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Letting the anchor go: Monetary policy in neutral Norway during World War I

Monica Værholm and Lars Fredrik Øksendal

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Work-in-progress

Letting the anchor go

Monetary policy in neutral Norway during World War I

Monica Værholm and Lars Fredrik Øksendal

Department of Economics

Norwegian School of Economics and Business Administration

INTRODUCTION AND ARGUMENT

For later generations, August 1914 has become a watershed in monetary history. In a matter of days, the belligerent and neutral countries of Europe alike suspended the gold standard. The international monetary regime that had served the world economy for close to four decades was no more. Everywhere domestic fiat money became the order of the day. Even more importantly, the war brought a fundamental change in the priorities of monetary policy: National objectives triumphed over monetary stability.

In a technical sense the change of 1914 involved a substitution of a gold-backed currency with either a currency backed by less liquid or lower quality assets or a fully fledged fiat currency. In either case, the direct link between international money and domestic currency was removed. Beyond the symbolic importance of gold and the question of credibility, this was not necessarily a very dramatic move with regard to policy implications. Several countries, notably Italy and Spain, had maintained relatively stable fiat monies before the war. Moreover, for most countries the gold standard involved some kind of managed system, both with regard to the domestic currency and the use of foreign exchange reserves. Thus, the dramatic move was arguably not the removal of the external anchor, but rather the changed political priorities.

Monetary policy under the gold standard had as its foremost priority to maintain monetary stability and the gold convertibility of the domestic currency. Only when these objectives were met, would central banks have the freedom to pursue a broader set of policy concerns, for instance adapting to the state of the business cycle. For the advanced countries of the Atlantic economy the gold commitment was seldom or never at risk. However, the limited policy freedom this created did not translate into a room for any radical experiments. With the coming of war, policy priorities changed fundamentally. From a situation where the ideal was central bank independence, monetary policy now became subject to a new set of overall national objectives. For the belligerent countries, the overall objective became to win the war or in some cases just to avoid annihilation. With the very existence of a nation at risk and all national resources mobilised for the war effort, monetary stability became a concern of the second order.

Even though many contemporary observers felt that the outbreak of a general European war represented the end of an era, the view of 1914 as a watershed in monetary history is a perception created with the benefit of hindsight; by scholars who knew the true cost of the Great War, the fundamental change in society that the war led to and the futile attempt to restore a liberal international order in the economic turmoil of the interwar decades. Central bankers in 1914 could neither foresee the length of the coming war nor the fundamental economic changes that it would bring about. Rather, the perspective in 1914 was that the outbreak of war warranted a temporary suspension of gold convertibility which would be restored in due time with the return to peace. Arguably, such a temporary suspension might even be considered to be within the normative structure of the gold standard if the commitment of monetary authorities to return to gold at the first viable moment was intact.[1] Thus, at least from the onset, the role of central banks during the war seemed to be to weather the storm, support the nation and wait for the inevitable return to normality. As time went by and the war dragged on, the belief in a swift return might have come under pressure. Nevertheless, a proper understanding of the impact that the war had on monetary policy would be reserved for the future. Thus, in assessing monetary policy during the war the point of departure ought to be the mindset and outlook of contemporary central bankers, rather than what we know today.

Although outside the European carnage, the impact of war on the economies of neutral Europe was forceful. Open economies were hurt by the collapse of the international regime for trade and payments and had to adapt to a new set of rules created by the major countries at war. The general shortage of goods and the redirection of production for war purposes created

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[1] 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

both opportunities and disturbances. The war-related business cycle increased external demand for goods and services for exports, but securing provisions from abroad to maintain food consumption and sustain economic activity turned progressively more difficult as the war went on. In particular, countries dependent on supplies by sea were harmed by the British naval blockade and the German response; submarine warfare. Thus, even for the neutral countries, although in varying degree, the war created a new set of political imperatives. The question of external supply became paramount, and governments sought a much more active role in areas traditionally occupied by market forces. In this respect, neutral Europe drifted in the same direction as the belligerent nations; policy was strongly subjected to overriding national objectives and a strengthening of the role of governments in the economy.

In this article we set out to examine the monetary wartime experience of neutral Norway. In structural terms – economic openness, limited home market and dependence on shipping revenues – Norway was one of the countries that was most exposed to the dramatic war-induced changes in the international regimes. Moreover, the actual development of the war, with the North Sea and the North Atlantic turned into military theatres, made her position even more exposed. With the notable exception of lower military spending, the economic impact of the war for Norway was arguably on level with the belligerent countries. This is reflected in the Norwegian monetary performance during the war. Among the neutral countries of Western Europe, Norway was probably the country that suffered the strongest inflation. While the money stock (M2) more than tripled and the note circulation close to quadrupled, the domestic purchasing power of the *krone* was reduced by two thirds in the course of the war.

Despite this abysmal performance, the Norwegian wartime monetary experience has warranted only limited scholarly interest. Historians have been far more occupied by what followed, i.e. the monetary policy and financial crisis of the 1920s, than by the disastrous policy that undoubtedly laid the fundament for many of the interwar problems.[2] This imbalance represents both a gap in our understanding and an analytical problem. The gap is our lack of knowledge about the wartime experience. The analytical problem is the tendency to disregard the context, i.e. a background of wartime monetary and financial havoc, in analysing the policy response of the 1920s, even to the extent that the monetary state in say 1920 is regarded as something that can be explained exogenously as a result of the war.

[2] A point emphasised by Jan Tore Klovland, Sverre Knutsen and Einar Lie; see for instance Lie, Einar, "Økonomisk politikk i det 20. Århundre", *Historisk Tidsskrift* 2006/4

Hermod Skånland catches the problem nicely with his claim that the emphasis on the 1920s gives "*the impression that it is the washing-up after the party that creates accidents*".[3] By contributing to closing the gap, this study will give new insights into both the war experience and help provide a better contextual framework for understanding *what came after*.

In our study we move beyond the established accounts, characterised by condemnatory hindsight and a narrow emphasis on the impact of war. The wartime monetary experience ought to be seen as an intricate interplay between the challenges created by the war and the intellectual constraints embedded in the pre-war practice and thinking of the central bank. In short, we argue that the war created a new set of political imperatives that represented a fundamental breach both with traditional central banking and the prevailing ideas of limited government and balanced budgets. The latter was first and foremost associated with the huge public provisions programmes in order to maintain an adequate level of supplies and the government's move into the traditional market sphere of the economy, both contributing to substantial budget deficit throughout the war years. The central bank, Norges Bank, responded to these new imperatives and accommodated the increased demand for credit both from government and business. However, the adoption of these new imperatives did not lead to a fundamental change in the thinking of Norges Bank, which throughout the war remained firmly rooted in its pre-war experience. Nor did the massive monetary expansion create awareness of any inherent dangers. Built on the pre-war experience, increased inflation was seen as a business cycle phenomenon related to the war and the good fortunes of the Norwegian export sectors. As long as the central bank remained prudent and discounted bills that represented real commercial transactions; i.e. the real bill doctrine, inflation was not regarded as a monetary phenomenon. In consequence, when the central bank witnessed the staggering growth in her outstanding liabilities and the falling purchasing power during the war years, she was not overly worried because she could not identify any casual link between her own policy and monetary growth. In other words, the war policy thereby became a question of just weathering the storm and waiting for the inevitable return to normality. No policy was adopted to counterbalance the strong expansionist tendency connected to the new imperatives: windfall foreign exchange revenues were not sterilised, open market operations bringing down the monetary overhang were not carried out and the bank rate was kept within the normal range. The result turned out to be sorrows for the years to come.

The Norwegian monetary expansion was obviously not solely a result of the Great

[3] Skånland, Hermod, En skjev historie,*Sosialøkonomen* 1999/8

War. Although both the war-related business cycle and price impulses imported from abroad represented a strong expansionist force, these are not sufficient to explain how Norway turned out to have the worst monetary record in neutral Western Europe, on level with several of the belligerent countries. Thus, we have to turn to policy. The role of monetary and financial policy in explaining the wartime debacle is nothing new. Contemporary observers writing in the interwar years were strongly criticising the conduct of both the government and Norges Bank. The treasury is portrayed as incompetent and the bank as an inflationist that somehow had *lost it*.[4] This kind of vilification is of limited interest. What we set out to do is to try to establish an understanding of policy that takes into account the mindset of monetary and financial authorities at the time. The result in terms of economic outcome is not very different, but the insights gained add to our knowledge of monetary policy in times of transition and upheaval.

THE NORWEGIAN PREWAR GOLD STANDARD EXPERIENCE

Norway adhered to the classical gold standard from its introduction in 1874 to its demise at the dawn of World War I. 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 imports and integration in international financial markets. As such, the gold standard in the case of Norway can easily be described as a success story.

