11. If markets are efficient why has there been so much volatility in financial markets?

In the decades of the 1980s and 1990s the world witnessed increasing volatility in many financial markets around the world. Why is there so much volatility? Are financial markets inherently destabilizing and fragile or is today's financial fragility the result of market 'liberalization' policy decisions taken since the 1970s? We are again being haunted by Minsky's frightening financial fragility question 'Can it happen again?' where 'it' is a replay of the Great Depression.

11.1 EFFICIENCY VERSUS LIQUIDITY

Peter L. Bernstein is the author of the best-selling book Against the Gods, a treatise on risk management, probability theory and financial markets. Bernstein notes that since the Second World War 'the number of stock markets around the world has grown from 50 to just over 125 - even the Chinese, nominally still socialists have seen fit to establish stock markets on their territory'. Accordingly, one might ask, if financial markets are, as Minsky suggests, so fragile and destabilizing, why are so many emerging economies using them?

How one responds to these queries depends on the underlying economic theory that one explicitly, or implicitly, utilizes to explain the role of financial markets in an entrepreneurial economy. The efficient market theory assumes that financial markets can reliably forecast the future and therefore market values accurately reflect the present value of the 'known' future stream of money receipts that will accrue to the asset holder.

Efficient market theory is the backbone of conventional economic wisdom whose mantra is 'the market knows best' how to optimally allocate scarce capital resources and promote maximum economic growth. This efficient market theory view is succinctly epitomized in former US Treasury Secretary Lawrence Summers's statement: 'the ultimate social functions of financial markets are spreading risks, guiding the investment of scarce capital, and processing and disseminating the information possessed by diverse traders . . . prices will always reflect fundamental values . . . The logic of efficient markets is compelling. Proponents of efficient market theory typically urge the liberalization of all financial markets where there is government regulation of financial flows.

In contrast, those economists favoring liquidity preference theory suggest the need for vigilant regulation of financial markets with institutions and rules constraining and affecting the behavior of market participants. The logic of Keynes's liquidity preference theory is that the primary function of financial markets is to provide liquidity for asset holders. Since a liquid market must be an orderly one, rules and institutions must be developed to guarantee orderliness. If Keynes's liquidity preference theory of orderly financial markets is relevant, then financial markets can never deliver, in either the short or long run, the efficiency promised of efficient market theory. In the real world, efficient markets are not liquid and liquid markets are not efficient.

Bernstein argues that efficient market theory is not the relevant theory for the world in which we live. Bernstein states: 'The fatal flaw in the efficient market hypothesis is that there is no such thing as an [efficient] equilibrium price . . . [and] a market can never be efficient unless equilibrium prices exist and are known'. If the future is uncertain (nonergodic) then efficient prices cannot be 'known' by market participants. Bernstein endorses Keynes's liquidity preference theory as the relevant explanation for the global growth of financial markets when he argues that 'a stock market without liquidity ceases to be a market'.

11.2 TAXING VOLATILITY: THEORY VERSUS THE FACTS

New Keynesians Joseph Stiglitz and Lawrence Summers, following the lead of Old Keynesian James Tobin, have argued that an ad valorem tax on all financial market transactions is socially desirable in that it will reduce the observed volatility in our 'super-efficient financial markets'. They indicate that Keynes initiated the recommendation for a universal financial transactions tax as a socially desirable policy.

In The General Theory, Keynes argued that speculation can have adverse effects on real economic outcomes. He suggested that public access to financial markets should be, like access to Casinos, inaccessible and expensive. Indeed, after the collapse of the Wall Street stock market in the 1930s, Keynes suggested that the introduction of a substantial Government transfer tax on all transactions might prove the most serviceable reform
available, with a view to mitigating the dominance of speculation over enterprise in the United States. A recent study by Jones and Seguin, however, appears to conflict with this 'Keynesian' claim that transaction taxes reduce volatility. This study notes that on May 1, 1975 fixed commissions on the New York Stock Exchange (NYSE) and American Stock Exchange (AMEX) were uniformly changed (lowered) to negotiated commissions, while the commission structure on all over-the-counter (OTC) transactions in the United States was unchanged. Using daily data for one year before and one year after the change in commission basis, Jones and Seguin examined daily volatility in five sample portfolios sorted by size. A total of 1,872 securities traded on NYSE and AMEX and the OTC were studied and the OTC portfolios were used as 'a control sample.' Jones and Seguin calculated cross-sectional mean market values for each portfolio and daily return standard deviations (their measure of volatility). They concluded that the 'empirical evidence uniformly reject the hypothesis that the abolition of [higher] fixed commissions increase volatility... we find a reduction in transactions costs is associated with a decline in... volatility.'

We may ask: 'How can such eminent economic theorists as Tobin, Stiglitz and Summers, and even the old, original Keynesian, J.M. Keynes, apparently, be so wrong?' The apparent difference between Jones and Seguin's empirical results and the claims that transaction taxes reduce volatility requires an investigation into how economists explain the existence of speculative activity on financial markets. The existence of speculative activity depends on the axioms invoked to explain how agents make decisions involving outcomes that will occur in the uncertain future. Significantly different explanations regarding the effects of speculation and the efficiency of financial markets depend on whether one accepts or rejects the ergodic axiom.

