

The Heart of the Atlantic Constitution: International Economic Stability, 1919-1998

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I. HOBBS AND THE ATLANTIC CONSTITUTION

For before constitution of Sovereign Power . . . all men had right to all things; which necessarily causeth Warre.¹

We all live out our lives within some system of social rules. For those of us in the developed political economies, many of these rules are founded in a constitution, whether formally written down, as in the United States, or implicit and based on precedent and practice, as in Britain. Just as with citizens, so with corporations and countries. Corporate economic entities carry out their activities in an environment that also has explicit and implicit rules. Even countries engaged in economic or military war acknowledge implicit rules that provide the context for negotiation over cooperation, conflict, and surrender.

The very general system of implicit and explicit rules holding for citizens within states, for corporations in the global economy, and for countries in the world polity, I shall term a *Constitution*. I shall use the phrase *the Atlantic Constitution* to refer to the family of constitutions of the developed economies, principally within the Organization for Economic Cooperation and Development

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(OECD), together with the overall system of rules that govern economic and political behavior within this group.

It is my contention that this Atlantic Constitution has evolved over many centuries and that crucial elements of it have been constructed by design. The purpose of a Constitution is to mitigate the consequences of anarchy, by Hobbes called “Warre,” within which “the life of man [is] solitary, poore, nasty, brutish and short.”²

Many of the *contractarian* philosophers of this century have too readily assumed that Hobbes’s solution, the great Leviathan, *is* the state, with its ability to regulate, tax, enforce contracts, assign rights, and so forth. They have concentrated on the nature of the contract between the citizens and the state, on the ability of a “predatory” state to violate this contract, and on the capacity of the citizens to punish such a violator.

Other *anarchic* philosophers have pursued the suggestions of Michael Polanyi and Friedrich von Hayek, contra Hobbes, that “spontaneous order,” in the absence of a state, is possible, indeed generic.³ The more technical arguments of the anarchists have been framed in the context of game theoretic equilibria arising out of the framework of the “prisoners’ dilemma” interpretation of Hobbesian chaos.

I agree with the philosophers that Hobbes’s calculus of war and cooperation is a profound insight into the basis of the Constitution. I shall argue, however, that while the Atlantic Constitution is indeed a Hobbesian Leviathan, it is not restricted simply to the contractarian basis of relations between citizen and state. Nor is it solely a consequence of a spontaneous evolution of a system of law and habits of behavior. Fundamental components of it have been constructed “by Art” (to use Hobbes’s phrase), that is by *Architects of Order*. These architects have added or adjusted components of the Constitution in response to problems or dilemmas that have arisen in the world. Indeed, these problems have often been perceived and displayed in terms of Hobbesian “Warre” by philosophically inclined Cassandras. I shall call these the *Prophets of Chaos*.

A *quandary* for a Constitution is a situation in which Prophets of Chaos have cast doubt on one of the core beliefs of the Constitution. Recent events in the international economic system suggest that we currently face a quandary over the degree to which it is necessary to regulate the international flow of capital. At present, professional economists, politicians, fund managers, and so forth, are deeply concerned about the contagion of monetary instability that has recently become apparent in developing markets, particularly in Asia and more recently (August 1998) in Russia and potentially in Latin America.

However, a powerful core belief, which I shall term the *economic equilibrium hypothesis*, is still almost universally accepted among international policy makers. This core belief came into being in a strong form in the early 1980s as a consequence of a partial resolution of the obvious quandary of that time. This earlier

quandary of the late 1970s was brought into focus by various Prophets of Chaos, including Beer, Brittan, and Olson.⁴ These authors, using the tools of public choice theory, led us to view politicians as potentially predatory, in need of regulation. It was argued that the framework of Keynesian macroeconomics allowed such predatory politicians to engage in strategies which, while rational in terms of electoral support, were economically irrational in the long run.

In response, the Architects of Order of the early 1980s based their solution to this quandary on the argument that it was impossible to induce “unnatural” growth by political intervention.⁵ In particular, the policy initiatives of that time, initiated by the United States and Great Britain, were based on the hypothesis that markets left to themselves will tend to an “optimal” equilibrium. Those countries that chose to weaken market rigidities would benefit from greater productive efficiency, and the resulting lower obstacles to trade would enhance economic growth.

It is evident that the acceptance of this core equilibrium belief has had remarkable consequences. Trade and growth have, until recently, been sustained, and the United States and Britain, especially, have obtained results that are quite at odds with the pessimistic predictions made in the 1970s and 1980s.⁶

The success of these policies over the last decade or so has meant that policy makers are unwilling to consider global economic changes that are not consistent with the equilibrium hypothesis. Moreover, because of the way in which the quandary of the late 1970s was understood, the arguments of the Prophets of Chaos, with regard to political instability, are also accepted. Thus, the collapse, recently observed in Russia, Indonesia, Malaysia, and foreseen for Mexico and other Latin American countries, is generally regarded as a consequence of political imperfections. However, the difficulty that Japanese leaders face, in attempting to create the conditions for economic growth, does pose more serious problems of explanation.⁷ There may indeed be something peculiar about the connections between Japanese politicians and corporate actors, effectively forbidding resolution of what appears to be an economic crisis. Nonetheless, it is inconceivable that the cause of these disparate economic crises, in so many parts of the world, is fundamentally political.⁸

This essay will argue that a strong form of the economic equilibrium hypothesis is invalid, in general. This strong hypothesis asserts that both commodities and assets markets will, in fact, typically be in equilibrium and will result in outcomes that are Pareto optimal.⁹ I use the term *commodities market* for what Keynes referred to as a market governed by prospective yield, or risk. This is the typical market studied in general equilibrium theory. The individuals in such a market are characterized by utility or preference; each individual can readily rank bundles of such commodities by subjective worth.¹⁰

As discussed at greater length in section V of this paper, Keynes took pains to distinguish the behavior of such commodities markets from what I shall term

asset markets, namely those governed by speculation. Keynes believed that asset markets were characterized by uncertainty, rather than risk. The term *uncertainty* is used for those situations where it is intrinsically impossible for any individual to assign probabilities to various eventualities, in any coherent form.

To illustrate the notion of uncertainty, consider the choice by Russia to renege on its interest payments due on its public debt in August 1998. The event surprised even such an experienced international financier as George Soros.¹¹ The effects of the Russian decision induced uncertainty into the international economy, because the effects were due not simply to the economic ramifications, but to the interpretation of this event by other actors in the global economy. An immediate consequence was a considerable decline in the U.S. stock market, as fund managers fled to “safer” havens.¹² As of late December 1998, the U.S. stock market has recovered, as the degree of uncertainty has diminished. Nonetheless, uncertainty over the effects of economic and political disorder in emerging markets is still prevalent.

The scale of international asset markets has increased markedly in recent years, and technological developments have dramatically reduced transaction costs (and, of course, time of transaction). The consequence is that the *virtual*, or speculative, component of world markets has become increasingly important in comparison with the *real* components of labor and of flows of traded goods and services. Keynes argued, and I concur, that markets in commodities, especially traded goods, are likely to be governed by what we regard as the law of supply and demand. Such commodities markets may well exhibit equilibrium. What concerned Keynes was the degree to which instability or chaos in asset markets could undermine the stability of commodities markets. Given the events that had occurred in Keynes’s lifetime, his preoccupation was with effects of this kind not only in the labor market (where the result is persistent unemployment) but also in the international polity (and the attendant competitive devaluations). Both effects can be seen currently in the so-called emerging economies. The rapid drop in GDP in these economies has triggered significant increases in unemployment, while recent estimates of the degree of currency “undervaluation” (if this notion makes any sense) are in the range of –60 percent (Malaysia) through –50 percent (Philippines) to –40 percent (Indonesia).

Keynes accepted this weak version of the equilibrium hypothesis (only for commodities markets) because he saw a terrible danger to the Atlantic Constitution. Consider for a moment a world in which it is generally believed that all markets, both asset and commodity, are chaotic. In such a world, the returns to capitalists and the wages of labor have no legitimate basis. For fear of the resulting chaos, the citizens of a nation would only be rational in giving up their freedom to the agents of the state. Bound by such a Hobbesian contract, the citizens could at least hope for some certainty in their lives. It is true that the political economists of the 1930s, who studied a socialist state of this kind, generally came to the

conclusion that the “calculation problem” made it impossible for the state to set prices in such a way as to ensure economic efficiency.¹³ Keynes was keenly aware that authoritarian state systems could solve the problem of unemployment by paying the price of efficiency while necessarily depriving their citizens of their freedom. It seemed all too probable in the 1930s that citizens would be willing to pay the double price of inefficiency and loss of freedom to avoid the great and apparent risks of unemployment.

The solution that Keynes sought to the quandary of the 1930s was based on the logical distinction between the two kinds of markets. He proposed limited government intervention only in the potentially unstable asset market in order to create stability in the commodity market and the return of full employment.

Lest we feel that Keynes’s concerns are of little interest in a world of relatively low unemployment (at least in the developed nations), consider again the rational calculus of citizens of Russia or of the countries of Southeast Asia. In Russia, in particular, although the so-called market was introduced with great fanfare, it has only led to mafia domination, currency collapse, government enfeeblement, barter exchange, and varieties of unemployment and underemployment. It would be no surprise at all if the majority of the Russian people were to choose an authoritarian regime, under the plausible belief that they were buying release from chaos with their freedom.

As I discuss in the third section of this paper, the success of the developed countries of the OECD, in solving the quandaries they faced at the end of World War II and in the late 1970s, has helped persuade the citizens of other parts of the world that capitalism can work. More important, many countries in Latin America and Asia have been willing to experiment with democratic reforms. The chaos that has recently occurred could induce the leaders of such countries to renounce both free-market notions and democratic freedom.

To preserve the vitality of the Atlantic Constitution, it makes sense therefore to probe, in some detail, the validity and relevance of the equilibrium hypothesis in the more general context of global political economy. To do this, the next section of the paper describes in greater detail what is meant by a Constitution. In particular, the notion of a core belief is outlined, using, where appropriate, recent concepts from game theory. To pursue the manner in which the core economic equilibrium belief has evolved during this century, we shall follow the notion back in time by considering, in section III, the current situation and then, in section IV, the quandary resulting from the international economic disorder of the 1970s. Sections V and VI give a fairly detailed account of Keynes’s understanding of the quandary that was apparent in 1944 over how to structure the postwar international economy. Section VII examines the debates in the United States and the final policy decisions that led to a solution of this quandary. Section VIII attempts to give some conclusions that are relevant for today. The appendix draws on ideas both from game theory and the philosophy of science to discuss the more

theoretical question of the transformation of core beliefs either within a Constitution or in natural science.

II. PROPHETS OF CHAOS, ARCHITECTS OF ORDER

For by Art is created that great Leviathan called a Common-Wealth, or State . . . which is but an Artificiall Man.¹⁴

Those of us in the developed economies are all fortunate to have lived in a post-1945 world within which no global wars have occurred and economic growth has gathered apace. We sometimes forget that the economic basis for the international component of the Atlantic Constitution was laid down in a system of institutions, rules, and understandings devised at the Bretton Woods Conference (of July 1944). The Bretton Woods System was an institution in the sense used by Douglass North. Such an institution can be understood in terms of “the rules of the game in a society, or more formally the humanly devised constraints that shape human interaction . . . [that] structure incentives in human exchange, whether political, social or economic.”¹⁵

The Smithsonian Agreement of December 1971 is usually taken to signal the collapse of the Bretton Woods System. It would be more correct to say that the Institution of Bretton Woods had been found inadequate to deal with the complicated Hobbesian problem of maintaining cooperation and rapid growth in an evolving global economy. During the 1970s, the voices of the Prophets of Chaos were loud and generally heeded. Problems of equilibrating the monetary system, and of the apparent incompatibility of democracy and economic competitiveness, were increasingly perceived. To a considerable extent, the solutions were sought in the arguments of what I call the anarchic philosophers. The strategy of “regulating” the domestic and international economy was increasingly seen as impossible, indeed irrelevant. Instead of attempting to control exchange rates, the flow of capital, and so forth, the developed polities distanced themselves, to a degree, from management of the global economy. The occasional interference (as in Britain’s later attempt to maintain an overvalued exchange rate for sterling in 1992-1993) made it apparent that the costs of so doing, by a single polity, could be enormous and the effort self-defeating.

These changes in the institutional arrangements implied modifications in the Atlantic Constitution, in the implicit rules that governed economic behavior at the international level. These were conditioned by changes in beliefs, particularly about the behavior of markets. The notion of a natural equilibrium in an international system of exchange economies was generally accepted, and the possibility of economic chaos was seen as less credible. This change in belief was entirely rational (indeed, “Bayesian”). From an empirical standpoint, a lessening of the degree of intervention by government in the macroeconomy, after 1982 or so, certainly appeared to produce a drop in overall inflation. The arguments that had been made during the 1970s by political economists seemed to be borne out. By

changing the rules of political action, by credibly committing politicians to a less interventionist role, it was possible to reduce inflation to negligible levels. In essence, these changes in the “rules” were induced by changes in beliefs over the validity of the “Keynesian” framework. It is important to note, however, that these changes in beliefs were not just based on empirical analysis. They were substantiated by plausible models, both of the economy and of the polity. Indeed, these models became part of the accepted language of discourse.

This suggests that what I have called the Atlantic Constitution is not just a set of rules of behavior, nor is it simply a set of “rules of the game,” as North suggests. It is rooted in beliefs, and these beliefs have both empirical and theoretical bases. When the rules of the game of the Constitution produce effects that are intolerable, then the philosophers, the Prophets of Chaos, become engaged to seek both the reasons and cures. The beliefs that underpin the Constitution necessarily evolve in a way that might be termed *Popperian*.¹⁶ In fact, Popper has asked the question “how [can] such non-physical things, as purposes, deliberations, plans, decision, theories, intentions, and values . . . play a part in bringing about physical changes in the physical world?”¹⁷ That such nonphysical things are part of the Constitution suggests that the Constitution has embedded within it a formal language of discourse.

