

Overview

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Our Kansas City Fed friends not only know a good place to hold a summer conference but also have a good nose for challenging and timely topics. This year the topic is quite new and still incompletely defined. We don't know the answers, and we're not even very sure of the questions.

Volatility itself is a slippery concept. How should price volatility be measured? Variance within the day? From day to day? Week to week? Month to month? Year to year? Various measures are used in the papers at this symposium, evidently differing with the purposes of the authors. Since the questions under investigation are not well defined, it is not clear what measure is appropriate for what purpose.

Shiller plots yearly standard deviations of month-to-month percentage changes. Frenkel and Goldstein compute such standard deviations for eight-year periods, 1973-80 and 1981-88. Edwards reports several measures: standard deviations of day-to-day percentage changes over periods of varying lengths; series of such standard deviations for months. **Goodhart** computes variances of hour-to-hour (!) percentage changes for periods before and after the October crash, comparing them to random-walk variances.

Worries about volatility, and about the possibility that it is increasing, stem from belief that volatility adds to risk. If so, the kind of volatility that matters for an individual investor depends on the investor's circumstances, attitudes toward risk, and holding period. These vary a great deal. Some market participants like risk, two-

sided risk of course. In discussion at yesterday's session, Scott Pardee pointed out that some finance houses are in the business of buying and selling volatility. Options straddlers gain if the market moves enough in either direction. Day traders seek a casino with "action."

Most of us have longer holding periods. For us, risk is **unpredictability** of value over months or years, not over minutes and hours. For most holders of equities the damage of the stock market decline last October 19 would have been no less if it had been spread over a longer time. The exceptions are people who just had to sell on October 19.

Most of us are risk-aversers with diversified portfolios. For us, risk is not the variance of prices of particular assets or classes of assets but their covariances with the values of our entire portfolios. Businessmen often complain that volatility of exchange rates deters international commerce and investment. Maybe so, but volatility of nominal exchange rates would actually reduce risk if it simply offset differential movements in nominal prices.

As several speakers noted, we do not have a good theory of volatility, however measured, much less an empirically verified theory. Volatility is a phenomenon in search of a theory. It is not the only striking omission in the accounts of asset markets standard in both economics and finance. Those accounts do not explain the volume of *transactions*. Indeed, they don't explain the existence of any transactions at all. That is because the theories—efficient markets hypothesis, capital asset pricing model, arbitrage pricing, what have you—anthropomorphize "the market." They simplify reality by assuming a single "representative" agent, a Robinson **Crusoe**. Since there cannot be any transactions, prices always move to eliminate **Crusoe's** desire either to buy or to sell.

For real-world markets with heterogeneous participants, theory provides no *a priori* expectation how volatility and transactions volume should be correlated. We might see lots of volatility with few transactions, or we could observe the reverse. In practice, I guess, the two are positively correlated. But this subject is conspicuously absent from the empirical investigations and theoretical speculations of the symposium.

The proximate "cause" of a crash like that of October 19 seems to be that many investors want to sell, more are induced to want to do so by extrapolating the price decline itself, and willing buyers

do not appear until they see bargain-basement prices. Diversity of opinions—of independent, autonomous opinions—conduces to stability. Herd-like behaviors and faddish strategies lead to instability and volatility. Some observers believe that asset markets are increasingly dominated by a small number of large institutions, advised by financial wizards all schooled in the same prevailing theories and methodologies.

Another impression, which I share, is that traders are increasingly preoccupied with macroeconomic news items, statistical releases or nuances in statements of policy-making officials. Speculators are not watching all such items, just those they think other traders **watch**—and those they think the Federal Reserve watches. Reactions seem frequently to be out of all proportion to the statistical or economic significance of the news. Traders seem to be waiting around for some newsy reason to buy or sell, a reason each thinks will make others buy or sell. Keynes's beauty contest metaphor applies. It can explain positive association of speculative transactions and price volatility.

Several papers concern "propagation" of volatility across markets in different assets and in different locations. Here too we lack a good theory or model to guide statistical calculations. Where assets are close portfolio substitutes, we obviously expect their prices to be highly correlated, and the second moments of their price series likewise. But reverse cases would not be surprising, the results of macroeconomic relationships and policy responses. For example, stabilizing the dollar's value in other currencies could mean greater volatility in U.S. bond and stock prices.

From a societal point of view, the essential problem is not stock price volatility *per se*. The essential problem is Robert Shiller's *excess* volatility. After all, the stock market is the central institution of capitalism. The stock market is supposed to mobilize saving for productive investment, to pool various social risks and to distribute them optimally among savers and investors, and to allocate savings efficiently among competing enterprises and projects. Shiller's findings are quite devastating. Stock market prices fluctuate altogether too much to be reliable signals of the fundamental values of 'investment in aggregate and of specific investments. Instead of optimally packaging the irreducible social risks inherent in nature, technology, and the human condition throughout the world, the market magnifies them by its self-generated instabilities.

