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Black Swans, Dragon Kings and Gray Rhinos: The World War of 1914-1918 and the Pandemic of 2020-?

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ABSTRACT: It has become a commonplace among beleaguered leaders seeking to rally popular support that the COVID-19 pandemic is a "war," albeit against an "invisible enemy." For a number of obvious reasons, a pandemic is very different from a war, of course. We think of a pandemic as a natural disaster, whereas a war as man-made. In a pandemic it is a pathogen that kills people, whereas in a war people kill people. Nevertheless, the two kinds of disaster have much in common—and not just the stark fact of excess mortality. Each belongs to that class of rare, large-scale disaster variously characterized as a black swan, a gray rhino or a dragon king. This paper focuses on one particular point of resemblance, namely the way both the war and the pandemic came as a surprise to most people, despite numerous warnings of the likelihood of such a disaster, and then proceeds to consider the epochal economic, social, political and geopolitical consequences of the war and what they might teach us about the possible consequences of the pandemic.

INTRODUCTION

It has become a commonplace among beleaguered leaders seeking to rally popular support that the COVID-19 pandemic is a "war," albeit against an "invisible enemy." A number of historians, for example Lawrence Freedman, Charles Maier and Ian Kumekawa (2020), have offered carefully qualified endorsements of this analogy. For a number of obvious reasons, a pandemic is very different from a war, of course. We think of a pandemic as a natural disaster, whereas a war as man-made. In a pandemic it is a pathogen that kills people, whereas in a war people kill people. Nevertheless, the two kinds of disaster have much in common and not just the stark fact of excess mortality. Each belongs to that class of rare, large-scale disaster variously characterized as a black swan, a gray rhino or a dragon king. This paper focuses on one particular point of resemblance, namely the way both the war and the pandemic came as a surprise to most people, despite numerous warnings of the likelihood of such a disaster. It then proceeds to consider the economic, social, political and geopolitical consequences of the war and what they might teach us about the possible consequences of the pandemic.*

Not all wars come as a bolt from the blue. The outbreak of war in 1914 did. People in 1914 knew that a large-scale European conflict was a possibility and understood how dire its consequences would be, and yet—even among the well-educated and well-informed—few grasped until late in July the imminence of Armageddon. The same might be said of people today who had been informed repeatedly of the threat posed by a contagious new virus but opted to ignore or downplay the danger when such a virus actually appeared. In its initial phase, the pandemic has therefore had more or less the same consequences as the opening few months of World War I: financial panic, economic dislocation, popular alarm, and a significant level of excess mortality, albeit among the elderly of both sexes, rather than prime-age males.

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One important difference is that today's crisis is happening without the offsetting boost to morale provided by patriotism. However, one relevant insight from 1914 is that there is likely to be a process of adjustment as it becomes clear that the crisis will not be "over by Christmas," or in this case Memorial Day (or soon after).

The paper concludes by asking if the COVID-19 pandemic will have consequences as vast as World War I. I consider the possible impacts in terms of mortality, economic disruption, politics and geopolitics. Will it kill as many people as the war, or more? Will it be as inflationary as the war? Will it cause as many debt defaults? Will it cause revolutions? Will it shift politics in North America and Europe to the left or to the right? And will it lead to the kind of "hegemonic transition" that we associate with the period after 1918, when the incumbent power—then Britain—found it impossible to resume its pre-1914 role, but the rising power—the United States—was not yet ready to take its place? In this case, it may be superfluous to add, it is the United States that is the incumbent power and the People's Republic of China the rising power.

ANALOGIES, GOOD AND BAD

Some people know no history. "This is an incredibly unusual situation," we read in the *Financial Times*, "a kind of crisis we've never seen before." This illustrates that when people use the word "unprecedented" about a crisis, they are generally conveying their ignorance of history. Only slightly better are the many bad historical analogies being deployed as people try to understand the implications of the pandemic. Here is one example. In March the Archbishop of Canterbury likened the impact to a nuclear explosion: "The initial impact is colossal," he said, "but the fallout last[s] for years and will shape us in ways we can't even begin to predict at the moment." This is misleading. To see why, just reflect on what befell Hiroshima and Nagasaki when the first operational atomic bombs was detonated over them in August 1945. Roughly as many people were killed immediately by "Little

Boy" in Hiroshima as had been killed in the Dresden firestorm six months before, which was around 35,000. But by the end of 1945 the Japanese death toll had risen much higher, to as many as 140,000 in Hiroshima and 70,000 in Nagasaki. In addition, there were large numbers of later deaths due to leukemia and cancer attributable to the radiation released by the two bombs.

At the time of writing (May 1), COVID-19 is estimated to have killed nearly 240,000 people worldwide over a period of roughly five months (the first case was identified in Wuhan on December 1, 2019). That is very probably an underestimate. On the basis of excess deaths relative to expected deaths in the first four months of 2020, the true death toll may be as high as 318,000. And this figure will certainly rise in the months ahead. Unlike the immediate shockwave and subsequent radiation from a nuclear explosion, however, SARS-CoV-2 is a virus that can be evaded if individuals and societies take the right precautions. The same "bomb" was dropped on Taiwan as on Italy and New York state. To date, six people have died of COVID-19 in Taiwan.

That is not to say that geopolitical analogies are always invalid, however, or that only the study of other global pandemics can help us understand this one. The lessons of the Black Death for 2020 are few and far between, except perhaps that the less integrated the world economy is, the slower a pathogen can travel; that social distancing always makes sense in a pandemic; and that people fleeing contagion are usually spreading it. Rather, we need to think of COVID-19 as one of those rare catastrophes that befall humanity at irregular intervals in history. In addition to pandemics, these include major wars, volcanic eruptions or earthquakes and extreme climatic events. Historians tend to gravitate towards the study of such extreme disasters. Yet they seldom reflect very deeply on their common properties.

Taleb (2007) defined a "black swan" as any event that "seems to us, on the basis of our limited experience, to be impossible." We are accustomed by evolution and education to certain heuristic biases, which lead us to expect most phenomena to be (like the heights of humans) normally distributed. But the statistical distributions of earthquakes, financial crises and wars—to name just three examples—obey a quite different set of rules: often, though not always, "power laws." In each case, when you plot a chart there is much less clustering around the average, and there are many more data points at the extremes. Compared with the standard bell curve, these curves have "fat tails" at each end: there are many more really big quakes, stock market crashes and wars than the normal distribution would lead you to expect.

Power laws are surprisingly ubiquitous (Buchanan 2002). They also characterize the distributions of meteorites and debris size orbiting around the Earth, forest fires, rain events, daily stock market returns, movie revenues, individual annual health charges and identity theft losses. In these cases, there is no real way to predict extreme outcomes because nothing distinguishes them from their small siblings. However, Sornette (2009) defines a "dragon king" as an event so extreme that it lies outside a power-law distribution. He finds examples in six domains: city sizes, acoustic emissions associated with material failure, velocity increments in hydrodynamic turbulence, financial drawdowns the energies of epileptic seizures in humans and in model animals, and (possibly) earthquake energies. Dragon kings, he argues, are "transient organization into extreme events that are statistically and mechanistically different from the rest of their smaller siblings." They "exhibit a degree of predictability, because they are associated with mechanisms expressed differently than for the other events. Often, dragon-kings are associated with the occurrence of a phase transition, bifurcation, catastrophe, tipping point, whose emergent organization produces useful precursors." This raises an important question: are some other kinds of historical disaster—big pandemics or big wars—dragon kings rather than black swans? It is worth adding that, though it might be hard to prove statistically, dragon kings would appear to exist in history outside the realm of catastrophe. There have been countless holy men or founders of religious cults. Only three (Gautama Buddha, Jesus Christ and Muhammad) founded world religions capable of attracting hundreds of millions of adherents and enduring for centuries. There have been countless secular political theorists. None has matched Karl Marx in inspiring not only hundreds of millions of believers but also multiple political parties, revolutions and states. And there have been many periods of technological change in human history. Only one, heavily concentrated on the manufacture of textiles and iron, produced an industrial revolution. These extreme outliers seem more like dragon kings than black swans.

Finally, there is the more humdrum species of disaster nicknamed the gray rhino: "things that [are] dangerous, obvious, and highly probable." (Wucker 2016) A list of recent gray rhinos, Wucker suggested four year ago, would include "climate change and financial crisis at the global-policy level to disruptive technologies that reshaped entire industries … Hurricane Katrina, the 2008 financial crisis, the 2007 Minnesota bridge collapse, cyber attacks, wildfires, water shortages"—and a pandemic (ibid., 9, 151, 158). The defect of the "gray rhino" concept is that it conflates large and small disasters.

Essentially, a pandemic of the sort we confront today—caused by a highly contagious (because hard to detect) and yet unusually lethal virus—is about as frequent an event as a world war. Making due allowance for the defects of historical statistics, we can say that there have probably been in all of recorded history ten major pandemics with estimated victims greater than 0.5 per cent of estimated world population, of which four killed more than 3 per cent and two more than 30 per cent (Cirillo and Taleb 2020). Likewise, the available data on mortality due to warfare point to the existence of a small number of very lethal conflicts. Data from Richardson (1945), Levy (1983) and other more recent studies point to seven large-scale wars that killed in excess of 0.1 per cent of the estimated world population at the time. The two world wars were the deadliest conflicts in history in absolute terms, killing around 1 per cent and 3 per cent, respectively, of the world population in 1914 and 1939. But there were almost certainly more devastating conflicts in relative terms in earlier periods, notably the wars of the Three Kingdoms era in 3rd-century China, between the Han and Jin dynasties (Cirillo and Taleb 2019; Braumoeller 2019; Clauset 2020). Pathogens have been significantly more lethal than wars. The deadliest pandemics were the bubonic Plague of Justinian (541-2) and the Black Death (1331-53), both of which may have killed as much as third of the world's population (Cirillo and Taleb 2020). According to Cirillo and Taleb's estimates, "no armed conflict has ever killed more than 19 per cent of the world population" (Cirillo and Taleb 2015).

Not even the most pessimistic epidemiologist regards COVID-19 as being capable of such devastation. Nevertheless, one highly influential epidemiological model suggested that the pandemic of 2020, in the absence of non-pharmaceutical interventions, could kill up to 40 million people (Walker et al. 2020). Relative to a world population of 7.8 billion, that would approximate closely to the battlefield deaths due to World War I. While it seems clear that the ultimate death toll of COVID-19 will not be as great as 40 million—either because the model exaggerated the infection fatality rate of the disease or because social distancing, economic lockdowns will avert mass death until a vaccine and therapies are available—there is no guarantee of this benign outcome at this stage. If, as many contemporaries expected at its outset, World War I had lasted no longer than five months, it too would have been much less deadly.

Of the two world wars, the second was not unexpected, so I am not convinced that analogies with it can help us much (Maier and Kumekawa 2020). World War I, however, came as a great surprise to most people, just as COVID-19 has.* We can learn a good deal about the nature of today's crisis by looking at what happened just over a century ago.