Some of the anarchic philosophers follow Hume in regarding language simply as a system of conventions. As Sugden says, “We all wish to speak and write in a form that is comprehensible to the people with whom we wish to communicate, and so there is a self-reinforcing tendency for communities to evolve common languages.”¹⁸ From this point of view, a language qua convention is a particular equilibrium solution to a coordination game. But a language is clearly more than this. It has a grammatical structure that is internally consistent, to some degree.

In my view, the Constitution does provide a language through which citizens, corporations, and countries can communicate. But there is a further element of this constitutional language that should be emphasized. As I wrote a number of years ago,

The fundamental theoretical problem underlying the question of cooperation is the manner by which individuals attain knowledge of each others’ preferences and likely behavior. Moreover, the problem is one of common knowledge, since each individual, *i*, is required not only to have information about others’ preferences, but also to know that the others have knowledge about *i*’s own preferences and strategies.¹⁹

This constitutional language aims not only at internal consistency and empirical relevance, but also provides the framework within which the acts of agents, (whether citizens, corporations, or countries) are mutually intelligible. That is, it makes it possible, at least potentially, for us to understand what it is we, and others, are doing.

These remarks lead us to a conception of the Constitution that is much more general than that of an institution. Clearly, the rules of the game, since they must

be regarded as humanly devised constraints, are open to human choice. Because the rules can be socially chosen, the internal consistency and stability of the Constitution depends on the degree to which it is in equilibrium with respect to the beliefs of its citizens. At certain times in the evolution of the Constitution, there exists one, or a number of, core beliefs that are stable or persist in the population. These provide the basis for the consistency or coherence of the constitutional language.

However, the game theorists, who have studied the prisoners' dilemma model of cooperation and war, have realized that the evolution of such Hobbesian societies depends almost entirely on the way beliefs are created and destroyed.²⁰ In contrast to the earlier work of the "neo-institutional" political economists, who tended to see political or social equilibrium resulting directly from institutional constraints,²¹ the more recent perspective has emphasized the way in which equilibria may be destroyed or re-created by a *belief cascade*.

Denzau and North mention two different modes of belief cascades that have been discussed in entirely different contexts. First, there is the situation studied by Bikhchandani et al.²² where a small group of decision makers "change their minds" on the basis of their private information, inducing the rest of the population to "free ride" by following suit. Second, there is the famous Kuhnian²³ notion of a scientific revolution destroying an existing paradigm.

The appendix presents a more detailed examination of versions of these two modes of belief cascades. To illustrate the first type, suppose individuals hold two hypotheses, say "the market is a bull" as against "the market is a bear," but assign a higher probability to the former. Obviously enough, this is a self-fulfilling social belief. If, however, in a domain of uncertainty, market leaders act in a way that is consistent with their increasing belief in the latter hypothesis, then a belief cascade may ensue. Whether or not it will depends on the common knowledge foundation of the collective beliefs: is it the case that the acts of the market leaders are clearly intelligible to the market followers? Recent results in game theory are discussed in the appendix to suggest that the common knowledge foundation, the basis of intelligibility, may, in fact, collapse near the onset of the cascade. Another way of expressing this is by the observation that the outcome, as well as the onset, of the belief cascade may very well be unknowable in principle. It is this argument that sustains the claim that asset markets are potentially chaotic.²⁴

The appendix also considers an important example of a Kuhnian paradigm shift, namely, the transformations in physics that occurred after 1905, when Einstein "banished" the core scientific belief in the absolute existence of time and space. This led to the shattering of the subdisciplines of physics and the creation of entirely new disciplines, including quantum mechanics, among others. Indeed, physics during this century has thrown up numerous profound quandaries, not the least of which is the problem of the integration of gravitation with quantum theory. The point about the belief in absolute space and time was that it created barriers to thought that hindered the development of our understanding of the world.

I suggest that the economic equilibrium hypothesis has been a core belief of the Atlantic Constitution, in much the same way that the belief in absolute space and time was at the core of nineteenth-century physics. Keynes himself found it extremely difficult to overcome the barrier presented by the “Marshallian orthodoxy” of a belief in the strong equilibrium hypothesis.

As indicated in the previous section, a total rejection of the validity of the equilibrium thesis, for both commodity as well as asset markets, calls into question the fundamental political beliefs that underpin the Atlantic Constitution. For this reason, policy makers have retained this belief in one form or another. This does not mean to say that the belief has remained unchanged throughout the entire period. Section VII suggests that, in attempting to solve the constitutional quandary of 1944, the Architects of Order of that time adopted some of Keynes’s insights, particularly with regard to the problem of cooperation in the international economic arena. A complex belief about the compatibility of the Bretton Woods international institution and a Keynesian macroeconomic equilibrium thesis became generally accepted during the 1950s and 1960s. In turn, the events of the 1970s persuaded first the Prophets of Chaos of that time, and then the international policy makers, that the only resolution to their particular quandary was a return to the economic belief, based on the strong form of the equilibrium hypothesis.²⁵

The theoretical arguments just made suggest that the form of the resolution of these two quandaries could not, in principle, be determined beforehand, precisely because belief cascades were involved in both cases. The same holds for the current quandary. However, examination of such quandaries does permit a clearer focus on the underlying core beliefs preceding the onset of the cascade.

It should be remarked that the use of the word *core* in *core belief* is adapted from social choice usage and is used to designate a generally accepted principle. When a quandary is universally perceived, there is no consensus in belief,²⁶ and the common knowledge foundation of choice and action dissipates. Even so, what beliefs there are in the collectivity will still induce barriers to thought and to behavior. As the core beliefs fragment, it is not implausible that acts become mutually unintelligible, indeed “irrational.” This phenomenon can be observed in some of the laboratory experiments based on the prisoners’ dilemma.²⁷ Indeed, the “resource wars” and aggressive currency devaluations of the 1970s may have a similar basis.

As the appendix mentions, social choice theory indicates that the absence of a core belief may induce cyclical or apparently random behavior. The set of all such behavior is termed the *heart*. Thus, the heart of the Atlantic Constitution, at any time, is the set of collective actions that may be “rationally” entertained by the citizens or organizations within the community. The social choice framework underpinning this paper suggests that, as core beliefs fragment at the onset of a quandary, the heart of the Constitution expands to include behavior that was previously inconceivable.²⁸ The next section briefly discusses the extent to which the

Atlantic Constitution does truly face a quandary at present and offers some observations as to possible consequences if core beliefs do not adapt to the situation before us.

III. POLITICAL AND ECONOMIC BELIEFS IN THE CONSTITUTION, 1980-1998, AND THE CURRENT QUANDARY

This is the biggest financial challenge facing the world in half a century, and the United States has an absolutely inescapable obligation to lead and to lead in a way that's consistent with our values. . . .

We know that our future prosperity depends on whether we can, with others, restore confidence [and] stabilize the financial system.

We will urge the major industrial economies to stand ready to use the \$15 billion in I.M.F. emergency funds to help stop the financial contagion from spreading to Latin America and elsewhere. . . .

Today, I have asked Secretary Rubin and Federal Reserve Board Chairman Greenspan to convene a major meeting of their counterparts within the next 30 days to recommend ways to adapt the international financial architecture to the 21st Century.

—President Bill Clinton, address to the Council on Foreign Relations,
New York, 15 September 1998

Instead of repairing his credibility, the President today dug himself into a deeper hole. [The I.M.F.] is a destabilizing force that has helped cause the financial crises in Asia.

—House Majority Leader Richard Armey, 15 September 1998

As I have suggested above, the transformations in the Atlantic Constitution after the late 1970s had shifted our understanding of the balance between politics and economics. Prior to about 1970, a Keynesian understanding of the necessity for intervention in the economy was compatible with a general view of politicians as social welfare maximizers. One could say that politics were simple and economies complex. By the 1980s, theory and reality had suggested that politicians were complicated agents, potentially predatory, requiring constant vigilance. Models of politics necessarily become increasingly complex. In contrast, the general acceptance of the belief in equilibrium tendency of economies meant that the science of economics became simpler.

As noted in the previous section, there is a theoretical problem with the economic equilibrium belief. The theorem on which the belief is grounded deals with commodities whose value for each individual is well defined. The very success of the transformed Constitution since 1982 has led to a vastly increased international flow of monetary assets and to enormously enhanced activity on the world's stock exchanges. These flows are derived not from the intrinsic value (utility) of assets, but from beliefs of agents about the future value of the assets. To fully understand such asset markets, it is necessary to model the behavior of the agents involved in the exchange, and this means understanding their beliefs. As Arrow²⁹ has noted, this means solving an infinitely complex common knowledge problem. In the fashion described above, belief cascades can destroy economic equilibrium

within such markets. In practical terms, a cascade from one equilibrium to another could involve a collapse first of the Mexican peso, then the Southeast Asian currencies and stock markets, then the Japanese economy, and then the Russian. There is no theoretical reason at all to suppose that such events are impossible. In fact, formal analyses of such belief cascades have suggested that it is impossible to know how, or by what, the cascade is triggered. It is for this reason that such cascades have been called “chaotic.”³⁰

The current predisposition to view politics as complex, and economies as simple, has guided commentators on the current chaotic events to focus on politics. It is easy to point to nepotism in Indonesia, to senility in the Liberal Democratic Party in Japan, and to autocrats and the mafia in Russia. It is difficult, however, to see why such political incapacity has only now made itself felt.

The monetary institutions of the Atlantic Constitution have deployed their resources of many tens of billions of dollars in the last year to assist the floundering economies of Russia and Southeast Asia. It is not unlikely that the Latin American economies will follow Mexico in a collapse of both currency and stock market and that the resources of the World Bank and the International Monetary Fund (IMF) will be completely overwhelmed.

The point to be made, of course, is that these cascades have occurred despite the strongly held belief, implicit within the current Atlantic Constitution, that the global economy can generally be left to fend for itself. I consider this belief to be unfounded for the reasons already mentioned. At the same time, the belief (held strongly prior to 1965) that the international monetary institutions can control the global economy appears just as unfounded.³¹

If this quandary is not solved, certain consequences for the structure of the Atlantic Constitution appear inevitable.

The pronounced “triumphalism” of the past decade will surely disappear if events play out the way suggested. Pessimism will again rule. The earlier pessimisms of the interwar era and of the decade of the oil crisis had given way, by 1989, to the optimistic view that liberal democracy may constitute the “endpoint of mankind’s ideological evolution and the final form of human government.”³² This triumphalism was based on the fading away both of communism in Russia and Eastern Europe and of autocratic regimes in Latin America and Asia. The reason for their decline and disappearance clearly seems to have been the effect that the success of the Atlantic Constitution had on the beliefs of populations in these countries. On the one hand, if the Atlantic Coalition is manifestly unable to solve its economic dilemmas, then a citizen of a predatory regime will be willing to accept the depredations of that regime. On the other hand, if the risk of economic collapse under the Atlantic Constitution falls relative to the obvious benefits of citizen and property rights, then the depredations become unbearable. Cascades of citizen unrest can then overthrow the autocracies. But liberal democracies can also fall.

If beliefs in the likelihood of chaos increases, then politicians, in their pursuit of power, will rationally rise up to institute predatory autocracies, and citizens may well fear the relative cost of rebellion.³³

The events in Russia in late 1998 give us all cause to fear that this fall into autocracy could be unbelievably swift. An even greater fear is that the expected amelioration of the regime in China may very well be reversed.

In the developed countries of the Atlantic Coalition, the belief in the legitimacy of the market could be eroded equally rapidly. It is not surprising that those countries, particularly Britain and the United States, where the economic equilibrium belief has been most readily accepted, are also those at present experiencing low unemployment, and, perhaps, an increasing degree of wealth inequality. When this equilibrium belief was less potent, both Britain, most obviously, and also the United States, to some degree, were beset by labor unrest.

In many of the countries of the European Union, the consequences of the economic equilibrium hypothesis have met with substantial political resistance. It seems reasonable to suppose that the effect has been to weaken the desire or will to impose restrictions on government intervention in the economy.³⁴

Obviously, beliefs about the appropriate relationship between politics and economics do indeed differ, as I have suggested, among the United States, Britain, and the European polities. This is entirely consistent with the notion of an Atlantic Constitution, since I assume only that the broad pattern of the beliefs will still be compatible. However, my understanding of the Constitution as based on a coherent language suggests that if the fundamental beliefs start to diverge, then policy coordination between the countries will become increasingly difficult.

Suppose the degree of perceived risk in the global economy increases, while attempts to solve the quandary fail. It is obviously impossible to read the future, but it would seem all too plausible that the European Union, in implementing monetary union, the Euro, among eleven of its members, will also become increasingly protectionist. I have no proof of this assertion, but my colleague, Andrew Sobel, has kindly brought to my attention the comments of the French prime minister, Edouard Ballader, in 1993.

Can we [West Europeans] take it for granted that we will remain sufficient leaders in sufficient numbers of sectors to survive in the face of countries with populations infinitely larger than ours and with levels of social protection infinitely smaller? I say we should leave this to the market, but only up to a certain point. What is the market? It is the law of the jungle, the law of nature. And what is civilization? It is the struggle against nature.³⁵

If the coherence of the core political and economic beliefs is called into question to such a degree that countries fall into autocracy or protectionism, then the consequences would be profoundly unpleasant. It seems to me that this is not simply an empirical, policy matter. It is not just a question of juggling the flows from the monetary institutions to the countries at risk to enable them to overcome a temporary economic difficulty. It is a question of probing the core beliefs of the

Constitution more vigorously than we have chosen to do since the onset of the last quandary, in the late 1970s.

As I have noted, the earlier crisis originated in the fall of the Bretton Woods system. The later sections of this paper will use the notion of the Atlantic Constitution in an attempt to gain a better understanding of the proper balance between politics and economics. To do this, I will detail my view of the nature of the problem, as perceived by the Architects of Order circa 1944 and circa 1980. Their beliefs were conditioned by the empirical reality that they had already experienced and by the theoretical apparatus that they had at their disposal. These architects I see as concerned actors of political and economic reason, fully aware of the dangers to the Atlantic Constitution and determined to protect it and the pattern of citizen rights and responsibilities that had been created over many centuries.

