

Review Essay
“George Soros’ Reflexivity and
The Global Financial Crisis”

Thomas D. Willett*

George Soros’ new book, The New Paradigm for Financial Markets: The Credit Crisis of 2008 and What It Means (Public Affairs, 2008, expanded paperback edition, 2009) is fascinating, important, and at times quite irritating. Its central messages are the same as his earlier book, The Alchemy of Finance, but here he makes additional efforts to explain his concept of reflexivity, which he argues should be at the core of a new paradigm for financial markets; and he offers insightful discussions of some of the origins of the current financial crisis. As we’ll discuss below, the full range of what Soros means by reflexivity is far from clear, but for now we can take it as referring to two-way feedback loops and multiple chains of causation that can lead financial markets to deviate from efficient equilibrium.

Given the great costs that this crisis has generated around the globe, it would be hard to overstate the desirability of fully understanding its origins and what made it so broad and so deep. And given Soros’ position as both participant and observer of the behavior of financial markets, there is much that we can learn from his insights. Soros is quite right to attack the view that financial markets always operate with the great efficiency implied by full information rational expectations models. Unfortunately, however, Soros is often so strident in his attacks on mainstream economics that his impact on the economics profession is likely to suffer substantially. This would be

* Horton Professor of Economics, Claremont Graduate University and Claremont McKenna College, and Director, Claremont Institute for Economic Policy Studies.

unfortunate as he has many valuable things to say. In my judgment, the role of “misconceptions and misinterpretations” emphasized by Soros should play a major role can play a major role in developing a correct understanding of the origins of the crisis. It is wrong, however, to equate strong versions of what he calls “Traditional Economics” with the whole enterprise of Modern Economics. Particularly unfortunate is his belief that to make use of his reflexivity approach one must completely abandon traditional equilibrium economics. This would be a hard sell to most economists if it was true, but fortunately it is not.

Contrary to Soros, Reflexivity and Equilibrium Economics Can Be Complements

Typical of Soros’ statements are “If equilibrium theory is correct, reflexivity cannot exist.” (p.51-52) and “The prevailing [traditional economic] paradigm cannot explain what is happening: the theory of reflexivity can.” (p.102). This polar opposition may be correct for a particular moment in time, but once one recognizes, as any close observer of financial markets must, that markets can behave differently at different times, then both approaches can make useful contributions to the analysts’ tool kit. Thus, Soros’ polarization draws too sharp a battle line between the two approaches. In my judgment, both approaches give us valuable insights and neither alone is sufficient to understand the origins of this crisis or the behavior of financial markets. It will be useful for these two approaches to do battle, but the battle should be over how much each approach explains, and the circumstances under which one or the other is more relevant, not a battle to the death of one over the other. In the process both general approaches are

likely to be substantially sharpened as they are applied within a more contingent framework.

Other New Perspectives on the Behavior of Financial Markets

Soros's criticisms of the strongest forms of new classical rational expectations theorists are actually shared by a growing number of mainstream economists who critique these views from a wide range of perspectives, including principal-agent analysis, costly and asymmetric information, models with self-fulfilling expectations and multiple equilibria, as well as differences in mental models. All of these can be explored within rationalist frameworks as well as from the perspectives of behavioral and neuro economics and finance and complexity economics.¹ These focus on the limits of human cognitive abilities and the behavioral biases to which these limits give rise. Likewise many economists have criticized the limitations of the assumptions of continuous trading, high liquidity, and normally distributed shocks that underlie standard risk management approaches such as Value at Risk Models.

Most of these approaches still find equilibrium analysis useful for many purposes. The key is to not become so wedded to any one theory or approach that one loses the ability to see its limitations as well as strengths and to be unable to see potential contributions from other approaches. In his less combative moments, Soros grants that “Even in financial markets demonstrably reflexive processes occur only intermittently” (p.29), and even makes use of the concept of equilibrium himself – albeit in a negative sense – when he explains that he “specialized in detecting and playing far-from-

¹ For recent treatments and references on complexity see Beinhocker (2001) and Bookstaber (2001). On behavioral and neuro finance see Akerlof and Shiller (2009), Burnham (2005), Peterson (2007), and Zweig (2007).

equilibrium situations with good results.” (p.18) Thus he should be willing to grant that equilibrium analysis can be useful for some of the times when strong reflexive processes are not at work. Likewise those of us coming from a background heavily steeped in the equilibrium approach have been forced by the observed behavior of markets to grant that reflexive processes do sometimes operate and that when they do, the effects can be quite dramatic. Soros and I would have substantially different “guesstimates” about how much of the observed behavior can be explained by each approach, but we should have a common basis for fruitful discussion.