LESSONS OF HISTORY: 1914

In 1914 an assassin's bullets in Sarajevo played the part of the novel coronavirus in Wuhan, which claimed its first victim on January 11, 2020. Less than 106 years earlier, on June 28, 1914, the first

* Note that the financial crisis of 2008 did not strike nearly so suddenly. It was so obvious that there was going to be a major financial crisis from late 2006 onwards that I had time to write and publish a book on the subject, *The Ascent of Money* (2008), which appeared shortly before the bankruptcy of Lehman Brothers.

victims of the First World were killed when a tubercular nineteen-year-old Bosnian youth named Gavrilo Princip carried out the most successful terrorist act in all history. The shots he fired that day not only severed fatally the jugular vein of the Archduke Francis Ferdinand, the Habsburg heir to the thrones of Austria and Hungary, as well as killing his wife; Princip also precipitated a war that destroyed the Austro-Hungarian Empire and transformed Bosnia-Herzegovina from one of its colonies into a part of a new South Slav state. These were in fact the things Princip had hoped to achieve, even if he cannot have anticipated such far-reaching success (Clark 2012).

Yet these were only the intended consequences of his action. The war he triggered was not confined to the Balkans; it also drew broad and hideous scars across northern Europe and the Near East. Like gargantuan abattoirs, its battlefields sucked in and slaughtered young men from all the extremities of the globe, claiming in all nearly ten million lives as a direct result of warfare and many more indirectly through malnourishment and disease. The war also furnished a pretext for the Ottoman regime’s genocide against its Armenian subjects. And of course it is unlikely that the 1918-19 “Spanish influenza” would have been so devastating in its impact had it not been for the war’s effects in spreading the virus through troop movements and weakening the resistance of populations.* Moreover, even when an armistice was proclaimed, the war refused to stop; it swept eastwards after 1918, as if eluding the grasp of the peacemakers. In Poland and Ukraine, for example, it was not easy to say exactly when World War I ended and when the Russian Civil War unleashed by the Bolshevik Revolution began.

World War I was enormously disruptive in economic terms, too. In the summer of 1914, the world economy was thriving in ways that look distinctly familiar. The mobility of commodities, capital and labor reached levels comparable with those we know today; the sea lanes and telegraphs across

* It is possible that the nature of trench warfare created natural selection pressures for the deadliest strain of flu. Only those soldiers that were sufficiently incapacitated by the virus were sent back to hospitals, while those infected by milder strains remained on the front lines with a significant chance of being killed by the enemy.

the Atlantic were never busier, as capital and migrants went west and raw materials and manufactures went east. The war sank globalization—literally. Nearly thirteen million tons of shipping went to the bottom of the sea as a result of German naval action, most of it by U-boats. International trade, investment and emigration all collapsed. In the war's aftermath, revolutionary regimes arose that were fundamentally hostile to international economic integration. Plans replaced the market; autarky and protection took the place of free trade. Flows of goods diminished; flows of people and capital all but dried up (Ferguson 2006).

In political terms, too, the war was transformative. The war swept away four dynasties that had ruled for centuries: the Romanovs, the Habsburgs, the Hohenzollerns and the Ottomans. The European empires' grip on the world—which had been the political undergirding of globalization—was dealt a profound, if not quite fatal, blow. A great many new nation states were created. At the same time, the process of democratization was greatly accelerated. Franchises were widened and, in many countries, women were granted the vote. Socialist parties came to power through revolutions or elections. The power of trade unions was greatly increased.

Yet it there were countertrends, too. The experience of war convinced many veterans and civilians alike that liberalism, with its representative parliamentary institutions and law-based procedures, had become obsolete. Not only communists but also fascists proposed alternative political arrangements that radically diminished the roles of free elections and individual freedoms. Finally, efforts to "recast bourgeois Europe" and restore the pre-war order were fatally undermined by the structural instability of the international order that emerged after the war (Maier 1975). The restored gold standard functioned poorly (Eichengreen 1992). Significant elements of the peace treaties proved impossible to enforce. New institutions of collective security such as the League of Nations proved weak in the face of defiant nation states. More broadly, the United States failed to match its greatly enhanced economic importance with a commensurate geopolitical role (Kindleberger 1973). Power remained disproportionately in the hands of the victorious European empires, the British and the French. But each was fiscally and domestically so constrained that they could not preserve the fruits of their victory.

It seems worth asking if the present pandemic could have comparably large economic, social, political and geopolitical consequences as the war. While that might at first sight seem unlikely, it becomes less implausible the more deeply one considers the similarities between the two crises. In its initial phase, the pandemic had more or less the same consequences as the opening few months of World War I: financial panic, economic dislocation, popular alarm, and a significant level of excess mortality, albeit among the elderly of both sexes, not young males. As it progressed, like our pandemic today, the war refused to end in the timely way that most participants had foreseen. We can learn a good deal about what lies ahead of us by reflecting on the ways the combatant states responded to the unexpected global crisis and on the speed with which people adjusted to the reality of a sustained campaign against a tenacious enemy.

TALES OF THE UNEXPECTED

The number of days between the archduke’s assassination and the British declaration of war on Germany was 44. The number of days between China’s admission of human-to-human transmission of COVID-19 (on January 20) and total global cases reaching 100,000 (March 3) was 46. On February 19, 2020, there were just 15 confirmed cases of COVID-19 in the United States. On February 23 the president of the United States was insisting: “We have it very much under control in this country.” A month later, as I was writing the first draft of this paper, California, New York and a rising proportion of other states were shutting down all but essential services in an effort to contain the virus. In other words, Europe went from a Ruritanian assassination to mobilizing for all-out war in a similar timeframe to the one that took the Western world from complacent commentary on a Chinese provincial health problem to panic in the face a global pandemic.

Historians have, on the whole, tended to portray the years before the outbreak of World War I as a time of mounting tension and escalating crises. War, they have claimed, did not burst onto the scene in the summer of 1914; rather, it approached over a period of years, even decades (see e.g. Geiss 1990). However, contemporary testimony makes it clear that World War I was in reality a sudden shock, not a long-anticipated crisis. Only retrospectively did people decide they had seen it coming all along. Precisely for that reason the consequences of the war were so world-shaking.

That is not to say that no one had discussed the possibility of a major European war before July 1914. On the contrary, the scenario of a war between Britain and Germany was the stuff of numerous popular novels such as *The Riddle of the Sands* and *The Thirty-Nine Steps*. The German threat was the subject of parliamentary debates and diplomatic memoranda (Ferguson 1998). In just the same way, the threat of a pandemic inspired numerous authors of science fiction and Ted talks in the twenty years before COVID-19. There were acts of Congress, study panels, 36-page strategy documents, all dedicated to the issue of "biodefense." It was not lack of forewarning that led to the nasty surprise, but a failure to internalize the warnings and put in place workable contingency plans. In terms of their scale, the war and the pandemic were probably more like black swans than "dragon kings." In June 1914 it seemed like just another Balkan crisis; in January 2020 like just another Asian coronavirus. In terms of their predictability, they were more like "gray rhinos" (Wucker 2016): in each case, it was a matter of "when, not if." In terms of their wider economic and political consequences, however, they may well have been dragon kings.

If any social group had a strong interest in anticipating the approach of a world war in 1914, it was investors and the financiers who served their needs in the City of London, the biggest international financial market in the pre-war world. The reason is obvious: they had a great deal to lose in the event of such a war. Every informed person knew that a major European war would trigger a financial crisis. The Russian *chargé d'affaires* in Berlin warned a German diplomat as early as July 22 that “German shareholders” would “pay the price with their own securities with the methods of the Austrian politicians.” The next day the British Foreign Secretary Sir Edward Grey predicted (in conversation with the Austrian ambassador Count Mensdorff) that war “must involve the expenditure of so vast a sum of money and such an interference with trade, that a war would be accompanied or followed by a complete collapse of European credit and industry.” A continental war, Grey informed the German ambassador Prince Lichnowsky on the 24th, would have “absolutely incalculable … results”: “total exhaustion and impoverishment; industry and trade would be ruined, and the power of capital destroyed. Revolutionary movements like those of the year 1848 due to the collapse of industrial activities would be the result.” (Ferguson 1998)

This was no mere rhetorical device: there were genuine fears in London in early August of “an incipient food panic,” which would result in “serious trouble” if it “spread to the mass of the labouring population.” On July 31, Grey went so far as to use this as an argument in favor of British non-intervention, as the French ambassador Paul Cambon reported to Paris:

> It is thought that the coming conflict will plunge the finances of Europe into trouble, that Britain was facing an economic and financial crisis without precedent and that British neutrality might be the only way of averting a complete collapse of European credit.

We would therefore expect any event that made such a war seem more likely to have had a detectable effect on investor sentiment long before the troops began to be mobilized. Yet it would seem that the City of London, including some of its best-informed financiers (e.g. the Rothschilds), discerned the imminence of world war only at a very late stage indeed. On July 22, 1914—four weeks after the assassination of the archduke—Lord Rothschild told his relatives in Paris that he “rather fanc[ied] the well founded belief in influential quarters that unless Russia backed up Servia [*sic*] the latter will eat humble pie and that the inclination in Russia is to remain quiet, circumstances there not favouring a forward movement." The following day he wrote that he expected "that the various matters in dispute will be arranged without appeal to arms." As late as July 31, Rothschild continued to give credence to "rumours in the City that the German Emperor [was] using all of his influence at both St Petersburg & Vienna to find a solution which would not be distasteful either to Austria or to Russia." Only at this, the eleventh hour, did he show signs of grasping the scale of what was happening (Ferguson 1999). This was the equivalent of "It's no worse than the flu" in February 2020.

Rothschild was by no means exceptionally slow on the uptake. On July 22—again, four weeks after the assassination at Sarajevo—the London *Times* published what seems to have been the first English-language allusion to the possibility that the crisis in the Balkans might have negative financial consequences. The report appeared on page 19. The *Economist*'s August 1 edition made it clear just how surprised the City was by the events of the intervening week:

> 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 … 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 (Ferguson 2006b).

The key phrase here is "fear of a war." Although Austria had declared war on Serbia on July 28, even at this late stage it was still far from certain that the other great powers would join in.

ANATOMY OF A FINANCIAL PANIC WITH A NON-FINANCIAL CAUSE

In 1914 financial crisis preceded the war itself. It was not until July 31 that Russia, after three days of indecision, began general mobilization and the German government issued its ultimatums to St

Petersburg and Paris. The Germans declared war on Russia only on August 1; the declaration of war on France came two days later. Britain did not enter the fray until the 4th. Before a shot was fired, then, but as the probability of war suddenly rose, the great financial crisis long before foreseen by Ivan Bloch, Norman Angell and others unfolded. What happened was a classic case of international financial contagion.

The Vienna stock exchange had begun to slide as early as July 13. In Hamburg, the banker Max Warburg had begun "realize what could be sold, and reduce our engagements" immediately after the Sarajevo assassination; and by July 20 the main Hamburg banks had to take the first measures to counter a panic on the stock exchange. The earliness of the crisis in Hamburg was probably due to a series of official indications that war was imminent. On July 18 the Kaiser had requested that the shipping magnate Albert Ballin be informed of possible mobilization; three days later the Reich Chancellery wrote to the Senate about the need for regional labor exchanges to allocate workers in the event of a war; and on July 23 the Foreign Office sent an official to Hamburg with a copy of the Austrian Ultimatum to Serbia (Ferguson 1995).