The creation of the independent monetary system was more turbulent than the later gold standard experience. Norges Bank had been established in 1816 – in the wake of monetary chaos of the Napoleonic wars – to provide a stable domestic currency. Although *de jure* linked to silver, currency convertibility was not achieved until 1842 when Norges Bank began honouring its own notes in specie at par. Thus, for almost three decades after independence in 1814, the Norwegian monetary system was *de facto* based on paper money. However, it is misguided to equate the system with pure *fiat* money. Certainly, in the early years after 1816, characterised by post-war depression, limited central bank reserves and

[4] The strongest protagonist for this criticism is Wilhelm Keilhau who went so far in his description of the late Minister of Finance Omholt that his successors sued. The Oslo City Court declared the relevant passages in his 1935 book null and void. See Keilhau, Wilhelm, *Norge og verdenskrigen*, Aschehoug, Oslo 1927 and Keilhau, Wilhelm, *Tidsrummet fra omkring 1875 til omkring 1920* **,** volume X in Bull, Edvard et. al., *Det Norske folks liv og historie gjennem tidene,* Aschehoug, Oslo 1935

uncertainty over the future of the new state, the element of *fiat* must have been strong. In fact, the establishment of Norges Bank itself must be seen as an act of political fiat, backed only by the political necessity of establishing a national currency independent of Sweden, the major country in the dual monarchy, on the hope that it would be possible to get the citizens to contribute, by way of forced subscription, to the reserves of the bank.[5] However, throughout the 1820s and 1830s the element of fiat was strongly reduced. Starting in 1822, Norges Bank, committed to honour notes in silver, although at a hefty (47 %) discount.[6] Thus, the commitment created a floor for how far the value of notes could fall in terms of bullion. During two decades of prolonged deflationary policies the discount was gradually reduced until silver convertibility at par was established. Even after 1842 the domestic circulation continued to be dominated by notes, with bullion mainly reserved for settling international claims. This continued to be the case also after the successful 1874 move to the gold standard.

Although Norway adhered to the gold standard, her experience was far removed from the text book version of the gold standard captured in the phrase *"the rules of the game."* The text book version held that central banks were chiefly concerned with defending the gold convertibility of notes. Thus, any outflow of gold would be met by a curbing of domestic lending in order to reduce the circulating volume of notes. In this manner the central bank was supposed to strengthen the automatic adjustment process of the price-specie flow mechanism. Both in terms of theoretical understanding and actual practice, central banking in Norway in this period was more sophisticated.

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 equally important roles, to preserve the nation's reserves of gold and foreign exchange and simultaneously to manage the domestic money supply. 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. Norwegian monetary authorities recognised that in the real world the link between gold flows and note circulation was weak. Gold flows reflected the state of the balance of payments; note circulation reflected the domestic demand for money. In *lieu* of this recognition, the key

[5] The equity of Norges Bank was established through forced subscriptions based on wealth, the so called "silver tax". The tax-payers in turn became rather involuntary, shareholders in the bank.

[6] Rygg I: p. 181-210

challenge for monetary policy was to avoid a situation where an outflow of gold might force Norges Bank to curb domestic lending at a time when this was not called for by the state of domestic economy. The solution to the challenge was pretty much the opposite of the text book version, to shelter the domestic money supply from changes in the gold reserves. In order to achieve this, Norges Bank operated with a relative large note reserve – gold-backed notes not in circulation – and gold flows were typically reflected in corresponding changes in this reserve rather than a change in the volume of notes in circulation. Moreover, Norges Bank maintained reserves of foreign bills of exchange and bonds which legally could not be used for note backing purposes, but at the same time could be used for settling any international claims.[7] It follows from the care Norges Bank took to shelter the domestic money supply that the bank took a broader policy view than mere gold convertibility. This is also reflected in the bank rate decisions, which were frequently influenced by the state of the domestic money market.

The link between notes and gold in the Norwegian gold standard experience was mostly of a legal nature. Norwegian authorities on currency believed that from a theoretical perspective no formal link was necessary beyond a legal commitment to honour notes in gold, supported by banking based on sound principles. When the strict legal link was retained in the new central bank legislation of 1892, this was mostly a credibility exercise. Moreover and correspondingly, the Norwegian monetary thinking had by the three or four decades before 1914 abandoned the orthodox currency school approach and was strongly influenced by the real bill doctrine. The essence of the doctrine was that there was no risk of over-issuing of notes as long as the increased issue was based on the discounting of real commercial papers. In a similar vein the domestic money market was regarded as mostly self-regulated: if the bank issued more notes than needed in the economy they would soon return to the bank. The implication was of course that a prudent central bank could not by its own actions contribute to creating inflation. Inflation was seen as a business cycle phenomenon: in good times prices went up, in bad times they went down and there was not very much the bank could do about that. The bank had not accepted the causal relationship between money and prices expressed in the quantitative theory.

Needless to say, Norges Bank regarded itself as a prudent agent. At the outbreak of

[7] In fact the physical flows of gold from the vault of the bank were very limited. Norges Bank preferred whenever possible to settle international claims by way of drawing on deposits abroad, transfers through the Scandinavian Currency Union and the use of other foreign assets (securities).

war the bank could look back on four decades of successful adherence to the gold standard and management of the domestic currency. In these years the commitment to gold convertibility had never been in question. Backed by undisputed credibility, the bank had developed policies that fitted the Norwegian situation. The major 1899 domestic financial crisis (the Christiania real estate bust) had tested the bank's ability to exercise leadership and the bank had passed the test with flying colours. The bank was confident, and not without reason. However, with the onset of war Norges Bank was faced with an entirely new set of challenges. But first we look at the experience with the gold standard prior to World War I.

THE NORWEGIAN WAR ECONOMY

By the late summer of 1914 all of Norway's main trading partners were at war. This had severe consequences both for her trading relations and for the domestic economy. Neutral Norway had to face fundamental changes in the regimes for payments and trade. Currency fluctuation and risk replaced the certainty of the gold standard. Trade became less multilateral and more dependent on the needs created by war. Power and bilateral negotiations increasingly substituted the price mechanism in trade. Although the war led to opportunities, noticeable so in terms of demand for Norwegian exports of goods and shipping services, the war-induced business cycle also brought steep price inflation and shortages of imports crucial to the Norwegian economy. With prolonged warfare, providing necessary imports became more difficult and subject to political bargaining with the major powers. In addition, with the high seas turning into a war theatre the physical risk of trade and shipping increased. The merchant fleet suffered some 2000 casualties, mostly due to German submarine warfare.

The consequences for the domestic economy to a large extent mirrored the international scene. The increased demand for Norwegian exports came on top of a particular strong investment-induced domestic business cycle from 1905 onwards. The export sectors, in particular shipping, enjoyed something of a bonanza in the first two years of the war. Even after the peak of the business cycle there was a distinctive *jobbing* atmosphere, no doubt fuelled by continued price inflation and loose monetary and financial policy. New banks, industrial firms and shipping companies were created at an unprecedented pace. In the peak year of 1916, public offerings from new and established companies mounted to 767 million kroner or around 20 % of GDP. Of this, more than 500 million kroner were public offerings from new shipping companies.[8] Ships were sold at four and five times their pre-war value in the belief that it would be possible to recover the cost before the war ended. This led Farmand, a financial weekly journal, to invoke the Old Testament: *"The present worship of the gold bull-calf is a disgrace for our nation and the just punishment will certainly not fail to materialise"*.[9] Farmand, which remained a sober voice against the economic euphoria of the stock market boom, gave a vivid analysis of the time: "*The rather undeserved gold flow that has washed ashore into our county has brought forward a feverish, breathless haste to become rich, which has spread like a ruinous epidemic to all classes, among men and women. The speculative intoxication has been accompanied by a similarly contagious desire to enjoy life*".[10] Beyond the jobbing sectors, the investment level, fuelled by cheap credit and the prospects of high prices in the future, was also high in agriculture and in local government-owned hydro electrical power. The other side of the coin was the deteriorating supply situation. The negative impact in the latter half of the war arrested the boom in the real economy, albeit not the *jobbing* euphoria of the financial sector, which continued even after the armistice of 1918.

At the outbreak of hostilities and throughout the war the government had two main priorities; to keep Norway outside the war and to provide ample supplies from abroad in order to feed the population and maintain economic life. These two objectives were closely interwoven and necessitated a fine act of balancing. Neither Germany nor Britain had any strong desires on Norway. Their interest lay in *denying* their adversaries access to Norwegian resources and naval bases along the Norwegian coast. Although Germany harboured fears of British designs on Norwegian ports, the risk of military confrontation was limited. The Royal Navy was perfectly happy, having trapped the *Kriegsmarine* in the North Sea basin without the aid of Norwegian bases. Nonetheless, Norway maintained a costly policy of armed neutrality and the navy and coastal artillery mobilised at full strength for the duration of the war.[11] Thus, the key element in *denial* was resources. The stalemate on the Western front intensified the importance of the British naval blockade as an instrument to force Germany to submission. Without imports of crucial inputs and with a starving population, a halt to the

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[8] Farmand, 28 October 1916 and 13 January 1917

[9] Farmand, 8 January 1916

[10] Farmand, 18 November 1916

[11] Extraordinary government expenditure for defence purposes has been estimated at around 200 million Norwegian kroner for the whole period 1914-1918. In comparison, the ordinary navy and army budget for 1913/1914 totalled 27 million kroner.

German war-making capability was envisioned. Thus, the British had every interest in denying Germany access to raw materials and foodstuff from Norway and other neutral countries. At the same time, Norway depended strongly on imports from the British Isles and beyond. Moreover, Norway's international shipping interests would be seriously jeopardised without access to worldwide British network of bunkering depots.[12] Thus, the relationship between the two was clearly asymmetric with Norway far more dependent on the United Kingdom and later the United States than the other way around. The United Kingdom made the most of this upper hand and secured crucial influence on the direction of Norwegian foreign trade and the employment of the merchant marine. The influence during the war was so strong that one scholar has argued that Norway in fact was Britain's "neutral ally".[13] However, being "allied" came at price and the manner in which the British funded their strategic *denial* purchases of Norwegian goods proved to have disastrous impact on the stability of the Norwegian economy.

