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THE DANGERS OF REGULATORY OVERREACTION TO THE OCTOBER 1987 CRASH

Lawrence Harris †

INTRODUCTION

The October 1987 crash was the largest stock market crash ever experienced in the United States. Many people, remembering that the Great Depression followed the 1929 crash, expressed serious concerns about the 1987 Crash's potentially destabilizing effects. Fortunately, these concerns have not yet been realized.

In hindsight, economic analyses show that the 1929 crash was only a minor cause of the Great Depression. The most important cause of the Depression was the tight monetary policy following the crash. The Federal Reserve failed to provide liquidity sought by the financial sector, and this led to several banking crises. The tight monetary policy was implemented in response to fears about inflation—the governors probably were overly impressed by the German hyperinflation.

The Federal Reserve learned its lesson well. During the 1987 crash, it acted quickly and decisively to insure that adequate liquidity would be available to the financial sector. As a result, few real financial disruptions occurred. It appears that the danger of a major decline in economic activity due to the crash has passed.

There is, however, another danger associated with the crash that still threatens: the danger of overreaction. Many have called for legislative and regulatory reforms to stabilize the financial markets. The suggestions include trading halts, price limits, restricted access to computerized order submissions systems, greater margins, transaction taxes, and various limits on mergers and acquisitions. Although some policies would decrease volatility if adopted (some would not), they may be so costly to the economy that they should not be implemented.

Poorly designed policy generally yields poor results, despite the

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best of intentions. The long-run result of imposing limits on trading activity will be the loss of jobs in the United States securities markets. Trading will move to less regulated markets in Europe and Asia. The cost of capital for domestic firms also will rise if investors feel that the limits decrease liquidity. The long-run result of imposing limits on mergers and acquisitions will be significantly less efficient production in the United States economy.

This paper presents the economic arguments behind these conclusions. The presentation is divided into five sections. Section I defines volatility and explains why some types of volatility are good while others are bad. The distinctions are essential to any discussion of the merits and costs of proposed market structure changes. Section II discusses possible causes of the crash and explains why such an event is not expected to reoccur. This section is included so that the reader can decide whether problems exist that merit regulatory attention. Sections II and III also consider the pros and cons for limits on trading activity, and Section IV considers limits on mergers and acquisitions. The last section provides a short summary.

I

VOLATILITY

Responsible discussions of volatility must differentiate between fundamental volatility, transaction-induced volatility, and noise-induced volatility. Fundamental volatility is related to uncertainty about underlying security values. Transaction-induced volatility is caused by the trading process. Noise-induced volatility is caused when traders trade for sport or on information that they believe is valuable but which actually is only noise.

A. Fundamental Volatility

Stock prices reflect the values of uncertain firm prospects. When new information about these prospects is discovered, prices change to incorporate it.¹ For example, the stock price of an oil drilling firm rises when it is learned that the firm has discovered oil; it falls when it becomes obvious that they have drilled a dry hole. Prices change because informed traders are willing to buy undervalued firms and sell overvalued firms.

Stock prices that accurately reflect all information about firms' prospects are essential for allocating resources in our free market

¹ Well accepted theories of stock price formation can be found in introductory finance texts such as R. BREALEY & S. MYERS, *PRINCIPLES OF CORPORATE FINANCE* (3d ed. 1988).

economy. They determine the price at which firms are able to obtain new capital. Firms with high stock prices obtain new capital easily by issuing a small amount of new stock. Firms with low prices, however, must issue more new stock to obtain the same amount of capital. Because capital is scarce, this rationing mechanism ensures that the firms with the best prospects receive the resources needed to implement their plans. In the example, it will be easier for a firm that strikes oil to obtain new financing to continue exploring than it will be for a firm that sinks dry holes.

Accurate and informative prices also determine the value of a firm's resources under current management. A poorly managed firm has poor prospects relative to its prospects if well run. To the extent that this is known, the firm will be undervalued in the market. This makes it an attractive takeover target to investors who believe that they can do better. In the oil example, the firm that consistently finds oil may purchase the less able firm so that it can use the second firm's resources to greater advantage. This argument supports not only informative prices, but also free takeover markets.

