

Bubbles: Some Perspectives (and Loose Talk) from History

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Bubbles are a topic of great importance and great controversy. This paper discusses alternative perspectives on the economic meaning and origin of bubbles. Drawing on historical approaches to bubbles, this article sets out a taxonomy of approaches used to explain the nature of bubbles. The paper also considers issues connected with the scientific thinking surrounding bubbles. (*JEL G12, B0, E30*)

When the conference organizers asked me to give a short lunch talk on the topic of bubbles, my first response was to decline. This reticence stemmed not from a lack of interest on my part, but rather from a sinking feeling that any such talk was doomed from the start. I knew the cause of this foreboding. Several years ago, I organized the AFA meetings and had the privilege of putting together what turned out to be the last Proceedings issue. Among the papers I included in the issue was an analysis by Jay Ritter and Ivo Welch of IPO behavior over the 1990s.¹ Shortly after the issue appeared, I was copied on an e-mail written by a very senior finance person to his departmental colleagues. While the merits of the specific article seemed not to be in question, the author of the e-mail was irate that an editor would allow such loose talk and unscientific thinking to appear in a major finance journal. What was this loose talk and unscientific thinking that so outraged our colleague? It was the use of the word “bubble” to describe the behavior of Nasdaq stock prices over this period.

How can “bubble” trigger such a strong reaction? Certainly, it caught me by surprise, but a quick review of some history in the area suggests that bubbles have long played to “mixed reviews” in the economics and finance literatures. The focus of my talk today is on this issue of bubbles. My intent is to give a very short review of the thinking on bubbles over time, and along the way I will also take a short sojourn to consider the evolving nature of scientific thinking in this regard. My comments should not be viewed as a survey of current work on bubbles (for more formal discussion and review, see Brunnermeier, 2001; 2007), but rather more of an attempt to provide some perspective on how

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¹ See Ritter and Welch. 2002. A Review of IPO Activity, Pricing and Allocations. *Journal of Finance* 57(4):1795–1828.

bubbles have been viewed in the past and perhaps how best to view them going forward.

1. What is a Bubble?

It would seem that a natural starting place for any discussion on bubbles is to set out what is actually meant by the word “bubble.” Unfortunately, even this definitional step is problematic. Peter Garber, in his book *Famous First Bubbles*, argues that a bubble is “a fuzzy word filled with import but lacking any solid operational definition.”² He suggests that a bubble is best viewed as “a price movement that is inexplicable based on fundamentals.” Under this view, bubbles could be positive or negative. Alternatively, he notes that Palgrave’s *Dictionary of Political Economy*, published in 1926, states that a bubble is “any unsound undertaking accompanied by a high degree of speculation.”³ Of course, one challenge with this definition is that one can only know something is unsound *ex post*, suggesting that a bubble can only be determined after it has occurred.

Charles Kindleberger, in his book *Manias, Crashes, and Panics* (1996), proposes that “a bubble is an upward price movement over an extended range that then implodes.”⁴ A related notion was explored by James Van Horne in his AFA Presidential Address “Of Financial Innovation and Excesses” (1985). He argued that “a balloon might be a better metaphor for certain financial promotions. It is blown up, to be sure, but not to the extent that it pops. The eventual deflation is less abrupt.”⁵ I suspect that those uncomfortable with the word bubble will not find much solace in the balloon concept either. Perhaps, a less controversial approach is to adopt Brunnermeier’s (2007) description that “bubbles are typically associated with dramatic asset price increases, followed by a collapse.”⁶

If we cannot agree on the exact definition, do we at least know a bubble when we see one? The British Parliament thought so, passing the “Bubble Act of 1720,” which among other things forbade the issuance of stock certificates (a rather extreme reaction to the chaos surrounding the South Sea Company debacle). But others are less sure. Garber (2000) cautions that “bubble explanations should be a last resort because they are non-explanations of events, merely a name we attach to a financial phenomenon that we have not invested sufficiently in understanding.”⁷

² See Garber (2000), *Famous First Bubbles*, p. 4.

³ Garber (2000), p. 7.

⁴ Kindleberger, (1996), *Manias, Crashes, and Panics*, p. 13.

⁵ See Van Horne (1985), p. 628.

⁶ See Brunnermeier (2007), p. 2.

⁷ See Garber (2000), p. 124.