While Popper recommends piecemeal engineering over utopian visions, it is obvious that, at times, the stakes can be so high that vigorous social experimentation is rational. By focusing on the quandaries as perceived in 1944 and in 1980 and the solutions that were devised, we may better understand the recent evolution of the Atlantic Constitution.³⁶

To do so, we must first re-create the fears, as presented by what I call the Prophets of Chaos, in terms of the theoretical and empirical framework within which they were expressed. Second, I shall discuss, in each case, how the framework was reinterpreted by the Architects of Order, so that a solution could be constructed, through transformations in the fundamental core beliefs underlying the Atlantic Constitution.³⁷

IV. THE COLLAPSE OF HEGEMONY, THE QUANDARY OF THE 1970S, AND THE RESOLUTION OF THE 1980S

Hegemon, from the Greek ἡγεμῶν, leader; *hegemony*, preponderance, especially of one state of a confederacy or union, over others.

—*Oxford English Dictionary*

As far as I am aware, Kindleberger gave the first interpretation of the international economic system of states as a “Hobbesian” prisoners’ dilemma, which could be solved by a leader, or “hegemon.”³⁸

A symmetric system with rules for counterbalancing, such as the gold standard is supposed to provide, may give way to a system with each participant seeking to maximize its short-term gain. . . . But a world of a few actors (countries) is not like [the competitive system envisaged by Adam Smith]. . . . In advancing its own economic good by a tariff, currency depreciation, or foreign exchange control, a country may worsen the welfare of its partners by more than its gain. Beggar-thy-neighbor tactics may lead to retaliation so that each country ends up in a worse position from having pursued its own gain. . . .

This is a typical non-zero sum game, in which any player undertaking to adopt a long range solution by itself will find other countries taking advantage of it. . . .

In these circumstances, the international economic and monetary system needs leadership, a country that is prepared, consciously or unconsciously, under some system of rules

that it has internalized, to set standards of conduct for other countries and to seek to get others to follow them. . . . Britain performed this role in the century to 1913; the United States in the period after the Second World War until, say . . . 1963. . . . Part of the reason for the length of . . . the world depression was the inability of the British to continue their role of underwriter . . . and the reluctance of the U.S. to take it on until 1936.³⁹

In the early 1970s, Robert Keohane and Joseph Nye,⁴⁰ in their rejection of “realist” theory in international politics, made use of the idea of a hegemonic power in a context of “complex interdependence” of the kind envisaged by Kindelberger. Although they did not refer to the formalism of the prisoners’ dilemma, it would appear that this notion does capture elements of complex interdependence. To some extent, their concept of hegemon is taken from realist theory rather than deriving from the game-theoretic formalism.

However, it is very easy to adapt the notion of a symmetric prisoners’ dilemma so as to clarify the concept of a hegemon.

A nonsymmetric n -agent prisoners’ dilemma can be constructed as follows. Let $d_i \in [0, 1]$ be the strategy of the i th country ($d_i = 0$ means defect, $d_i = 1$ means cooperate). Each country has a weight (proportional to its GDP), a_i , say. The total collective good of the system, N , of states is $B(N) = \sum_{i=1}^n a_i d_i$. The payoff u_i to state i , when it adopts strategy d_i , is

$$u_i(d_i) = \frac{r}{n} B(N) - d_i$$

For a prisoners’ dilemma, $1 < r < n$. The term in d_i is $\frac{r}{n} a_i d_i - d_i$. Clearly, if $\frac{r a_i}{n} > 1$, then u_i is maximized at $d_i = 1$. If $\frac{r a_i}{n} < 1$, then u_i is maximized at $d_i = 0$. In the symmetric game, $a_i = 1$ for all i , so the “rational” strategy for each country is to defect. If $a_i > \frac{n}{r}$, then this country, i , rationally must cooperate, irrespective of the strategies of other countries. To keep things simple, suppose $a_j = 1$ for all j other than this hegemon, i . In this very trivial formulation, some things are obvious. If more states join the game (so n increases), it becomes more difficult for a_i to be large enough for cooperation. The coefficient r is the rate of return on cooperation. As r falls, it becomes more difficult again for i to remain the cooperative hegemon. In this formulation, the term *hegemon* is something of a misnomer, since i is simply a rational cooperator. However, if coalitions are permitted and a hegemonic power leads a coalition M of states, dictating policy to these states, then the “optimality” condition for cooperation by M is clearly $\sum_{i \in M} a_i > \frac{n}{r}$.

The collective benefits of the coalition M can then be redistributed by the hegemon in some way, to keep the coalition intact.

A number of years ago, I analyzed a prisoners' dilemma model of this kind and observed that it could be used to understand international economic cooperation. The conclusion was pessimistic.

In the postwar years we have seen the development of a dominant cooperative coalition: the Atlantic Community. At the core of this cooperative coalition was the United States; through its size it was able to generate collective goods for this community, first of all through the Marshall Plan and then in the context of the Defence Alliance. . . .

Since the sterling devaluation of 1967 we have seen intermittent stop-go or reflation-deflation strategies by many of the developed economies.

To simplify, we may regard such strategies as bargaining strategies of the type considered here. These strategies necessitated coalitional readjustments or agreements over distribution, such as the Smithsonian Agreement of 1971. . . . In a sense the United States has found it costly to be the dominant core of the coalition. . . . The Atlantic coalition may be in the process of fragmentation, with its individual members oriented to individually rational, or "beggar-my-neighbor" strategies.⁴¹

Obviously, these comments were made at a time when the size of the U.S. economy had declined relative to the overall GDP of the OECD. Following the logic of the prisoners' dilemma, it was apparent that cooperation within the Atlantic Community would become more difficult. Throughout the late 1960s, economic behavior had indeed become increasingly chaotic. The problem had, of course, been noted early on by Triffin,⁴² who asked how stability could be maintained by a constant flow of dollar assets out from the United States. The round of devaluations, including those of sterling in November 1967 and of the French franc in August 1969, made it clear that the Bretton Woods system could not be retained. The monetary instability of that period may also have created the context for the political business cycle. Coincident elections in many of the OECD countries induced incumbent governments to simultaneous reflation. Average inflation moved up from about 4 percent to nearly 8 percent in two years in the early 1970s.⁴³

As we all know, the rest of the decade of the 1970s was taken up with the two oil crises, with the arguments in the context of the U.N. Conference on Trade and Development (UNCTAD) over changing the relationship between developed and less developed countries and (by the early 1980s) with the third world debt crisis.⁴⁴

Although the earlier analysis was based on the one-shot prisoners' dilemma, it is possible to pursue the Hobbesian metaphor in the context of a time-iterated prisoners' dilemma. Analyses of such games suggest that they are chaotic, that anything can, in principle, occur.⁴⁵ In other words, while the one-shot prisoners' dilemma will tend to fall into Hobbesian war when there is no hegemon, in the iterated version cooperative coalitions may rise and fall in an indeterminate fashion.

The formal problem presented by the iterated n PD (prisoners' dilemma with n agents) is that the strategy space is extremely complex. Although Axelrod's results are generally seen as providing an avenue of escape, into cooperation, via

tit-for-tat strategies, his work was only concerned with two agent models.⁴⁶ With many countries participating, strategies may well involve complicated history-dependent punishments against other countries or groups of countries. Keohane, in his more recent work, has attempted to provide an explanation for international cooperation in the post-hegemonic world of the 1980s.⁴⁷ In essence, his argument is that a new regime came into being, based on new expectations and mutual assumptions. A formal interpretation of his argument is that a *convention* (a self-reinforcing “Nash” equilibrium in the iterated *n*PD) was created. But what exactly was this new regime, this equilibrium convention?

As I have intimated previously, an international economic regime is more than a convention. It is a system of rules and modes of meaning, a language, embedded in a framework, a Constitution, that is intelligible to the participants. Most important, it must provide the common-knowledge background so the agents know the game and can interpret the actions of others. I have argued in the previous sections that the shift in the Constitution circa 1980 involved an acceptance of the economic equilibrium thesis.

By the end of the 1970s it had become obvious to all that global capital was capable of swamping the resources of any individual country, even the United States. Already by 1973, the Long Report⁴⁸ had estimated that private Eurodollar assets were of the order of \$270 billion (in current terms, over \$1 trillion). By 1983, the capital requirements of the developing nations were being met principally by private capital sources. It is true that this had precipitated the so-called debt crisis.⁴⁹ However, by the end of the 1980s, this crisis had been accommodated to some degree.

Given that no individual country could immunize itself against international capital, it made sense to accept the fact and consider strategies that were consistent with the logic of the market. As I observed earlier, this is not to say that all countries adopted identical strategies. Differences in electoral and political patterns in the developed countries resulted in varied microeconomic strategies in labor markets, and so forth, and capital markets responded in obvious ways. For third world countries in particular, political chaos or internal strategies of excessive manipulation led to increases in perceived risk, and their capital flow declined.⁵⁰ Acceptance of the logic of the market thus imposed a degree of discipline on both developed and less developed countries.

The strategic domain available to countries contracted. While the game still probably retained the fundamental characteristics of the *n*PD, the *externalities* (the effect of the strategy of one country or another) diminished. Although the U.S. trade deficit remained a problem, it was no longer seen as a fundamental disequilibrating feature of the global economy but as a topic to be tackled by bilateral negotiation, usually with Japan and later with China.

This modification to the Atlantic Constitution was put in place, principally by Reagan and Thatcher, in the early 1980s. These changed beliefs were accepted by

decision makers in the international economy, since they made both logical and empirical sense.⁵¹ The arguments of those Prophets of Chaos, who had asserted the fundamental incompatibility of democracy and economic rationality, appeared unfounded. As I have indicated, there were beneficial unanticipated consequences, including the democratization of regimes in Latin America and in the old Soviet Union.

Even more surprisingly, the Cassandras who had foreseen the increasingly rapid decline of hegemonic U.S. power and the recurrence of economic “Warre”⁵² were confounded by the obvious economic vitality both of the United States and Britain in the mid 1990s. However, the coherence of the core belief, which was created after 1982 or so, depended crucially for its validity on the economic equilibrium thesis. Although I have argued that there are theoretical reasons to reject the strong equilibrium hypothesis, there could, nonetheless, be reasons to accept its empirical validity. To see whether the thesis has universal validity, it makes sense to look again at the events of the interwar period. In the following two sections of the paper, I shall interpret these events in terms of Keynes’s understanding of the quandary implicit within the Atlantic Constitution in the period before and during World War II.

V. KEYNES AS PROPHET OF CHAOS, 1919-1936

Chaos, from the Greek *caós*, void, confusion.

The treaty of Versailles was signed on 28 June 1919. Keynes had been involved in the negotiations and was appalled by the reparations required of Germany by the Allies. He calculated that at best Germany could pay \$1,500 million pounds sterling over thirty years. As he wrote, “The fact that we have no adequate knowledge of Germany’s capacity to pay over a long period of years is no justification . . . for the statement that she can pay ten thousand million pounds.”⁵³

Keynes also outlined his plan for a peace treaty involving “limited reparations as well as cancellation of inter-ally debts; creation of a European free trade area . . . ; an international loan to stabilize the exchanges; and encouragement of Germany’s natural organizing role in eastern Europe.”⁵⁴ Without these remedies,

Nothing can then delay for long that final civil war between the forces of reaction and the despairing convulsions of revolutions, before which the horrors of the late German war will fade into nothing, and which will destroy, whoever is victor, the civilization and progress of our generation.⁵⁵

There was a distinct Malthusian tone to much of Keynes’ book.

[The feeding of the peoples of Central Europe] is the fundamental problem in front of us. . . . Some of the catastrophes of past history, which have thrown back human progress for centuries, have been due to the reactions following on the sudden termination of temporarily favourable conditions which have permitted the growth of populations beyond what could be provided for.⁵⁶

Kindleberger suggests that reparations “may not have been directly responsible for the depression, but together with war debts they complicated and corrupted the international economy at every stage of the 1920s and during the depression through to 1933.”⁵⁷ Just to indicate the amounts involved, France and Britain owed the United States \$8.7 billion dollars (which should be scaled up by a factor of over 30 to convert into current dollars). Interallied debt (including Russia’s) was approximately \$900 billion in current terms, with German reparations of the order of \$300 billion current dollars.

The story of the run-up to the Great Depression is well known. An important decision, in terms both of the global economy and Keynes’s interpretation of it, was the British decision to return to the gold standard at a parity for sterling of \$4.86, on 14 May 1925. There is reason to believe that the chancellor of the Exchequer, Winston Churchill, was against this decision. However, the return to the gold standard was seen by nearly everyone as a necessary move to stabilize the international monetary system. Perhaps the Japanese were less sanguine: it was not until 1929 that attempts were made to return the yen to par. A boom did follow, but the flow of capital into the U.S. stock market reduced overseas lending by the United States to the extent of \$2 billion (\$60 billion current).⁵⁸ Economists disagree about this effect, of course, but Kindleberger’s analysis seems justified. Kindleberger notes that from 1925 to 1931 there was a worldwide deflation in commodities. For example, rubber prices fell from 340 cents per pound in 1925 to 75 cents per pound in 1931.⁵⁹ From early 1929, speculative pressure on sterling and other currencies rapidly increased.⁶⁰

As I argued earlier, speculative asset markets are potentially chaotic: the particular event that triggers the cascade, the collapse of the bubble, is impossible to determine. On 3 September 1929, the Dow-Jones industrial average reached 381 (over twice the average 1926 value); it started to slip on 3 October and to fall seriously on 24 October. On 29 October, 16.4 million shares were traded, and the Dow fell to 198. It continued to fall until mid-1932.

It would seem incontestable that the Wall Street crash was the result of a belief cascade that in turn led to a further belief cascade that had profound real, rather than virtual, economic effects. It is still debated whether the Depression could have been avoided. Whatever the case in theory, the core beliefs that were still in place at the time made it almost impossible for the United States to act in any vigorous fashion to stabilize the international monetary system (certainly while staying on the gold standard). The logic of the prisoners’ dilemma aspect of international trade became apparent with the signing of the Smoot-Hawley Tariff Act on 17 June 1930. Kindleberger describes the retaliatory responses first of Canada, then France, Australia, and so forth. World trade continued to contract (from about \$3 billion in January 1929 to much less than one-third this value in March 1933). The obvious economic consequences made it not at all surprising that the incumbent, Hoover, lost the U.S. presidential election to Roosevelt in 1932.

