

**Confidence, Fear and a Propensity to Gamble:
The Puzzle of War and Economics in an Age of Catastrophe
1914-45**

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Abstract

This paper uses the notion of *animal spirits* introduced by John Maynard Keynes in the *General Theory* and more recently employed by George Akerloff and Robert Shiller in their book *Animal Spirits*, to explain the speculative bubbles and decisions for war from 1914 to 1945. Animal spirits are “a spontaneous urge to action rather than inaction” that produces decisions which are not bounded by “rational” calculations. My analysis shows how *confidence*, *fear*, and a *propensity to gamble* can encourage aggressive behavior that leads to speculative “bubbles” in financial markets and military or political crises. Elements of *prospect theory* are added to demonstrate how the presence of risk in crises tend to produce a very strong bias towards taking gambles to avoid economic or military losses. A basic premise of the paper is that war and economics were inexorably joined together by 1914 to a point where economic strength was as important as military might in determining the outcome of a war. The final section of the paper deals with the problem of measuring military and economic strength by using the *composite index of national capability* [CINC] created by the Correlates of War Project to evaluate the riskiness of the Schlieffen Plan in 1914 and the changes in military capability of major powers between 1914-1919

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In a conversation with President Woodrow Wilson at the Versailles Peace Conference in June of 1919, French Premier Georges Clemenceau described the war that had just ended as a “series of catastrophes that resulted in victory” [Eigen and Siegel 1993, p.689]. Unfortunately, that victory turned out to be just a pause in long series of catastrophes. The Great War was followed by a Great Depression, which was followed by a Second World War. “The decades from the outbreak of the First World War to the aftermath of the Second,” claimed historian Eric Hobsbawm, “was an Age of Catastrophe. For forty years, [Western Civilization] stumbled from one calamity to another. There were times when even intelligent conservatives would not take bets on its survival.” [Hobsbawm 1994, p.7]

At the beginning of the twentieth century most of the world was ruled or controlled by European nations and their descendants who were scattered all over the globe. “This civilization,” writes Hobsbawm,

... was capitalist in its economy; liberal in its legal and constitutional structure; bourgeois in the image of its characteristic hegemonic class; glorying in the advance of science, knowledge and education, material and moral progress; and profoundly convinced of the centrality of Europe, birthplace of the revolutions of the sciences, arts, politics and industry, whose economy had penetrated, and whose soldiers had conquered and subjugated most of the world; whose populations had grown until (including the vast and growing outflow of European emigrants and their descendants) they had risen to form a third of the human race; and whose major states constituted the system of world politics [Hobsbawm 1994, p.6].

It is difficult to overstate the confidence with which these populations addressed the challenges of a new millennium. The possibility that this world might collapse in a cataclysm of social, political and economic confusion never entered their minds.

One of the most common measures of the scale of a war is the number of men who died in battle. Figure 1 traces the battle deaths incurred in military conflicts throughout the world from 1845 to 1945. From the middle of the nineteenth century to the outbreak of the First World War in the summer of 1914, there were only two significant wars that involved European armies facing each other on the battlefield. The Crimean War began in 1853 as a quarrel between Turkey and Russia over the treatment of Christian minorities in the Ottoman Empire. Britain and France got involved a year later because of their concerns that Russia might gain control of the Dardanelles. The war dragged on until February, 1856, when Russia proposed an armistice. All of the major

European Powers subsequently gathered together and agreed the Treaty of Paris which ended the war. Just over 600,000 men died in the conflict, more three quarters of them from disease. The treaty created a new *status quo* among the major powers regarding their interests the Middle East that avoided any additional military action in the region on the part of the European powers until 1914.¹ The other war that pitted large European armies against each other was the Franco- Prussian War, which ended with a crushing defeat of the French at the Battle of Sedan in September 1870 and led to the collapse of the French government under Emperor Louis Napoleon. The Germans insisted on annexing territory comprising two French departments – all of Alsace and most of Lorraine – into the newly created Imperial German Empire and celebrated their victory by crowning Wilhelm I of Prussia as the first Emperor of Germany in Versailles. The only other significant war after 1871 involving a major power was a conflict between Japan and Russia that began with a Japanese attack on the Russian fleet in Port Arthur in February, 1904. That dispute, which cost the two sides more than 200,000 battle deaths, ended with a negotiated settlement that elevated Japan to the status of a major power in the Orient.

¹ Historian Trevor Royle describes the conflict as a “punctuation mark that emerged almost halfway between the victory at Waterloo of 1815, which gave Europe forty years of peace and the fighting in Flanders in 1914 which plunged Europe into a century of almost continuous warfare and confrontation between the great powers.” [Royle 2000, p.514]

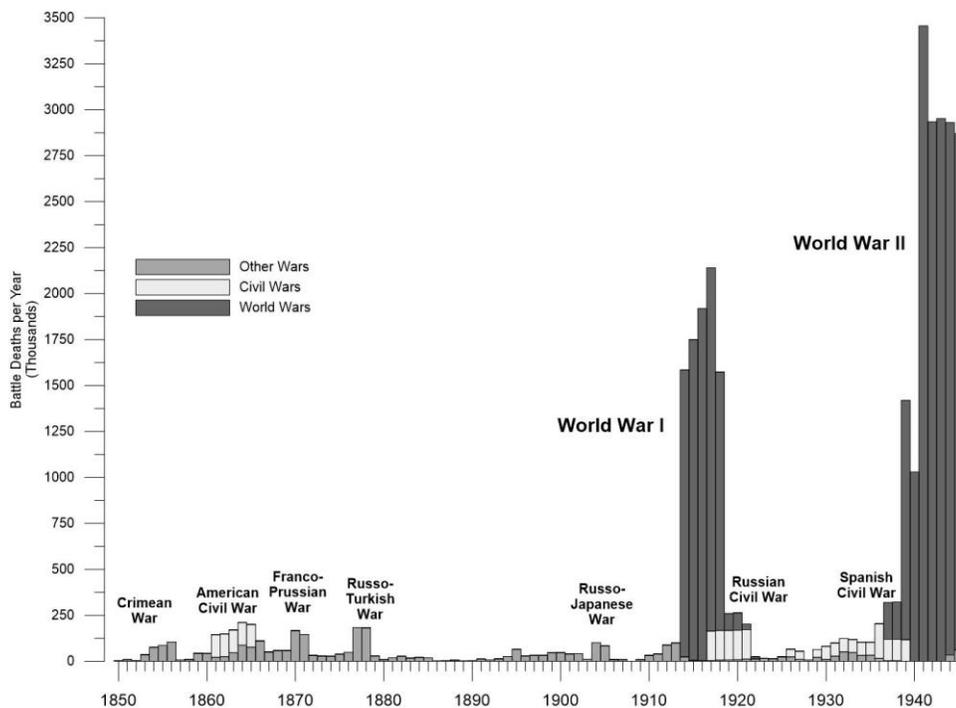


Figure 1: Battle Deaths from Wars, 1850-1945

Each of these wars played an important role in shaping the political relationships among the great powers of Europe in the years leading up to the First World War. The battles involved clashes between large masses of infantry that produced huge casualty lists, however the conflicts were all relatively short and were settled by treaties that sometimes involved powers that had remained neutral during the conflict. Governments remained confident that, for those willing to pay the costs, waging a war could be a useful, albeit expensive, policy option. “The object of war,” wrote the German Chancellor Otto von Bismarck in his memoirs, “is to conquer peace under conditions which are comfortable to the policy pursued by the state” [Bismarck 1968, p. 192]. Bismarck did not preclude the possibility that quarrels between governments might escalate into a larger war, but he was confident that diplomacy would find some sort of settlement without getting into a war that involved all of the major powers.

All that changed in the summer of 1914. “Battle losses of World War I” writes Michael Clodfelter, “were totally unprecedented in human history. Even the greatest battles of the continental wars of the seventeenth and eighteenth centuries in Europe paled beside those of World War I.” [Clodfelter 2002, p. 479] If one adds the deaths resulting from the Russian Civil War and

territorial conflicts immediately following the end of the Great War, at least 12 million men lost their lives. The Second World War was even more deadly. “The toll of World War II, at the most conservative estimate,” according to Clodfelter, “surpasses 30 million – with 40 million a more likely figure and some estimates going as high 55 million” [Clodfelter 2002, p.581]. These estimates suggest that something on the order of 100 million people – a number equal to the entire population of the United States in 1914 – died as a direct consequence of the two world wars.