When news reached Hamburg on the evening of July 28 that the German government had rejected Grey's proposal for a conference of foreign ministers in London, there was such acute panic on the Hamburg stock exchange that Max Warburg felt compelled to contact the Foreign Office in Berlin. He was authorized to announce that although the German government did not regard the proposed conference as "feasible," nevertheless "the [bi-lateral] negotiations from Cabinet to Cabinet, which had already been initiated with the utmost success, would be continued." Although this disingenuous statement was greeted with applause, the bourse was not re-opened that evening.

The crisis was not really detectable in London until July 27—the day before the Austrian declaration of war on Serbia—when German banks began to withdraw deposits and wind up positions. That this was only the beginning became apparent the next day when—in a development which took Lord Rothschild wholly by surprise—his Paris cousins sent a coded telegram requesting the sale of "a vast quantity of Consols [UK near-perpetual government bonds, the safe asset of that time] here for the French Govt & Savings banks." Rothschild refused, first on the purely technical ground that "in the actual state of our markets it is quite impossible to do anything at all"; then adding that the more political argument that it would produce "a deplorable effect … if we were to send gold to a Continental Power for the purpose of strengthening itself at a moment when 'War' is in the mouths of everyone." Despite his assurances to the French Rothschilds that their telegrams were being kept strictly secret, Natty at once warned the prime minister, Hebert Asquith, of what had happened. With heroic understatement, Asquith described this to his mistress Venetia Stanley as "ominous." In his dairy, he was more candid: "The City … is in a terrible state of depression and paralysis … The prospect is very black."

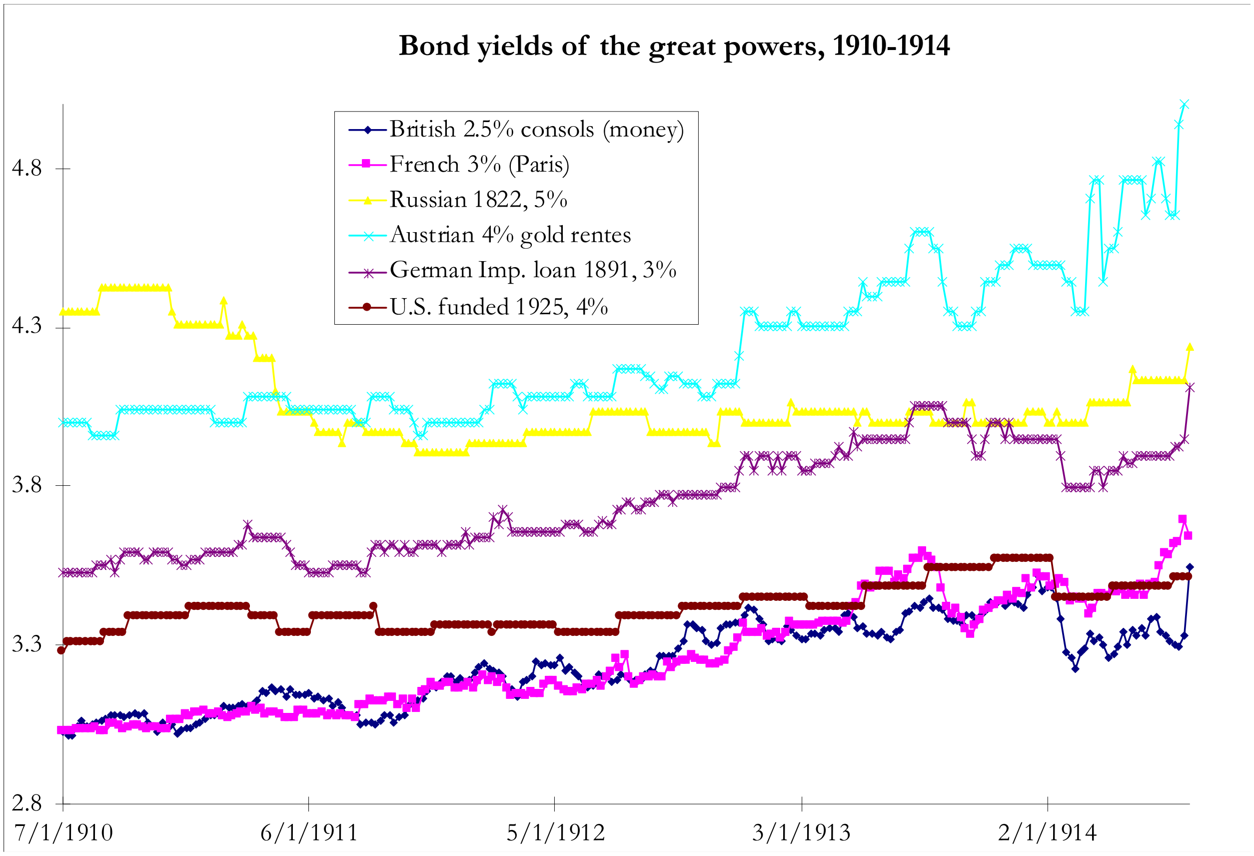
The Vienna and Budapest markets, which had been sliding for more than a week, were closed on Monday, July 27, St Petersburg followed two days later, and by Thursday the *Economist* regarded the Berlin and Paris bourses as shut in all but name. The closure of the continental stock markets caused a twofold crisis in London. First, foreigners who had drawn commercial bills on London found it much harder to make remittances; those British banks which had accepted foreign bills suddenly faced a general default as the 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." On July 29, with the clearing banks declining to accommodate their hard-pressed stock exchange clients, trading effectively ceased and the first firms began to fail. The next day the news broke that the well-known stockbrokers Derenburg & Co. had been "hammered" (declared bankrupt); this, coupled with the Bank of England's decision to raise its discount rate from 3 to 5 per cent, deepened the gloom.

It is important to bear in mind that the crisis of July 1914 struck an international monetary system that centered on London and the time-honored link between the pound sterling and gold. Standard practice for the Bank of England, if it was faced with a reduction in its gold reserve, was to raise its interest rate ("Bank rate") to discourage outflows—a very different policy rule from the one followed in the era of fiat money and disinflation, when central banks cut rates in response to financial distress. Moreover, the crisis came after a sustained decade and a half of rising nominal interest rates, mainly reflecting new gold discoveries and the growth of joint-stock banking and hence monetary aggregates around the world.

It is also important to note that stock markets—unlike in 2020—were far from being "priced for perfection." The index for total real returns for UK equity investors shows that the market hit a plateau in 1910 and declined slightly between then and 1913. Similarly, an index of railway shares points to a decline from a peak in mid 1911. On a cyclically adjusted basis, the price-earnings ratio for the New York index had been declining since 1901, when it peaked at 25. By the eve of the war it had fallen below 11. (By comparison, Robert Schiller's cyclically adjusted price-earnings ratio was still close to its post-financial crisis high of above 30 when the 2020 pandemic began.)

An important early symptom of the 1914 crisis was a sharp fall in bond prices—the customary sign of an international political crisis since before the time of Napoleon. On July 29 British consol prices plunged from above 74 to 69.5 and continued to fall when the market re-opened; and consols were usually the investor's penultimate resort (before gold) in a crisis. The five-point drop on August 1 was, according to the *Economist*, unprecedented, as was the widening of the bid–ask spread (the gap between buyers' offers and seller's asking prices) to a full point compared with a historic average of one-eighth. The bonds of the other powers slumped even further (Ferguson 2006b).

FIGURE 1



Source: *The Economist*.

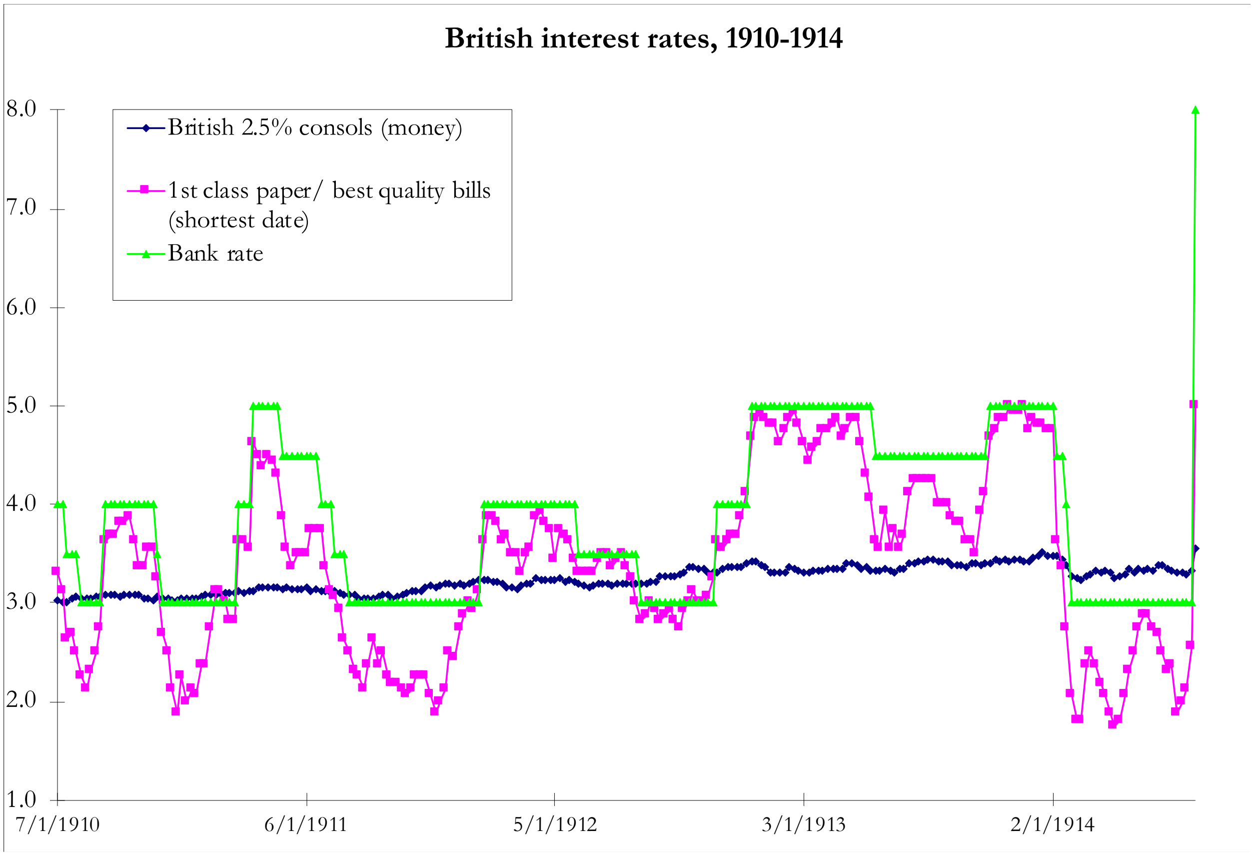
The slump affected share prices too, even those of non-European companies. The brilliant young Cambridge economist John Maynard Keynes had made some "courageous" purchases of Rio Tinto and Canadian Pacific shares on June 28 on the assumption that Russia and Germany would not "join in" an Austro-Serbian war. He was one of many investors who suffered severe losses. What remained uncertain until August 3 was whether or not Britain would actually enter the war. The prices to August 1 therefore allow us to infer what the City expected to happen in a purely continental conflict. Between July 18 and August 1 (the last day when quotations were published), the bonds of all the major powers slumped, but some fell further than others. Russian 4 per cents fell by 8.7 per cent, French 3 per cents by 7.8 per cent—but German 3 per cents by just 4 per cent. In the absence of British intervention, the City was putting its money on Moltke, just as it had in the Franco-German War of 1870.

