Manias, Panics, and Rationality

BY CHARLES P. KINDLEBERGER*

It is a great pleasure for me to offer this lecture to honor my friend and colleague, Paul Samuelson. I wish I could call him my mentor too, but that would be hubris, as I cannot understand half, say two-thirds, of what he produces in economics—nor do I always agree with what I do understand. If I am an inadequate witness to his greatness as a scientist, however, I can testify to his greatness as a human being. As he has mockingly said on occasion, "ours may not be the best fraternity on the campus (read economics department in the area), but we have the most fun." His support, patience, and tolerance of some of the rest of us whose heads do not move as fast, as deeply, or as fast as his have set the tone of the place I have worked in with so much satisfaction these last 29 years, and I am delighted to have a chance to put on record my gratitude to him.

My subject this evening derives from a larger project "Manias, Bubbles, Panics, Crashes, and the Role of the Lender of Last Resort." It is one that I approach historically, going back to the beginning of the 18th century, rather than with mathematical models or econometric testing. Models are possible, I am told, but for them one needs tools like differential topology and catastrophe mathematics, which, along with virtually all other mathematics, I lack. I have no econometrics either, but I am told that this is no drawback, as econometricians are obliged to deal with, say, panics with dummy variables.

A little literary theory and history then will have to serve us.

Part of the interest in the topic stems from another New England occasion in 1969 when I gave a paper on flexible exchange rates at Bald Peak in New Hampshire for the Federal Reserve Bank of Boston and had the harrowing experience of having as my commentator, a New Englander (from Ely, Vermont), by name Milton Friedman. In the course of his incisive remarks (I deliberately choose that adjective as I think of his incisiveness), Professor Friedman said that there had never been a case of destabilizing speculation on record. I questioned this the next morning at breakfast in a group in which Friedman was not present and William Poole offered the opinion that perhaps Friedman had in mind a particular definition of destabilizing speculation which he, Poole, thought tenable, i.e., that speculation was destabilizing when someone took a position which was evidently irrational in the light of the information available to him. (Parenthetically, Friedman with whom I corresponded at some length on the issue did not acknowledge this or any other of the five or ten possible definitions I offered him.)

More recently the MIT/Chicago tables were reversed and I had the honor to comment at a meeting of sociologists in Philadelphia on a paper of Harry Johnson's on "The Role of Networks of Economists in International Monetary Reform." In describing the differences between the Bellagio network (that was older and the Chicago-Kocher-Manchester-Dauphine-Geneva network, he said:

"The difference can be encapsulated in the proposition that, whereas the older generation..."
of economies is inclined to say 'the floating rate system does not work the way I expected,' therefore the world is wrong, the world is irrational and we can only retire (see, repeat?) rationality by returning to some sort of fixed rate system to be achieved by cooperation in national governments, the management among national governments, the younger generation is inclined to say 'the floating rate system is a system that should be expected to operate rationally, like most markets; if it does not seem to work rationally by my standards, my understanding of how it ought to work is probably defective; and I must work harder at the theory of rational maximizing behavior and the empirical consequences of it in the behavior of a floating rate system if I am to achieve understanding.' This latter approach is the one that is being disseminated, and intellectually enforced, through the network (see, network?)

My immediate reply was that no enforcer has successfully worked on me.

The a priori assumption of rationality is a difficult one to sustain with any serious reading of economic history, the pages of which are strewn with language that is imprecise and possibly hyperbolic of manias, insane land speculation, blind passion, financial orgies, frenzies, feverish speculation, epidemic desire to become rich quick, wild self-belief, intoxicated investors turning a blind eye, investors living in a fool's paradise, people without ears to hear or eyes to see, easy credit, overconfidence, overproduction, overtrading. The firm of Overend, Gurney which crashed on Black Friday in May 1856 was said to consist of 'saintly miscreants' by 0. T. H. Bucknham of it

"their losses were made in a manner so reckless and foolish that one would think a child who贷款 money in the City of London would have lost it better." 