Prices must change as the world changes if they are to reflect all current information about firm prospects. Section III, shows that some of the proposed limits on market activity can cause prices to adjust slowly to new information. To the extent that this is true, the proposed limits will impose costs on the economy.

B. Transaction-induced Volatility

Transaction-induced volatility results when buyers and sellers do not arrive at the market at the same time. This volatility is associated with the market trading mechanism.² A simple example helps define the concept: suppose that a buyer and a seller both want to trade the same quantity at the last price at which a trade took place. If they arrive at the market simultaneously, a transaction will take place and there will be no price change. If they arrive separately, however, they will either have to wait until the other arrives, or hope that someone else will be willing to trade with them.

If no other buyer or seller wants to trade, that "someone else willing to trade" will be a market-maker. Market-makers trade on the expectation that they will be able to unwind their position when the other side arrives. Market-makers must be compensated for this service since it costs them their time and exposes them to risk. They collect their compensation by selling at a high price (the ask) and buying at a low price (the bid): The difference, the bid/ask spread,

² A good introduction to market trading mechanisms and their relation to liquidity and volatility can be found in K. COHEN, S. MAIER, R. SCHWARTZ & D. WHITCOMB, *THE MICROSTRUCTURE OF SECURITIES MARKETS* (1986).

represents the cost of being able to trade immediately to the buyer and seller. They incur this expense because they are impatient to trade.

Returning to the example, price rises to the ask when the buyer arrives and falls to the bid when the seller arrives. The "bounce" between bid and ask represents one form of transaction-induced volatility.

This example implicitly assumes that market-makers know fundamental stock values. In practice, since these values are uncertain, the transaction exposes market-makers to financial risk. If they unknowingly make market at a price lower than the fundamental value, they will sell more stock at the ask than they buy at the bid. Better informed traders will only want to purchase stock. This will deplete market-maker inventories. Ultimately, price must rise to enable market-makers to reestablish their initial positions. This requires, however, that they repurchase stock at a price higher than their initial bid, the price at which they had expected to be able to repurchase stock. As a result, they will not capture the full bid/ask spread on the round-trip transaction. They may even lose money. A similar problem results when market-makers unknowingly make market at a price higher than the fundamental stock value.

Two types of market-makers can be identified by their response to this problem: inside market-makers and outside market-makers. Inside market-makers are poorly-informed traders who survive by being very responsive to market conditions. Depending on the market in which they trade, these traders may be known as specialists, scalpers, floor traders, day-traders, or broker-dealers. Outside market-makers are well informed traders who make market based on their information. Although they may be found on the floor of an exchange, they are more typically found at the trading desks of portfolio managers and investment banking houses.

Inside market-makers know that they lose money to better informed traders. They survive by taking this into account when they trade. They quote a wider bid/ask spread than would be necessary to compensate them only for their direct costs of making a market. The difference allows them to collect from uninformed traders what they lose to informed traders. They also revise their quotes frequently in response to the order flow. When they see many buy orders and few sell orders, they quickly raise their bid and ask quotes, since they assume that the outside traders may know more than they do about fundamental value. Their quick response insures that they always remain close to their target inventory. If their assumption is correct, the price changes that result contribute to fundamental volatility. If the assumption is false, however, the re-

sulting price changes contribute to a second form of transaction-induced volatility: volatility due to order imbalances. In this case, price would not equal fundamental value because of the order imbalance.

Outside market-makers, by contrast, are well informed traders who profit by trading when price differs from fundamental value. When an excess of buy orders causes price to rise above fundamental value, these traders sell stock on the expectation that they will profit when an imbalance of sell orders later arrives. Their intervention limits the transaction-induced volatility due to order imbalances.

The greater these uninformed imbalances are, and the greater the associated transaction-induced volatility it, the more profitable will be informed market-making. If the activity is more profitable than the costs of being well informed, more people will become informed. The potential for entry therefore places a long-run limit on the volatility that can be due to other imbalances.³

Outside market-makers differ from inside market-makers in two respects. Their superior information about fundamental value allows them to take larger positions for longer periods of time with less exposure to risk. Inside market-makers, however, can trade at narrower spreads since their superior access to information revealed through the order flow allows them to revise their quotes faster.