Two “world wars” in forty years would seem to be more than enough to warrant Eric Hobsbawm’s term “Age of Catastrophe” to describe the period 1914 to 1945. But the wars were only part of the story. Military historians tend to view the two decades following the end of the Great War as a lull before the resumption of fighting. To economic historians, the interwar years were anything but a “lull”; they were a period of intense economic and social turmoil as people struggled to get back into some sort of “normalcy” amid the destruction and confusion surrounding the end of the First World War, and were then confronted with a global depression. Among the most visible signs of the economic uncertainty caused by the war were the instability of international financial markets; the collapse of antebellum trading patterns; widespread unemployment throughout the industrial and episodes of hyperinflation that paralyzed several countries immediately after the war.

What troubled people at the time and has puzzled scholars ever since was that there does not seem to be any “rational” explanation why the policies and institutional arrangements that had maintained a century of relative calmness and stability were suddenly unable to prevent these worldwide wars, panics, and depressions. Library shelves today are filled with explanations for the frequency, scale, and intensity of the wars, financial panics, and other military or economic disruptions of the first half of the twentieth century. They contain a plethora of hypotheses and insights into various episodes of the period, but there is still no overarching framework of analysis with which to examine the entire period. That is, perhaps understandable. Given the magnitude and complexity of the events under scrutiny no single theory or story is likely to explain everything. However, an examination of the literature suggests that the events of two world wars and the depression of the “interwar period” should be linked together into a single great catastrophe driven by a common set of forces.

On the face of it, one might think that economic depressions and wars are not easily tied to each other. Yet it is not difficult to find explanations suggesting that the two situations share some common features. Two observations by scholars who have studied wars and crises will serve to make our point. The first is from the introduction to John Stoessinger's widely read book *Why Nations Go to War*:

Mortals made these decisions. They made them in fear and in trembling, but they made them nonetheless. In most cases, the decision makers were not evil people bent on destruction but were frightened and entrapped by self-delusion. They based their policies on fears, not facts, and were singularly devoid of empathy. Misperception, rather than conscious evil design, appears to have been the leading villain in the drama. [Stoessinger 2001, p. 1-2].

The second is from John Kenneth Galbraith's best-selling account of the *Great Crash*:

No one was responsible for the great Wall Street Crash. No one engineered the speculation that preceded it. Both were the product of the free choice and decision of hundreds of thousands of individuals. The latter were not led to the slaughter. They were impelled to do it by the seminal lunacy which has always seized people who are seized in turn with the notion they can become very rich. [Galbraith 1954].

Like Stoessinger, Galbraith believes that the economic crisis of the 1930s was the result of decisions made by people – lots of people – following their often conflicting self-interests. Unfortunately, their decisions were governed by a "seminal lunacy" that turned their rational decision to buy a stock into a collective mania that caused a speculative bubble.

Though they deal with very different phenomena, either of these two descriptions could refer to decisions involving a declaration of war or to the actions that brought about a financial panic. Stoessinger and Galbraith both claim that at the moment of crisis the decision makers are under considerable pressure to act quickly on the basis of imperfect perceptions and instincts to make what proved to be erroneous decisions in terms of the eventual outcome. Military historians have highlighted the "irrational" (and therefore unexplained) mistakes, miscalculations, and misperceptions that have led generals and politicians to choose war over diplomacy. Economic historians have relied on the economists' notions of *rational markets*, which insist that market

systems will operate in a fashion that will ensure rational outcomes even if individuals behave in an irrational way. Unfortunately, as economist Charles Kindleberger has pointed out, “rationality is an *a priori* assumption about the way the world should work” [Kindleberger and Aliber 2005]. Our data on wars and panics strongly suggest that there are times when the world does not work “rationally.”

Writing in the middle of the Great Depression, John Maynard Keynes claimed that “if orthodox economics is at fault, error is to be found not in the superstructure, which has been erected with great care for logical consistency, but in a lack of clearness and of generality in the premises” [Keynes 1936, p. ii]. He suggested that economic theorists needed to recognize that much more than mere “rationality” lay behind the decisions that households and businesses made every day. “[A] large proportion of our positive activities,” Keynes wrote, “depend on spontaneous optimism rather than on mathematical expectation, whether moral or hedonistic or economic. Decisions to do something positive ... can only be taken as the result of animal spirits - of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.”² Economists George Akerlof and Robert Shiller have recently adapted Keynes’ notion of animal spirits for their “account for how [the economy] works when people act as *humans*, that is, possessed of all-too-human animal spirits.”³ We can expand the taxonomy of animal spirits to explore the reasons behind both the recurrence of economic crises and the outbreak of wars. The “spirits” that I want to focus on are Confidence, Fear, and what I call the Propensity to Gamble.

² Keynes went on to assure his readers that

We should not conclude from this that everything depends on waves of irrational psychology. On the contrary, the state of long-term expectation is often steady, and, even when it is not, the other factors exert their compensating effects. We are merely reminding ourselves that human decisions affecting the future, whether personal or political or economic, cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist; and that it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive on whim or sentiment or chance [Keynes 1936, p. 129].

³ They identify five animal spirits which they use to analyze economic behavior in more recent times: Confidence; Fairness; Corruption and Bad Faith; Stories and the “Money Illusion”. [Akerlof and Shiller 2009, p.5].

“The very term confidence,” explain Akerlof and Shiller, “implies behavior that goes beyond a rational approach to decision making.... When people are confident they go out to buy; when they are unconfident they withdraw, and they sell. Economic history is full of such cycles of confidence and withdrawal” [Akerlof and Shiller 2009, p. 13]. Every account of an economic boom talks about some set of *confidence multipliers*: actions or events that reinforced expectations about the profitability of a particular group of assets in the financial markets. So long as asset prices continued to rise, and investors could obtain funds, the confidence multipliers sustained continued speculation. At some point, however, the “irrational exuberance” of investors pushed prices to a point where those speculators who were trying to lever their position in the market by borrowing funds, were forced to sell assets in order to raise cash to meet the demands of their creditors. A single investor could sell stocks to repay loans without affecting market prices. But when *many* investors tried to liquidate their holdings, the sudden urge to sell created a financial panic as speculators rushed to limit their losses.⁴

When leaders start down the “road to war” what follows often a sequence of events that is remarkably similar to their reaction to a speculative investment bubble. Carl von Clausewitz, the Prussian General whose 1835 treatise *On War* remains one of the primary sources in the study of how states use military power, insists that war is simply one of many options in state diplomatic policy. [Clausewitz 2008] Policies demand choices. Most of the time there are options available that allow the parties to resolve the crisis without resorting to war. But if diplomatic measures do not ease tensions and the situation continues to escalate, the number of options to lessen the pressure on the confidence bubble dwindles. The one option that is invariably not “taken off the table” is going to war. Like the investor who has borrowed too much money to sustain his position

⁴ For a more complete discussion of what constitutes a “bubble”, and the pressures on investors as it becomes more fragile, see [Shiller 2000; Shiller 2003]. There are many accounts of such crises. The most well-known accounts economic of financial crises is the work of Charles Kindleberger [Kindleberger 1978; Kindleberger 1986; Kindleberger and Aliber 2005] See also the collection of essays in [Kindleberger and Laffargue 1982; Minsky 1982]. More recently Carmen Reinhart and Kenneth Rogoff have compiled an extensive body of data on the timing of financial crises. [Reinhart and Rogoff 2008; Reinhart and Rogoff 2009]. Charles Calomiris and Stephen Haber present an argument that the financial crises also have their origins in the political relationships between governments and financial intermediaries from the earliest formation of banking institutions. [Calomiris and Haber 2014].

in the market, the political leaders are eventually faced with a situation where force is the only policy that can seemingly resolve the dispute.

