

CHAPTER 30

How Government Bond Yields Reflect Wartime Events

The Case of the Nordic Market

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This study examines how sovereign debt yields reflect wartime events and expectations about their future occurrence.¹ In particular, the analysis focuses on war threats during the years leading up to World War II, and to what extent historical government bond price data can be used to analyze these past views of the contemporaries in real time.

Historians of war generally ask many important questions to help them comprehend the main causes of war and its impact on societies and their citizens. One such question concerns whether the contemporaries anticipated the outbreak of a war. Of course, there are many possible answers, depending on what groups in society are targeted. For example, the perceived threat of war on the part of political and military leaders might (for informational or other reasons) differ from the threat of war perceived by the general public. Both groups are worth considering, particularly the latter, since it constitutes quite an important group in democratic societies when analyzing a country's actions.

The analysis centers on one of Europe's geopolitically most strategically important regions in the 1930s, the Nordic countries. The Swedish iron ore was pivotal to the German arms industry, Norway's coast offered an ideal starting point for a naval attack on Great Britain, and Finland's dominant position in the Gulf of Finland was a latent problem for the Soviet leaders. Hence, Europe's superpowers had strong vested interests in keeping their enemies out of the Nordic region, and they all had long-term plans of military interventions in line with these interests.

The main question asked is: *To what extent did contemporaries in the Nordic countries perceive this mounting threat of war?* Given the significance of public threat perceptions to the overall development of a country, it is not surprising that historians have gone to great lengths to analyze these questions. According to conventional Nordic World War II historiography, there were few, if any, people in the Nordic

countries who truly believed a war in their own countries around the outbreak of World War II would include them. However, the traditional historical method used to generate these results is associated with various methodological problems. Historians primarily rely on in-depth analyses from various written sources, but widely held notions of pending threats of war are typically not systematically documented, and are therefore largely unobservable to historians. Another potential problem is that historians may be influenced by their own social and political context so that their selection and interpretation of historical facts depend on what they conjecture that their readers wish to read. Historians are, of course, well aware of these problems, and discussions on how to deal with them are found in Carr (1961) and Marwick (1970).

In the present paper, we contrast this historical writing with an alternative mode of analysis. This method, originally proposed by Willard, Guinnane, and Rosen (1996) in their study of currency price fluctuations around the time of the U.S. Civil War, is based on analyzing large sudden changes in sovereign debt yields and link these with major geopolitical prewar events. We argue that this will show if, and when, significant war risk increases occurred, as reflected by market prices. The underlying idea is that wars put extraordinary pressures on countries' fiscal balances and may even provoke governments to repudiate their sovereign debt. An increased risk of war will translate into an increased sovereign risk or, equivalently, higher yields on traded sovereign debt.

The empirical analysis is presented in two steps. First, we estimate war threat assessments from Nordic government bond yields recorded from prices quoted in the period from 1938 to 1940, that is, the years just before and around the outbreak of World War II. Second, these market-based estimates are contrasted with the conjectures of historians, retrieved from a close reading of the main writings of some of the most well-known Nordic historians, concerning public war threats during the exact same time. The final result is a comparative analysis, which not only conveys information about whether the Nordic political and military preparations for an enemy attack were in line with the general views about external threats of war, but also addresses the important question of whether conventional historiography is robust enough to consider alternative assessments of certain historical phenomena.

EMPIRICAL METHOD AND DATA

Our empirical analysis consists of collecting information on historical prewar threat assessments as characterized by, on one hand, historians and, on the other hand, quantitative estimates from historical sovereign yield data.

To characterize the conventional historical writing of World War II in the Nordic countries is, of course, a difficult and demanding task. We have read a large number of writings of some of the most established and reputable Nordic academic historians, searching for explicit discussions of war threat perceptions during the period under study. Of course, we do not claim to offer a complete coverage of this extensive and fragmented literature, but with a quite sizable coverage, we believe that we have captured the essence of what Nordic historians to date think about this issue. We have only examined the writings of Nordic scholars since we

they have arguably a comparative advantage in describing past sentiments of the Nordic citizens.