11.3 ERGODICITY, EFFICIENT MARKETS AND NOISE TRADERS

Efficient market theory claims that agents analyse past and present market data (that is, price signals that are presumed to provide 'information' about future events) in forming rational expectations as a basis for making utility-maximizing decisions. If agents take actions based on these rational expectations, then markets are efficient in that the resulting set of spot and forward prices result in a welfare optimum. Logical consistency requires any observed volatility to be explained as due to random shocks that push the system away from its welfare optimum and long-term growth rate. The ergodic axiom is a necessary foundation for efficient market theorists to claim that (a) there exist real 'market fundamentals' that are immutable in the sense that they cannot be changed by human action and (b) these fundamentals determine the conditional probabilities of outcomes (or a mean of all possible states of the world and possible contingencies) that are reflected in today's financial market prices.

In efficient market theory, agents gather information about fundamentals to calculate statistically reliable conditional probabilities regarding the predetermined future path of the economy. If gathering this information is very costly, then there can be private return incentives for each market participant to outpace all others in calculating the actuarially reliable future and thereby beat the rest of the market participants by having information that others have not yet obtained. In developing his theory of financial markets, Stiglitz states that beating the market 'affects how the pie is divided, but does not affect the size of the pie.' The size of the market payoff 'pie' is fixed and determined by 'real' immutable parameters, the so-called market 'fundamentals'. Future real returns of the underlying real assets are the inevitable outcomes predetermined by today's fundamentals and unalterable by human activity. Of course, this information will inevitably reveal itself (at least in the long run) in determining the secular trend of financial market prices. By asserting that 'production, in every state of nature, in every contingency is precisely what it would have been had the information not been available,' Stiglitz is arguing that the future is immutable determined by market 'fundamentals'. Stiglitz's argument that some market participants obtain information about the programmed future before others (the theory of asymmetric information) requires that the system be ergodic if the information is to be statistically reliable.

Old and New Keynesians as well as classical economists all accept the efficient market hypothesis as the applicable description of real world financial markets and therefore they are invoking the ergodic axiom. One logically inevitable conclusion of the efficient market hypothesis is that, as Stiglitz states, the most 'important social function' of financial markets is to correctly allocate real capital among industries in accordance with reliable information about future rates of return determined by fundamentals.

Stiglitz claims that a small transactions tax has a strong deterrent effect primarily on short-term speculators. The tax will not be a deterrent to long-term asset holders who are rational market participants who base their trading on fundamentals... and are willing to wait a long time to realize a return. Long-term asset holders are displaying optimal behavior. Short-term traders consist of essentially two groups: 'the noise traders and those who live off them.' Observed volatile financial market prices are
movements—away from fundamental-determined values. This volatility is attributed primarily to the existence of "noise traders," that is, speculators who mistakenly believe they know how the stock market works and therefore do not have to acquire the correct information regarding future outcomes from the fundamentals. Other rational short-term traders feed on these foolish noise traders and thereby ultimately return the market to its fundamental trend value. Stiglitz's explanation of the horrendous speculative volatility that we observe in our world is the "mistaken belief of all speculators" that they can do better than the market by ignoring fundamentals.22 Since "the turnover tax primarily affects the short-term [noise trader] speculator," who is the creator of excessive volatility, a tax on such foolish speculators will save them from their own folly and save resources for society and is therefore socially desirable.

If markets are efficient, then market forces should economically eliminate all those noise traders who persistently make errors in financial markets. How then can Stiglitz explain the centuries-long persistence of speculation observed in real world financial markets? If error-making noise traders are the cause of market volatility, then for volatility to persist over more than a single generation requires Stiglitz's analysis to assume that there is a stream of new short-term traders who constantly replace those old noise traders who are killed off. Both the dead old noise traders and their new replacements are betting that they can do better than the market...based on the mistaken belief that (all) speculators can do better than the average.23

In developing his noise-trader-as-fool argument, Stiglitz has centered himself into a logical inconsistency that requires him to use a contradiction to try to extricate himself. Implicit in Stiglitz's model is the notion that there is something strange and different about financial markets vis-à-vis product markets. Stiglitz accepts the argument that the imposition of a transaction tax in any product market will distort the Pareto-efficient price structure. He argues that a similar tax in the financial markets, however, does not have such a deleterious effect but rather "such a tax may be beneficial."24 Short-run speculation trading is attributed primarily to the action of fools (noise traders) who interfere with the efficient capital allocation function of financial markets. A transaction tax, by making it more costly for fools to engage in short-run financial market activity, therefore improves the efficiency of financial markets.

If financial markets are efficient and immutable market fundamentals are the determinants of the future returns, then those irrational noise traders who make persistent errors will either become extinct via some Darwinian economic process, or they will survive only by learning how not to make persistent mistakes.25 Nevertheless, the pragmatist Stiglitz recognizes that after several centuries of significant volume of daily trades on financial markets—and daily trading volume has increased dramatically in the last two decades—speculation continues to exist and even increase. But how can persistently mistaken "noise traders" continue to exist in an efficient market system where rational traders can feed off these fools?