Almost the first acts by Roosevelt were to accept the Thomas amendment on 18 April 1933 to issue \$3 billion greenbacks (not backed by gold or silver) and more generally to announce an abandonment of the gold dollar during the World Economic Conference in June 1933. Kindleberger's view is that "the Democratic administration had little interest in or knowledge of the world economy. . . . It would be three years before the administration [in 1936] felt a responsibility for the operation of the international monetary system."⁶¹

An immediate consequence of Roosevelt's unilateral move was that the member countries of the British Empire met formally to create the sterling area. With regard to domestic U.S. policy to restore prosperity, Brinkley says, "In truth, the New Dealers [in the United States] had no idea how to end the Depression because they had only the vaguest idea of what caused it."⁶²

Two solutions to the quandary of the Depression were implicit in Keynes's *The General Theory*.⁶³ They derive not just from empirical induction, but from a profound theoretical assertion. I have alluded to this previously; for convenience, let us now call it the *hypothesis of chaotic asset markets*. Obviously, this is an anachronistic phrase, since the term *chaos* has a formal mathematical meaning that dates from 1975.⁶⁴ However, *chaos* has a meaning in common language that is close to the technical interpretation. It is of some interest to speculate on the origins in Keynes's thought on this hypothesis. To do so, we can be guided by Skidelsky's biography.⁶⁵

Keynes went up to King's College, Cambridge, in 1902 and took the Tripos in 1905, coming twelfth wrangler. As Skidelsky observes, his exams involved algebra, optics, elliptic functions, integral calculus, and so forth. After the exam, Keynes started work on Marshall's *Principles of Economics*. But more than economics, it was G. E. Moore's *Principia Ethica*⁶⁶ of 1903 that influenced Keynes. Moore had based his argument for the necessity of general rules of conduct ("conventions") on the lack of rational grounds for asserting that one of two propositions is even probably right. In a paper Keynes delivered to the apostles in 1903, he argued that saying *A* is more probable than *B* implicitly judges the relevance of available evidence on the relation. This interpretation became the key notion in a dissertation that Keynes submitted in December 1907 for a prize fellowship at King's. The final version, after much intense effort, was not published until 1921.⁶⁷ In the Michaelmas term of 1905, Keynes had returned to Cambridge to study economics under Marshall, reading Jevons, Cournot, Edgeworth, and so on. By December 1905, he had decided to study instead for the civil service exam in August 1906, reading psychology, the Greeks, history, mathematics, logic, and so forth. He came in second. Skidelsky notes that Keynes's worst mark was in economics.

Almost thirty years later, the most important book of this century in economics, and possibly in social philosophy, was published. *The General Theory* appeared on 4 February 1936. In my judgement, the profound inference from

Keynes's arguments was that the strong economic equilibrium thesis had to be modified in order to understand a sophisticated capitalist economy. In coming to this conclusion, Keynes depended both on the theoretical wrestling, fifteen years previously, that he had devoted to the task of finishing the *Treatise on Probability* and on his efforts at induction, his attempt to make sense of the post-1929 world of the Depression. To reconceptualize economics, he had to deny the fundamental framework of Marshallian equilibrium theory.⁶⁸

Skidelsky intimates, and I concur, that Moore's *Principia Ethica* forced Keynes to think in a new way about rationality. Interestingly, Keynes's denial of the equilibrium thesis was not put in the form of a theorem, but rather in common-sense, but metaphorical, language:

If I may be allowed to appropriate the term speculation for the activity of forecasting the psychology of the market, and the term enterprise for the activity of forecasting the prospective yield of assets over their whole life, it is by no means always the case that speculation predominates over enterprise. As the organization of investment markets improves, the risk of the predominance of speculation does, however, increase. . . .

Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation.⁶⁹

As Skidelsky notes, "The mathematisation of *The General Theory* started immediately" in work by Viner and Hicks.⁷⁰ In his analysis of Keynes's contribution, Minsky argues that Keynes's key insight was that uncertainty is not identical to risk. Moreover, uncertainty vitiated the formal economic models of Keynes's "teachers and colleagues—Marshall, Edgeworth and Pigou."⁷¹ These "classic" authors had held that

at any given time facts and expectations were assumed to be given in a definite and calculable form; and risks . . . were supposed to be capable of an exact actuarial computation. The calculus of probability was supposed to be capable of reducing uncertainty to the same calculable status as that of certainty itself. . . .

By "uncertain" knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. . . . Even the weather is only moderately uncertain. The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence.⁷²

From uncertainty comes the possibility of speculative booms and crashes, of real effects in the economy, including persistent unemployment (the obvious specter of the time). Minsky faults Keynes, in a sense, for not pursuing the full ramifications of his insight and for retaining much of the equilibrium Marshallian apparatus in determining the likely consequences of the conjecture for the operation of the macroeconomy. Keynes himself was well aware of the difficulty of working outside the Marshallian orthodoxy. In the preface, he notes that "the composition of this book has been for the author a long struggle of escape . . . from habitual modes of thought and expression."⁷³ Hicks's geometrization of Keynes's theory by the IS-LM diagram, and the neoclassical synthesis that followed, put

equilibrium theory back on center stage. As Skidelsky observes, “The determinate system in which the ‘authority’ could act on the multiplier either by monetary or by fiscal policy also gave economists a potentially key position at the centre of government.”⁷⁴ One of Keynes’s colleagues, Richard Kahn, later wrote,

Keynes’ insistence on the overwhelming importance of expectations, highly subject to risk and uncertainty, was one of his biggest contributions. This completely undermines the prevalent idea—for which Keynes’ attempt at simplification is responsible—that his schedules can be regarded as stable relationships handed down from heaven.⁷⁵

In fact, Keynes seems to have lost interest in the ensuing debate. Skidelsky observes that it took Keynes six months to reply, and then diffidently, after receiving the first draft of Hicks’s paper. Indeed, both Minsky and Skidelsky suggest that Keynes wrote *The General Theory* to expose the pathology of capitalism, not to suggest a cure through a modification of classical equilibrium theory. With hindsight, the events of the 1970s obviously suggest that Keynes was correct in dismissing the equilibrating capability of the eventual “Keynesian” synthesis.

The conclusions that Keynes drew from his own theory have generally been ignored (although not by Minsky). Of particular interest is his insight into the prisoners’ dilemma aspect of the economic game, even when there is a supposed equilibrating mechanism, the gold standard, in place.

After a surprising discussion of the theoretical and practical consistency of mercantilists, Keynes commented,

We may criticize them for the apparent indifference with which they accepted this inevitable consequence [the tendency to promote war] of an international monetary system. But intellectually their realism is much preferable to the confused thinking of contemporary advocates of an international fixed gold standard and *laissez-faire* in international lending who believe that it is precisely these policies which will best promote peace.

[In this gold standard, *laissez-faire* system] there is no orthodox means open to the authorities for countering unemployment at home except by struggling for an export surplus and an import of the monetary metal at the expense of their neighbours. Never in history was there a method devised of such efficacy for setting each country’s advantage at variance with its neighbours’ as the international gold . . . standard.⁷⁶

In his concluding chapter, Keynes observed that “authoritarian state systems . . . seem to solve the problem of unemployment at the expense of efficiency and of freedom.”⁷⁷ Against socialism, he argued that “it is not the ownership of the instruments of production which it is important for the State to assume.” Rather, “A somewhat comprehensive socialisation of investment will prove the only means of securing an approximation to full employment.”⁷⁸

There were two entirely different solutions to the capitalist quandary as perceived by Keynes in 1936. One is in the direction of “National Self-Sufficiency”⁷⁹ as discussed in his paper of 1933. The other is toward an “international socialisation of investment.” These two possibilities must have been on Keynes’s mind

prior to his participation in the reconfiguration of the postwar Atlantic Constitution at Bretton Woods in 1944.

VI. THE EQUILIBRIUM THESIS AND THE
“CONSTITUTIONAL QUANDARY OF 1944”

Quandary, a state of extreme perplexity or uncertainty.

Before discussing the attempt to resolve the Depression quandary by the Architects of Order of 1944, it will be useful to give a more precise view of Keynes's significance for the Atlantic Constitution.

As I have argued in the earlier sections of this paper, a fully developed Constitution must necessarily relate political and economic rights in the context of a credible theoretical and empirical framework. We might indeed use the term *paradigm*⁸⁰ for this framework. The equilibrium thesis had been of fundamental importance for the Constitution since at least the time of Adam Smith.⁸¹ Once the thesis is accepted, then it is credible that political liberty is compatible both with economic liberty and efficiency. If there are strong empirical reasons to deny the equilibrium thesis, then the step to autocracy is fairly easy. Keynes clearly believed that efficiency in exchange could only be maintained in a decentralized economy.⁸² From this perspective, autocracy trades efficiency against the risk of the monetary collapse that capitalism seemed to engender. Since a Constitution is maintained by credible beliefs, the apparent irrelevance of the equilibrium thesis during the Depression meant that the entire Constitution could fail.⁸³ However, the equilibrium thesis was deeply embedded in what Keynes termed “habitual modes of thought,” and the thesis had proved impossible for policy makers to deny in a fundamental way. As a consequence, they could not proceed to attack the problem of unemployment.

It seems fairly clear, on reading the record, that Keynes welcomed Roosevelt's pragmatic attempts to relieve unemployment by various means during 1933-1936. It was not obvious in 1936, though it became clear the next year from the U.S. downturn of 1937, that such pragmatic efforts were not guaranteed success.

To attack the unemployment quandary, Keynes had to overcome the barrier of the conceptual power of the equilibrium thesis. This he did in a sense by distinguishing commodities markets from speculative asset markets. While accepting the relevance of the equilibrium theorem for the former, he denied that it was appropriate for the latter.⁸⁴

If the potentially chaotic, speculative characteristic of asset markets could be overcome, say by “socialisation of investment” then both the efficiency of the decentralized commodity market and political freedom could be retained. Thus, a modified version of the Atlantic Constitution could be preserved.

My discussion, following Minsky, of the “Keynesian” interpretations made by Viner and Hicks suggests how powerful was the Marshallian equilibrium thesis. It

appears obvious that the later “Keynesian orthodoxy” was dependent on a version or interpretation of the equilibrium proposition: governments could reimpose full employment equilibrium by appropriate monetary and fiscal strategies.⁸⁵

The vision held out by Keynes differed significantly from the one that derived from the later Keynesian orthodoxy. However, Keynes’s conclusions seem not so much to expose the capitalist pathology as to suggest that if the investment quandary could be solved then rentier capitalism would fade away and a more equitable economic system evolve. More significantly,

there would be no important economic forces calculated to set the interest of one country against that of its neighbors. . . . International trade would cease to be what it is . . . but [instead become] a willing and unimpeded exchange of goods and services in conditions of mutual advantage.⁸⁶

At the cost of “the enlargement of the functions of government [to involve] the task of adjusting to one another, the propensity to consume, and the inducement to invest,”⁸⁷ the liberty and efficiency derived from the Atlantic Constitution could not only be preserved but enhanced. The prisoners’ dilemma–like characteristics of international economics could be made to disappear. As I have observed previously, our understanding of the international economic system, during the period from 1960 to the end of the 1970s, is that it was indeed an *n*PD. Since most of the OECD countries during that period utilized principles of neo-Keynesian demand management, either Keynes’s vision was wrong or the theoretical principles underlying the neo-Keynesian synthesis were invalid. The combined evidence from the period suggests the latter hypothesis. This does not, of course, require us to suppose that Keynes was right. It does, however, make it plausible that the Keynesian orthodoxy of the 1950s and 1960s had very little to do with Keynes’s vision.

Given that the Atlantic Alliance had been beset by autocratic regimes that rejected the foundation of the Constitution, it was entirely credible in 1944 that general belief in the Constitution could indeed collapse. My reading of the final chapter of *The General Theory* is that Keynes saw the quandary in terms not just of solving the problem of unemployment but of saving what I call the Atlantic Constitution. For this reason, I use the term *the Constitutional Quandary of 1944* to refer to the problem faced by the Architects of Order in their attempt to reconstruct the global political economy after World War II.

As we have seen, in the last two chapters of *The General Theory*, Keynes contrasted two differing beliefs about the nature of the international system. The mercantilist belief was of a zero-sum world. In pursuing national advantage and relative strength, mercantilists acknowledged the tendency to promote war. In contrast, Marshallian equilibrium theory rejected the relevance of mercantilist belief. Keynes comments ironically that “we were brought up to believe that [mercantilism] was little better than nonsense, so absolutely overwhelming and complete has been the domination of the classical school.”⁸⁸ Marshallian principles

asserted that the rule of the gold standard induced a cooperative characteristic to trade under which laissez-faire would benefit all nations. Keynes's analysis, and what I have called his chaos hypothesis, led him to the quite different conclusion that trade was not, in fact, a cooperative game, but involved mixed motives. As we have seen above, this game can be considered to be an *nPD*. The possibility that a hegemon could induce cooperation seems not to have been considered a possibility by Keynes in 1936. By 1944, however, Keynes had developed the idea of an international clearing union.⁸⁹ If we accept the notion of an *nPD*, then such a union would appear able "to protect national economies from deflationary pressures by providing free access to an international pool of credit." We may call this solution *international Keynesianism*.⁹⁰

There are two other possibilities that derive from Keynes's thinking, both associated with the notion of national self-sufficiency. In 1933, Keynes had made the famous observation, "Ideas, knowledge, science, hospitality, travel—these are the things which should of their nature be international. But let goods be homespun whenever it is reasonably conveniently possible, and, above all, let finance be primarily national."⁹¹ Such a recommendation assumes, to some degree, a mercantilist structure to the world. To speculate somewhat, the Sterling Area, and its system of imperial preference, set up in the British Empire after 1933, is compatible with this view. Such a mercantilist world would, in all probability, evolve into blocs, potentially antagonistic. Keynes had also inferred in *The General Theory* that if the investment quandary could be solved within each nation, then the mutual advantages of trade could be realized. Such a world need not be mercantilist. These two possibilities for the future I shall, somewhat clumsily, call *national mercantilism* and *national Keynesianism*.

