

Epistemic Bubbles: A Communication Theory of Collective Valuation Errors

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An ‘asset price bubble’ is a market phenomenon that is a special case of a more general communication phenomenon. Both market and non-market institutions are inhabited by organizations that are governed by a particular institutional logic. Through a process of casuistic stretching (Burke, 1937/1959, pp. 229-232), I apply the concept of a bubble to many non-market phenomena. I contend that bubbles ultimately are epistemic events that are structured by the communication system in which they occur. The steering media of an epistemic system are arguments concerning the value search strategies. In the public sphere, these arguments look straightforwardly like traditional arguments. In the market, when understood as a communication system, actors make system-specific arguments by buying and selling. Though there are obvious differences between these types of arguments, I argue that by viewing them as members of a larger set, the asset price bubble phenomenon may be extended analogically to non-market concepts, leading to productive insights about the role of communication in social epistemology, and in particular, the ways in which the growth of systematic valuation errors is mediated by communicative processes.

Asset Price Bubbles

It is useful to consider how the bubble concept operates in the world of public discourse. Further, as a study in applied epistemology, an analysis of the

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communicative aspects of a market bubble may offer insights to financial economists who have traditionally focused on the material at the expense of the symbolic (Brown, 1987; Goodnight & Green, 2010; Graff & Birkenstein, 2007; McCloskey, 1985; 1994; 2002; 2010; Szenberg & Ramrattan, 2004).¹ The opposite error is committed when the material is neglected in the study of human symbol use. Sahlins (2004/1976) advanced this argument in support of his rejection of the “procrustean opposition of 'idealism' and 'materialism' by which the discussion customarily proceeds” (p. ix). This suggests the desirability of speculative interdisciplinary work that examines material economic phenomena in terms of their symbolic and communicative components, as well as work that examines symbolic and communicative phenomena in terms of their material economic components (Aune, 2001; 2003; 2006; 2009; Cloud, 1994; 2002; Cloud, Macek, & Aune, 2006; Greene, 1998; 2004). Furthermore, though the vast majority of relevant stakeholders in any economic policy fail to have real purchase on the *techné* of economic discourse, an asset price bubble circulates through the public sphere as a trope, working both as an explanatory heuristic and as a normatively potent dialectical term.

Many possible causes of asset bubble formation have been offered, both by professional economists and by members of the public. One particularly prominent example is speculation. One example of an explanation of asset bubbles that relies on speculation is the ‘greater fool’ hypothesis, which Lei, Noussair, and Plott (2001) observe is frequently offered as an explanation by members of the public. This hypothesis posits that market participants realize that an asset’s increasing price is not sustainable, but choose to buy the asset anyway under the assumption that an even greater fool will buy the asset from them at an even higher price. If this

¹ These authors are not examples of this error; rather they are social scientists who have recognized the problem. McCloskey (1998) argues that interdisciplinary research, particularly involving communication, is the *sine qua non* of high quality economic scholarship: “What distinguishes good from bad economists, or even old from young economists, is additional sophistication about... rhetoric” (p. 6).

hypothesis is true, then it would be rational for market participants knowingly to participate both in bubbles as well as in intentionally fraudulent Ponzi schemes. Indeed, the most rational participant would not buy an asset based on whether she thought it was a good investment in a vacuum, but would rather consider what other market participants are likely to think are good investments, with the knowledge that the other market participants are likely engaging in a similar strategy. Thus, if a market participant thinks a particularly foolish behavior is likely, she would be rational to perform that behavior as long as she thought she could avoid being the ‘greatest fool.’ Though an extremely popular explanation, the ‘greater fool’ hypothesis has not been supported by empirical data. Indeed, Levine and Zajac (2007) suggest that bubbles are caused by social knowledge – even when uncertainty is minimized, people tend to observe the behavior of others and adopt it as their own. Moreover, when asked to provide reasons for their decisions as they were making them, market participants did not indicate that they were aware of bubbles in which they participated, disconfirming the essential premise of the ‘greater fool’ hypothesis.