To resolve this dilemma of the centuries-old existence of speculation in financial markets, Stiglitz appeals to authority—the ultimate free market authority and successful circus impresario, P.T. Barnum. Stiglitz misquotes Barnum's dictum "There's a sucker born every minute" as "There's a fool born every moment" and even incorrectly attributes this homily to one G.T. Barnum. Nevertheless, Stiglitz's appeal to Barnum's authority implies that society continues to produce, even in the long run, fools who irrationally believe they can beat the market.

Faced with the contradiction between the implications of the efficient market hypothesis where those who make persistent errors are eradicated and his attribution of volatile financial markets to the persistent existence of foolish market participants, Stiglitz has done the only "rational" thing that he can do. He ignores this logical inconsistency. Instead, Stiglitz buttresses his argument that "irrationality is pervasive" by appealing to the facts that this ubiquitous, persistent irrationality exists even among Stiglitz's brightest economic students.26 If students at our most prestigious universities are such irrational boobs, then what can one expect of the average financial market participant bereft of exposure to any efficient market analysis?

Stiglitz either does not realize, or else he ignores, the idea, that if centuries-long "pervasive irrationality" is necessary for his explanation of financial market volatility, then logical consistency requires him to admit that irrationality can persist and be pervasive in all product markets.27 If Barnum's homily that there is a sucker born every minute is a necessary condition for one's market model, then one must reject the orthodox argument that all markets involve efficient Darwinian processes that, at least in the long run, eradicate persistent error-making fools. If Barnum is correct (and he certainly understood the circus market), then orthodox theory cannot claim that laissez-faire markets will maximize the welfare of the community, even in the long run. Pareto efficiency becomes a tale on a par with Aesop's fables. To provide an analysis of speculation and volatility, Stiglitz is throwing away both the classical bath water and the classical baby.

Stiglitz's problem is that he has confused the logic of efficient financial market behavior in a presumed ergodic system with real world financial market behavior when agents know they are dealing with an uncertain (nonergodic) future.28
11.4 SUMMERS, TOBIN AND SUPER-EFFICIENT MARKETS

Lawrence Summers and his wife Victoria Summers advocate a financial transaction tax to reduce financial market volatility. Using the same microfoundations as Stiglitz to explain financial market volatility, Summers and Summers attribute volatility to the persistence of foolish noise traders who are "trading on the basis of something other than information about fundamental values." 

Exacerbating this impact of fools on market values, Summers and Summers add a "positive feedback" trading strategy by rational traders who know about fundamentals and therefore know that noise traders are fools. These positive feedback traders, however, see that their self-interest is to go with the flow. They trade often in the short term (using strategies like stop-loss orders) to ensure themselves of short-term gains rather than swimming against the tide to make the inevitable long-run arbitrage profit resulting when spot prices move away from "fundamental values." 

Summers and Summers claim that:

There are strong economic efficiency arguments in support of some kind of transactions tax ... that throws 'sand into the gears' to use Tobin's phrase, of our excessive well-functioning super-efficient financial markets. The efficiency benefits from curbing speculation are likely to exceed any costs of reduced liquidity or increased costs of capital... Excessive speculation that increases volatility... creates rather than reduces risk, distorts the allocation of investment, and limits information contents of asset prices. 

Finally, since 1974, perhaps the best-known advocate of financial transaction taxes is James Tobin. In 1995, Eichengreen, Tobin and Wyplosz forcefully argued that short-term volatility in foreign exchange markets due to speculation can have 'real economic consequences devastating for particular sectors and whole economies'. To constrain speculative behavior they propose a global transaction tax to discourage short-term round tripping thereby putting 'grains of sand' into the operation of what they called 'super efficient financial markets'. We shall discuss this Tobin tax proposal in Chapter 12 infra.

11.5 KEYNES, SPECULATION AND LIQUID FINANCIAL MARKETS

Keynes's explanation of the existence of speculative activity requires rejecting the restrictive ergodic axiom. At any point of time, the future is uncertain in the sense that the actuarial profit or a reliable mathematically based expectation of gain calculated in accordance with existing probabilities cannot be obtained from any existing data set. In 1937, Keynes emphasized the difference between his "general theory" and classical orthodoxy in classical theory.

[I]n practice and expectations were assumed to be given in a definite form and risks ... were supposed to be capable of an exact actuarial computation. The calculation of probability ... was supposed capable of reducing uncertainty to the same calculable state as that of certainty itself ... I accept the classical economic theory of being itself one of these pretty polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future ... [as classical economists] have overlooked the precise nature of the difference which his abstraction makes between theory and practice, and the character of the fallacies into which he is likely to be led.

In other words, even if "fundamentals" exist today and even if a data set permits one to estimate today's (presumed to exist) objective conditional probability distribution, such calculations do not form a reliable base for forecasting the future. Today's conditional objective probabilities are not reliable actuarial guides to the future.