Clapham's description of the Baring firm in 1890 is undervalued in characteristic British fashion:

"They had not considered these enterprises or the expected investors in them costly or wildly enough" but had..."gone far beyond the limits of prudence." Or perhaps you prefer rich language of Adam Smith on the South Sea bubble: It was naturally to be expected therefore that "foolish, negligent and profuse care should prevail in the management of their affairs. The knavery and extravagance in their stock-jobbing projects are sufficiently known ... and the negligence, profligacy and misapprehension of their servants." But let us approach rationality and irrationality more systematically. On the basis of the historical evidence, rationality cannot be regarded as a description of human behavior, good or bad, in all times and places, as the previous paragraph shows and what follows will reinforce. It is, however, a useful hypothesis for long-run analysis. In methodology, it could be used to analyze economic affairs, in the long run, as oh, as if, if they were undertaken by rational beings. Partly there is the Darwinian notion on which Milton Friedman's a priori "proof" of the non-existence of destabilizing speculation rests. In the long run, people go broke buying high and selling low; going broke, they fail to survive economically and hence do not exist. Johnson has recently made clear that this proof makes him uneasy. It should have done more. A working hypothesis for long-run behavior is not, however, necessarily useful for describing events or prescribing policy in the short run. Our task this evening is not to discuss policy - the role of the lender of last resort - itself fraught with dilemmas and ambiguities, but the relationship of rationality to manias and panics, in a word to destabilizing speculation. Let us, as the lawyers say, stipulate manias and panics, and long-run rationality, and see how to connect rationality to the short-run. I can detect in history and in the literature a number of elements which can be combined in different ways at different times, including 1) mob psychology; 2) different stages of a continuing process, that starts rationally and gradually at first, and then more quickly, loses contact with reality; 3) different groups of traders, inventors or speculators, including those at the earlier stages and those at the later; 4) the fallacy of composition; 5) failure of markets with rational expectations as to the quality of the reaction to a given event always to estimate the right quantity, especially where there see lags; 6) irrationality if/ as economic actors choose the wrong model, or subconsciously suppress information that does not conform to the model implicitly adopted; 7) dishonesty, i.e. misrepresentation, malfeasance, malversation, swindles, or, as Daniel Defoe says of stock-jobbing:

"a complete System of Knavery ... a Trade, founded on Fraud, born of Deceit, and nourished by Trick, Cheat, Wheedle, Forginise, Falsehoods, and all sorts of Deceits." An unimportant question is whether those cheated are rational but stupid or irrational and astray.

Mob psychology is something I ask you to take more or less on faith as an occasional deviation from rational behavior. We have its elements in many economic models demonstrating fact, keeping up with the Joneses, getting on the bandwagon. It is discussed by the French economist Gustave Lebon in The Crowd, and has been applied to the South Sea bubble by Charles MacKay in his Memoirs of Extraordinary Delusions and the Madness of Crowds. In our recent history, we are reminded in his recent book Money by Galbraith, who applies it with his usual fond of irony to the 1929 boom and crash, and to much else. Or a new example of what is called the "crowd effect," take the case of the famous case of Martin, the banker, who subscribed 5000 to the South Sea bubble, in the third subscription list in August 1720, saying "When the rest of the world is mad we must imitate them in some measure." Or perhaps we should quote William Huskisson's pamphlet on Depreciation that puts a challenge to the economonomics among you: "The consequences of sudden panic cannot be measured; they baffle all ordinary Calculations." The modern proponent of irrationality in this sense but emphasizing a mild form, is Hyman Minsky who talks of "euphoria" in markets. In an earlier day such waves of excessive optimism (followed by pessimism) might have been tied to monopsony or the path through the sky of planets such as Venus. In Minsky's formulation, they start with a displacement, some structural characteristics of the system, and human error. We come to displacement later. Assume the upside. Optimism sets in. Confident expectations of a steady stream of prosperity, and of prosperity gross profits, make portfolio plumping more appealing. Financial institutions accept liability structures that decrease liquidity that, in a sober expectation climate, they would have rejected. The rise is under way, the seeds of the panic are well planted for ultimate "revulsion" or "discredit," to use the language of the mid-19th century.