Perhaps speculation is to blame, though in some form other than the ‘greater fool’ hypothesis. On the one hand, speculation seems absolutely essential to the formation and behavior of an asset bubble – indeed, asset bubbles are sometimes called ‘speculative bubbles.’ On the other hand, experimental research has problematized this understanding. Lei, et al. (2001) examined the ‘speculative hypothesis’ that “bubbles occur because of the possibility of capital gains” (p. 834). Under this hypothesis, prices of an asset rise as people believe that they are going to continue to rise, and that they will thus be able to sell the asset for a profit. If there were a situation in which the realization of capital gains is impossible, this hypothesis predicts that a bubble would not form. An artificial market was created in which each agent was limited to either buying or selling – one could not buy with the intention of selling later for a profit. In this market, the only benefit gained by buying an asset

was the dividend it paid, that amount of which did not depend on the price of the asset. Contrary to the speculative hypothesis, this market quickly turned into an asset bubble. The researchers concluded that while speculation is often a feature of asset bubbles, speculation is not necessary, and speculation by itself is not an adequate causal explanation. Instead, the researchers suggest that the bubbles in this experiment begin as a result of confusion and misunderstanding about rational decision-making. As the participants gained clarity about the nature of the market they were operating in, and were able to see the behavior of other participants as irrational, they adjusted their own decision-making rules, resulting in the ‘crash.’ In other words, the crash of a bubble is communicative: “the market crash is the vehicle whereby the newly established rationality of market participants becomes common knowledge” (p. 858).

Along similar lines, Smith, Suchanek, and Williams (1988) found that asset bubbles occur even in sequences of single-period markets in which asset holdings are reset prior to trading in each period, thereby eliminating the possibility for participants to achieve capital gains between periods. In this way, speculation was not completely eliminated, but its effects were controlled. The results challenge “the conjecture that bubbles with experienced subjects are caused by expectations of a bubble created in markets in which the subjects acquired their experience” (pp. 1149-1150). In other words, bubbles do not arise from the internalization of a logic that underlies markets in which bubbles do occur. Further, the researchers in this study found that when complete knowledge about an asset’s dividend value is disseminated to all market participants, and all market participants know that everyone else has complete knowledge, bubbles still occur, challenging the notion that bubbles occur due either to incomplete knowledge or to the assumption that others have incomplete knowledge. Instead, the authors suggest that bubbles occur because there is uncertainty about how others will behave even when they have complete

knowledge. If this is the case, ‘uncertainty reduction theory’ may help to explain the formation of bubbles. Berger and Calabrese (1975) argue that strangers who are uncertain about one another will communicate in order to reduce that uncertainty. Along these lines, the early stages of a bubble might be thought of as communicative attempts to reduce uncertainty. If this is the case, it should follow that the reduction of uncertainty by other means should reduce the frequency and severity of asset bubbles.

If bubbles are the result of confusion and uncertainty, even in situations in which all market participants have complete knowledge about the asset in question, and they are all aware that they all have this knowledge, perhaps bubbles arise as a result of bounded rationality; Simon (1991) suggests that there are “limits upon the ability of human beings to adapt optimally, or even satisfactorily, to complex environments” (p. 132). Against the hypothesis that humans always attempt to maximize utility based on the knowledge available to them, Simon (1978) maintains that any theory of rationality “must be quite as much concerned with the characteristics of rational actors – the means they use to cope with uncertainty and cognitive complexity – as with characteristics of the objective environments in which they make their decisions” (pp. 8-9). The suggestion that the rationality of market participants is bounded by the environment of the market supports the conclusion of Lei et al. (2001) that market participants are capable of rationally pricing assets only after the rational expectations of the participants have diffused across the market. This is also consistent with Porter and Smith’s (2003) finding that in experimental stock markets, even when the expectations of dividend performance are communicated in advance, people do not act as if they have a rational common expectation of value until after their behavior is coordinated through participation in market exchange. In contrast, however, Levine and Zajac (2007) found that market participants could more accurately price assets before participating in a market than after. Moreover, they

found that asset pricing mistakes not only increase as people participate in the market—those mistakes are serially correlated, suggesting that mimesis occurs and increases in frequency over time. Yet if rational expectations diffuse throughout a market over time, thereby causing the bounded rationality of the market to look more and more like marginal (utility-maximizing) rationalization, we would expect the opposite.

