation could not be increased beyond sustainability as long as the commitment to gold redemption was intact, the influence of the banking school is visible. Their contribution also clearly reflects the prevailing sentiment after the publication of *Lombard Street* and they identified both the central bank as lender of last resort and as an agent that should strive to moderate the impact of economic cycles. In general, they defied perceptions of monetary policy as an automatic mechanism based on law, and called for watchful leadership that used discretion and was able to adjust policy to the state of the economy.

The contributions of Hertzberg and Kiær are important. Both were at the forefront of central bank thinking and familiar with the prevailing trends internationally. They demonstrate the existence of elite groups or at least a group of officials in Norway with considerable knowledge of monetary matters. Thus, to some extent the label “the advanced

⁷⁸ Kiær, *Om seddelbanker*, pp. 111-2

⁷⁹ Kiær, *Om seddelbanker*, p. 112

⁸⁰ Kiær, *Om seddelbanker*, p.119 However, Kiær was no advocate of cheap money, and warned strongly against the impact of keeping an “unnaturally” low interest rate and championed higher rates as the best cure against “over speculation”.

⁸¹ In the end, Hertzberg won the coveted chair while Kiær, headed the Central Bureau of Statistics for another 36 years.

periphery” is also valid with regard to economic thinking. The elites of Norway were not isolated, but were well read and showed surprising insight. However, their view must not necessarily be seen as an expression of the bank’s practice at the time, but rather as the voice of university educated elites interested in banking. Thus, even if their criticism might be on the strong side, they demonstrate another pronounced feature of Norwegian 19th century central banking, the gap between the views of the educated elites and the practice of the central bank.

However, monetary policy in Norway in the 1870s and 1880s should not been seen only *in lieu* of the dichotomy between educated elites and bank practitioners. In parliament, Norges Bank was attacked from quite another angle than the one represented by Hertzberg and Kiær. This was a criticism with populist overtones. In 1871, the bank was criticised for keeping too large reserves and met calls for a more active use of note expansionary power vested in the bank. Thus, this was in fact directed against the policy of using the note reserves as a buffer. In general, parliamentary backbenchers demanded more credit, notably so for long-term mortgages.⁸² However, their argument was not the sophisticated call for more discretionary policies that followed the business cycles, but a broad call for easier access to lending facilities on behalf of their constituencies. The enthusiasm for increased lending was accompanied by a rather conservative attitude to central banking; the bank should not develop new lines of business and ought to shun “speculation” in the foreign currency markets. In parliament those who can be recognised as belonging to the educated elites, like professor Aschehoug, defended the record of Norges Bank. In a way, the image that best captures the monetary policy scene is the one where parliamentary “credit populism” and the educated elites represent the extreme opposites, while the central bank and its practitioners occupy the middle ground. Nevertheless, the parliamentary populism had only limited influence on policy formation other than being a watchdog with a bark worse than its bite.

These differences between the central bank and the educated elites repeated themselves in the 1880s during the process that lead to the enactment of new central bank legislation in 1893. The Ministry of Finance and the Royal Commission set up to examine the bank issue advocated reforms in line with a modern approach while the board of directors of the central bank referred to the time honoured practice of the bank and was less receptive. However, the directors clearly argued that the practice of the bank had in fact also been discretionary

⁸²Parliamentary proceedings: Instilling S.nr. 83 (1871) Instilling fra bankkomiteen angaaende Norges Banks bestyrelse og virksomhet tidsrommet fra september 1868 til utgangen av 1870

in the past.⁸³ To a certain extent, it is possible to speak about a *time lag* in monetary thinking between the views heralded by the Ministry of Finance and other elite groups on one side and the practice of the central bank on the other. In the first legislative bill on Norges Bank (1882), the ministry demonstrated a rather modern understanding of the role of a central bank and the influence of both contemporary monetary theory and of the more practical approach to central banking advocated in Bagehot's *Lombard Street* is evident. The central bank could not influence the circulating money stock over time, the ministry claimed:

A strong expansion or contraction of notes might for a brief transitional phase influence the circulation. However, after some time equilibrium will be regained through the mechanism of changes in prices and the foreign exchange rate, as the public demand gold or notes respectively. In the long run the bank's capacity to influence the circulation is based only on its ability to further the prosperity of business and thereby the size and velocity of the turnover.⁸⁴

Neither could the central bank force the note circulation beyond the gold points, “(...) *as an increase in the number of notes in circulation will under this condition be answered by correspondingly higher foreign exchange rates that debase the value of the notes*”. The room to manoeuvre within the band of the exchange rate had been reduced with the adoption of the gold standard.⁸⁵ The views of the ministry testified to a strong awareness both of the price-specie-flow mechanism and what later was to be known as the quantitative theory of money.

More surprisingly, the ministry went a long way towards arguing the merits of the French system where there was no rigid relationship between reserves and note issuing capacity. Such rules were “rather superfluous” under normal circumstances. It was in times of crises and emergencies that the ability of the central bank to render credit and foreign exchange to the public was most significant. In line with the reasoning of *Lombard Street*, Norges Bank should under such circumstances go “*as far as safety allowed for*”. Discretionary powers might ease crisis management. On the other hand, clear rules signalled that “(...) *the solidity of the bank was so unyielding that it could not be doubted even during the most critical of*

⁸³ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank pp. 64-79

⁸⁴ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank p. 6

⁸⁵ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank p. 7

times". Thus, a removal of the rule might give the public an unfavourable impression and was not suggested. However, the rule ought to be given a flexible formulation.⁸⁶

A Royal commission and several new legislative bills went by until the parliament finally passed the law. The commission clearly stated that the bank ought to withdraw from commercial banking and concentrate on central banking.⁸⁷ The commission also warned against an aggressive reduction in the note circulation in case of major loss of gold — a course recommended by the board of directors in an attempt to maintain parts of the proportional system:

If a strong outflow of gold should reduce the metallic reserves below ten million, for example to five million, this implies that the note circulation will have to be reduced to the level of 15 million — a ruinous burden for the country at a time when business is in need of circulating means (...). There are in reality no direct relationships between two variables (gold reserves and note circulation) in our economic life. Such a remedy resembles the old proverb, "the patient died, he was cured of the fever".⁸⁸

What is interesting here is of course the understanding, discussed earlier, of the weak relationship between gold flows and the demand for notes. However, as pointed out by the ministry in their law bill of 1888:

(...) even under the differential system the note circulation was not decided by domestic demand alone, but would to some degree still be dependent upon the movements in the bank's holding of gold and foreign currency. If it increases, the amount of outstanding notes can increase; if it is constant it can not, regardless of the desire for increased means of circulation. If the holding goes down the note circulation must be brought down despite domestic demand.⁸⁹

One might end up in the same kind of situation that had led the *Bank of England* to

⁸⁶ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank p. 8

⁸⁷ Recommendations of the Royal Commission (appointed 6th of December 1884): on the revision of the legislation regarding Norges Bank p. 20

⁸⁸ Recommendations of the Royal Commission (appointed 6th of December 1884): on the revision of the legislation regarding Norges Bank p. 19

⁸⁹ Parliamentary proceedings: Odelstingsproposisjon no.8 (1888) Om endringer i lovgivningen angaaende Norges Bank p.13

suspend the bank charter a number of times. A situation might occur where Norges Bank had gold, but not enough gold to issue more notes. The ability to fulfil the bank's obligation might not be in jeopardy, but legal constraints would render it impossible to expand the note issue.⁹⁰ This, in a nutshell, was actually what would become the crucial concern of monetary policy in our period: How to reconcile the maintenance of a credible currency system linked to gold with room for domestic autonomy? The answer and the mission statement for the new central bank thinking in Norway was delivered in a parliamentary debate in 1890 by conservative Minister of Finance, Evald Rygh:

(...) the position of the central bank should be that of a regulator, to be sure in a leading capacity, but chiefly as a regulator. It should not be a forerunner in the competition with the private banks. The bank's mission is, besides note issuing, to secure a reserve capital for the entire commercial life of the country and in particular for the banking community. In places where the circumstances are more mature than here, the most important role of the central bank is to be, if I may say so; the bank of the banks; the banker of the bank. The private banks strive to earn as much money as possible and therefore keep as little reserves as possible. The central bank shall supplement the reserves the private banks as a rule do not have. The central bank should be the sanctuary the private banks can seek out when they are short of funds. This objective, which I believe is the central bank's most important — even more so than note issuing because that regulates itself more or less — implies that the central bank necessarily must keep a withdrawn position — notably so in good times.⁹¹

The new law of 1892, the central features of which have been discussed earlier, was in line with the thinking of Rygh's mission statement and the demands of "modern" central banking.⁹² Throughout the 1890s the time-lag between the thinking of elites and the practice of the bank narrowed. Much of this was due to the increased professionalism of the bank with the appointment Karl Bomhoff as the bank's first full time governor and the strengthening of the governing capacity of the board of directors.

⁹⁰ Parliamentary proceedings: Odelstingsproposisjon no.8 (1888) Om endringer i lovgivningen angaaende Norges Bank p. 13

⁹¹ Parliamentary proceedings: Odelstingsforhandlingene (1890) p. 200

⁹² Rygh was himself one of the applicants for the position of first governor of the central bank, but was passed over by the liberal government of the day in favour of Bomhoff —an active liberal.

8. MONETARY INSTRUMENTS AND INTEREST RATE POLICY

Having discussed some of key concerns of monetary thinking in Norway, it is time to examine the actual implementation of policy. In this section, I discuss the use of monetary instruments and interest rate policy.

I started out this examination by asking a quite simple question: What motivated Norges Bank to change the bank rate? To find the answer, I have examined the 43 changes in the bank rate from 1893 until the end of June 1914 and categorised them into three main groups according to the kinds of considerations that motivated the change. The three main groups of explanations are:

- Domestic money market considerations
- Gold or foreign exchange balance considerations
- Changes in foreign interest rates

Since a number of bank rate changes were motivated by more than one consideration, I have created an additional four groups that combine different explanations. In the case of combined explanations, I have not attempted to evaluate the individual strength of each consideration.

The categorisation is partly based on the weekly data for foreign reserves and note circulation. In particular, I have studied the movement of these variables in the last three months ahead of the actual change, with a keen eye to the status of the note reserves; the difference between notes in circulation and the legally funded note stock. These quantitative data are assessed in light of the contextual knowledge of the seasonal variation in circulation and reserves. This is an important point — without this knowledge the data would be rather useless. To put it bluntly, this kind of knowledge is needed to understand why a low note reserve in the aftermath of midsummer was less worrisome than a low reserve just before the outfitting of the fishery fleet in February. In addition, I have used qualitative data to reach a better understanding of the decisions taken by the board of directors. The annual reports of Norges Bank — in particular in the beginning of the period — seldom commented on changes in the bank rate directly. However, the money market comments in the financial weekly *Farmand* regularly dealt with the bank rate and the state of the money market. The editor of the weekly was in close contact with the leaders of a number of private banks as well as the governor of Norges Bank. The latter we know because after insulting a board member, he was

barred for a period of time from “*the access you have had and frequently used to personally seek out information or confer with the board of directors*”.⁹³ He was thus generally well informed of the deliberations over bank rate policy.

Combining these sources gives a basis for categorising and creating an image both of policy and the development of policy. However, I freely admit that this kind of categorisation is based on a broad discretionary approach. In some cases the sources clearly state the motivation, in others I have had to tie the information together before making an assessment; it has some character of qualified guesswork.

8.1 Monetary targets and instruments

Before presenting my findings, it might be useful to explore the role of the note reserve and the development of monetary instruments further.