A fourth non-Keynesian possibility for the future focused on *hegemonic internationalism*. It was obvious to any observer of world events in 1944 that the interwar era was different from the "golden age" of 1816-1910. Although financial crises had occurred with some regularity,⁹² the gold system of the nineteenth century had generally seemed to function well. Indeed, this fact probably endowed the Marshallian equilibrium thesis with credibility. The one obvious difference between the golden age and 1918-1939 was the dominance of Great Britain in the earlier period and the lack of such a dominant, hegemonic power in the latter. An empirically credible hypothesis, as of 1944, was that the United States could act as hegemonic leader.

It is worth a brief digression on the nature of a hegemon. The Prophets of Chaos, who had interpreted the events of the 1970s in terms of an *nPD*, tended to focus on the cooperative benefits of trade. From this point of view, the earlier British hegemony in the nineteenth century was coupled with free-trade policy, even though it was a costly exercise, in some respects.

Nye has reviewed the recent literature from economic history on Britain's role in the nineteenth century and has argued, "To the extent that Britain maximized, it

was out of the imperatives of narrowly individual economic well-being and without any considerations for . . . shaping the international system."⁹³

Here, he directs his comments at the theorists who seem to suggest that the hegemon guides the international system to cooperation by accepting costs resulting from increasingly open trade. My view of the *nPD* differs from that of these theorists. I assume that the hegemonic power has a reasonably clear understanding of the game and realizes that by cooperating either in trade or money, it will realize both short- and medium-term benefits. The medium-term benefits result from the inducements that the hegemon can offer to potential allies. These side payments are intended to offset the selfish benefits of beggar-thy-neighbor strategies and are paid for out of the hegemon's own gains. A danger for the hegemon is that its potential allies will demand too much. In such a situation, it is not inconceivable that the hegemon can resort to punishment of some kind. By ensuring cooperation from its allies and thus facilitating their economic growth, international trade increases, and all benefit. The long-term problem for the hegemon is the probable decline of its relative power. Whether it is rational in the long run for the hegemon to pursue this cooperative strategy depends both on its beliefs and on its discount rate.

As we know, a version of hegemonic internationalism was, in fact, adopted after World War II and functioned fairly successfully until about 1965. In the next section, I shall examine why this solution was chosen and how it meshed with a set of core beliefs that came into being in the immediate post-1944 period in the United States.

VII. ARCHITECTS OF ORDER, 1944-1948

Core, possibly from old French, *cors*, body, or Italian, *cuore*; French, *coeur*, and Latin, *cor*, the heart.

The story of the postwar decision has been told many times. I shall depend in large degree on Block's⁹⁴ account for 1944-1948, starting with the disagreement between Secretary of the Treasury Henry Morgenthau and Secretary of State Cordell Hunt over how to structure the international economy. The discussion of the founding of the World Bank and of the Marshall plan is based (with permission) on recent unpublished work by Imke Kohler.⁹⁵

Morgenthau's assistant, Henry Dexter White, had, by 1942, already drafted a proposal for an international bank, with capital stock of \$10 billion, and a stabilization fund with \$5 billion. (In current terms, these amounts are approximately \$200 and \$100 billion, respectively.) The first institution would become the International Bank for Reconstruction and Development (IBRD) and the latter the IMF.

In the negotiations between the United States and Britain, Keynes essentially kept two options open: international Keynesianism as opposed to a form of national mercantilism, involving the maintenance of the system of imperial preference in the Sterling Area. For the former, he proposed a total of \$26 billion, or

\$520 billion in current terms, for the clearing union, with quotas of the order of \$5 billion for Britain, \$3 billion for Germany, and \$2 billion for France. Members would be entitled to draw a quarter of their quotas per year for five years. The Articles of Agreement were drawn up in July 1944 at Bretton Woods. The noninterventionist aspect of the agreement induced many members of Congress to oppose approval of the fund because of the likelihood that countries could escape monetary discipline. Nonetheless, the bank started operations in June 1946 with an authorized capital stock of \$10 billion.

Before the bank even started, Franklin D. Roosevelt died (April 1945). President Truman immediately replaced Morgenthau with Fred Vinson. White's influence, and the acceptability of the Treasury's "Keynesian internationalism," both faded. The State Department wanted to force Britain to open up the sterling bloc to U.S. interests and, in particular, to oblige sterling to become, once again, fully convertible.

The problem with this aim was the \$14 billion of sterling balances held by the member states within the British Empire. The termination of lend/lease, the flow of U.S. capital to Britain, obliged the new Labour government (as of June 1945) to deal with a serious balance of payments problem. Keynes, as principal negotiator for Britain, requested \$6 billion, but the United States scaled this down to \$3.75 billion and required commitments that the British would open the Sterling Area. Legislation would probably have failed in the House of Parliament in December 1945 had not Keynes spoken up for the plan in the Lords. The loan agreement almost failed in the U.S. House of Representatives as well, but passed partly because of the recognition of Britain as an ally against possible Soviet threats in Europe. The French also requested a \$4 billion trade credit, which was reduced to \$650 million.

At the founding meeting of the IMF in Savannah, Georgia, in March 1946, Keynes had expected that White would be appointed managing director and the fund located in New York. The Americans vetoed White, arguing that both the IMF and the bank should be guided by people considered to be cautious by the financial community. Eugene Meyer was appointed first president of the bank, and Camille Gutt, a former Belgian Finance Minister, was chosen as the fund's first managing director. U.S. voting power in the bank was particularly pronounced. The United States, with a subscription of 41.4 percent had 37 percent of the voting weight, while the second strongest was Britain with about 17 percent of the subscription and 15.3 percent of the voting weight.⁹⁶ The bank's president, Meyer, resigned in December 1946 and a Wall Street lawyer, John McCloy, took over somewhat later in March 1947.

On 15 July 1947, Britain started to move toward convertibility. Some of the U.S. loan had already been used by this time; conversion of sterling to dollars immediately drained the remaining dollars from the British account. The experiment finished on 21 August 1947.

Keynes had died a few weeks after the Savannah meeting in 1946. Until the third volume of Skidelsky's biography appears, one can only speculate on the fears that Keynes may have had. From his support of the British loan, I infer that he realized that some form of international Keynesianism could not be brought into existence. On the other hand, he may well have felt that protection of British interests, within a framework of national Keynesianism, could have been viable. The high costs of the British experiment with convertibility would have suggested, however, that international cooperation would have to depend on U.S. capital flows.

The immediate problem facing the European nations was, of course, the terrible destruction of the war. The U.N. Relief and Rehabilitation Administration (UNRRA) (set up in November 1943, prior to the founding of the United Nations) had channeled \$2.6 billion of U.S. funds, principally to Europe. This institution closed, however, in March 1947. Partly as a result of this aid flow, the U.S. export surplus for 1946 was of the order of \$38 billion. This surplus would obviously decline unless some form of capital flow could be organized.⁹⁷ Incidents in 1946 in Europe reinforced the views of prominent U.S. policy makers that it would be irrational to provide money to an institution such as the UNRRA.⁹⁸ On the other hand, there was much enthusiasm for the recently established United Nations and support for the principle that aid should be channeled through a multilateral agency. Indeed, George Kennan (who moved to the State Department to set up the Policy Planning Staff in May 1947) has made this point in his memoirs.⁹⁹ An offer of aid by the United States, to be channeled through the Economic and Social Council of the United Nations, was considered in June 1947 by the foreign ministers of Britain, France, and the USSR. Russia's foreign minister, Molotov, rejected the plan. This implied that aid flow would be directed at Western Europe (possibly through the Organization of European Economic Cooperation).

The bank was an obvious, potential channel for the aid flow. This would obviously be more attractive to members of Congress than the UNRRA was. However, McCloy, the bank's president, had declared in early 1947 that if "European recovery required massive new loans, then the American taxpayer [will] have to finance a bilateral program."¹⁰⁰ In 1947, the bank did provide a number of loans and credits: \$250 million to France in May, \$195 million to the Netherlands in August, and \$52 million to Denmark and Luxembourg. An offer in the region of \$3.1 billion to the bank by the United States was turned down by McCloy. In addressing the bank's board of governors, he observed that accepting the loan would have gone against the bank's international standing and essentially turned it into a U.S. organization.¹⁰¹

Concerns about the stability of Greece and Turkey in early 1947 contributed to the formulation of the so-called Truman doctrine of March 1947. As President Truman said, "It must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside

pressures.”¹⁰² In conjunction with the Truman proposals, directed against the Soviet Union, it was seen as important to provide substantial aid for reconstruction to Western Europe as a buttress against communism.¹⁰³ However, McCloy, in a speech in New York in April 1947, said that the bank “can’t and won’t grant loans in order to accomplish political objectives.”¹⁰⁴ The bank became a specialized agency of the United Nations on 15 November 1947,¹⁰⁵ and in January 1948, McCloy again declared that the bank could not be used as a vehicle for massive aid flow, through the European Recovery Program (ERP) of the Marshall Plan.

[We] would give consideration to [any loan tied to the ERP]. We might, however, not have enough money to meet all of the good hard loans that may be needed, because of my dependence on the market. . . . I want to keep emphasizing the fact that we have 46 nations with which to deal, not 16.¹⁰⁶

The process of approving the ERP speeded up after Czechoslovakia was taken over by the Soviet Union in February 1948. After Marshall’s speech in 1947, the Europeans had put in a proposal for \$30 billion in aid, which had been reduced to \$20 billion (about \$360 billion current). The plan was approved on 3 April 1948 and commenced on 1 July 1948. The actual overall aid flow to Europe was in fact of the order of \$13 billion.

Of the ERP capital flow, from then until 1952, 80 percent was in the form of grants, and the interest rate on loans was about 2.5 percent. In contrast, the bank depended almost entirely on the market for its capital. Although the authorized capital stock was \$10 billion, 80 percent of this was “on call.” Of the other 20 percent (\$2 billion), \$1.8 billion was paid in the respective currency of the member country, and \$200 million was paid in dollars or gold. Since only dollars were convertible, the loanable assets were about \$740 billion. In July 1947, the bank, under McCloy, had issued bonds in the U.S. stock market of \$100 million (at an interest rate of 2.25 percent over ten years) and \$150 million (3 percent over twenty-five years). These brought total loanable assets to just under \$1 billion. Any loans that the bank could make during the operation of the ERP would clearly be less attractive than Marshall aid or loans. In fact, the bank loaned only \$28 million in 1948-1949 (to Belgium and the Netherlands) although it had earlier made a major loan to France of \$250 million.

Although McCloy had supported the ERP during the congressional hearings in 1948, he believed by 1949 that the United States should cede the loan component of the Marshall Plan to the bank. His letter to Truman, making such a case, received no reply from the president.¹⁰⁷ By 1949, the attempt by McCloy, to preserve something of Keynesian internationalism, had clearly failed. Hegemonic internationalism, as represented initially by the Marshall Plan, was firmly in place and was to persist in a strong form through the 1950s. Although the early phase of the strategy required a substantial aid flow to Europe, the significant benefit to the United States, in the form of a large export surplus, is consistent with the analysis of hegemonic behavior in the international economy. A further key element in

U.S. strategy was to push for convertibility of currencies. To facilitate this, trade cooperation within the little Europe of the EEC was emphasized. To attempt to stabilize currencies, a dollar-gold standard was adopted, involving devices such as the “snake in the tunnel.”¹⁰⁸

The strategy of hegemonic internationalism was, in a sense, based on two economic beliefs. First, assuming that convertibility could be attained, a dollar-gold standard would support economic equilibrium. Second, this equilibrium could be maintained even when member countries utilized internal macroeconomic neo-Keynesian strategies to attain full employment. As has been well documented, it became increasingly difficult in the 1960s to maintain this international equilibrium, and by 1971, it was obvious to everyone that the attempt had failed. Keynes’s intuitions about the propensity to engage in beggar-thy-neighbor strategies were eventually seen to be justified.

For the next ten years, fairly erratic attempts were made to find a new core belief, a theoretical foundation for the stabilization of the international system. As we have seen, such a foundation was eventually put in place in the early 1980s.

It was not inevitable, however, that hegemonic internationalism would be the strategy adopted in 1944-1948. It is clear from McCloy’s argument, both to the bank’s board and to Truman, that he believed that the bank could have played a much more important role in restructuring the world economy after 1948. Indeed, McCloy obviously felt that it was important that the bank remain a multilateral institution rather than an instrument of U.S. policy. A difficulty for McCloy, of course, was that the resources on which the bank could draw never exceeded \$1 billion, while Marshall aid was of the order of \$13 billion. The U.S. policy makers were not inclined to let the ERP resources go to a multilateral agency such as the bank. However, it is inconceivable that the larger resources of an enhanced IBRD could ever have been used directly against U.S. interests in the way these policy makers feared. There is also no reason to suppose that channeling the aid flow through the bank would have slowed down the process toward a liberal economic order.

Given McCloy’s respectability and familiarity with Wall Street, it is clear that the bank, under his leadership, could have been the instrument by which private capital was channeled to Europe. Combining both private capital and U.S. aid, under the aegis of the bank, could have led to a very different international regime. In any case, McCloy did not play a role in the future development of hegemonic internationalism.¹⁰⁹

It is of course impossible to do full justice to the political complexities of the period 1944-1948 in a few pages. But one general point is worth making. I have emphasized the two related economic equilibrium hypotheses that underpinned the Bretton Woods system. However, the Marshall aid flow, which was so crucial to the stabilization of the European economies, was acceptable to U.S. policy makers precisely because of a political belief in the necessity for containment of

the Soviet Union. While the Truman doctrine to this effect was first proposed in March 1947, it would appear from George Kennan's memoirs that his own paper of 1947, on the "Sources of Soviet Conduct," had a significant impact on the U.S. interpretation of Soviet intentions.¹¹⁰ As I understand Kennan's observations, made in 1967, he regretted that the belief cascade that occurred in 1947 among U.S. policy makers did not allow for the nuanced responses to Soviet actions recommended in his article.

Obviously enough, the strategy of hegemonic internationalism was one solution consistent with both the economic core beliefs and the containment belief. It is unclear whether a strategy of some kind of Keynesian internationalism would have been possible in the presence of a strongly held belief in containment. In any case, given the present absence of any obvious threat from an aggressive nuclear power, a vigorous multilateral strategy based on some of Keynes's insights could be relevant in framing a solution to the current international quandary.