The British government's decision (on August 2) to tip the balance in favor of France by intervening put a new complexion on everything, for it portended both a long war and a global war. Had the European stock markets remained open after August 1, prices of all securities would have fallen further; indeed, there is every reason to think that the collapse would have overshadowed all the crises of the preceding hundred years—including the revolutionary *annus horribilis* of 1848 (Ferguson 2006b).

Enough was known about British war plans (and enough was recollected of the experience of a century before) for it to be assumed that trade between the combatants would now effectively halt: no more shipments of German goods to Britain, no more shipments of British goods to Germany. Yet payment for the ships which would now never sail had invariably been made in advance by the issue of commercial bills. The acceptance houses who financed this trade by discounting such bills were therefore in desperate straits, with around £350 million of acceptances outstanding and an unknowable proportion of them unlikely to be honored. As Keynes pointed out, this had major implications for the banking system as a whole: "The [clearing] banks … are depending on the accepting houses and on the discount houses; the discount houses are depending on the accepting houses; and the accepting houses are depending on foreign clients who are unable to remit." (Keynes 1914)

The possibility was now dawning on investors and policymakers that an acute liquidity crisis emanating from the acceptance houses could threaten the entire British financial system. By the 30th, the Bank of England had advanced £14 million to the discount market and a similar amount to the banks, but it was forced to protect its own reserves (which fell from 51 per cent of liabilities to just 14.5 per cent) by pushing up Bank rate from 3 to 4 per cent.

FIGURE 2



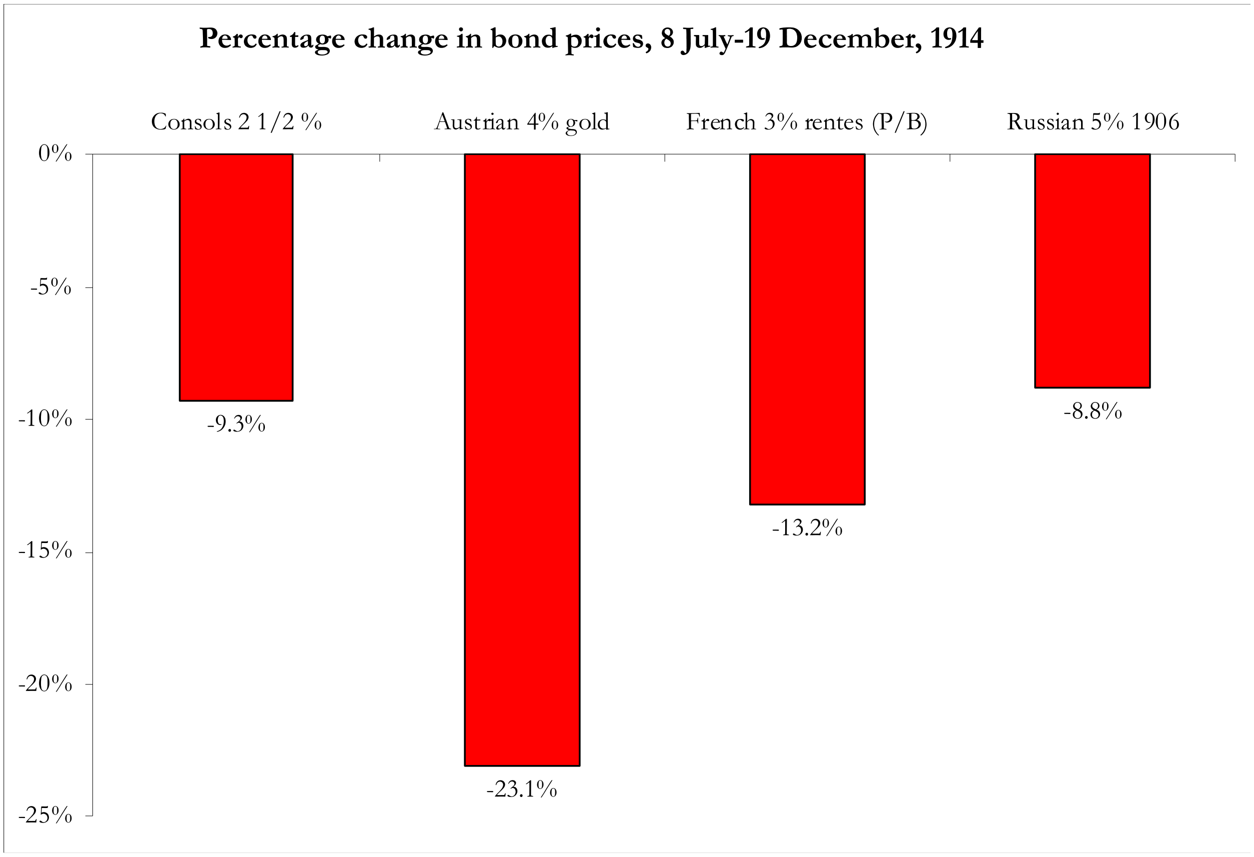
Source: *The Economist*.

Already on July 27 the Russian central bank had been forced to suspend gold convertibility. When the Bank of England sought to avoid the same fate by doubling its base rate to 8 per cent on 31 July, followed by a further 2 per cent hike the following day, the market simply crashed. To avert a complete implosion, the London stock exchange had to be closed on the 31st, a step also taken in Berlin and Paris. Closure of the bourse had happened in Paris before (in 1848 for example); but not even the worst crisis of the nineteenth century had previously necessitated such a drastic measure in London. To the *Economist*, this was the "final thunderclap." The next day (as in 1847, 1857 and 1866), the Chancellor of the Exchequer Lloyd George sent the Governor of the Bank a letter permitting him to exceed, if need be, the note-issue limit set by the Bank Charter Act—in other words, to suspend the rules of the gold standard (Ferguson 2006b).

Fortuitously, August 1 was a Saturday and the following Monday a Bank Holiday; further breathing space was provided by extending the holiday for the rest of the week. The stock exchange remained closed “until further notice.” There was also, as in Paris, a temporary moratorium on debts (a measure successfully avoided in Berlin). The crucial point is that by July 31 the crisis had closed down the London stock market, and it stayed closed until January 4, 1915. There could be no better testimony to the size of the financial shock caused by the unexpected outbreak of a world war.

Yet the closure of stock exchanges could only disguise the crisis that had been unleashed; 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 December 19 was 23 per cent below the pre-crisis level on July 22. For French rentes the differential was 13 per cent, for British consols and for Russian bonds (surprisingly) just 9 per cent. Investors in 1914 wholly failed to foresee the massive default that would strike holders of Russian bonds just a few years later as a result of the Bolshevik Revolution.

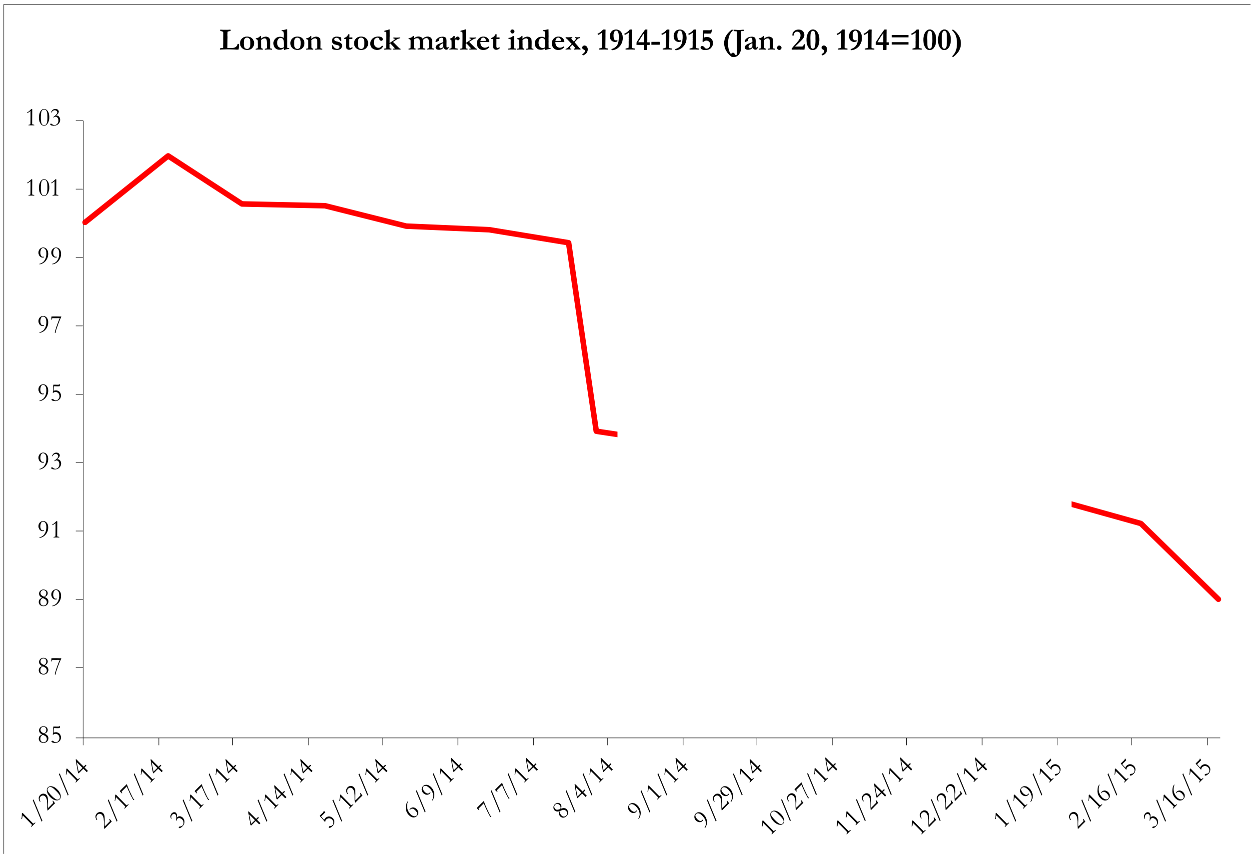
FIGURE 3



Source: *The Economist*.

The full extent of the damage done to UK stocks is harder to discern, but clearly a steep sell-off was masked by the closure of the stock exchange.