These reserves were a legal construct and a consequence of the differential system. The central bank and observers of the Norwegian money market followed its movements closely. In practice, the note reserves served as what, to use a modern term, we would describe as a monetary target. As we know from the previous chapter, both the note circulation and foreign exchange reserves fluctuated strongly with the seasonal variations and the business cycle. This was a phenomenon the monetary authorities were well aware of.⁹⁴ Nevertheless one needed the formal linkage between note circulation and reserves to assure the public of Norges Bank’s unfailing commitment to the gold standard even if a full discretionary system like the French had been preferable.⁹⁵ The problem with assigning a direct link between the external anchor and note circulation was that a situation might occur where the convertibility of notes was not in jeopardy but legal constraints on the note issue barred the bank from honouring prudent claims on loans.⁹⁶ This was indeed a key concern of monetary policy: How should one act in order to avoid that the legal obligation deemed necessary for public trust in the currency played havoc with the domestic monetary system? One way of reducing this risk was to increase the fiduciary note stock, which happened in connection with the law of 1892

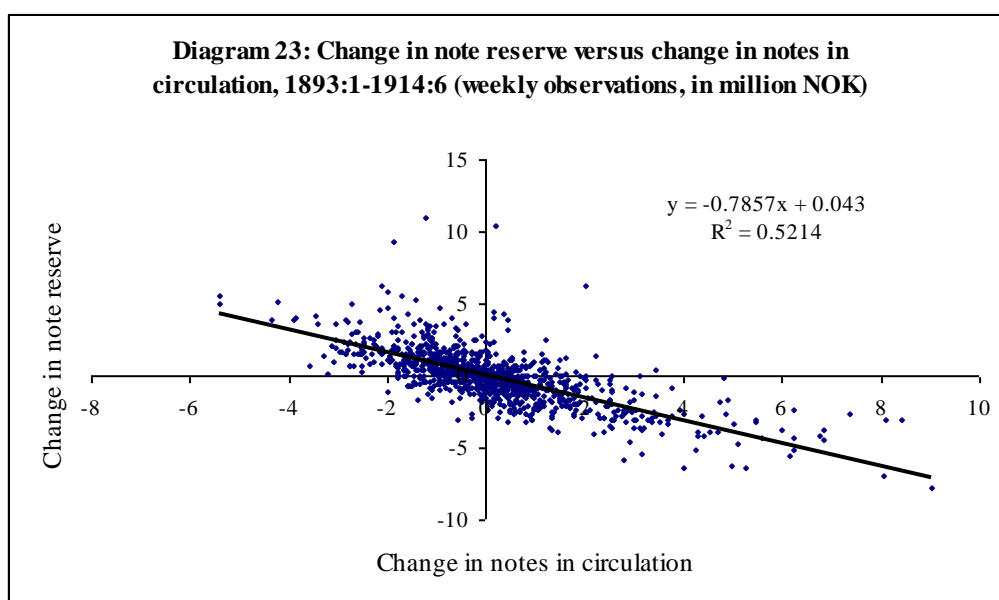
⁹³ Farmand 17.12.98 — the quote is taken from the letter from Governor Bomhoff to the Editor, Einar Sund and published in the journal with the author’s consent.

⁹⁴ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank – uttalelse fra direksjonen; Recommendations of the Royal Commission (appointed 6th of December 1884): on the revision of the legislation regarding Norges Bank p. 19

⁹⁵ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank p. 8

⁹⁶ Parliamentary proceedings: Odelstingsproposisjon no.8 (1888) Om endringer i lovgivningen angaaende Norges Bank p. 13

and with subsequent amendments in 1900 and 1912. Another measure was the escape clause that gave Norges Bank the right to temporarily breach the legal notes issuing limit against a punitive fee payable to the Ministry of Finance. More important for the day-to-day formation of monetary policy was to shelter the domestic money supply from changes in the balance of payments. Thus, changes in note circulation took the form of changes in the note reserves rather than changes in foreign exchange reserves. Diagram 23 of the weekly changes in these variables gives a much stronger impression of correspondence than the plots I have presented earlier for changes in the variables note circulation and foreign exchange reserves, with a correlation coefficient of -0.72. The R-square value is 52.1 % and the result is statistically significant at a 1 % level.



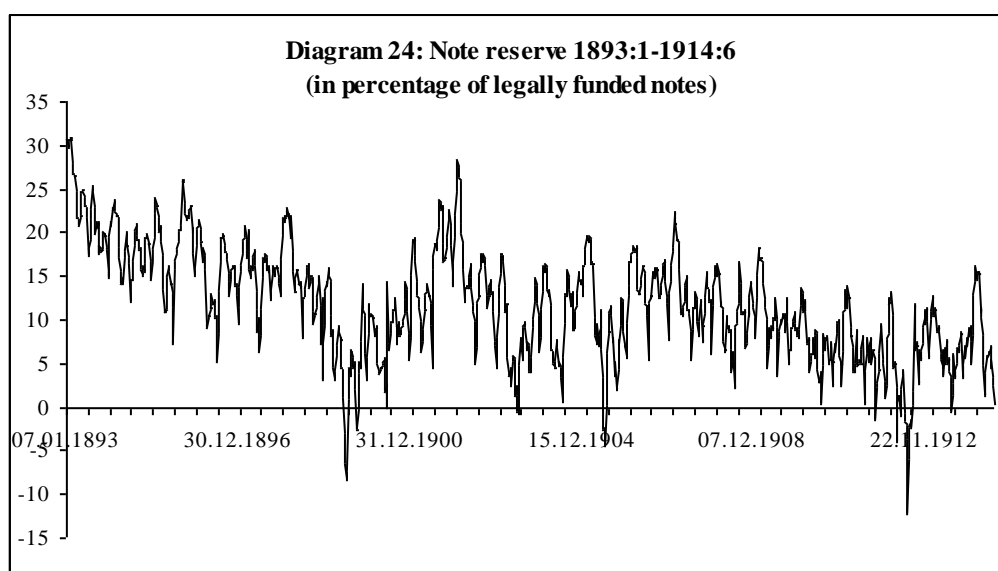
Source: Farmand 1893-1914

The consequence of letting the note reserves “take the strain” and shelter the domestic note supply was of course a need for a bigger average reserve than what would otherwise have been the case. Skånland, in his study of the Norwegian credit market in the first half of the 20th century, has criticised Norges Bank’s policy of operating with a huge note reserve rather than lending more freely.⁹⁷ However, Skånland missed the point by using the yearly peak of the note reserves as a basis for his criticism. Moreover, the period he studies, the years after the turn of the century, witnessed a much lower reserve ratio than had been the case in the previous decade. Furthermore, if Skånland had taken the full consequence of his line of argument he also ought to have criticised Norges Bank for holding foreign bonds and bills,

⁹⁷ Skånland, *Det norske kredittmarked siden 1900*, pp.127 ff.

resources that instead might have been converted to gold and thereby increasing the lending capacity of the bank. Nevertheless, the consequence of following his “policy advice” would have been stronger cyclical and seasonal fluctuation in the interest rate. In practice the policy of letting the reserves “take the strain” was a conscious policy of interest rate smoothing.

In his very stimulating study of the Swedish credit market, Ögren identifies the private note issuing banks (*enskilda* banks) as the providers of flexible liquidity in the Swedish money market through their note issuing activity.⁹⁸ In Norway, where Norges Bank enjoyed a monopoly on notes, it might be argued that the central bank filled some of this function through its policy of sheltering the domestic market from the external balance and active use of the note reserves to meet the peaks in domestic demand for money.



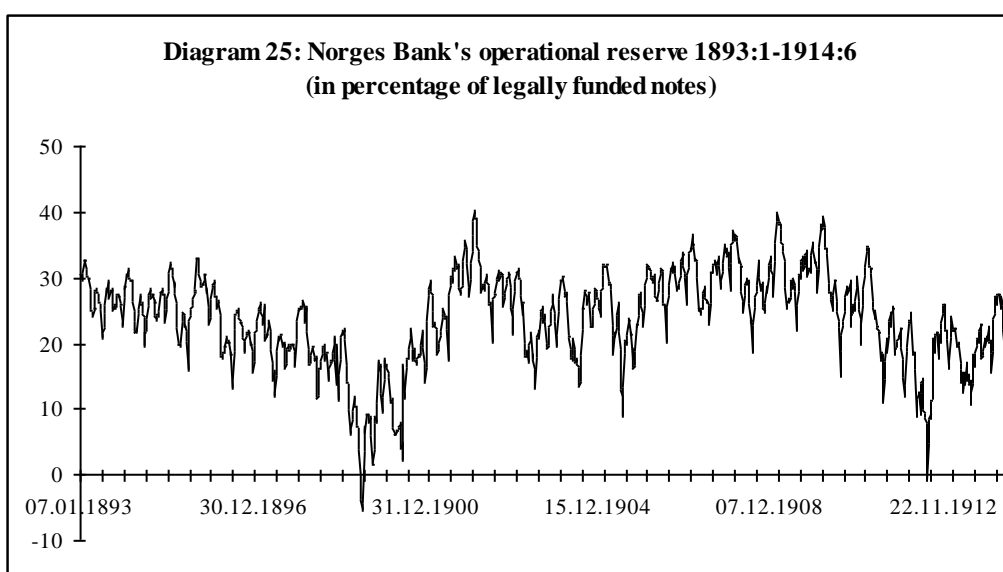
Source: Farmand 1893-1914

From the above chart we can observe the development of the note reserves. The seasonal variations are frequently recurring as we would expect from our knowledge of the underlying variables. We can also witness some violations of the legal commitment (i.e. note reserves below zero) and I will return to this point when discussing interest rate changes. There is also a clear downward direction in the size of the note reserves relative to legally backed notes. This can be explained by the increased use of other forms of foreign exchange in Norges Bank reserves than “legal” gold over time; forms that did not increase the note expansionary power of the central bank. In order to analyse this, I have created another reserve measure, *the operational reserves* constituting of the note reserves and Norges Banks holdings of foreign bonds and bills of exchange. This was not a legal reserve measure but was used by the

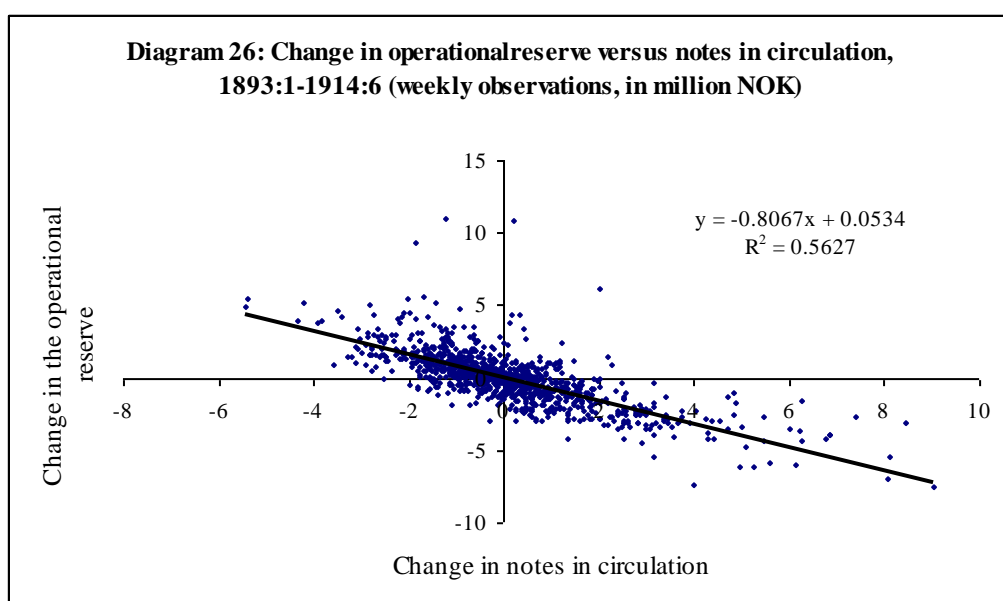
⁹⁸ Ögren, Anders, Empirical Studies in Money, Credit and Banking

financial press under the name “total reserves”. Over time the operational reserves probably became an important monetary target, in that capacity probably on par with the note reserves.

The operational reserves (diagram 25) show a more stable development over time although the seasonal and business cycle variations are clearly present. The correspondence between changes in the operational reserves and notes in circulation shown in the plot below (diagram 26) was even stronger than for changes in the note reserves versus changes in notes in circulation, with a correlation coefficient of -0.75 and an R-square value of 56.3 %. The result here is statistically significant at a 5 % level.