The alternative explanation of the unwise upswing goes back to Irving Fisher, his colleague Harry Gunnison Brown, and, ultimately, to Wicksell and emphasizing that the real rate of interest was too low. Risks rise on the upswing, while interest rates fall, implying a fall in the real rate of interest. Lenders have money illusion; borrowers do not. With real interest rates falling, and profits prospects either rising or steady, rational investors expand. Euphoria develops, spreads, and unless it is halted early by some action or other, may develop into a mania. I do not say this inevitably occurs, merely that it happened in the manias of the 1790s, the South American securities mania of the 1820s, the railroad and cotton manias of the 1830s, the railroad mania of the 1850s, the building site mania in Vienna and Berlin in the early 1870s, the Argentine land mortgage bond manias of the late 1880s, and the stock-bond-mania and real estate manias of the 1920s. In due course along the panic of 1745, of 1819, of 1846, 1893, 1907, or in some cases merely a commercial and financial crisis.

Euphoric mania often develops in two stages, a first sober stage, in which investors are interested primarily in the returns on a particular
project, the second in which capital gains play a role. Matthews observes that land was initially bought in the 1830 land sales of the United States for cultivation, thereafter for resale; and that the 1830s railway boom in Britain had two phases, one before 1835 when the projects were not speculative, and the second phase after that date when they were. In the first phase shares were sold by the promoters to local farmers of commerce, Quaker capitalists, hard-handed Lancashire housekeepers, both merchants and industrialists, that is, to men of substance, known to be in a position to pay not only the first 5 or 10 percent payment, but also subsequent calls; in the second, professional company promoters—many of them reigned interested only in quick profits—tempted a different class of investors, including ladies and clergymen. The same is observed of building sites in Vienna, initially bought for construction, later as speculative paper chips for resale. Or follow the Mint's two-stage process in foreign bonds marketed in New York, sound prior to 1924, and the Dawes loan which touched off the boom, inferior thereafter. I have commented on more than one occasion on the fact that successful flotations like the Baring loan to France in 1819 which recycled the indemnity paid to Napoleon war, the Thanes rents regarding the Franco-Prussian indemnity of 1871, and the Dawes loan, acted as "diaparments" in touching off euphoric, second-stage foreign-periodic.

Two stages raise the question of two groups of speculators, the insiders and the outsiders, who have served as Buonformi's and Tesei's answer to the Friedman a priori demonstration of the impossibility of destabilizing speculation. In one of the papers of Harry Johnson referred to earlier, he demonstrates in general equilibriums that for every destabilizing speculator who loses money there in a stabilizing speculator who makes it, and that speculation in the market has deadweight losses and redistributes wealth. The analysis is improved but has some distance to go as it lacks money, expectation, and dynamics. Prices change only after transactions, and not by simultaneous shifts of demand and supply curves intersecting close to or on the vertical axis, i.e., with few or even no transactions, and price changes never have consequences for macro-economic behavior since one party's gain or loss is exactly offset by the other party's loss or gain. This implies no monetary effect inserted you can be told the market will be of the stabilizing Pagos variety. As I read history, the world frequently divides itself into these inside and outside speculators, with those inside destabilizing initially and then stabilizing, defining stabilizing to mean buying when prices are falling when prices rise, and destabilizing in order to gain in the contrary. Some of you may know a recent paper by Larry Wimmer, on the Gold Panic of 1869 in the United States, which purports to demonstrate that there was no destabilizing speculation. Wimmer's paper is helpful in correcting a host of misapprehensions about the episode, but he and I have agreed that the evidence is consistent with a hypothesis that Good and Fisk destabilized not by first driving the price up, and after converting the outside speculators from stabilizers to destabilizers, selling out (at least Gould did), as at the top. It is important to observe in all this that the two sides differed.

In the early stage Gould was trying to persuade the government of the desirability of devaluing the dollar by driving up gold on gold, and出了 the mind in an irrational way, and never for the rest of his life could bear to hear the name South Sea.