This brings us to the problem of *overconfidence*. Modern wars, like modern investment schemes, involve a great deal of planning. Planning involves constructing a set of assumptions to estimate the probability that the use of force will resolve the problem. Military planners, like their counterpart in the investment markets, tend to let their eagerness to win cloud the reality of their assumptions. Dominic Johnson notes that positive illusions may not be the “all-encompassing explanation for war, but they ... offer a compelling extra piece of the war puzzle.” [Johnson 2004, p. 34]. He makes an interesting point, that the larger the scope of the problem, the more room there is for positive illusions to foment overconfidence. A rather simple extension of his argument would imply that the overconfidence of leaders will often be shared by the masses. Just as promises of quick profits reinforce the euphoria of a stock market boom, stories reinforcing the view that victory is within sight fuels the incessant beat of the “drums for war.” Both military/diplomatic and economic situations can turn into a crisis situation where *overconfidence* has produced a “bubble” that has been stretched to a point where the slightest dislocation may cause the bubble to burst. stories

The flip side of a confidence multiplier is a *fear multiplier* that kicks in if confidence is shaken by the course of events. As confidence wanes and fears grow, decisions become much more geared to the need for immediate solutions to defuse the “bubble” of economic speculation or the imminent dangers that a major war might break out at any moment. In the economic sphere even the most optimistic investors know that the financial bubble cannot go on forever. As credit tightens investors become increasingly edgy. The gradually increasing fear and uncertainty grips decision-makers in a situation where no matter what they do, the risks of loss will continue to grow until the bubble finally bursts. Fear can also play a role in determining what will happen after the confidence bubble bursts. As Franklin Roosevelt so aptly remarked when he took office in 1933, “the only thing we have to fear, is fear itself!” One of the after effects of an economic crash is a pervasive pessimism based on fear of what just happened. Rallies are met with skepticism that produces quick selloffs, investors are reluctant to invest, and consumers hoard cash and postpone savings. One of the most dramatic examples of the interaction of confidence and fear was the New York stock market crash of October 1929. Figure 2 presents monthly data on stock prices on the New York Stock Exchange from October 1929 to January 1934. The initial panic selling drove stock

prices down more than 30 percent. However, there were six significant bursts of optimism between the beginning of 1930 and the middle of 1932. Each was quickly washed away by a new rush to sell. By the time prices finally hit rock bottom, the New York Times Index of stock prices stood at 12.3 – a decline of almost 90 percent!

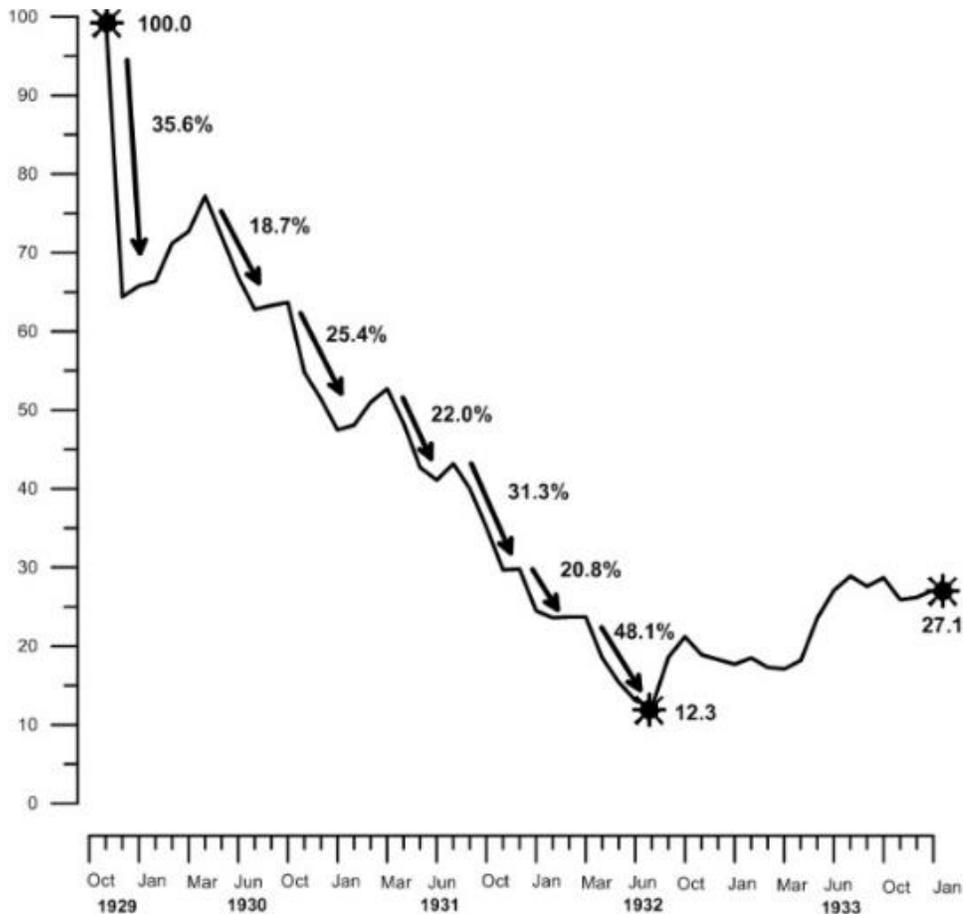


Figure 2: The New York Times Index of Stock Prices, 1929-1934

Fear and falling confidence play a major role in deciding the next move at tipping points in war. Victories set the confidence multiplier spinning upwards while defeats puncture the confidence bubble, but offer little in the way of suggestions of where to go next. This interplay of fear and confidence brings us to the final element that influences decisions on war and economics: the propensity for humans to make risky gambles.

Decisions about both military and economic crises involve the need to predict events that are subject to varying degrees of risk and uncertainty. The probabilities associated with market behavior in a world of uncertainty can be estimated using complex models that forecast future outcomes, but no amount of probability analysis or simulation models can eliminate the uncertainty that pervades financial markets. Empirical models designed to predict the behavior of financial markets assume some degree of “rational” decision-making by investors. But people confronted with a “confidence bubble” do not always act “rationally” – particularly if they are afraid that the consequences of their actions could result in substantial losses. One of the effects of fear is to encourage investors to take risks they might otherwise not consider. At some point, they must either borrow more to maintain their fragile position in the market, or cash in their chips and hope that they are at the front of the line of sellers, rather than at the end of the line when the market collapses.

It is common knowledge that investing in the stock market involves some degree of gambling. So it is with war. “No other human activity,” claimed Clausewitz, “is so continuously or universally bound up with chance. And through the element of chance, guesswork and luck come to play a great part in war.” [Clausewitz 2008] Simple choice theory suggests that military or political leaders would carefully look at the odds of winning or losing and select the option with the highest odds of success. Economic theory would suggest the same scenario for investors. Investors should select those investments with the greatest chance of increasing their net wealth. However, making choices that involve risk is not that simple. In 1979 behavioral economists Daniel Kahneman and Amos Tversky developed a model they called “prospect theory” to analyze how people make decisions when facing risks. [Kahneman and Tversky 1979] Prospect theory argues that people will place less weight in assessing outcomes that are “merely probable” than they will on choosing outcomes that appear to be certain. This tendency, claim Kahneman and Tversky, “contributes to *risk aversion* in choices involving sure gains and to *risk seeking* in choices involving sure losses.” [Kahneman and Tversky 1979, p. 263] Prospect theory also postulates that people are much more concerned about avoiding large losses than they are about acquiring gains. Jack Levy and William Thompson explain how these aspects of prospect theory explain the propensity to gamble when it comes to international war and diplomacy:

Given the overweighting of losses relative to gains and the tendencies toward risk aversion in decisions involving possible gains and risk acceptance in decisions

involving possible losses, political leaders have a tendency to take more risks to maintain their international and national positions, reputations, and domestic political support against potential losses than they do to enhance their positions. They are more likely to fight in order to avoid losses than to make gains. This helps to reinforce the argument that wars are driven more by fear than by ambition. Similarly, domestic publics punish their leaders more for incurring losses than for the failure to make gains. [Levy and Thompson 2010]

Prospect theory is particularly useful for an economic historian using a narrative analysis to explain wars because the calculations of risk for a specific situation are placed in the context of a reference point that “frames” the specific assumptions for each decision. Once the outcome of that decision is known, a new reference point can be established for subsequent decisions. The emphasis in prospect theory is on the value of *changes* brought about by the decision, not the total level of activity. This allows us to look at the outcome of battle as marginal increments in the context of the larger war.