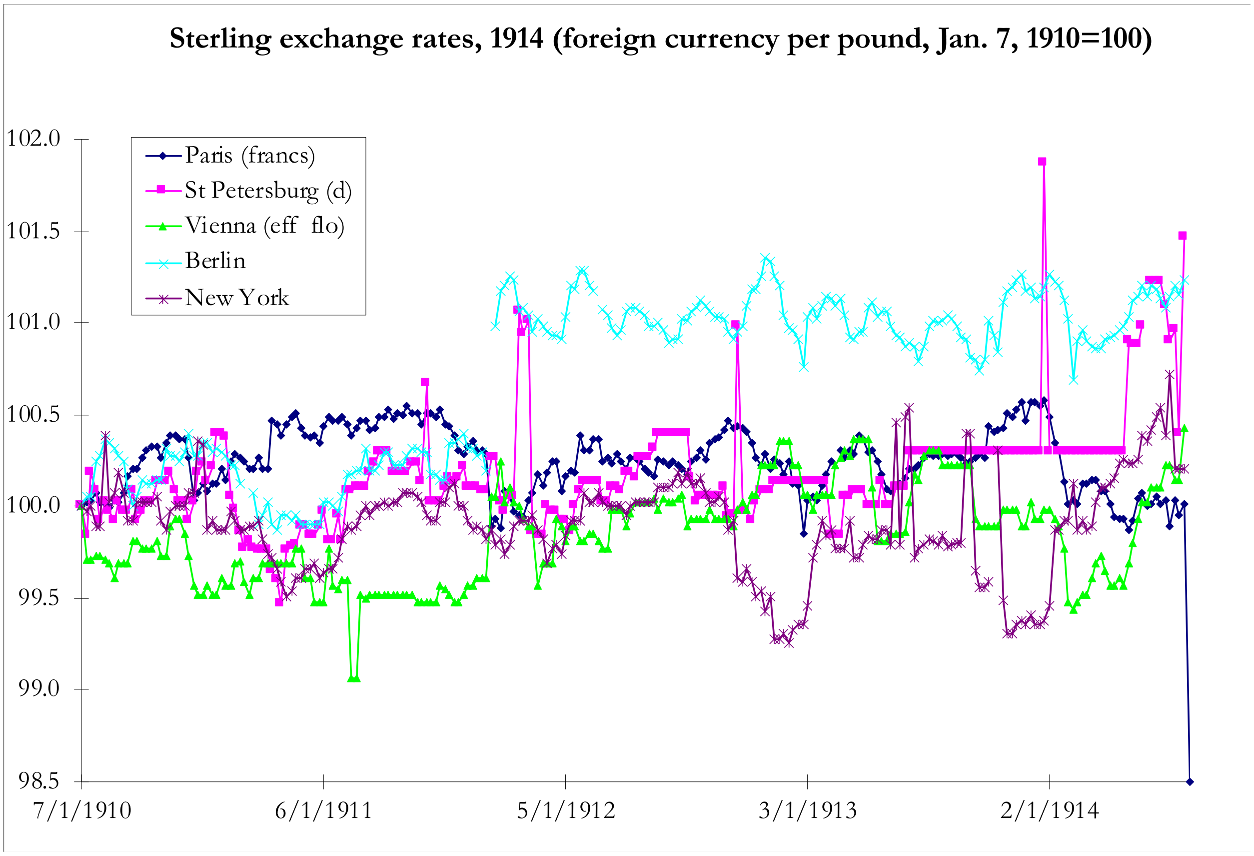
FIGURE 4



Source: Seabourne (1986), 89.

The story on Wall Street was the same—the *New York Times* spoke of a "conflagration"—though the crisis took a different form. There it was the desire of hard-pressed Europeans to liquidate their holdings of American railroad securities (20 per cent of which were in foreign hands) that threatened to unleash a financial crisis even more severe than the last great panic of 1907. Interestingly, there had in fact been significant outflows of gold from New York throughout the summer of 1914, apparently caused by Russian efforts to build up reserves in St. Petersburg. But the withdrawals reached a peak after the news of the Austrian ultimatum to Serbia. Sterling soared against the dollar as investors sought desperately to remit funds back to Europe; those who would normally have engaged in arbitrage to exploit this weakening of the dollar were deterred by the wartime leap in insurance premiums for gold shipments (Silber 2008).

FIGURE 5



Source: *The Economist*.

Naturally, European sales dented U.S. stock prices, which fell by 3.5 per cent on the news of the Austrian declaration of war five days later. As in London—indeed, on the same day—the decision was taken, with the strong encouragement of the Treasury Secretary William McAdoo, to close the New York Stock Exchange. It is true that unofficial quotations on the outdoor New Street market indicate that the market might not have collapsed completely (by the end of October they were down a further 9 per cent). But that was only because, first, the unofficial market was too small to allow Europeans to realize all that they wanted to sell and, second, McAdoo was simultaneously working to inject emergency banknotes into the U.S. banking system to avoid a default by the City of New York on its sizeable foreign debt, and to encourage, through the creation of a Bureau of War Risk Insurance, the shipment of American exports to Europe to get gold flowing back across the Atlantic. In the absence of these emergency measures, Wall Street would surely have witnessed a wave of bank failures even bigger than had been seen seven years before (Silber 2008).

Explaining the panic

Why were the financial markets caught napping? Did investors in the pre-war period simply come to underestimate the potential impact of a war on their bond portfolios, as the memory of the last great-power war faded? One possibility is, of course, that the financiers were the first victims of what has come to be known as short-war illusion. They had read their Ivan Bloch and Norman Angell, both of whom had argued that the unprecedented costs of a major war would render such a war if not impossible, then at least brief. On November 1, 1914, the French Finance Minister Ribot argued that the war would be over by July 1915, a view shared by the English statistician Edgar Crammond. Almost as optimistic, it is worth adding, was the much cleverer Keynes, who excitedly explained to Beatrice Webb on August 10, 1914, that, he was quite certain that:

> the war could not last more than a year … The world, he explained, was enormously rich, but its wealth was, fortunately, of a kind which could not be rapidly realized for war purposes: it was in the form of capital equipment for making things which were useless for making war. When all the available wealth was used up—which he thought would take about a year—the Powers would have to make peace (Hutchinson 1973).

Yet Keynes's optimism was not widely shared in the City—which perhaps helps to explain why he clashed so violently with the bankers when he swept down from Cambridge to offer the Treasury his wartime services. The Rothschilds understood full well the scale of the crisis they were facing. "The result of a war … is doubtful," Lord Rothschild observed on July 31, "but whatever the result may be, the sacrifices and misery attendant upon it are stupendous & untold. In this case the calamity would be greater than anything ever seen or known before." On August 1, the *Economist*'s editors foresaw with trepidation "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 or calculated, and portending horrors so appalling that the imagination shrinks from the task." There is little evidence that the City expected it to be "all over by Christmas." (Ferguson 2008)

It may be that technical economic factors were behind the pre-war decline in volatility and risk premiums. Perhaps, as more and more countries joined the gold standard, investors ceased to fear international currency crises, though the evidence for this is not compelling. Perhaps global financial integration was reducing financial risk by broadening the international capital market, though the effect may equally well have been to increase the risks of financial contagion. Perhaps the fiscal positions of most countries before the war were genuinely improving, though investors would still have anticipated big deficits in the event of a war. Alternatively, it may have been the liquidity generated by the deepening of national capital markets that reassured investors. Large numbers of new savings institutions had been created all over the developed world in the late nineteenth century, which for the first time allowed smaller savers to have indirect access to the bond market. The "home bias" of such institutions (often, as in Britain, legally mandated) undoubtedly had the effect of driving down domestic bond yields and reducing market volatility (Ferguson 2006b).

Yet we cannot rule out the possibility that investors genuinely regarded the outbreak of a major European war as a highly unlikely occurrence for most of the period after 1880—indeed, until the very last week of July 1914. Even to the financially sophisticated, in other words, World War I came as a real surprise. Like people who live on a fault line, investors knew that an earthquake was a possibility and understood how dire its consequences would be, but its timing remained impossible to predict and therefore it lay beyond the realm of normal risk assessment. The more time passed since the last great earthquake, the less people thought about the next one.

The same may of course be said of people who were repeatedly warned about the threat of a contagious new virus but opted to ignore or downplay the danger and to neglect preparations that might have contained a pandemic when it struck. Like their predecessors in 1914, investors in 2020 could hardly claim (though many have done so) that a global pandemic was beyond the realm of rational calculation and expectation. They simply chose to ignore the warning signals. In that sense, the two crises were simultaneously gray rhinos—there were repeated ex ante warnings—and black swans, because those to whom the warnings were addressed suffered a failure of imagination.

PANIC SPREADS

In 1914, panic hit financial markets first, then spread to ordinary citizens, just as it did in March 2020. In regions where civilians had to reckon with enemy incursions—northern France for example—there were good grounds for alarm in August 1914. Paris experienced a mass exodus. This began even before the first aerial bombardment of the city (August 30): memories of the siege of 1870 sufficed. Approximately 700,000 civilians appear to have fled Paris by September, of whom around 220,000 were children under 15. Among the adults were the entire government and civil service, who fled to the safety of Bordeaux. There were similar streams of refugees on the Eastern Front. Gregor von Rezzori, an ethnic German born in 1914 in the Bukovina, was told by his parents that "because someone claimed to have seen their [the Russians'] flat caps—in truth he had mistaken the visorless field-gray caps of our German comrade-in-arms—panic broke out among the population." His mother joined the mass exodus from the area; ultimately, she and her two children ended up in Trieste (Ferguson 2006a).

Despite an enduring collective memory of "war enthusiasm" in August 1914, the research of Jean-Jacques Becker has shown how ambivalent the French mood in 1914 was, even in those areas not directly menaced by war. Fortunately for the historian, the French Minister of Education, Albert Sarraut, circulated primary school teachers in certain departments with a questionnaire which included the following: "Mobilization. How was it done? Public mood, typical phrases once could hear repeated." Becker's analysis of the teachers' responses for six departments shows that enthusiasm was *not* the principal reaction of ordinary French people to the war. Before the news of war, one teacher in Mansle noted, "everybody said that no one would be so insane or criminal as to inflict such a scourge." The most frequently expressed response to the news of mobilization in over three hundred communes surveyed in the department of Charente was "stupefaction," followed by "surprise." Analyzing the specific phrases used to describe the popular mood, Becker found that 57 per cent were negative, 20 per cent "calm and composed" and only 23 per cent indicative of patriotic fervor. Within the negative category, the most frequently mentioned reactions to mobilization were "weeping" and "desolation": these appeared fewer than 92 times, compared with just 29 references to "enthusiasm." (Becker 1977)

Most of Becker's evidence relates to rural France, of course, whereas anecdotal evidence tends to suggest that the patriotic crowd in 1914 was an urban phenomenon. Yet even here there are grounds for skepticism. Apart from anything else, it is important to recollect that the most immediate effect of the outbreak of war on urban economies was to plunge them into recession. In Berlin unemployment among trade union members jumped from 6 per cent in July 1914 to 19 per cent in August, peaking at just under 29 per cent the following month. In London, the unemployment rates for workers covered by national insurance rose from 7 per cent to 10 per cent. These percentages almost certainly understate total unemployment, since casual (usually non-unionized or uninsured) workers were more likely to be laid off. Worst affected was Paris, not least because so many employers fled the capital.

Total employment in the Paris region fell by some 71 per cent in August: although much of that decline was due to the departure of workers for the army, there were at least 300,000 Parisians registered as unemployed in October—around 14 per cent of the city’s total workforce (Winter 1997).