As we have already noted, Keynes's description of uncertainty matches technically what mathematical statisticians call a nonergodic stochastic system. In a nonergodic system, one can never expect whatever data set exists today to provide a reliable guide to future outcomes. In such a world, markets cannot be efficient. Instead the primary function of financial markets is to provide liquidity. This liquidity function involves the ability to buy and sell assets in a well-organized, orderly market in order to obtain the medium of contractual settlement to meet one's future nominal contractual liabilities when they come due.

The ability to maintain one's liquidity may be important to individuals in the real world, but it is not an important social function if markets are efficient. Logical consistency for those claiming financial market efficiency requires the presumption that people can also plan their future spending on goods and services efficiently by buying financial assets whose maturity date matches the individual's life-cycle spending pattern stream (for example, as assumed in overlapping generation models). Sudden liquidity needs to meet uncertain, unpredictable future contractual obligations when they come due, or cases where issuers of financial assets cannot meet their contractual obligation to pay interest or redeem the security at its maturity date, have no role to play in efficient market theory.

If, however, agents in one's model believe their world is uncertain (non-ergodic), as Keynes and later Hicks claim, then decision makers 'know'
that what others call today’s ‘fundamentals’ do not provide a statistically reliable guide to the future. In such a world, protecting the value of one’s liquid portfolio against unforeseen and unforeseeable changes in financial market values becomes an important economic activity. Accordingly, portfolio fund managers must, in an instant, conjecture how other market players will interpret a news event occurring anywhere in the world.

In a nonergodic system, one is always uncertain about future market valuations:

[A] practical theory of the future [market valuation is] ... based on a flimsy foundation. It is subject to sudden and violent changes. The practice of calmness and immobility, of certainty and security, suddenly breaks down. New fears and hopes will, without warning, take charge of human conduct. The forces of dissolution may suddenly impose a new conventional basis of valuation.

In a world of instant communication, any event occurring in the world can set off rapid changes in subjective evaluation of the market value of one’s portfolio. Speculation about the psychology of other market players can result in lemming-like behavior which can become self-reinforcing and self-justifying. In a nonergodic system, if enough agents possess the same ‘incorrect’ expectations (to use Stiglitz’s phrase), the result can be that these faulty expectations actually create future outcomes. The first ‘irrational’ lemmings to hit the ocean of liquidity may not drown. They may survive and even thrive to have more irrational expectations and lead more lemming-leaps into liquidity in the future.

11.6 KEYNES, LIQUID FINANCIAL MARKETS AND THE EMPIRICAL FINDINGS

In a nonergodic world, the primary function of financial markets is to furnish liquidity by providing an orderly, well-organized environment where financial assets can be readily resold for cash while the essential properties of the underlying real capital assets prevent them from producing the attribute of liquidity. In so doing, financial markets promote the separation of ownership and management. In the absence of a liquid financial market “[t]here is no object in frequently attempting to revalue an investment to which we are committed.” If capital markets were completely illiquid, then there would be no separation of ownership and control. Once some volume of real investment was committed, the owners would have an incentive to use the existing facilities in the best possible way no matter what unforeseen circumstances might arise over the life of plant and equipment. Perhaps then capital markets might behave more like the efficient markets of mainstream theory.

Keynes’s analysis of the operations of an entrepreneur money-using market system assumes an uncertain (nonergodic) environment, therefore in his General Theory the primary function of financial markets is to provide liquidity. Under circumstances where bullish sentiment dominates liquid financial markets, savers can be encouraged to readily provide the funding that induces entrepreneurial-investors to spend sums on new investment projects that far exceed their current incomes. Under other circumstances where the bear position is overriding, an excessive desire to maintain one’s fully liquid position can develop that may impede the production of new investment capital even when real resources are idle and therefore readily available to produce new real capital goods. Too great a demand for liquidity can prevent ‘saved’ (that is, unutilized) real resources from being employed in the production of investment goods.

Keynes explicitly recognized that the introduction of sand in the wheels of liquidity-providing financial markets via a transactions tax is a double-edged sword. He noted that a financial transactions tax “brings us up against a dilemma, and shows us how the liquidity of investment markets often facilitates, though it sometimes impedes, the course of new investment.”

Keynes explained the circumstances that create price stability in financial markets when he noted that:

[I]t is interesting that [asset price] stability ... and its sensitivity ... should be so dependent on the existence of a variety of opinion about what is uncertain. Best of all that we should know the future. But if not, then, if we are to control the activity of the economic system ... it is important that opinions differ.

In other words, the ‘best of all’ possible worlds for financial market stability would be an ergodic system where the future can be known with statistical reliability. Then the future can be reduced to actuarial certainty, that is, ‘we should know the future’ and market efficiency would be assured as long as agents operated in their ‘known’ self-interest.