VIII. A CONCLUDING REMARK FOR THE END OF THE MILLENNIUM

In the current situation, it is entirely possible that very large volumes of capital will be required in the near future to stabilize the "emerging markets" of the world. One can only guess at the necessary volumes, but a first estimate would be the scale of the initial proposal for Marshall aid flow (about \$20 billion in 1948 terms or about \$320 billion currently). Such an amount is easily within the scope of private financial markets. It is evident today that private capital is abundant but in need of a relatively risk-free haven. The currency turmoil in Southeast Asia and Russia has dramatically increased global financial risk. As a consequence, capital has flowed into the U.S. bond and money market in the past few months and into the U.S. stock market, particularly in December 1998.

It seems obvious that a bond market, based on the IBRD, could be established, with a risk premium of the order of a few percent over and above the U.S. bond rate, in order to stabilize the capital outflows from the emerging economies. Risky financial institutions, in Russia for example, are currently unable to attract capital even at very high interest rates because potential investors are afraid of probable economic and political chaos there. Thus, there is a pronounced mismatch between the beliefs of holders of capital, even those called enterprise by Keynes, and the needs of developing markets. A reconfiguration of the Articles of the World Bank would help resolve this disequilibrium. This is not of course to suggest that speculative flows would be completely damped, though the effects could be mitigated.

One of the triggers for the current disequilibrium is the scale of losses in Japanese financial and property markets. This is at least of the order of a trillion dollars. Unfortunately, the Japanese polity is sclerotic (for reasons that are obvious from the viewpoint of public choice theory). To free up the Japanese market appears impossible because of the debts and obligations that link corporate and

banking entities to the polity. It is probable that these markets will eventually crash completely, bringing down the Japanese political system with them. Such a prospect reminds us of the 1930s. It would be more prudent, perhaps, to bring increasing pressure to bear on the Japanese polity to free itself from these obligations to the corporate world.

A possible solution to the quandary that appears before us could involve a combination of the Keynesian internationalism based on a clearing union, as in the original Bretton Woods scheme, together with the discipline of the market.¹¹¹ On the one hand, this resolution might avoid the specter, feared by Keynes, of a global speculative crash. On the other hand, it would be different from the distorted form of the Bretton Woods system, namely, hegemonic internationalism, that Keynes obviously believed would be inadequate to the task of maintaining mutual cooperation in the long run, both within the Atlantic Alliance and between the developed and less developed economies.

At a more abstract level, the rejection of the strong equilibrium thesis could result in the overthrow of the hegemony of economic theory and open the way to a more disordered family of social, political, and economic subdisciplines that could, paradoxically enough, give a better understanding of, and basis for, the Atlantic Constitution. This more general theme is explored in the following appendix.

Appendix
The Chaos Hypothesis, Cascades, Catastrophes,
Paradigms, and the Heart

Paradigm, from the Greek *paradeigmā* pattern.

In this appendix, I both outline why the chaos hypothesis appears to have validity and offer some speculations about belief cascades not only in a Constitution, but in natural science.

First of all, I completely accept the validity of the Arrow-Debreu theorem on existence and Pareto optimality of economic equilibrium in markets involving commodities, factors, and preferences. Since the theorem has been extended to economies that may be infinite-dimensional,¹¹² it can incorporate time-denominated preferences. Beliefs, however, are not preferences. As Keynes noted, if agents in the market engage in enterprise, then they value assets in terms of real economic data. They are characterized by preferences (possibly in an infinite dimensional space), and we may trust in existence of an equilibrium. However, a speculator forms beliefs about the preferences, and choices, of others. Implicitly, the speculator assumes that “he” is different from (almost all) other agents in the market. As Keynes argued, with a preponderance of enterprise, speculators cause no severe problems. Suppose, however, that there is a preponderance of speculators: each one must predict the others’ actions and act in a way different from them. Consider the situation when a speculator fears that the market may fall; he wants to escape before the others, so his belief is that he is different in kind from the others. But all speculators are identical in this regard. The

speculator must reason that his state of mind cannot be a part of a belief equilibrium, since it is not credible that he is indeed different from other speculators. Assuming private information is of no help. Keynes saw this intuitively, but gave no formal proof. A proof, at least of a version of the hypothesis, is due to Nachbar¹¹³ and essentially extends the Godel-Turing inconsistency theorem.¹¹⁴

To see the problem, consider a game, such as scissors, paper, stone, involving two players. With equally valued wins and losses, the Nash¹¹⁵ equilibrium is for each player to randomize with probability $\frac{1}{3}$ to each strategy. An enterprising agent may play thus and gain zero in expectation. In the iterated version, a speculator attempts to win by forecasting, by learning his opponent's strategy. If his opponent is truly an enterpriser, there is little the speculator can do but randomize. With two speculators, the game changes. Player A attempts to learn whatever Player B is doing and realizes Player B is probably trying to learn what Player A is doing. The infinite regress does not close. Although the theorem was suspected earlier,¹¹⁶ Nachbar's result appears to be relevant for a very large class of games.¹¹⁷

Two empirical questions are obvious. What ratio of speculators to enterprisers, in a particular situation, is compatible with equilibrium? In a complex international asset market, can the socialization of investment, at some level available to a government or an international institution, induce stability?

There is clearly an even more general question. My notion of the heart of a Constitution incorporates an implicit core belief. If we accept the chaos hypothesis for asset markets, why not accept it for a Constitution? It is true that the world of a Constitution is generally not composed entirely of speculators. However, it is also evident that different beliefs may "populate" a Constitution.¹¹⁸

Throughout this paper, I have used the term *core belief* to refer to whatever belief is in equilibrium, or is collectively agreed upon (in some appropriate social choice sense) by the members of the community. If there is a clear discord between the essential beliefs of the Constitution, and some empirical aspect of reality, then some of the members of the society may decide to switch beliefs. If others observe the effects of a small number switching beliefs, then (acting as rational Bayesians) their propensity to switch will increase. Thus, what I have termed a *cascade* can be generated.¹¹⁹ The conditions under which the cascade can destroy the previous core belief are unclear and may indeed be unknowable. Whether a government or sovereign can truly halt a major cascade is a difficult question. Indeed, in democratic polities there is an implicit prohibition against attempting to do this.

To gain some inkling into the stability of a core belief of a Constitution, consider again the notion of a competitive equilibrium in a market. This is simply a state of the world that cannot be changed to anyone's advantage by trade. It depends of course on the price equilibrium (of which there may be many). Such an equilibrium is associated with stable states of mind, or beliefs, by the participants.¹²⁰ A more abstract idea of an equilibrium, but one that does not involve prices, is that of the core of an economy (the set of unbeaten commodity allocations). Under certain assumptions, the core of an exchange economy will be nonempty (and will include the competitive equilibrium). Unfortunately, for more general cooperative games such as voting, the core (the set of unbeaten outcomes) is generically empty.¹²¹ However, the notion of the core has been recently generalized.

The newly proposed, mathematical object, the heart,¹²² has been shown to be always nonempty and to be continuous,¹²³ if the characteristics of agents are "convex" in a certain

sense. The framework utilized is one in which agents are characterized by preferences and there is some particular social choice rule, such as voting. However, the formal construct is abstract enough to be relevant in the more rarified, infinite dimensional context of beliefs and very general social choice rules. In the world, however, beliefs need not be convex. An individual may hold two conflicting views, assigning to each differing probabilities of truth, or indeed, as Keynes noted, may be completely uncertain. Because of the failure of convexity, the heart can fail continuity at certain configurations of beliefs. By analogy with dynamic systems, the failure of continuity is called a *catastrophe*. A cascade is precisely the catastrophic change from one heart configuration to a completely different one. This very simple notion of a catastrophic cascade is adapted from Zeeman's earlier ideas.¹²⁴ However, the extension of the idea that I have proposed is made in the attempt to include more general transformations than those considered by Zeeman.

The abstract object that I call a heart may not, in fact, be an equilibrium, if by this we mean that it is associated with unchanging beliefs and constant behavior on the part of the members of the society. However, the heart is defined by certain boundaries in the domains of beliefs and actions. An important feature of the heart is that when the equilibrium or core is, in fact, nonempty, then the heart and core coincide. On the other hand, when the core is empty, then behavioral cycles are certainly possible inside the heart.¹²⁵ In normal circumstances, such cycles need not prove destructive to fundamental belief coherence in the Constitution. By analogy with the notion of an economic core, I use the term *core belief* to refer to the set of collective beliefs that are mutually compatible within the community. Under the circumstance of a catastrophe, the core belief can become empty.

The heart of the Constitution is the exceedingly complex pattern of beliefs and actions, all of which are individually rational with respect to empirical reality and tenable according to the philosophical attitudes of the members of the community. It is defined by certain barriers, or boundaries, to belief, cognition, and behavior. What I have termed the *chaos hypothesis* (my interpretation of Keynes's key insight), I see as a device by Keynes to overcome a belief barrier that prevented an understanding of the Depression. Keynes's insight made accessible a number of different possible hearts, one of which eventually came into focus in the period after World War II. The earlier discussion of the implementation of hegemonic internationalism was intended to show how this depended on core beliefs about the nature of the international system and of the necessity of Soviet containment held by U.S. policy makers.

The fundamental problem of political economy, as I see it, is to obtain a general understanding of how a core belief, or more properly the heart of the Constitution, transmutes itself through a cascade to a new configuration. The various analyses of quandaries that have been undertaken recently have provided a number of interesting examples of such cascades. The work by Margolis¹²⁶ on the evolution of research programs as well as insight into the interaction of shared mental models, ideologies, and institutions¹²⁷ is obviously important.

As I suggested earlier, a belief component of the heart has many similarities to the notion of a paradigm, in the sense of Kuhn,¹²⁸ and the collapse of a component has some of the features of a scientific revolution.¹²⁹ As I have emphasized in the case of the Depression, escaping or resolving a quandary may involve overcoming a conceptual barrier (such as the equilibrium thesis that beset Keynes). Even when the barrier is overcome, it may prove difficult to reconstitute a new core belief because of the resistance, or risk aversion, of the participants or simply because of the difficulty of the task.

It might be useful to develop this idea of a core belief by reference, not to a Constitution, but to the famous example of the “annus mirabilis” of 1905. In that year, Einstein published papers titled “On the Electrodynamics of Moving Bodies,” “On a Heuristic Viewpoint Concerning the Production and Transformation of Light,” “Does the Inertia of a Body Depend on Its Energy Content,” as well as a fourth, on Brownian motion.¹³⁰ These papers are seen by philosophers of science as truly constituting a scientific revolution. To write them, Einstein had to deny the profound conceptual assumption that time and space are absolute (in fact that there is an “aether” in which light takes its wavelike form). It is well known that Einstein was able to do this by thought experiments that were unique to his imagination. It is also possible that the pathway to the insight came from Einstein’s realization that Maxwell’s field equations were not invariant under transformation of a certain kind. The insight led both to special relativity and the quantum theory. Feyerabend¹³¹ has provided a very interesting discussion of the state of affairs before 1905, which I can contrast with post-1905 in order to articulate some notions about belief cascades.

According to Feyerabend, there were three different and mutually incompatible paradigms in late-nineteenth-century physics: mechanics, electrodynamics, and heat. Let us refer to these as schools, or research programs, rather than as paradigms. Each of these schools had its own well-developed theoretical framework (of beliefs), and as Feyerabend emphasizes, they interacted in an essentially anarchic fashion. Indeed, Feyerabend has asserted, “Science is an essentially anarchic enterprise.”¹³² To see what this may mean, we may conceive of the scientific heart as the set of all conceivable activity spanned by the dominant beliefs in the three schools. Activity can be disordered (anarchic) within this set. If we think of voting as a metaphor for the interaction of the schools, anything inside the heart is possible. However, there was a core belief that comprised the agreed-on commonalities held by all of the three schools. As I have just suggested, this was the belief in absolute time and space. This core belief, of course, made sense within the separate “languages” of the three schools.

Prior to 1905, however, both Lorentz and Poincaré had suspected the existence of a quandary, in a scientific sense, on the relationship between mechanics and electrodynamics. By overcoming the barrier of the assumption of absolute time and space, Einstein created a full-fledged quandary. Eventually, it was realized that the rejection of this core belief transformed the configuration, or heart, of nineteenth-century physics.

In our own time, there have been numerous attempts to create new core beliefs by integrating quantized forces with electromagnetism and more recently with gravitation. The search for a theory of everything can be seen to be motivated by a nonscientific, aesthetic belief that there is indeed some conceptual resolution, some core belief, underlying the various schools within physics.¹³³ The cascade initiated in 1905 is still under way. Local core beliefs, such as those derived from the integration of the weak nuclear force and electrodynamics, have been constructed, but at present the global scientific core is empty. The scientific heart is the evolving configuration of scientific activities generated by the family of local core beliefs.

This discussion of the “Quandary in Physics of 1905” may shed some light on the attempt to reconstitute the Atlantic Constitution in 1944. As with any collapse of a belief component, there may be many paths to choose in search of a new core belief. As I suggested above, there were a number of conceivable postwar Constitutions. Only one, what I have termed hegemonic internationalism, was constructed by the 1944 Architects of Order.

It was chosen because it was compatible with the pattern of preferences and beliefs that held sway in the U.S. political institutions. I have suggested that this solution was flawed to a degree because it incorporated a derived equilibrium thesis based on a neo-Keynesian orthodoxy. It is impossible, at present, to tell for certain whether the solution to the 1970s quandary, put in place circa 1982, is fundamentally flawed in the same way. The current situation in world assets markets is relatively new, and the “behavioral chaos” in Russia and elsewhere has only just begun. However, I have tried in this article to show that there are good theoretical and empirical reasons to reject the strong equilibrium thesis as the basis for a core belief underpinning the Atlantic Constitution.

Just as Keynes found it necessary to deny aspects of Marshallian economic equilibrium theory, so does it appear necessary to probe more deeply into the notion of an equilibrium in order to make sense of the role of beliefs in the Atlantic Constitution. By escaping the conceptual restrictions of the equilibrium thesis, we may be able to accept both the possibility of irrationality implicit in Arrow’s theorem,¹³⁴ as well as the Hayekian notion¹³⁵ of an evolving social order.

