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Political risk and the international bond market between the 1848 revolution and the outbreak of the First World War[1]

By NIALL FERGUSON

SUMMARY

This article uses price data and editorial commentaries from the contemporary financial press to measure the impact of political events on investors' expectations from the middle of the nineteenth century until the First World War. The main question addressed is why political events appeared to affect the world's biggest financial market, the London bond market, much less between 1881 and 1914 than they had between 1843 and 1880. In particular, I ask why the outbreak of the First World War, an event traditionally seen as having been heralded by a series of international crises, was not apparently anticipated by investors. The article considers how far the declining sensitivity of the bond market to political events was a result of the spread of the gold standard, increased international financial integration, or changes in the fiscal policies of the great powers. I suggest that the increasing national separation of bond markets offers a better explanation. However, even this structural change cannot explain why the London market was so slow to appreciate the risk of war in 1914. To investors, the First World War truly came as a bolt from the blue.

Before 1914 it was widely believed that a major European war would have drastic consequences for financial markets. To the editors of *The Economist* magazine, this seemed 'obvious':

> To begin with, [war] must necessitate Government borrowings on a large scale, and these heavy demands upon the supplies of floating capital must tend to raise the rate of discount. Nor is it only our own requirements that will have to be provided for. . . . From other quarters demands are likely to be pressed upon us.

[1] This article is based on work done while the author was Houblon-Norman Fellow at the Bank of England. I would like to thank the Trustees of the Fund. I would also like to thank the Principal and Fellows of Jesus College, Oxford, and the Modern History Faculty, Oxford, who contributed towards the costs of research. I owe a further debt to Daniel Fattal for his indefatigable work in constructing the databases of bond prices and *Economist* commentaries. Lizzie Emerson also did sterling work on the British Documents on the Origins of War. I am especially grateful to Richard Batley, whose collaboration on other papers has helped considerably in the preparation of this one. Finally, thanks are due to the editors and three anonymous referees, as well as to the numerous audiences at seminars and conferences who heard and commented on earlier versions.

> There is a very general conviction that if war is entered upon . . . Other Powers . . . will almost inevitably be, in some way or other, drawn into the contest. The desire, therefore, in all European financial centres, will be to gather strength, so as to be prepared for contingencies. Thus the continental national banks will all be anxious to fortify their position, and as they can always draw gold from hence by unloading here the English bills they habitually hold, the probability is that gold will be taken. And the desire on the part of the continental banks to be strong will, of course, be greatly intensified by the precarious condition of the Berlin and Paris bourses. At both of these centres it would take little to produce a stock exchange crisis of the severest type; and . . . it is to the Bank of England, as the one place whence gold can promptly be drawn, that recourse must be had. The outbreak of war, therefore, would in all probability send a sharp spasm of stringency through our money market . . . [that] would pretty certainly leave rates at a higher level than that at which it found them.
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> . . . There is, of course, one [other] way, apart from the depressing influence of dearer money in which war, should it break out will prejudicially affect all classes of securities. It will . . . necessitate Government borrowing on a great scale, and the issue of masses of new stock will lessen the pressure of money upon existing channels of investment. . . . And as it is to the volume of British . . . securities that the additions would be made, these would naturally be specially affected.
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> . . . With European Government stocks . . . a more or less heavy depreciation, according as war circumscribed or extended its sphere, would have to be looked for. . . . For Russia . . . war can mean little else than bankruptcy, possibly accompanied by revolution, and those who . . . have become her creditors, have a sufficiently black outlook.[2]

The most striking thing about this prescient analysis is that it was published in 1885, nearly 30 years before just such a war—and just such a crisis—broke out. In the intervening years, only a minority of commentators dissented from the view that a war between the European powers would lead to steep falls in bond prices.[3] In 1899 the Warsaw financier Ivan Bloch estimated that 'the immediate consequence of war would be to send securities all round down from 25 to 50 per cent'.[4] If a battleship belonging to a foreign power were to sail up the Thames, the journalist Norman Angell asserted in his best-seller *The great illusion*, it would be the foreign economy that would suffer, not the British, as investors dumped the aggressor's bonds.[5] Diplomats used similar arguments during the July crisis itself. On 22 July 1914, to give just one example, the Russian *chargé d'affaires* in Berlin warned a German diplomat that German investors would 'pay the price with their own securities with the methods of the Austrian politicians'.[6]

[2] *Economist*, 11 April 1885.
[3] Remarkable in this respect is a little-known American work: Kerr, *Effect of wars*, esp. pp. 9f. See also Strachan, *First World War*, vol. I, p. 817, on the optimistic prognostications of R.S. Hamilton-Grace in his *Finance and war* (1910).
[4] Bloch, *Is war now impossible?*, p. xlv.
[5] Angell, *Great illusion*, p. 209.
[6] Geiss, *July 1914*, doc. 43.

But did European financial markets actually behave as these analysts would lead one to expect? To be precise, did the growing threat of a major European war before 1914 cause bond prices to fall (and hence bond yields to rise) in anticipation of the higher interest rates, expenditures, deficits, and inflation that a war was expected to cause? The evidence presented here indicates that the reverse was true. In the years leading up to the First World War, the London bond market—then the biggest in the world—appears to have become markedly less sensitive to international crises than it had been in the nineteenth century. Events usually seen by historians as harbingers of war had much less impact on great power bond yields than comparable political disturbances a generation before. One plausible inference from financial market evidence is that war, when it broke out in the first week of August 1914, did indeed come as a surprise even to well-informed contemporaries. It was not the long-prophesied Armageddon depicted in so many histories.

This article's principal contribution is to publish a large dataset consisting of weekly bond yields for the five great powers (Britain, France, Germany, Austria, and Russia) and covering the seventy-year period from around 1845 until 1914. The length of the period covered makes it possible to set the approach of the First World War in a longer-term perspective than is commonly attempted. At the same time, the high frequency of the observations permits relatively precise measurement of the financial impact of particular events.[7] To illuminate contemporary interpretations of market movements—both long-term trends and short-term fluctuations—commentaries in the financial press are also analysed.

The article is divided into six parts. The first summarizes the traditional historical view that the outbreak of the First World War was the culmination of years of mounting tension between the European great powers. The second presents the dataset. The third shows how, between 1840 and 1880, war or the threat of war had indeed led to substantial fluctuations in great power bond prices. The fourth shows that, contrary to what we might expect, this tendency diminished markedly between 1881 and 1914. The fifth section considers how far the declining sensitivity of the market to political events was as a result of the spread of the gold standard, increased international financial integration, or changes in the fiscal positions of the great powers. The sixth section offers an alternative explanation, namely the increasing 'nationalization' of European bond markets. The final section argues that, in the eyes of investors, the outbreak of war of 1914 truly was a 'bolt from the blue'.

[7] Because the author is not an econometrician, the paper does not offer sophisticated statistical analysis of the data, though that work is in progress as a collaborative enterprise. For an initial attempt, see R. Batley and N. Ferguson, 'Event risk and the international bond market in the era of the classical gold standard', unpublished paper (1999). We are currently investigating the presence or absence of structural breaks in the data, adapting the methodology of Willard, Guinnane, and Rosen, 'Turning points' and Brown and Burdekin, 'Turning points'.

I

Traditionally, historians have tended to portray the two decades before the outbreak of war as a time of 'mounting tension' and 'escalating crises'. A not untypical example was the structure of the 11 volume official series of diplomatic documents, *The British documents on the origins of the war, 1898–1914*, published between 1926 and 1938:

I. The end of British isolation
II. The Anglo-Japanese alliance and the Franco-British entente
III. The testing of the entente, 1904–6
IV. The Anglo-Russian rapprochement, 1903–7
V. The Near East: the Macedonian problem and the annexation of Bosnia, 1903–9
VI. Anglo-German tension: armaments and negotiation, 1907–12
VII. The Agadir crisis
VIII. Arbitration, neutrality and security
IX. Part 1. The Balkan Wars: the prelude. The Tripoli War; Part 2. The Balkan Wars: the league and Turkey
X. Part 1. The Near and Middle East on the eve of war; Part 2. The last years of peace
XI. The outbreak of war

This can be compared with the more compact but not dissimilar construction of the relevant five chapters of Taylor's *Struggle for mastery in Europe*:

XVIII. The last years of British isolation: the making of the Anglo-French entente, 1902–5
XIX. The formation of the triple entente, 1905–9
XX. The years of Anglo-German hostility, 1909–12
XXI. The Balkan Wars and after, 1912–14
XXII. The outbreak of war in Europe, 1914

Such narratives continue to be devised by modern scholars. Geiss has portrayed the outbreak of war as the last of a succession of nine diplomatic crises directly or indirectly involving Germany: the 1875 Franco-German 'War in sight' crisis, the 1875–8 Eastern crisis, the 1885–8 Bulgarian crisis, the 1886–9 Boulanger crisis, the 1905–6 Moroccan crisis, the 1908 Bosnian crisis, the 1911 Agadir crisis, and the 1912–13 Balkan crisis.[8] Admittedly, some recent studies of the pre-war arms race have tended to concentrate rather more on the immediate pre-war decade. Herrmann begins his account of the 'making of the First World War' at the time of the 1905–6 Moroccan crisis.[9] Stevenson identifies the period after 1907 as having witnessed the 'breakdown of equilibrium' in the European military balance.[10] Historians who centre their accounts on the difficulties of the Austria-

[8] Geiss, *Lange Weg*.
[9] Herrmann, *Arming of Europe*.
[10] Stevenson, *Armaments and the coming of war*. In his most recent book, however, he dates the 'crumbling' of the 'bases of deterrence' from 1905: Stevenson, *Cataclysm*, p. 8.

Hungary start the 'countdown' to war even later, with the annexation of Bosnia-Herzegovina in 1908.[11] However, Strachan traces the origins of the war back, in traditional fashion, to the foundation of the German Reich in 1871, emphasizing in particular the events of the Anglo-German naval competition after 1897.[12] Though he begins by conjuring up an idyllic summer abruptly shattered by an unexpected war, Fromkin goes on to restate the case that the war was the culmination of a calculated German policy.[13] The consensus among historians remains that men had been 'prophesying war' for so long that war was all but inevitable. The Left had predicted for decades that militarism and imperialism would eventually produce an almighty *Kladderadatsch*. The Right had been almost as consistent in portraying war as a salutary Darwinian phenomenon, hastening the extinction of biologically inferior specimens. European societies, it is now widely agreed, were 'ready for war' long before war came.[14]

The question, however, is how far such stories of escalating crisis have been retrospectively devised by historians in order to create an explanation of the war's origins commensurate with the vast dimensions of the event itself. One way of addressing this question is to look more closely at contemporary attitudes to the diplomatic crises so familiar to historians. Financial market data offer some valuable insights into the way that investors—a group that encompassed a significant proportion of the pre-war European political élite—interpreted these crises. Given the momentous financial consequences that a major war was expected to have, any event that made such a war seem more likely, even if only momentarily, ought to have had a detectable effect on the bond market. In other words, if the Moroccan, Balkan, and other crises truly were harbingers of a war between the great powers, investors should have reacted to them by marking down the prices of the bonds issued by the expected combatants. Fortunately, because market prices for these securities were regularly published after the middle of the nineteenth century, it is not difficult to establish whether or not that was the case by measuring absolute and relative price movements and seeing whether they can be related in any way to the principal international crises of the period.

II

The dataset is derived from the weekly closing prices of the bonds of the five generally acknowledged 'great powers'—Britain, France, Germany, Russia, and Austria-Hungary—as quoted in the London-based magazine *The Economist*. The choice of sample is unusual, since most previous studies

[11] See for a recent example, Williamson, 'Origins of the war', p. 14.

[12] Strachan, *First World War*, vol. I, pp. 4–35. The same author shifts his focus to the Balkans after 1908 in his shorter *Illustrated history*, pp. 4–8. For another recent account that emphasizes the alleged blunders of German policy, see Sheffield, *Forgotten victory*, pp. 22–40.

[13] Fromkin, *Europe's last summer*.

[14] See Ferguson, *Pity of war*, 'Introduction' for a full discussion.

of the London market in this period have tended to focus on the borrowing of 'emerging' or 'peripheral' markets from a more economically advanced core. Russia and possibly Austria might be regarded as 'emerging markets' in this period, since both still had large and backward agricultural sectors, and the former in particular relied heavily on foreign capital. Britain and France, by contrast, were plainly mature economies with surplus savings available for investment abroad. Constitutionally, too, the five great powers were quite different, ranging from republican France to absolutist Russia. However, as the world's most powerful empires, the five were not only territorially but also militarily in a league of their own—a league which Turkey had long since left and which Italy (to say nothing of the United States and Japan) had not yet joined. It was these five empires whose policies determined whether or not Europe and much of the rest of the world were at peace or at war.

Precisely because of their histories of warfare and their large military and naval establishments, the five empires had also accumulated comparably large public debts. Table 1 shows what a large proportion—more than half—of sovereign fixed-income securities quoted in London were bonds issued by the five great powers. By 1905, bonds issued by the other great powers (France, Russia, Germany, and Austria) accounted for nearly two-fifths (39 per cent) of the total, or half (49 per cent) of all foreign sovereign debt. Although data on the volumes of trading in these securities are lacking, the regularity with which the financial press quoted their prices and discussed their fluctuations would suggest that the great power bond market was relatively liquid.