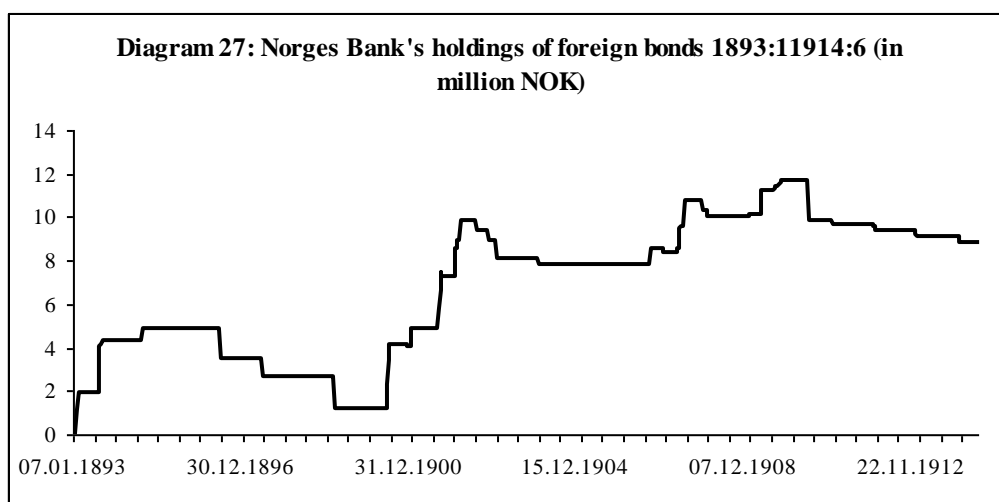
Source: Farmand 1893-1914



Source: Farmand 1893-1914

The variables of the operational reserves other than the note reserve had the quality that

they could be sold or bought for gold at short notice in international markets. This made them ideal for sterilisation, i.e. operations that aimed at sheltering the domestic money supply from changes in the gold supply. This had also indeed been the core idea behind giving the bank the right to keep foreign bonds in its portfolio as a part of the legislative reform of 1892. Sterilisation is something we normally think of as an interwar phenomenon, although some have argued that the practice was widespread even before the war.⁹⁹ In Norway, the Ministry of Finance advocated sterilisation as early as in 1882 in connection with the futile attempt at new bank legislation. Their argument for allowing Norges Bank to acquire foreign bonds was to create a buffer in good times that the bank could draw on in a downturn. It was better to buy foreign bonds, the ministry argued, than to throw the bank's funds into a well fed or even overfed domestic money market. In times of a downturn in the business cycle, the bonds could be sold in order furnish the banks lending ability.¹⁰⁰ In the same bill, as I have shown previously, the ministry demonstrated an excellent understanding of the price-specie-flow mechanism. So on one hand, we can observe a clear understanding of the price-specie-flow mechanism, on the other, an equally clear willingness to circumvent the impact of the automatic stabilisation mechanism and smooth out the variation in gold flows. One of the prerequisites for increasing the fiduciary note stock in 1893 was to create this buffer of bonds.



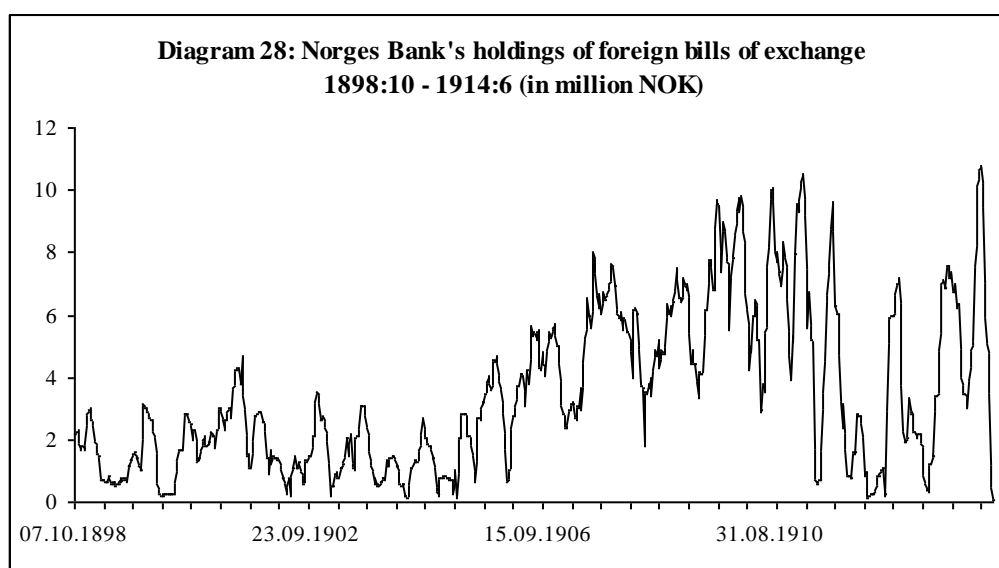
Source: Farmand 1893-1914

As the above graph shows, the bank did clearly utilise this right straight from the start of the new legislative framework in 1893. With the increased pressure in the domestic money market during the boom of the late 1890s, bonds were sold to furnish the bank's lending

⁹⁹ See for example: Triffin, *Myth and realities of the gold standard* p. 143

¹⁰⁰ Parliamentary proceedings: Odelstingsproposisjon no. 24 (1882) Om endringer i lovgivningen angaaende Norges Bank p. 28

capacity. Notice also how the bank gave priority to building up this long-term reserve after the bust of 1899 — parts of the increase in fiduciary notes and Norges Bank's share issue in 1900 were reserved for this purpose.¹⁰¹ During the economic downturn of 1902 and 1903, when the gold reserves and thus the money issuing capacity was at its lowest for our period, the bank again sold bonds. Furthermore, the pattern repeats itself in the period of strong capital import from 1906 onwards. Diminishing note reserves led to further bond sales after the turn of the decade. Besides the interests received, it was not the bank's intention to earn income on the fluctuations in the price of papers. For liquidity purposes the portfolio consisted overwhelmingly of British consols and to a lesser degree of French *rentées* and German government bonds.

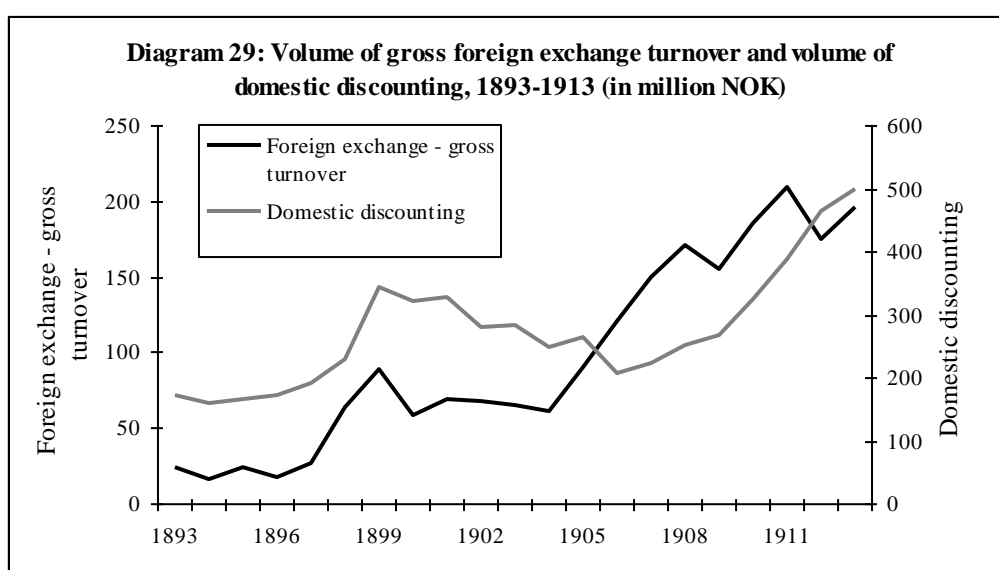


Source: Farmand 1893-1914

While foreign bonds had sterilisation and long-term buffer as its chief function, the role of foreign bills of exchange was more composite. On one level it was a short-term sterilisation operation, as the purchase of foreign bills reduced the note expansion power of the central bank. At another level it was a question of generating revenue for the bank. But probably most importantly, it was a part of the bank conscious policy of husbanding with the gold resources. By limiting the physical flows of gold in and out of the country, the actual foreign exchange rate fluctuations became even narrower than the outer limits suggested by the gold points. One way of doing this was by selling drafts on the central bank's agent in the key markets and by buying foreign bills. This had not always been the case. In the late 1880s, Norges Bank had been criticised in parliament for its alleged passivity in the foreign exchange

¹⁰¹ Parliamentary proceedings: Odelstingsproposisjon 17 (1899/1900) Om endringer i Lov om Norges Bank

market.¹⁰² The criticism was answered in the next annual report. The essential principle was that the bank should not act as a “speculator” in the foreign exchange market. In consequence, the bank’s quotations had a more stable character and fluctuated less than the market price. The bank would provide foreign exchange to the public, but at a price. In general the buying price was lower and the selling price was higher than in the private banks. In addition foreign bills of exchange were discounted at the prevailing bank rate in Norway rather than the one in the denominating market of the bill. By establishing the outer limits the bank sought to have a stabilising influence on the foreign exchange market. Another reason for the reluctance was the impact of the “one third rule”, which limited the amount of gold reserves kept abroad. The bank feared being trapped with excessive reserves abroad if the buying and selling did not balance, thus resulting in physical gold movements and costs for the bank. However, this was to change: in the period from 1893 to 1914, foreign currency trading grew at an annual average of 12.6 % albeit from a very low base. In comparison domestic discounting only grew by 4 % annually.



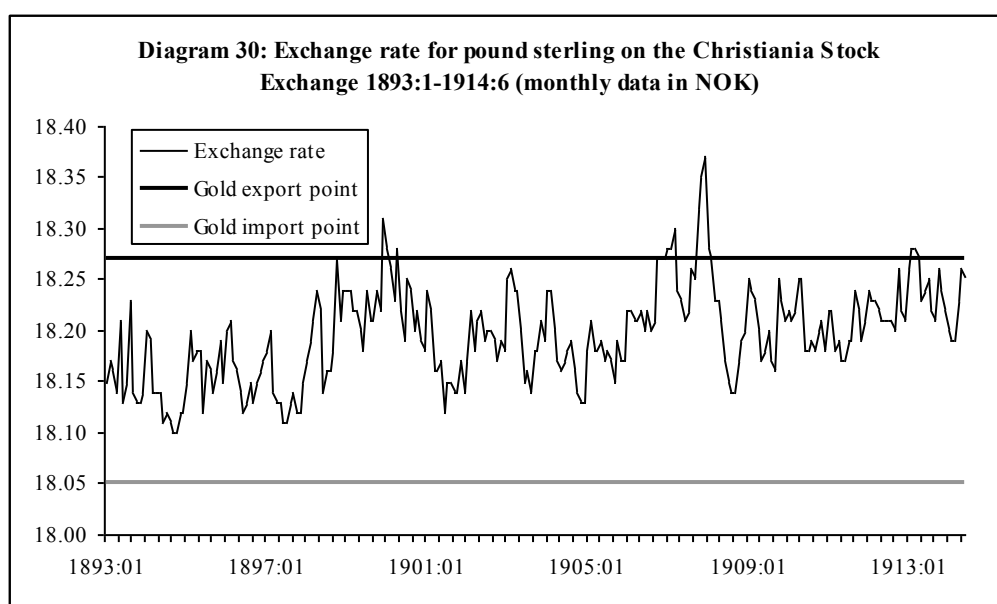
Source: Norges Bank - Annual Reports 1893-1914

The bank’s operations in the foreign exchange market were closely linked to the state of the domestic money market, and give weight to the argument that this was a part of a sterilisation policy. In cases of an easy market, resources were shifted abroad both to earn revenue and to reduce the downward pressure on the bank rate. Commenting on the increased currency trading in 1907 the board of directors stated that “*the situation in our domestic money market in the early summer allowed for purchases in international markets of long-*

¹⁰² Parliamentary proceedings: Stortingstidende (1888) pp. 1082-1095

dated foreign exchange to a greater extent than normally".¹⁰³ The lower purchase in 1912 than the previous year was explained by the very strong demand for domestic discounting facilities.¹⁰⁴

Husbanding with the gold resources was clearly at the forefront of central bank policy. Limited physical gold flows aimed at keeping the foreign exchange rate within the range suggested by the gold points.¹⁰⁵ In this the bank was rather successful. In the chart presented below we can see that the upper gold point, which made it profitable to export gold, was broken only on a limited number of occasions, notably in connection with troubles of 1899 and in connection with the international financial crisis of the year 1907. In the latter year, the bank maintained a lower bank rate than most countries and could, on account of the strength of her reserves, allow for some gold outflows. In fact, the bank furnished most of the demand for exchange in the autumn of 1907 by drawing on sterling accumulated the previous summer, and actually enjoyed a handsome profit when the quotations reached the high 18.30s.¹⁰⁶



Source: Klovland, Jan Tore (2004). "Historical exchange rate data 1819-2003", 289-328, Chapter 7 in Eitrheim, Øyvind, Klovland, Jan Tore and Qvigstad, Jan F. (eds.), *Historical Monetary Statistics for Norway 1819-2003*, Norges Bank Occasional Papers no. 35, Oslo, 2004