The ergodic axiom is required to justify Summers’s claim that financial markets encourage probabilistic risk spreading based on actuarial certainty calculations. If the system is nonergodic then rational risk spreading is impossible. Instead, the best reason for financial markets in a nonergodic world is to provide liquidity. One desirable attribute of a liquid financial market is to have a substantial number of market participants who hold continuously differing expectations about the future so that any small upward change in the market price brings about a significant bear reaction, while any slight downturn induces a bullish reaction. The result will be spot financial market (resale) price trend stability over time while the market maintains a high degree of liquidity. In a nonergodic environment, the
expectations of either the bulls or the bears cannot be described as either rational (in the Lucas sense) or ex ante correct. Accordingly, market stability requires a continuous (and dense) spectrum of both bull and bear expectations simultaneously. The more participants in this spectrum, the less, ceteris paribus, volatility. Supporting this dense spectrum of bull and bear expectations requires a credible market maker who assures the public that no matter what happens, orderliness will be maintained.

As the next section of this chapter explains, Tobin and his followers conflate the concept of volume with that of volatility when they argue that a transaction tax will lower market volume by reducing the number of market participants (especially the short-term traders). This reduction in volume, Tobin argues, assures less volatility. It is this confusion of volume with volatility that makes these 'Keynesian' claims inconsistent with the empirical findings that transaction taxes and volatility are positively related. The Jones and Seguin empirical findings, however, are consistent with Keynes's General Theory analysis where the larger the number of market participants with differing opinions, at any point of time, ceteris paribus, the more stable the market price of traded liquid assets. The more stable the price in financial markets the greater the degree of liquidity of the asset. 30

11.7 ERGODICITY, EFFICIENT MARKETS AND THE EMPIRICAL FINDINGS

For those who proclaim the efficiency of financial markets, logical consistency requires them to claim that the 'observed' secular trend of financial market prices (typically measured by a moving average) is determined by immutable (ergodic) real sector fundamentals. 31 Presumably these fundamentals are 'dynamic' in the sense of Sargent that the probability 'of how likely it is' to have a future regime change, that is, a change in the fundamentals, must be already encapsulated in the information existing at the initial instant for rational expectations to be formed. 32 If one does not presume that every possible future regime change is already nested in existing probabilistic information about every contingency in every state of the world, then financial markets cannot be claimed to be efficient as today's real capital allocations can result in future possible egregious costly errors.

By claiming that financial markets are not only efficient but are super-efficient, Tobin and the New Keynesians are accepting the ergodic axiom in spades. Consequently, the measured daily variance around the statistical time-series (moving) average that is determined by fundamentals, can only be attributed to random 'white noise' (and hence the name 'noise traders'). But in an ergodic stochastic system, anything that increases the number of participants increases the size of the sample at each point of time and therefore must decrease the measured 'white noise' variance around the daily mean. It is not surprising that Jones and Seguin found that a reduction in transaction costs on the NYSE and AMEX increased volume and therefore the size of the sample compared to the pre-transactions cost reduction period. If the sample increases, the variance, which Jones and Seguin used as the measure of volatility, must decline. This is a statistical property of sampling from a homogeneous population and has nothing to do with the behavior of participants in the financial market.

The only exception to this statistical property where calculated variance depends on sample size and is independent of people's liquidity preference would be if the additional sample observations were being drawn from a different statistical universe, for example, if a significant proportion of additional participants entering the financial markets behave in a different manner from those observed in the original sample. Any observed increased volume might then be associated with a plethora of similar thinking 'irrational' participants who suddenly enter the market previously dominated by 'rational' beings. Then the market might exhibit what central banker Alan Greenspan, in a widely quoted speech given in 1996, labeled 'irrational exuberance'.

But in an efficient market, the larger the number of homogeneous participants, the smaller the variance, since variance has the property of being inversely related to the size of a random unbiased sample. In the long run as irrational traders are made extinct by an efficient market, the remaining sample will be unbiased and volume and variance will be inversely related. Only rational traders can survive.

Reducing transaction costs is equivalent to lowering the admission price for participation. If the system is ergodic then the entry of more traders, by definition, increases the breadth of the market. In statistical terms, this implies that as the size of the sample drawn each day from a given universe increases, the variance declines. Tobin, Summers and Stiglitz are excellent econometricians and should have recognized that their acceptance of the logic of efficient market theory and the use of a white noise analogy implies that raising transaction costs must, ceteris paribus, increase variance by reducing the size of the sample (volume) at any point of time.

If fundamentals determine the future secular trend in the financial asset prices, then it logically follows that speculators who have 'the object of securing profit from knowing better than the market what the future will bring forth' 33 are irrational fools who in the long run must lose their shirts. Every (rational?) decision maker 'knows' that financial price movements
(that is, volatility around the fundamental value) is merely a random walk. There is, therefore, no rational role for the speculative motive in any model that presumes ‘rational’ self-interest financial behavior. And that is why Stiglitz and Summers and Summers must rely on the continuous new generations of pervasive and persistent irrational fools to explain secular excessive volatility.

11.8 ARE REAL CAPITAL ALLOCATION DECISIONS EFFICIENT?

Keynes defines enterprise as ‘the activity of forecasting the prospective yield of assets over their whole life’ and the marginal efficiency of capital as a ‘series of annuities given by the returns expected from the capital asset during its life’. Do these definitions imply that entrepreneurs make decisions ‘as if’ they are in an ergodic system?