The outbreak of war in August 1914 led to a short-lived panic. Prices went up and food was hoarded. Both the private banks and Norges Bank experienced runs; the private banks for cash, the central bank for gold as well. Altogether, some 1.3 million kroner was exchanged for gold, while the note circulation went up by an unprecedented 24 % during the first week of August.[14] Both responded by imposing restrictions; private banks by restricting the amount allowed to be withdrawn, the central bank by applying the traditional "small means", i.e. honouring demands for gold, but paying out only at one counter and only after counting each coin very carefully. In addition to this, the bank rate was increased twice, from 5 to 6 percent on July 31 and to 6.5 percent on August 3. Nevertheless, the subsequent day the government, withprotests from Norges Bank, responded to the panic by temporary suspending the gold convertibility of notes. The following weeks the note circulation went steadily down and the bank rate was reduced to 5.5 percent as early as on August 20.

Before the war Norway had been and exponent of the liberal "night watchman" state with limited intervention in the market.[15] The war came to serve as a catalyst for a changed

[12] Britain delivered bunkers to 85 per cent of all steamships in the world. With the exception of some American and Japanese stations, all depots along the main international sailing routes were under British control. Schreiner, Johan, *Norsk skipsfart under krig og høykonjunktur 1914-1920*, Cappelen, Oslo 1963

[13] Riste, Olav, *The neutral ally: Norway's relations with belligerent powers in the first world war*, Universitetsforlaget, Oslo 1965

[14] Keilhaug, 1927 p 11-14, Farmand 1914

[15] However, the public sector had played a key role in providing communication infrastructure and had in the last decade before the war tightened the control over the exploitation of hydro electrical power.

role for the state in the economy. Some of these changes were of temporary nature; others were retained after the war. Most important was the change in mindset, the set of expectation people harboured with respect to which questions the state might address. From the outset the most important trigger for increased intervention was the difficult supply situation. The governmental provision commission set up in the autumn of 1914 soon became a key instrument to secure necessary imports. With the supply situation deteriorating throughout, the war public purchases turned even more important. The government regulated imports, exports and the domestic exchange of goods, and intervened in the price setting. Moreover, the government obtained the right to intervene in production of goods and introduced purchase monopolies, notably for fats and grain.

The first casualty of war is financial discipline. In Norway, the war resulted in the division of government finances in two separated spheres. The ordinary budget was voted by parliament every year and followed the orthodox pre-war patterns of detailed listing of all expenditures. Due to the strong increase in tax-revenues the annual accounts displayed a healthy surplus. However, all extraordinary expenditures related to the war, including the government provision programmes and the government commercial activities was entered in the accounts as advances on future income. Moreover, these expenditures were beyond the ordinary scrutiny of parliament as the government believed they fell under a general warrant obtained by parliament at the outset of the war. The accounts were not consolidated under the war and first well into the 1920s was a full record of the extraordinary expenses published. Needless to say government finances during the war lost control and was dominated by a continued stream of ad-hoc solutions. In consequences, the government debt that had stood at 357 million kroner on 30 June 1914 five year later had reached 1008 million kroner.[16]

Closely associated with the rise in government power and intervention were the bottleneck problems and the need to reach an understanding with the United Kingdom. In the beginning, the Norwegian government, fearful of undermining her own neutrality, did not enter into formal trade agreements with Britain. Instead, representatives of various industry organisations – in exchange for promises of supplies – guaranteed that their products would not be exported to Germany. Firms that violated the agreement ran the risk of being blacklisted and denied further supplies. These industry agreements covered most of the British-Norwegian trade and were later supplement by the government through direct export bans. In order to pre-emptive German purchases, the British in 1915 started to buy up fish.

This was clearly a part of a denial policy and was not meant for British consumption.[17] However, under the influence of the increased fish prices this policy proved very costly. Under threat of cut off access to coal, petroleum and tin, the Norwegian government entered an agreement with Britain. The Norwegian government on her part issued a general export ban on fish exports while Britain committed herself to buy 85 percent of the Norwegian catch while 15 percent could still be sold freely to other countries. Instead of market prices, maximum prices were negotiated between Norwegian and British authorities. Moreover, the British purchases should be financed by credit obtained in Norway. The government, which believed that a credit to a foreign power should be issued by the central bank, transferred this challenge to Norges Bank. Altogether the bank provided some 200 million kroner in credit for foreign purchases in Norway. This was the main source of the steep increase in central bank domestic credit from late 1916 throughout 1917. Nonetheless, with the increased prices of all type of inputs to the fish industry, by 1917 the maximum prices agreed upon were not sufficient to cover costs. In response, the government, sensitive to the interests of the fishing communities, introduced subsidies. When the British in November 1917 abandoned the agreement, the government assumed responsibility for buying the catch. All together the British spent some 300 to 400 million kroner on fish purchases in 1916-7, equalling between 3.4 and 4.8 percent of Norwegian GDP. The subsequent government purchases in 1918 and 1919 are estimated in the order of 500 to 700 million kroner.[18]

Britain also ended up using coercion with regard to shipping. Ships had from the very start of the war been directed to British or British-controlled ports for inspection, in order to ensure that the cargo was not contraband. Later, when the risk and cost of shipping increased it became imperative for Britain to secure the continued service of the Norwegian fleet for allied purposes at more reasonable rates. Besides the ever-present threat of cutting off the Norwegian supply from Great Britain, the United Kingdom's virtual monopoly on bunkers was the most important instrument. In April 1916, Norwegian ships in British ports were denied bunker if they did not accept an obligation to return to England with goods; in effect a quarantine. Not surprisingly Norwegian ship-owners soon accepted maximum rates on the crucial coal route between Cardiff and France. With the unrestricted German submarine warfare commencing 31 January 1917, the British influence over Norwegian shipping became

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[16] Keilhau, 1927 pp.283-98

[17] In fact, most of the fish rotted at the quayside in Bergen.

[18] Hodne, pp. 445-8

even more pronounced. Following the massive loss of tonnage in March and April, the Norwegian ship-owners' Association entered into an agreement with Britain in July 1917. Ships were transferred to British flag for the duration of the war while Britain underwrote to take over the dangerous coal freights to Norwegian ports. British merchant vessels were armed, sailed in convoy under naval protection and were thus in a much better position to meet the submarine threats. Although the earnings of the merchant fleet went down, the agreement reduced the loss of tonnage and human sacrifice strongly. The 1917 agreement was in theory a private agreement between the ship-owners' association and the British government. However, the agreement was supported by Norwegian legislation that outright forbid ship-owners that did not want to partake in the agreement to lay up their ships. Thus, the agreement as argued by Hodne implied a forced cartelisation of the Norwegian shipping industry.[19]

Norway's already limited freedom to trade with Germany was even further narrowed with the entry of the United States into the war. The Americans wanted the neutral countries to stop trading with Germany altogether. Faced with a general American export ban Norway agreed to limit the export of fish upwards to 48,000 tons annually, prohibit the export of wolfram, nickel, tin and manganese ore, and limit the export of other important industrial inputs. Conversely, Norway obtained grants of supplies from the Western hemisphere, notably grain and oil. From the summer of 1918 Norway had run the line and was effectively a part of the allied embargo.[20]

The Norwegian war business cycle strongly mirrored the fortunes of the trading sectors. Until 1916, influenced by the strong increase in demand for exported goods and freight services, the pre-war booming conditions continued. The growth of the negotiated economy from 1916 onwards with price ceilings discussed earlier reduced much of the extraordinary profitability that had characterised the first two years of the boom. Moreover, the supply situation turned to the worse and imports problems started to create bottlenecks for further growth. Furthermore, while export prices showed a less rapid growth trend from 1916 onwards, this was not the case for import prices.[21] Although the Norwegian economy

[19] Hodne, p. 449

[20] Hodne 450-1

[21] From 1914 to 1916, the implicit price deflators for exports and imports increased by 195 % and 91 % respectively. The corresponding numbers from 1916 to 1918 were 39 % and 84 %. 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

continued to show signs of booming conditions even after 1916, the character of the boom shifted from export-driven, to more domestically driven, powered by a strong speculative element.

The Norwegian war economy led to a peculiar atmosphere. On the one hand there was the feverish optimism of the export industries, particularly shipping, and the high expectations of the jobbing bonanza. On the other hand there were industries that had to crumble under the difficult supply situation, the deteriorating supply of foodstuff and the very unequal distribution of the spoils of being a neutral country in a time of war. For many living on fixed income, the inflation led to lower standards of living, while others who saw their purchasing power increase had problems attaining the goods to spend them on.

Although the domestic scene was complicated, the outward image of Norway was one of strength: A healthy balance of trade, gold pouring into the coffers of Norges Bank at a high rate and even more impressive private balances being accumulated abroad. Having left the golden fetters, the Norwegian krone from the autumn of 1915 was quoted above sterling and even above the US dollar, the only major gold backed currency left, for the rest of the war. The problems that the economy faced, including the high price level, was a by-product of the war and would be removed with the coming of peace. This was a misleading image. By 1920 the krone was down to just half its pre-war value in international foreign exchange markets. Nonetheless, the image of strength had bearings on Norwegian decision-makers. It is time to turn to turn to monetary development.