The tendency for people to reframe their actions on how to deal with changing situations produces another way in which animal spirits can influence decisions dealing with wars and economic crises. Battles involve enormous costs both in terms of human casualties and the resources to carry on the fight, just as plunging asset prices in the midst of a financial panic produce dramatic changes in the economic situations for both people and institutions. The costs associated with these phenomena are what economists call “sunk costs.” The logic of marginal economics tells us to ignore such costs and concentrate on the added or *marginal* costs or benefits associated with what we want to do *next*. Prospect theory suggests that sunk costs in the form of casualties from wars persist in a way that create a tendency for leaders to find ways to recover those costs, even if this choice involve higher risks rather than pulling back efforts to “cut one’s losses.” As Levy and Thompson put it, “political leaders often continue to pursue costly interventions and wars, even in strategically unimportant areas, rather than risk the state's loss of power and prestige or their own loss of domestic support.” [Levy and Thompson 2010] The reluctance to ignore sunk costs has similar implications for the risk behavior of investors struggling with the challenge of rapidly changing asset prices. Investors eager to protect their gains or regain their losses willing to gamble on risky investments in an effort to offset recent

changes in the value of their portfolio. All of this is tied to what Robert Shiller calls “a basic human interest in gambling, seen in one form or another in all cultures, an interest that also expresses itself in speculative markets.” [Shiller 2000, p. 150]

History does not move smoothly along a predetermined path. The major wars, panics and depressions of the first half of the twentieth century were all touched off by some sort of *displacement* – an event that somehow changed the economic, political, or economic environment in an unexpected way. Displacements lead to a situation where animal spirits of Confidence, Fear, and a Propensity to Gamble come forcefully into play. Both the military/diplomatic and the economic situations described above involve a situation where overconfidence produced a “bubble” stretched to a point where the slightest dislocation may cause the bubble to burst.

This brings us back to the question of how individuals – and groups of individuals – formulate what they believe to be a “rational” calculus of decision-making. People base their decisions on *perceptions* that are shaped by the information available to them. Most people have a tendency see things as they *want them to be*, not as they *actually are*. Even when they have reliable information about the situation, they can fall victim to systematic biases that exaggerate the gains or minimize the risks of some action. “A root cause of war,” notes Stephen Van Evera, “lies in the opacity of the future and in the optimistic illusions that this opacity allows. These illusions lead states to a false confidence in victory, or for Pyrrhic victories.” [Van Evera 1999, p. 14] John Vasquez adds that “as one examines the actual consequences of each action that is taken, one finds that it is anything but rational. Misperception, miscalculation, self-fulfilling prophecies, and errors often produce disasters that might have been avoided if actors had behaved differently.” [Vasquez 1993, p. 154]

Every explanation of war and economic speculation must take into consideration this issue of inaccurate or insufficient information. Akerlof and Schiller add a further dimension to the problems surrounding information-gathering by noting that a substantial amount of information comes in the form of “stories” that convey information formally or informally among groups of people. Stories, they argue, give us “our sense of reality, of who we are and what we are doing, is intertwined with the story of our lives and of the lives of others. The aggregate of such stories is a national or international, story, which itself plays an important role in the economy.” Quantitative historians shy away from a reliance on stories. In part, this reflects the difficulty of assessing the accuracy of what a lawyer might call hearsay evidence; in part, it reflects the difficulties of quantifying statements

involving magnitudes that are stated as “large” or “small” without any numerical context. Word of mouth is a pervasive and powerful source of information that is disseminated throughout society because people are prone to accept a story as “trustworthy” if the source is someone they trust or respect. Information obtained from stories of past successes or failures in investment decisions can play an important role shaping investment bubbles. Politicians use the information from stories to influence voters in elections. Descriptions of past military successes or failures form an important source of information for defending subsequent decisions. Alfred von Schlieffen’s plan failed in its ultimate objective of defeating France in 1914. However, the campaign was enough of a success to provide confidence that subsequent German offensive operations might succeed.⁵ The Japanese Attack on Pearl Harbor in 1941 was a brilliant tactical success, but it did not permanently cripple the American fleet because the American carriers were not there. Nevertheless, there were endless “stories” on both sides of the Pacific that shaped the decisions for the Battle of Midway six months later. In all of these facets of decision-making stories can play a crucial role in accentuating the influence of animal spirits in decision-making.

Our discussion of wars and financial bubbles up to this point has implicitly assumed that whether or not the decisions of individuals were “rational,” they were made independent of each other. If this were the case, then investors who pick winners and those picking losers would tend to average out regardless of the basis of their calculations. However, if a significant number of investors are mechanically following the same recommendations or information provided by “experts” or “leaders,” then a situation emerges that economists call “herd-like movements”. As Shiller explains it, “even completely rational people can participate in herd behavior when they take into account the judgments of others, and even if they know that everyone else is behaving in a herd-like manner. The behavior, though individually rational, produces group behavior that is, in a well-defined sense, irrational”. [Shiller 2000, p. 159]. Ironically, one of the challenges facing decision-makers is not that there is too little data at hand on which to base a decision; it is that there is too much information for the average investor to digest and evaluate. If the leader has a track record of success, the herding instinct produces a situation where price increases beget more price increases, a process

⁵ As we note below, the 1918 offensives once again very nearly captured Paris, and the 1940 invasion of France by the Nazi Armies; which was again predicated a northern route was a stunning success. Stories of that success, played a role encouraging the Battle of the Bulge in 1944, which was a disastrous defeat for the Nazis, and the bloodiest battle involving Americans in World War II.

that will eventually lead to that moment when confidence turns into fear and prices are driven back down. Robert Shiller explains this process of amplification:

Initial price increases attract investor interest and demand, and the new demand begets more price increases. We find ourselves in a vicious circle whereby prices accelerate upward. The price increase cannot go on forever, and eventually the halting of price increases disrupts the investor motivation for holding the highly priced stocks. At that point, the price increase may be sharply reversed, the bubble burst, and there can be downward feedback, leading to lower and lower prices.” ... [T]his simple amplification mechanism is well known and has been talked about for centuries, but curiously, it is rarely mentioned by economists in their scholarly papers. From this lack of discussion, one might easily assume that such amplification is discredited by some scholarly work, while in fact, no such scholarly work exists. [Shiller 2003, p.38].

Herd-like behavior is not confined to the marketplace; it has been equally significant in political affairs. The rise of fascism in Germany and Italy in the 1920s and 30s is evidence of the ability of political demagogues, such as Benito Mussolini and Adolf Hitler, to rally their devotees into herd-like support that enabled them to control entire countries and take them to war. A subtler example can be seen in the support for rising military expenditures among the populations of European powers in the half century leading up to the First World War. Legislative assemblies complained about the exorbitant costs of armies and navies, but in the face of real or imagined crises they reluctantly voted for the funds requested to at least maintain the *status quo*. If war did come, they tended to enthusiastically support the decision to send their troops into battle.

So why was it so difficult for people to return to the prewar world of 1914? It should be apparent by now that we are not going to come up with a simple answer to this question. The world of 1914 had numerous checks and balances that had evolved over the past century, and things had worked well enough so long as there were no "displacements" large enough to require significant adjustments to the global *status quo*. The Great War changed all that. People were forced to construct a whole new set of reference points with which to reset their priorities. The new situation called for a new way of looking at things.

In his book dealing with the origins of scientific revolutions, Thomas Kuhn used the concept of “paradigms” to explore the roots of intellectual change. Kuhn identified scientific paradigms as accepted bodies of knowledge that the scientific community took for granted in their research agenda. He contended that, precisely because they “worked” most of the time, paradigms were not only accepted, they were resistant to any major changes. Only if someone discovered some “anomaly” – an empirical event or occurrence that could not be reconciled with the implications of the paradigm – would there be an incentive for researchers to look for a new paradigm. Because no paradigm can explain everything.⁶ There would always be a few anomalies that could not be reconciled with the paradigm. Only if someone discovered an anomaly significant enough pose a serious “crisis” for the usefulness of the paradigm would researchers abandon the existing paradigm.⁷

We can extend Kuhn’s logic of scientific revolutions to reflect what John Kenneth Galbraith called the “conventional wisdom” of the world of economics – the way people think about economics, politics, and war.⁸ In the years following the Great War, people experienced hyper-inflation, persistent unemployment, the collapse of security markets, the unexplained decline of incomes, and the demise of governments that had existed for decades. All of this constituted a massive group of anomalies that suggested that the generally accepted view of the world no longer reflected how the world really worked. A new set of paradigms was needed to understand what was happening. Unfortunately, it is not easy to change people’s views of the

⁶ Kuhn argued that researchers would see no reason to question accepted paradigms because “they shared two essential characteristics. Their achievement was sufficiently unprecedented to attract an enduring group of adherents away from competing modes of scientific activity. Simultaneously, it was sufficiently open-ended to leave all sorts of problems for the redefined group of practitioners to resolve.” To Kuhn, this open-endedness was not a shortcoming of the paradigm; it was the encouragement for further research to improve – but not to disprove – the paradigm.