The various bonds issued by the great powers did not all carry the same coupon. Hence, in order to compare them, we must transform the published prices into yields, where the numerator is the coupon and the denominator is the market price. Three technical points need to be noted. First, when yields are cited below, they are based on London prices with the exception

Table 1. *Market value of 'great power' government bonds quoted in London*

	Total volume of debt (£ million)		*Per cent of total*		*Per cent of foreign total*	
	1875	1905	1875	1905	1875	1905
Britain	709.7	839.5	23.3	20.7		
Austria	199.5	134.3	6.5	3.3	8.5	4.2
France	756.7	735.0	24.8	18.1	32.4	22.8
Germany and Prussia		333.4		8.2		10.3
Russia	151.4	376.7	5.0	9.3	6.5	11.7
Total great powers	1,817.3	2,085.5	59.6	51.3		
Total foreign great powers	1,107.6	1,579.4	36.3	38.9	47.4	49.0
Total foreign	2,338.6	3,225.5	76.7	79.3	100.0	100.0
Total	3,048.3	4,065.0	100.0	100.0		

Source: Mauro, Sussman, and Yafeh 'Emerging market spreads', Hebrew University of Jerusalem working paper (September 2000), p. 8 tab 1

of the yields on French *rentes*. These are based on Paris prices, which was what *The Economist* usually published. However, comparison of the prices and yields on 5 per cent *rentes* in London and Paris between 1873 and 1883 (a period when both prices were published) indicates that arbitrage minimized differentials between the two quotations. The spreads between the two prices were very small (on average three basis points) and the correlation between the two prices was very high (the correlation coefficient for the period is 0.997). Second, it should be noted that, for the sake of simplicity, all the yields used below are calculated in an unadjusted form (the coupon rate as a percentage of quoted price), without taking into account either maturity or the regular fluctuations caused by the timing of dividend payments. Admittedly, the difference between these unadjusted yields and yields to maturity is not wholly insignificant, since British consols,[15] French *rentes*, and most Austrian bonds were virtually perpetual, whereas German and Russian bonds generally were not, though they were still long-term bonds by today's standards.[16] Third, an important distinction needs to be noted with respect to the currencies in which bonds were denominated. Britain, France, and Germany were members of that exclusive 'club' of countries which, for historical reasons, were able to issue bonds on international markets denominated in their own currencies. Austria and Russia were not, in the sense that their bonds issued abroad stipulated payment of interest and principal in silver or gold crowns or roubles.[17] To give one example, the Russian 5 per cents issued in 1822 were denominated in both Russian roubles and pounds sterling, and gave bearers the option to receive their interest in either St Petersburg or London. However, the exchange rate between the two currencies was specified, so that these were effectively sterling bonds.[18] Fourth, two different measures are considered in what follows: movements in the yields of a particular bond over time and changes in the spreads between the yields of the continental powers' bonds and those of (relatively) risk-free British consols. Lastly, it is important to remember that, in moments of acute crisis, trading in some bonds simply ceased, so that no prices were available to be published, or the prices published were purely notional quotations that did not reflect actual transactions. In that sense, attempts to quantify the impact on bond yields of major crises, like the 1848 revolution or the outbreak of the First World

[15] The 3 per cent 'consol' had been created by the Consolidating Act of 1751, and remained the benchmark British bond until the First World War. It was notionally perpetual in that the government retained the option to redeem consols if their price reached par. When prices approached and then passed 100 in the 1880s and 1890s, the risk of redemption and the issue of new consols with a fixed term tended to push yields above where they would have been if the redemption option had not existed: Klovland, 'Pitfalls'.

[16] See on this point Sussman and Yafeh, 'Institutions, reforms and country risk'. Cf. Harley, 'Goschen's conversion'.

[17] Bordo and Flandreau, 'Core, periphery, exchange rate regimes and globalization', p. 439. See also Flandreau, M. and Sussman, N., 'Old sins: Exchange rate clauses and European foreign lending in the nineteenth century', Centre for Economic Policy Research discussion paper, 4248 (February 2004).

[18] Ferguson, 'First "Eurobonds" '.

War, are almost certain to produce underestimates. The decisions to close the London Stock Exchange on Friday 31 July 1914 and to keep it closed for the rest of the year mean that we simply do not have bond prices for the period from August until December, save for a few isolated quotations based on deals done outside (sometimes literally in the street outside) the Exchange.

What precisely do bond yields and the spreads between them capture? In economic theory, the yield on a bond is the 'pure' or real rate of interest (which is equivalent to the marginal efficiency of capital in the economy) plus a premium for uncertainty that takes into account first the risk of default by the borrower and, second, the lender's expectations of inflation and/or depreciation in the currency. In the simplest possible model, 'bond rates . . . reflect the sum of real growth expectations and inflation expectations'.[19] In addition, yields should be influenced by the liquidity of markets and particularly the availability and relative attractiveness of alternative assets, as well as by legal rules and restrictions (such as those obliging certain financial institutions to hold government bonds) and by any taxation levied on investment income. Thus bond price fluctuations ought to reflect changes in investors' expectations not only of growth and inflation, but also of default and currency depreciation, as well as rates of return in other asset markets, and changes in legislation and taxation. The significance of political crises such as wars or revolutions is that they tend to increase expenditure and reduce tax revenue. Whether financed by issuing new bonds or 'printing money', the resulting deficits are likely to depress the price of existing bonds. This is partly a matter of supply and demand. It also reflects the increased likelihood of defaults or irreversible currency depreciations, phenomena that often follow military defeat. We would therefore expect heightened fear of a major European war to have had a measurable impact on all great power bond yields, and particularly on those of the powers deemed more likely to lose than to win such a conflict.

III

Figure 1 allows us to trace quite precisely the trends and fluctuations of the bond yields for four of the five great powers in the London market between 1843 and 1880 (prices of Prussian bonds were not quoted by *The Economist* during this period). The stories are markedly different. British yields were lower than other yields throughout. Austrian yields tended to rise, while French and Russian yields followed markedly different paths in between. Of paramount importance, it seems clear, were political events, particularly wars and revolutions. Anyone with even a rudimentary knowledge of nineteenth-century European history should be able to formulate a persuasive *prima facie* explanation for most, if not all, of the major yield increases in

[19] Bordo, and Dewald, 'Historical bond market inflation credibility', paper presented at the annual Western Economic Association conference, 8 July 1999.

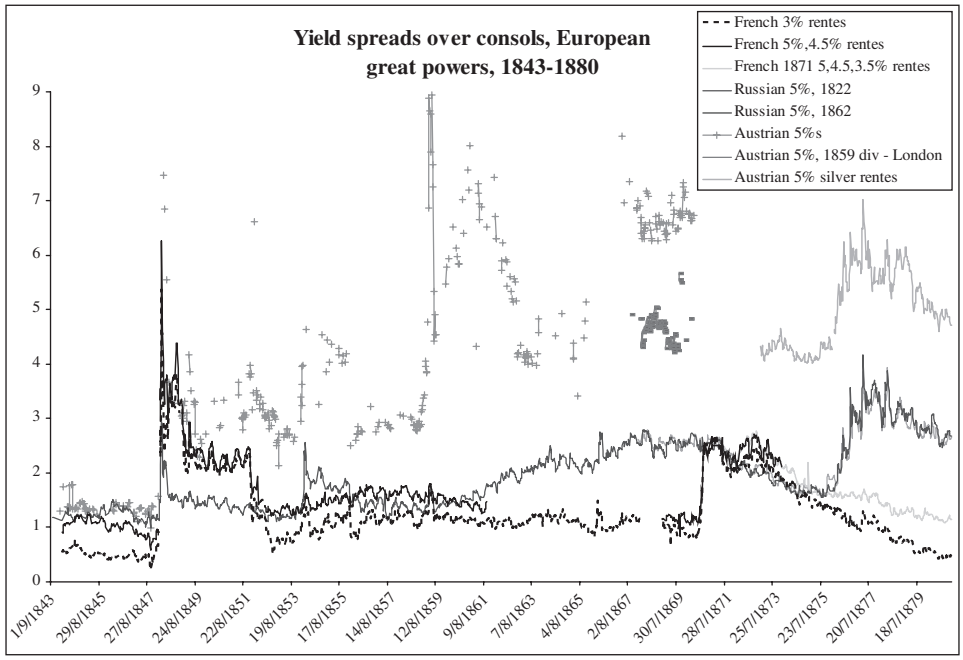

Figure 1. *Yield spreads over consols, European great powers, 1843–80*
Source: *Economist*. Breaks occur when markets were closed (as in the case of France in 1848) or when prices were not officially quoted in London (as in the case of Austria after 1870).

the chart. The idea that 'cannon fire is bad for money' was not new; that telling phrase had been coined by the Comte de Villèle, French premier in the mid-1820s.[20] It continued to be the conventional wisdom among the financially literate throughout the nineteenth century.

Political events mattered because news about them was more regularly available to market actors than detailed economic information. In making their assessments about sovereign bonds, modern investors tend to look at a wide variety of economic indicators such as budget deficits, short-term interest rates, actual and forecast inflation rates, and growth rates of gross domestic product (GDP). They are inundated on a daily basis with information about these and a host of other measures of fiscal, monetary, and macroeconomic performance. In the past, however, there were far fewer economic data on which to base judgements about default-risk, future inflation, and growth. For most of the nineteenth century, investors in the major European economies had fairly good and regular information about certain commodity prices, gold reserves, interest rates, and exchange rates, but fiscal data apart from annual budgets were scanty, and there were no

[20] Jardin and Tudesq, *Restoration*, pp. 68f.

regular or reliable figures for national output or income. In non-parliamentary monarchies, even annual budgets were not always available or, if they were published, could not be trusted. With a few exceptions, regular and reliable data on public debts did not become easily available until after around 1870. Instead, evidence from primary sources indicates that mid-nineteenth century investors tended to infer future changes in fiscal and monetary policy from political events, which were regularly reported in private correspondence, the newspapers, and later through telegraph agencies. Among the most influential bases for their inferences were four assumptions:

1. that a political move to the left, ranging from outright revolution to a change of ministry as a result of elections, would tend to loosen fiscal and monetary policy;
2. that a new and radical government would be more likely to pursue an aggressive foreign policy which might, in turn, lead to war;
3. that any war would disrupt trade and hence lower tax revenues for all governments; and
4. that direct involvement in war would increase a state's expenditure as well as reducing its tax revenues, leading to substantial new borrowings.

All these assumptions owed much to the experience of the period between 1793 and 1815. A European war involving a revolutionary France was for many years the markets' biggest nightmare. Indeed, the experience of the 1790s—when revolution, war, default, and inflation had sent the yields on French securities soaring from 6 to 60 per cent[21]—echoed, like the Marseillaise, for nearly a century. Each time Paris sneezed, to paraphrase Prince Metternich, the European markets caught cold, most obviously in 1830, 1848, and 1871.

Table 2 summarizes the magnitude of bond market crises precipitated by the principal wars and revolutions of the period 1843–80. It shows clearly that the biggest crisis in the European bond market in the nineteenth century occurred during the two months after the outbreak of the 1848 revolution in Paris. Austrian and French bonds were both severely hit, with yields on the London market rising by as much as 662 basis points in the former case, and 505 in the latter. Even Russian bonds were affected, though there was no revolution there. Only British bond yields fell in this period, reflecting as much the recovery of the British money market from the financial crisis of 1847 as the switching of investors from continental bonds into consols. Despite Chartist alarms, the market as a whole had no expectation of a revolution in London, which was also regarded as a safe haven by many continental investors.[22] The outbreak of the Crimean War had an effect on all major bonds, including even consols, for obvious reasons; it is nevertheless striking that Austrian yields rose even faster than

[21] Bordo and White, 'Tale of two currencies', p. 371.
[22] Ferguson, *World's banker*, p. 491.