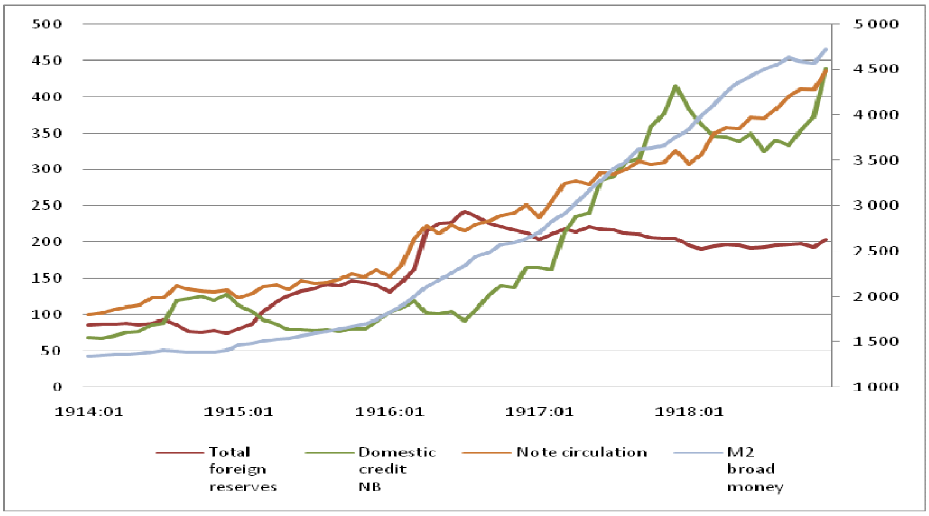
MONETARY DEVELOPMENT 1914-1918 – AN OVERVIEW

Among the neutral countries Norway probably suffered the strongest inflation during the war. A comparison of increases in prices and money stock from 1913 to 1918 shows that Norway was the country which experienced both the strongest monetary expansion and the strongest inflation in these years.[22] Using banknote circulation as a proxy of monetary expansion, we find that Norwegian banknote circulation increased 304 percent from 1913 to 1918. Only nations at war had a larger monetary expansion. The same holds true for the increase in price level: Based on wholesale data, the price level in Norway increased by 247

[22] The numbers used are taken from Mitchell, B. R., International Historical Statistics Europe 1750-1993, Fourth Edition. London: Macmillian Reference LTD 1998, G1 and G4.

percent in the same period. Only Italy and Finland had a higher increase while the United Kingdom and Germany "only" experienced a 128 and 116 percent increase.[23] The abysmal Norwegian inflation record is the point of departure for the analytical part of this article. Here we address two major research questions. First, in this section, we look at the monetary development and examine the causes of the monetary expansion during the war. In the next section we take a closer look at the central bank policy and how the central bank adjusted to the challenge created by the coming of war and a new set of political imperatives.

Figure 1: Development of key monetary variables 1914-1918 (in million NOK)



Source: Klovland, Monetary Aggregates in Norway 1919-2003

The development of the key monetary variables during the war is mapped in figure 1 above. The impression is one of massive monetary expansion. The money stock (M2) more than tripled while the note circulation nearly quadrupled. Increase in central bank foreign reserves can easily be identified as a prime mover behind monetary expansion in the first half of the war while central bank domestic credit had strong impact in the second part. The later part is also characterised by stronger expansion than the first. Table 1 displays the yearly growth rates of the money stock (M2). While the average annual growth was 29.2 percent (26.3 if calculated as exponential growth), it reached a stunning 44.4 percent in 1917. In

[23] For Germany the modest price increase reflects only the official controlled prices. Black markets were a large part of the economy and their prices are not included in the official price statistics. In Britain food prices were regulated there was never a substantial black market. Balderston, T., War Finance and Inflation in Britain and Germany, 1914-1918, *The Economic History Review*, Vol. 42, No. 2, May 1989, 223.

comparison, the annual growth rate 1893 to 1913 was 5.4 percent. The single highest growth rate experienced during the gold standard period had been the 14 percent increase in 1879.

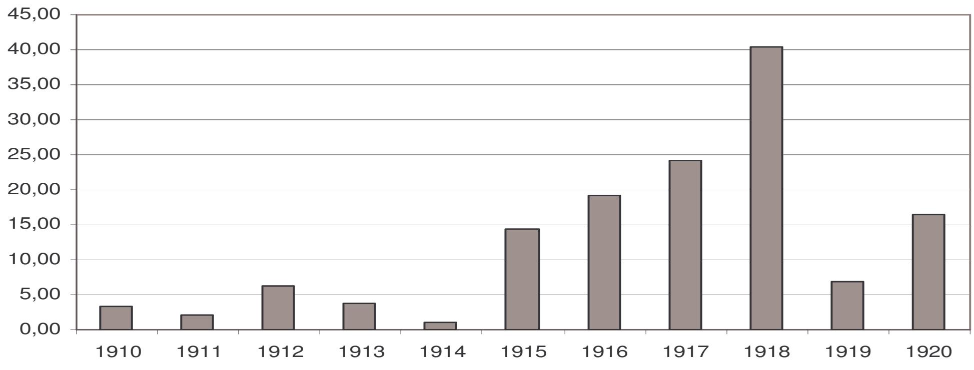
Table 1: Yearly change in M2

Year	Yearly change in M2
1914	9.9
1915	15.0
1916	43.5
1917	44.4
1918	33.0
Average	29.2 (26.3)

Source: Klovland, Monetary Aggregates in Norway 1919-2003.The yearly growth rates are calculated based on the average yearly numbers.

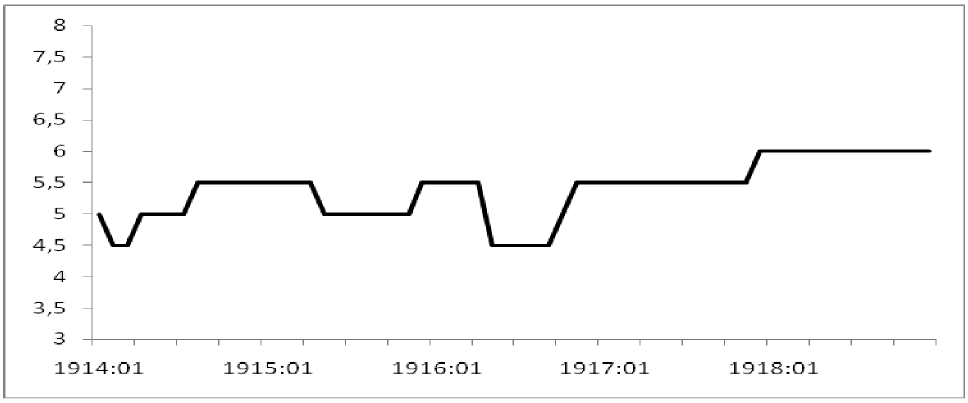
The mirror of monetary expansion was of course inflation. In the course of the war the domestic purchasing power of the *krone* fell to one third of its pre-war level. Figure two displays the annual development of consumer prices from 1910 to 1920. The pre-war data show only modest inflation while prices sky-rocketed during the war. The inflation rate mirrors the paces of monetary growth, albeit probably with a time lag.

Figure 2: Norwegian inflation 1910-20



Source: Grytten, A consumer price index for Norway 1516-2003, chapter 3 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.

Figure 3: Bank rate 1914:1-1918:12 (end of month observations)



Source: NOS XI 178, table 160.

The prime instrument of monetary policy, the bank rate, was kept within the pre-war gold standard range for the duration of the war, between 4.5 and 6 percent, as seen in figure 3. However, there was a slight tendency to change the rate more frequently than in the pre-war period.[24] The combination of a pre-war interest rate level and high inflation resulted in the real interest rated being highly negative reaching peaking in 1918 at more than – 30 %.

SOURCES TO MONETARY GROWTH

Having sketched the development of key variables, we move on to a closer examination of the sources of monetary growth during the war. Here we apply a simple book-keeping framework, similar to the one used by Friedman and Schwartz, on quarterly Norwegian data.[25] However, due to data inconsistency we only divide growth rate of M2 into two causal categories; non-central bank domestic sources and monetary base.[26]

[24] From August 1914 to the end of the war Norges Bank changed the bank rate ten times. The bank rate was not changed in 1918, so these ten changes came within a period of less than three and a half years. In addition the bank rate was changed three times before August 1914. In comparison the bank rate was changed only twenty-one times in the fourteen years from the turn of the century up until 1914.

[25] Friedman, Milton, and Schwartz, Anna J., *A Monetary History of the United States*, 1867-1960, Princeton UP 1963, 776-808. 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 or the public, while the reserve ratio that of the banking sector. The movement in the monetary base variable (currency in addition to deposits in the central bank

Table 2: Change in M2 and factors contribution to this change 1914:3-1918:4

			Contribution to rate of change in M2 by:		Contribution to change in monetary base (H):	
Year	Quarter	**Growth rate M2**	**Non-central bank domestic sources**	**Monetary base (H)**	**International reserves (IR)**	**Domestic credit (DC)**
1914	3	**0.0**	-14.3	14.3	-7.6	21.9
	4	**1.9**	1.0	0.9	-1.2	2.0
1915	1	**6.5**	6.3	0.2	18.7	-18.4
	2	**4.0**	-0.3	4.3	16.6	-12.3
	3	**4.3**	-12.1	16.4	3.7	12.7
	4	**6.3**	6.3	0.0	0.2	-0.2
1916	1	**13.7**	-8.5	22.2	10.1	12.0
	2	**11.7**	-2.0	13.7	23.5	-9.8
	3	**10.0**	3.5	6.5	2.9	3.6
	4	**5.7**	-4.2	9.9	-5.9	15.9
1917	1	**9.8**	-4.3	14.1	0.3	13.8
	2	**12.1**	-0.5	12.6	0.0	12.7
	3	**10**	8.1	1.9	-1.4	3.3
	4	**3.4**	-7.2	10.6	-1.2	11.8
1918	1	**9.0**	13.1	-4.1	-2.1	-2.0
	2	**7.4**	11.8	-4.4	-0.5	-3.9
	3	**4.5**	6.0	-1.5	0.9	-2.4
	4	**2.0**	-22.1	24.1	1.5	22.7
Average		**6.8**	-1.1	7.9	3.3	4.6

Source: Klovland, Monetary Aggregates in Norway 1919-2003.