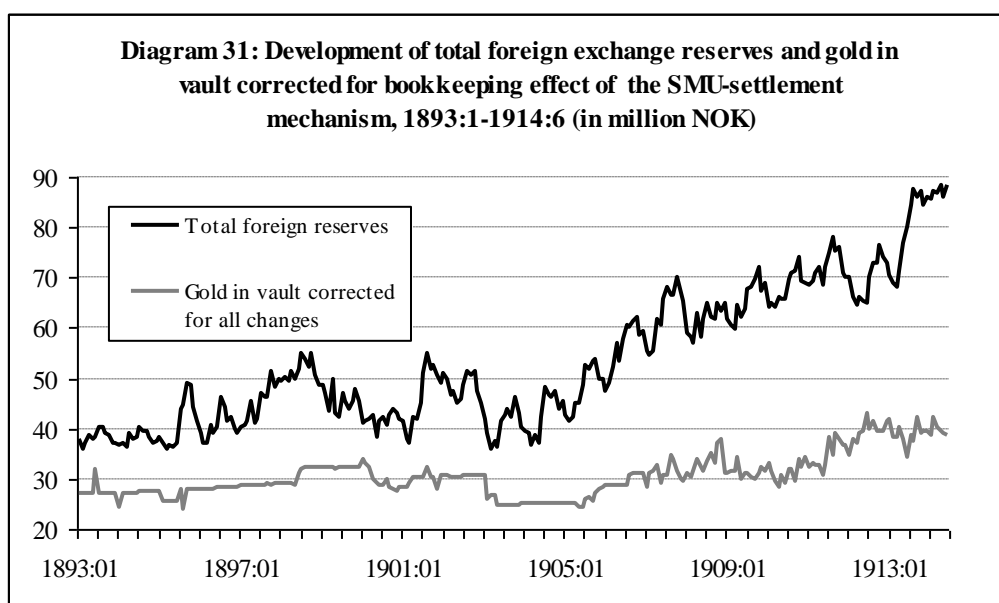
¹⁰³ Norges Bank - Annual Report 1907

¹⁰⁴ Norges Bank - Annual Report 1912

¹⁰⁵ The gold points were estimated as the cost of shipment, insurance and minting. According to Governor Bomhoff, the total costs for shipping and re-minting gold were 0.315, 0.366 and 0.525 percent of par respectively for Germany, France and the United Kingdom. Aschehoug, Th., *Socialøkonomik*, volume III pp. 160-167, Christiania 1903-1908

¹⁰⁶ Norges Bank - Annual Report 1907

An indication of the husbanding with the physical gold resources is found in the diagram displayed below. Here I have compared the development between the total foreign reserves; which included gold in vault, monetary gold deposited with foreign agents and foreign securities (bills and bonds); and the development of the physical gold reserves kept in Norway. For the latter variable, I have neutralised the effect of purely bookkeeping changes as a result of the SMU-settlement mechanism.¹⁰⁷ Thus, the changes observed are real physical flows of gold.



Source: Norges Bank - Annual Reports 1893-1914

The development of the total foreign reserves should be well known by now. What is striking is the development of the actual physical gold holdings when I remove the effect of the SMU-bookkeeping. The gold holdings converge around 30 million until 1907 with only limited fluctuation. The exception is the fall in 1903 that can be explained by the strained nature of the economy making gold export necessary. This image changes from 1907 onwards with trend growth and more fluctuations in the actual gold holdings. The trend growth must be seen in light of the strong capital import in the last seven-eight years before the war. The increased volatility seems at first a puzzle, but the explanation is rather straightforward: after 1905 the Scandinavian countries in turn introduced charges on some transfers through the SMU-settlement mechanism thereby making arbitrage in physical gold more advantageous.

In order to illustrate the husbanding policy, I have also tried to estimate the sources of changes in Norges Banks balance of foreign exchange. However, the only reliable data that

¹⁰⁷ Norges Bank - Annual Report 1907

covers all changes are the monthly changes in the balance items. This is unfortunately a much too aggregated level if one wants to study gross turnover. Another problem is the fact that most of the changes in vault gold actually were bookkeeping changes as a result of the SMU-settlement mechanism.¹⁰⁸ I have neutralised the effect of the mechanism by using the monthly data of Klovland and Norway's monthly position within the union reported in the bank's annual report.

Table 5: Monthly changes in foreign exchange balance 1893-1914 (in percent of total)	
Changes in gold in vault	15.2
Changes under the SMU-settlement mechanism	55.0
Changes in deposits with foreign agents	16.0
Changes in foreign bills and bonds	13.7

Even at this aggregate level, “gold in vault” constituted less than one sixth of the changes in the central bank's foreign exchange balance. If we had data for daily gross transfers these figure would have been much lower; a cautious suggestion would be that gold proper probably constituted around three percent or less of all day-to-day changes.

The effect of sterilisation, husbanding with gold and the use of the note reserves, makes it clear that Norway was in fact on a managed gold standard in the period covered in this article. Thus, the managed standard recommended after World War I had been a fact of monetary policy in Norway for two decades before 1914.

8.2 Examining changes in the bank rate

What follows in this subsection is a close examination of the movements in the bank rate from the enactment of the new legal framework on the 1st of January 1893 until the end of June 1914. The methodology used is discussed at the beginning of section 8. Readers not interested in the nitty-gritty of the empirical evidence might turn to the summarising discussion in subsection 8.3.

The first three reductions in the rate (9th May, 21st September 1894 and 3rd September 1895) were clearly influenced by the state of the domestic money market, in particular the Christiania market. Moreover, in all three cases Norges Bank responded to pressure from the leading private banks in the capital which had reduced their interest rates in advance. They, rather than the central bank, led. However, for the whole of the period under consideration this situation is more of an exemption; the occasions where the private banks took the lead were rare. The general pattern that emerged was that the leading private banks met in the

¹⁰⁸ Norges Bank - Annual Report 1907

aftermath of a change in the bank rate and decided to follow the lead. The bank rate, thus, became the market rate and Norges Bank did not follow in the footpath of the *Bank of England*, which in normal times usually kept a rate above that of the market. This reflected the fact that Norges Bank still discounted commercial papers directly and to some extent even in competition with the private banks. Although we lack exact data, rediscounting for the private banking sector probably did not become a major activity for Norges Bank in normal situations until the end of the period, corresponding to a strong increase in domestic central bank discounting from 1910 onward.¹⁰⁹

The period of very low interest was interrupted by three consecutive increases in the rate in 1896 and started off by a particularly powerful version of the “spring pinch”, where the combination of strong gold outflow and increased circulation reduced the note reserves by eight and twelve percentage points in the course of two and four weeks respectively (change 2nd April 1896). In addition, the press reported bad prospects for the export sector with meagre freight rates and disappointingly small catches of spring cod.¹¹⁰ By midsummer, the notes reserve was down to 5 % and the board of directors sold foreign bonds for 1.3 million kroner to avoid another increase in the rate, an increase the branch in Christiania had been prepared to take.¹¹¹ After a peak by the end of July, the gold reserves went steadily downwards throughout the autumn even though five million kroner of a public loan had been transferred home.¹¹² The private banks sent “*huge sums*” out of the country.¹¹³ After the increase in the German rate in early September, foreign banks began to withdraw their deposits and by the end of the month, the *Bank of England* followed with an increase.¹¹⁴ In the beginning of October, Farmand reported that an increase in the bank rate was expected in the near future as a result of the strong outflow of gold and the low reserves.¹¹⁵ A week later, they reported a tightening of the domestic market and three days later Norges Bank increased the rate.¹¹⁶ This was not sufficient and the money market was still tight in the following months. According to Farmand, the board of directors did not dare to raise the rate out of fear of public

¹⁰⁹ See Norges Bank - Annual Report 1911 and 1912.

¹¹⁰ Farmand 7.3, 21.3, 28.3.1896

¹¹¹ Farmand 22.8.1896

¹¹² Farmand 15.8.1896

¹¹³ Farmand 29.8.1896

¹¹⁴ Farmand 12.9, 19.9 and 26.9.1896

¹¹⁵ Farmand 3.10.1896

¹¹⁶ Farmand 12.10.1896

reaction. However, by the 16th of December the important branch in Christiania had only 130 000 kroner left for discounting and the board had no other solution than to increase the rate further.¹¹⁷

However, the five percent bank rate was only held for two months. From a low of 9.5 % of the legal maximum of the note issue at the end of the year, the note reserves more than doubled to 20.7 % in the course of seven weeks. In advance of the reduction in the rate (24th February 1897), Farmand reported a considerable supply of money both in Christiania and other cities and less demand than normal for credit from the fishing districts.¹¹⁸ Moreover, the journal could inform its readers that the private banks had discussed lowering the rate independently of the central bank without reaching a conclusion.¹¹⁹

The two rate changes in the summer of 1897 showed how strong an impact the seasonal variations had on the demand for money. In a matter of weeks, the money market had gone from being rather well fed to rather tight and from calls for rate reduction to an actual increase in the rate.¹²⁰ The gold inflow had been sufficient despite the increased demand for money in Copenhagen related to 11 June, but already two weeks ahead of midsummer, the note reserves had fallen considerably and the circulation had reached an all time high. In consequence, the bank rate was raised on 17 June in anticipation of further demand related to midsummer.¹²¹ In the aftermath, when the reserves had been further weakened, the board of directors considered another increase, but wanted to avoid taking such a step and sold foreign bonds for a little less than a million to furnish the lending capacity.¹²² Although the note circulation was higher than normal, strong gold inflows and little demand for money allowed the bank to return to a 4.5 % rate by the beginning of August.¹²³

The year 1898 saw a record six changes in the bank rate. On 25 January the rate was further reduced. Three days in advance of the change, Farmand reported that the board of directors deliberated a change in the rate as the gold reserves were 11 million kroner higher than at the same time the year before and the domestic money market was easy. As the rates had been reduced in Germany and Denmark, this could be done despite the usual strong

¹¹⁷ Farmand 19.12.1896

¹¹⁸ Farmand 30.1, 13.2, 20.2 1897

¹¹⁹ Farmand 27.2.1897

¹²⁰ Farmand 15.5.1897

¹²¹ Farmand 12.6 and 19.6.1897

¹²² Farmand 3.7.1897

¹²³ Farmand 7.8.1897

demands ahead in connection with the “spring pinch”.¹²⁴ June witnessed a repeat performance of the change the year before, but with a broader set of considerations. Although midsummer was ahead and the note reserves had fallen, the money market was healthy for the season. However, despite strong gold reserves, the earnings from the fisheries appeared considerably lower than usual and the forecast for the harvest was reported as poor. The prospect of war between the United States and Spain had led to an increased interest rate level internationally and the Swedish *Riksbanken* increased the rate from 4 to 5 % on 21 May. In consequence and with the knowledge that midsummer was ahead, the rate was increased to 4.5%. The impact of the changes abroad should not be overemphasised. In the beginning of August, following increased gold inflows and reduced circulation during July, Norges Bank returned to 4 % although the Swedish rate was 100 base points higher. The subsequent autumn showed how fast the market turned. Throughout August and September Farmand reported a quiet and spacious money market.¹²⁵ In the beginning of September, Norges Bank’s holdings of foreign exchange were seven million higher than a year before.¹²⁶ However, the booming real estate market was a source of worry. Farmand reported that the private banks had begun to prepare for “*the unavoidable reaction that will be set in motion when the prevailing aggressive speculation fever culminates*”.¹²⁷ A week later the journal called for a rate increase in order “*to give the jobbers a warning*”. At the same time the money market in the capital had turned very tight and foreign exchange was in short supply. From Germany the banks had been given a number of offers for placing money at 4.5 to 5 1/8 %.¹²⁸ A week later the market had become even tighter and the private banks discounted at 4.5 to 5 %.¹²⁹ Due to the Fashoda incident, the German *Reichbank* and the *Bank of England* increased their rates - the latter by 100 base points. On 10 October, Norges Bank increased the rate to 4.5 %, but Farmand warned that with the prevailing rates abroad, the bank would hardly be able to stay at this level for long.¹³⁰ This proved to be right. Money continued to be in short supply and the rate increased in both France and Germany. The private banks discussed an increase independent of Norges Bank while the board of directors still maintained that the rate was sufficiently

¹²⁴ Farmand 22.1.1897

¹²⁵ Farmand 3.9, 10.9 and 17.9.1898

¹²⁶ Farmand 3.9.1898

¹²⁷ Farmand 24.9.1898

¹²⁸ Farmand 1.10.1898

¹²⁹ Farmand 8.10.1898

¹³⁰ Farmand 15.10.1898

high.¹³¹ In the end of November the market eased somewhat in line with the reduced demand of the season, *“but the obligations of the jobbers are unduly large and in the long run it is untenable to have a very much lower discount than in Berlin and in our neighbouring countries”*. Finally, on 2 December the rate was raised to 5 %. The last week in advance of the move had seen a reduction in the gold reserves of 2.8 million kroner – much of it withdrawals from Danish banks in order to be prepared for the December settlements’ day. However, as the domestic demands of the Christmas month was still ahead and seemed to be higher than normal, Farmand feared that the raise would not be enough.¹³² A week later the rate was raised to 5.5 % – the highest level in seven years.