Table 2. *Wars, revolutions, and the bond market, 1843–80*

	*Event**	*Britain*		*France*		*Russia*		*Austria*	
	Starting date	*Peak date*	*Increase*	*Peak date*	*Increase*	*Peak date*	*Increase*	*Peak date*	*Increase*
1	22/2/1848	7/4/1848	39	7/4/1848	505	7/4/1848	172	28/4/1848	662
2	2/6/1853	31/3/1854	52	7/4/1854	106	24/3/1854	175	31/3/1854	243
3	19/4/1859	29/4/1859	18	20/5/1859	50	27/5/1859	46	24/6/1859	426
4	7/6/1866	22/6/1866	6	8/6/1866	9	8/6/1866	29	26/4/1867	298
5	2/7/1870	5/8/1870	13	31/3/1871	181	29/7/1870	25	n/a	n/a
6	24/4/1877	4/5/1877	5	27/4/1877	12	27/4/1877	60	27/4/1877	59

* Key:
1 1848 revolution: revolt in Paris after ban on banquets
2 Crimean War: British fleet ordered to Dardanelles
3 Austro-Italian War: Austrian ultimatum to Sardinia to disarm
4 Austro-Prussian War: Prussian troops occupy Holstein
5 Franco-German War: Leopold of Hohenzollern's acceptance of Spanish throne
6 Russo-Turkish War: Russia declares war on Turkey
Note: All increases in basis points; 1 per cent = 100 basis points
Source: Economist

Russian (by 243 basis points as against 175), though Austria was not directly involved as a combatant. This differential between a manifestly overstretched Habsburg régime and its rivals widened disastrously in the wars of 1859 and 1866; Austria's defeat by France and Italy pushed yields up by more than 400 basis points, and her defeat at the hands of Prussia by just under 300. British yields also rose in 1866, but this was mainly because of the simultaneous banking crisis caused by the collapse of the Overend Gurney discount house, which drove up British interest rates across the board. The yields on Austrian bonds remained high because after May 1870 they were formally excluded from the London Stock Exchange following the 1868 conversion operation, which had been combined with a tax on foreign as well as domestic bondholders, a measure vehemently criticized by British investors.[23]

But were these in fact the biggest shocks investors experienced in the period? To insure against the possibility of selection bias, it is necessary to calculate all the weekly fluctuations in yields for the period, and to identify the biggest shifts. It is also preferable to measure percentage increases in yields rather than increases in basis points, since a rise of 100 basis points is clearly more significant when yields are at 3 per cent than when they are at 13 per cent. The appendix provides detailed analyses of the principal weekly increases in British, French, Russian, Austrian, and Prussian yields in the period. Once again it is remarkable that the biggest short-run jumps in yields occurred on dates that mean more to the political historian than to the economic historian. Although the 1847 financial crisis pushed British yields up sharply, the biggest shock to the consols market came immediately after the outbreak of the 1848 revolution in Paris on 22 February. Between that date and 3 March, the yield on consols rose by 7.6 per cent.[24] As had been the case in 1830, a French revolution was worrying to British investors mainly because memories of the 1790s led them to expect war with a revolutionary France. Thus on 31 March *The Economist* described a further 2.4 per cent rise in yields as a 'consequence of the increased likeliness of war breaking out'.[25] Wars may also account for the second and third biggest jumps in yield, in the weeks ending 31 March 1854 (4.2 per cent) and 29 April 1859 (6.0 per cent). On 28 March 1854 Britain had declared war on Russia. On 17 November the magazine noted another steep fall in consol prices, attributing the decline to 'the impression that there was a great deal more work for the English troops to do in Crimea than had previously been expected'.[26] On 29 April 1859 Austrian forces crossed the Sardinian frontier, 10 days after their ultimatum to Count Cavour's government to disarm; as *The Economist* remarked, 'hopes of peace had clearly been cherished up

[23] *Economist*, 14 March 1868; 13 June 1868; 10 October 1868; 28 May 1870. Cf. Flandreau, 'The bank, the states and the market', p. 29.
[24] Calculated from data in *The Economist*.
[25] *Economist*, 31 March 1848.
[26] Ibid., 17 Nov. 1854.

to the latest moments'.[27] Interestingly, the Trent incident of December 1861 (when Confederate commissioners were seized from a British ship by Unionist forces) also appears to have had a significant impact on British yields, raising as it did the possibility of some kind of British involvement in the American Civil War.

The French data tell a similar story, though with fluctuations of much larger magnitude associated primarily with revolutions (1848) and wars (1859, 1866, and 1870). In January 1848, for example, *The Economist* noted 'a considerable depression in Paris' occasioned by a disappointing speech by King Louis Philippe to the Chamber of Deputies.[28] The 1848 revolution was anticipated by the markets, which were selling off *rentes* well before the decisive events of March. Louis Napoleon's *coup d'état* in 1851, by contrast, 'was a solution of doubts which had for some time affected the market unfavourably and its influence at first was to give the market firmness there'.[29] However, the magazine also detected the approaching nemesis of the Bonapartist régime when it noted on 8 July 1870: 'Securities on the Paris Bourse fell on the news that a Prince of Hohenzollern had been offered and had accepted the Spanish Crown, and by the solemn declaration of the French Government that it would go to war to prevent him from taking it.'[30]

The biggest movements in Russian yields were also primarily political in origin, and the same is true of Austrian yields.[31] Of particular interest is the high volatility of Russian and Austrian bonds during the Eastern crisis of 1876–78. On 14 April 1876 *The Economist* noted large falls in the price of foreign government securities, citing 'unauthenticated rumours concerning the desire of the Emperor of Russia to abdicate, in the event of war becoming probable, and of fears that Austria might have to interfere in the Turkish revolting provinces'.[32] On 26 May it noted that the 'foreign market [had] naturally been most sensitive' to 'the Eastern political fears' and 'war alarms'.[33] A month later, on 30 June, there was

> another fall on the stock exchange owing to fresh war rumours, which, Servia being now alive to the fact that she can fight out her battle without present fear of foreign repression, have taken the definite shape of hostilities between Servia and Turkey, the Great Powers holding off. However, there is no feeling of certainty that war will be confined to Turkey and the rebellious state. Therefore, there was great depression amongst Russian and Hungarian bonds.[34]

[27] Ibid., 29 April 1859.
[28] Ibid., 1 January 1848.
[29] Ibid., 5 December 1851.
[30] Ibid., 8 July 1870.
[31] However, the persistently high yield of Austrian bonds in London was due to the fact that after May 1870 they were formally excluded from the London Stock Exchange following the 1868 conversion operation, which had been combined with a tax on foreign bondholders, a measure the London Stock Exchange deplored.
[32] *Economist*, 14 April 1876.
[33] Ibid., 26 May 1876.
[34] Ibid., 30 June 1876.

Momentarily, things looked more encouraging on 22 September, when 'prices of most stocks tended to rise affected by the increased chances of peace in Europe'.[35] But just two weeks later, 'There was marked depression in foreign Government stocks owing to the grave political outlook—Russia is looked at with a suspicion which has grown higher than ever, her policy being plainly to hold back the Turks while her people assist the Servians.'[36] And on 20 October the magazine recorded 'a great panic on the stock exchange which gave way on the subject of an overt Russian war upon Turkey, followed by an avalanche of sales. The fall was most serious in the case of Russian stocks'.[37] Russian and Austrian bond prices continued to fluctuate up and down in response to changes in the Eastern situation throughout 1877 and 1878. As the appendix shows, Russian bond yields rose by more than 5 per cent on eight separate occasions between June 1876 and March 1878, the date of the climactic confrontation that so nearly unleashed a full-scale war between Russia and Britain. The link between political news and expectations was made especially explicit in *The Economist*'s commentary of 15 February 1878, shortly before the Russians imposed the Peace of San Stefano on Turkey:

> The decline in Russian stocks, with an army in possession of the Turkish capital, is remarkable. Peace might enable Russia to acquire a large war indemnity, to disband its troops, and to cease extra expenditure. On the other hand, war with Austria or England would increase and prolong those extra expenses, would probably interfere with chance of an indemnity, and would tend further to exhaust the tax-paying capacity of the population—a new campaign would lead to a financial disaster. Although the risk of this is very small, this has, nevertheless, depressed Russian stocks.[38]

Repeatedly between 1845 and 1880, then, not only war, but even the mere possibility of war pushed up the risk premia and therefore the yields on great power bonds.

IV

The puzzle is that after around 1880 the threat of war seems to have counted for much less. Indeed, the magnitude of financial responses to political crises apparently *declined* even as 1914 approached—the reverse of what traditional historical accounts would lead us to expect. That, at any rate, is one possible inference to be drawn from financial market data. In the decades before 1914, there was a marked convergence in the long-term interest rates of most major economies (see figure 2). Spreads between British consols and approximately equivalent French, German, Russian, and Italian long-bond yields all tended to fall. For example, Italian yields,

[35] Ibid., 22 September 1876.
[36] Ibid., 6 October 1876.
[37] Ibid., 20 October 1876.
[38] Ibid., 15 February 1878.

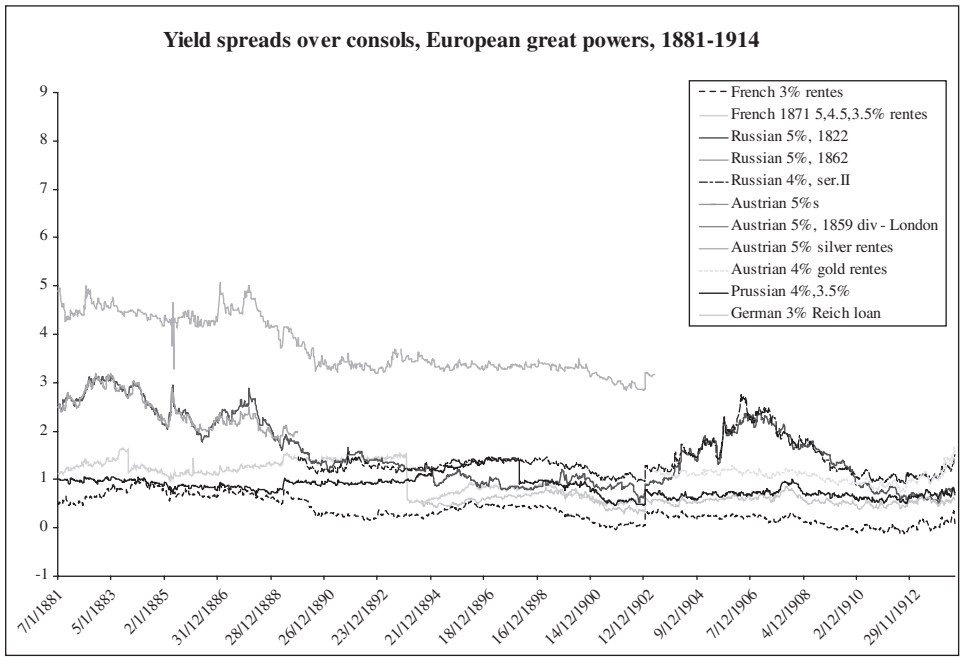

Figure 2. *Yield spreads over consols, European great powers, 1881–1914*
Source: The Economist

which were close to double British yields in 1894, had fallen to just 54 basis points above them by 1907.[39] Part of this convergence was because of the rise of consol yields from their all-time nadir of 2.25 in July 1896 to 3.6 per cent in July 1914. However, the main cause was the decline in yields on the bonds of the other great powers. Even more strikingly, the magnitude of short-run fluctuations in yields also diminished.

Table 3 shows that, compared with those of the preceding 40 years, the political crises of the period 1880–1913 had a markedly smaller impact on international bond yields. The diplomatic crisis caused by the British occupation of Egypt in 1881 had no effect at all on consols and only a trivial effect on French *rentes* (a rise of just nine basis points). The Afghan Penjdeh crisis of 1885 was more significant; it pushed up Russian yields by 61 basis points, though consols rose only five points. But the Bulgarian crisis of 1886 was responsible for at most an increase of 20 basis points on Russian bonds; the effect on consols was nil. The Boulanger crisis is often associated with Bismarckian 'sabre-rattling' and press speculation that war was 'in sight', but the effect on French yields was to increase them by just 20 basis points, and the effect on German bonds was even less. The breakdown of relations between Russia and Germany between 1888 and 1891 in fact coincided

[39] Homer and Sylla, *History of interest rates*, pp. 216–73, 291f., 312–17.

Table 3. *Wars, diplomatic crises, revolutions, and bond yields, 1881–1914*

Movements in country's yields in basis points

'Crises'	*Britain*	*France*	*Russia*	*Austria*	*Germany*
Egyptian crisis, 1/2/1881–10/2/1882	–3	9			
Afghanistan (Penjdeh), 27/3/1885–1/5/1885	5		61		
Bulgarian crisis, 20/8/1886–4/9/1886	0		20		
Boulanger crisis, 31/12/1886–4/2/1887		30			15
German-Russian antagonism, 8/6/1888–28/8/1891			–129		17
Sudan crisis (Fashoda), 9/7/1897–29/10/1898	2	3			
Boer War, 5/6/1899–31/5/1902	53				
Anglo-German antagonism (a), 3/1/1896–27/12/1901	31				28
Russo-Japanese War and 1905 revolution, 29/8/1903–16/6/1907			147		
Morocco (a), 3/10/1904–5/4/1906		–3			8
Anglo-German antagonism (b), 5/6/1906–28/10/1908	14				10
Morocco (b), 6/10/1908–22/9/1911	9	4			3
Balkans (a), 6/10/1908–29/9/1911			–65	–4	
Balkans (b), 27/9/1912–30/5/1913			–3	32	
Balkans (c), 30/6/1913–17/10/1913			–3	–16	

Source: Economist (yield data)
Note: A more detailed version of this table can be found in the appendix. Figures are only given for countries directly affected by the crisis in question

with a substantial decline in Russian yields; the rise in German yields was little more than 17 basis points. The celebrated Fashoda incident of 1898, which supposedly brought Britain and France to the brink of war, had almost no effect on the London and Paris bond markets. The Boer War certainly pushed up consol yields, but had no significant implications for any other power, Germany included. Even if one tries to portray the whole period from the beginning of the German naval construction programme until the end of 1901 as a time of growing Anglo-German friction, the effects on the bond market were negligible (and impossible to distinguish from other non-political factors at work in the same period). The power of a revolution to alarm investors also seems to have diminished over time; witness the 147 basis point rise in Russian yields in the crisis before, during, and after 1905, compared with the four-fold increases witnessed in the revolutions of 1848. Remarkably, neither the two Moroccan crises nor the successive Balkan crises had significant bond market repercussions. Indeed, until the assassination of the Archduke Franz Ferdinand on 28 June 1914, events in the Balkans coincided with *falls* in both Russian and Austrian bond yields. These events may have been important to diplomats. They have certainly been important to historians. They do not seem to have been very important to investors.