Not really. Using terms such as ‘forecasting’ and ‘the expectation of yield’ in his discussion of entrepreneurial investment decisions, Keynes warns the reader that:

Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. In fact, those whose attempt to make any such estimate are often so much in the minority that their behaviour does not govern the market. If human nature felt no temptation to take a chance, no satisfaction (profit apart) in constructing a factory, a railway, a mine or a farm, there might not be much investment merely as the result of cold calculation.

Moreover, an entrepreneurial ‘decision to do something positive can only be taken as a result of animal spirits ... and not of the outcome of the weighted average of quantitative benefits multiplied by quantitative probabilities’. In other words, the expectations embodied in entrepreneurs’ investment allocation decisions cannot be the rational expectations that result in the efficient allocation of capital decisions described by New Classical and New Keynesian economists. Enterprise, in the real world we inhabit, is unlikely to mimic the allocation of capital implied in an ergodic system.

Neither real world financial markets nor capital goods markets are, in classical terms, efficient. Keynes clearly and completely rejected the special and restrictive ergodic axiom as a basis of explaining behavior by investors in long-lived real capital goods formation as well as savers-participants in financial markets who are making liquid portfolio allocation choices. In rejecting the need for the restrictive ergodic axiom, Keynes placed the burden on those who make use of such a highly special assumption to justify it, while those who reject any special restrictive axiom are not required to prove the general.

Despite their willingness to accept the presumption of efficient financial markets and its underlying ergodic axiom as an unquestioned universal truth, the common sense of Tobin and his followers regarding real world financial markets cannot help but break into their logical models, with injury to their logical consistency. Old and New Classical economists do not suffer from such logical problems. Like Ricardo [Friedman and Lucas] offer us the supreme intellectual achievement, unattainable by weaker [mainstream Keynesian] spirits, of adopting a hypothetical world remote from experience as though it was the world of experience and then living in it consistently.

When Tobin and others advocate a universal transactions tax to impede disruptive speculation, they are recognizing that the expectations that drive spot financial market prices are not rational. Rather real world financial market prices involve, as Keynes noted, a conventional valuation method on the psychological confidence we have of forecasts that we know cannot be statistically reliable. Valuations based on forecasting market psychology can, at times, create speculative whirlpools.

11.9 SPEECHLESS WHIRLPOOLS AND BANDWAGONS

Although Keynes did not use the ergodic-nonergodic terminology, he utilized this concept when he claimed that Jan Tinbergen’s econometric Method ‘was invalid [because] ... the economic environment is not homogeneous over a period of time (perhaps because non statistical factors are relevant)’. That is, economic time series are nonstationary. Since nonstationarity is a sufficient condition for nonergodicity, Keynes’s concept of financial and economic uncertainty implies nonergodicity. More recently, Robert Solow has endorsed Keynes’s position. Solow wrote that ‘much of what we observe cannot be treated as the realization of a stationary stochastic process without statistical credibility’. Since nonstationarity is a sufficient condition for a nonergodic environment, Solow’s statement is a recognition that important economic data, which some call the fundamentals, cannot be generated by ergodic systems. Consequently these ‘fundamentals’ provide no guide to the ‘correct’ equilibrium price of financial assets over time.

With his emphasis on uncertainty as the major force explaining the speculative demand for liquidity, Keynes had to reject the classical ergodic
axiom of efficient market theory to explain market behavior. Consequently, using efficient market theory to explain speculation is, to Keynesians and Post Keynesians, equivalent to relying on the axioms of parallel lines in a non-Euclidean world to explain why 'in experience, straight lines apparently parallel often meet'. Rebuilding these lines for crashing into each other is similar to relying on persistent irrational behavior of noise traders to explain market volatility. Both are useless homilies.

Asset liquidity requires market breadth to permit each individual to sleep easily, assured that savings vehicles are good stores of general purchasing power. The empirical results of Jones and Seguin demonstrate that by reducing transaction costs one enhances daily liquidity and stability provided that certain conditions are met. These conditions are (a) both the bulls and bears are widely represented among the additional participants and (b) within each of these categories there is a continuum of divergent views among individuals as to when to change from the bull to bear position and vice versa. To the extent that a reduction in transaction costs increases the number of participants in both the bull and bear positions, then, ceteris paribus, there is more likely to be a denser continuum and therefore less moment by moment or daily variability. In such circumstances, as Keynes noted, speculation can become mere bubbles on the steady stream of enterprise.

If, at any point in time, however, there is a sudden swing to a bandwagon consensus, that is, there is an abrupt lack of broad market participants with differing (not rational) expectations about the future, then there can be a rapid swing in market prices. A bandwagon effect occurs when a consensus view suddenly congeals regarding the possibility of a severe change in the future spot market price of financial assets. The bandwagon concept implies that suddenly a preponderance of participants appear only on one side of the market (whether it be in the bull or bear position). What is required is a market maker institution with sufficient resources to assure some measure of market price stability to prevent this volatility due to private sector bandwagon actions. The market maker must announce that it will swing against any developing consensus view regarding a change in market psychology. This announcement by the market maker must be deemed credible by market participants.