In 1914, as now, pre-crisis planning for the economic consequences of a crisis proved to be inadequate in most countries. The pre-war assumption had been that the German military authorities were the epitome of efficiency. In August 1914 Ballin was able to “derive some pleasure from the magnificent discipline and accomplishment of the General Staff.” Experience of other government departments almost immediately shattered his illusions. On August 6, Ballin and his friend Warburg were driven to Berlin to discuss the question of food imports with officials of the Ministry of the Interior, the Treasury Office, the Foreign Office and the Reichsbank. The chaos of the journey (during which they were repeatedly stopped by armed civilians searching for spies) was matched by the confusion of the meeting, which foundered on the erroneous assumption of the Foreign Office representative that Germany would somehow be able to make use of the American merchant marine. The government in Berlin hugely underestimated the damage Britain’s naval and financial power could do to Germany’s economy (Ferguson 1998).

Ballin was a Hamburg free trader. Walther Rathenau of the electrical engineering giant AEG was, by contrast, an early convert to the belief that the war would require a transformation of the German economy from a free market system into a quasi-socialist system based on corporatist structures and planning. As early as August 14, 1914, in his memorandum proposing the creation of a War Raw Materials Department, he renounced individualism and the other economic “gods to whom, before August 1914, the world prayed.” Later, in his book *Things to Come* (1917), he outlined his utopian vision of a German “common economy” (*Gemeinwirtschaft*). Yet when he met Field Marshal Paul von Hindenburg at Kovno in 1915 Rathenau was sorely disappointed (Strandmann 1985).

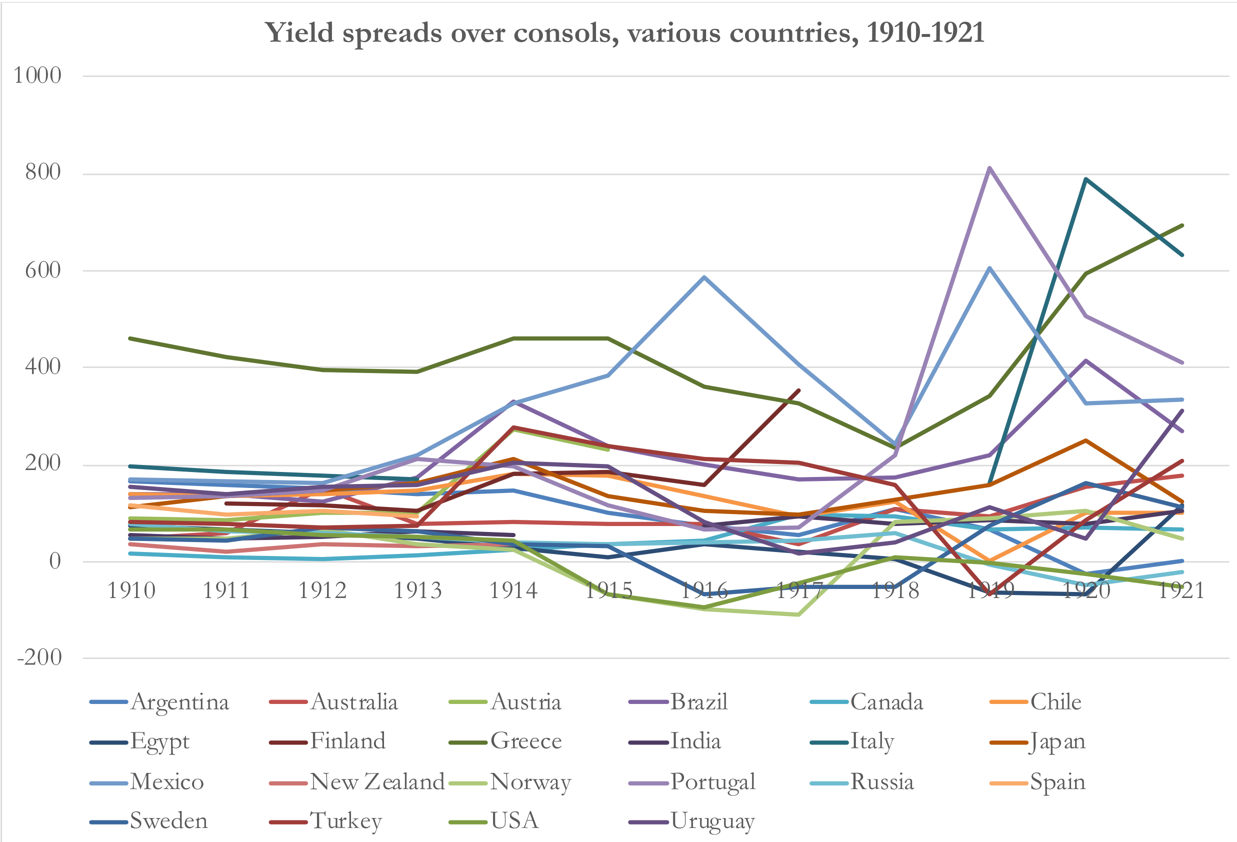
Ballin and Rathenau were not alone. German businessmen—especially those not based in Berlin—complained endlessly about the way the war was being run by the military. In every country it took time before anyone questioned the fundamental assumption that the vastly increased needs of the armed forces should be met by placing contracts with private companies, working with a view to profit. It was typical of the problems that beset German wartime procurement that, in order to balance the competing interests of the separate states, the War Ministry resorted to allocating contracts on a matricular basis (i.e. in proportion to state populations), a patently absurd system.

But the British and French systems were even worse. The British began the war with cheerful naivety, typified by the cheerful phrase "business as usual" (coined by H. E. Morgan of W. H. Smith and turned into an advertising slogan by the department store Harrods)—an attitude which owed less to *laissez faire* dogma than to the assumption that Britain would be fighting a primarily naval war, as against Napoleon. Prices would not be controlled, nor exports, nor shipping. The businessman George Booth could not believe the shambolic way the War Office organized procurement in the first phase of the war, and the suspicion with which he and other businessmen who offered to help were viewed by Asquith. First, not enough equipment was ordered; then too much at exorbitant prices. In the end, the army was probably over-supplied with clothing. As for munitions, the difficulties which beset Entente procurement in 1914–15—the British "shells crisis," which led to the creation of the Ministry of Munitions in June 1915, its Russian equivalent, and the contemporaneous battles between Albert Thomas and the French arms companies—are well known to historians. But the improvements that resulted were only impressive by comparison with what had gone before (Ferguson 1998).

LONG-TERM CONSEQUENCES

Events gave the lie to the short-war illusion. The financial crisis of July-August 1914 was merely the end of the beginning for investors. In the course of the war, 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. These movements would have been significantly larger had it not been for the various 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, as well as by systematic central bank interventions to maintain bond prices. Even so, they were substantial. From peak to trough, between 1914 and 1920, consol prices declined 44 per cent. The real return index for UK bond investors fell by two thirds. The figures for French rentes were similar (a 40 per cent price drop). 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 consols, who could reasonably hope that their government would restore the value of their investments when the war was over (as had happened after all Britain's wars since the reign of George I), and holders of U.S. (and Scandinavian) bonds, these outcomes were even worse than the most pessimistic pre-war commentators had foreseen.

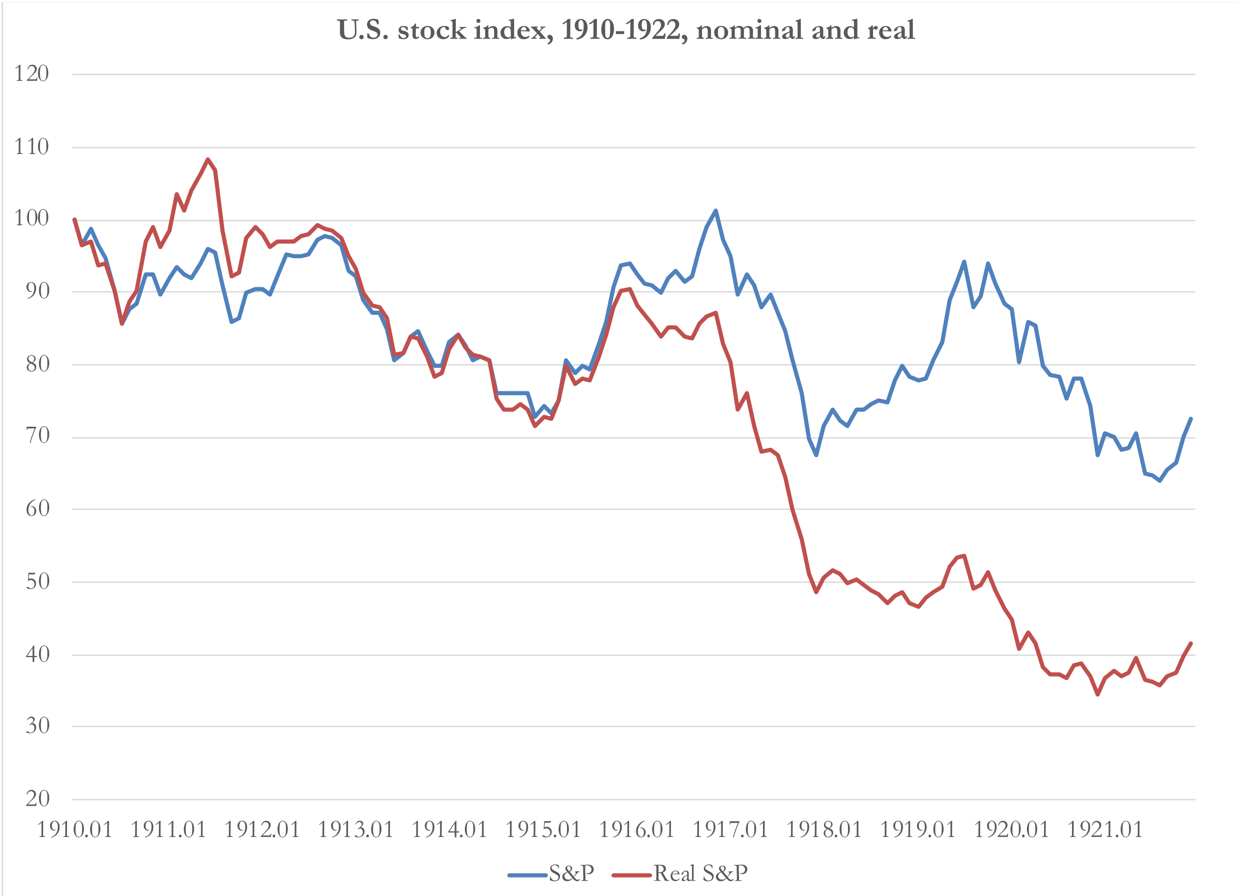
FIGURE 6



Source: Taylor and Obstfeld (2003).

On the other hand, after the initial months of panic and confusion—there was a process of adjustment as the war became (as we would say today) the new normal. Investors who understood the implications of a European conflagration for the U.S. economy had a chance, before capital controls and exchange controls were imposed, to diversify their portfolios away from the Old World to the New. Nevertheless, it would be a mistake to exaggerate the economic benefits of the war to U.S. investors, as figure 7 shows.