On the other hand, bounded rationality may still explain the existence of asset bubbles if there is some element of the market environment that encourages bubble-forming decisions to be made, even when information about rational expectations is complete and the market is efficient. This would be the case if, for example, certain markets possess an intrinsic tendency toward disequilibrium. Traditional economic theory relies on the assumption that markets are, for the most part, in equilibrium, for the same reasons that lead to the efficient market hypothesis, articulated above. Even if markets are not informationally efficient, the basic elements of the efficient market hypothesis (i.e., that people are motivated to make money and that the market price reflects the aggregate of the information gathered by market participants) still predict that the general direction of a market should be toward an equilibrium, except when temporarily disrupted by uncertainty or confusion. The most recent financial crisis suggests that uncertainty and confusion are in some way built into the communicative structure of the market. Buchanan (2008) points to recent models that suggests that when leverage reaches a certain critical point, the market becomes completely unstable, as single mistakes (which are inevitable) ripple through the market, creating cascades of failures throughout the entire system. Just as a private investor who fails to build a balanced portfolio is exposed to personal risk, a market dominated by leveraging has failed to diversify its 'portfolio.' Likewise, a communication system in which a variety of different ideas, belief systems, and communicative styles are able to flourish in harmony, and in which the success or failure of a typical communicative act is largely independent of

the success or failure of some other communicative act, is ideal. Individual communicators are also typically better off communicating with a variety of people with a wide range of views and experiences than those who mostly communicates with people very much like themselves.

Another proposed explanation of the etiology of asset bubbles is that the decision-making ability of market participants is systematically distorted by artificial money supply expansion. Absent manipulation by a central bank, the money supply is determined by the aggregate rate of time preference of all market participants. This is because lenders, having a relatively low rate of time preference, must find borrowers with relatively higher rates of time preference; the supply and demand for money will set its 'price,' the interest rate. A central bank, however, can manipulate the supply of money by changing reserve requirements, by changing the discount rate (the interest rate the central bank charges private banks on loans made to meet the reserve requirement), by purchasing government bonds and other financial assets ('quantitative easing'), and by printing paper money. When a central bank acts to increase the supply of money, the time preferences of consumers remain the same, resulting in an increased investment in 'higher order' goods (roughly, the means of production) even though the demand for those goods has not increased, resulting in a 'boom.' In this perspective, the efficient market hypothesis would be true if there were no central bank—with an increased supply of money, investors systematically under-react to risk, resulting in the first part of the asset bubble. The boom is unsustainable, however, because consumers periodically reevaluate the ratio between their saving and their consumption, which results in the liquidation of inefficient investments—or, in other words, the second half of the bubble. French (2006; 2009) analyzes the most recent asset bubbles in the United States along these lines, as well as earlier bubbles like 'Tulipmania' (1637), the 'Mississippi Bubble' (1719-1720), and the 'South Sea Bubble' (1720). A similar analysis has been offered by Hoppe (2004).

(Of course, a modern central bank did not exist in seventeenth century Holland, but Hoppe and French argue that the money supply was inflated by the monarchic practice of ‘coin-clipping.’)

Epistemic Bubbles

Markets qua markets involve the valuation of assets, which are finite and thus entail opportunity costs for market participants. I propose that institutions, of which the market is only one example, all involve the valuation of some finite good that entails some sort of opportunity cost for those who choose to ‘consume’ it. Asset bubbles are characterized by the systematic and unsustainable over-valuation of an asset, a process that occurs not in spite of market logic but as a result of its correct application within the limits of bounded rationality. In the subsequent crash, the asset’s value rapidly decreases, and at the end of the bubble, market participants have less confidence in the market than they had before and during the bubble. Perhaps the idea that one cannot really diagnose a bubble until after it collapses is important, though it seems like one of the features of a bubble is that (some) people might be aware of its existence, publicly take advantage of that knowledge, and still not stop the bubble from naturally running its course – if this seems to be occurring in non-market contexts it might constitute evidence for the ‘greater fool’ hypothesis. Asset bubbles are caused necessarily neither by incomplete knowledge nor by speculation (though speculation seems especially important to the process in some yet to be elucidated way)—we should expect the same to be the case of non-market bubbles.

Like other institutions, the market is an open system that cannot be understood inductively – its behavior cannot be predicted with certainty, nor can it be characterized by probability distributions that allow us to apply non-Bayesian strategies for dealing with uncertainty. There is no ‘average’ version of Intel, for example, that our particular version of Intel (the one we see on this earth) tracks. If

some people are aware of bubbles while they occur, we should not be limited to post-hoc identification. But there are also people who mistake a non-bubble for a bubble – those who eschew strong investments because they believe incorrectly the rising value of an asset to be a fad. Some things that look like bubbles turn out to be ‘real,’ suggesting that we cannot identify a bubble as it is occurring, even though many people may feel like they do. Whether talking about institutional logics or specific asset prices, we should always keep in mind that our knowledge always is incomplete and never is reliably bounded by some frequency distribution. There is some tiny possibility that any seemingly stupid idea is world-transformingly right and, conversely, that any ‘obviously true’ bedrock of civilization is wrong.

