

Stock market volatility and market for information

by Shyam Sunder

Since October 19, 1987, when the Dow-Jones Industrial stock price index declined by 508 points in one day, stock market volatility has competed with inflation and unemployment for the status of economic demon of our society. It has become fashionable to talk about an increase in stock market volatility and its real and imagined dangers. As we struggle to cope with our new obsession, we might keep a few points in mind.

Volatility of stock prices consists of two parts—increases and decreases. All that happened last October was that most of the increases since January 1987 were wiped out. Tripling of the Dow-Jones Industrial stock price index over the past five years represented an unprecedented run-up of prices. But few of those who worry about the volatility of stock prices today raised their voices until prices peaked. Perhaps it is not unreasonable to wonder if many of the concerns raised about stock market volatility have to do with loss of wealth and not with volatility *per se*.

After we have isolated our concerns over the decrease in stock prices from our concerns about the increase in stock market volatility, we might as well concede that there has, indeed, been an increase in the volatility of stock prices during the 80s. Before we decide whether

it is good or bad, and who is to blame, let's try to understand what factors determine this volatility.

First, there are influences over which stock traders have no control. The world economy has become more internationalized and interdependent. U.S. share in the world economy is now smaller and we are more sensitive to economic events outside our borders. The U.S. runs significant trade deficits, and to pay for these imports we must borrow or allow investors abroad to buy U.S. securities. Securities issued in the U.S. are now held more widely in the world and the conditions under which these investors choose to buy and sell depend not only on what happens here, but also on the economic conditions of the investor's country.

Recent years have also seen significant changes in the U.S. fiscal policy, including large budgetary deficits of the Reagan era and fundamental changes in the tax rate and structure. It would have been surprising if stock prices did *not* adjust to these significant events, which influence the fundamental value of practically all securities, and thus become more volatile. We could question the desirability of these policies and events, but no value judgments—good or bad—can be made

about the volatility that arises from adjustment of stock prices because of them.

Second, and more controversial, are changes in security market structure and investor behavior that may have caused an increase in price volatility. Mergers and acquisitions, insider trading, triple-witching hour, portfolio insurance, program trading, institutionalization of the stock market and round-the-clock trading around the globe are the usual suspects.

When an investor is willing to pay more than the current market price to acquire a firm's stock, the price rises close to this level. The price adjustment is the prime source of volatility from mergers and acquisitions. Investors do not usually resent this volatility and most of the objections come from the managers of target firms who may be afraid of losing their jobs under new investors. When real or imagined proposals for acquisitions fail to materialize, the stock price of the target firm declines and contributes to volatility. Variations in the stock price of acquiring firms are smaller. In any case, few complaints about the stock market volatility were heard during 1985-86 when merger and acquisition activity was at its peak.

Though most of the recent publicity on insider trading has centered on merger- and acquisition-related stocks, a much

larger phenomenon transcends such securities. There is a legitimate argument against insider trading that involves unfairly and illegally depriving investors of their wealth through misappropriation of information to which some people may have privileged access. However, there is no evidence that insider trading leads to increased market volatility. The information that insiders may trade on would have been publicly released anyway and the stock market would have adjusted to this information. Indeed, one can argue that insiders reduce market volatility by secretly using their information to their own personal advantage and allowing the market to adjust more slowly than would otherwise be the case.

Twenty-four hour trading allows investors to trade sooner than had been possible when trading occurred for only a few hours each day. Prompt release of information and adjustment of prices to such information should decrease—not increase—the volatility of markets, especially if it is possible to maintain common rules of the game that govern the operation of exchanges and the standards of quality on the information available.

The other four factors (institutional investment, triple-witching, portfolio insurance and program trading) are all intimately related to market volatility and have a common thread running through them—free riding on market information. There are limits to the amount of free riding allowed on market information. Many of the recent incidents of market volatility are caused simply by the attempts investors make to use new information technology to push free riding to levels heretofore unknown. As we discover these limits, volatile behavior caused by such incidents should also subside.