The stretched nature of the money market in the end of December had led Norges Bank to stop re-discounting. As the banks were unable to furnish their capacity by lending abroad due to the relatively low Norwegian interest rate, many high quality commercial papers had been refused.¹³³ However, a temporary ease in the domestic market combined with gold inflows, made the bank return to a 5 % rate on 9 February 1899.

This was to be the last reduction in the rate for nearly two years. On two following occasions in March — barely six weeks after Norges Bank had deemed the market able to maintain a lower rate — the bank rate went up. Strong gold outflow and the seasonal demand for notes had reduced the note reserves to one third of the previous year’s level and with the “spring pinch” ahead, the rate was increased. Further strong outflows of gold the subsequent week reduced the note reserves to 2.9 million — 12 ½ million less than a year before — and the rate was raised to six percent.

The strained nature of the money market in the spring of 1899 was closely related to the real estate boom in Christiania. For years the boom had been fuelled by new speculative banks established by jobbers and the prospects of ever increasing profits. In order to secure funds, the banks had rediscounted bills abroad in an unprecedented fashion. Such short-term lending abroad could not be sustained for eternity and when the gold inflow reversed, the money market became even further strained. In June, the boom burst with the collapse of the firm of Chr. Christophersen and one of the “jobber” banks – which had lent him millions partially by rediscounting abroad – immediately went into receivership.¹³⁴ This was a turning

¹³¹ Farmand 5.11 and 12.11.1898

¹³² Farmand 3.12.1898

¹³³ Farmand 7.1.1899

¹³⁴ Norges Bank - Annual Report 1899

point for Norges Bank and the litmus test for the function as lender of last resort.¹³⁵ The central bank resolutely handled the situation, and, *“in order to avert or at least limit the economic disaster that a banking panic would mean”*, rediscounted freely for banks in distress. The total volume of discounting went up by more than 50% that year. Norges Bank also led the operation when the worst of the “jobbing” banks went into receivership.¹³⁶ For its leadership, Norges Bank was lauded in parliament; *“the bank lent support in a situation where it was less a question of being a banker and more a question of having a cold head and a warm heart”*, to quote one member.¹³⁷

The bust happened at the worst possible time of the year as the subsequent liquidity preference came on the top of the usual high seasonal demand for money. For the first time since the enforcement of the 1892 law, the legal constraints on note issuing were violated. However, even with negative note reserves of 7-8 % at midsummer, the bank did not increase the rate level further. Rather, it hoped that the seasonal return of the money in July would recover the situation together with an extraordinary government redraw of five million kroner from abroad and gold lent on short notice from the Danish *Nationalbanken*.¹³⁸ This held true. However, the real lasting impact of the bust first became evident throughout the autumn. By the end of September, the note reserves again went into red and this time the rate was increased to 6.5 %. The increase was also influenced by the strong increase in interest rates internationally, notably in Great Britain, due to the Boer-war.

The rate was kept this high for a record period of 15 months. By midsummer, the note reserves again were close to negative. Nonetheless, no increase was undertaken under the prevailing depressed business climate. The knowledge that the fiduciary note reserves were to be increased by 11 million on 1 July 1900 probably also help explain the caution on this point. The year was marked by strong pressure in the foreign exchange market. On several occasions, the sterling quotations were above the gold export point and gold coins worth 2.3 million had been exported by private agents.¹³⁹ Not until mid January 1901, when the note reserves due to gold inflow and reduced circulation were close to 20 %, did the first careful

¹³⁵ The concept of lender of last resort had been clearly present at least for the last decade, but its implications never tested in practice. For an authoritative understanding of the role of the bank, see for example the parliamentary statement of Minister of Finance Evald Rygh in 1890. Parliamentary proceedings: Odelstingsforhandlingene (1890) p. 200

¹³⁶ Norges Bank - Annual Report 1899

¹³⁷ Parliamentary proceedings: Stortingstidende (1900/01) pp. 959-969

¹³⁸ Norges Bank - Annual Report 1899, Farmand 7.10.1899

¹³⁹ Norges Bank - Annual Report 1900

reduction in the rate take place.¹⁴⁰ Norges Bank defended the high rate:

Such a high rate is a heavy burden on commerce and industry, but it is a necessary cure after the period of forced activity and over speculation our country has witnessed the last few years and the impact of which has not yet wholly been overcome.¹⁴¹

The careful course continued throughout 1901. Midsummer passed with less demand for money than normal and July witnessed such a strong increase in the gold reserves that the bank could lower the rate.¹⁴² The strong inflow of gold continued, parts of this was the remitting of a Hypotekbank issue.¹⁴³ The gold reserves increased even further — by more than three million in one week — and “*the bank had no other option than to lower the rate*” (3 September 1901).¹⁴⁴ In the annual report, Norges Bank stated that the economy had been on a downward trend in 1901 in Norway as well as internationally. That an even further reduction in the rates had not taken place was due to the lasting period of liquidation in the aftermath of the boom.¹⁴⁵

Low business activity and a very strong inflow of gold — mainly due to the remittance of a government loan — led to the highest note reserves (28 %) in nearly ten years and a reduction of the rate to 4.5 % in the beginning of February 1902. However, 1902 turned out be a bad year. Business activity was repeatedly reported as “*embarrassingly low*” and on top of that the harvest was poor, thus increasing the import bill for corn.¹⁴⁶ Heavy outflow of gold and the seasonal increase in the demand for discounting moved Norges Bank to raise the bank rate to 5 % on 5 December.¹⁴⁷ The gold outflow continued and at the end of March 1903 the reserves were at their lowest level since 1885.¹⁴⁸ However, the bank rate was not changed. First when the gold reserves reach a new low tide by the end of May and the note reserves were down to a mere 1.2%, did the bank increase the rate. The demand of midsummer was

¹⁴⁰ Farmand 19.1.1901

¹⁴¹ Norges Bank - Annual Report 1900

¹⁴² Farmand 17.08.1901

¹⁴³ Farmand 24.8 and 31.8.1901

¹⁴⁴ Farmand 7.9.1901

¹⁴⁵ Norges Bank - Annual Report 1901

¹⁴⁶ Norges Bank - Annual Report 1902. Farmand estimated the value of the increased corn import at roughly eight million kroner. Farmand 12.9.1903

¹⁴⁷ Farmand 6.12.1902

¹⁴⁸ Farmand 6.12.1902

ahead and in addition the Danish *Nationalbanken* had raised her rate.¹⁴⁹ Throughout the autumn the gold reserves improved markedly. At the same time, business conditions were still “*embarrassing*” and the prevailing atmosphere one of “*pessimism*”.¹⁵⁰ In November the rate returned to 5 %.

After midsummer 1904, the private banks reduced their interest rate to 4.5 in July, independently of the central bank.¹⁵¹ After some deliberation, Norges Bank followed on 3 August.¹⁵² Although the gold balance had improved by 11 million in the course of two months, the state of the domestic market and the surprising lead of the private banks are probably the most important concerns. However, Norges Bank’s hesitance might have reflected a more prudent course of action as the rate returned to 5 % on 14 October. In this case, I have not been able to establish any strong causality. The reserves of gold and foreign exchange had been rather stable throughout the autumn despite increased import of corn and animal feedstuff.¹⁵³ The interest rate in advance of the move was on the same level as in Sweden and Denmark. However, the demand for money was stronger in Sweden and the main Norwegian banks had problems placing their deposits profitably. Thus, there might have been a risk of an outflow of gold to Sweden. Nevertheless, the most probable cause is that the note circulation had increased over the previous three weeks by as much as 4.3 million — a million more than for the same period the year before. The increase had been a surprise as the money market had been “*well supplied and silent*” and the prevailing business conditions were still reported as “*embarrassing*” for most of the autumn.¹⁵⁴

In mid-February 1905, the rate was again reduced to 4.5 %. Since New Year, the board of directors had wanted to reduce the rate as “*any ease in the money market would help commerce*”. However, since the gold reserves had fallen somewhat and the Swedish *Riksbanken* had not made any move, they had felt it most prudent to let the matter rest.¹⁵⁵ The money market continued to be “*very silent and well supplied*” in the following weeks.¹⁵⁶ After a series of rate reductions in Germany, Sweden and Denmark, Norges Bank moved to

¹⁴⁹ Farmand 23.5.1903

¹⁵⁰ Farmand 24. 9.1903

¹⁵¹ Farmand 16.7.1904

¹⁵² Farmand 6.8.1904

¹⁵³ Farmand 20.8.1904

¹⁵⁴ Farmand 1.8, 8.8 and 15.8.1904

¹⁵⁵ Farmand 14.1.1905

¹⁵⁶ Farmand 28.1, 4.2 and 11.2.1905

lower the rate despite a reduction in the gold reserves of 1.5 million over the last month.¹⁵⁷

On 7 June 1905, the Norwegian parliament unilaterally declared that the union with Sweden under one king was dissolved. The “revolutionary” act created disturbances in the money market. Norwegian capital was withdrawn from Sweden and there was an outflow of domestic capital as well. Domestically the political crisis created a flight to liquidity and the note circulation increased by 12 million kroner in the course of one month. The circulation reach an all time high of 77 million kroner and Norges Bank was in breach of their legal note issuing right for three weeks. On 17 June, the bank raised the rate to 5 %. However, in light of the situation in the money market this was not a very high rate. In the annual report the board commented on the situation:

(...) given the prevailing state of affairs, the board did not want to make any change or do anything whatsoever if it was not an absolute necessity, that might give rise to or contribute to any weakening of the calm confidence that prevailed during the great historical moment of last year.¹⁵⁸

Thus, it is evident that political considerations made Norges Bank reluctant to use the bank rate further. In December 1905 the rate went up again to 5.5%. The last month before the raise the gold reserves had gone down by 5.8 million kroner. One reason for the outflow was that the banking sector had moved surplus funds to Sweden and Denmark in order to capitalise on the higher interest rates there.¹⁵⁹ A few days previously, Berlin and Stockholm had increased the rate, and “*under the influence of these high rates we might run the risk that money will be drawn from our market and Norges Bank subsequently raised its bank rate as well*”. The fact that the private banks only followed the lead of the central bank “*under some dissent*” strengthens my belief that domestic market consideration had no influence on the move¹⁶⁰ Due to an easy money market this rate did not prevail for long and was lowered two months later.¹⁶¹

The year 1906 was a watershed in the country’s economic history. The strong inflow of foreign direct investment led to an industrial boom that continued until the outbreak of the war. It also changed the domestic money market. From 1906 the Norwegian interest rates

¹⁵⁷ Farmand 18.1.1905

¹⁵⁸ Norges Bank - Annual Report 1905

¹⁵⁹ Farmand 2.12.1905

¹⁶⁰ Farmand 16.12.1905

¹⁶¹ Farmand 20.1, 27.1, 3.2, 10.2, 17.2. and 24.2.1906

were generally lower than in the neighbouring countries. For some years the strong inflow of capital created a hitherto unknown free board for the monetary authorities. This was most pronounced for the year 1907. The industrial boom lead the country through the worst of the financial crisis of the pre-war period relatively unscratched. Norway even managed an increase in GDP per capita of 3.8 % in 1907. Moreover, the markedly strengthened reserves made it possible for Norway to shield her domestic money market from the worst excess of the leap upwards in international interest rates. This continued even into the long period of a 4.5 % rate from 1909 to 1911 despite gold outflows and the fact that the note reserves at times were dangerously low.