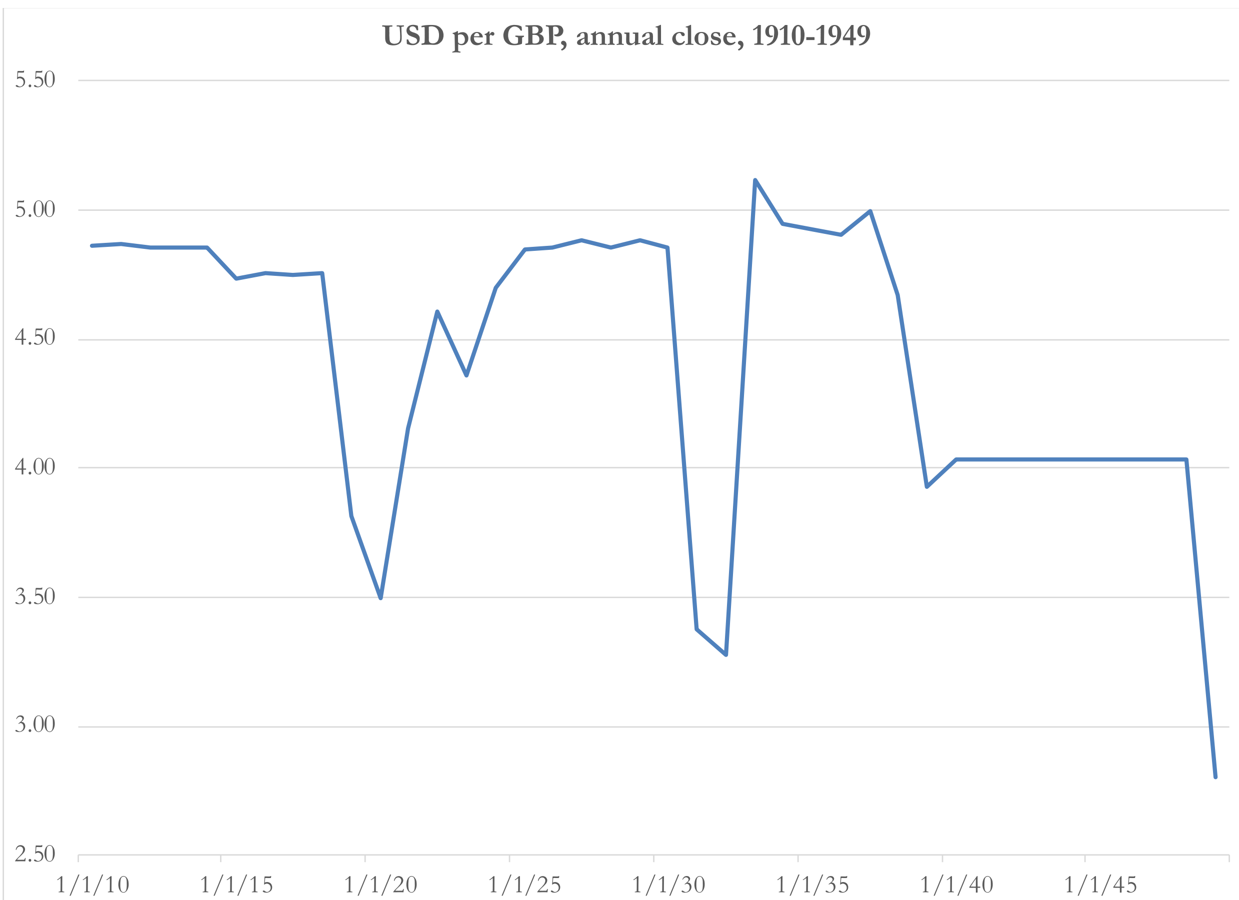
FIGURE 7



Source: Robert Schiller, http://www.econ.yale.edu/~shiller/data/ie_data.xls.

We should also pay attention to the effects of the war on the relative importance of the British pound and the U.S. dollar in the international monetary, financial and trading systems. As in 2020 (and in 2008), so in 1914, the initial onset of the crisis led to a squeeze as economic actors scrambled for liquidity in the core currency, which in 1914 was the pound. Sterling rose from its pre-war parity of $4.86 to a peak of $6.25 on August 4, 1914. That was a short-term surge, however, and by the end of 1914 the pound was back at $4.86. From then until September 1, 1915, sterling depreciated to a low of $4.55. For the remainder of the war, exchange controls held the pound steady in a narrow band around $4.75 It was only with the coming of peace that the pound sold off, sinking to a low of $3.18 in April 2020, before rallying for the next three years back to $4.70. The decision to restore the pound to its prewar rate—taken by Winston Churchill as Chancellor, with the support of most economists but against the advice of Keynes—stabilized the pound for the remainder of the 1920s, albeit at severe deflationary cost to UK manufacturing. It was not until September 1931 that the pound was decisively devalued, sinking to \$3.13 in late 1932, only to rally once again—peaking at just below \$5.39—as New Deal measures weakened the dollar. On the eve of World War II, the pound was holding steady at \$4.67. Its irrevocable decline relative to the dollar was a result of the Second, not the First World War.

FIGURE 8



Source: Global Financial Data.

LESSONS FOR TODAY

A global pandemic is not a world war, and the world today is very different from the world of a century ago: more populous, older in average age, more integrated, with better medical science, as well as vastly more destructive weapons. Nevertheless, anyone trying to fathom the financial and economic implications of the current biological crisis would do well to look back on what happened in the geopolitical crisis of 1914. True, 106 years ago, the unexpected antagonists in British and later American lives were Germans rather than germs. True, the countermeasures that had to be taken involved the mobilization of industrial enterprises for the production of war materiel and the deployment of young men away from productive labor into very dangerous and destructive activities. True, the economic theories and policy tools of 1914 were quite different. Keynes was at the beginning of his career; he had not written *The General Theory*; he was not yet the God of Stimulus venerated by today's vulgar Keynesians.

On the other hand, our current crisis, like the one in 1914, struck us with comparable speed. We were forewarned of a pandemic, but most countries ignored the warning signs until it was much too late: what was in fact a gray rhino was perceived, when it appeared, as a black swan. At the same time, we have seen in spring 2020, as in the summer of 1914, an economic chain reaction as sudden stops in cashflow forced entrepreneurs out of business and people out of work. It is doubtful that closing stock markets, as in 1914, would have been advisable in the face of COVID-19. Markets were closed in 1914 to prevent a downward spiral of forced selling and debt deflation and (in the U.S.) to prevent mass liquidations to buy sterling, but closure today would have done little other than to heighten uncertainty. Unofficial prices would have materialized even more rapidly and more accessibly they did in 1914. Instead, policymakers in most developed countries have reacted to the crisis in ways that seem almost the diametric opposite of those adopted in 1914. They have dusted down the 2008-09 financial crisis playbook, using central bank balance sheets to sustain financial asset prices and government balance sheets to offset the supply shock caused by social distancing and lockdowns, directing unemployment benefits to workers, soft loans to small and medium-sized businesses and bailouts to the most vulnerable big corporations (such as airlines).

Yet the net effect of these measures is not so different from the effects of world war monetary and fiscal policies. Beginning in late 1914, as in early 2020, central bank balance sheets grew substantially, as did public debts. The difference was that, during the war, governments rapidly substituted for private sector employers and consumer demand. Conventional warfare meant large-scale employment of prime-age men and large-scale purchases of all kinds of products, ranging from cloth for uniforms to explosives for shells. That made the demand-side shock of the war relatively short in duration. By the second year of the war, inflationary pressures began to manifest themselves, prompting the piecemeal introduction of price and wage controls.

Because governments proved better able to sustain conventional warfare than most pre-war analysts had assumed, the duration of World War I was unforeseeable, though there were really only two likely scenarios. Either the Germans would win a swift continental victory, as in 1871, or they would find themselves in a protracted war of blockade and attrition, as in the early 1800s. In the former case, the war might indeed have been over by Christmas, or more likely some time in 1915. In the latter case, which was of course what happened, the combatants adjusted to the demands of industrialized slaughter, learning along the way how to manage unprecedented levels of state intervention in the economy. A diplomatic compromise was imaginable—indeed, it was attempted several times—but as long as each side believed in the possibility of victory and the unpalatability of defeat, the war dragged on.

In the same way, today's crisis is of unforeseeable duration. It might seem reasonable to assume a duration similar to the 12- to 18-month period of past influenza pandemics (for example, 1918-19 and 1957-58). The virus's impact might be expected to diminish significantly after this initial "plague year," either because a vaccine will be devised, tested and distributed, or because we shall arrive at "herd immunity." Those countries that have successfully "flattened the curve" (e.g. South Korea) will not suffer a second wave so large as the first, as they will be able to test widely and trace the contacts of those infected in any new outbreak. Those countries that fail to do these things will suffering higher excess death tolls. Yet uncertainty still surrounds a great many key variables. There is no guarantee that an effective vaccine will be discovered this year, for example; no guarantee that it will be available in sufficient quantities next year.

The pandemic will probably kill an order of magnitude fewer people than World War I, unless most governments wholly fail to protect their vulnerable citizens against a likely second wave of infection, in which case it could conceivably kill the same amount or even more. The great unknown at the time of writing remains the potential excess mortality in the big cities of the southern hemisphere as their winter approaches. It must be remembered that the upper bound of global mortality in a severe pandemic was estimated by Fan, Jamison, and Summers (2018) at 42.5 million.

However, the death tolls in 2020-21, unlike in 1914-15, will be mostly of elderly men and (to a lesser extent) elderly women, particularly those with one or more pre-existing health conditions. That makes an important difference. The hasty mobilization of unskilled and unskilled young men in 1914 led to acute labor shortages on the home front. This was one of many inflationary pressures due to World War I. By contrast, it must be acknowledged that a 2 or even 4 per cent reduction in the population aged over 70 would be economically inconsequential (and perhaps even net positive from a callously fiscal standpoint, given the large public and private sector pension and health care liabilities implied by the ageing population). On the other hand, it will not only be the old who perish. The other group disproportionately exposed to high virus loads are doctors and nurses. There is also some reason to fear other, slower-acting effects of the virus on younger people.

Today, some commentators look at the large-scale monetary and fiscal measures being deployed by governments and speculate that the seeds of a new inflation are being sown here. But similar predictions were made in 2009 and 2010 and proved to be quite wrong. It is true that the monetary and fiscal expedients introduced in 1914 and expanded as the war continued were highly inflationary. However, we have entered this crisis at a time of low nominal interest rates that are genuinely unprecedented (Schmelzing 2020). It is unlikely that even universal basic income (in all but name) funded by a three-trillion-dollar deficit, in turn funded by the Federal Reserve, will necessarily be inflationary in the short run, if the most recent International Monetary Fund projections of the supply-side shock are roughly accurate. (The IMF expects the world economy to contract by 3 per cent in 2020, "mak[ing] the Great Lockdown the worst recession since the Great Depression, and far worse than the Global Financial Crisis.") As for the demand side, it is hard to imagine anything remotely like a V-shaped recovery. The rational collective response of U.S. households to this crisis will be like their response to the last one: to raise their saving rate and not to return it to the pre-2007 level for the foreseeable future. Americans are being given a painful series of lessons about the need to have money set aside for rainy days. Consumers are understandably reluctant to return to old, gregarious behaviors even in countries where lockdowns were never imposed, such as Taiwan, South Korea and Sweden.