The magnitude of transaction-induced volatility depends on the number of inside and outside market-makers, their willingness to take positions, the likelihood that major order imbalances will be due to uninformed trade, and, in the long-run, the costs of being well informed. It also depends, as will be shown below, on the costs that regulations impose on market-makers.

Transaction-induced volatility is undesirable. Bid/ask bounce and uninformed order imbalances cause price changes unrelated to fundamental value. These effects make prices less informative so that allocation of capital is less efficient. They also decrease the benefits that accrue to uninformed investors from their investments. As a result, they offer less capital for investment, which increases firm capital costs. To the greatest extent possible, market structures that minimize transaction-induced volatility and hence transaction costs, while still allowing fundamental price changes, should be sought.

The identifying characteristics of transaction-induced volatility

³ Note that well informed traders are often called speculators when they trade on new information and market-makers when they trade on old information. In fact, little difference exists between the two activities. Both are conducted whenever price does not reflect fundamental value.

is that it results from transitory price effects. A transitory price effect will ultimately be reversed. Bid/ask bounce is a transitory effect because a price drop from ask to bid follows a price rise from bid to ask. Price effects due to uninformed imbalances are also transitory. A price rise due to an imbalance of uninformed buy orders will ultimately be followed by a fall due to an imbalance of sell orders from uninformed traders and from informed market-makers.

C. Noise-induced Volatility

Noise-induced volatility represents a special form of transaction-induced volatility. It results when order imbalances are caused by uninformed people who trade for pleasure or on information that they believe is valuable but which in fact is useless.⁴ These traders are called noise traders because their actions add noise—errors—to what otherwise might be full-information prices. The distinction between uninformed traders who trade for easily identified economic reasons—cash flow investment and accommodation, portfolio rebalancing, and hedging—and noise traders is important because the desired purpose of some regulations is to remove the latter from the markets.

Theoretical arguments concerning the effect of noise traders on transaction-induced volatility are ambiguous. In the short-run, more noise in the order flow may increase transaction-induced volatility because it raises the probability of an order-flow imbalance. In the long-run, however, volatility may fall because an increase in uninformed orders increases the profits of informed market-makers, causing more people to become informed. The result may be less volatility and more informative prices.

It is, therefore, not obvious that volatility would be reduced if noise trading could be selectively limited. In fact, since noise traders indirectly help finance information acquisition, they may be the unsung heroes of the financial markets.

II

VOLATILITY, LIQUIDITY, AND THE CAUSES OF THE OCTOBER 1987 CRASH

Before examining the economics of trading activity limits, it is useful to consider whether current market conditions warrant their imposition. Since many argue that the crash evidences the need for trading activity limits, this section examines the causes of the crash in light of the definitions and discussions of the preceding section.

⁴ A discussion of noise trading with references can be found in Black & Fischer, *Noise*, 41 J. FIN. 529 (1986).

The discussion begins with the most popular explanations for the crash.⁵

Many claim that the crash occurred when an imbalance of sell orders exhausted market liquidity so that prices fell. To measure the extent to which this might be true, examine the subsequent performance of the market. If the drop (508 points on Monday) were due only to an extreme order imbalance, price should have recovered when buy orders subsequently arrived and when market-making traders entered to provide liquidity. Although a substantial rebound (200 points) occurred on October 20, a return to previous price levels did not immediately happen. This suggests that an order imbalance was only partially responsible for the crash. A fuller explanation must be found by examining why fundamental valuation changed and why the order flow came to be dominated by sell orders.

Suggestions that prices fell because of bad news about fundamental firm prospects fail to satisfactorily explain the crash. No event occurred whose impact, under any reasonable assumptions, can account for the observed drop in prices. In particular, bad news about interest rates, the trade deficit, the national deficit, and/or the value of the dollar can at most be the trigger that started the crash, not its fundamental cause. Proof of this point can be found by noting that there was significant good news about all of these variables after the crash, but no subsequent quick revaluation of a magnitude equal to the crash.