Soros has much to say that could help inform the efforts of the many economists who recognize that financial markets are not always fully efficient, and who are trying to better understand the various factors that led to deviations from efficiency – witness, for example, the considerable recent interest in Hyman Minsky’s analysis of financial crises, which has much in common with Soros’ views. There is a wide range between perfect efficiency and wild irrationality. Different types of intermediate behavior may have quite different implications for policy, and we are still a long way from having sufficient knowledge about many intermediate types of behavior. As noted above, these questions are being approached from a number of different directions, and there is room for these approaches to enrich one another. For example, complexity analysis such as has been pioneered at the Santa Fe Institute shares Soros’ distrust of equilibrium analysis and is making considerable strides in better understanding the evolutionary behavior of complex adaptive system of agents with bounded rationality.

Some Methodological Issues

Such complexity economics raises an important issue about social science methodology that is shared by Soros' reflexivity and by the calibration approach now popular in new classical general equilibrium models. Both the complexity theorists' disequilibrium models and the new classical economics equilibrium models focus primarily not on predictions but on being able to simulate patterns of behavior. In this approach, the interpretation of evidence and testing becomes much more subjective than in traditional prediction-based social science.

Clearly, prediction is not the same as explanation. Both are legitimate aims of social science. Soros comes down hard on the side of explanation over prediction as the most important. I have considerable sympathy for his argument that it's useful to consider financial behavior from the perspective of historical analysis, a view also expressed recently by a number of mainstream analysts. This raises the question, however, of how we judge whether one explanation is better than another.

Soros boldly claims that his new paradigm of reflexivity can explain the current crisis while traditional equilibrium economics cannot. But despite this repeated assertion, the book fails to make a convincing case that this is true. If Soros had made the less extreme but still very important claim that his concept of reflexivity can make a substantial contribution to understanding the development of the crisis, I would heartily agree. But so can traditional economics.

Let me offer just a few examples. Mortgage lending to people who came nowhere close to meeting traditional credit criteria was brought about in large part by the change

in incentive structures resulting from the securitization of loans. How were the sellers of these toxic securities able to find willing buyers? Because of the AAA ratings given to them by ratings agencies. And why did the ratings agencies make such vast mistakes in their ratings? At least in part because they were paid by those who originated the securities being rated. This conflict of interest is far from the whole story behind the crisis, but it is an important part on which traditional economics sheds considerable light.

The effect of the easy money policies of the Federal Reserve is another example. Moral hazard also plays a role, as do the perverse incentive structures within the large financial institutions generated by poorly designed compensation schemes and weak governance structures that generated severe principal-agent problems. Such considerations highlight important areas in which substantial improvement can be made. It's doubtful that changes in these areas would be sufficient to eliminate all future financial crises but they could certainly make an important contribution to making them less frequent and less severe.

Just what is reflexivity?

Soros notes with respect to his earlier book The Alchemy of Finance that “In retrospect, it is clear that I was not precise enough in my formulations and tended to overstate my case.” (p.20) Sadly the same is still true of this book. Reflexivity is still not presented as a single clearly defined concept, but rather as a family of interrelated perspectives. Witness the following descriptions and comments by Soros:

“There is a two-way reflexive connection between perception and reality which can give rise to initially self-reinforcing but eventually self-defeating boom-bust processes or bubbles.” (p.x)

“The theory [of reflexivity] emphatically does not qualify as scientific because it does not provide deterministic explanations and predictions. It is merely a conceptual framework for understanding events that have human participants.” (p.18)

Soros criticizes the doctrine of the unity of method for the natural and social sciences. “According to the new paradigm events in financial markets are best interpreted as a form of history.” (p.103)

“Reflexive situations are characterized by a lack of correspondence between the participants’ views and the actual state of affairs.” (p.5)

“The cardinal contention of the theory of reflexivity is that all human constructs are flawed.” (p.92)

“Phenomena do not consist only of facts but also of intensions and expectations ... [this] introduces an element of contingency or uncertainty into the course of events.” (p.4)

“It is the participants’ biased views and misconceptions that introduce an element of uncertainty.” (p. 8)

Thus one aspect of reflexivity is clearly a focus on misperceptions and imperfect information. This view is shared by economists who are working in imperfect information economics and by those who stress the influence of uncertainty and

differences in mental models. This is a fundamental criticism of the frequently used assumption in economics that everyone knows the true model. Deviations from full information assumptions are an important reason why there are often limits to arbitrage, i.e., stabilizing speculation. In such cases there is scope for various imperfections in decision making to influence market prices and behavioral finance considerations can become relevant.

A second important element of reflexivity is that there can be important interactions among perceptions, market behavior, and fundamentals. Soros explains that “Reflexivity can be interpreted as a two-way feedback loop” (p.10) and argues that “[with reflexivity] market prices can influence the fundamentals” (p.57) although “often the prevailing bias corrects itself before it can affect the fundamentals.” (p.57) Unfortunately, his examples of this latter process do not come across clearly, but it appears that one mechanism he may have in mind are circumstances in which demand can influence supply or vice versa. He argues that “to speak of supply and demand as if they were determined by forces that are independent of the market participants’ expectations is quite misleading.” (p.55) It would be very useful for him to offer more examples of what he has in mind.