Yet it is perfectly clear from the contemporary financial press that investors did not ignore political crises after 1880. Table 4 analyses editorial explanations in *The Economist* of what the magazine regarded as noteworthy

Table 4. *Determinants of fluctuations in the price of consols, 1845–1910, as cited in* The Economist

	1845–80		*1881–1914*		*1845–1914*	
Event	*Number*	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
War	90	13.3	73	13.5	163	13.4
Domestic politics	15	2.2	27	5.0	42	3.4
Foreign politics	78	11.5	74	13.7	152	12.5
Political	183	27.0	174	32.1	357	29.3
Fiscal policy	13	1.9	32	5.9	45	3.7
Conversion operation	2	0.3	2	0.4	4	0.3
'Open market operations'	23	3.4	20	3.7	43	3.5
Monetary policy	92	13.6	49	9.0	141	11.6
Policy	130	19.2	103	19.0	233	19.1
Money market	93	13.7	113	20.8	206	16.9
Investment	39	5.8	22	4.1	61	5.0
Railways	24	3.5	4	0.7	28	2.3
Equity market	5	0.7	3	0.6	8	0.7
Industry	3	0.4	3	0.6	6	0.5
Business failures	12	1.8	3	0.6	15	1.2
Speculation	28	4.1	18	3.3	46	3.8
Hedging	2	0.3	5	0.9	7	0.6
Settlement	33	4.9	25	4.6	58	4.8
Domestic markets	239	35.3	196	36.2	435	35.7
Balance of payments	1	0.1	0	0.0	1	0.1
Gold	24	3.5	22	4.1	46	3.8
Foreign bonds	49	7.2	19	3.5	68	5.6
Bills market	3	0.4	0	0.0	3	0.2
Foreign market(s)	20	2.9	27	5.0	47	3.9
Foreign markets	97	14.3	68	12.5	165	13.5
Weather	27	4.0	1	0.2	28	2.3
Agriculture	2	0.3	0	0.0	2	0.2
TOTAL	678	100.0	542	100.0	1220	100.0

Note: The system employed here was to take notes from each issue of *The Economist* in which explicit explanations for changes (or lack of changes) in the price of consols were published and then to divide explanations into categories. The above total refers to the number of references to particular factors. The total number of editorials from which notes were taken was 978. Sometimes a single editorial offered more than one explanation. 'Open market operations' is admittedly anachronistic shorthand for purchases by the government broker

movements in the price of consols in the period from January 1845 until July 1914. Such statistics should, needless to say, be used with caution, but they do offer an insight into the way contemporaries thought, and hence into the way that expectations were formed. *The Economist*'s editors had what might be described as an eclectic theory of finance, recognizing the myriad variables that could have an effect on the price of securities. There were, as they noted in 1911, two ways of classifying the 'influences which affect the price [of consols]':

> The first class would include such influences as the value of money [i.e. short-term interest rates], large or permanent changes of supply and demand, the production of gold, and the state of trade, which cause regular movements upwards or downwards over periods of some length. The second class would include political rumours, smaller variations in supply and demand, new issues

> of capital, and other minor influences which cause vibrations in the price from day to day. . . . [T]he distinction is that in one class the influence is regular over long periods, in the other it is spasmodic.[40]

At times, accordingly, the magazine asserted the primacy of economic 'fundamentals'—as, for example, in September 1853, when it insisted (against prevailing market sentiment) 'that the price of Consols . . . must in the end be determined by the profits of business, and that the influence of every other cause, such as political changes or political disturbances, is comparatively trifling and temporary'.[41] High levels of investment, profits, or dividends in any major manufacturing sector implied a weakening of the market for government bonds as funds were diverted into higher-returning investments and as short-term interest rates tended to rise. But as rising rates turned the trade cycle downwards, bankruptcies would send investors running for the safety of consols, pushing yields back down. In addition, *The Economist* paid close attention to the more narrowly financial influences at work: speculative purchases on margin, hedging strategies, the more predictable effect of the regular settlement, and the quirk whereby consols were redeemable if they reached par—all these factors were mentioned regularly in the magazine's editorial columns. Taken together, references to such domestic market factors accounted for more than one-third of all the explanations offered for consol fluctuations. Somewhat less important were the various markets related to Britain's current and capital accounts. Movements of gold in and out of the country could have an impact on yields because of their effect on short-term rates. Major movements in the markets for commercial bills or foreign securities were also regarded as important. Yet there was no getting away from the recurrent impact of political events. At one level, government policy could have a direct impact on the bond market by influencing the supply of consols—through new borrowing or debt redemption—just as changes in the Bank of England's discount rate were often echoed in long-term rates. Similarly, conversion operations such as that of 1888 were deliberately intended to have an effect on yields. But more frequently mentioned than these direct political influences were the indirect effects of wars or threats of war, as well as domestic political events. Between 1845 and 1914, exogenous political events—primarily the possibility of war, or some other international development—accounted for more than a quarter of the explanations offered by the magazine for significant market movements.

Table 3 makes it clear that there was no significant change in the pattern of interpretations offered before and after 1880. Indeed, the share of political explanations was fractionally higher in the late period. *The Economist* may, of course, have been stuck in an interpretative rut, but it seems not unreasonable to infer that market participants also remained interested in

[40] *Economist*, 16 December 1911.
[41] Ibid., 30 September 1853.

political events after 1880.[42] The question is, therefore, why their reactions to political crises—as expressed in bond yield movements—became so much more muted in the later period. To illustrate the point: in March 1885 *The Economist* explicitly set out the case for a higher Russian risk premium on the eve of the Penjdeh crisis. Russian finances were already in a state of 'chronic deficit'. The cost of debt service had doubled in the space of the previous 10 years. 'Want of money never stopped a nation that was bent upon war from entering on it, and in an emergency, Russia can fall back upon the printing press . . . By doing so, however, she will only pave the way to future bankruptcy, and they must be very sanguine indeed who believe that if Russia became involved in a war with this country she would be able to keep up with the interest payments of her foreign debt.' Yet the magazine's editor could not help but notice the 'striking . . . steadiness of the Russian stocks'.[43] Even when the crisis broke the following month it was less severe than might have been expected—especially as *The Economist* explicitly contemplated an escalation of the crisis to involve 'Other Powers'.[44]

V

Why might investors have become less sensitive to political crises after 1880? Economic historians have offered three distinct, though not mutually exclusive explanations for the convergence of yields in the years before 1914, which may be relevant here: the spread of the gold standard, increasing international financial integration, and changes in fiscal balance.

The first explanation is that the rising number of states on the gold standard after 1870 reduced currency risk as a factor in investors' calculations.[45] In 1868 only Britain and a number of its economic dependencies—Portugal, Egypt, Canada, Chile, and Australia—had been on the gold standard. Forty years later, only China, Persia, and a handful of Central American countries were not, though in practice a number of Asian economies had a gold exchange standard and a number of 'Latin' economies in Europe and America did not maintain convertibility at all.[46] According to Bordo and Rockoff, adherence to gold was a signal of fiscal rectitude, a

[42] Each December, *The Investor's Monthly Manual* published a 'Tabular history of the money market' for the preceding twelve-month period. An examination of the tables for 1880 and 1913 reveals that the *IMM*'s editors attached as much importance to political events as did *The Economist*'s: *The Investor's Monthly Manual*, December 1880, pp. 463, 465 and December 1913, pp. 683, 685. Thanks to the efforts of William N. Goetzmann and K. Geert Rouwenhorst, the entire run of the *IMM* from 1869 to 1929 can now be accessed electronically at http://icf.som.yale.edu/imm/.

[43] *Economist*, 7 March 1885.

[44] Ibid., 11 April 1885.

[45] Bordo and Rockoff, 'Good housekeeping'.

[46] Eichengreen, B. and Flandreau, M., 'The geography of the gold standard', *International Macroeconomics*, Centre for Economic Policy Research discussion paper series, no. 1050 (October 1994), tab. 2.

'good housekeeping seal of approval'[47] which 'facilitated access by peripheral countries to capital from the core countries of western Europe'.[48] Gold standard membership was a 'commitment mechanism' indicating that 'a country followed prudent fiscal and monetary policies';[49] it would not run excessive deficits, default on its debts, or print money to collect seigniorage. They estimate that a gold peg reduced the yield on government gold-denominated bonds by around 40 basis points.[50] Similarly, Sussman and Yafeh have estimated that the decision to go onto gold in 1897 reduced the risk premium on Japanese bonds relative to consols by 200 basis points, from 4 percentage points to just 2.[51] Another interpretation, advanced by Obstfeld and Taylor, is that the gold standard promoted capital market integration by removing uncertainty about exchange rates and reducing international transaction costs.[52]

International monetary standardization may well have been a factor in the long-term convergence of great power yields. Britain had been on gold since the 1820s, while France and Germany adopted gold in the 1870s; Austria-Hungary and Russia followed suit in the 1890s, though the Austrian currency was never freely convertible.[53] As *The Economist* noted, 'The opinion prevails that . . . a gold standard country would command higher credit, and be able to borrow on more favourable terms in foreign countries than . . . a silver-standard country'.[54] Yet it is not obvious why the spread of the gold standard should have made investors more sanguine about the risks of a great power war. As Bordo and Rockoff have observed, gold convertibility was 'a contingent rule, or a rule with escape clauses',[55] which could be suspended 'in the event of a well understood, exogenously produced emergency, such as a war, on the understanding that after the emergency had safely passed convertibility would be restored at the original parity'.[56] This idea of wars as '*well understood* emergencies' is the weak link in the argument, however.[57] The point about a great power war in the years after 1880 was that its dimensions and duration were *not* well understood at all. The central

[47] Bordo and Kydland, 'Gold standard as a commitment mechanism', p. 56.
[48] Bordo and Rockoff, 'Good housekeeping', p. 321.
[49] Bordo, and Schwartz, 'Monetary policy regimes and economic performance: the historical record', NBER working paper, 6201 (September 1997), p. 10.
[50] Bordo and Rockoff, 'Good housekeeping', pp. 327, 347f.
[51] Sussman and Yafeh, 'Institutions, reforms and country risk', p. 457.
[52] Obstfeld and Taylor; 'Globalization and capital markets'; 'Sovereign risk, credibility and the gold standard'.
[53] Eichengreen and Flandreau, 'Geography', tab. 2.
[54] Ibid., p. 457, n., citing *Economist*, 24 April 1897.
[55] Bordo and Rockoff, 'Good Housekeeping'.
[56] Bordo, 'Gold as a commitment mechanism: past, present and future', *World Gold Council research study*, no. 11 (1994), p. 7. In some cases, there was a second legitimate exception to the rule: in banking crises (such as 1847, 1857, and 1866 in Britain) the authorities could temporarily suspend the golden rule to act as lender of last resort: Bordo and Kydland, 'Gold standard as a commitment mechanism', pp. 68, 77.
[57] It is inferred from the data rather than demonstrated with reference to contemporary testimony. See Bordo and Schwartz, 'Monetary policy regimes', p. 11.

argument advanced by writers like Bloch and Angell was that such a war would be unprecedented in its scale and destructiveness, and incalculable in its economic consequences. It was therefore more than likely that gold commitments would be suspended *sine die* if a major European war broke out. This makes it difficult to believe that the spread of the gold standard was the reason for the market's apparent decline in sensitivity to political risk.

A second possible explanation is simply the increasing integration of global capital markets. Bayoumi, Zevin, and Taylor have demonstrated that there was an unprecedented lack of correlation between national levels of saving and investment in the period 1880–1914 because of international financial flows, falling transaction costs, and unrestricted arbitrage.[58] This process of international financial integration can be traced back into the eighteenth century, as Neal has shown, but it still had some significant obstacles to overcome by the 1870s.[59] Significant spreads in prices of the same countries' bonds in different markets—such as Neal found for the early 1870s, comparing the prices of French 3 and 5 per cent *rentes* in London and Paris—reflected differences in liquidity between the different markets as well as unexploited arbitrage opportunities.[60] With the growth in the volume of asset arbitrage after 1870[61] and the increased speed and cheapness of communications following the introduction and proliferation of the telegraph,[62] the pace of international financial integration quickened. Economic information became more plentiful and more regularly available. Government statistical offices produced significantly more data than they had in the past, and there was a significant increase in the number of financial publications and the volume of material they contained. After 1900, if the same security was priced much differently in two major markets, it was probably because of variations in taxation.[63]

Nevertheless, such improvements in the global financial system do not explain why the London bond market should have become less sensitive to political crises that implied a higher probability of a great power war. The increased speed of communications and the proliferation of news sources did not necessarily work to diminish the significance of political risk. They simply meant that, by the early 1900s, rumours of war could cross Europe in a matter of hours rather than days. Moreover, increased international integration should have made the market more sensitive to such rumours. As Flandreau and Gallice have shown, a striking feature of the decade before

[58] Bayoumi, T., 'Saving-investment correlations: immobile capital, government policy or endogenous behaviour', *IMF Working Paper*, 89/66 (1990); Zevin, 'World financial markets'; Taylor, 'International capital mobility in history: the saving-investment relationship', NBER Working Paper, 5743 (September 1996). Cf. O'Rourke and Williamson, *Globalization and history*, pp. 215f.