Blame for the crash also has been directed at arbitrage between index futures and stock. This explanation fails because the two markets provide markets for essentially the same underlying risk. All strategies that can be executed in one market also can be (and often are) executed in the other market. Their main difference is that the futures market, under some circumstances, provides lower transaction costs than the cash market. Arbitrage only serves to link the two markets together. When sell orders are received in one market, arbitrage distributes their impact to the other market. Arbitrage cannot, however, explain why sell orders are submitted in the first place.

Program trading has been blamed for the crash, but this explanation also is weak. Program trading only provides the mechanism by which orders are executed. Other mechanisms can be (and often

⁵ The following arguments are generally discussed in U.S. Securities and Exchange Commission, *The October 1987 Market Break: A Report by the Division of Market Regulation* U.S. Securities and Exchange Commission (1988) and in the *Report of the Presidential Task Force on Market Mechanisms* (1988) (commonly referred to as the Brady Commission Report).

are) used. Like arbitrage, program trading cannot explain why sell orders are submitted. Moreover, as noted above, if the crash were due to a trade mechanism, a full rebound would have occurred.

A partial cause of the crash can be found in the misuse of portfolio insurance strategies.⁶ Portfolio insurance attempts to replicate the returns to a stock put option by a dynamic trading strategy. Briefly, this strategy buys stock (or index futures) when stock prices are rising, and sells stock when they fall. It works best if it is possible to buy and sell stock continuously at every price through which prices fall or rise. Portfolio insurance is very expensive when continuous trading is not possible.

Portfolio insurance seeks to ensure that portfolio value does not fall below some fixed value called the strike price. Its use is most appropriate to entities such as defined benefit pension plans that must fund some fixed future liability out of fund assets. In practice, it appears that the strategy was used more as portfolio manager insurance than as portfolio insurance. As such, the strategy is supposed to ensure that the portfolio does not perform significantly worse than the market as a whole. In this application, the strike price is ratcheted up underneath the value of the portfolio as the market rises. The intent of the ratcheting up is to lock in gains. Its effect is to cause more stock to be sold when price falls than would have been sold had the strike price not been increased.

Nothing comes for free. The creation of an option has associated with it an option premium. Dynamic option replication extracts that premium through trading losses. The premium is greatest when demand for the option is large relative to market liquidity and when volatility is high.

Portfolio insurance probably grew in popularity because managers underestimated its cost and overestimated the risk protection that it provides in practice. They therefore may have overvalued stocks, believing that stocks were more secure than they were. This could partly explain why prices appear to have risen beyond their fundamentals in the year preceding the crash. It seems unlikely, however, that it would account for a full 25 percent increase.

When bad macroeconomic news caused prices to fall during the week prior to the crash, portfolio insurers had to sell index risk. Their orders, and those of other traders who traded in anticipation of portfolio insurance orders, caused prices to fall further. Soon there was insufficient liquidity to satisfy these orders and prices continued to fall. This in turn caused more sell orders. Prices have not

⁶ A more complete discussion of the relation between portfolio and volatility is presented in Grossman, *An Analysis of the Implications for Stock and Futures Price Volatility of Program Trading and Dynamic Hedging Strategies*, 51 J. Bus. 275 (1988).

fully rebounded because they may now be closer to their fundamental values.

This explanation suggests that liquidity played a role in the crash, but not in the traditional sense. Prices dropped not because there was an order imbalance that could not be filled, but rather because traders learned that order imbalances could exist that could not be filled. They learned that stocks were not as liquid as they thought, and they therefore revalued stocks in a fundamental sense.

Since the crash, the portfolio insurance market has declined to less than one-third of its former size. If the misuse of portfolio insurance partly caused the crash, a recurrence is less likely.

Perhaps the most important lesson for regulators is that liquidity is valuable. Accordingly, if any regulatory changes are merited, they should be directed at enhancing liquidity, rather than at decreasing the demand for it.

III

THE ECONOMICS OF TRADING ACTIVITY LIMITS

The crash generated a number of calls for market reform. Among others, these include trading halts, price limits, restricted access to computerized order submission systems, greater margins, and transaction taxes. The stated purpose of these "circuit breakers" and "collars" is to decrease volatility and thereby restore confidence in the markets. This section uses the tools developed in section I to analyze whether these goals will be attained, and at what cost.