⁷ As Kuhn put it: “So long as the tools a paradigm supplies continue to prove capable of solving the problems it defines, science moves fastest and penetrates most deeply through confident employment of those tools. The reason is clear. As in manufacture so in science—retooling is an extravagance to be reserved for the occasion that demands it. The significance of crises is the indication they provide that an occasion for retooling has arrived.” [Kuhn 1962, p.76]

⁸ Galbraith coined the phrase in his book *The Affluent Society*, insisting that there should be a “name for the ideas that are esteemed at any time for their acceptability, and it should be a term that emphasizes ... predictability”. For more on his application of the term see [Breit and Ransom 1998, p. 166-69].

world. Keynes commented on the power that existing paradigms tend to exert on people when he wrote in the closing paragraph of *The General Theory* that:

[T]he ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas. [Keynes 1936]

The problem for those seeking new approaches in 1919 was that the Great War had shifted things so far away from “normalcy” that policy-makers did not know where to start rebuilding the shattered antebellum confidence. “Practical men” in Western Europe and the United States still had an unrelenting belief that markets were stable, efficient institutions that promoted exchange and specialization throughout the world, and they were reluctant to give up those beliefs even in the face of anomalies that appeared in the form of inflation, unemployment, and falling income. Eventually, stubbornness might give way to a grudging recognition that things had changed and that ideas had to change with them. But the process by which that occurred was not simple.

Let us return for a moment to Eric Hobsbawm’s description of a world when Europeans confidently ruled most of the inhabited areas of the world. In 1900, the progress of the past century provided ample evidence for those inclined to believe they were sitting atop of a world that belonged to them and promised a bright future. To be sure, there had been financial crises in the late nineteenth century, however the existing market institutions had been able to cushion the impact of these episodes. The military actions depicted in Figure 1 raised eyebrows throughout diplomatic circles, but they did not initiate global wars. People in Hobsbawm’s European world had developed an overconfidence that made them blind to the reality that beneath the veneer of world peace and economic growth and progress they envisioned was a world that was wracked by intermittent economic, political and military turmoil. The assassination of an Austrian archduke in 1914 touched off a crisis among Austria, Serbia, and Russia that revealed just how fragile that global peace actually was. In the words of historian Martin Gilbert, “by midnight of August 4th,

1914 five European empires were at war: Austria-Hungary against Serbia and Russia; Russia against Austria-Hungary and Germany; Germany against Russia, France, Belgium, and Britain; France against Germany, and Britain against Germany” [Gilbert 1997, p. 332]. In the space of four days the diplomatic crisis between Austria and Serbia had touched off a series of seemingly separate wars that soon morphed into a world war.

Why were the “paradigms” and institutional arrangements unable to contain the forces of change unleashed by the crisis of 1914? One explanation is that animal spirits trumped rational thinking during the deliberations of each country whether or not to go to war. Most of the time animal spirits simply add an element of enthusiasm – or lack of enthusiasm – to decisions that are routinely made. However, the threat of a major war that could dramatically change the balance of power among the major countries of Europe was a possibility that made everyone “recalculate” their options. Historians refer to such situations as *tipping points*; moments in time when events have reached a threshold where decisions can decisively alter the course of subsequent events. Because people do not know when these tipping points might come along, leaders are seldom prepared to act quickly; they must react by using whatever tools are at hand. This is when animal spirits are most likely to take over the decision making process. We have seen that one of the most important ways that animal spirits exert an influence is by influencing how decision makers view risk. Historical descriptions of the decision processes in various countries considering their options during the 1914 crisis invariably emphasize that while the “road to war” had many exits, they were universally ignored by generals, monarchs, and politicians who were driven by a combination of overconfidence in their military plans and fear that failure to take military action would lead to eventual disaster.⁹ These rich narrative accounts allow us to examine how decisions at the tipping points could change the course of events.

One of the things that emerges from all of the narrative accounts and quantitative analysis that has emerged over the years is the extent to which war and economics had become entwined with each other by the beginning of the twentieth century. Fighting wars involved more the development of military strategies and tactics; generals and politicians had to deal with the voracious demands of modern armies that required massive shifts of supply and demand within the economy.

⁹ See for example, the descriptions offered by [Barnett 1963, p.Chapter 1], [Kagan 1995, p.183-213], and [Gilbert 1994, p.Chapter 2].

Generals were slow to understand this point. Historian Barbara Tuchman relates an incident early in the war when an official presented the German commander Helmuth von Moltke with a memorandum indicating the need for an “economic general staff” to deal with problems of supply. “Don’t bother me with economics,” snapped Moltke, “I am busy conducting a war.” Moltke and his colleagues would eventually learn that conducting a war would get them very involved in the economics of planning wartime demand and supply.

A major challenge for quantitative studies of war and economics is finding measures that quantify the variables needed for their quantitative analysis. Although economic historians and cliometricians have at their disposal a huge cache of data on economic variables with which to examine the Great Depression, there is a far smaller body of data to deal with animal spirits and war. Not surprisingly, economic historians have not tended to extend their analysis to issues of war and economics beyond the questions dealing with economic disruption and mobilization of the economy for war. Thus, for example, in their book *Power and Plenty*, Ronald Findlay and Kevin O’Rourke – two cliometricians who actually incorporate war into their analysis – reluctantly admit that the First World War “appears as somewhat of a *diabolus ex machina* in our account.”¹⁰ A veritable army of military and political historians have examined the causes and impact of these military and economic crises, however as John Vasquez observes, “much has been written on the causes of war; little has been learned about the subject.” [Vasquez 2009, p. 3]. Research focusing on individual wars has tended to produce a situation where wars are “over explained” because more than one explanation is consistent with the same data. The difficulty of untangling what econometricians call the “identification problem” is that there is seldom enough additional data to sort things out and select the “best” explanations.¹¹ Any study of warfare in the twentieth century involves some attempt to assess and compare the ability of rival states or groups to wage war.

One of the most ambitious efforts to meet this challenge has been the research effort by the *Correlates of War Project* [COW] founded by J. David Singer at the University of Michigan. What

¹⁰ They go on to explain that “There is of course no shortage of authorities who have argued that the way in which the late-nineteenth-century world economy operated helps explain the eruption of World War I, but the causes of this disaster remain controversial.” [Findlay and O’Rourke 2007, p.xxv]

¹¹ As political historian Dale Copeland observes, “quantitative studies are a second-best approach to establishing causality when internal documents are available. ... Moreover, quantitative studies lack a good way to measure my dependent variable, the probability of major war.” [Copeland 2000, p.34]

makes the data collected by the COW project particularly useful is it applies the same definitions for variables collected from many areas of the world over a period of more than 200 years. One of the more intriguing results of their efforts is the construction of a *Composite Index of National Capability*. CINC is an index comprised of six variables intended to measure the “demographic, industrial, and military indicators as the most effective measures of a nation's material capabilities.”

The six variables included in the data set are:

Military Personnel (Thousands): defined as troops under the command of the national government, intended for use against foreign adversaries, and held ready for combat as of January 1 of the referent year.

Military Expenditures (Thousands of Current Dollars): defined as the total military budget for a given state for a given year.

Total Population (Thousands): Defined as the number of people living in a given state.

Urban Population (Thousands): Defined as the number of people living in a city of 100,000 of more people.

Primary Energy Consumption: (Thousands of Coal-tTn Equivalent): computed using data about four broad categories of sources—coal, petroleum, electricity, and natural gas. The raw data for each commodity is converted into a common unit and then summed to produce the total energy consumption for a given state in a particular year.

Iron and Steel Production (Thousands of Tons): Defined as all domestically produced pig iron until 1920 and total iron and steel production after 1920.