[59] Neal, *Financial capitalism*.

[60] Neal, 'Integration'.

[61] Michie, 'Invisible stabiliser', pp. 10–14.

[62] O'Rourke and Williamson, *Globalization and history*, p. 220.

[63] Flandreau, Le Cacheux, and Zumer, 'Stability without a pact?', p. 121.

1914 was the rapid growth in short-term foreign deposits in London, as continental banks shifted deposits from foreign clients into the world's most liquid market.[64] In this respect, London was becoming more exposed, not less so, to the dangers of war on the continent. This was especially obvious from the point of view of the Bank of England, which had good reason to feel more vulnerable to outflows of 'hot money' than in the past. Palgrave was only one of many critics who urged 'the attainment of really sufficient reserve'. His arguments were in vain; it remained a 'thin film of gold'.[65] Remarkably, given its much-vaunted 'hegemonic' position, the UK accounted for just 3.6 per cent of all gold held by central banks and treasuries in 1913.[66] In Eichengreen's words, the Bank of England was like 'a slim man with little flesh on his bones . . . [with] only a slim gold reserve surrounding a vulnerable gold standard frame'.[67] Contemporaries understood very well that a run on the Bank's gold reserve would be met by a rise in its discount rate, and that such a monetary tightening would have its effect on long-term rates as well.

A third explanation for the convergence of bond yields before 1914 has been offered in two studies co-authored by Flandreau. Using annual data, Flandreau, Le Cacheux, and Zumer compared gold-denominated bond yields for 15 European countries, including the five that are the focus of this article.[68] The yields on most of the bonds in their sample converged on the consol yield, but only after around 1900. Clearly, some of the responsibility for this convergence could be attributed to the spread of the gold standard.[69] However, the authors show that this cannot wholly explain the yield differentials they find. They suggest that fiscal variables were more significant, in particular the ratio of public debt to GDP.[70] Their conclusion is that yields converged as debt burdens declined, a decline which had as much, if not more, to do with higher inflation and growth after the mid-1890s than with changes in fiscal policy.[71] This raises the possibility that the great powers may also have benefited from a reduction in their debt burdens, causing investors to feel less nervous about the risk of default in the event of war. The defect of this analysis is that debt/GDP ratios are anachronistic; they were unknown to investors at the time.[72] It would therefore be rather surprising if they had been related in any close way to fluctuations in great power bond yields. Nor were they; the relationship between yields

[64] Flandreau and Gallice, 'Paris, London and the international money market', esp. pp. 91–4.
[65] Clapham, quoted in Sayers, *Bank of England*, vol. I, p. 9.
[66] Ford, *Gold standard*, p. 25.
[67] Eichengreen, 'Gold standard since Alec Ford', p. 73.
[68] Flandreau, Le Cacheux, and Zumer, 'Stability without a pact?'. The sample comprises Germany, France, Britain, Belgium, the Netherlands, Switzerland, Norway, Denmark, Sweden, Portugal, Italy, Russia, Austria-Hungary, Greece, and Spain.
[69] See on Spain García-Iglesias Soto, 'Risks and returns'.
[70] Flandreau, Le Cacheux, and Zumer, 'Stability without a pact?', p. 128.
[71] Ibid., p. 149.
[72] Ferguson, *Cash nexus*, p. 285f. See also Batley and Ferguson, 'Event risk and the international bond market'.

Table 5. *Public debt burdens of the great powers in 1887–8*

	Nominal debt / revenue	*Adjusted net debt / revenue*	*Nominal debt / exports*	*Adjusted net debt / exports*
United Kingdom	7.9	4.4	2.5	1.4
Austria-Hungary[a]	6.7	6.5	6.9	6.7
France	8.2	6.6	8.6	6.9
German Reich	0.7	—	—	—
German states[b]	4.3	—	—	—
German Reich & states	3.1	—	1.9	—
Russia	6.9	6.3	7.3	6.6

Notes: a The adjustment recalculated the debt burdens to take account of the different interest burdens. No allowance was made in adjusted debt for Austro-Hungarian income tax on foreign bondholders
b Figure for revenue only for larger states. Note also that Austria-Hungary and Russia had partially depreciated paper currency ('estimated to entail a 5 per cent burden on these countries')
Sources: Nash, *Fenn's compendium*, pp. x–iv. See also Ferguson, *Cash nexus*, pp. 432f

and debt/GDP ratios was not close at all. Only in the Russian case (for which only patchy data are available) does the relationship seem to have been at all direct. In Britain the two indicators moved together until 1900, but then diverged. In France and Germany they often seem to have been inversely related.

Table 5, taken from the widely used investors' handbook *Fenn's compendium*, gives some of the measures with which late nineteenth-century investors would have been more familiar. Here debts were related to government tax revenues and exports (the latter ratio being especially important to countries with significant proportions of debt in foreign currency). In addition, debts were adjusted to take account of the higher interest coupons on peripheral countries' bonds, as well as state assets on the other side of the balance sheet (important in the case of countries which had used bond issues to finance investments in railways or port facilities). Such measures seem to have been fairly typical of the period. There are methodological similarities between the calculations in *Fenn's compendium* and the debt/national wealth ratings devised by Mulhall in the 1890s. Crédit Lyonnais based its credit ratings on net debt service as a proportion of tax revenue, allowing for past episodes of default.[73]

Were investors reacting to improvements in fiscal indicators such as these? In a later study co-authored with Zumer, Flandreau shifted his attention to contemporary fiscal measures, concluding that 'fluctuation in debt [service] burdens was the backbone of long-term interest-rate movements'.[74] However, if one seeks to relate great power bond yields to Flandreau and Zumer's data for contemporary measures of creditworthiness, the results are

[73] Flandreau, 'Caveat emptor', pp. 23–31, fig. 4. See also Flandreau and Zumer, *Making of global finance*, pp. 30–32.
[74] Flandreau and Zumer, *Making of global finance*, pp. 14, 45. Cf. Ferguson, *Cash nexus*, p. 133.

Table 6. *Correlation coefficients of bond yields against fiscal indicators, 1880–1913*

	Austria-Hungary	*France*	*Germany*	*Russia*	*Britain*
Debt/GDP	–0.17	0.26	–0.65	0.11	–0.50
Debt/tax revenue	*0.65*	*–0.19*	*–0.17*	*0.55*	–0.15
Budget balance tax revenue	*–0.45*	*–0.17*	*–0.40*	*–0.30*	0.22
Debt service/tax revenue	*0.63*	*0.32*	*–0.15*	*0.36*	–0.21
Exports/tax revenue	*0.86*	*–0.34*	*0.60*	*0.48*	0.53

Source: Calculated from Flandreau and Zumer, *Making of global finance*, statistical appendix
Note: 1913 revenue figures are not given for Austria-Hungary and Russia. 1880–84 GDP figures are not given for Russia

perplexing (see table 6). In the case of gross debt as a percentage of revenue, only the French and Russian correlations are positive. The budget balance as a percentage of revenue ought to be negatively correlated with yields, but the figure is wrongly signed for Britain and low for France. Flandreau and Zumer's preferred measure—debt service to revenue—works better for Austria, France, and Russia, but not for Germany and Britain. Surprisingly, the strongest correlations visible are for exports as a percentage of revenue, though this indicator is wrongly signed for all but France.[75]

These statistical peculiarities mainly reflect the fact that contemporary investors did not apply measures of creditworthiness in a mechanical way. For example, the debt/revenue ratios calculated in *Fenn's compendium* implied that Britain, Canada, Greece, Spain, Argentina, and Brazil were all more or less equally creditworthy. In the same way, the somewhat more sophisticated Crédit Lyonnais ratings placed Russia—the biggest external debtor in the world[76]—in the 'first division' along with the United States; if rigorously applied, the same criteria would have put Britain in the 'second division' along with Rumania, Egypt, Austria, Hungary, and Spain.[77] Plainly, investors took other factors into consideration when deciding

[75] It might be objected that simple correlations fail to capture relationships revealed by multivariable regressions of the sort employed by Flandreau and Zumer. However, like the estimation of gross domestic product, this is a technique of which contemporaries were ignorant. In any case, Flandreau and Zumer misunderstand the German fiscal system. Ostensibly, the bigger federal states (especially Prussia) had larger combined deficits in this period than the Reich, but a large proportion of the Reich's deficit was in fact financed by the so-called 'matricular contributions' from the states, not by issuing bonds. It makes little sense in this context to add together the revenue figures for the Reich and the larger federal states, even if one gets the figures right (which Flandreau and Zumer do not; their figure for 1913 is roughly double the figure for 1912, a dramatic tax increase that contemporaries would certainly have remarked upon). The Reich and the federal states entered the bond market separately, not together. The yields for the Reich's bonds need to be measured against the Reich's revenues.

[76] By 1913, Russia accounted for something in the region of one-third of the world total of foreign public debt: Lindert, P. H. and Morton, P. J., 'How sovereign debt has worked', University of California–Davis Institute of Governmental Affairs working paper (August 1997), tab. 1.

[77] Flandreau, 'Caveat emptor', fig. 5.

whether to buy or sell great power bonds, not least the degree of political stability and development.[78]

In any case, the improvements in fiscal sustainability captured by Flandreau and Zumer in their debt-service-to-revenue figures were as a result of increases in taxation as well as of reductions in debt levels, interest rates, economic growth, and inflation.[79] As most of the increases in taxation that occurred during this period were to finance rising defence expenditures, it could hardly be said that they augured well for peace in Europe.[80] The key point is that improvements in the peacetime finances of the great powers offered scant reassurance if investors were concerned about the fiscal consequences of a great power war, since everyone knew that the cost of a war would vastly exceed the cost of the pre-war arms build-up. Yet the arms race does not seem to have made financial markets more nervous. On the contrary: the more armaments were built, the lower risk premia seemed to fall.

VI

The monetary, international, and fiscal changes discussed above cannot explain why the London bond market failed to anticipate a great power war. After all, historical experience strongly suggested that such a war would cause at least some combatant countries to suspend gold convertibility,

[78] Flandreau and Zumer seek to incorporate political factors, but they do so somewhat half-heartedly. They leave out of account the reputational problems that lingered into the post-1880 period from earlier political events; these were especially important with respect to Austrian bonds. There is no intelligible criterion for the selection of the political events they do include in their sample. Nor does it seem likely that annual averages of quarterly yields and annual 'political crisis dummies' would accurately reflect the impact of political events which, as we have seen, can only be studied with much higher-frequency data. Moreover, by stopping all their series in 1913, Flandreau and Zumer fail to consider the implications of the most important political event of the entire period. Lastly, they also include in their calculations data on electoral representation to test the hypothesis that more democratic countries were also more creditworthy: Flandreau and Zumer, *Making of global finance*, pp. 34f., 131. This is based on a misunderstanding of contemporary opinion, which stressed the creditworthiness of constitutional governments with a representative element, but generally viewed widening of the franchise beyond the propertied classes with suspicion (in other words, the relationship between representation and creditworthiness was non-linear). For example, *The Economist* appeared to lay some of the blame for the Austrian decision to tax foreign bondholders precisely on the newly more representative *Reichsrat*: 'We fear', noted the magazine, 'the best intentions of the Government, or of its most eminent members, are often thwarted by the representatives of the people whose mind is not yet sufficiently cultivated to comprehend that narrow individual views, and still more selfish advantages, must give way to imperial considerations, and that a nation that aspires to become prosperous, strong, and respected, must be governed by broader views than the representatives of the Austrian people have hitherto . . . been inclined to adopt': *Economist*, 6 February 1869. Five months later, to be sure, the magazine contradicted itself by predicting that 'allowing the voice of the people to exercise some influence in the [French] Legislature' was 'the best guarantee . . . that wiser and more enlightened principles will in the future prevail, giving place to a more peaceful attitude' (ibid., 17 July 1868). The editors soon learned better. It is worth noting that when Louis Napoleon had proclaimed himself Emperor, the magazine had compared him favourably with the Portuguese monarchy, which had defaulted on its debt: 'Even a usurpation which respects property is preferred to legitimacy which violates it': ibid., 1 January 1853.

[79] Flandreau and Zumer, *Making of global finance*, p. 47.

[80] See Ferguson, 'Public finance and national security'.

might well lead to the closure of stock markets, and would certainly cause a sharp deterioration in the fiscal positions of all the powers involved. If the political crises in the decade before 1914 increased the risk of such a war even momentarily, bond yields should have ticked upwards in response. Yet the evidence from the financial press is unambiguous. The crises over Morocco and the Balkans had negligible impacts on investor sentiment. Even the assassination of the Archduke Franz Ferdinand on 28 June 1914 had no discernible effect on bond yields.