What could cause bubbles? Interestingly, there is a long history of potential explanations to this question. Adam Smith (1776) argued that that it was due to “overtrading.” While this term appears a bit vague today, it apparently was better understood in earlier periods. Lord Overstone, writing in the 1860s, explained asset price behavior as arising from a cycle, beginning with quiescence, and then moving on to improvement, confidence, prosperity, excitement, overtrading, convulsion, pressure, and stagnation, before returning finally to quiescence.⁸ While this detailed cyclical approach seems promising, it does leave unanswered the question of what starts all of this in the first place? Kindleberger (1996) suggests that it is “displacement,” which he defines as “some sudden advice many times unexpected.”⁹ Wicksell argued instead, that it was due to interest rates being too low. A related explanation was put forth by N. W. Posthumus (1929), who attributed it to the entrance of nonprofessional buyers fueled by credit.¹⁰

These explanations are provocative, but not exactly definitive. None of these explanations yields an operational way to establish empirically the existence of a bubble, nor do they provide a basis for predicting the emergence of such a phenomenon. In this sense, the criticism of “bubbles” as being unscientific seems well founded. But it remains the case that asset prices do, at times, appear to be inexplicable relative to at least theoretically underlying fundamental values. And it is from this vantage point that most research on bubbles has proceeded, assuming as it were a “true” value that should anchor asset prices. Given this construct, let us now consider how economists have addressed the origins of bubbles in asset markets. A particularly interesting divergence over time has been the role played by the rationality or irrationality of traders and markets in economic theories of bubbles.

2. Theories of Bubbles

2.1 Rational traders, rational markets

Neo-classical economics generally views market behavior as the aggregation of individual behavior. In an important paper, Tirole (1982) demonstrated that if traders have completely rational expectations and the same information sets, then bubbles would not occur. This general equilibrium result on the nonexistence of bubbles essentially arises because any transaction in a bubble that would make the seller better off would make the buyer worse off, and so, given that they have the same information sets, no trade would actually occur. Brunnermeier (2007) demonstrates how a similar nonexistence result can arise in a finite horizon partial equilibrium model in which rational traders are unconstrained in their ability to sell (or short-sell) the asset.

⁸ See Kindleberger (1996), p. 83.

⁹ See Kindleberger (1996), p. 35.

¹⁰ Cited in Garber (2000), p. 46.

Rational bubbles can occur in infinite horizon models (see Blanchard and Watson, 1982), although the conditions needed to support them are fairly stringent and generally require that the asset price bubble not emerge over time, but instead predate the trading of the asset. Similarly, if there is asymmetric information, then bubbles can arise even in finite economies (see Allen, Morris, and Postlewaite, 1993). A more recent literature has exploited an inability to arbitrage to support the existence of rational bubbles (see, for example, Heston, Lowenstein, and Willard, 2007).

2.2 Rational traders, irrational markets

An alternative view in history is that bubbles can emerge if traders are rational, but markets are irrational. Kindleberger (1996), for example, has a subchapter entitled “Rationality of the Individual, Irrationality of the Markets.” What drives this market irrationality for Kindleberger is the fallacy of composition. Each trader believes that he can sell at a higher price, and if he can, in fact, do so, then it is rational for him to buy. But, Kindleberger argues that not everyone in the market can do so, so it is irrational for the market as a whole.

A variant on this irrationality of the market theme underlies Keynes’ (1935) famed beauty contest analogy. Keynes argued that individuals do not pick stocks based on what they think the firm is worth, but rather on what they think other people will think it is worth (the beauty contest).¹¹ So in this setting, each individual is acting rationally but the market overall is not. This behavior is captured in the famous dictum generally attributed to Keynes that “Markets can stay irrational longer than you can stay solvent.”

2.3 Irrational traders, irrational markets

Perhaps not surprisingly, another approach to explain bubbles supplements irrational markets with irrational traders. The notion that somehow markets are swept up in “manias,” and that this can cause bubbles is a recurrent theme in Kindleberger (1996). But echoes of this sentiment can be found much earlier. Issac Newton, for example, who in addition to his many well-known accomplishments was also a disappointed investor in the South Sea Bubble, opined that “I can calculate the motions of heavenly bodies, but not the madness of people.”¹² Indeed, VanHorne (1985) expresses a similar sentiment 200 years later when he writes “A bubble implies irrational behavior . . . A speculative fever eventually grips them.”¹³

James Surowiecki (2004), in his book *The Wisdom of Crowds*, draws attention to Charles MacKay’s (1841) *Extraordinary Popular Delusions and the Madness of Crowds*. MacKay had a dim view of the intelligence of individual traders, and an even dimmer view of the collective intelligence of the market, commenting,

¹¹ See Keynes, *The General Theory of Employment, Interest and Money*, p. 156.