The Composite Index of National Capability Index data sets includes data for every state that reported data for a given year. For each state COW computes the ratio of the total value reported for a variable, divided by the global total for that variable. The CINC “score,” is the sum of all six of ratios divided by six. Multiplying the CINC ratios by 100 gives us a %CINC index that is that state’s percentage of the global total. The %CINC index provides a rough measure of the relative share of military and economic power of countries across territory and time. However, it is important to emphasize that the aggregate %CINC score measures the overall *capability* of a state’s military and economic power, not the *actual ability* to wage war at a point in time. Whether

or not the country actually realizes that capability depends on the degree to which resources have been mobilized into an effective system of economic and military organization prepared to fight a war.¹²

Can an index constructed from six aggregate variables spread across dozens of states over a period of nearly 200 years capture the subtleties and capricious outcomes that decided a world war? Probably not. The data might, however, provide some support and interesting insights to our analysis of how animal spirits such as confidence, fear, and the propensity to gamble affected the decisions that led to shifts in strategy. We can examine this data to consider several questions that are frequently raised in the literature dealing with the Great War.

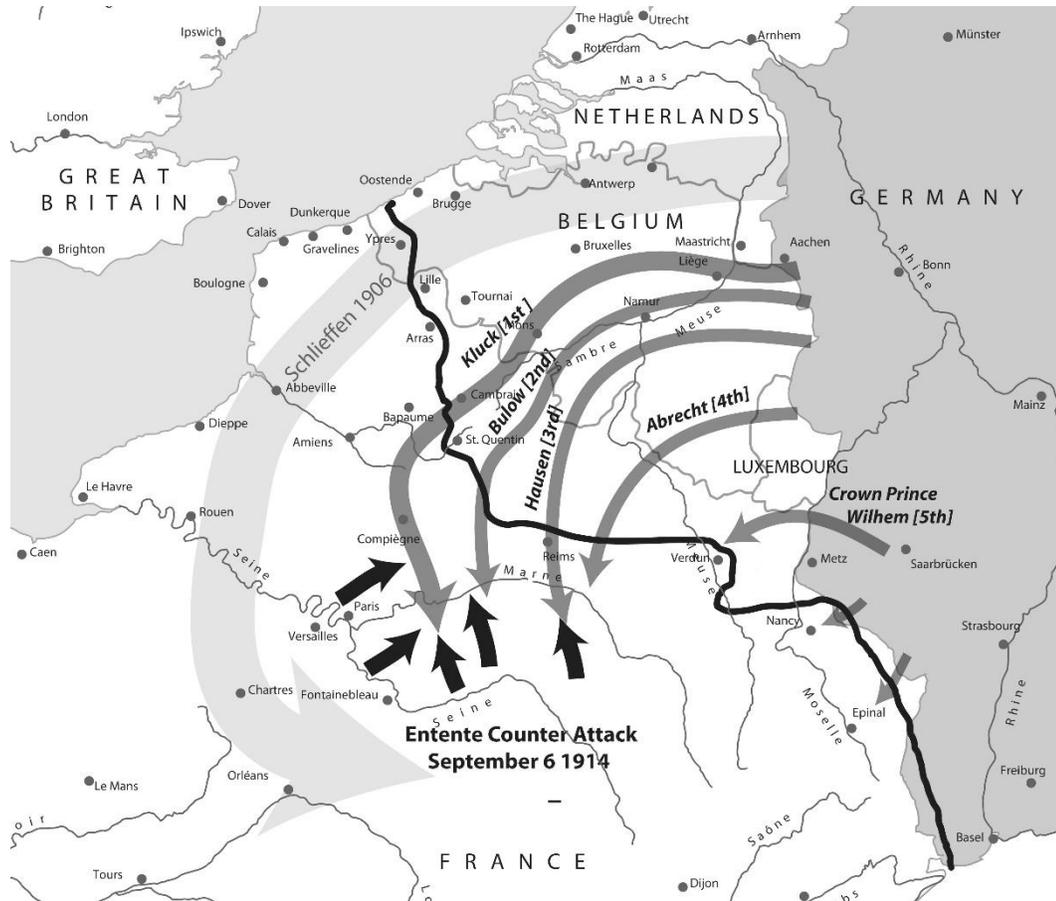
Following their victory over the French in 1871, the great fear on the part of German military and civilian leaders was the strong likelihood that a future war against Germany that would involve both Russia and France. By 1914 a plan first introduced by General Alfred von Schlieffen in 1906 on how to deal with a two-front war was in place to deal with such a contingency¹³ Schlieffen proposed that Germany concentrate her forces against one opponent at a time. He felt that France offered the best opportunity for a quick German Victory and he therefore recommended that between two-thirds and three-quarters of the German army be prepared to sweep through Belgium and Holland and on into France in a broad arc that would carry them west of Paris. They would then be in a position to annihilate the French Army in a single battle as it had in 1871. (See Map 1). The proposal depended on the speed of movement and successful coordination of a huge mass of troops, most of whom had no experience under combat. It constituted a violation of both Belgium's and Holland's sovereignty, which would almost surely bring the British into the fray.

On the face of it, the Schlieffen memorandum was a very risky proposal. The %CINC scores in Figure 3 underscore the importance for a quick and overwhelming victory against the French if it was to succeed. The combined %CINC of the three Entente Powers in 1914 was 32.5

¹² For a more detailed discussion of the variable descriptions and the construction of the CINC score, see Correlates of War Project, *National Material Capabilities Data Documentation, Version 4.0*,

¹³ Schlieffen became chief of staff of the German Army in 1891. He presented his ideas for a two front war in memo that was couched in very broad terms. Although changes were made to the "plan" during the period following Schlieffen's retirement and the outbreak of war his ideas remained the foundation of German military strategy up to the outbreak of war in 1914. See [Zuber 2002], [Ritter 1958], and [Mombauer 2005].

while that of Germany and her Austrian ally totaled only 22.6. The longer the war, the lower the odds of a German victory. Schlieffen recognized the urgency of a quick victory, and that is why he was willing to violate the neutrality of both Holland and Belgium in order to create an invasion route that would take his armies deep into Northern France.



Map 1: The Schlieffen Plan, 1906 and 1914

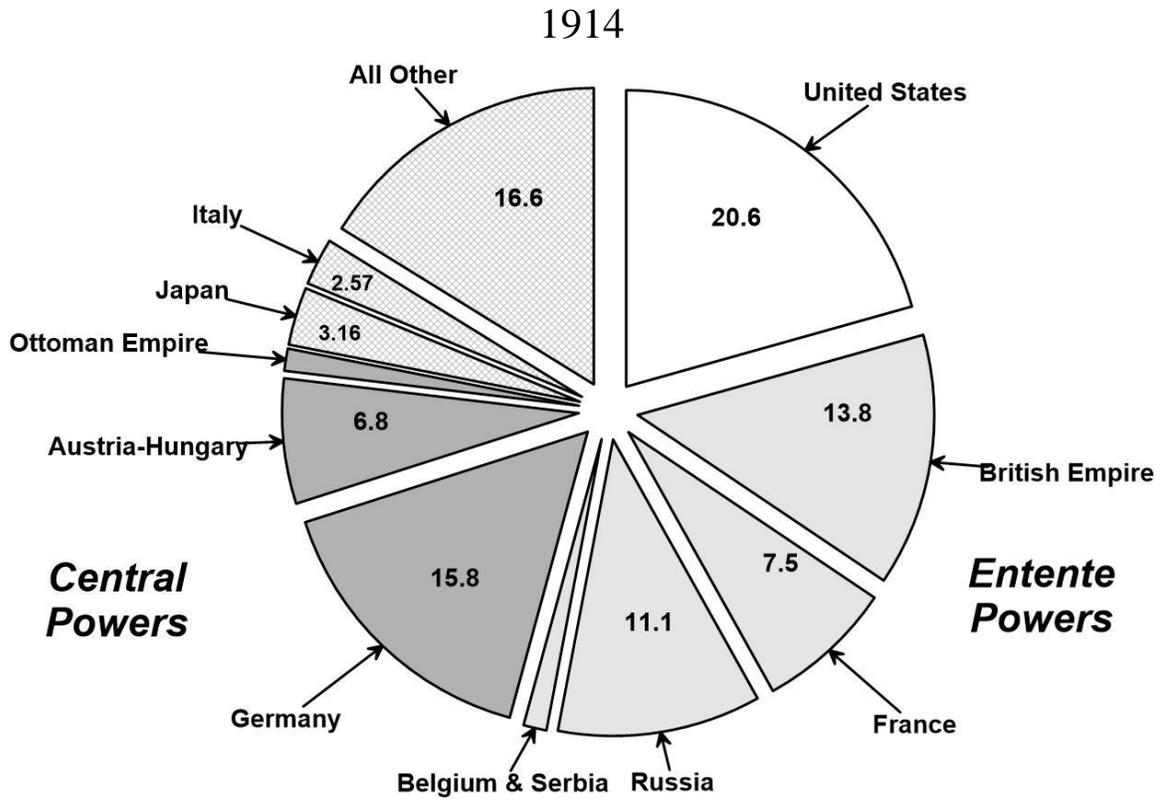


Figure 3: %CINC Scores in 1914

Table 1:
The Crisis of 1914
Component Scores of Military Capability [%CINC] for Major Powers