Before each proposal is separately discussed, consider what they have in common. All limit and/or increase the cost of trading. Trading halts stop trading if price moves by more than some fixed amount. After a recess, trading is then restarted. Price limits are like trading halts, except that trading is halted until the next day. Access restrictions to computerized order submission systems make transacting more expensive by forcing manual execution. Larger margins make larger speculative positions more costly. Transaction taxes make frequent trading expensive.

Traders who believe that these rules do not produce benefits in excess of the additional transaction costs that they impose will attempt to evade them. It is therefore very important that their benefits be well identified and real. Otherwise, their imposition will damage United States security markets and strengthen those foreign markets that provide a more attractive set of trading rules.

The argument is not simply an abstraction. The dollar Eurobond market is a good example of what happens when excessive restrictions are placed on trade. The SEC, acting in what it felt

were the best interests of public bondholders, promulgated regulations that required very expensive registration procedures for new bond issues. Issuers responded by moving these transactions to Europe. The result contributed to the loss of a substantial fraction of the United States bond market.

Another example illustrates the immediate potential of a shift in equity trade from the United States to overseas markets. On October 19, 1987, one billion dollars of American stocks traded in London before the New York markets opened. Orders for much of this trade originated in the United States. One billion dollars is more than one-tenth of the typical daily New York Stock Exchange trading dollar volume. Although the day was unusual, it shows that American security markets are vulnerable to foreign competition on a meaningful scale.

A. Trading Halts and Price Limits

Trading halts recently were adopted by the New York Stock Exchange, American Stock Exchange, the National Association of Securities Dealers, the Chicago Board of Trade, the Chicago Mercantile Exchange and various regional exchanges.⁷ These will halt trading for one hour if the Dow falls by 250 points. If the Dow falls an additional 150 points after trade is reopened, trading will be halted for two more hours. The second halt will have the same effect as a price limit if the episode starts in the afternoon.

Trading halts and price limits have the potential to reduce short-term volatility by slowing price changes. Whether this is desirable, however, depends on the cause of volatility.

Halts and price limits that limit fundamental price changes harm the market. They postpone price changes that will simply occur when the markets reopen. While the markets are closed, however, prices are less informative and no one is able to trade. Some traders may seek other markets in which to trade.

If halts and price limits decrease transaction-induced volatility, they may be beneficial. It depends on whether the decrease in transaction-induced volatility is worth more than the lost trading opportunities. Two arguments suggest that halts decrease transaction-induced volatility, while two others suggest that they increase this volatility component.

Transaction-induced volatility may decrease if a trading halt al-

⁷ Exchange Act Release No. 26,198, 42 SEC Dock. 33 (1988); Exchange Act Release No. 26,218, 42 SEC Dock. 127 (1988); Exchange Act Release No. 26,357, 42 SEC Dock. 595 (1988); Exchange Act Release No. 26,368, 42 SEC Dock. 655 (1988); Exchange Act Release No. 26,386, 42 SEC Dock. 686 (1988); and Exchange Act Release No. 26,440, 42 SEC Dock. 875 (1988).

lows outside traders greater time to respond to intraday margin calls and/or to remove stop-loss orders. When outside traders are unable to satisfy their margin calls, brokers issue stop-loss orders. Since stop-loss orders further imbalance an uninformed order flow, a halt that reduces their number may reduce transaction-induced volatility. Intraday margin calls, however, are quite rare.

Transaction-induced volatility may also decrease if a halt allows outside market-makers time to enter the market to provide liquidity when price is rapidly changing in response to an uninformed order flow. This conclusion assumes that outside market-makers currently are not fully aware of large price changes as they occur. The assumption seems reasonable because outside market-makers are not typically present on exchange floors. In practice, however, the decrease in volatility may be small because outside market-makers already can (and do) set up automated systems to notify them of conditions under which they might want to trade. It is in their own interest to be aware of these conditions since they profit by quickly identifying and responding to pricing problems caused by excess demands for liquidity.

Consider now two scenarios under which trading halts and price limits increase transaction-induced volatility. If traders fear that a halt will be called before they can submit their orders, they may choose to submit them earlier than otherwise to increase the probability that they are executed. Greater volatility will therefore result as the price limit attracts orders from rationally fearful traders. Second, if outside market-makers reduce their surveillance of the market assuming that they will be called when a trading halt occurs, the market will become less liquid between trading halts, and more trading halts will occur. This also will increase transaction-induced volatility.