In the absence of a market maker with sufficient financial asset resources to stem the bandwagon tide, 'enterprise becomes the bubble on a whirlpool of speculation'. It is 'bandwagon' movements in financial markets and not daily white noise variance that causes problems in financial markets. The resultant change in the secular trend of financial market prices due to bandwagons can have 'real economic consequences devastating for particular sectors and whole economies'.

II.10 A POLICY IMPLICATION: BUFFERING CONVENTIONAL WISDOM

In a nonergodic world, Keynes insisted the conventional wisdom is that market participants believe that the existing market valuation is correct. The market 'knows'

[that the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change … We are assuming, in effect, that the existing market valuation, however arrived at, is uniquely correct in relation to our existing knowledge … though, philosophically speaking, it cannot be uniquely correct, since our existing knowledge does not provide a sufficient basis for a calculated mathematical expectation.]

In the world of experience, the conventional wisdom is that as long as it is expected that the psychology of the market is not changing there will be an inertia in market valuations. It then follows that any policy that involves reducing if not eliminating the possibility of disruptive speculation in financial markets must involve building institutions that assure market participants that the 'correct' market psychology is a belief in a persistent, stable (moving average) trend in market prices over time.

If, for example, the market participants believe that there exists a market maker who can guarantee an unchanging spot market price (or changing only within very small boundaries) over time under announced and readily understood rules of the game in an orderly and well-organized market, then the existence of this credible market maker will provide an anchor for 'market psychology'. For participants to believe in the market
maker's ability to maintain the target spot (resale) price, however, the market maker must have a 'sufficient' inventory of money and that item that is being sold in the relevant market. In our current foreign exchange market system, for example, this implies that the domestic monetary authority has credibility (and a sufficient inventory of foreign reserves or easy access to additional reserves) and has announced that it will use its reserves to maintain an orderly market at the 'proper' exchange rate.

To prevent disruptive speculation in any specific market, therefore, requires a buffer stock policy practiced by a market maker. If the majority of market participants believe in the market maker's buffer stock approach, the only speculators that could exist would then be fools, that is, a small group of offsetting bulls and bears, who disagree with the vast majority of market participants but whose actions cannot affect market movements. Provided there is an effective buffer stock market maker, there should be no disruptive speculation and enterprise can continue at its current steady stream toward an unknown future.

NOTES

6. Ibid., p. 132.
11. The introduction of negotiated commissions on the NYSE and AEMX instigated a permanent decline in commissions — regardless of the metric used, commissions on institutions fell between 31% and 42%... [and for individuals] between 24% and 47% while volume increased substantially [Jones and Seguin, op. cit., p. 139].
12. Each sample portfolio was based on outstanding market value of common equity site (with sample 1 being the largest size stocks and sample 3 being the smallest size).
16. Ibid., p. 104.
17. Ibid., pp. 102–3. The underlying Waldron equation points out a secular trend of financial market prices that are Pareto efficient.
18. Ibid., pp. 103–5. It is not the case, however, that financial market prices are Pareto efficient. Also see J.R. Hicks 'A suggestion for simplifying the theory of money', Economica, 2, 1935, pp. 1–19, for a more detailed discussion of the matter.
19. See for example, Volatility in financial markets, 197, p. 106.
21. Ibid., p. 103.
22. Ibid., p. 106.
23. Ibid., p. 105.
24. Ibid., p. 106. In most empirical studies the ex post moving average of what actually happens in the market is presumed to be the best estimate of the statistical average (over time) that the fundamentals of an economic theory itself can predict. The fact that econometric analysis of time-series market data always reveals a revision in the model is merely an indication of the difficulty of calculating time-series moving averages.
25. Ibid., p. 106.
26. Moreover, there is no reason to have a public policy to secure specific individual market participants from the error of their ways.
29. 'This kind of irrationality is present. Thirty-four of my students believe they are in the top half of the class' (Stiglitz, op. cit., p. 106).
30. Equirally durable goods where the expected stream of utility will be yield at many dates far into the future.
31. Finally, it should be noted that Stiglitz initially argued that it is the duty of the first to obtain reliable information in a world of asymmetric information that wastes society resources. Nevertheless in laying the blame for volatility on 'noise traders' who do not try to find reliable information about fundamentals (Stiglitz, op. cit., p. 106), Stiglitz's argument that a transactions tax reduces the scope of resources seeking to beat the crowd by obtaining reliable information first is irrelevant. A transactions tax, according to Stiglitz, will not affect rational traders seeking reliable information. Rational information seekers work in a world of asymmetric information will still have an incentive to beat the rest of the crowd of rational traders in a feeding frenzy on noise traders as long as the tax is less than the hypothesized social return.
32. In associating financial markets with gambling, Stiglitz has failed to note that casino gambling activities always involve an ergodic system where there are fixed and known time-invariable probability distributions while in the financial market no such immutable probability distribution need exist.
33. Summers and Summers, op. cit., p. 216.
34. Ibid., p. 170.
35. Ibid., p. 174.
36. Ibid., pp. 165–6.
37. Tobin, op. cit.
38. Eichengreen et al., op. cit., p. 164.
39. Ibid., p. 164.