Euphoric speculation, with stages, or with insiders and outsiders, leads to manias and panics based on rational behavior on the part of each participant that is irrational overall. This is the fallacy of composition, from aggregation. On the South Sea Bubble Casewell quotes a rational participant:

"The additional rise above the true capital will only be imaginary, one added to one, by any rules of vulgar arithmetic will never make three and a half, consequently all fictitious value must be a loan to some persons or other, first or last. The only way to prevent it to oneself must be to sell out at times, and so let the Devil take the hindmost." 24

DEVIL TAKE THE HINDMOST, Azure out pot, and the like are recipes for a panic. The analogy of fire in a theatre comes to mind. In the literature the only reference to theatres I find is Clapham on the money market panic of December 1, 1825, when there was a rush "like that for the pit of a theatre on the night of a popular performance" a positive instead of a negative simile. 25 Or try the chain letter; no one can get out in time unless the chain expands infinitely. For an example of an up-to-date panic, let me refer to the grain market of 1937.

"Anticipating stable prices, importers (i.e., countries) did not hold any carryovers in excess of working stocks. Came the 1927-33 crop year, the Soviet grain deal, and the knowledge that the United States was no longer a reliable supplier spread fast. The result was panic buying by almost every importer, often much in excess of requirements. The fallacy of composition worked at full speed with buyers trying their (their euphemism) to acquire more and more grain at higher prices than ever before..." 26

Closely akin to the fallacy of composition is the standard cobweb in which demand and supply are linked not simultaneously as in the Walrasian model, but with a lag. "Displacement" occurs—some event that changes the situation and alters expectations. Expectations are normal as to sign, but fail to take adequate account of the strength of similar response by others. I hardly have to explain the cobweb to the young people among you who decided to become econometricians at the peak of demand for our profession, and have emerged on the market at a time when the demand is less brisk. But historical example may be helpful:

When Brazil opened up as a market in 1807 after the Portuguese royal family fled there during Wellington's campaign in the Peninsula, more Manchester goods were sent to that market in weeks than had been consumed there in 20 years, including ice-dates and warming pans that Clapham notes proved to be the accepted illustration of commercial madness among 19th century economists. 27
In the 1820s, independence to the Spanish colonies of Latin American governments marked a boom in lending, investing in mining shares there, and shipping exports to the area that overshot the mark. “The demand is sudden, and as suddenly stops. But too many have acted as if it were likely to continue.”

In the 1830s, says Matthew, there was a cyclical overthrow of two-year periodicity. “Each merchant would be ignorant of the amount other merchants would be bringing forward by the time his own merchandise was on the market.”

“The extraordinary and undue expectations engendered not only in the United States but in this country as to the capability of California—after the 1849 gold discovery—unquestionably aided in multiplying and extending the credit consequent on the American crisis. When it was again and again stated, both in London and in Boston, in regard to all shipments to San Francisco, that six, or at most eight, moderately-sized or assorted cargoes per month were all that were required or could be consumed; instead of that eastern shippers dispatched twelve to fifteen first-class ships a month, fully laden.”

A rather far-fetched line of reasoning led from the hint of phyloxera that ruined many vineyards and set back wine production in Europe and the United States to the 1880s boom in vineyards in Britain, as one after another private brevier went public in the public companies mania. Among them Arthur Guiness and Co bought for £1.7 million, sold for £3.2 million.

Near to the present, but not near at that, is the boom in Britain when businessmen as the end of the war in 1918 thought that they would benefit from the elimination of German competition in coal, steel, shipping, and even textiles. There was an increase in the prices of capital assets, stocks, and equities, that spread to houses. In the spring of 1921 sober realization set in.

There are three more cases on the borderline of rationality that we must discuss before time to furnish only one illustration of each. On the first score, note the failures of the New York Warehouse and Security Company, Kenyon, Cox & Co., and of Jay Cooke and Co. on September 8, 12 and 18, 1873 because of advances they had made to railroads (the Missouri, Kansas and Texas, the Canada Southern and the Northern Pacific) with which they were associated; which railroads were unable to issue bonds because of the tight condition of the bond market, and which needed money to complete construction already well underway. Similarly when foreign long-term lending to Germany stopped in 1928, New York banks and investment houses kept lending at short term because they had a bear by the tail. What does one rationally do in these circumstances? The question is aptly today as the world banking community contemplates its large volume of loans to developing countries and to the Socialist bloc.