B. Access Restrictions to Computerized Order Submission Systems

Restricting access to computerized order submission systems represented the first significant regulatory response to the crash. Immediately after the crash, program traders were prohibited from using the DOT (Designed Order Turnaround) line on the New York Stock Exchange.⁸ Until recently when the restriction was lifted, the prohibition was in effect whenever the Dow moved by more than 50 points.

The restriction increases transaction-induced volatility by mak-

⁸ New York Stock Exchange Rule 80A; Exchange Act Release No. 25,559, 40 SEC Dock. 966 (1988).

ing arbitrage more difficult. This isolates the stock market from the futures market so that each market must separately satisfy demands for liquidity in what is essentially the same risk. Volatility increases because order flow imbalances in the two markets sometimes cancel. A restriction on arbitrage, however, makes it more difficult to cross a buy order placed in one market with a sell order placed in the other market.

C. Increased Margins

Throughout financial history, many have believed that speculation increases volatility. Accordingly, it has been proposed that greater margins be placed on stocks and futures to control this potential source of instability.

Although speculation frequently is associated with periods of high volatility, virtually no empirical evidence supports the view that speculation causes high volatility. Instead, it is more likely that speculation is drawn toward high volatility, especially transaction-induced volatility. The concepts developed in Section 2 illustrate this. Informed speculators take positions in opposition to order flow imbalances. The greater the order flow imbalances are, the greater the transaction-induced volatility is, and the greater the profits to be made by well informed traders who speculate against them. The result is an association of speculation with volatility, not as a cause, but rather as a consequence that reduces transaction-induced volatility. This suggests that higher margins will not decrease volatility.

Not all speculators, however, are well informed. If the speculators are noise traders, higher margins could lower transaction-induced volatility. The result depends on whether the noise traders attract sufficient interest from well informed traders to offset, or even more than offset, the volatility that the noise traders produce, and, whether higher margins would have a greater discouraging effect on noise traders than on informed traders. If not, higher margins would cause higher volatility.

Even if high margins are merited, they will be difficult to enforce in practice. In the face of high regulatory margin requirements, some security-holders will substitute from broker supplied leverage to leverage obtained by borrowing against their home and other assets. The result will be the same exposure to risk, but probably at a slightly higher cost. The margin requirement can also be subverted by firms that borrow money and use the proceeds to buy their own stock. Ignoring taxes, the result of this transaction is exactly the same as holding the original stock in a margin account. If margins are increased, holders who want more leverage will buy

more highly leveraged firms, or demand that management increase leverage.

D. Transaction Taxes

Transaction taxes make active trading strategies less profitable. Since market-makers tend to be active traders, they will withdraw their services. This will increase transaction-induced volatility. To the extent that noise traders are also active traders, they will also withdraw. While that may decrease volatility, it may also increase it since their withdrawal reduces the incentives to being an informed market-maker.

To a trader, a trading commission is functionally equivalent to a transaction tax. Both make trade expensive. When fixed commissions were eliminated in May, 1975,⁹ commissions dropped substantially, and volume greatly increased. However, market volatility, measured in percent, generally decreased. The additional trade probably stabilized rather than destabilized prices. It would thus appear that a transaction tax will increase volatility.

IV

THE ECONOMICS OF MERGER AND ACQUISITION LIMITS

Many concerns have been raised recently about mergers and acquisitions in our economy. Although a complete discussion of the economics of this subject requires more space than is available here, it is important to address the issue because mergers and acquisitions have been blamed for recent increases in market volatility.

Wrongly associating mergers and acquisitions with market volatility falsely justifies new regulations to restrict them. The danger lies in the economic costs of restricting mergers and acquisitions. These can be enormous relative to any value that may (and perhaps may not) accrue to decreasing volatility through restrictions on mergers and acquisitions.

The most important argument relating merger and acquisition activity to increased market volatility has less to do with mergers and acquisitions than with the debt that often is used to finance them. Merged firms are frequently recapitalized so that the resulting firm is more highly leveraged than either of the original firms. This makes the new equity more volatile.