Nevertheless, two other economic factors need to be taken into account. The first is that after 1880 the London market's exposure to the bonds of the other great powers had diminished. In 1883 the bonds of foreign governments had accounted for 23 per cent of all securities quoted on the London Stock Exchange. By 1913, that share had fallen to 15 per cent.[81] There were a number of reasons for this. One was the growth in importance of domestic equities and bonds issued by public utilities. Still more important was the rise of other foreign securities such as American railway stocks and bonds, as well as bonds issued by what would now be called 'emerging markets', many of which were also British colonies. Market forces were at work here, of course, in the form of more attractive yields than the continental powers could offer,[82] but politics also lent a helping hand. At the turn of the century, two laws were passed, the Colonial Loans Act (1899) and the Colonial Stock Act (1900), which gave colonial bonds the same 'trustee status' as consols.[83] At the same time, anxieties grew that, in the event of a great power war, enemy governments might seize the opportunity to levy taxation or inflict outright confiscation on foreign bondholders. As early as 1868, following the Austrian decision to tax foreign bondholders, *The Economist* had censoriously referred to 'the new, and what by some is considered to be more dangerous element than it at first appears, and which must be kept prominently in view by all investors in foreign stocks—the liability to have one's property depreciated at any moment by the imposition of a tax'.[84] By the mid-1880s, the magazine could remark that for 'European Government stocks . . . the London market is now comparatively limited, having to a large extent been supplanted by these of Paris and Berlin'.[85] It was a point the editors reverted to 10 years later[86] and again in 1896.[87] The

[81] Details of the changing structure of the market can be found in the tables in Michie, *London Stock Exchange*, p. 89, tab. 3.3.

[82] Between 1870 and 1910, average yields on American railroads were 123 basis points higher than yields on *rentes*: Edelstein, M., 'The rate of return on U. K. home and foreign investment, 1870–1913', Ph.D. thesis (University of Pennsylvania, 1970), pp. 295–300.

[83] Cain and Hopkins, *British imperialism*, pp. 439, 570.

[84] *Economist*, 20 June 1868. I am grateful to Larry Neal for this point.

[85] Ibid., 11 April 1885.

[86] 'European government securities have, for the most part, been very sparingly dealt in on the London Stock Exchange, and their fluctuations have resulted chiefly from the course of arbitrage operations': ibid., 21 December 1895.

[87] 'Ever since the breakdown of the "boom" in South African shares there has been a steady concentration of interest in Home securities . . . Foreign Government bonds have gone more and more out of favour . . .': ibid., 19 September 1896.

diplomatic crises of the immediate pre-war decades may therefore have had a smaller effect on great power bond yields precisely because they were encouraging investors gradually to reduce their holdings of such bonds.

The second factor at work after around 1880 was the deepening of domestic capital markets. The growth of private and public savings banks, designed to attract large volumes of relatively small deposits, created a new market for government bonds, not least because such institutions were often obliged (for prudential as well as political reasons) to hold such securities as their principal assets. In Britain the number of individual holders of consols remained small at around 200,000 (a fact lamented by *The Economist*), but the number of small savers with accounts at trustee savings banks and post office savings banks soared from 1.5 million in 1860 to 10.2 million in 1910. Between 1883 and 1913 the volume of savings bank deposits very nearly trebled, at a time when the total national debt was being reduced. The post office savings banks were especially popular: by 1895 there were over 11,000 of them; by 1903 over 70 per cent of total savings deposits were in their hands.[88] According to Macdonald, savings banks assets 'constituted by far the largest element in the national debt' by 1910;[89] their deposits were equivalent to just over 30 per cent of the total national debt. Indeed, in the eyes of at least one contemporary expert, the requirement that savings banks hold their assets in the form of consols was one of the main reasons consol prices rose so high in the 1890s.[90] Further support for consol prices came after 1911 from (as *The Economist* put it) 'the societies which have been raking in premiums under the National Insurance Act'.[91]

The British model was widely, though not exactly, imitated on the continent. The French also established post office savings banks alongside the various private *caisses d'épargne* that had developed in the nineteenth century. Their post office system proved less attractive than the British, but that made little difference since, until 1895, the private institutions were obliged to hand over all their receipts for investment by the government-run *Caisse des Dépôts et Consignations*, which was in turn obliged to invest the money in public securities—requirements only slightly relaxed under legislation passed in 1895.[92] By 1910 all the French savings banks had over 8 million depositors between them; by 1913 their total assets were close to 6 billion francs—equivalent to around 18 per cent of the French national debt.[93] In France, moreover, there was also a sustained effort to sell government debt directly to small investors by issuing *rentes* in small denominations; the number of *rentiers* rose from 824,000 in 1850 to over a million in 1872, and

[88] Figures from total savings banks' deposits are from Mitchell, *International financial statistics: Europe*, pp. 801–3.
[89] Macdonald, *Free nation*, p. 380. Cf. *Economist*, 16 December 1911; 10 February 1912.
[90] Wolff, 'Savings banks', pp. 280, 282, 296–8, 301.
[91] *Economist*, 16 November 1911.
[92] Wolff, 'Savings banks', p. 307.
[93] Gueslin, 'Banks and state', p. 74, tab. 4.6.

reached 4.6 million in 1909.[94] In 1889 Russia also introduced post office savings banks, to supplement the efforts of its existing system of state savings banks. In 1887 there had been fewer than 500 of these institutions; by 1912 the total number of Russian savings banks exceeded 8,000. Between 1883 and 1913 the total deposits of all Russian savings institutions increased by a factor of 130; the national debt had meanwhile grown by a factor of just 1.7.[95]

Savings banks also proliferated in Austria-Hungary and Germany. In the mid-1890s Wolff counted nearly 6,000 in Austria, more than 4,500 in Hungary, and just under 4,000 in Prussia. By his calculations total deposits in Prussia already exceeded those in Britain.[96] Moreover, the total volume of deposits in German savings banks grew twice as fast in Britain, by a factor of nearly six between 1883 and 1913, compared with a British figure of just under three. Regional and local savings banks (*Sparkassen*) accounted for 12 per cent of the total assets of all German financial institutions in 1860; by 1913 their share had risen to 25 per cent, more even than credit banks.[97] Contrary to national stereotyping, however, the German-speaking lands imposed significantly less state control on savings banks than Britain, France, and Russia. The private savings banks were not out-stripped by public institutions as they were in Britain; nor were they so tightly controlled by the state as in France and Russia. To be sure, Austria-Hungary established post office savings banks in 1882 to supplement its existing private institutions, but in 1913 the deposits of the private savings banks were still 10 times the size of those in the post office system. The Austrian private savings banks also had much greater freedom with respect to the structure of their balance sheets; there was no obligation to hold all their assets as government bonds.[98] In Germany there was no attempt to create a Reich system of post office savings banks; this was one of the many spheres of activity that remained the domain of the Reich's member states. As in Austria, only a fraction of *Sparkassen* assets were held as government bonds. Still, the fact that such bonds accounted for around one-fifth of total assets in the mid-1890s suggests a substantial source of support for German bonds.[99]

In other words, long before the wartime campaigns to encourage small savers to invest in war loans, governments—particularly those of Britain, France, and Germany—had begun to lure them into the bond market, largely through the intermediation of savings banks. In doing so, the great powers may have created a kind of financial cushion for themselves. It seems

[94] Macdonald, *Free nation*, p. 380.

[95] Bovykin and Ana'ich, 'International Factors', p, 140; Mitchell, *International historical statistics: Europe*, pp. 801–3.

[96] Wolff, 'Savings banks', appendix.

[97] Guinnane, T. W., 'Delegated monitors, large and small: the development of Germany's banking system, 1800–1914', Centre for Economic Studies and Ifo Institute for Economic Research, working paper no. 565 (September 2001), tab. 1.

[98] Ibid., p. 315.

[99] Wolff, 'Savings banks', pp. 287, 381; Tilly, 'Role of the large German banks', p. 96, tab. 5.1.

reasonable to assume that small savers had a 'buy and hold' strategy. It also seems reasonable to assume that they were less likely than big investors to pore over the columns of the financial press, or to regard news from the Balkans as having a bearing on the future value of their savings bank deposits. With their strong home bias, relatively long time horizons, and indifference to political news, they were almost certainly less sensitive to political risk than the investors who had dominated the mid nineteenth-century bond market. As their holdings of national debts grew, then, bond yields may well have become less sensitive to political crises. Perhaps it was not the globalization of the bond market that reduced yield spreads and fluctuations; perhaps it was national segmentation, which surreptitiously diminished the financial interdependence of the great powers.

VII

It was not until 22 July—more than three weeks after the Sarajevo assassinations—that the possibility of a European political crisis was first mentioned as a potential source of financial instability in the financial pages of *The Times*.[100] A plausible inference is that continental markets were anticipating the belligerent tone of the Austrian ultimatum to Serbia, published on 23 July, which demanded official cooperation with an Austrian inquiry into the Sarajevo assassinations. This was the signal to investors that war was a real danger.

As the probability of war rose so, finally, did bond yields (see table 7). However, the process was not a straightforward matter of nervous British investors dumping continental bonds. Rather, what happened was financial contagion as the diplomatic crisis spread outwards from Austria-Hungary. The Vienna and Budapest markets were closed on Monday 27 July; St Petersburg followed two days later, and by Thursday *The Economist* regarded the Berlin and Paris bourses as closed in all but name. The shutting of the continental stock markets caused a twofold crisis in London. First, foreigners who had drawn bills on London found it much harder to make remittances; those British banks that had accepted foreign bills suddenly faced a general default as bills fell due. At the same time, there were large withdrawals of continental funds on deposit with London banks and sales of foreign-held securities. London became, as *The Economist* put it, 'a dumping ground for liquidation for the whole Continent of Europe'.[101] Yet even these developments had a remarkably limited impact on great-power bond yields. Between 22 July and 30 July (the last day when quotations were published),

[100] *The Times*, 22 July 1914, p. 19: 'STOCK EXCHANGE—DEPRESSED BY FOREIGN POLITICAL NEWS . . . Stock markets at the opening were entirely overshadowed by the news that relations between Austria-Hungary and Servia are daily growing more strained. . . . Owing to the increasing gravity of the situation in the Near East the attention of members has for the moment appeared to be diverted from the Ulster Crisis'.

[101] *Economist*, 1 August 1914.

Table 7. *Selected bond yields in July 1914 and after*

	8 July	*22 July*	*27 July*	*30 July*	*18 Sept.*	*19 Dec.*
Consols $2^1/_2$%	3.30	3.31	3.45	3.57	3.64	3.65
Austrian 4% gold	4.73	4.73	4.88	5.23		6.15
French 3% *rentes*	3.64	3.70	3.87	3.92		
French 3% *rentes* P/B[a]	3.62	3.69		3.64	4.07	4.25
German 3%	3.95	4.00	4.08	4.17		
Russian 5% 1906	4.88	4.88	5.10	5.38	5.52	5.35

Source: The Economist; The Times; The Financial Times
Note: a Based on Paris or Bordeaux prices

yields on consols rose by 26 basis points; yields on French *rentes* by 22 basis points; and yields on German bonds by 17 basis points. The rises were twice as large for Austrian and Russian bonds, yields on which rose by nearly half a percentage point (50 basis points). *The Economist* was especially struck by the widening of the bid–ask spread for consols (the gap between buyers' offers and sellers' asking prices) to a full percentage point, compared with a historic average of one-eighth of 1 per cent.[102] Nevertheless, these were not by any means unprecedented market movements.

Part of the explanation is that as early as 29 July the London market was itself beginning to shut down. With the clearing banks declining to accommodate their hard-pressed Stock Exchange clients, trading effectively ceased—'jobbers in every part of the Stock Exchange declined to deal, declined even to quote nominal prices'—and the first firms began to fail; eight in all by the close of business. The next day the news broke that the well-known house of Derenburg & Co. had been 'hammered'; this, coupled with the Bank of England's decision to raise its discount rate from 3 to 5 per cent, deepened the gloom. On the morning of 31 July came what *The Economist* called the 'final thunderclap'—the closure of the Stock Exchange, followed by the Bank of England's decision to raise the discount rate to 8 per cent.[103] The striking point, however, is that the markets closed before war was considered to be a certainty. *The Economist*—which had been more concerned about 'the continual suspense over Ulster' a week previously—captured the prevailing mood in its issue dated 1 August:

> The financial world has been staggering under a series of blows such as the delicate system of international credit has never before witnessed, or even imagined. . . . Nothing so widespread and so world-wide has ever been known before. Nothing . . . could have testified more clearly to the impossibility of running modern civilisation and war together than this closing of the London Stock Exchange owing to a collapse of prices, produced not by the actual outbreak of a small war, but by fear of a war between some of the Great Powers of Europe.[104]

[102] Lipman, E., 'The City and the "People's Budget" ', unpublished MS (1995), p. 68ff.
[103] *Economist*, 1 August 1914.
[104] Ibid. 1 August 1914. Cf. ibid., 25 July 1914.