The third borderline case is to have a model in mind but the wrong model. The most famous example is French Maginot-line psychology, but this may be thought of less as irrational expectations than as an undistributed lag. In the 1760s Hamburg merchants were not hurt by the fall in commodity prices until the end of the Seven Years War. Thus in 1779 they were totally unprepared for the decline in prices from a brief high in Napoleon's Continental System in 1798, since the war was continuing. Or take the French bankers and industrialists who did not recognize the copper ring in 1888, patterned after the cartel movement in iron and steel, coal, and sugar that began in the early part of the decade and bemoaned by the success of the diamond syndicate in South Africa and the mercury monopoly of the Rutfelderba in Spain. (One notes even today economists who extrapolate from the success of OPEC to price-fixing in practically every raw material and foodstuff.) By 1890 the syndicate held 160,000 tons of high priced copper plus contracts to buy more, with old mines being reworked everywhere, producing of scrap burgeoning, and the price sinking like a stone. From £20 a ton at the top to £3,860, it almost took with it the Compagnie d'Assomption which was saved by the Bank of France.

For the purely irrational, two different sorts of examples may suffice: a society pinning its hopes on some outstanding event that happens to be of no relevance to the situation, and ignoring evidence that points in a direction one prefers not to think about. A useful example of the first is the World Exhibition in Vienna which opened on May 1, 1873. Already by the first of the year, says Wirth, the liquid assets of entrepreneurs were widely exceeded by their liquid liabilities, credit at banks was stretched to the limit, a move from commodities, shares and debt back into money was under way, the chain of accommodation of bills in the system was extended as far as it would go, but the system hung on, waiting for the opening of the Exhibition which was thought, or at least hoped, would save the situation as a Druckex machina by some unknown means. When the opening of the Exhibition produced no change, the market collapsed on the 5th and 6th of May 1873. For the second example I prefer not to think about my experience in military intelligence in World War II, being fooled by the German cover plan which diverted attention from the Ardennes offensive, but refer once again to Beyon's remark noting German failure to restrict short-term borrowing in the late 1920s; he suggested that the dangers were not faced inside Germany, even by Schacht, and added: "It would not have been the first nor the last time…that consciousness was being repressed.”

I forebode from dealing with swindlers, tempting it as it is to be ironic about them. Let me say merely that I take a Keynesian view rather than the J. B. Say model. Demand creates its own supply, rather than supply its own demand. The potential supply of swindles is infinite at a very moderate positive price. When mob psychology hits and get-rich-quick greed takes
over, the voids pour out of the woodwork, in proscriptual demand-determined fashion. It is time to bring this discussion to a close. I have to show you that irrational behavior of markets is possible, both with rational behavior on the part of some actors, with irrationality of some of them, and on occasion when all go berserk. In the quotation from Johnson with which I started, he said that the exchange market should be expected to act rationally like "most markets." I should have preferred him to say that it would be expected to act rationally like most markets most of the time.

I hope that what I have been saying this evening is not taken to suggest that I believe markets don't work well at all. On the whole they do. My position is far from that of Socialists or planners or the New International Economic Order or whatever. While I recognize the arguments for second-best solutions based on monopoly and the like, I am less moved by the thought of market failure than by the possibility of occasional breakdown. On the roadfulness of the market overall I am much closer to Friedman and Johnson than to say Pechous or the late John Blair or Marginl. Let me illustrate the position by an analogy. That analogies often sound trite, I know, and this one must be offered with particular delicacy as it may be thought offensive by some. If I do offend, I apologize, as my purpose is to sharpen what I consider to be valid distinctions. I may add parenthetically that while the Mother Church has no Pope, I have been assured by a prominent layman that the analogy is not offensive to him.

It runs like this. Milton Friedman is to markets as Christian Science is to the human body. For the Christian Scientists the body cannot be sick. For Friedman, markets always function properly. At the other end of a wide spectrum are the hypochondriacal and pall-pepperers and the planners who would replace the market. My position is much closer to Friedman, as I have just said, than to the planners, and much closer to the Christian Scientists than to the hypochondriacals. Mostly markets work, and mostly I, and most of the people I know, enjoy good health.