The quarterly monetary growth rate peaked in the first quarter of 1916 at 13.7. The growth rate remained high throughout the war and was particularly high in 1916 and 1917, when the quarterly growth rate in the first three quarters was considerably higher than the average for the war period of 6.8 percent. The last quarter of both 1916 and 1917, however, shows a smaller increase. This trend holds for 1918 as well: The two first quarters of the year experience particularly large monetary expansion, while the expansion in the last quarter is substantially smaller, only to increase dramatically in the first quarter of the next year. This in all likelihood reflects some impact of the continuance of the pre-war seasonal patterns of

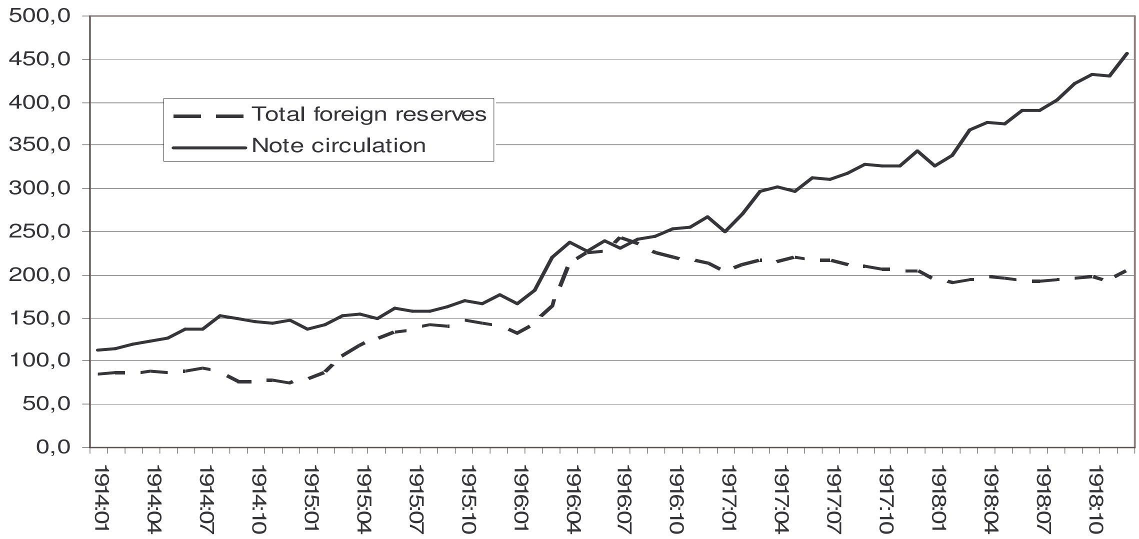
but exclusive of treasury deposits) reflects the behaviour of the central bank. Moreover, this variable consists of two sub-components, the development of foreign reserves and domestic central bank credit respectively.

[26] Non-central bank domestic sources shows domestic sources to monetary growth, excluding Norges Bank, that is the private sector and saving and commercial banks. Monetary base (H) is the narrowest money supply notion. International reserves (IR) reflect the part of M2 growth stemming from increased international reserves. Domestic credit reflects Norges Bank's lending.

monetary demand which consistently witnessed reductions in the last quarter only to increase in February and March in response to needs of the important northern fisheries.

The growth in the monetary base (H) is further disaggregated in growth in international reserves (IR) and domestic credit (DC). This can help us to distinguish between the results of actions undertaken by the central bank and forces beyond her control. As seen in table 3, the sources to the growth in M2 clearly both came from inflow of foreign reserves and domestic factors.

Figure 4: Foreign reserves and note circulation 1914:1-1918:12

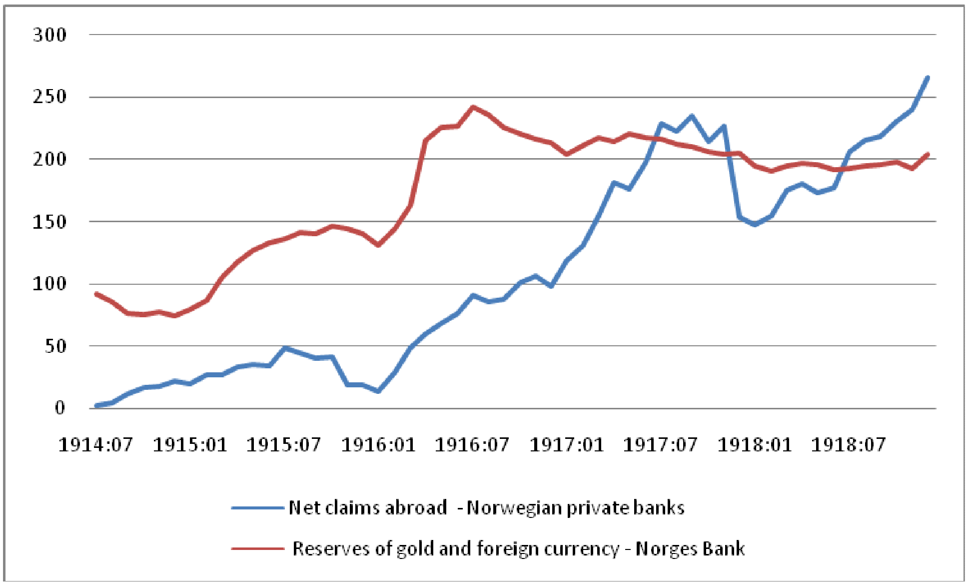


Source: Klovland, Monetary Aggregates in Norway 1919-2000

Figure 4 shows the development of foreign reserves and note circulation during the war. They follow each other closely up until the middle of 1916. The correlation coefficient over the whole period is 0.76 while the correlation coefficient in 1914 to 1916 is 0.94. This indicates that inflow of foreign exchange was the source to much of the monetary expansion, partly in the two first years of the war. This corresponds well with the results in table 2, which show that an increase in international reserves clearly was an important source to monetary growth from 1915:1 to 1916:3. In these years the monetary growth is strongly associated with the performance of the export industries and good years for the shipping industries. Ship-owners and exporters changing their windfall revenues into notes created impetus for monetary expansion.

From the middle of 1916 the increase in the foreign reserves of Norges Bank stopped. This was probably to some extent the result of reduced earnings in the export sectors. However, as figure 5 below demonstrates Norwegian banks continued to amass foreign claims at a rate that clearly surpassed the modest reduction in central bank foreign reserves. Moreover, firms and individuals, for which we have no solid data, continued to increase their foreign deposits. The most likely explanation is that the reduced value of foreign currencies in Norwegian kroner and the anticipation of a return to pre-war parities, motivated banks, firms and members of the public to keep the money abroad.

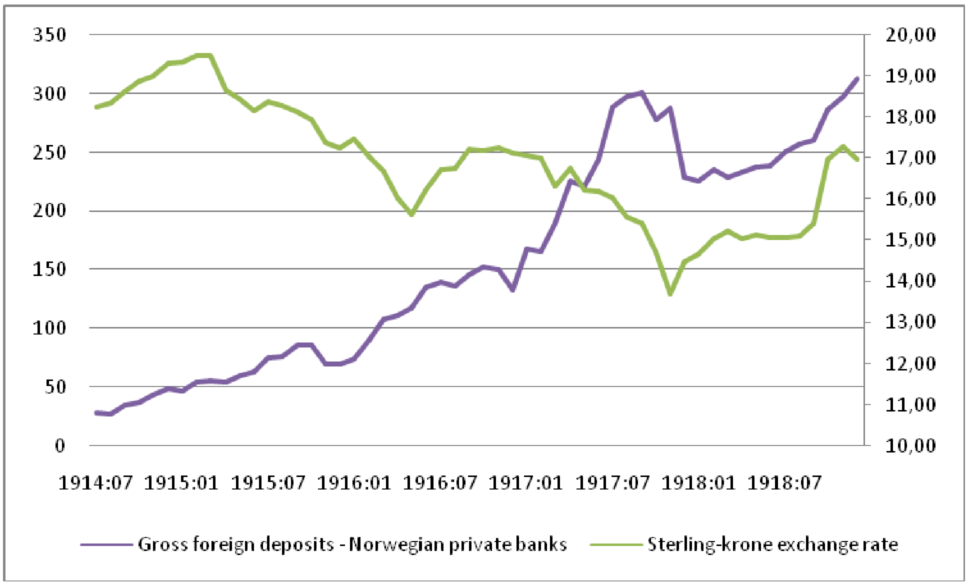
Figure 5: Foreign reserves of Norges Bank and net holdings of Norwegian private banks abroad 1914:7-1918:12 (in million NOK)



Source: Klovland, Monetary Aggregates in Norway 1919-2000; Statistiske meddelelser 1914-1918, Statistics Norway

Figure 6 illustrates the development of gross foreign deposits of Norwegian private banks and the sterling exchange rate in kroner. The figure indicates that willingness to keep funds abroad was associated with a weak sterling rate. The only major exception is in late 1917 when both the sterling rate and foreign deposits take a dive. Contemporary Norwegian sources indicate that there was a temporarily shifting mood in the market with expectations of further falls in the value in sterling leading to a desire to remit money back. Farmand argued that while the low value of the currencies was the reason the money was still abroad, it was now time to bring the money home before the value of the currency dropped further.[27] However, the mood changed again with the prospects of peace. Throughout 1918 foreign deposits and the sterling rate went upwards in tandem.