Country	%CINC Index	Military Expenses	Military Personnel	Iron - Steel Output	Energy Consumed	Total Population	Urban Population
United States	20.6	3.42	2.37	40.76	46.64	8.15	22.72
Germany	15.8	24.12	12.29	23.56	15.69	5.58	13.9
British Empire	13.8	22.69	7.58	13.6	17.93	3.79	17.38
Russia	11.1	11.58	18.83	7.62	4.06	14.41	10.2
France	7.5	16.69	11.25	4.78	3.78	2.73	5.75
Austria	6.8	14.08	11.96	3.69	2.72	4.33	4.29
Japan	3.2	1.46	4.26	0.48	2.02	4.27	6.46
Italy	2.6	1.18	4.9	1.55	0.88	2.95	3.99
Belgium	1.2	0.13	1.63	2.38	1.4	0.63	0.87
Ottoman Empire	1.2	n.a.	3.55	n.a.	0.06	1.52	0.97
Serbia	0.2	0.06	0.58	n.a.	0.02	0.33	0.18

By 1914 the German war plan was still based on Schlieffen's premise that the Germans could quickly defeat the French and use their interior lines to hold off the Russians in the east, and that any intervention by the British would come too little and too late.¹⁴ Though Schlieffen and the German High Command in 1914 did not have all of the data embedded in Figure 3 and Table 1, their assessments are not contradicted with the %CINC scores. Taken separately, the total %CINC scores in Figure 3 for Germany exceeded the scores for each of their potential adversaries in 1914, and Table 1, shows that the Germans had particularly favorable %CINC scores for every component dealing with military factors compared to France. – which was the one that mattered most if the Germans were going to gain a quick victory in the west.

Things started out well enough for the Germans. The invading forces swept through Belgium and reached the French border two weeks later. However, at this point they began to encounter difficulties both from resistance of Entente troops and logistical problems in keeping the timeline demanded by the overall plan. By the end of August, the two German armies on the right wing of the invasion force – commanded by Kluck and Bulow – were no longer on a route

¹⁴ The German dismissal of the importance of British intervention reflected that fact that most of the British military personnel in Table 1 were scattered throughout the British Empire and would not be available for quick action on the European continent. The size of the British Expeditionary Force that arrived in France in August 1914 was just over 160,000 men.

that would keep them west of Paris. On September 4th Molke ordered the German halt while they sought to regroup. The next day the Entente forces counter-attacked on September 5th, and the Battle of the Marne ended Germany's bid for a quick victory. (See Map 1) The two sides then engaged in a series of battles that produced a line of hastily dug trenches that eventually stretched from the English Channel to the Swiss border.

Unfortunately for the Germans the war at this point on the Western Front turned into a bloody stalemate that neither side could break. It is important to note, however that the invasion was hardly a complete failure. By the end of 1914 Germany occupied almost all of Belgium and a significant portion of Northern France, and they were able to hold on to this territory throughout the rest of the war. In the east things also started well for the Germans. Generals Hindenburg and Ludendorff routed an invading force of Russian troops at the Battle of Tannenberg on August 26-30; a victory that served to keep the Russians out of East Prussia and buy the time that Schlieffen had hoped for to deal with the situation in the east. Planners in the German High Command could therefore contend that although the Germans had not destroyed the Entente armies, by the end of 1914 Germany had gained enough territory in the west to maintain its war effort for another three years.

Various explanations have been put forward to explain why Schlieffen's gamble ended up falling short of its goal. An obvious factor was the scale of an operation involving millions of men who had never been in combat and a complex schedule that could not be maintained with the technology at hand. But an equally important factor may have been the shortcomings of the man who replaced Schlieffen in 1906 and was still in command German armies in 1914. Helmut von Moltke accepted the basic foundations of Schlieffen's plan, however he was not a gambler, and his lack of confidence in Schlieffen's scheme crippled his ability to carry out the details of the plan. We have already noted how the decision to not invade Holland hindered the objective of trapping the French army west of Paris. As the battle in France progressed, Moltke's confidence – already sorely tested during the invasion – had evaporated. In a letter written to his wife on September 8th Moltke reveals the depths of the fear that had been plaguing him since the onset of the campaign:

It is going badly. The battles to the east of Paris will go against us. One of our armies must withdraw [Billow's?], the others will have to follow. The opening of the war, so hopefully begun, will turn into the opposite. ... The campaign is not lost, no more than it was until now for the French, but French spirit, which was on

the point of being extinguished, will now flare up tremendously and I am afraid that our nation in its headlong careening towards victory will scarcely be able to bear this misfortune.

In the end Schlieffen's gamble to win the war in one bold stroke failed because confidence had turned into fear. The Battle of the Marne was the first major tipping point in the Great War.

At least one man on the German General Staff realized the implications of the %CINC scores that favored the Entente. Just before Christmas in 1914, Erich von Falkenhayen, who had replaced Moltke as chief of the German General Staff, advised the Kaiser that Germany should seek a negotiated end to the war as soon as possible. Falkenhayen's assessment of the situation facing the Germans reveals one of the greatest shortcomings of the Schlieffen Plan: the Germans did not have a "Plan B". Realizing this, Falkenhayen pointed out that the odds would surely continue to shift steadily in the Entente's favor as the war wore on, and now was the best time for Germany to cut a favorable deal with the Entente Powers. Unwilling to concede that the Germans were not likely to win the war, the Kaiser elected to ignore Falkenhayen's advice and continue the fight.¹⁵

So the struggle on the Western Front turned into a stalemate that dragged on for another three years. In the east, however, things gradually turned in Germany's favor, and by the end of 1917 there was reason for optimism about the ultimate outcome of the war. A revolution in Russia overthrew the tsar and brought a new government to power that agreed to a cease fire in December 1917. The departure of Russia from the war presented the Germans with another tipping point. Table 2 summarizes the relative military capabilities of the Germans, British, and French in 1917-18. By early 1918 the Germans had managed to increase the size of their army to eight million men and their %CINC score had risen to 17.2 – its highest level since the outbreak of the war. The British and the French, by contrast, had barely managed to hold their exhausted military resources together. The result was that the Germans managed to increase the number of divisions serving on the western front from 150 in October 1917 to 192 in March 1918, while the strength of Entente forces declined from 176 to 169. [Clodfelter 2002, p. 449]. Eric Ludendorff, now the head of the

¹⁵ Falkenhayen suggested that the Germans offer to stop fighting if the Entente agreed to let them retain control over Belgium and withdraw from Northern France. It seems doubtful that Entente would have agreed to this proposal. See [Ritschl 2005].

German Army, was confident that, with the Germans now controlling the eastern front, they could win the war if they launched one last offensives in the West. But they had to act quickly; they must force the French and British to quit the war before United States, which had entered the war in April, 1917 could bring their considerable resources to help the Allied cause. On March 21st 1918 the Germans launched their last gamble of the war. They managed to get within 60 miles of Paris by the end of June, however at that point the Allied line was bolstered by the steady arrival of more American troops, and at the Second Battle of the Marne the German advance was finally stopped.