On 12 October 1906, the rate increased to 5.5 %, *“the bank’s position is very favourable and the increase is caused only by the fact that one has been of the opinion that one ought to follow the general increase that has taken place the last couple of days in all leading money markets, except Paris, as well as in our two neighbouring countries.”*¹⁶² The next month both *Riksbanken* and *Nationalbanken* increased their rates further, but Norges Bank did not follow. Some foreign exchange left the country, but Farmand stated that as long as the domestic market was overfilled, Norges Bank could watch some gold leave the country without reacting immediately.¹⁶³ Into the New Year 1907, the bank’s position continued to be strong while the money markets seem to be well supplied (i.e. easy). In February, Farmand reported that the board of directors discussed a rate reduction and after some hesitation introduced it on 25 March. The rate was now 100 base points below Sweden and Denmark and the bank had introduced a ¼ % on draft on *Riksbanken* in order to protect the gold reserves.¹⁶⁴ Norges Bank steadily kept the rate at 5 % through most of the year despite the higher levels abroad. However, in November, the bank rate was increased to 6 %, subsequent to the Danes and Swedes raising their rates to 7 and 6.5 % respectively as the board of directors “believed such a considerable interest rate differential was not sustainable at the time”. Nevertheless, when the two neighbours the following month raised their rate to 8 and 7 % respectively, Norges Bank did not take action. The board stated that *“Although under strong pressure in that direction (to raise the rate) one believed that one could not impose a further interest rate burden on business before it became an absolute necessity”*.¹⁶⁵ When the interest rates started to go down internationally in January 1908, Norges Bank followed swiftly. After the Danish

¹⁶² Farmand 13.10.1906

¹⁶³ Farmand 24.11.1907

¹⁶⁴ Farmand 9.3.1907

¹⁶⁵ Norges Bank - Annual Report 1907

and Swedish reduction to 6.5 % on 29 January, the Norwegian rate was reduced to 5.5 %. However, the lower rate came at a price as the foreign exchange reserves fell by ten million in twelve weeks. On the other hand, by Christmas 1907, the Norwegian private banks kept between 20 and 25 million kroner abroad.¹⁶⁶

The increase to 6 % in bank rate in November 1907 is classified as a change motivated by the development of foreign interest rates. Nevertheless, other considerations must also be taken into account in order to understand the policy of the bank in that troubled year. Clearly the bank, because of the strength of the Norwegian economy, mainly focused on the conditions in the domestic market and resolved to shield it from the fluctuations of the outer world.

The downward path of interest rates continued. In early summer, the interest rate fell abroad, but not in the neighbouring countries. During the summer, from the first week of June to the first week of August, the foreign reserves increased by 9.5 million kroner while the money market was still easy. In consequence, the rate was reduced to 5 % on 10 August.¹⁶⁷ Even though the level of activity was high, this had not led to a tight money market, the Board of Directors commented, due to the inflow of foreign funds and the domestic capital accumulation during the long period of low investor confidence (i.e. prior to 1906).¹⁶⁸ The rate was further reduced in the beginning of February 1909 to 4.5 % due to a combination of falling interest rates abroad as a result of the prevailing depressed economic climate, strong reserve position and the easy character of the market.

The 4.5 % rate was kept until the end of September 1911 – the longest period without any change at all for the years included in this study. In August and September 1909 there had been strong calls for a further reduction, but with the autumn import ahead Norges Bank had chosen to be careful. This proved to be a prudent course of action as the interest rates increased abroad. Despite a higher rate in the neighbouring countries, the bank's strength allowed it to continue to discount at a lower rate. In October, the month that Sweden and Denmark raised their rates, the bank's gold holdings even increased by 5.5 million kroner.¹⁶⁹ These interest rate differentials continued through most of 1910 without any need for an increase, a fact the annual report commented on as "*remarkable*".¹⁷⁰

¹⁶⁶ Farmand 21.12.1907

¹⁶⁷ Farmand 8.8. and 15.8.1908

¹⁶⁸ Norges Bank - Annual Report 1908

¹⁶⁹ Norges Bank - Annual Report 1909

¹⁷⁰ Norges Bank - Annual Report 1910

When the bank finally raised the rate, this was, according to Farmand, because the bank had “*lost a not inconsiderable amount of gold*” and thus, had no other choice but to follow when *Riksbanken* increased its rate to 5 %.¹⁷¹ In addition, the interest rates had gone up internationally due to the Morocco-crisis and strained the domestic market.¹⁷²

On 25 March 1912, the rate was increased again. The reserves of foreign exchange had fallen over the last three months, but the most important consideration was the overheating of the domestic money market. In advance of the raise, Farmand wrote about “*signs of too much tension in the credit*” and reminded the banks of the experience of the “jobbers” of the 1890s.¹⁷³ In the annual report, Norges Bank stressed that the strong and rapid development of the economy that the huge note circulation testified to, could not be sustained for ever and that one ought to prepare for the inevitable downturn.¹⁷⁴ Throughout the next year the 5.5 % rate was maintained. Despite a strong increase in the gold inflow, the money market was rather stretched. Although the note differential had been increased, for a brief period during the seasonal peak of June 1913, the bank still violated the note issuing rights.¹⁷⁵

In January 1914, Norges Bank lowered the rate “*as the bank position now is so strong that it can follow the lead of foreign financial markets*”.¹⁷⁶ Further reduction of the interest rate in Berlin and London in the end of January and in Stockholm and Copenhagen on 6 February moved the bank to further reduce the rate four days later. The last “normal” change of bank rate, to 5 %, happened in connection with midsummer 1914. Although the monetary expansion of the midsummer normally returned to the banks in July, the increase in the note circulation had been so excessive and the prospect for important export industries, notably pulp wood was so bad, that the Board of Directors had seen no other choice but to raise the rate.¹⁷⁷

8.3 Discussing bank rate policy

In this sub-section, I will summarise the findings from my examination of the bank rate changes and discuss bank rate policy more generally. First, an overview: from January 1893

¹⁷¹ Farmand 30.9.1911

¹⁷² Norges Bank - Annual Report 1911

¹⁷³ Farmand 9.3 and 16.3.1912

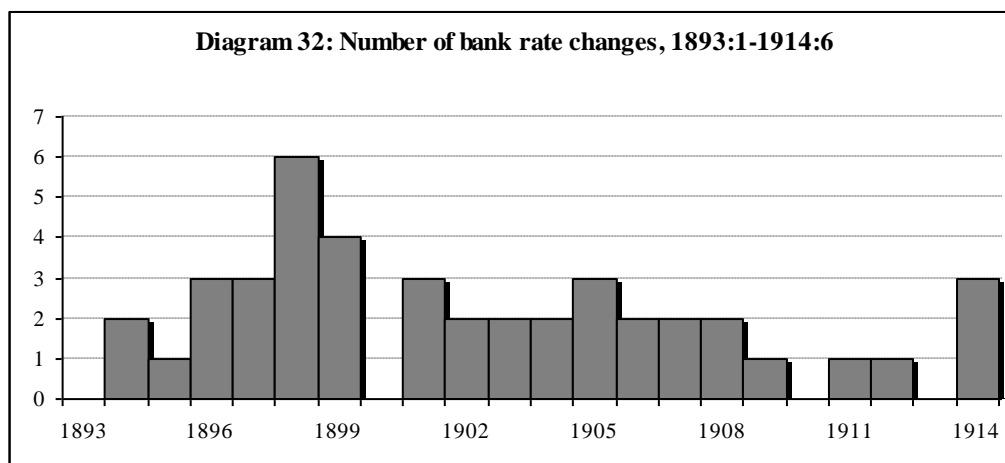
¹⁷⁴ Norges Bank - Annual Report 1912

¹⁷⁵ Norges Bank - Annual Report 1913

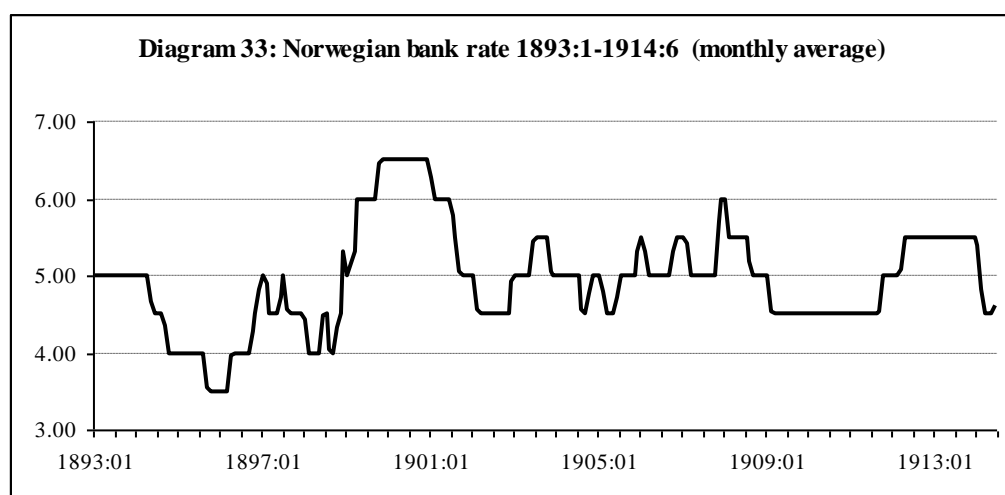
¹⁷⁶ Farmand 23.1.1914

¹⁷⁷ Farmand 24.6.1914

to the end of June 1914, Norges Bank changed its bank rate 43 times. In one year (1898), the bank rate was changed six times, in four years there were no changes at all. If there is a trend, rate changes became more frequent in the late 1890s, but again became more seldom in the years before the war.

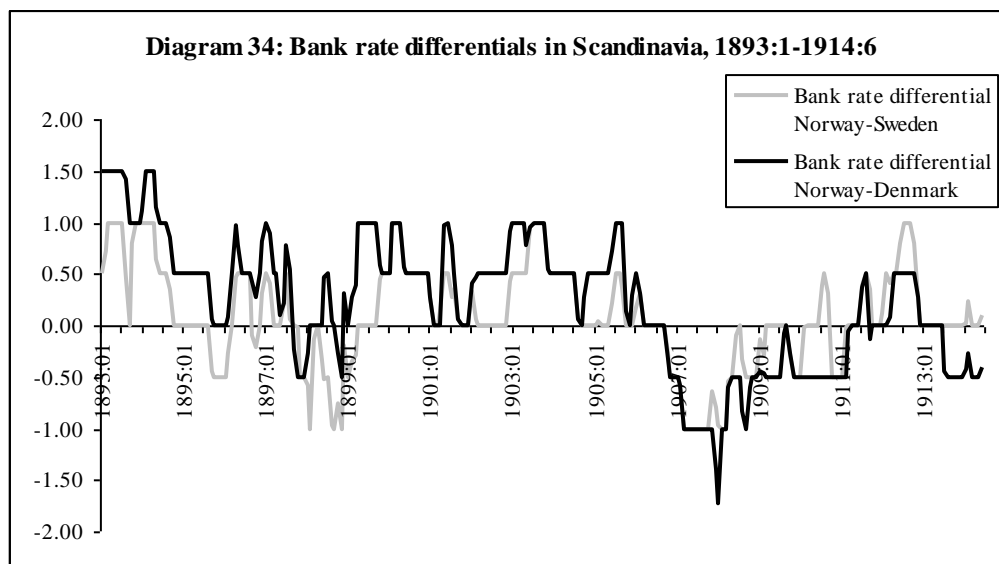


In the period the rate was as low as 3.5 % for half a year in the mid-1890s and as high as 6.5 % for a record, long period of fifteen months in the aftermath of the 1899-bust. The average rate (based on end of month observations) for the total period was just below 5 %. The standard form of change was 50 base points. Only on one occasion, in October 1907 did Norges Bank raise the rate by a full 100 base points.