We also use historical sovereign debt yields to describe the threat assessments before World War II. This is done using a time series econometrics technique (proposed by Bai and Perron 1998) that estimates statistically significant changes, called *structural breaks*, in the sovereign market yields.² These breaks are linked to simultaneously occurring political or military events, and from this we make an inference about the impact of the wartime events on contemporary society. The underlying idea is that wars put extraordinary pressure on a country's fiscal balances and may, in the worst case, provoke sovereign repudiations or defaults. This, in turn, increases the default risk of these government bonds, which implies that they should trade at lower prices on the secondary markets. By only basing the inference on the time series and not prior knowledge of what historical events historians consider important, the financial market approach is particularly useful for analyzing the true forward-looking assessments of the contemporaries, before the subsequent realization of the course of events that later became historical.

Our use of financial market data has particular advantages. First and foremost, financial asset prices contain a lot of informational value, as market actors always need to carefully evaluate the prevailing situation, as well as likely future developments, because errors directly affect them in monetary terms. This distinguishes capital market data from other types of data, in particular surveys and questionnaires, in which errors do not generally affect the persons committing them. Financial markets usually have a high predictive power, due to so-called marginal traders. This type of trader decides on a relatively unbiased basis, and carefully collects the relevant information. In the extreme case, even one such trader can drive the market price to the underlying equilibrium price.

Our data set consists of newly collected government bond prices, quoted between January 1938 and December 1940 on the secondary markets in all Nordic countries. The market prices recorded in Sweden are especially relevant for our purposes. Sweden was the only country in which all four Nordic countries floated their government bonds, and yield comparisons are improved by the fact that the loans were denominated in the same currency (the Swedish) and traded under the same institutional market conditions. Moreover, Sweden was never directly engaged in the war and did not implement many of the extremely restrictive trading and pricing regulations seen in most belligerent countries. This makes Swedish market data from this period particularly reliable and we therefore present only the results based on the Swedish data in the following discussion.

ESTIMATING STRUCTURAL BREAKS IN NORDIC SOVEREIGN YIELDS

This section first presents the results of the structural break estimations and then the findings from our main analysis, the comparison between the views of historians and financial markets regarding prewar threat assessments.

Exhibit 30.1 displays the sovereign yields of all four Nordic countries (solid lines) along with the fitted structural breaks (broken lines). The bond yields are