The key phrase here is 'fear of a war'. Although Austria had declared war on Serbia on 28 July, it was still far from certain that the other great powers would join in; it was not until 31 July that Russia, after three days of indecision, began general mobilization, prompting the German government to issue its ultimatums to St Petersburg and Paris. The Germans did not declare war on Russia until 1 August; their declaration of war on France came two days later. Britain entered the fray only on 4 August (an event readers of *The Economist* had certainly not been led to expect).[105] What happened between 22 July and 30 July was therefore no more than a sharp rise in the perceived probability of a great power war on the continent; it was still not considered a certainty when the markets had to close. There is no need here to detail the subsequent steps taken by the British authorities to avert a complete financial collapse: the extension of the scheduled bank holiday through until 6 August; the one-month (later three-month) moratorium on commercial bills proclaimed on 2 August; and the decision to issue emergency £1 and 10 shilling notes, as well as to discount pre-moratorium bills.[106] The crucial point is that by 31 July the crisis had shut down the bond market, and it stayed shut until 4 January 1915. What makes this especially remarkable is that the sequence of events that led up to its closure had been so accurately predicted by *The Economist* nearly three decades earlier.

The closure of the Stock Exchange could only disguise the crisis that had been unleashed in the bond market; it could not prevent it. The isolated bond prices recorded for the period when the market was closed (based on significant transactions conducted outside the usual channels) make this clear. The price quoted for Austrian bonds on 19 December was 23 per cent below the pre-crisis level on 22 July. For *rentes* the differential was 13 per cent; for consols (and, surprisingly, for Russian bonds) 9 per cent. This was just the end of the beginning. In the course of the war, precisely as Bloch and others had foreseen, large new issues of bonds as well as money creation through the discounting of treasury bills led to sustained rises in the yields of all the combatants' bonds.[107] These rises would have been significantly higher had it not been for a variety of controls imposed on the capital markets of the combatant countries, which made it difficult for investors to reduce their exposure to pre-war great power bonds,

[105] *The Economist* made it clear that it had some sympathy with the terms of the Austrian ultimatum to Serbia: 'It is fair . . . to ask . . . what Great Britain would have done in a like case—if, for example, the Afghan Government had plotted to raise a rebellion in North-West India, and if, finally, Afghan assassins had murdered a Prince and Princess of Wales? Certainly the cry of vengeance would have been raised, and can we be sure that any measure milder than the Note sent from Vienna to Belgrade would have been dispatched from London or Calcutta to Kandahar?'. The editors saw the 'quarrel' in the Balkans as 'no more of our making and no more our concern than would be a quarrel between Argentina and Brazil or between China and Japan'. They strongly urged the government to adopt a policy of neutrality: *Economist*, 1 August 1914.

[106] Keynes, 'War and the financial system'. Cf. Moggridge, *Keynes*, pp. 236–241; Feaveryear, *Pound sterling*, pp. 337–40.

[107] Balderston, 'War finance'.

as well as by systematic central bank interventions to maintain bond prices.[108] Even so, they were substantial. The average yield on consols in the first half of 1914 had been 3.34 per cent. According to Morgan's figures, the peak of consol yields during the war was 4.92 in November 1917; the average for the period January 1915 to November 1918 was 4.29.[109] From peak to trough, consol prices declined 44 per cent between 1914 and 1920, an increase in yields of 251 basis points. The figures for French *rentes* were similar (a 40 per cent price drop and a 222 basis point hike). Moreover, Britain and France were the two great powers that emerged on the winning side of the war. The other three all suffered defeat and revolution. The Bolshevik government defaulted outright on the Russian debt, while the post-revolutionary governments in Germany and Austria reduced their real debt burdens drastically through hyperinflation. For all save the holders of British consols, who could reasonably hope that their government would restore the value of their investments when the war was over, these outcomes were even worse than the most pessimistic pre-war commentators had foreseen. The fact that investors do not seem to have considered such a scenario until the last week of July 1914 surely tells us something important about the origins of the First World War. It seems as if, in the words of *The Economist*, the City only saw 'the meaning of war' on July 31—'in a flash'.[110]

Did investors simply come to underestimate the potential impact of a war on their bond portfolios in the pre-war period, as the memory of the last great power war faded? Even allowing for the increased role of savings banks, the idea of a collective myopia about the financial implications of a great power war seems unconvincing in view of the well-known arguments of authors like Bloch and Angell, to say nothing of *The Economist*'s frequent commentaries on the subject. So did they all end up believing Angell that the European governments would never dare to start a war, precisely because it would have such dire financial consequences? That, too, seems unlikely. Angell's arguments were popular at the time mainly as an argument against a German challenge to British hegemony; few in the City shared the author's more utopian hopes that economic interdependence had made war virtually impossible. A third and more plausible interpretation is that investors correctly evaluated the international crises before 1914 as local difficulties rather than milestones on the road to Armageddon. In other words, the outbreak of a major European war genuinely seemed an unlikely occurrence for most of the period after 1880—indeed, until the last week of July 1914. This is certainly the inference to be drawn from *The Economist*'s weekly editorials. As the magazine's editors put it, only then was Europe 'suddenly confronted with the fear of a great war on a scale of unprecedented magnitude, involving loss of life and a destruction of all that we associate with modern civilisation too vast to be counted our calculated,

[108] Kooi, 'War finance'.
[109] Morgan, *Studies*, p. 152.
[110] *Economist*, 1 August 1914.

and portending horrors so appalling that the imagination shrinks from the task'.[111]

To be sure, structural changes may have served to dampen the bond market's sensitivity to political risk. Even as the international economy seemed to be converging financially as a result of exchange rate alignment, market integration, and fiscal stabilization, the great powers' bond markets were growing apart. The rise of private savings banks and post office savings banks may help to explain why bond prices became less responsive to international crises. An investor whose exposure to long-term government bonds was mediated though a savings account might well have overlooked the potential damage a war could do to his net worth, or might well have missed the signs of impending conflict. Yet even to the financially sophisticated, as far as can be judged by the financial press, the First World War came as a surprise.[112] Like an earthquake on a densely populated fault line, its victims had long known that it was a possibility, and how dire its consequences would be; but its timing remained impossible to predict, and therefore beyond the realm of normal risk assessment.

If this view is correct, then much of the traditional historiography on the origins of the war has, quite simply, over-determined the event. Far from there having been a 'long road to catastrophe', there was but a short slipway. Such a conclusion offers little support to those historians who still think of the war as an 'inevitable' consequence of deep-seated great power rivalries—a predestined cataclysm.[113] But it certainly accords with this author's earlier argument that the outbreak of war was an avoidable political error.[114]

Harvard University

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[111] Ibid., 1 August 1914.

[112] This is also readily apparent in the correspondence of the Rothschild family, then among the leading investors and market makers in the international bond market: see Ferguson, *World's banker*, ch. 30.

[113] See most recently Schroeder, 'Embedded counterfactuals'.

[114] Ferguson, *Pity of war*, chs. 1–5.

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APPENDIX 1: The biggest European yield fluctuations

a) The magnitude of UK yield fluctuations, 1845–1914

Biggest week on week rises in consol yields (percentage change)

Date	*Change (%)*	*Possible explanation*
3/03/1848	7.6	1848 revolutions. 'Fluctuations in the Public securities have been more sudden this week than at any time since the termination of the Continental war'. Lowest point 80.75–81 on Monday close (*Economist*, 3 March 1848).
31/03/1854	4.2	Eve of the Crimean War; Britain and France conclude treaty with Russia against Turkey. 'Despite large falls, the price of consols are high considering the high interest money bears on trade (money is at 5%)' (*Economist*, 31 March 1848).
29/04/1859	6.0	Austrian forces cross Sardinian frontier, 29/4. 'The fall in the English funds is most severe (more than 5.25%), partly because of the comparatively high range of prices previously current—the hopes of peace had clearly been cherished up to the latest moments'. Bank of England discount rate also increased (*Economist*, 29 April 1859).
22/12/1899	3.7	Boer War reverses: Nicholson's Nek (30 October 1899), Ladysmith (1 November), Stromberg (10 December), Magersfontein (11 December), and Colenso (15 December): so-called 'Black Week'.
31/07/1914	6.6	'The financial world has been staggering under a series of blows such as the delicate system of international credit has never before witnessed, or even imagined. . . . Nothing so widespread and so world-wide has ever been known before' (*Economist*, 31 July 1914).

b) The magnitude of French yield fluctuations, 1845–1914

Biggest week on week rises in yields of 3 per cent *rentes* in Paris (percentage change)

Date	*Change (%)*	*Possible explanation*
31/3/1848	21.4	1848 revolution; there were no prices for *rentes* after 25 February until 10 March, so the initial impact of the revolution (which broke out on 22 February) cannot be quantified. The jump at the end of March may have been due to the spread of the revolution to Vienna, Venice, Berlin, Milan, and Parma—or to the outbreak of war between Sardinia and Austria (24 March). 'The English funds fell rapidly on Wednesday in consequence of the increased likeliness of war breaking out (from accounts received from Germany and Poland)' (*Economist*, 31 March 1848).
7/4/1848	27.3	War between Piedmont and Austria (*Economist*, 7 April 1848).
25/5/1849	11.3	'. . . A rapid fall in the price of French funds due to sudden alarm in Paris following the election results, the state of Europe, and the conduct of the National Assembly. French funds fell 14% in a few days (on 21 May they were 47.25 and 76.0 respectively). However, the English funds only fell to the extent of 1%, which is confirmation that money is abundant, and that English prices depend predominantly on the condition of this country' (*Economist*, 25 May 1849).
27/4/1866	11.3	Anticipation of Austro-Prussian War as Prussian troops enter Holstein, 7 June 1866. On 8 April 1866 Italy concluded an offensive and defensive alliance with Prussia.

Date	*Change (%)*	*Possible explanation*
9/9/1870	13.7	'On Saturday when the news of the disasters at Sedan West were partially known (fully revealed on the next day), the French 3% rentes fell 1f. 15c., and on Monday the proclamation of the Republic brought them down further by 4f. 80c.; on Tuesday by another sum of 2f. 80c. Italian stocks also fell immediately on the establishment of a Republican form of government in France' (*Economist*, 9 September 1870). Revolt in Paris (4 September) following defeat at Sedan (1 September).

c) The magnitude of Russian yield fluctuations, 1845–1914

Biggest week on week rises in yields of Russian 5 per cents in London (percentage change)

Date	*Change (%)*	*Possible explanation*
3/3/1848	14.2	1848 revolution.
31/3/1848	16.0	As above.
3/3/1854	14.2	'All foreign stock is very heavy under the influence of unfavourable reports from Paris' (*Economist*, 3 March 1854). On 3 January the English fleet had been sent to the Black Sea; on 12 March France and Britain concluded an alliance with Turkey against Russia. This crisis had been brewing since the previous April, when Russians had claimed protectorate over Christian subjects of the Sultan and had occupied Danubian principalities.
20/10/1876	16.2	'There was a great panic on the stock exchange which gave way on the subject of an overt Russian war upon Turkey, followed by an avalanche of sales. The fall was most serious in the case of Russian stocks' (*Economist*, 20 October 1876). This was the month of Gladstone's pamphlet, *The Bulgarian Horrors*. The Russians had issued an ultimatum to the Turks on 31 October, following the Turkish victory over Serbia at Alexinatz (1 September).
13/4/1877	12.0	'Enormous speculative operations for the fall have this week been entered into, influenced by the warlike news on Wednesday. Russian bonds were especially affected' (*Economist*, 13 April 1877).

d) The magnitude of Austrian yield fluctuations, 1845–1914

Biggest week on week rises in Austrian bond yields in London (percentage change)

Date	*Change (%)*	*Possible explanation*
6/5/1859	19.5	France declared war on Austria (3 May), after Austrian forces crossed the Sardinian frontier (29 April).
13/4/1877	8.6	'Enormous speculative operations for the fall have this week been entered into, influenced by the warlike news on Wednesday' (*Economist*, 13 April 1877).
1/5/1885	9.4	'The price fluctuations of the silver rentes are extreme over the next few weeks. However, this was not accompanied by similar fluctuations in the gold rentes and 5% paper, suggesting monetary factors were at work. The Austrian currency declined against sterling by about 10 per cent between 1881 and 1887' (*Economist*, 1 May 1885).

Date	*Change (%)*	*Possible explanation*
15/5/1885	16.2	As above.
6/3/1914	8.2	Balkan crisis?

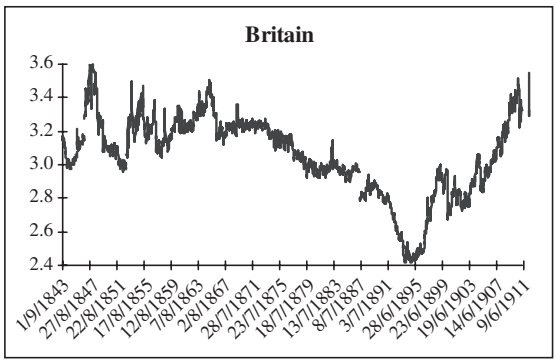
Note: Because Austrian data are very patchy and were frequently not quoted at times of extreme crisis (e.g 1848, 1866) the figures must be treated with caution.