The notions of speculation, incomplete information, uncertainty reduction, and bounded rationality lend themselves to general application (if this is unclear, it should become less so after I discuss possible examples). Yet if the Austrian view is correct, asset bubbles may only arise when the money supply is inflated by a coercive non-market agent (generally the state). Just as in the market the money supply can be inflated, the transactional media of non-market systems can similarly be inflated. The money supply in the market is set by the cost of borrowing set by the least accountable bank – in the United States, this is the Federal Reserve Bank. Even though the Fed is constrained rhetorically to some degree, we may assume the Fed's policies are ‘exogenous.’ We may also assume that the penalties of loan default (i.e., bankruptcy rules), as well as the rules governing the evaluation of loan candidates, are fixed. Consequently, risk is assessed with reference to the interest rate, which translates to the money supply (these other factors could be used to amplify or mitigate money supply effects, as is currently the case, when the Fed keeps rates low while banks are still raising loan standards). The cost of borrowing shifts the risk of the borrower's activities between borrower and lender.

I'd like to describe this ‘activity’ as a *search activity*. This keeps it general and

tied to the literature on bounded rationality, as well as to Kuhn's (1962/1936) theory of paradigmatic revolutions in science. In terms of a 'search,' both the borrower and the lender bet that the borrower will find a technique permitting her to pay back the loan before the money runs out. When the cost of borrowing is low, the lender takes on more risk, predicting that this technique will be found. When it thinks that the technique will be harder to find, it pushes risk onto the borrower by raising rates. Thus, an expansion in the money supply can be seen as the source of a special, macro-economic case of an institutional belief that new discoveries are forthcoming. This belief is marked by the distribution of discovery risk away from discoverer and onto lender/patron of discovery. Necessarily, when this risk is shifted, borrowers respond. When the money supply expands, borrowers take more risks because they bear less of the risk that they take. But whether this leads to bubbles has to do with what kinds of things, if any, they find with their searches, rather than simple fact that they search more. I would hypothesize that expansions in the money supply lead to bubbles when what is found by borrowers are rhetorical techniques for exploiting information asymmetries (between borrower and lender) rather than productive techniques that increase knowledge. A pyramid scheme is just one such rhetorical technique. No-principle loans are another (note, the asymmetry here is between mortgage broker as borrower and Wall Street as lender, with home-owner as an evidentiary pawn in the rhetorical game). Bubbles would occur when the money supply is expanded and the ratio of discoverable information asymmetries to productive techniques is high. Basically, money supply is expanded, and since there is nothing useful to do with the money, people invest the borrowed capital in getting good at sophistry.

Thus, we may casuistically stretch the money supply concept to non-market institutional contexts. In order to do so, we must discover parallels to the linkages entailed in markets that contain high amounts of leveraging. Interconnectedness is

problematic for markets when the negative consequences of investing in poor search strategies are felt too widely across the entire market. Since this in and of itself does not require the steering media of money, this phenomenon can occur in institutions in which organizational actors are so closely connected that the mistakes of one actor result in negative downstream consequences for the entire institution. Just as with markets, we should expect this process to be non-linear.

Communication and the Scholarly COMMunity

Communication is all about connecting disparate people, organizations, societies, and ideas; though consensus is often not practically achievable, the grounds of a disagreement should be made clear to anyone who is trying to arrive at some sort of mutual understanding with another about some given thing. The social sciences, as a group, bridge the world of natural science and the humanities, borrowing from the methods of each, thereby illustrating the ways in which the immutable, deterministic, and once mysterious laws of nature may interact with and become relevant for human actors who have agency but who are also constrained by social structure (which, incidentally, is produced through acts of human agency). Communication stands out as the key social science because it focuses on the variable that makes all of this possible. It is fitting, then, that the Communication discipline deploy planned incongruity as much as possible, taking ideas out of their original context and testing their functions, insights, and limitations when placed in an alien context. By taking the asset bubble concept and placing it in an institutional setting, an idea created by economists suddenly becomes relevant to political scientists, psychologists, criminal scientists, anthropologists, sociologists, etc. In this way, this type of research program *performs* Communication. The social sciences, institutionally, do not speak to one another coherently. New researchers must think about how their research fits into the larger project of social science, especially given the conditions of late modernity. Since the task is communicative in nature, Communication scholars have a special

responsibility.

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