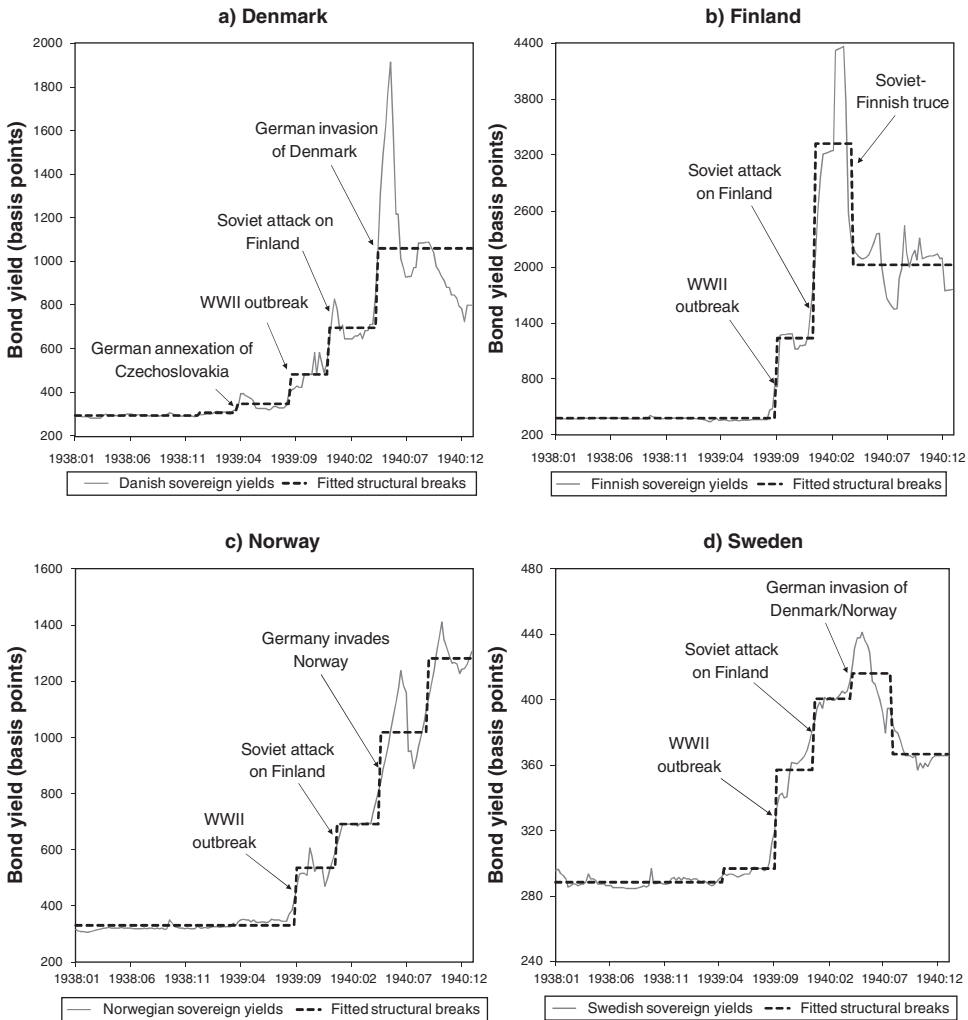


Exhibit 30.1 Nordic Sovereign Yields and Fitted Structural Breaks, 1938–1940

weekly and we use the ones recorded at the Stockholm market between 1938 and 1940. Consider first the Danish yields (panel a), where we record three notable structural breaks before the German invasion in April 1940. First, one in late March 1939, shortly after the German annexation of Czechoslovakia, a second one around the time of the war’s outbreak in September 1939, and then a third one in early December 1939, directly after the Soviet attack on Finland. Finally, the German invasion of Denmark on April 9, 1940, produced a large and significant break of +361 basis points, but note that the initial spike the first week after the invasion amounted to +1,900 basis points! Altogether, these results show that the traders in Denmark and Sweden clearly perceived an increased war threat on Denmark well ahead of the German invasion. The invasion spike in the Stockholm yields, reflecting the yield under the realization of war, however, suggests that the Swedish

investors still believed that a continued peace was more likely than the outbreak of war in Denmark.³

The Finnish yields in Stockholm (panel b) contain three statistically significant structural breakpoints, the first one in early September 1939 being +862 basis points. The second break in early December, that is, after the Soviet attack on Finland. This break measures to a massive yield shift, amounting to 2,083 basis points! The third break occurred in mid-March 1940, immediately after the Soviet-Finnish truce, and interestingly, it estimated a decrease in yields by 1,298 basis points. In other words, while both Finns and Swedes interpreted the German-Russo anti-aggression pact and the outbreak of war in Poland as strongly increased external threats to Finland, the actual outbreak of war in Finland further increased the sovereign risk (in Sweden).

Now consider the Norwegian yields in Stockholm (panel c). They exhibit breaks in early September and late December, clearly indicating that traders in Sweden perceived increased war threats to Norway at this time. A third break is recorded just after the German invasion, in April 1940, measuring +333 basis points. This break indicates that the eventuality of war was not entirely capitalized by the Swedish market actors. Later in 1940, there is a fourth break of -243 basis points, which most likely signals the resolved uncertainty about the effects of the German occupation on Norway's economy and, perhaps, even status as a sovereign nation.

Finally, consider the Swedish yields (panel d). Note first that the magnitude of the Swedish breaks is markedly smaller than those of its neighboring countries. Still, they are recorded at the time of several major war events: the outbreak of the war in early September 1939 (+66 basis points), the Finnish-Soviet war in December 1939 (+44 basis points), and the German invasion of Denmark and Norway in early April 1940 (+15 basis points). An interesting observation is that the yield increases get smaller the closer the war gets to Scandinavia. This could signal that Swedes regarded the risk of an attack on Sweden as being independent of the risk of attacks on the other Nordic countries. Given the vast importance of the Swedish iron ore exports to, in particular, the German war industry, such a conjecture may actually have been plausible at the time.