Institutionalization of investment in mutual and pension funds has led to a larger proportion of the investment decision being made by hired managers for their principals. But how is the principal, without the time or ability to know the market directly, going to judge whether the manager has made good investment decisions? Development of portfolio theory in the 1960s suggested a relatively painless approach to this problem: the manager should be judged not on the basis of the absolute but on the basis of relative returns—relative to the market as a whole after adjusting for risk. The underlying assumption of this model was that no single investor or portfolio manager has enough clout to influence the market in a significant manner and that the market prices all securities without bias at all times, given the information available at the time. Thus, the principal beneficiary of the portfolio

could free-ride on the ability of the market as a whole to price securities and evaluate the performance of the portfolio manager without investing much time and effort.

No free ride can last for long. As fund managers learned that their own evaluation would be based on relative performance, they acquired a stake in how other managers performed. If one fund manager expected the others to sell a stock, it became a matter of urgency to sell that stock first himself so he wouldn't be rated below the others. Theoretically, similar problems could have arisen if the principal managed his own portfolio on a short-time horizon because market movements would be just as important as they would be to a portfolio manager. A long-term investor, investing for himself, could, however, afford to ignore this. But this is not possible for a hired manager who is evaluated quarterly or annually.

My argument here is: institutionalization led to hired managers who made investment decisions with a shorter term decision horizon and were therefore more prone to take the decisions of others into account in making their own decisions, leading to higher volatility in the stock market.

Portfolio insurance and program trading uses fast computers to avoid losses and make arbitrage profits by continuously monitoring and trading in two or more markets simultaneously. These strategies have worked for many big firms largely because they have employed fast computers and software unavailable to others. This free ride cannot last either. As more investors and institutions discover these arbitrage opportunities, program trading will simply shorten the time span over which they exist from minutes to nanoseconds. As more and more investors bring faster and faster computers to monitor the market and take advantage of arbitrage opportunities, the magnitude and profitability of such opportunities will decline. When reduced profitability equals the increased cost of faster computers, this technological competition, too, will arrive in equilibrium and these trading strategies will have no residual effect on market volatility.

Triple witching hour is Wall Street jargon for the simultaneous expiration of three different types of derivative securities—stock options (puts and calls), stock index options and stock index futures. Trading in these derivative securities takes an informational free ride on trading in the underlying stocks. Imperfections of the market in the underlying stocks, even if they are slight, as in the case of blue chips, are amplified by the burden of this free ride and are revealed in the form of increased volatility at the time of simultaneous expirations of

contracts. Recent changes in the rules of these markets have led to a redistribution, not reduction, in this burden.

The increasing significance of institutional investors and of the derivative securities is symptomatic of a more basic phenomenon. As more and more people come to believe in efficiency of markets, they abandon information production in their search for winners and settle for the averages. This applies to the search for stocks as well as for professional money managers.

As individuals abandon information production and turn to derivative securities, portfolio insurance and institutional managers, less information about market fundamentals is available and it is in the hands of fewer people. With thinner distribution of information, the stock price becomes "noisier" in the sense that it does not reflect the information as precisely as it would had it been more widely available. This narrowing of information production is the fundamental source of increased volatility in the market.

It is tempting, from this point, to jump to the conclusion that stock market volatility could be reduced if we could write new regulations to prevent the information producers from making a profit out of it. On the contrary, it is the prospect of this profit that keeps these few from abandoning information production.

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Economics experiments I have conducted suggest that the information producers make less money than the non-producers most of the time because the non-producers take a free ride on the costly information produced by the former. However, in occasional periods of market volatility, the information producers make large profits at the expense of the rest. On average, over a long period of time, producers and non-producers of information make about the same amount of money. If we prevent the producers from recovering the cost of information through trading profits in times of market volatility, we will only drive those who remain out of the business of producing information and thus make the security markets even more volatile.

When someone complains about market volatility, it is important that the policy makers screen out those made by plaintiffs beaten to the punch by alert opponents who use better, faster technology or have better understanding of how the market functions. The profit to such investors is the return that our system promises to those who innovate. Promise of such rewards to the innovators is a precondition for technological and structural advancement in our security markets. Most complaints can safely be expected to fall in this category. ■