Figure 6: Gross foreign deposits of Norwegian private banks and the sterling-krone exchange rate 1914:7-1918:12



Source: Klovland, Monetary Aggregates in Norway 1919-2000 and Klovland,

From this examination we are able to divide the war years in two distinctive sub-periods: from the commencement of hostilities until the summer of 1916 and from that summer until the end of the war. This division reflects the causes of expansion rather than the strength of the expansion. The high stage of monetary expansion crosses this division. From the beginning of 1916 until the first quarter of 1918 the money stock increased quarterly at between 9 and 14 percent, with the exception of the last quarter in both 1916 and 1917. Annual growth rate for these two years were well beyond 40 %. Until the summer of 1916 and from the spring of 1918 growth rates were more modest, but strongly above the pre-war trend.

In terms of causes of monetary growth the *first* period is dominated by the windfall inflow of foreign exchange from the export sector. From August 1914 to July 1916 the foreign exchange reserves of Norges Bank increased from 86 to 242 million kroner. With the exception of the first months of war, the impact of central bank credit in this period is quite

[27] Farmand, November 10 1917.

modest, with 1915 even witnessing a strong contraction. However, the bank rate stayed within the pre-war range resulting in negative real interest rates.

In the *second* period inflow of foreign exchange had no direct influence on monetary growth. From the summer 1916, the strength of the Norwegian krone led to a stop in the increase in the foreign exchange reserves of Norges Bank while Norwegian banks and the public continued to amass holdings abroad. From June 1916 to November 1918 the gross foreign deposits of the Norwegian commercial banks increased from 135 to 298 million kroner, and the net foreign claims of the commercial banking sector from 76 to 240 million kroner.[28] We have no reliable data for deposits abroad held by firms or members of the public, but there is little doubt that these must have been immense, maybe even in excess of the gross holdings of the bank. Farmand speculated that these holdings must have constituted several hundred millions and referred to the number one billion as the rumour of the street.[29] The financial survey undertaken by Statistics Norway 1 May 1919 stated that firms had reported gross claims on foreign banks amounting to 1040 million kroner.[30] At the same time the gross foreign deposits of private banks stood at 299 million kroner.[31] The massive growth in holdings abroad probably had an indirect impact of monetary growth in the later period; either through the sale of currency to banks that chose to keep the money abroad or through currency still held abroad by firms or members of the public, as collateral for credit lines given by domestic banks. It is likely that the fortunes of the export sector had an expansive impact even after the reserves of Norges Bank began to go down, either through the mobilisation of money that otherwise would have stayed idle as superfluous cash in the banking system or through increased pressure for rediscounting with Norges Bank. This point has been overlooked in previous accounts.

Nonetheless, in the later period the most important cause of monetary growth game from domestic sources. As discussed earlier, domestic discounting increased dramatically from September 1916 to December 1917, when it peaked at 415.3 million kroner.[32] We see

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[28] In July 1914 the corresponding numbers had been 27 and 4 million respectively. Data for bank holdings abroad collected from: Statistiske meddelelser 1914-8, Statistics Norway

[29] Farmand, 10 November 1917. See also Farmand 13 July 1918 referring to an article written by Mr. L. Grønvold for the yearbook of the Norwegian Chamber of Commerce in London which estimates combined Norwegian holdings in the United Kingdom to 50 million pounds sterling

[30] Finansstatistisk undersøkelse pr. 1. Mai 1919, Statistics Norway

[31] Statistiske meddelelser 1919, Statistics Norway

[32] The increase in domestic central bank discounting relative to the note circulation is, however, quite small, although the development is the same. From amounting to 61.5 percent of the note circulation in 1914:1 it peaked at 120.6 percent in 1917:12.

from table 3 that the increased money supply in 1916 and 1917 in fact was strongly associated with central bank lending. Central bank credit expanded particularly strongly from the 4th quarter of 1916 and throughout 1917 and is closely related to the credit lines provided to the British government in connection with the agreement on fish purchases. In 1918, domestic sources other than Norges Bank were the main cause for growth for the first three quarters. Central bank discounting then saw a small reduction before it peaked again in December 1918 at 439.3 million kroner and central bank lending was without doubt the most important source of monetary growth in the last quarter of 1918 as well. Some of this growth reflected how the government went about in funding the fish purchases after they resumed responsibility in late 1917 when the British abandoned the fishery agreement: The private banks lent the government the money against short-term treasury bills that they could rediscount freely in Norges Bank.

Most of the central bank discounting was short-term loans to commercial markets. One interpretation can be that after the inflow of foreign reserves stopped in 1916, loans from the central bank took over as the main source of loans for the private sector and thus of monetary expansion. This clearly contributed to fuel the boom.

To sum up, the monetary expansion during the war came from both international and domestic sources. International sources contributed to the expansion particularly in the first part of the war, when the export sector experienced good years and the central bank was still obliged to buy gold. Domestic sources, in particular the central bank, contributed to the monetary expansion from 1916 onwards, after the Norwegian export sector was hampered by the naval war and the expenses of the fish agreement with Britain.

UNDERSTANDING WARTIME MONETARY POLICY

We have so far given a presentation of the pre-war legacy of the central bank, sketched the main features of the war economy and examined the development of the key monetary variables with an eye for indentifying the causes of monetary expansion. The overall verdict from our examination of the monetary data is that Norway did quite badly. No neutral West European country had a poorer inflation record than Norway and only two of the countries at war, Italy and Finland had worse records. It is now time to turn around and tie the different threads together in a search for a broader understanding of the wartime monetary experience.

In the following discussion we move beyond the quantitative search for sources to monetary expansion and try to enter the mindset of Norwegian central bankers in an attempt to explore their understanding of the world and the challenges they faced. Equipped with knowledge about the past and with the theoretical insights of the present it is easy to recognise that Norway was heading for trouble, but also that it could have been possible to improve the position and make the subsequent slump of the 1920s less harsh. Much of this knowledge was, albeit arguably in a less advanced form, present at the time and was voiced by authoritative voices in the public debate. When critical voices failed to make an impact, the understanding of central bankers at the time became even more important.

The wartime monetary experience, we argued in the introduction, ought to be seen as an intricate interplay between challenges created by the war and intellectual constraints derived from the pre-war practice and thinking of the central bank. The *challenges* reflected how the war both created new political imperatives and the led to economic commotion. The government entered areas of society and economy that previously had been outside the political sphere in order to keep the country out of the war and secure the necessary provisions to feed the population and maintain economic activity. Norges Bank accepted that national objectives overruled traditional considerations. In the beginning the most important impact was putting foreign exchange at the disposal for the government and the public provision council. Later credit lines also became crucial. The economic commotion was how to deal with the windfall flows of foreign exchange and the strong monetary expansion. The intellectual *constraints* can be summed up as fundamentally concerning the role of Norges Bank in the economy, in particular the relationship between money and prices, the efficiency of interest rates and the obligations that Norges Bank had towards different parts of the public.

Before we take a closer look at the constraints some more general observations are of importance for understanding the setting of central bank policy. Crucially, the formation of policy was strongly influenced by the *time dimension*, the perceptions about how long the war would last. Although probably only the most optimistic really believed that the soldiers would be home for Christmas, very few in 1914 envisioned a war that the war would drag on for four years at such a high cost, measured in terms of human loss and economic disruption. The challenges were of a pressing nature, in the Norwegian case notably concerning essential supplies and the relationship with the major powers. The *time dimension* therefore ultimately gave rise to *ad-hoc* solutions, some more ill-advised than others. When the war dragged on, the sum of *ad-hoc* solutions totted up, without the government or central bank developing more long-term strategies for counterbalancing them. One explanation for this is the stubbornness of the belief that an imminent peace was always on the cards, another that policy continuously was formed by on-going events and challenges beyond the control of Norwegian authorities, notably the progressively more restrictive supply policy and coercive attitude of the United Kingdom and later the United States.

Related to the time dimension is the overall understanding of the war as an extraordinary state that warranted unorthodox policies, but did not change the fundamental understanding of society or economics. Although the following post-war reconstruction might be painful, peace would eventually bring about a return to the world as it had been. In Norway, the financial press managed to predict what reconstruction would imply with foresight from quite early on: The shortages created by the war would be eliminated and capital for reconstruction would be in short supply, leading to a downward pressure on prices and the value of securities.[33] What contemporary observers and policymakers failed to foresee was not the nature of the coming economic slump and reconstruction process, but rather the magnitude of the challenges and how the war, acting as a transformation agent, had changed society's ability to meet these.

Viewed with hindsight – either from the perspectives of the 1920s or from today – it seems rather obvious that Norges Bank and the overall economic policy during the war were facing problems. For contemporary policy makers this was not all that evident. The monetary expansion, in particular in the later part of the war, was of course a source of concern, but could easily be understood as mirroring forces beyond the control of the bank. What made the strongest impression on the leadership of Norges Bank was the surprising strength of the Norwegian war economy. The dim prospects envisioned at the onset of war failed to materialise. Instead Norway, as discussed earlier, experienced something of a bonanza driven by the prosperous fortunes of the export sectors. The foreign exchange reserves reached unprecedented heights, exporters built up impressive holdings abroad and from the autumn of 1915 the krone was steadily quoted above the par value both of sterling and the American dollar, the only major remaining gold back currency. Until 1918, with the exception of the war months of 1914, the foreign reserve backing of the circulating note stock was above the

[33] *Farmand*, 13 March 1915, 11 September 1915

average reserve coverage for the last three years before the war.[34] Thus, influenced by the sheer force of the numbers, Norges Bank could easily be lulled into overvaluing their strength with regard to future challenges. Moreover, even in the parts of the financial press that voiced the strongest concerns over the jobbing economy, the faith in Norges Bank and its leadership remained solid. In connection with governor Bomhoff celebrating his 75th birthday, even the otherwise critical journal Farmand noted:

> "Despite his high age, he (Bomhoff) carries out responsible work as governor of Norges Bank with undiminished force. In these difficult times his great experience and wise leadership of the country's monetary system is of invaluable importance for our nation."[35]

For long periods Norges Bank appeared unconcerned with the overall state of affairs. Although also the bank turned progressively more critical to the development of the jobbing economy, this related to the conduct of monetary policy. Although the bank already in early 1916 warned that "(...)*the large earnings of some industries tempt many to reckless speculation and frivolity",* the limited measures undertaken to dampen the boom were clearly insufficient to have any major impact on the speculative fever.[36] To understand the lack of overall concern we have to turn to the intellectual constraints of the bank leadership inherited from the pre-war experience.