Compared with the neighbouring countries Sweden and Denmark, Norway generally kept a higher bank rate until 1906 (diagram 34). The average Norwegian interest rate was 0.57 percentage points higher than the Danish and 0.22 points higher than the Swedish. The fact that the differential was the highest with Denmark testifies both to lesser integration between

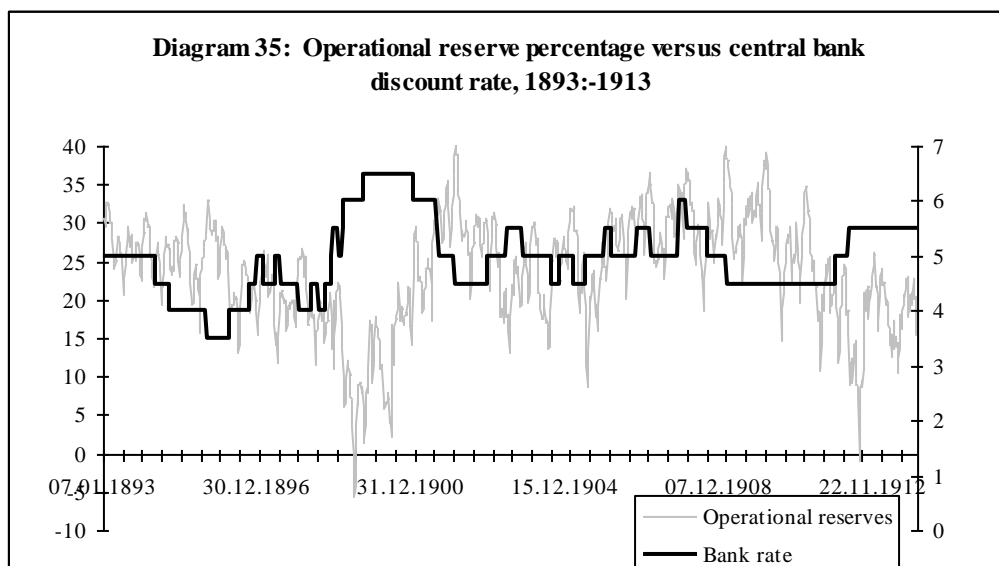
the two financial markets and the Danes' tradition of a low interest policy. From 1906 this image changed as Norway for a number of years kept lower rates than her neighbours, particularly Denmark. This reflects both the Norwegian capital inflow and the downward trend in the Danish economy in the decade before the war as well as a different impact of the international financial crisis of 1907.



In diagram 35, I have compared the development of the operational reserves versus the development of the bank rate based on weekly data. The comparison clearly illustrates the invert relationship between the two variables as well as the importance of the operational reserves as a monetary target. For the whole period in question, the correlation coefficient is 0.36 and is statistically significant at the one percent level. However, in some periods the relationship between reserve position and bank rate is stronger than in others. While the correlation quotient for the period 1893-1898 was -0.06, it was -0.62 and -0.25 for the periods 1899-1905 and 1906-1913 respectively (all results statistically significant at the one percent level).¹⁷⁸ Observe that for the period with the weakest relationship, 1893-1898, the operational reserves are generally stable on a high level; i.e. as long as the reserve position is comfortable, influences other than the reserve position became more important in bank rate policy formation. The period with the strongest relationship, 1899-1905, is the period with both the

¹⁷⁸ I have also calculated the correlation quotients for the relationship between the bank rate and the operational reserve adjusted for seasonal variations, and find a somewhat stronger negative correlation for the whole period and the two last sub-periods: - 0.39 for the whole period; - 0.02 for 1893-1898, -0.64 for 1899-1905 and -.033 for 1906-1913 (all findings are statistically significant at the one per cent level). Furthermore, I have calculated the correlation quotients for the relationship between changes in the bank rate and the changes in the operational reserve percentage over the year before the weekly observations. The findings indicate a weak negative relationship, but are statistically insignificant.

lowest operational reserves and the period which shows the strongest variation in reserve position. In general, one can observe from the diagram that rate reductions relate to relatively high operational reserves and increases with low reserves. Consider also the long periods with no changes despite substantial variations in the reserve.



Thus, the bank rate policy was sensitive to the state of the operational reserves although with differing strength. The same picture emerges when I compare the operational reserves with the interest rate differentials between the bank rate of Norges Bank and the bank rates of *Riksbanken*, *Nationalbanken* and the *Bank of England*. Intuitively one would assume that increasing interest rate differentials in disfavour of Norway were associated with a weakening of the reserve position and *vice-versa*.¹⁷⁹ For the whole period in question these expectations are confirmed for all three cases with correlation quotients ranging between -0.28 and -0.30 (see table below). Nonetheless, for 1893-1898 the relationship is a positive one, giving support to the finding above which indicates that interests other than the reserve position influenced rate policy. For the two later periods, I find an invert relationship between reserve position and interest rate differentials. In the strained period at the beginning of the century the correlation quotients for the *Bank of England*, *Riksbanken* and *Nationalbanken* were -0.51, -0.20 and -0.20 respectively. For the later period, the image is reversed with a much stronger association with *Riksbanken* and *Nationalbanken* than for the *Bank of England*. This indicates that the importance of the international money market, i.e. the *Bank of England*, was at its

¹⁷⁹ Interest rate differentials are here calculated as domestic bank rate minus foreign rate. Thus, a positive differential denotes a higher domestic bank rate level than abroad.

strongest in periods where Norges Bank's reserve position was the most exposed. The strong association with Sweden and Denmark in the later period corresponds with the increased awareness of the rate level the two Scandinavian neighbours found in the examination of bank rate changes.

Table 6	Correlation coefficients: Operational reserve percentage versus interest rate differentials between Norges Bank and...		
	Bank of England	Riksbanken	Nationalbanken
1893-1898	0.20	0.26	-0.37
1899-1905	-0.51	-0.20	-0.20
1906-1913	-0.19	-0.54	-0.51
Whole period	-0.30	-0.29	-0.28

All findings statically significant at the one percent level. Sources: For operational reserves: Farmand 1893-1913. Interest rates data are from Historical Statistics (Norway) 1994; Dansk Pengehistorie volume III, 1968; Bank of England official website and Sveriges Riksbank, volume V, 1931

Let us turn to my findings for Norwegian bank rate changes. The methodology has been discussed earlier. The table below summarises my findings for the whole period in question. The summary clearly goes a long way in supporting the thesis brought forward here that the bank did not play by the “rules of the game”. Obviously consideration for the external balance played an important role, but less prominent than I had imagined from the outset of this study. In only one case was a gold balance consideration the sole mover behind the rate changes. However, gold or rather foreign exchange considerations were present in altogether 27 of the 43 changes.

Table 7: Causes for change in bank rate 1893-1914:6	Reductions	Increases	Total
A) Domestic market considerations	7	4	11
B) Gold balance considerations	1	0	1
C) Changes in foreign interests	2	2	4
Composite changes: A and B	7	5	12
Composite changes: A and C	1	0	1
Composite changes: B and C	2	1	3
Composite changes: A, B and C	2	9	11
Total	22	21	43

Most surprisingly is the strength of “domestic market considerations”; it was the only mover eleven times and it was present in 35 instances altogether. Observe also how domestic market and gold considerations worked together to generate both increases and reductions in the bank rate. For two of the categories there is an imbalance between the directions of the

moves. When domestic market considerations were the sole mover, there was a clear tendency to see the rate reduced, while the most composite category generally led to bank rate increases. How can we account for this imbalance? When domestic considerations alone led to lower rates, the money market was easy and the note reserves high, thus, indicating a situation where Norges Bank did not need to take the gold balance into account. On the other hand, when all three considerations worked together, the result was pressure to adjust upwards.

Table 8: Interest rate decisions, 1893:1-1914:6									
Date	Change	New Bank rate	A) Domestic market considerations	B) Gold balance considerations	C) Changes in foreign interests	A and B	A and C	B and C	A, B and C
1894 9 May	-0.5	4.5	X						
1894 21 September	-0.5	4	X						
1895 3 September	-0.5	3.5	X						
1896 2 April	0.5	4				X			
1896 13 October	0.5	4.5							X
1896 19 December	0.5	5	X						
1897 24 February	-0.5	4.5	X						
1897 17 June	0.5	5	X						
1897 3 August	-0.5	4.5				X			
1898 25 January	-0.5	4							X
1898 2 June	0.5	4.5							X
1898 3 August	-0.5	4				X			
1898 10 October	0.5	4.5							X
1898 2 December	0.5	5							X
1898 9 December	0.5	5.5							X
1899 9 February	-0.5	5				X			
1899 17 March	0.5	5.5							X
1899 24 March	0.5	6				X			
1899 3 October	0.5	6.5							X
1901 17 January	-0.5	6	X						
1901 17 August	-0.5	5.5				X			
1901 3 September	-0.5	5		X					
1902 3	-0.5	4.5				X			
1902 12 December	0.5	5				X			
1903 3 June 3rd 1903	0.5	5.5							X
1903 3 November	-0.5	5				X			
1904 3 August	-0.5	4.5				X			
1904 10 October	0.5	5	X						
1905 17 February	-0.5	4.5					X		
1905 17 June	0.5	5	X						
1905 12 December	0.5	5.5						X	
1906 19 February	-0.5	5	X						
1906 12 October	0.5	5.5			X				
1907 25 February	-0.5	5	X						
1907 9 November	1	6			X				
1908 30 January	-0.5	5.5			X				
1908 10 August	-0.5	5							X
1909 2 February	-0.5	4.5							X
1911 29 September	0.5	5						X	
1912 25 March	0.5	5.5				X			
1914 23 January	-0.5	5						X	
1914 10 February	-0.5	4.5			X				
1914 24 June	0.5	5				X			

The above table show every single change in the bank rate in the period categorised. A bold “X” denotes an increase in the rate, a normal “X” a rate reduction. Although each change must be interpreted individually, some pattern in the development of the considerations can be

identified. One eyeball pattern is the importance of domestic considerations in the first part of the period, followed by stronger emphasis on gold together with the domestic money market in the middle period and foreign interest changes in the final years. However, to state that this very broad pattern reflects a change in policy preference is to miss out on both the overall point and at the same time lose sight of the context of each change. The overall point, or strongest pattern, is the composite nature of interest rate decisions that prevailed throughout the two decades of study. There was no overall rule that decided policy, but rather a number of concerns derived from managing the domestic currency and the country's most important reserve of foreign means of settlement. The strength of the different concerns I have identified varied over time with the domestic business cycle, the balance of payment and the international environment. Thus, the actual decisions undertaken were determined strongly by the prevailing circumstances. To the casual eye, they might even be perceived as *ad hoc*.

But of course they were not. The superior objective of monetary policy was to safeguard the gold convertibility.¹⁸⁰ As Governor Bomhoff stated in a parliamentary debate over the annual report for 1894¹⁸¹:

(...) the primary task of the bank is to ensure that the country gets hold of the necessary means of circulation and keeps the metal needed to back it up. It should be managed so that every man who holds the notes of Norges Bank should have the certainty that he at any moment might convert the notes to gold. If a bank of issue does not have the eye pointed at this objective, difficulties and miseries will easily follow (...)¹⁸²

In our period, this objective was never really in jeopardy. Although the aftermath of 1899 represented a serious strain on the monetary reserves, the commitment to gold was not at risk. Even in the summer of 1903 when the gold reserves went below 27 million kroner the combined foreign exchange reserves still covered 60 % of notes in circulation. Further evidence of the unquestioned commitment to gold was that while there were short-term capital movements motivated by interest rate differentials, there was never any domestic drain on the gold reserves. Norwegians kept and trusted their notes. Strikingly, the only "run" on

¹⁸⁰ Klovland, Jan Tore, De historiske båndene til Europa, i Norman, Victor (red.), *Europa - forskning om økonomisk integrasjon*, SNF Årbok 1995.

¹⁸¹ Bomhoff served as a liberal Member of Parliament 1894-97 while simultaneously being Governor of the central bank.

¹⁸² Parliamentary proceedings: Stortingstidende (1895) p. 2005ff

Norges Bank observable in this period — in the summer of 1905 — was a run for cash.

Since the prime objective never really was at risk this created room for discretionary policy and other considerations. That does of course not imply that gold was not taken into account, it clearly was. However, it was not the key matter all the time. The fact that credibility created room for domestic discretionary practice in the short-run has become an established fact of our interpretation of the gold standard. The question that rises from the Norwegian examination is how long this short-run timeframe actually was. Klovland claims in his study that Norges Bank only had the opportunity to follow a “*somewhat different monetary policy than other countries in short periods*”.¹⁸³ I think it is reasonable to argue, based on the evidence presented in this study, that the timeframe was longer than Klovland claims. Both the long period of maintaining discounting at a high level following the bust of 1899, and in the face of diminishing reserves as well as the long period of maintaining a lower interest rate than Sweden and Denmark testify to this. However, room for discretion was only possible as long as the credibility of the monetary policy was intact and must not be interpreted as a warrant for radical experiment. Room for discretion implied only an opportunity to take a broader view in monetary policy than the gold balance alone.

The examination of interest rate changes testifies to the importance of the note reserves and the operation reserves as monetary targets. If one wants to interpret my findings in light of the recent advances in the research and understanding on the gold standard, the concept of *target zones* as the bridge between economic theory and discretionary practices might be useful. However, in the Norwegian case, these reserves, rather than the exchange rate fluctuation band, were the target zones. As long as the note reserves and later the operational reserves were comfortable, given the current circumstances, monetary policy was within the target and the room for discretion was secure. The active policy of husbanding with the gold resources, sterilisation and use of other monetary instruments besides the bank rate aimed at keeping Norges Bank within the target.