Soros often talks of reflexive forces as biases or particular misconceptions. For example he argues, “Every bubble consists of a trend and a misconception that interact in a reflexive manner.” (p. X) As a result, “There is a two-way reflexive connection between perceptions and reality which can give rise to initially self-reinforcing but eventually self-defeating boom-bust processes or bubbles.” (p. X) and “Instead of a universal tendency toward equilibrium, financial markets follow a specific one-

directional course. There may be patterns that repeat themselves, but the actual course is indeterminate and unique.” (Pp.17-18)

He characterizes the rational expectations view as claiming that markets always manage to be right (this is true only of some extreme versions) and contrasts this with his view that “financial markets are always wrong in the sense that they operate with a prevailing bias...” (p.57) although he goes on to say that “in the normal course of events they tend to correct their own excesses” (p.57) and earlier grants that “We are not bound to be wrong in every situation. Misconceptions can be corrected.” (p.49)

It would be quite valuable if, in future work, Soros would tell us more about his perceptions of the nature of these biases and the processes through which they are corrected. While Soros often gives the impression of there being one predominant bias at any particular time, at one point he argues that “usually there are several reflexive processes going on at the same time, interfering with each other and producing irregular slopes.” (p.72) and later he makes the intriguing comment that “Most of the reflexive processes involve an interplay between market participants and regulators.” (p.77) but he does not spell out examples for the reader.

For those of us who are trying to better understand the behavior of markets when they deviate substantially from equilibrium (i.e. from prices consistent with the fundamentals) it is to be hoped that Soros will continue in his efforts to refine his concepts of reflexivity and offer more examples of his experiences with these processes at work. I believe that he can declare victory against the extreme versions of rational expectations economics and join the growing number of economists and financial experts who take seriously the possibilities of market misbehavior and are trying to develop

better understanding of the conditions under which this occurs and the factors that drive behavior under these conditions. In the original use of the term paradigm by Thomas Kuhn, the concept refers to mindsets that are so entrenched that it was difficult if not impossible to communicate across different paradigms. Fortunately with Soros's looser use of the term there is no reason to rule out fruitful dialogue between his new paradigm or perspective on financial markets and a broad group of economists and financial experts.

The New Edition

After this essay was composed, a new paperback edition of Soros' book was published with four additional chapters and appendices giving two of his columns in the Financial Times and his Congressional testimony. These additions give a useful overview of the worsening of the crisis after the Lehman Brothers bankruptcy, a critique of Henry Paulson's efforts to contain the crisis, insightful comments on the situations in a number of other countries and Soros' proposals for economic recovery. I found especially valuable his discussion of the advantages of the Danish mortgage system; and his proposal for dividing the major banks into good and bad bank components rather than establishing a national aggregation (bad) bank.

From the standpoint of methodology his chapter 12 on "The Fate of the New Paradigm" is quite interesting. He acknowledges that his approach has not become as widely accepted as he had hoped and hence does not yet enjoy the status of a paradigm. He discusses some of the reasons that have been given to him for why his approach hasn't been more widely accepted. He also gives more attention to behavioral economics

and evolutionary systems theory. He indicates that he has "... followed their development with great interest, and [recognizes] their merits ... yet [he worries] that they leave out some important insights" (p. 217).

This is a view I strongly share. My central argument is that we are still in the early stages of a process of developing a better understanding of why financial markets sometimes go haywire: I believe it is extremely unlikely that any one approach will hold the full answer. In places Soros sounds sympathetic to this broader approach, but at other places he still views these other approaches as completely competitive with his own – pure substitutes not complements. Thus he asserts, without any detailed explanation, that reflexivity explains the blow-up of Long Term Capital Management in 1998 better than behavioral economics. Right or wrong, this is point is moot, as no good behavioral economists would argue that behavioral economics could give a complete explanation of LTCM. Their claim would be the more modest, but likely accurate, one that behavioral biases can help contribute importantly to the full explanation.

While Soros criticizes behavioral economics as being more rudimentary than reflexivity or indeed even the efficient markets hypothesis "because it does not formulate any overarching hypothesis" (p. 219) this could be seen as a virtue rather than a limitation. Too often, social scientists jump to grand theories before sufficient study has been undertaken of their key underpinnings. I believe it is extremely unlikely that we will ever develop any grand unified theory of financial market deviations from equilibrium. Efforts to jump directly to such theories may yield much less insight than humbler efforts to understand the variety of mechanisms that may be at work and the conditions under which markets are more likely to behave in one manner or another.

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