But market breakdown on occasion seems to me to have been clear in the record. Just as I am prepared to go to the doctor when I am sick, hurt, or in need of repair, so am I willing to intervene in the market when breakdown occurs. We are not discussing policy this evening, I realize, but implicit in the view that all markets always work, or even that most markets always work is the view that no market medicine should be taken.

Time has not permitted discussion of monetary policy this evening, and one can be sure that all that I have said would be dismissed with a wave of the hand by a strict monetarist, if there be such any more, with the statement that there would be no problem at all, if the money supply grew at x percent each year, rain or shine. This comes close in my judgement to László Fejel's view, which I caricature, that the problems of the body would be solved if we all ingested copious draughts of Vitamin C or to Benjamin Franklin's recipe for "air baths." There is no doubt that a large part of the stimulis and panics we have been discussing stem from "displacements" initiated by mistakes of monetary policy, and/or are exacerbated by mistakes in the ways in which monetary systems have been operated over time. Much so is freely granted, and chapter and verse can be cited from reconstructions, failure to understand homeostasis, and from the Banking School. But let me close by quoting the view of the representative of another Chicago school, the great teacher of the great economist we honor this evening, Jacob Viner:

"The (great) fault of the currency school was the exaggerated importance which they assigned the public to attribute to the automatic regulation of the issue department. . . . Peel went further than his currency school supporters. . . . Territorial and Overseas had never committed themselves to the doctrine that regulation of the note issue was a remedy for all banking ills. . . . They had a hangover for a simple automatic rule, and could find none suitable, in case of an internal panic (Overseas thought) resort must be had to that power which all governments must necessarily possess, of exercising special interference in cases of unforeseen emergency and great state necessity." 141

References

8. (Daniel Defoe) The Anatomy of Change, 18-19, 1719, p. 3.
13. Quoted in the Report of the Secret Com-
The Dubious Case for Decreasing Costs

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Many textbook authors complete their discussions of long-run supply schedules by recognizing the possibility of "decreasing cost industries." Noting the incompatibility of internal economies and competition, authors frequently attribute decreasing costs to external economies that arise from input prices that decline as industry output expands. Pushing the explanation back to the behavior of input prices naturally raises the question of the cause of decreasing costs for input suppliers. External economies in the output industry cannot be ascribed to external economies in the input industry since this involves infinite regress, and the existence of internal economies in the input industry implies monopoly. Thus, the absence of alternative explanations in many expositions suggests that authors picture inputs as being supplied by monopolists who experience internal economies and sell larger quantities at lower prices. In this article it is argued that a general cause for decreasing costs cannot be based on this circumstance.

The argument against attributing decreasing costs in an output industry to internal economies experienced by a monopolistic input supplier consists, first, of a demonstration in Section 1 that there is no output supply curve if inputs are bought from a monopolist and that this circumstance, therefore, cannot provide the basis for the negatively sloped long-run supply curve of a decreasing cost industry. Second, since this demonstration may appear to dispose of a substantive question by an appeal to a definition, a less rigorous interpretation of decreasing costs is considered in the following section. Here it is shown that, aside from the fact there is no output supply curve when inputs are produced monopolistically, the existence of decreasing costs in the input industry is not significant to ensure that a competitive output industry can produce a larger output at a lower price. In fact, the quantity of a competitively produced commodity may decline when the demand for it increases if that commodity is produced with a monopolistically supplied input, even if the input is produced at declining marginal cost. Conclusions appear in the final section.

1. Monopoly Input Pricing and Competitive Supply

In the following model of a competitive industry that buys an input from a monopolist, we make the following assumptions:

(a) the demand for product \( X \) is represented by

\[ P_X = f(X, \lambda) \]  

where \( x \) is the quantity of product \( X \), \( \lambda \) is a shift parameter, the partial derivative \( f_x \) is negative, and the partial derivative \( f_\lambda \) is positive; 
(b) \( X \) is produced using two inputs, \( A \) and \( B \). 

The \( X \) industry is competitive and is the sole purchaser of input \( A \). All firms producing \( X \)