So, the big question: Based on the examination of the bank rate changes, how was the room for discretion exploited?

Clearly the latitude was used for smoothing out seasonal variations. This does not imply that all seasonal variations were smoothed away. The material testifies to a number of changes related to the “spring pinch”, midsummer and the import season of the harvest, but the changes were more seldom and smaller than what would otherwise have been the case. After

¹⁸³ Klovland, *De historiske båndene til Europa*

a seasonal change, Norges Bank typically tried to return to the old rate as quickly as safety allowed for. In smoothing out the impact of business cycles, Norges Bank had more limited room for manoeuvre, but there was clearly a reluctance to increase the bank rate under times of a depressed economy and consequently the long-term buffers were run down. Furthermore, in downturns it was often more a question of getting access to credit than the price of credit. Here, the evidence is clear: in downturns Norges Bank expanded its credit facilities.

Even though Norway until 1906 generally maintained higher interest rates than other countries, there was a low interest bias in policy throughout the period. This policy was most pronounced in the 1890s when monetary policy helped fuel the boom. However, it is uncertain how much a tighter central bank policy might have helped to keep the boom under control as long as the “jobbing banks” could furnish their lending capacity abroad. The late 1890s also witnessed far more bank rate changes than in later years and it might be that Norges Bank tried to experiment with a more active policy.

A turning point for Norges Bank was 1899. For the first time, its function as “lender of last resort” was tested and the bank passed the test. However, it also embarked on a long period of a more cautious policy as the economic consequences of the bust were not overcome until 1904 as the Norwegian foreign economy went into dire straits. The years from 1899 to 1904 are evidently the period when the room for discretion was the most limited. However, the bank managed to maintain a fairly stable note circulation even in this period, despite a heavy drain on the foreign reserves.

Due to the healthy state of the balance of payment, the period after 1906 is the one with the largest room for discretionary policies. Most remarkable is how Norges Bank isolated Norway from the worst consequences of the financial crisis of 1907. Throughout most of the year Norway maintained a low bank rate. When she finally increased the rate, it was still lower than in Denmark and Sweden and consequently gold went out. However, given the strength of her balance of payment she could comfortably see some gold leave the country without taking action. This policy of lower interest rates than her neighbours continued and it might be reasonable to call this the policy of “private” sterilisation, i.e. surplus capital was sterilised through the short term capital export of the private banking sector.

9. OVERALL DISCUSSION AND CONCLUSIVE REMARKS

The aim of this essay has been to examine Norwegian monetary policy in the last two decades before the onset of World War I in order both to fill a gap in national historiography and contribute to the international understanding of small-state central banking under the gold standard. It is now time to knot together the many lines of inquiry followed and enter into an overall discussion about the character of monetary policy in this period.

The understanding of Norwegian monetary policy that emerges in this study is a quite different one from the loyal adherence to “rules of the game” alleged by Keilhau some fifty years ago and the set of expectations that arises from the traditional interpretations of the adjustment mechanism under the gold standard.

The principal objective of monetary policy under the gold standard was to maintain the convertibility of notes into gold on demand. Derived from this objective, Norges Bank had two key roles, to preserve the nation’s most important reserves of gold and foreign exchange and simultaneously manage the domestic currency. The *character* of Norwegian monetary policy arises from the inherent tension between these two functions.

In a limited price-specie flow model there would be no tension between these functions: gold would flow and changes in the price level would take care of adjustment. This does not hold true in the real world. Some prices are rigid in the short run and some prices are set in international markets, thus leaving much of the adjustment process to changes in economic activity. Moreover, the real world is not solely a traded goods economy and the model pays no attention to the importance of long and short-term capital flows in the adjustment process. These might be better understood in light of the monetary approach to the balance of payment, which states that in the longer run, flows of foreign exchange reflect whether the domestic demand for money was lower or in excess of domestic supply.

The argument for an in-built tension becomes stronger when the Norwegian evidence presented in this essay is taken into account: there was no causal relationship in the shorter run between flows of gold or foreign exchange and changes in central bank discounting or in the note circulation. The note circulation and domestic central bank credit showed very strong and recurring seasonal patterns throughout the twenty years span under discussion, patterns that fit very well with the contextual insight into the economic life of the nation through the year. Although more varied, the flows of foreign exchange showed returning patterns that differed from that of the note circulation and central bank credit. Even at times when the variables regularly moved in the same direction, such as midsummer, there was no causal

relationship between the movements: increased note circulation and central bank lending reflected the demand for money in some economic sectors, increased foreign exchange reserves the export income of others. Moreover, there is a tendency for the economic dispositions of both importers and exporters to lead to an inverse relationship between foreign exchange reserves and domestic credit in the short run. Typically, an importer would increase his discounting to fill up his inventory, while an exporter would reduce his credit exposure when receiving payments from abroad.

The inherent tension that arose from the real economy was a phenomenon that monetary authorities, politicians and the public were well aware of. The so called “spring pinch” illustrated the tension in a nutshell: foreign reserves were regularly at a low ebb at the same time as domestic demand for money peaked. The challenge was to avoid a situation where the balance of payment forced Norges Bank to an unwarranted restraint of credit. The “spring-pinch” was a seasonal occurrence created by the difference in the movements of foreign exchange and the demand for money, but the challenge was acknowledged as a general problem of monetary policy. This had been a major point of discussion in the troubled period of the late 1870s and in the government white papers of the 1880s that led to the new central bank legislation of 1892. Here it was recognised that the external balance and the domestic demand for money were separate issues in the shorter-run, but linked together by gold as the basis of note issuing. By that time the thinking of the banking school was widely accepted. Thus, as long as the central bank maintained good judgement and restricted discounting to real commercial bills, note issuing would regulate itself and any notes not needed in circulation would eventually return to the bank. However, external constraints, i.e. dwindling gold reserves, might force the central bank to restrict credit even when not called for by the state of the domestic economy. Monetary authorities dreaded the prospect of having to take such a course of action and they feared the economic problems that would follow.

This problem was *per se* a consequence of the metallic standard, but a result of how note issuing was directly linked to the external anchor. Note issuing beyond the fiduciary amount stipulated by law had to be covered by gold. Other countries on the gold standard, like France, honoured notes in gold on demand without having this direct link, thereby granting the monetary authorities more latitude. Given the predominant role of the banking school thinking, this was recognised by Norwegian authorities on monetary questions to be a theoretically sounder system. Nevertheless, they ended up by recommending strict rules for note issuing on account of the need to ensure public trust and market confidence. Thus, there is paradox present: although one understood that strict rules were not necessary, one

nevertheless opted for a legalistic approach that might render the nation in a difficult spot. Having first made such a commitment one could hardly walk away without risking loss of credibility and Norwegian authorities never took legal commitments lightly.

The inherent tension of the bank's dual function was at the forefront of monetary policy in the period in question. How was the problem solved? One solution was to increase the fiduciary note issue. This happened with the introduction of the new legislation in 1893 and with subsequent amendments. However, the free board created by these increases was soon absorbed by the needs of a growing economy for circulating means of payments. To breach the legal restrictions on note issue against a punitive fee to the government was an opportunity Norges Bank wanted to avoid. Recurrent breaches would undermine monetary credibility and invite an unwelcome political scrutiny of monetary policy.

Thus, the solution was to shelter the domestic money supply from changes in the balance of payments. Rather than forcefully reducing domestic circulation during fluctuations in gold reserves, Norges Bank operated with relatively large note reserves which took the strain. Later, in particular after the turn of the century, the bank's holdings of foreign bonds and bills of exchange were widely used as buffers as well. These securities, while not considered a part of the legal gold reserves, had the quality that they could be converted into gold at short notice, thus making them ideal instruments for monetary sterilisation. Together with the note reserves, foreign long and short-term securities constituted the operational reserves. Both reserve measures can be regarded as monetary targets; i.e. if reserves were at a comfortable level, policy was on target and the bank enjoyed greater room for discretion. On a few occasions, Norges Bank called on the Ministry of Finance to remit government loans from abroad ahead of schedule in order to increase its note expansionary power while it on a least one occasion lent gold on short notice from *Nationalbanken*. In addition, the bank husbanded with its gold resources in order to limit the physical flows of gold thereby contributing to keeping the exchange rate within the gold points. Probably more than 95 % of the international payments through the bank were settled by means other than gold. The image this conveys is far removed from the recumbent central bank often portrayed in the gold standard literature. Rather, Norges Bank played an active role and used a number of instruments to create latitude for monetary policy. Moreover, the term managed gold standard is clearly also applicable to the Norwegian pre-war experience.

How was this latitude exploited? One of the effects of sheltering the domestic money supply was interest rate smoothening. The bank rate varied less through seasonal and cyclical shifts in the demand for money than what would have been the case had Norges Bank lived

more on the edge with regard to reserve position. This opportunity was of course most pronounced with regard to seasonal variations in demand and situations with strong reserves. In the troubled years at the beginning of the century, I found a clear inverse relationship between the operational reserves and the interest rate differential with the *Bank of England*: the lower the reserves, the higher the interest rate differentials.

Moreover, the latitude provided the bank with an opportunity to exercise considerable discretionary judgment in its interest rate policy. My comprehensive analysis of interest rate decisions demonstrates that the balance of payments situation was only one of several considerations that influenced policy. Most striking is the importance attached to the domestic money market and conditions for trade and industry.

Furthermore, the evidence suggests that Norges Bank counterbalanced declining gold reserves in economic downturns by expanding its own domestic lending. This was most pronounced in the years following the Christiania bust of 1899, when Norges Bank maintained domestic discounting at a hitherto unprecedented level in the face of diminishing reserves. Although interest rates in this period were relatively high, credit facilities were available, thus fulfilling the *Lombard Street* dictum of lending freely, but at a high price, in times of crisis.

Room for discretion did not imply room for radical experiments. Neither were the prevailing elites inclined to experiment even if they had had the conceptual understanding of such policies. They were firmly embedded in the prevailing liberal norm structure of the pre-war world. Discretion depended upon monetary authorities who played safe and did not undermine either public trust or international confidence. Only then might the “rules of the game” be given a broader interpretation.

However, this trust was not only a result of the monetary policy followed, but closely reflected Norway’s place as an advanced periphery with close links to the European core.

My study demonstrates the significance of regarding the gold standard experience not only within the narrow confines of the external balance and the adjustment process, but also taking into account the equally important domestic side of central banking. Although gold convertibility was the foremost objective of monetary policy, this objective must be understood as instrumental and not as a goal in itself. The crucial point was to facilitate cross border economic relations and commitments while simultaneously preserving stable domestic currency values and maintaining a flexible domestic currency. In the Norwegian case, the golden anchor helped ensure both.

The external anchor must primarily be seen as a question of credibility for monetary

policy. In Norway, the commitment to gold was never in question; in our period Norges Bank experienced no internal run and the gold coverage was only briefly below 60 %. Although the early years of the 20th century witnessed dwindling reserves, convertibility was not in jeopardy and the bank had even sufficient latitude to maintain domestic credit at a high level both in order to safeguard the integrity of the financial system and ease the burdens of business. Thus, for the twenty-year span in question, monetary policy was credible. This credibility is the key to understanding how Norway managed to go a long way in avoiding the trilemma by combining a fixed exchange rate regime and free capital flows with a fairly high degree of domestic autonomy over monetary policy.

Rules and discretion might be seen as opposites or conflicting principles of policy. I believe that it is not inevitably so. In the Norwegian case, rule adherence or credible gold standard commitment was a necessary precondition for creating room for discretionary practices. Moreover, this commitment created room for taking a broader set of considerations into account in central bank policy in the longer run as well. Had the policy commitment been rendered with less long-term credibility, the history of the Norwegian gold standard experience would have been quite different from the one argued in this essay. Thus, the key to understanding the successful Norwegian pre-war gold standard was the combination of a policy credibility that allowed for discretion and a conscious central bank that managed to solve the in-built tension between its conflicting internal and external functions.

Sources: Parliamentary papers and public sources

I have used the Norwegian titles on parliamentary documents. Here is a brief guide for non-Norwegian speakers to Norwegian parliamentary records:

Odelstingsproposisjon	Legal bill
Innstilling	Recommendations from a parliamentary committee
Stortingstidende	Records of debate in parliament
Odelstingsforhandlinger	Records of debates in the lower legislative chamber of parliament

Farmand 1893-1914

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