COMPARING THE VIEWS OF HISTORIANS AND MARKETS

We now turn to our comparative analysis in which we contrast the estimates of historians and bond markets. Neither approach is free from methodological and data-related problems and this exercise is consequently not about any version being right or wrong or better or worse. Rather, we wish to shed light on whether they differ at all and, if so, why and in what way.

There are several points of agreement between the historians and the bond markets. In particular, both views agree that Nordic citizens perceived little external threat before August 1939. Even if the Danish yields rose in March of that year, the substantial yield increases came first after the significant events around the war's outbreak in September. This suggests that the Nordic people did not relate to Austria and Czechoslovakia in regard to foreign policy relations with Germany, at

least judging from the lack of major threat increases recorded after their annexations in 1938 and 1939, respectively. Another example of concurrence is the that the realization of war in Finland, Denmark, and Norway gave rise to yield spikes in the respective countries' bonds traded in Stockholm. If anything, this indicates that there was no one who fully anticipated the wars, which hence supports the claims of historians. Judging from the magnitudes of the estimated breaks relative to the short-term spikes, which reflect the prospected yield under the realization of war, the market actors viewed the probability of war in Denmark, Finland, and Norway as being somewhere around 50 percent.⁴

Having said this, our comparative analysis also points at several cases of stark disagreement between the two versions of history. Most importantly, the financial markets signal substantially higher war risk expectations than historians do. For example, historians report that the Danes and Norwegians felt largely secure up until the German invasions, but the markets display several dramatic yield increases following some of the most important war-related events: the German-Russo Pact, the outbreak of World War II, and the war between Finland and the Soviet Union as well as some minor events in early 1940.

CONCLUSION

Did the people in the Nordic countries expect that their own countries would be drawn into war activities during the turbulent years from 1938 to 1940? This paper examines and compares two different empirical methodologies and their answers to this question.

Several findings come out of the analysis. In particular, we find several instances of disagreement between the two interpretations of history. Historians claim that the Nordic peoples felt safe up until the autumn of 1939 (in the case of Finland), the winter of 1939 (Sweden) and early April 1940 (Denmark and Norway). The sovereign yield analysis, however, indicate increased threat perceptions considerably before these conjectured dates, often as direct responses to major geopolitical events such as the announcement of the Molotov-Ribbentrop Pact in late August 1939 or the Soviet attack on Finland in late November of that year. We also find, however, points of agreement between historians and markets. For example, Norwegian yields in Oslo dropped after the truce between Finland and the Soviet Union, thereby somewhat reinforcing the widely held sentiments of reassurance described by historians.

Note that even if we find notable discrepancies between the two versions of history, our comparative analysis says little about any of them being either right or wrong. Both approaches suffer from methodological and data-related problems. For example, historians predominantly use text-based sources while past public opinions may hardly be evident in such data material. Historians' selection and interpretation of the historical facts may also reflect views of their own political and social context, which might bias their conjectured war historiographies. On the other hand, the financial market-based analysis relies on the quality of the historical statistical data, which can often be questionable. Furthermore, the econometric method used relies on modeling choices and various assumptions that could be discussed. In other words, there are pros and cons with both

approaches and we would therefore recommend a broad methodological approach when analyzing subtle issues concerning the mindsets of large populations in the past.

NOTES

1. This paper is a condensed version of Waldenström and Frey (2008). For further details about data, Nordic World War II historiography, and the econometric analysis, see the original contribution.
2. Technically, this method consists of first estimating a system of linear equations using least squares regressions. Then a number of statistical tests are conducted to assess whether any breaks exist and, if so, their number and exact timing. A structural break is here defined as a lasting significant mean-shift in the series analyzed and we estimate it only using the information contained in the actual time series and do not rely on any prior notions of when breaks should have occurred.
3. An “assessed war probability,” calculated as the Stockholm yields right before the war divided by the tip of the yield spike right after the war’s outbreak, for Denmark is roughly 40 percent (750 basis points/1,150 basis points = 0.395).
4. The “assessed war probabilities,” calculated as the prewar yields (just before the outbreak of war) divided by the tip of the yield spike right after the outbreak of war, are for Denmark, 40 percent; for Finland, 35 percent (1,100 bp/3,200 bp = 0.344); and for Norway, 54 percent (700 bp/1,300 bp = 0.538).

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