I realize that Bob Shiller's findings are controversial in the fraternity of academic finance. His challenge has given rise to a flourishing industry, contriving models that make it conceivable that the volatility Shiller examines, the volatility that motivated this conference, is after all variance in rational estimates of long-run fundamental values. These models are too clever by half. Common sense says Shiller's results will withstand these attacks.

By the way, Shiller's findings are not the only doubts of the social beneficence of financial markets and corporate institutions encountered at this symposium. The Berle-Means heresy of the 1920s—that managers run corporations and do not run them in the interests of the owners—has been resurrected and exalted into mainstream economics in the 1980s. Consider the **Gertler-Hubbard** paper, and especially its exegesis by Bob Hall. Gertler and **Hubbard** meant to reassure us that financial activities, policies, and shocks are actors in the real macroeconomic circus, not just in a nominal sideshow. (The authors were, for some reason, looking over their shoulders at "real business cycle" theorists, notably Kydland and Prescott, who would have us believe that our society copes optimally with the unavoidable exogenous and external shocks it receives, just like a rational Crusoe on his island.) But their reasons for **reassurance**—for example, the importance of internal funds (rather than asset markets) in the saving-investment process—can give little comfort to those who would extend Invisible Hand arguments to financial markets. With characteristic eloquence and exaggeration, Hall drove this message home.

Shiller's results imply that managers obsessed by short-run performance of their company's shares are doing long-term holders of the shares no favors. Hall tells us that managers don't care about shareholders anyway.

I still think capitalism would function better if share prices better tracked long-run fundamental values. This should be the objective of policy interventions—to reduce volatility, yes, but to reduce it in a particular direction.

Franklin Edwards criticized a number of the regulatory reforms that have been proposed in the wake of the market crash last October. I am not endorsing those proposals. Bob Shiller quoted my observation that society cannot afford the resources to operate all the markets that might be set up. I am not, however, advocating the

wholesale elimination of futures markets. I, am skeptical of the multiplication of largely redundant markets, which absorb resources by artificially enlarging arbitrage opportunities. I am worried about the priorities of a society that allocates the cream of its educated youth to the paper economy.

My major proposal is a tax on the value of transactions in stock markets, foreign exchange markets, and perhaps other financial markets. The point is to discourage speculative transactions, in and out the same day or week, and to encourage holdings for long periods of time, based on calculations of **fundamental** values. A one percent tax each way is a big bite into rates of return on funds at risk if it is paid twice in a day, but a negligible consideration if it is paid twice in a decade.

Keynes suggested this device in 1936, looking back on the excesses of speculation and volatility in 1928-31. He thought the market (especially the American market) was insufficiently oriented to long-term fundamentals. His metaphor, that we need to "marry" investors to their securities, does not seem as apt today.

An auxiliary proposal to build in stronger incentives for long-term holdings is to scale taxes on realized gains to the length of holding time, moving gradually from 100 percent of ordinary income tax for realizations before one year to zero for gains realized after 30 years. The reverse would apply to losses. No loss would be deductible in calculating income subject to **tax** if realized before one year, while the entire loss would be deductible if realized after 30 years.

We cannot be absolutely certain, I recognize, that these taxes will work in the desired direction. The taxes would deter destabilizing trades, but they also would deter stabilizing trades. If the market were dominated by fundamentalists who bring it to its senses when myopic speculators throw it off, the proposed taxes would be counter-productive. But then Shiller would not find excess volatility, Summers would not have those other anomalous findings to report, and volatility would not be correlated with volume of transactions.

As Keynes saw, there is a **tradeoff** between the liquidity the market provides and its orientation to fundamentals. Any transactions costs make the affected assets less attractive as a "temporary abode of purchasing power" (Milton Friedman's definition of money), or as a vehicle for precautionary balances (one of Keynes' triad of demands for money). Stock market practitioners are very impressed with the

market's liquidity and very worried that it might be impaired. But when extreme technical liquidity brings excess volatility, that liquidity destroys itself, as happened last October.

I first suggested the transactions tax for foreign exchange. It would have to be an internationally agreed tax; the proceeds might be given to the World Bank. One purpose was to diminish speculative distortions of exchange rates. Another was to give national central banks more autonomy by allowing larger deviations of short rates between currencies. Frenkel and Goldstein point out the other side of that coin, namely that more domestic interest rate change would be needed to achieve a given desired capital movement. I think the balance of advantage is in my favor; they do not say why it is not.

In summary, I believe there is a strong case for throwing a little sand in the wheels. Anyway, even a small transactions tax will raise a great deal of needed government revenue, capturing some rents that now draw too many human resources into activities of dubious social value.