From the examination of the monetary statistics earlier in this article, we know that the development of the note circulation ought to have served as an early warning. Even more so, as this was data that Norges Bank gathered on a weekly basis and had a tradition of watching very carefully. However, this did not happen. In the annual report for 1914 the increased note circulation was explained in terms of increased demand for means of payments after the outbreak of war and a desire among the private and saving banks to increase their cash holdings. In this pressing situation, Norges Bank had supported these legitimate demands for money by rediscounting without reduction given sufficient security.[37] The next year, the continued increase in the note circulation was due *"mostly to increased prices because of the war"* as well as the flourishing times for the Norwegian export sectors and costs related to the

[34] 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

[35] *Farmand*, 11 August 1917

[36] Norges Bank – Annual Report 1915

[37] Norges Bank – Annual Report 1914

armed neutrality. Moreover the report noted that average central bank discounting was below the level of 1914, but probably somewhat higher than the war months of that year. Furthermore, the metallic coverage of the note circulation was above the pre-war level.[38] Responding to the criticism made by professor Jæger at a meeting in Statsøkonomisk forening (the Economic Society), governor Bomhoff argued forcefully against the policy of the bank driving price upwards:

> “(...) It was not the not the money stock that had increased prices. The increased price level was due to a number of factors. First, naturally the fact that supply was insufficient to meet demand. Production had been strongly reduced in many countries due to the war, while the consumption of many necessities had become so much higher. In addition, when taking into account the high freight rates, the export bans in many countries and the constant risk that our ships might be torpedoed or hit by sea mines, a period of high prices was ok[39]. Moreover, the major fortunes earned in recent times had increased the desire to purchase and thereby demand. In this manner more notes had entered the circulation than what would otherwise have been the case. Furthermore, a not inconsiderable part of the money had been employed in the setting-up of new businesses and industrial plants, which for the main part had to be considered beneficial for our society. These demanded much money in circulation both for purchases and to meet the high wage given.”[40]

In the report for 1917, Norges Bank also states that the increased price level resulted in higher note circulation.[41] What is striking with these statements from the bank leadership is the total lack of acceptance that there might be a causal relationship between monetary expansion and inflation. Here, the bank remained solidly within the pre-war tradition that prices reflected changing business cycle fortunes. The war increased demand and economic activity, resulting in higher prices. As the manager of the domestic currency Norges Bank only responded to the quite natural increase in the demand for means of payments that followed. Not doing so would have led to unnecessary stoppages and would have been contrary to the bank’s obligation to serve the public. Moreover, the view of inflation as purely a war-related phenomenon was an idea that was shared by others. For example, in a major

[38] Norges Bank – Annual Report 1915

[39] The term ”OK” will seem a bit informal, but it was actually the Norwegian equivalent, “var det greit”, the governor used in verbatim according to the transcript of association’s proceedings.

[40] Jæger, Oscar, Dyrtidens årsaker og midlene til dens bekjempelse (foredrag holdt i Den statsøkonomiske forening 13. oktober 1916), *Statsøkonomisk tidsskrift* 1916:222

article in September 1915 on the price level, Farmand argued that the demands of the war and the general shortage led to a total re-estimation of the value of all goods, but comforted the readership by referring to "*the unavoidable decline in prices which will follow the end of the war*".[42] When confronted by authorities like professor Jæger, arguing along the line of the quantitative theory of money, the bank refused to yield. Much of the same division between bankers and economist was found in Sweden, perhaps the country where the quantitative theory has the strongest advocates. In the Swedish monetary committee, members representing the banking community as late as 1918 argued that the monetary expansion *"(...) in general was due to the increased price level. Only in incidents where a real over-emission of notes has taken place, that is when more notes have been issued than the money market can absorb, might the increased note be the leading cause."*[43] Strongly connected to the view of inflation as a cyclical phenomenon, is the impact of the real bill doctrine, the position that the a central bank cannot issue to many notes as long as it's restrict its lending to short-term commercial bills of the best quality. Even before the war there was a tendency to equate quality with legitimate claims. This might not have been very problematic in the otherwise stable economic climate of the 1900s, but became a slippery slope in the economic turmoil of war. Rhetorically: what constituted quality in a time when all nominal values increased tremendously, and what represented a legitimate claim on money? Moreover, during the war the idea of "short-term", which besides quality was the very essence of the real bill doctrine, often turned "long-term". Just one example: already from the start of the war the branches of Norges Bank gave credit to local government provision committees around the country. The precondition was that the loans should be paid back in tandem with the reduction in the inventories. This failed to materialise as the committees needed the revenues and even more credit to restock. From legitimate claims in the best of the real bill tradition, these loans turned into long-term credit lines.[44] Furthermore, as a consequence of the war and increased rediscounting, Norges Bank became less involved in the direct lending to public and had to rely more on the first line judgment of the original lender. With the knowledge of the speculative fever in the banking sector this must have had negative consequences. Even Norges Bank repeatedly had to warn the branches against discounting speculation papers, a

[41] Norges Bank – Annual Report 1917

[42] Farmand, 11 September 1915

[43] Farmand 10 August 1918

[44] *Farmand*, 22 June, 29 June and 6 July 1918

clear indication that this was indeed a problem.[45]

Closely associated to business cycle thinking and the unmistaken belief that a prudent central bank could not cause inflation, was the implications that this way of thinking had for the future. With the return to normality, prices would return in line and the bank to its traditional role. Moreover, given the strong increase in its own reserves and the private wealth accumulated in foreign currencies on private hands, Norges Bank believed it was better equipped than ever to manage the challenges of post-war adjustment and the coming restoration of the gold standard. In this we probably find the fundamental explanation of why Norges Bank remained so confident and so little worried despite the monetary turmoil.

Throughout the war, a group of economists led by professors Jæger and Aarum, influenced by Swedish economists argued the case of the quantitative school and proscribed how the bank could stem the monetary expansion. In particular, they advocated sterilising the foreign exchange inflow and using the bank rate more aggressively.

As we have seen the major cause of monetary expansion in the first two years of the war was the remittance of export earnings. Jæger and Aarum strongly argued that this inflow led to inflation and ought to be stopped.[46] One particularly critical point was the only major formal part of the gold standard legislation still in place, the bank's obligation to buy gold at the old pre-war parity of 2480 kroner per kilo. Although the risk of war and the gold export ban introduced in most country had widened the gold points, i.e. the range the currency fluctuated within, the commitment to buy gold efficiently created a ceiling for how strong the Norwegian krone could become. If the krone became too strong, foreign creditors had the incentive to get an exemption from the export ban and settle the claim in gold valued at the pre-war rate. This also happened on a number of occasions, as the increase in vault in gold of Norges Bank testifies to.[47]

Norges Bank failed to see the inflationary impact of its purchases of gold and foreign currency. Bomhoff argued strongly that the bank and the country needed these reserves both

[45] Farmand, 30 September 1916 and 22 June 1918

[46] Farmand, 19 and 26 February 1916, Jæger, Oscar, Gullspørsmålet (foredrag holdt i Den statsøkonomiske forening 3.april 1916), *Statsøkonomisk tidsskrift* 1916, Jæger, Oscar, Dyrtidens årsaker og midlene til dens bekjempelse (foredrag holdt i Den statsøkonomiske forening 13. oktober 1916), *Statsøkonomisk tidsskrift* 1916. However, the recommendation of professor Jæger that Norwegian ship-owners ought to speculate in *roubles* and *marks* instead of transferring home, was probably rather ill judged.

[47] In July 1914 gold in vault stood at 54 million kroner and peaked in March 1917 at 131 million kroner.

for meeting major expenditures abroad and for the future.[48] Not until late 1916, and probably more influenced by the actions undertaken by the Swedish Riksbank in this respect than the professorial criticism, did Norges Bank ask the government to lift the obligation which the parliament subsequently granted.

In retrospect, this is probably one of the areas where Norges Bank could have done something efficiently to stem monetary expansion. An early removal of the gold buying obligation would have led to a swifter appreciation of the krone and increased the incentives not to remit. Moreover, had Norges Bank also taken a more withdrawn attitude towards purchasing foreign currency in general, this would have been most helpful in arresting the expansion. Basically, in the currency market Norges Bank followed the pre-war tradition inspired by its role at the manager of the country's foreign exchange reserve to serve the demands of public. In the early war years this implied buying whatever currency the public offered. Had Norges Bank restricted its purchases to its own needs in the strictest sense, and – even better – also let the government take care of its own purchases of currency in the open market, this would have further strengthened the appreciation of the krone. In addition to lowering the pace of monetary expansion, appreciation would have had the added benefit of reducing the strong inflationary impetus stemming from the import bill. Granted, the competitive power of the export sector would have been weakened, but in the seller's market that existed at the time, this would almost certainly have had only slight impact on volumes. The negative impact on earnings would probably have been to the better for the economy as a whole.