We must also bear in mind the disinflationary effects of collapsing commodity prices (especially oil) and the longer-term shift away from physical-space to virtual-space activities, which COVID-19 will clearly encourage. There is inherently less inflation in the Matrix than IRL ("in real life"), as there is no scarcity of digital data or bits—rather the reverse, so long as Moore's Law still holds. Only in countries where central bank independence is not secure will there be the kinds of default and / or debt monetization that went on Germany, Austria and other defeated countries in the early 1920s. If it turns out that emerging markets ultimately suffer the biggest humanitarian and economic consequences of the pandemic, then a lot of currencies are going to depreciate even further than they already have. Currency pegs are going to break; Lebanon's has already done so in all but name. Debts will need to be renegotiated—especially those denominated in dollars. This process has already begun in Argentina, Ecuador and Argentina. Developing countries are already lining up for debt forgiveness. In the developed world, however, it is more likely that symptoms of inflation will be checked by quite modest increases in market and policy rates.

In short, there is still reason to doubt the cyclical theory propounded by Ray Dalio that our era is bound to end with large-scale inflationary debt monetization and a rush to gold. A pandemic does not necessarily have the inflationary consequences of a war (see Jorda et al. 2020), unless (like the Black Death) it so reduces the supply of labor that wages rise in its aftermath, as they did in late-14th-century England (Clark 2007). It seems more plausible that developed economies—the United States and the Euro Area in particular—will find themselves able to replicate the Japanese experience of a sustained rise in the debt/GDP ratio with zero to very low inflation. Central banks will increasingly find themselves in the position of the Bank of Japan, effectively targeting a real interest rate of zero to prevent a crisis of debt management. Which of the major currencies will emerge most weakened by the crisis is impossible to say, but the lesson of the inter-war period is that, even if there were a more attractive convertible currency than the dollar, its ascendancy would not be established until some other crisis struck the United States, as happened to the British Empire in 1939.

What of the broader social consequences? If the pandemic is protracted, it will lay bare the failures and inequities of the U.S. health sector, potentially bankrupt millions of families with medical expenses, drive up unemployment to Depression levels, and kill a lot of small businesses, particularly in retail, as consumers turn to Amazon to deliver just about everything to their doors. The crisis will be particularly painful for families that do not get private health care from employers and whose primary wage-earners are informal, temporary, part-time, and gig workers, of whom there are around

15.6 million. Many households will not have the luxury of saving their "helicopter money," as nearly 80 per cent of American households live from paycheck to paycheck.

Let us turn now to the political consequences of the disaster. The experience of 1914-1918 drove all European countries decidedly to the political left—to the far left, in the case of Russia. It also fostered anti-colonial nationalist movements around the world, from Ireland to India. In the United States, the likely (not yet certain) political consequence of the mishandling of the pandemic by the administration of Donald Trump may be the incumbent's defeat in November, followed by the arrival of a Democratic administration that will be under pressure from its base to lean leftwards. A key question is whether or not the Democrats will win both houses of Congress. They may. But such an administration would inherit a colossal economic and fiscal mess, worse even than the one Barack Obama inherited from George W. Bush. Consider, for example, the likely effects of the pandemic on the insurance sector. Millions of hospitalizations, some lasting weeks at a time, are running up a bill of several hundred billion dollars. Tens of thousands of excess deaths mean even larger life insurance payouts. Another bailout may be necessary for the insurers. Meanwhile, the health care and service sector workers on the front lines are becoming heroes; money will also be set aside to take care of them. The politicians and bureaucrats who failed—for example, the legislators selling stock while publicly whistling past the graveyard—will be pariahs.

Against this backdrop, if the Democrats take both White House and Congress in November, President Joe Biden—whom liberal economists will remind that his former boss did too little fiscally after 2009—will be under pressure to conduct a massively expansionary fiscal policy to get Americans back to work. There will be a big infrastructure bill, including many proposals from the Green New Deal to placate the Sanders-AOC wing of the party. Gig economy workers will get federal labor protections, including very likely a national minimum wage of at least $12 an hour. The expansionary impact of this spending will outweigh the relatively small revenue-raisers targeting the wealthy and large corporates. However, if Biden wins only the White House, the Democrats retain the House and the Republicans remain in control of the Senate, the outcome will likely be much less expansionary. That could yet happen—indeed, Trump himself could yet survive—if the public health and economic outcomes of the pandemic in "red" and swing states are substantially better than in the blue states of the coasts. If past performance is any guide, the Republican party will rediscover the virtues of austerity as soon as there is a Democrat in the Oval Office.

Although the proximate consequence of the pandemic might look like a swing to the left, we should not forget how soon after 1919 far-right movements like the Italian fascists and the German national socialists sprang up to counter the worldwide swing to international socialism. The same may be true after COVID-19. Far from being chastened, the populist right will be even more shrill—and their demands for more strictly policed borders will have gained in credibility because of the pandemic. National conservatism will not be weakened by the evidence that, in a real crisis, it is the nation state that does the heavy lifting. The Green movement, which was making so much headway in 2019, may suffer a setback, too. The fact that the global elite was worrying about climate change on the eve of a pandemic will come back to haunt Davos when it held via Zoom in January 2021.

Partly because of these countervailing forces, the shift to the left in our time seems less likely to be inflationary, much less hyperinflationary, than was the case after 1918. Not only are higher taxes and regulatory burdens on business likely to be contractionary. There will be few of the structural drivers of inflation we saw after 1918, such as more powerful labor unions.

It is generally agreed by historians that the world was profoundly altered by World War I—which makes it hard to assess how much it was changed by the 1918-19 influenza pandemic as if it were a separate phenomenon. It seems unimaginable that the COVID-19 pandemic could change the world as much as a world war, which unleashed a global wave of revolutions. So eminent a student of international affairs as Richard Haass argues that "The world following the pandemic is unlikely to be radically different from the one that preceded it. COVID-19 will not so much change the basic direction of world history as accelerate it." Yet one obvious consequence of the pandemic has already been to intensify what I have elsewhere called Cold War II. The trade war had already sounded the death-knell for "Chimerica"; this nails down the coffin lid. In that sense, the model of globalization that reached its zenith—with China as the manufacturing hub for global supply chains—has surely gone for good. Henry Kissinger has written that "addressing the necessities of the moment must ultimately be coupled with a global collaborative vision and program." There is not much trace of that in the bitter exchanges between Beijing and Washington.

TABLE: EFFECTS OF TWO CRISES ON GLOBALIZATION

	Post-war	*Post-pandemic*
Goods	Commodity and goods trade revived in the 1920s, but protectionism grew. Relatively few international supply chains.	Re-shoring of strategic elements, especially pharma. Global goods trade becomes less important for structural reasons (software, data.)
Services	Limited international service trade.	Services become more globalized as video-conferencing and remote working becomes the norm.
Capital	Globalization of capital continued until the 1929 Crash, except for Communist countries.	Strategic restrictions on key investments. Defaults triggered by COVID-19 likely to discourage lending to EMs for a time.
Data	De-globalization of telegraph networks for strategic reasons.	Continuing divergence of Chinese and Western internets; some divergence of regulation between EU and U.S.

Labor	Immigration restrictions were further tightened in the United States and elsewhere	Pandemic strengthens case for strict national border policing, especially if there is large-scale mass migration from poorer countries afflicted by the virus.

The Roaring Twenties were roaring partly because after the physical destruction and depreciation of the war a great deal of reconstruction was needed, but mainly because the United States ended up with a huge proportion of international reserves and pursued an excessively lax monetary policy, culminating in the panic of 1929. Could China after 2020 play the role of the United States after 1914, exploiting the travails of the Anglophone hegemon to build up her economic and financial strength, and perhaps also embarking on a hedonistic boom? I very much doubt it. Nevertheless, the hegemonic transition scenario—another prediction of Dalio's cyclical model—will be worth contemplating if the United States continues to make a mess of containing the pandemic. If China is able to achieve a rapid recovery without triggering a second wave of COVID-19 within its own borders, and if Chinese efforts to assist struggling countries around the world lead to a fundamental reevaluation of the People's Republic by traditional American allies, those who prophesied an "Asian century," such as Kishore Mahbubani, could ultimately be vindicated.

China is certainly going to use this crisis to make an all-out effort to turn its One Belt, One Road project into a geopolitical bloc. As soon as its own national epidemic was under control, China rushed to provide Italy and other European countries with masks, beds and other medical supplies. This is being done with much fanfare but will come at a price. Acceptance of China's propaganda line that the virus originated in the U.S., to China, may become a perverse litmus test: ideological conditionality in return for Chinese aid. I suspect, nevertheless, that this scenario underestimates the defects of the Chinese system, which the origins of the pandemic so starkly exposed and which no amount of propaganda can wholly obfuscate.

As in 1919, so in 2021, the United States will confront a dilemma: to take on the burdens of global leadership or to give in to the isolationism that remains a key part of the appeal of Trumpism. Woodrow Wilson returned from Europe exhausted and suffered a severe stroke in October 1919. He was largely incapacitated in 1920 and deemed by his own party unfit to run for reelection that year. Some historians blame the failure of the United States to ratify the Versailles Treaty and join the League of Nations on Wilson's illness, but the main obstacle was the febrile popular post-war mood, agitated by the influenza pandemic, a post-war "Red Scare," the passage of women's suffrage, widespread race riots and lynchings, and the enactment of Prohibition over Wilson's veto. The Republican candidate, Ohio Senator Warren G. Harding, resoundingly won the 1920 election on the slogan "Return to Normalcy," with 60 per cent of the popular vote and 404 electoral college votes. The "recasting of bourgeois Europe"—and bourgeois America—in the early 1920s reminds us that post-crisis swings to the left can be short-lived. Wilson was just 62 when he suffered his first stroke. Joe Biden will be 78 on Inauguration Day, 2021.

I have argued elsewhere that we over-use the inter-war period when seeking historical analogies. Other periods may offer us more insights. The point of this essay is not to say that the COVID-19 pandemic will inevitably have consequences as profound as the war of 1914, but merely to suggest that it could. The two events have much in common. Each was highly predictable—a gray rhino—and yet surprising to contemporaries when it struck—a black swan. What elevates World War I to the status of a dragon king is not the number of battlefield casualties, high though that was, but the vast economic, social and political consequences that flowed from it. It may be that today's pandemic will be far less consequential. Perhaps the world economy will bounce back after lockdowns, like a holiday resort bouncing back after the off-season. Perhaps the effect of the public-health emergency will be to reduce political polarization and re-legitimize pragmatism and expertise. Perhaps the result of the American presidential election of 2020 will be as close that of 2000, precipitating a constitutional crisis that will swiftly efface the pandemic in political memory. Perhaps the Sino-American Cold War will end in a rush of détente followed by an unforeseen Chinese political crisis, similar to the Soviet collapse of 1989-91. The pandemic of 2020 may swiftly recede, occupying a place in future history books as tiny as the influenza pandemic of 1957-58—which killed up to 1.5 million people around the world (Viboud et al. 2016) but is largely forgotten—occupies in ours. *Pace* Sornette, history's dragon kings can only be revealed, not predicted. Nevertheless, those who today think only of flattening the curve of confirmed COVID-19 cases should remember the fates of those who narrowly focused on achieving a breakthrough on the Western Front. The only law of history is the law of unintended consequences. Too little thought today is being given to what those might be in the years that follow this plague year.

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