Table 2:
The Military Situation, 1917-18

Country	Year	Military Personnel (000)	\$CINC Score
Germany	1917	5,380	15.8
	1918	8,000	17.2
British Empire	1917	4,430	15.0
	1918	4,222	14.3
France	1917	5,141	8.4
	1918	5,277	8.8
United States	1917	644	24.4
	1918	2,897	29.5

The Ludendorff offensives are another example of how confidence, fear and a propensity to gamble on the part of leaders affected decisions when the inevitability of defeat seemed certain if no action was taken. Though they held a temporary military advantage in the spring of 1918, a reality check would have revealed that the German economy was already “running on empty.” A growing level of civil unrest in opposition to the war suggested that civilians did not share the generals’ confidence that the they could carry out their grand scheme for victory. As the Allied forces began their counter-offensives at the end of July, the confidence of the foot soldiers in the German Army also began to disappear. One measure of this loss of confidence is the sudden increase in German soldiers surrendering. “According to one estimate,” writes Niall Ferguson, “340,000 Germans surrendered between 18 July and the Armistice. Between 30 July and 21 October – less than three months – the British alone took 157,047 German prisoners. In the whole rest of the war they had captured only slightly more than that (190,797). [Ferguson 1999, p. 168] The effect of these mass defections was to force Ludendorff to lose his own confidence in the

effectiveness of his troops. As the success of the Allied offensives became increasingly apparent, Ludendorff reluctantly decided that the Germans must seek an armistice before a social revolution erupted in Germany.

In addition to examining the gambles taken by generals to win wars, several general observations emerge from a comparison of the global %CINC rankings in 1914 and 1919. First is the extent to which one country – the United States – had by far the greatest share of global military capability of any great power even before the war started. (Figure 4) The Americans had largely abstained from the arms races of the first decade and a half of the twentieth century; they maintained a relatively small army and had a very modest defense spending compared to the European powers. However, the United States economy accounted for more than a third of the world's iron and steel production and energy consumption. (Table 3) American military capability peaked at the end of 1919, when there were more than two million doughboys in France and American military spending accounted for over 70 percent of the global total. (Table 3). Second is the extent to which global military capability was concentrated in the hands of a very small group of nations and empires throughout this period. The outcome of the First World War did not significantly change that situation, however, the relative positions of various countries within the nexus of military and economic power changed dramatically over the course of the fighting. A final note regarding the influence of economic variables into the equation of military capability is the relatively high %CINC score of Germany in 1919 – despite the reduction in the size of their military capability. The Allies had defeated the German Armies; however, the %CINC scores suggest that as early as 1919 there was evidence that war had not permanently removed the economic capability for the Germans to rearm.

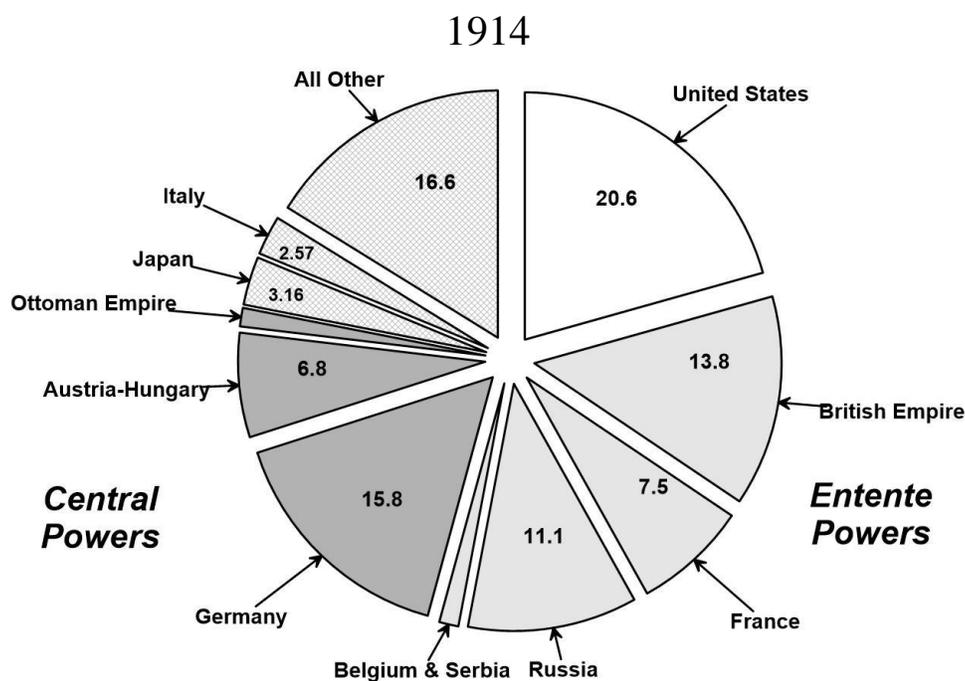


Figure 3: %CINC Scores in 1914

Table 3
The Situation in 1919:
Component Scores of Military Capability [%CINC] for Major Powers

	%CINC	Military Expenses	Military Expenses	Iron & Steel	Energy Use	Total Population	Urban Population
United States	38.14	71.55	9.30	62.13	52.20	8.59	25.05
Great Britain	11.10	4.75	10.57	14.15	16.24	3.66	17.21
France	6.13	4.05	18.75	2.28	3.57	2.63	5.52
Italy	4.50	1.74	15.86	1.29	0.60	2.96	4.54
Japan	3.48	2.78	2.43	1.44	2.67	4.52	7.05
Russia	6.32	9.04	12.29	0.35	1.18	11.69	3.34
Germany	7.69	0.51	0.90	13.84	11.81	5.17	13.88
Austria Hungary	1.03	0.06	0.44	0.18	0.61	1.18	3.08
Turkey	0.58	0.21	1.02	-	0.05	1.56	0.65
Northern Europe	3.96	1.94	3.91	1.88	3.56	4.66	7.32
Central Europe	5.14	0.98	9.53	2.37	5.13	6.37	4.60
Rest of World	14.29	2.39	14.89	0.10	2.34	46.62	7.62

The %CINC measures of military capability reaffirm our conclusion that economics had become the foundation of military power in the post-World War I world. In addition to Schlieffen's 1914 gamble there were three other significant examples of military gambles where the overconfidence of attackers led them to rely on what they confidently viewed as a superior military situation that would let them overwhelm their opponents and win a major victory: the German offensives of 1918 planned by Eric Ludendorff; Adolf Hitler's invasion of the Soviet Union in July, 1941; and the Japanese attack on Pearl Harbor in December 1941 were all instances where the *military* components of the %CINC heavily favored the attackers, and all of them were instances where the offensives met with early success. But in the long run, the preponderance of power reflected in the economic %CINC components of their opponents proved as decisive in determining the outcome of the war. All of these military actions were justified by the attackers because they felt that the odds of success were favorable enough to warrant a try for victory rather than face the certainty of what they saw as a worse outcome if they did nothing at all. Overconfidence surely accounted for some of this hubris, but it was ultimately fear of the alternative to offensive action that carried the day in 1914 and subsequent years.

Historian Ruth Henning summed all this up very nicely at the conclusion of her essay on the origins of the First World War. "Countries went to war," she wrote

because they believed that they could achieve more through war than by diplomatic negotiation and that if they stood aside their status as great powers would be gravely affected. That was their greatest miscalculation. The balance sheet in 1918 proved how wrong they had been; by that time the status of all Europe's major powers had been greatly diminished and virtually none of the objectives of the European ruling elites had been realized." [Henning 1989, p. 54]

Whether or not they were the consequence of "rational" decisions, Henning's judgement reminds us that the price the world paid for the gambles on wars during the Age of Catastrophes was extraordinarily high for what they gained. As the British cabinet completed their deliberations on the declaration of war against Germany on the evening of August 3, 1914. Sir Edward Grey, the British Foreign Secretary turned to a colleague and said, "The lamps are going out all over Europe, and we shall not see them lit again in our lifetime." Grey's comment has become one of the iconic quotes associated with the outbreak of a war that nobody wanted, nobody understood, and nobody

can forget. He was right that the lights were going out; but his estimate of when they would go back on was unduly optimistic.¹⁶

A century later we are still living in the dark legacy of the Great War.

¹⁶ In his memoirs published in 1925 Grey did not recall making the famous remark. An account of the comment was published in 1927 by John Spender, a journalist who recalled that “We were standing together at the window looking out into the sunset across St. James Park and the appearance of the first lights along the Mall suggested the thought.” [Spender 1927, p.14-45].

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