¹² Cited in Malkiel (1985), *Random Walk Down Wall Street*, p. 37.

¹³ See Van Horne (1985), p. 627–28.

“Men, it is well said, think in herds. It will be seen that they go mad in herds, while they only recover their sense slowly, and one by one.”¹⁴ Clearly, MacKay might feel right at home reading some of today’s behavioral research. But he is not alone in expressing these sentiments. Bernard Baruch, the famous Wall Street investor of the early 1900’s, took an even dimmer view of the rationality of the market, opining: “Anyone taken as an individual is tolerably sensible and reasonable—as a member of a crowd, he at once becomes a blockhead.”¹⁵

2.4 Irrational traders, rational markets

Finally, we can expand the taxonomy to consider irrational traders and rational markets. Here, Garber’s (2000) analysis of the “Tulip Bubble” may come into play. Often cited as a quintessential example of a bubble, the tulip bubble arose in Holland in the years 1634–1637. During this period, tulip bulb prices rose dramatically, with prized specimens allegedly selling for the equivalent of more than \$30,000. Starting in 1637, however, prices collapsed, ending the first of the great bubble episodes.

Garber (2000) argues, however, that it is not clear there was a bubble at all. His thesis is that new species of tulips are always prized, with their prices often increasing dramatically and then falling rapidly thereafter. Data problems in ascertaining actual tulip prices are nontrivial at this time, but there appeared to be no economic distress following the end of the craze as might have been expected in a bubble. Moreover, the role of the bubonic plague decimating Europe at that time may have played a role. He concludes that this “was no more than a meaningless winter drinking game, played by a plague-ridden population that made use of a vibrant tulip market.” He further argues that: “The wonderful tales from the tulipmania are catnip irresistible to those with a taste for crying bubble, even when the stories are obviously untrue. So perfect are they for didactic use that financial moralizers will always find a ready market for them in a world filled with investors ever fearful of a financial Armageddon.”¹⁶

Whether there was or was not a tulip bubble is beyond my scope here, but the contention that the market may not have been out of line even though traders were pursuing potentially irrational strategies is interesting. Certainly, the historian Thomas Carlyle did not believe this, noting, “I do not believe in the collective wisdom of individual ignorance.”¹⁷ But a modern view more sympathetic to the market is expounded by Ross (2005), who has argued that modern finance never said, nor required, that individual investors be rational. What matters is that there are a few sharks, or arbitrageurs, who wait for opportunities and then pounce. This makes markets behave “rationally” even

¹⁴ See Surowiecki (2004), *The Wisdom of Crowds*, p. xv.

¹⁵ See Surowiecki (2004), p. xv.

¹⁶ See Garber (2000), p. 83.

¹⁷ See Surowiecki (2004), p. 70.

if individual participants may be irrational. To the extent that this occurs, then we are back to the “no bubbles” outcome even with irrational traders.

3. Loose Talk Revisited

Before concluding, I want to revisit the issue of loose talk and unscientific thinking. Clearly, views on bubbles have evolved over time, but is this also the case for what constitutes unscientific thinking? This is a lunch talk, not an invited lecture series, so I will put forth here only a quick observation from an intriguing book entitled *The Landscape of History* by John L. Gaddis (2004). He argues that “Whatever the explanation, the issues involved here get to the heart of what is meant to be “scientific.” It certainly means seeking a “consensus of rational opinion over the widest possible field.” But I think, it also means connecting that consensus with the real world. When the only way you can get a consensus is to detach it from reality—when you value more highly the structure of your generalization than the substance they convey—then it seems to me that you risk a return to the kind of thinking that existed before the scientific revolutions of the seventeenth and eighteenth centuries, when the findings of Aristotle, or Galen, or Ptolemy were taken as authoritative despite contradictory evidence that lay before everyone’s eyes.”¹⁸

Are there bubbles? Are markets really irrational? I am not sure. I do know that markets are very hard to predict and thus can seem “irrational.” But I prefer a more neutral view. To correct Keynes, “Markets can remain intransigent longer than you can remain solvent.” Perhaps the best advice, quoted in Malkiel’s *Random Walk down Wall Street*, is Oskar Morgenstern’s dictum that “A thing is only worth what someone else will pay for it.”¹⁹ This will be true whether in a bubble or not.

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¹⁸ See Gaddis (2004), *The Landscape of History*, p. 70.

¹⁹ See Malkiel (1985), p. 25.

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