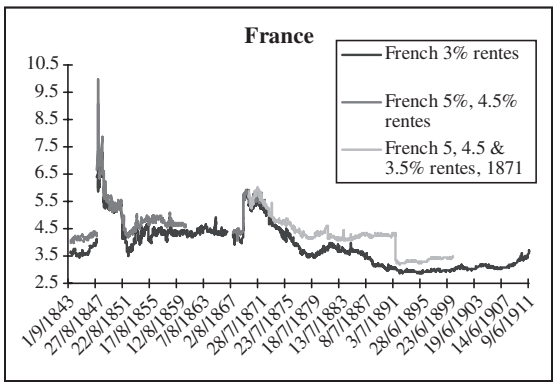
e) The magnitude of Prussian yield fluctuations, 1880–1914

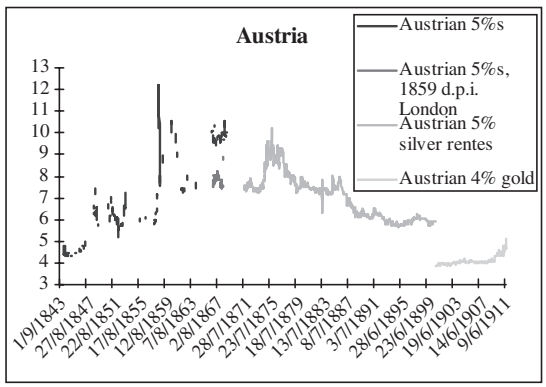
Biggest week on week rises in Prussian bond yields in London (percentage change)

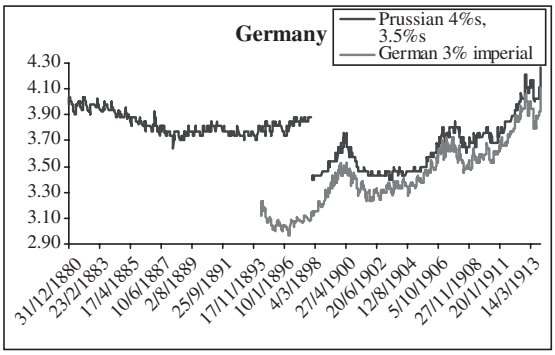
Date	*Change (%)*	*Possible explanation*
15/6/1888	2.8	Accession of Wihelm II as Emperor.
4/1/1895	2.9	Possibly American financial crisis.
7/7/1911	3.3	Arrival of *Panther* at Agadir, 1 July 1911.
3/7/1914	2.4	Reaction to assassination of Franz Ferdinand on 28 June.
31/7/1914	3.7	German demand that Russia cease mobilization, 30 July

APPENDIX 2: Bond yields of the great powers, 1843–1914









APPENDIX 3: Wars, diplomatic crises, revolutions, and bond yields, 1881–1914

Yields and movements in yields in basis points

		Britain			*France*			*Russia*			*Austria*			*Germany*		
'Crises'	*Political dates*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*
1/ Egyptian crisis																
Nationalist Rising in Egypt and British occupation	1/2/1881	1/2/1881	3.04		1/2/1881	3.55										
Royal Navy bombards Alexandria	9/7/1881	10/2/1882	3.01	–3	10/2/1882	3.64	9									
2/ Afghanistan																
Russian occupation of Penjdeh, Afghanistan	30/3/1885	27/3/1885	3.10					27/3/1885	5.49							
		1/5/1885	3.15	5				1/5/1885	6.10	61						
3/ Bulgarian crisis																
Military coup in Sofia	20/8/1886	20/8/1886	2.97					20/8/1886	4.85							
Alexander abdicates	4/9/1886	4/9/1886	2.97	0				4/9/1886	5.05	20						
4/ Boulanger crisis															(Prussian)	
Boulanger becomes war minister in Freycinet's Cabinet	7/1/1886				31/12/1886	3.65								31/12/1886	3.77	
Conviction of Schnaebele, French frontier official	20/4/1887				4/2/1887	3.95	30							4/2/1887	3.92	15
5/ German-Russian antagonism																
Wilhelm II accedes to throne	15/6/1888							8/6/1888	5.49					8/6/1888	3.64	
Franco-Russian entente	27/8/1891							28/8/1891	4.20	–129				28/8/1891	3.81	17
6/ Sudan crisis																
Marchand occupies Fashoda	10/7/1897	9/7/1897	2.44		9/7/1897	2.88										
French evacuate Fashoda	4/11/1898	29/10/1898	2.46	2	29/10/1898	2.91	3									
7/ Boer War																
Milner and Kruger fail to agree on Transvaal franchise	5/6/1899	17/2/1899	2.47													
Peace of Vereeniging	31/5/1902	29/11/1901	3.00	53												
8/ Anglo-German antagonism (a)															(Reich 3%)	
Wilhelm II sends Kruger telegram following Jameson Raid	3/1/1896	3/1/1896	2.60											3/1/1896	3.05	
First German Navy Bill	28/3/1898	28/3/1898	2.46											28/3/1898	3.14	

		Britain			France			Russia			Austria			Germany		
'Crises'	*Political dates*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*
[Chamberlain bids for alliance with Germany, US]	13/5/1898	13/5/1898	2.48											13/5/1898	3.13	
[Anglo-German secret treaty re. Portugese colonies]	30/8/1898	30/8/1898	2.50											30/8/1898	3.16	
[Anglo-German colonial agreements]	14/11/1899	14/11/1899	2.65											14/11/1899	3.35	
Chamberlain's Leicester speech	30/11/1899	30/11/1899	2.67											30/11/1899	3.35	
Bülow rejects British advances in Reichstag	11/12/1899	11/12/1899	2.70											11/12/1899	3.37	
Second Germany Navy Act	12/6/1900	12/6/1900	2.71											12/6/1900	3.43	
Chamberlain's Edinburgh speech	27/12/1901	27/12/1901	2.91											27/12/1901	3.33	
[Germany and Britain blockade Venezuala]	19/12/1902	19/12/1902	2.96	36										19/12/1902	3.3	25
9/ Russo-Japanese War and 1905 revolution																
Dismissal of Witte	29/8/1903							29/8/1903	3.79							
Outbreak of war, siege of Port Arthur	4/2/1904							4/2/1904	4.00							
Russians suffer early setback at sea	10/8/1904							10/8/1904	4.35							
Dogger Bank incident	21/10/1904							21/10/1904	4.35							
Fall of Port Arthur to Japanese	1/1/1905							1/1/1905	4.35							
'Bloody Sunday' in St Petersburg	22/1/1905							22/1/1905	4.46							
Battle of Tsushima	27/5/1905							27/5/1905	4.55							
General Strike in Russia	20/10/1905							20/10/1905	4.35							
Moscow workers' rising	22/12/1905							22/12/1905	4.95							
Fundamental Laws	6/5/1906							6/5/1906	4.76							
First Duma meets	10/5/1906							10/5/1906	4.76							
Dissolution of Duma	21/7/1906							21/7/1906	5.1							
Stolypin's agrarian reforms	22/11/1906							22/11/1906	5.21							
Second Duma meets	5/3/1907							5/3/1907	5.1							
Dissolution of Duma	16/6/1907							16/6/1907	5.26	147						
10/ Morocco (a)																
Franco-Spanish treaty with secret clauses for repartition	3/10/1904				3/10/1904	3.06								3/10/1904	3.33	
Wilhelm II visits Tangier	31/3/1905				31/3/1905	3.02								31/3/1905	3.3	
Delcassé resigns as French Foreign Minister	6/6/1905				6/6/1905	3.00								6/6/1905	3.37	
Agreement to call a conference on Morocco	28/9/1905				28/9/1905	3.01								28/9/1905	3.35	
Algeciras conference opens	16/1/1906				16/1/1906	3.03								16/1/1906	3.39	
Wilhelm II dismisses Holstein	5/4/1906				5/4/1906	3.03	−3							5/4/1906	3.41	8

'Crises'	Political dates	Britain			France			Russia			Austria			Germany		
		Low and high dates	Low and high	Increase (bps)	Low and high dates	Low and high	Increase (bps)	Low and high dates	Low and high	Increase (bps)	Low and high dates	Low and high	Increase (bps)	Low and high dates	Low and high	Increase (bps)
11/ Anglo-German Antagonism (b)																
Third German Navy Bill	5/6/1906	5/6/1906	2.81											5/6/1906	3.47	
Fourth German Navy Bill	14/6/1908	14/6/1908	2.85											14/6/1908	3.64	
Wilhelm II's *Daily Telegraph* interview	28/10/1908	28/10/1908	2.95	14										28/10/1908	3.57	10
12/ Morocco (b)																
Week before *Panther* arrives at Agadir	30/6/1911	30/6/1911	3.15		30/6/1911	3.16								30/6/1911	3.61	
Panther arrives at Agadir	1/7/1911	1/7/1911	3.17		1/7/1911	3.18								1/7/1911	3.61	
Culmination of crisis (according to Gooch and Temperly, eds., *British documents)*	22/9/1911	4/9/1811	3.24	9	4/9/1811	3.20	4							4/9/1811	3.64	3
13/ Balkans (a)																
Austria annexes Bosnia-Hercegovina	6/10/1908							6/10/1908	4.59		6/10/1908	4.08				
Russia declares Montenegro independent	28/8/1910							28/8/1910	4.39		28/8/1910	4.00				
Russia warns Turkey to withdraw troops from Montenegro frontier	23/5/1911							23/5/1911	3.94		23/5/1911	4.04				
Italy declares war on Turkey	29/9/1911							29/9/1911	3.94	−65	29/9/1911	4.04	−4			
14/ Balkans (b)																
Week before war breaks out	27/9/1912							27/9/1912	4.03		27/9/1912	4.12				
Bulgaria and Serbia mobilize against Turkey	30/9/1912							30/9/1912	4.03		30/9/1912	4.21				
Montenegro declares war on Turkey	8/10/1912							8/10/1912	4.00		8/10/1912	4.35				
Turkey declares war on Bulgaria and Serbia	17/10/1912							17/10/1912	4.00		17/10/1912	4.35				
Turks appeal to powers to intervene	3/11/1912							3/11/1912	4.00		3/11/1912	4.30				
Turks reject Balkan coalition's terms	21/11/1912							21/11/1912	4.00		21/11/1912	4.30				
Turks accept powers' peace terms after suffering more reverses vs. Greeks	31/3/1913							31/3/1913	4.03		31/3/1913	4.44				
Peace treaty signed in London	30/5/1913							30/5/1913	4.00	−3	30/5/1913	4.44	32			
15/ Balkans c)																
Second Balkan War begins with Bulgaria attacking Serbia and Greece	30/6/1913							30/6/1913	4.03		30/6/1913	4.60				
Russia declares war on Bulgaria	10/7/1913							10/7/1913	4.03		10/7/1913	4.60				

		Britain			*France*			*Russia*			*Austria*			*Germany*		
'Crises'	*Political dates*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*	*Low and high dates*	*Low and high*	*Increase (bps)*
Turkey attacks Bulgaria, recaptures Adrianpole	12/7/1913							12/7/1913	4.00		12/7/1913	4.55				
Armistice signed at Bucharest	31/7/1913							31/7/1913	4.00		31/7/1913	4.44				
Serbs invade Albania in defiance of international agreement re. Albania	17/10/1913							17/10/1913	4.00	−3	17/10/1913	4.44	−16			
16/ Balkans d)																
Week before Sarajevo assassination	26/6/1914	26/6/1914	3.33		26/6/1914	3.59		26/6/1914	4.13		26/6/1914	4.71		26/6/1914	3.90	
Assassination of Archduke Franz Ferdinand	28/6/1914	28/6/1914	3.31		28/6/1914	3.58		28/6/1914	4.13		28/6/1914	4.65		28/6/1914	3.90	
Austrian ultimatum to Serbia	23/7/1914	23/7/1914	3.33		23/7/1914	3.69		23/7/1914	4.13		23/7/1914	5.00		23/7/1914	3.95	
Grey appeals for four-power mediation	24/7/1914	24/7/1914			24/7/1914			24/7/1914			24/7/1914			24/7/1914		
Austrians mobilize on Russian frontier	26/7/1914	26/7/1914			26/7/1914			26/7/1914			26/7/1914			26/7/1914		
Austrians declare war on Serbia	28/7/1914	28/7/1914			28/7/1914			28/7/1914			28/7/1914			28/7/1914		
Germans require Russia to cease mobilisation	30/7/1914	30/7/1914	3.55	22	30/7/1914	3.64	5	30/7/1914	4.24	11	30/7/1914	5.13	42	30/7/1914	4.11	21
Germans declare war on Russia	1/8/1914	1/8/1914			1/8/1914			1/8/1914			1/8/1914			1/8/1914		
Germany occupies Luxembourg and sends ultimatum to Belgium	2/8/1914	2/8/1914			2/8/1914			2/8/1914			2/8/1914			2/8/1914		
Germany declares war on France and invades Belgium	3/8/1914	3/8/1914			3/8/1914			3/8/1914			3/8/1914			3/8/1914		
Britain declares war on Germany	4/8/1914	4/8/1914			4/8/1914			4/8/1914			4/8/1914			4/8/1914		