42. Stiglitz recognizes that market participants may want liquidity, that is, they may want to exchange money for securities or vice versa, and that such financial market exchanges (free of tax and transactional costs) are inefficient (Stiglitz, op. cit., p. 104). With asymmetric information, however, those possessing less information about the future are (by definition) trading on incorrect expectations. Consequently, Stiglitz suggests, it is not obvious that transactions tax will make trading on incorrect expectations more expensive lowers social welfare.


44. Keynes, The General Theory, p. 316.

45. Keynes (The General Theory, p. 244) argues that "[t]he liquidity preference theory of interest rates is not a new institution, but an old one that has been quietly and gradually and often by a quite arbitrary process, absorbed into the economic system, and has become a part of the mechanism of capital accumulation."


49. Ibid, p. 172.

50. Only in the neoclassical world that is our entrepreneurial economic system is it sensible to organize complex and lengthy production and exchange processes via the use of nominal contracts (P. Davidson, Post Keynesian Macroeconomic Theory, Edward Elgar, Cheltenham, 1999). In such a world, the primary function of organized financial markets is to provide liquidity by permitting the reallocation of assets in an orderly market. Only secondarily do modern super-efficent financial markets affect the allocation of new capital among industries and to the extent that it appears in the market, this distribution is not predetermined by some long-run immutable real economic fundamentals.

51. Or in the words of Sargent, "Rational expectations... impede the ability of people outside the market to predict the market behaviour of the economist or econometricians who are using the model to try to understand their behaviour." (In particular, an econometrician faces the problem of estimating probability distributions and the laws of motion that the agents in the model assume to know. Further, the formal estimation and inference procedures of rational expectations econometrics assume that the agents in the model already know many of the objects the econometrician is estimating." (T.J. Sargent, Bounded Rationality in Macroeconomics, Oxford: Oxford University Press, 1993, p. 21).

52. Ibid, p. 26–1.

53. In the neoclassical Walrasian microfoundations that Samuelson synthesized with Keynes's macroeconomics, all producible goods are readily available at the equilibrium price system that encompasses all spot and forward prices determined at the initial instant for all future times. In such an equilibrium system, there is no separation of the market value of underlying real assets and market value of corresponding financial assets - for money and hence nominal financial goods prices are assumed neutral. Liquidity therefore is not a primary function of only financial markets. The n = n–1 markets for all new and existing goods provide every good in every time period with liquidity as anyone can be either a buyer or a seller in any of these myriad of markets. In an ergodic world, therefore, it is not possible to experience any drastic realisations of the price of assets that are predetermined by real fundamentals.


55. Ibid, p. 176.

56. Ibid, p. 135.

57. Ibid, pp. 149–50.


59. At anyone who observes empty shops, office buildings, excess capacity in the auto industry, and so on should readily recognize.

60. Keynes, 1937, op. cit., p. 102.


62. Ibid., p. 148. G.L.S. Shackle (Epistemology and Economics, Cambridge University Press, Cambridge, 1973) has pursued the non-ergodic basis for asset market valuations to its extreme. In essence, Shackle maintained that conventional theory is epistemologically correct in that it assumes that there is a stable rate of interest (at least in the long run as a fundamental) while recognizing that an active spot market for bonds requires both and bear market interactions all of the participants think the interest rate will change. In essence Shackle is asking how can there be such volume in the securities market, which if all participants know that the existing market price reflects the best available information of some long run immutable fundamental.


68. Eichengreen et al., op. cit., p. 164.


70. In fact, all markets in liquid assets require the institution of one or more credible 'market makers' who follow some preannounced rules of the game to ensure orderliness in the market. The more orderly the market maker keeps the market, the less the moment-to-moment volatility. It is only when market makers fail in their responsibility to maintain orderly markets that volatility becomes disorienting and speculation can have real disruptive effects.

71. In the global economy of the twenty-first century, however, no national monetary authority is likely to always have sufficient credibility under all circumstances. Accordingly, we shall require a cooperative international monetary payments system, an international monetary clearing unit system, which has specific rules for a buffer stock policy that assure exchange rate stability (see Chapter 14).

72. That is the explanation of why currency boards with reserves equal to the domestic money supply can fix the exchange rate (often at the expense of the domestic credit creation process).

73. Use of buffer stocks as a public policy solution to stabilize prices over time is as old as the biblical story of Joseph and the Famine of the seven fat cows followed by seven lean cows. Joseph - the economic forecaster of his day - interpreted the Pharaoh's dream as portending seven good harvests where production would be much above normal followed by seven lean harvests where annual production would not provide enough food to go around. Joseph's civilized policy proposal was for the government to store up a buffer stock of grain during the good years and release the grain to market, without profit, during the bad years. This would maintain a stable price over the 14 harvests and avoiding sky-rocketing prices and speculative hoarding in the bad years and depress aggregate demand and bringing inventories in the good years. The Bible records that this civilized buffer stock policy was a resounding economic success.
To Louise

In grateful appreciation of a wonderfully productive relationship
for more than a half-century

Financial Markets,
Money and the Real
World

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