NOTES

1. Thomas Hobbes, *Leviathan; or the Matter, Forme, and Power of a Commonwealth* (London: A. Crooke, 1651, and Penguin Books, 1968), chap. 18, p. 234 (orig. p. 91).

2. Hobbes, *Leviathan*, chap. 13, p. 186 (orig. p. 62).

3. See, for example, John Gray, *Hayek on Liberty* (Oxford: Basil Blackwell, 1984), 4, where he suggests that Hayek synthesized the philosophies of Mach, Popper, Wittgenstein, and Michael Polanyi into a coherent system.

4. See Samuel Beer, *Britain against Itself* (London: Faber, 1982); Samuel Brittan, *The Economic Consequences of Democracy* (London: Maurice Temple, 1976); and Mancur Olson, *The Rise and Decline of Nations* (New Haven: Yale University Press, 1982). In a sense, these prophets of political chaos derived their arguments from the fundamental impossibility theorem of social choice. See Kenneth Arrow, *Social Choice and Individual Values* (New York: Wiley, 1951).

5. See, for example, Milton Friedman, “The Role of Monetary Policy,” *American Economic Review* 58 (March 1968): 1-18. The argument fundamentally depends on the economic equilibrium theorem of Kenneth Arrow and Gerard Debreu, “Existence of an Equilibrium for a Competitive Economy,” *Econometrica* 22 (June 1956): 265-90.

6. The *Economist* (of 19 December 1998) records GDP growth of 3.5 percent for the United States, 2.3 percent for Britain, and 2.4 percent for the so-called Euro-11. While unemployment is only at 4.6 percent (U.S.) and 6.7 percent (Britain), it is much higher, at 11.6 percent, in the Euro-11 (the eleven member states of the European Union who are committed to currency union by 2002).

7. Japan is currently facing a decline of 3.6 percent in its GDP, as per the third-quarter 1998 figures. This is still much less than for Indonesia (–17.4 percent), Malaysia (–8.6 percent), South Korea (–6.8 percent), Russia (–9.9 percent), and Hong Kong (–5.2 percent). See the *Economist* (19 December 1998).

8. The great differences in political regimes among the affected countries clearly suggests that economics rather than politics is the essential cause. Political inefficiencies could, of course, exacerbate economic instabilities.

9. As usual, an outcome, x , is Pareto optimal if and only if there is no other feasible state y that all economic agents weakly prefer to x .

10. It may be necessary to date these commodities by time; equilibrium then requires complete futures markets. Recent extension of the standard theory then can be used to demonstrate existence of equilibrium, as long as there are complete futures markets.

11. See the interview with Soros in the *New York Review of Books* (14 January 1999). Soros is reputed to have gained over 1 billion sterling by betting 10 billion sterling that the British pound would be forced to devalue in 1992. This 1992 situation was one of risk only, since it was fairly clear that the overvaluation of the pound could not be sustained.

12. Hamish McRae in a recent article in *World Press Review* (January 1999) noted the irony that the 1997 Nobelists in economics, Myron Scholes and Robert Merton, were involved in long-term capital management (LCM). The theoretic work of Scholes and Merton was predicated on risk analysis and proved entirely useless at preventing the loss of at least a billion dollars by LCM. McRae applauded the Nobel Committee for recognizing, in 1998, Amartya Sen for his work in welfare economics and social choice theory.

It is obvious that the LCM debacle occurred because market-based risk analyses proved utterly incompetent to deal with situations of uncertainty. In contrast, much of Sen's work has to do with the degree to which political institutions may either mitigate, or possibly exacerbate, economic uncertainty.

13. See, for example, Ludwig von Mises, "Economic Calculation in the Socialist Commonwealth," reprinted in Friedrich von Hayek, ed., *Collectivist Economic Planning* (London: Routledge, 1935), 87-130 (originally published in Germany in 1920).

14. Hobbes, *Leviathan*, chap. 1, Introduction, p. 81 (orig. p. 1).

15. Douglass North, *Institutions, Institutional Change and Economic Performance* (Cambridge: Cambridge University Press, 1990).

16. Karl Popper, *The Logic of Scientific Discovery* (London: Hutchinson, 1959).

17. Karl Popper, *Objective Knowledge: An Evolutionary Approach* (Oxford: Oxford University Press, 1972).

18. Robert Sugden, *The Economics of Rights, Cooperation and Welfare* (Oxford: Blackwell, 1980).

19. Norman Schofield, "Anarchy, Altruism, and Cooperation: A Review," *Social Choice and Welfare* 2 (April 1985): 207-19.

20. There is an enormous literature on this topic. For a very useful survey, see Arthur Denzau and Douglass North, "Shared Mental Models: Ideologies and Institutions," *Kyklos* 47 (March 1994): 3-31.

21. For a discussion of these perspectives, see Randall Calvert, "Rational Actors, Equilibrium and Social Institutions," in Jack Knight and Itai Sened, eds., *Explaining Social Institutions*, (Ann Arbor: Michigan University Press, 1995), 57-94.

22. Sushil Bikhchandani, David Hirschleifer, and Ivo Welsh, "A Theory of Fads, Fashions, Custom, and Cultural Change as Informational Cascades," *Journal of Political Economy* 100 (September 1992): 992-1026.

23. Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: Chicago University Press, 1962).

24. The argument on unintelligibility is based on a Godel-Turing paradox, that each agent, i , in interpreting the market must assume that the other agents in the market are different in kind from i . When this realization hits, as it must in general, then the basis for rational choice by i is destroyed. The onset of this "irrationality" by market leaders cannot be determined beforehand. When it does occur, it may well trigger a belief cascade into market instability. It is apparent that Keynes's intuition on the collapse of market bubbles was similar, though not, of course, framed in precisely these game theoretic terms.

25. This paper only sketches the nature of the constitutional quandaries of 1944 and of the 1970s. It is intended to elaborate on these, in two later pieces of work, using the theoretical apparatus set out in the current work. A point to note is that the solution of the 1944 quandary was still rooted in an equilibrium thesis but also involved certain beliefs about the nature of a bipolar world split between communism and capitalism.

26. In social choice terminology, the “core” is empty.

27. See Diana Richards, “Is Strategic Decision Making Chaotic?” *Behavioral Science* 35 (April 1990): 219-32.

28. To speculate, it is possible that the irrationality of World War II had at its source the collapse of core beliefs during the 1920s and 1930s.

29. Kenneth Arrow, “Rationality of Self and Others in an Economic System,” *Journal of Business* 59 (December 1986): 385-99. Another way of seeing the problem is in terms of the incompleteness of futures markets.

30. It is not so much that such belief cascades are sensitive to initial conditions (the usual definition of *chaos*). Rather, the resulting behavior can “go anywhere.” See Norman Schofield, “Rules, Equilibrium, Beliefs and Social Mathematics,” in David Braybrooke, ed., *Social Rules* (Boulder, CO: Westview, 1996), 233-48.

31. Attempts to regulate any market by controlling price fluctuations necessarily requires a reserve fund of a scale that is related to (1) the volume of the potential speculative asset flow, (2) the degree of correlation between the individual commodity markets, and (3) the inverse of the chosen price band. Although there may well be welfare benefits from reducing risk through such restriction of volatility, these should be set against the cost of maintaining the reserve fund. For a discussion of the theory as applied to commodity markets, see David Newberry and Joseph Stiglitz, *Theory of Commodity Price Stabilisation* (Oxford: Clarendon, 1981).

As section IV mentions, attempts to regulate the international monetary system and the world commodity markets (under the auspices of the UNCTAD integrated commodities program) both failed in the decade after the Smithsonian Agreement. The reasons fairly obviously were to do with the scale of speculative flows and the extent of the correlation. This does not mean to say that it is impossible to regulate, but only in a much weaker sense than these earlier experiments. Section VIII mentions how this might be done.

32. Francis Fukuyama, *The End of History and the Last Man* (New York: Free Press, 1992), xi.

33. It is clear how to model this formalism. I need only assume that citizens and politicians are rational, but with different motivations. The essence of the model is given in Barry Weingast, “The Political Foundations of Democracy and the Rule of Law,” *American Political Science Review* 91 (March 1997): 245-63. I have simply added the idea of risk to the cost calculation of the citizen.

34. I have argued elsewhere that the interrelationship between beliefs and constraints on government is mediated by the electoral system. Thus, in electoral systems based on proportional representation, parties involved in coalition government are unwilling, as it were, to increase the risk their voters face if labor markets are made more competitive. Majoritarian systems, such as Britain, appear to have been more risk preferring since 1980. See Norman Schofield, “Comparison of Majoritarian and Proportional Electoral Systems,” unpublished manuscript, Washington University in St. Louis, Center in Political Economy, October 1997.

35. Quoted in Andrew Sobel, “Rosy Expectations, Cloudy Horizons,” *Columbia Journal of European Law* 4 (June 1998): 453-65.

36. Implicit in my understanding is that the Atlantic Constitution evolves through “punctuated equilibria.” See Niels Eldridge and Steven J. Gould, “Punctuated Equilibria,”

in T. Schopf, ed., *Models of Paleobiology* (New York: Norton, 1972), 82-115. For a general argument to this effect, see Norman Schofield, "Chaos or Equilibrium in Preference and Belief Aggregation," in J. Alt, M. Levi, and E. Ostrom, eds., *Competition and Cooperation* (New York: Russell Sage, 1999).

37. This kind of analytical narrative, focusing on deadly quandaries within the Atlantic Constitution, has been pursued recently in political economy. On the "glorious revolution" of 1688, see Douglass North and Barry Weingast, "Constitutions and Commitment: Evolution of Institutions Governing Public Choice in Seventeenth Century England," *Journal of Economic History* 49 (September 1989): 803-32; on Lincoln and the Civil War, see Norman Schofield, "Heresthetics and Beliefs in the Antebellum States 1837-1860," unpublished manuscript, Washington University in St. Louis, Center in Political Economy, July 1998; on the period of 1760-1776, prior to the American Revolution, see Andrew Rutten and Barry Weingast, "Ideas, Interest and Credible Commitments in the American Revolution," unpublished manuscript, Hoover Institution, November 1997, and Norman Schofield, "Core Beliefs in America at the Declaration of Independence," unpublished manuscript, Washington University in St. Louis, Center in Political Economy, September 1998.

38. Charles Kindleberger, *The World in Depression 1929-1939* (Berkeley: University of California Press, 1973).

39. *Ibid.*, 11. In the next section, I discuss earlier remarks in this vein by John Maynard Keynes in 1936.

40. Robert Keohane and Joseph Nye, *Power and Interdependence* (Boston: Little, Brown, 1977).

41. Norman Schofield, "A Game Theoretic Analysis of Olson's Game of Collective Action," *Journal of Conflict Resolution* 19 (September 1975): 441-61. Dynamic aspects of such a game were considered in Norman Schofield, "The Logic of Catastrophe," *Human Ecology* 5 (1977): 261-71, and "Dynamic Games of Collective Action," *Public Choice* 30 (1977): 77-105.

42. Robert Triffin, *Gold and the Dollar Crisis* (New Haven: Yale University Press, 1960).

43. Paul McCracken, ed., *Towards Full Employment and Price Stability* (Paris: OECD, 1977).

44. These crises have been discussed by many authors. An overall view of their interconnections is given in Norman Schofield, "The Old and the New Economic Order," in Norman Schofield, ed., *Crisis in Economic Relations between North and South* (Aldershot: Gower, 1984).

45. This is my interpretation of the so-called folk theorem for infinitely repeated games. See Drew Fudenberg and Jean Tirole, *Game Theory* (Cambridge, MA: MIT Press, 1992), 150.

46. See Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984) and the discussion in Schofield, "Anarchy, Altruism and Cooperation."

47. Robert Keohane, *After Hegemony* (Princeton: Princeton University Press, 1984).

48. *The Long Report to the U.S. Senate* (Washington, DC: Government Printing Office, 1973).

49. For example, by 1983, it was estimated that the Latin American countries owed approximately \$300 billion. Debt service at that time exceeded earnings in many of these countries.

50. Andrew Sobel, *State Institutions, Private Incentives, Global Capital* (Ann Arbor: Michigan University Press, 1999).

51. I have not found a complete account of this belief cascade, but Daniel Yergin and Joseph Stanislaw, *Commanding Heights* (New York: Simon and Schuster, 1998), do provide

a readable account. Although the book was written before the “crisis” of 1998, they do mention in their conclusion the consequences of any disruption of the international financial system.

52. See Paul Kennedy, *The Rise and Fall of the Great Powers* (New York: Random House, 1987), as well as Lester Thurow, *Head to Head* (New York: Morrow, 1992), and Lester Thurow, *The Future of Capitalism* (New York: Morrow, 1996).

53. Quoted in Robert Skidelsky, *John Maynard Keynes: Hopes Betrayed 1883-1920* (London: Macmillan, 1983), 391, from Keynes’s *Economic Consequences of the Peace* (London: Macmillan, 1919), 128.

54. Skidelsky, *Hopes Betrayed*, 391.

55. *Ibid.*, 391, quoting from Keynes’s *Economic Consequences*, 170.

56. *Ibid.*, 387, quoting from Keynes’s *Economic Consequences*, 146.

57. Kindleberger, *The World in Depression*, 23.

58. *Ibid.*, 59.

59. *Ibid.*, 76-77.

60. *Ibid.*, 101. International pressures, and the fears over monetary instability because of the inadequacy of the Young Plan of April-May 1929, led to a further flow of gold into the United States. Sterling’s gold par came under speculative pressure, and the Bank of England’s gold stock fell \$640 million in four months.

61. *Ibid.*, 229.

62. Alan Brinkley, *Liberalism and Its Discontents* (Cambridge, MA: Harvard University Press, 1998), 18.

63. John Maynard Keynes, *The General Theory of Employment, Interest and Money* (London: Macmillan, 1936).

64. The term was used first by Li and Yorke, “Period Three Implies Chaos,” *American Mathematical Monthly* 82 (1975): 985-92, and then adopted in order to describe indeterminate social choice processes. See Norman Schofield, “Catastrophe Theory and Dynamic Games,” *Quality and Quantity* 14 (September 1980): 519-45.

65. Skidelsky, *Hopes Betrayed*, and the second volume, *John Maynard Keynes: The Economist as Saviour, 1920-1937* (London: Macmillan, 1992).