Of course, there were limits to how efficient such a policy could have been, chief among them the willingness on the hand of economic agents to hold claims abroad. We have seen how, after the summer of 1916, such claims accumulated strongly. Moreover, Norwegian stocks and public bonds to the value of some 250 million kroner were bought home during the war.[49] Had Norges Bank managed to force that trend to occur earlier, much could have been different.

Throughout the war Norges Bank kept the bank rate within the 4.5 to 6.5 percent range. Given the inflation level the result was highly negative real interest rates and strong pro-cyclical bias. This was nothing particular for Norway, as other neutral countries also kept

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[48] Jæger, Oscar, Dyrtidens årsaker og midlene til dens bekjempelse (foredrag holdt i Den statsøkonomiske forening 13. oktober 1916), *Statsøkonomisk tidsskrift* 1916:222

[49] Finansstatistisk undersøkelse pr. 1. Mai 1919, Statistics Norway

their rates low. According to the contemporary Swedish economist, professor Cassel this was an example of how the neutrals followed the lead of the countries at war. He argues that the bank rate was subordinated the regulation of the domestic trade and industry both in war and neutral countries. In the neutral countries the low bank rate in fact mainly worked as a support to the war countries. Higher interest rates in neutral countries would have encouraged exporters to bring their earnings home and would have made it more difficult for the belligerents to fund the war.[50]

The bank rate policy of Norges Bank was not an expression of a desire to fund the European carnage, although Cassel probably is spot on in describing the effects of the policy. Rather, the policy reflected a pre-war approach to interest rate setting and domestic concerns over the effect of rates on industry and commerce. The two subsequent reductions in the bank rate in May 1916 – bringing the rate down from 5.5 to 4.5 percent – illustrate the impact of the pre-war thinking in at nutshell. In the spring of 1916 foreign currency flowed in at a high pace – the foreign exchange reserves increased by more than 50 % from end of December to the end of April – resulting in a very loose money market. In June Farmand commented the state of the money market:

> "The money market continues to be extremely liquid. Very large amounts are daily transferred through Norges Bank back and forth between the country's private banks and saving banks, because they all have so much money, that they do not know how to place them at a not too bad rate of return."[51]

Faced with a loose money market, Norges Bank did what it would have done before the war, it lowered the price of money without thinking in terms of macroeconomic consequences. The bank continued to see the money market through the pre-war lenses and responded within the pre-war thinking on bank rates in Norway; 4 percent low, 5 percent neutral and 6 percent high. The old panic rate of 7 percent, last used in 1877, was not applied.

Confronted by the economists' demand for more efficient bank rates, Norges Bank stubbornly refused to sway. In October 1916 Jæger argued that Norges Bank should increase the bank rate above the level in the neighbouring countries: "*In this manner we will with mathematical certainty increase the value of our money and bring down our prices in general*

[50] Cassel, Gustav, *Dyrtid og Sedelöfverflöd,* Stockholm P.A. Norstedt & Söners förlag 1917, 63-64.
[51] Farmand, 17 June 1916

to a reasonable level".[52] In the following debate Bomhoff stated that an increase might be likely in the near future (it was actually increased six days later), *"(...) but to achieve professor Jæger's objectives one needs a panic rate and that is out of the question. An increase in the bank rate of 0.5, 1 or 1.5 percent would not have an impact on the note stock worthy of mention.*"[53] The view of Norges Bank on the rate issue was further explored by one of Bomhoff's deputies, Mr. Monsen in an article in 1918. He argued that the war had modified the theoretical views on the interplay between the different financial variables. The suspension of gold convertibility had reduced the influence gold through the bank rate had on the price level. Conversely, the impact a bank rate increase under normal circumstances had on foreign exchange rates was eliminated when notes no longer were convertible in gold. In light of these views, the bank rate policy of Norges Bank had been formed with a particular eye to the impact of a bank rate increase on industry and commerce. Mr. Monsen did not believe that increased rates would influence the price level and argued that Denmark both had lower rates and lower prices than Sweden and Norway. He further stated:

> "The reason that the bank rate remains at the current level of 6 % was that in the present situation such a high rate is a double-edged sword. A major part of our businessmen have not been taking part in the worshipping of the golden bull calf, but are burdened by hardship. It is this group, the bank – as far as possible – attempts to shield from the further burden of higher interest rates. Moreover, a bank rate increase would not have much impact on the gold movements nor will it restrain the unhealthy speculation unless the increase is far beyond the normal".[54]

The same view was voiced by the banking fraction of the Swedish monetary committee: *"A bank rate of 10, 12 or 15 percent would clearly have an impact, but this would certainly inflict grave damages on the legitimate business activity*".[55] Thus, the bank believed that the rate necessary to influence the money market and prices went beyond the normal range. In this the bank might, at least for the latter part of the war, be right. However, such a policy was out of the question because it would cause hardship for legitimate business, a view in accordance with the time honoured tradition of sensitivity towards the concerns of

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[52] Jæger, Oscar, Dyrtidens årsaker og midlene til dens bekjempelse (foredrag holdt i Den statsøkonomiske forening 13. oktober 1916), *Statsøkonomisk tidsskrift* 1916:215

[53] Jæger, Oscar, Dyrtidens årsaker og midlene til dens bekjempelse (foredrag holdt i Den statsøkonomiske forening 13. oktober 1916), *Statsøkonomisk tidsskrift* 1916:222-3

[54] Original article in "Tidsskrift for bank og finansvæsen" quoted in Farmand, 2 February 1918

[55] Farmand 10 August 1918

commerce and business. Note also how the bank and the Swedish source divides the world into the worthy and the unworthy. Norges Bank clearly saw its role to serve the worthy; the honest, legitimate trader or industrialist which image in a way reflected the prudence of the central bank. For Norges Bank this was clearly a moral question: What is right to punish the unworthy speculators at the expense of the livelihood of the worthy?

A higher interest rate would probably have had a cooling effect on monetary expansion and prices, although the impact on the exchange rate to some extent would have counterbalanced this by intensifying remittances and even speculative short-term capital movements. What is something of a paradox here is of course that Norges Bank at the time believed that international money was not sensitive to interest rate changes because of the inconvertibility of notes. Thus, had Norges Bank introduced a bank rate hike, they would have done so without taking into account the impact on short-term capital movements. This, they did not do. So instead of meeting the speculative boom by the efficient bank rate weapon, Norges Bank had to take refuge in moral persuasion and warnings over the danger of speculation discussed earlier. However, moral persuasion, with neither a stick nor a carrot, seldom gives any results.

The legacy of the past, as discussed above, clearly made Norges Bank less inclined to understand how the world had changed. Although accepting the challenges created by the war, Norges Bank, neither from a theoretical nor from a practical point of view, recognised the implication for policy. Intellectual constraints rather than incompetence led the bank astray. However, one particular damaging area of policy, the relationship with the government, cannot be explained in terms of the constraints of the past. Before the war Norges Bank acted as the foremost banker of the government, but did not extend credit to the government. In line with the thinking of the gold standard era, an advance to the government was regarded as bad form and exactly the type of transfer that the bank was created to avoid. As late as in November 1914 governor Bomhoff argued that a Norges Bank loan to the government would be a major mistake, "*Norges Bank should not be used for that kind of purposes except for situations of the utmost necessity*".[56] Both directly and indirectly it proved hard to remain that position. From early on, foreign exchange reserves were put at the disposal of the government provision policy. Likewise, local public provision committees started to draw on Norges Bank to fund their inventories. With the rapidly increased activity,

[56] Jæger, Oscar, Krigens innflytelse på vår økonomi og våre finanser (foredrag holdt i Den statsøkonomiske forening 23. november 1914), *Statsøkonomisk tidsskrift* 1914:188

the government turned to Norges Bank, although most of the public lending still took place in the money market. The watershed for the relationship between government and central bank was the fishery agreement with the United Kingdom which stated that the purchases should be financed by credits obtained in Norway. The government could have let the British raise the money through the banking system, as they previously had done, but the Prime Minister insisted that since this was an agreement with the British government, Norges Bank should provide the necessary credits. When Norges Bank accepted this obligation, it must be understood in light of the very tense situation. This was not just about fish, but about the whole relationship between Norway and the United Kingdom. As we have discussed earlier, Britain did not hesitate to use coercive power and threats of cutting off supplies to achieve her end. Norges Bank accepted her national obligation, although this turned into the start of the rapid increase in central bank discounting. Norges Bank could have resisted more strongly, but the honourable thing was to do whatever possible to support the nation when its livelihood and welfare was at stake.

CONCLUDING REMARKS

The policy of Norges Bank during the war must be understood in light of intellectual constraints and the willingness to be at the nation's service in a time of great peril. Freed from the chains of the external anchor, the legacies of the gold standard experience continued to influence policy. Chief among these was the belief in the prudent central bank and its role in society. The fact that Norges Bank in reality came deviate from this inner image was not something the leadership with governor Bomhoff dwelled much upon. The times were indeed extraordinary, but there was no reason to be overly worried. Moreover, peace would lead to a restoration of the golden anchor and put prices back. Both Norges Bank as a central bank and Norway as a nation had been strengthened throughout the war and were well prepared for the future.

There is an inner intellectual coherence in the world view of Norges Bank's leadership. Does this knowledge remove Norges Bank from its part in the responsibility for the Norwegian monetary-war experience and subsequent hardship of the 1920s? No, but now we can at least understand why they acted like they did.