An example illustrates how stock volatilities depend on leverage. Suppose that a firm is financed only by equity. Stock in this firm entitles its owners to receive the full benefit of the firm's earnings. The value of the stock therefore depends on the expected

⁹ SEC Rule 19b-3 (effective May 1, 1975).

value of these uncertain earnings. Fundamental stock volatility is a function of how uncertain these earnings are.

Now suppose that the firm recapitalized by issuing debt equal to half the value of the stock and uses the proceeds to buy half of the original stock. The firm is now financed half by stock and half by debt. Stockholders are now entitled to receive the full benefit of the firm's earnings, but only after interest has been paid to the debtholders. Since interest payments must be made whether earnings are high or low, the debtholders do not bear much of the risk of the firm. They are at risk only to the extent that the new firm may be unable to pay interest and principal when due. The new equity, which is approximately equal in value of half of the old equity, must now bear virtually all of the risk that formerly was borne by all of the old equity.

The increased use of debt financing in our economy probably has less to do with mergers and acquisitions than with the corporate income tax. Corporations pay taxes on earnings after interest payments. A corporation may decrease its tax bill by increasing its leverage. The tax savings that result increase the value of the firm. Although this strategy has long been known, it is used more now because the junk bond market has become more respectable and because the costs to bondholders of bankruptcy have declined. Several recent studies show that junk bonds are not as risky as perceived and that their high interest rates more than offset losses in the event of bankruptcy.

Unfriendly acquisitions often increase leverage because former managers of the firm either failed to recognize the increase in value that would result from obtaining additional leverage, or were unwilling to make the adjustment. There are, of course, other very important reasons for mergers and acquisitions.

To understand the costs of limiting merger and acquisition activity, it is necessary to understand their economic purpose. Mergers, and especially hostile acquisitions, are the means by which poor management is removed and replaced by better management.

The removal of poor management should be the responsibility of a firm's shareholders. Shareholders, however, are generally unwilling to exercise that responsibility. Determining whether a firm is well managed is often quite costly. Since this information benefits all shareholders, each one hopes that someone else will bear the cost. The result is that few shareholders do. Shareholders try to solve this problem by electing directors to represent them. The directors, however, generally do not have the resources to fairly and accurately determine whether management is doing a good job. They are also often co-opted by management so that they do not

independently represent shareholder interests. It therefore can be very difficult to change management from within.

The need for internal oversight of managers is reduced if they face the threat of losing their jobs through a successful outside tender offer. The market for corporate control is therefore less a market for ownership in firms as it is a market for senior managerial talent. The threat of a tender offer encourages management to work harder. Incompetent management is removed by successful tender offers.

One criticism directed at mergers and acquisitions is that the money used for acquisitions is money that could and should be used for new investment. The problem with this statement can be seen clearly in light of the fact that virtually all of the money used to buy firms is paid to its former owners. The money does not simply disappear. Rather, in the hands of the former owners, it remains available for reinvestment.

The problems associated with limiting mergers and acquisitions deserve much more space than is available here. In general, efforts to limit them can have profound negative effects on economic efficiency. Unfortunately, the resulting loss of national wealth probably would not be associated with the entrenchment of management. Instead, it most likely would be blamed on increased competition from abroad.

SUMMARY

Although the October 1987 stock crash was the largest market crash ever experienced in the United States, there have been few real financial disruptions associated with it. It now appears that little danger remains of a major decline in economic activity due to the crash.

The danger of regulatory overreaction, however, still exists. Proposals for trading halts, price limits, restricted access to computerized order submission systems, greater margins, transaction taxes, and various limits on mergers and acquisitions currently are being debated. Some have been implemented.

Most of these proposals are unlikely to significantly reduce transaction-induced volatility. They will, however, impose significant costs on the financial markets and on the economy. The results of their application can be a loss of trading to overseas markets, more expensive capital costs to our corporations, and significantly less efficient production in our economy. Evidence indicates that the conditions that led to the crash no longer threaten the economy. Volatility has been decreasing steadily since the crash and has now returned to normal levels. The market for portfolio insurance has

declined by one-third its former level. These self-corrections suggest that further regulatory intervention is unnecessary.