66. George Moore, *Principia Ethica* (Cambridge: Cambridge University Press, 1903).

67. John Maynard Keynes, *A Treatise on Probability*, vol. 8 of *Collected Writings* (London: Macmillan, 1921). On p. 341 of *A Treatise*, Keynes takes issue with a consequentialist argument by Moore that utter ignorance of the far future forbids us from making choices for the greater good. Keynes argues that it may be possible to make “probabilistic” judgments, that is, in the presence of risk. Clearly, however, Moore’s argument has validity if interpreted in terms of uncertainty, and it was this insight that Keynes pursued in *The General Theory*.

68. From my viewpoint (and seemingly for Keynes as well), equilibrium theory, as represented by the formalism of Marshallian economics, was a barrier to understanding the economic world. On conceptual barriers, see Howard Margolis, *Paradigms and Barriers: How Habits of Mind Govern Scientific Beliefs* (Chicago: Chicago University Press, 1993).

69. Keynes, *The General Theory*, 158-59.

70. See Skidelsky, *Economist as Saviour*, 611, as well as Jacob Viner, “Mr. Keynes on the Causes of Unemployment,” *Quarterly Journal of Economics* 51 (January 1936): 147-67, and John Hicks, “Mr. Keynes and the ‘Classics’; A Suggested Interpretation,” *Econometrica* 5 (January 1937): 147-59.

71. Hyman Minsky, *John Maynard Keynes* (New York: Columbia University Press, 1975), 66.

72. John Maynard Keynes, "The General Theory of Employment," *Quarterly Journal of Economics* 51 (April 1937): 209-23.

73. Keynes, *The General Theory*, xxiii.

74. Skidelsky, *Economist as Savior*, 613.

75. Richard Kahn, *The Making of Keynes' General Theory* (Cambridge: Cambridge University Press, 1984).

76. Keynes, *General Theory*, 349.

77. *Ibid.*, 381.

78. *Ibid.*, 378.

79. John Maynard Keynes, "National Self Sufficiency," *Yale Review* 26 (December 1933): 755-69.

80. Kuhn, *The Structure*. In the appendix, I attempt to relate Kuhn's notion of paradigm to the ideas of a set of core beliefs and the heart of a Constitution, used in this paper.

81. Adam Smith, *An Inquiry into the Wealth of Nations* (1776; Oxford: Oxford University Press, 1976).

82. There was an extensive literature by 1936 on this proposition, with Oskar Lange and Michael Kalecki pitted against Ludwig von Mises and Friedrich von Hayek. For the counterarguments, see Oskar Lange, "On the Economic Theory of the State," in Oskar Lange and Frank Taylor, eds., *The Economic Theory of Socialism* (Minneapolis: University of Minnesota Press, 1938).

83. Note that a Constitution involves an equilibrium in beliefs, what I call the core belief. Just as with asset markets, such a belief equilibrium may crash. I discuss this possibility further in the appendix.

84. I have argued in the earlier sections of this paper that Keynes was correct in this separation. Although a generally applicable equilibrium theorem for commodity markets would not be available until 1956, a weaker version (but one more general than that of Marshallian economic theory) was known in the 1930s. See John von Neumann, "A Model of General Economic Equilibrium," *Review of Economic Studies* 13 (January 1945): 1-9, for the translation of his original paper of 1932 (written in German).

85. It seems to me that the step by Keynes away from Marshallian equilibrium, followed by half a step back by Hicks et al. resembles the move by Copernicus away from the Ptolemaic planetary orthodoxy toward the heliocentric system. This move was followed by half a step back by Tycho Brahe (to an incoherent system, where planets orbit the sun, which orbits the earth). See Margolis, *Paradigms*.

86. Keynes, *General Theory*, 382.

87. *Ibid.*, 380.

88. *Ibid.*, 335.

89. See the discussion in Roy Harrod, *The Life of John Maynard Keynes* (New York: Avon, 1971).

90. See Fred Block, *The Origins of International Economic Disorder* (Berkeley: University of California Press, 1977).

91. Keynes, "Self-Sufficiency," 758.

92. Kindleberger, *The World in Depression*, mentions nine (in 1816, 1825, 1836, 1847, 1857, 1866, 1873, 1890, and 1907).

93. John Nye, "Revisionist Tariff History and the Theory of Hegemonic Stability," *Politics and Society* 19 (April 1991): 209-32.

94. Block, *The Origins*.

95. This makes use of recent archival research by Kohler. See Imke Kohler, *Motivations for Launching the Marshall Plan*, unpublished manuscript, Washington University in St. Louis, December 1998.

96. *Ibid.*, 110. The voting weight was computed as follows: each country had 250 votes (out of 86,000) plus an additional one for each \$100,000 invested in the bank.

97. Between the second quarter of 1946 and the fourth, overall U.S. aid dropped from \$6.5 billion to \$4.2 billion. Over the same period, the U.S. export surplus in goods and services dropped from \$9.9 billion to \$7.7 billion. By the third quarter of 1947 when aid had increased to \$7.8 billion, the surplus had increased to \$10.3 billion. It could be fairly easily deduced that there was almost a linear relationship between aid and surplus. Thus, the initial flow of aid that seemed to be required under a strategy of hegemonic internationalism can be deemed to be rational for the United States in terms of the immediate trade consequences.

98. According to Secretary of State James Byrnes, Czech delegates had applauded a denunciation of the United States by a Soviet official just after the United States had approved a \$50 million credit. In his view, there was no point in an institution that the United States funded and yet held only one vote in seventeen. See James Byrnes, *Speaking Frankly* (New York: Harper, 1947), 143.

99. George Kennan, *Memoirs, 1925-1950* (Boston: Little, Brown, 1976), 338.

100. Kai Bird, *The Chairman, John McCloy: The Making of the American Establishment* (New York: Simon and Schuster, 1992), 292.

101. Devesh Kapur, John Lewis, and Richard Webb, *The World Bank: Its First Half Century* (Washington, DC: Brookings Institution, 1997), 76.

102. President Harry Truman, address delivered before a joint session of the Senate and House of Representatives, Eightieth Congress, 12 March 1947.

103. The outlines of the proposed flow of aid to Western Europe were given in a speech by Secretary of State George Marshall at Harvard on 5 June 1947. The whole program became known as the Marshall Plan. For the formulation of this plan by the U.S. Architects of Order, see Joseph Jones, *The Fifteen Weeks: February 21-June 5, 1947* (New York: Viking, 1955). We shall return later in this section to the role of the famous X-article by George Kennan in July 1947.

104. John McCloy, "International Investment of Capital," address at the Seventh Annual Forum of Social and Economic Trends, New York City, 18 April 1947 (Amherst College Archives).

105. However, the bank insisted that it was required "to function as an independent international organization." See Edward John Mason and Robert Asher, *The World Bank since Bretton Woods* (Washington, DC: Brookings Institution, 1973).

106. John McCloy, hearings before the Committee on Foreign Relations (concerning the European Recovery Program), Eightieth Congress, 16 January 1948.

107. Kai Bird, *The Chairman*, 299. See also John McCloy, "Memorandum to the President, 7 January, 1949," Harry Truman Library, Independence, Missouri. In fact, Truman's proposal shortly afterwards, to initiate a U.S. loan program for non-European countries, suggests that McCloy's argument was completely rejected.

108. Robert Solomon, *The International Monetary System, 1945-1976* (New York: Harper and Row, 1977), 276.

109. McCloy resigned from the presidency of the bank in 1949 to become high commissioner for Germany (until 1952). He came back from private life (in finance) in 1961 to be Kennedy's advisor.

110. See Kennan, *Memoirs*, 354-67. The X-article in question was published anonymously as "Sources of Soviet Conduct," *Foreign Affairs* 25 (July 1947): 566-82. It circulated in early 1947.

111. See Fred Block, "Controlling Global Finance," *World Policy Journal* 13 (Fall 1996): 24-34, for suggestions on how the international economic system might be "weakly

regulated” in this fashion. I hope, in a later article, to further develop these suggestions. For the moment, note that the difficulty of regulation depends on scale, correlation, and the degree of acceptable volatility (see n. 31). Since the dangers at present lie in emerging economies and Japan, it would be prudent to set up an institution of whistle-blowers to provide advance warning of economic or political shocks in such countries. None of the international economic institutions provide such information at present. Moreover, Sobel, *State Institutions*, suggests that the market itself does not interpret such information efficiently. With greater resources than at present, the clearing union would be able to mitigate the effect of capital flight, when it did occur, more successfully. Since much of the problem of capital flight is due to short-term investment, this could also be mitigated through the use of long-term investment under the aegis of the International Bank for Reconstruction and Development. The purpose of such local strategies would obviously be to reduce the degree of contagion, or correlation of economic instability, among a large number of economies.

Block estimates that the daily trading volume on international exchange markets is about \$1.2 trillion and that 90 percent of this is speculative. Clearly, no reserve fund of plausible size could hope to regulate such a flow. The mechanisms suggested above are intended as devices to decrease the possibility that speculative cascades might occur.

112. William Zame, “Competitive Equilibria in Production Economies with Infinite Dimension Commodity Spaces,” *Econometrica* 55 (September 1987): 1075-108.

113. John Nachbar, “Prediction, Optimization and Learning in Repeated Games,” *Econometrica* 65 (January 1997): 275-309.

114. Kurt Godel, “Uber formal unentscheidbare Satze der *Principia Mathematica* und verwandter Systeme,” *Monatshefte fur Mathematik und Physik* 38 (January 1931): 173-98, and Alan Turing, “On Computable Numbers with an Application to the Entscheidungsproblem,” *Proceedings of the London Mathematical Society* 42 (April 1937): 230-65.

115. John Nash, “Non-cooperative Games,” *Annals of Mathematics* 54 (April 1951): 289-95.

116. See Norman Schofield, “Instability and Development in the Political Economy,” in Peter Ordeshook and Kenneth Shepsle, eds., *Political Equilibrium* (Boston: Kluwer, 1982), and Kenneth Binmore, “De-Bayesing Game Theory” in Ken Binmore, Alan Kirman, and Piero Tani, eds., *Frontiers of Game Theory* (Cambridge, MA: MIT, 1993). Hayek had also noted that Godel’s theorem seemed to imply that there are rules governing behavior, which may be unknowable. See Friederich von Hayek, *New Studies in Philosophy, Politics, Economics and the History of Ideas* (Chicago: Chicago University Press, 1978).

117. John Nachbar, “Rational Bayesian Learning in Repeated Games,” unpublished manuscript, Washington University in St. Louis, Center in Political Economy, 1998, and “Evil Twins and Bayesian Learning in Repeated Games of Incomplete Information,” *Social Choice and Welfare* (forthcoming, 1999).

118. See Norman Schofield, “Heresthetics and Beliefs,” for a discussion of the cohabitation of conflicting beliefs over slavery in the Antebellum states.

119. A citizen revolt circa 1990 in Eastern Europe and the growing swell of opinion in the United States prior to 1776 can be interpreted this way. For the former, see R. Karklins and Roger Petersen, “Decision Calculus of Protestors and Regime: Eastern Europe 1989,” *Journal of Politics* 55 (August 1993): 588-614. For the latter, see Andrew Rutten and Barry Weingast, “Ideas, Interests and Credible Commitment.”

120. This observation was made by Frank Hahn, *On the Notion of Equilibrium in Economics* (Cambridge: Cambridge University Press, 1973).

121. Richard McKelvey and Norman Schofield, “Structural Instability of the Core,” *Journal of Mathematical Economics* 15 (July 1986): 179-98, and Donald Saari, “Generic Existence of a Core for q-rules,” *Economic Theory* 9 (January 1997): 219-60.

122. Norman Schofield, "A Smooth Social Choice Method of Preference Aggregation," in Myrna Wooders, ed., *Topics in Game Theory and Mathematical Economics* (Toronto: Fields Institute Communication Volume of the American Math Society, forthcoming 1999), and "The C^1 -topology on the Space of Smooth Preference Profiles," in *Social Choice and Welfare* (forthcoming 1999).

123. To be more formal, continuity essentially means that the heart permits existence of a continuous selection. This property may vanish at catastrophes. See Norman Schofield, "Aggregation of Smooth Preferences," *Social Choice and Welfare* 15 (July 1998): 161-85.

124. See Christopher Zeeman, "On the Unstable Behavior of Stock Exchanges," *Journal of Mathematical Economics* 1 (January 1974): 39-49, reprinted in Christopher Zeeman, *Catastrophe Theory* (Reading, MA: Addison-Wesley, 1977).

125. For example, in a voting game, the boundary of the heart, induced by preferences only, is given by the median hyperplanes associated with winning coalitions. When the voting core is empty, then coalition cycles can occur inside the heart. See Norman Schofield, "Multiparty Electoral Politics," in Dennis Mueller, ed., *Perspectives on Public Choice* (Cambridge: Cambridge University Press, 1997).

126. See Howard Margolis, *Paradigms, Thinking and Cognition: A Theory of Judgement* (Chicago: University of Chicago Press, 1987).

127. See Arthur Denzau and Douglass North, "Shared Mental Models."

128. Thomas Kuhn, *Structure*.

129. See Imre Lakatos, *The Methodology of Scientific Research Programmes* (Cambridge: Cambridge University Press, 1978).

130. For the significance of these papers see, for example, A. P. French, *Einstein: A Centenary Volume* (Cambridge, MA: Harvard University Press, 1979).

131. Paul Feyerabend, "Consolation for the Specialist," in Imre Lakatos and Alan Musgrave, eds., *Criticism and the Growth of Knowledge* (Cambridge: Cambridge University Press, 1970).

132. Paul Feyerabend, *Against Method* (London: Verso), 9. In this book, Feyerabend criticizes both Popper's rationalism and Kuhn's idea of paradigmatic normal science.

133. There do appear, however, to be deep incompatibilities not just between quantum theory and gravity, but between other major scientific research programs such as evolutionary biology, the theory of computation, and the theory of mind. For a discussion, see Norman Schofield, "Chaos or Equilibrium."

134. Kenneth Arrow, *Social Choice*.

135. Friedrich von Hayek, *The Constitution of Liberty* (Chicago: Chicago University Press, 1960).