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COMMENT ON MACEY, MITCHELL & NETTER

Michael J. Barclay†

Whenever I listen to discussions of trading restrictions such as short sale restrictions or circuit breakers or other kinds of trading restrictions that have been proposed, I cannot help being reminded of the following analogy. Suppose in his opening remarks this morning Jack told us that he was worried about panics that sometimes occur when fires break out in crowded buildings. So in order to prevent a potential panic from occurring here today, at the first sign of smoke he would run over and lock the door. Well you can imagine what would happen in this room the first time his face started to twitch or if he made any facial expression that even remotely resembled sniffing. Even more important than this short-run effect, however, is the effect this new fire policy would have on us in the long term. We would all be a bit less anxious to come and sit in this room. Returns to a given activity would now have to be a lot higher before we would be willing to partake because the costs are now higher. For example, some seminars we otherwise would have gone to and benefitted from we would pass up.

You may think that this analogy is a bit too extreme to be relevant to a discussion of short-sale restrictions. But, I would like to argue that the historical precedent clearly indicates that the propensity for panic is much greater among financial market regulators than it is among financial market participants. My favorite example illustrating this point goes back to World War I. In the summer of 1914 there was, as we have already discussed, some concern about the performance of U.S. securities markets. In particular, since many U.S. financial institutions were holding a considerable amount of European securities, the regulators were concerned about a possible spillover effect from the war in Europe to the United States. In response to this concern, the Federal Reserve Board halted trading on the New York Stock Exchange in July of 1914. This response may not seem too extreme until you realize that it was not until almost five months later, in December of 1914, that the Federal Reserve Board decided to re-open the Exchange. We had five months in 1914 during which no trading was allowed on the New York Stock Exchange. Of course, the Federal Reserve Board couldn't halt trading; all they were able to accomplish in this case was to move the

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location of trading from the floor of the Exchange out onto the street. And, as it turns out from all accounts of that year, the Fed's fear of panic in U.S. securities markets was unfounded. If you went out on the street to trade securities in early December of 1914, the price level was virtually the same as it was back in July when trading was halted.

Given this admittedly strong bias on my part towards a presumption that the appropriate role of governmental regulation in securities markets is to enforce contracts and to facilitate trade, not to encumber it, it should not be too surprising that I liked the paper by Macey, Mitchell, and Netter that was presented this morning, if for no other reason than that I think they got the right answer. On a more fundamental level, however, even though I do not think there is very much new analysis or new evidence in this paper, Macey, Mitchell, and Netter have done a very nice job of outlining the existing evidence in a perspective that facilitates discussion and aids in the policy analysis. In my comments this morning, I would like to focus on a fairly narrow aspect of those arguments. In particular, I would like to focus on the argument that unencumbered trading is important if private information is going to be revealed through trading, or if market prices are going to be an efficient mechanism for aggregating and disseminating that private information. Whether or not you ultimately believe that that is an important issue rests fundamentally on the empirical question of the importance of securities markets in aggregating and disseminating private information. If this is an important role of the market, if in fact many stock price movements are caused by the revelation of private information and not public information, then any restrictions on trade that encumber the normal flow of information pose a potentially serious concern that we should deal with.

I would like to approach this problem by giving you the results of some research that I have conducted with Bob Litzenberger at Wharton and Jerry Warner at the University of Rochester.¹ If you look at a normal weekday in the United States, about 80 percent of the 24 hour stock return variance occurs during the six daytime hours that the Exchange is open. In other words most of the action on the Exchange and most of the stock price changes occur between 10:00 in the morning and 4:00 in the afternoon. There are a couple of explanations that are consistent with this observation. One explanation rests on the simple observation that companies are much more likely to release public information at 2:00 in the afternoon than at 2:00 in the morning. Since the flow of public information is

¹ Barclay, Litzenberger & Warner, *Private Information, Trading Volume and Stock Return Variances*, REV. FIN. STUDIES (forthcoming).

expected to be greater during normal trading hours than during non-trading hours, a higher trading time return variance alone is not sufficient to distinguish between the effects of increased public information or the effects of private information revealed through trading. Luckily, I think, the Tokyo Stock Exchange, provides a unique experiment for differentiating between the public versus private information hypotheses.

The Tokyo Stock Exchange is open for half a day of trading approximately two Saturdays per month and closed on other Saturdays. So, for example, in the current period the Tokyo Stock Exchange is closed on the second and third Saturday of each month and open on other Saturdays. Now, many Japanese businesses are open on Saturdays. However, Saturday is not a normal business day in Japan, and there is very little public information released on a Saturday. Regardless of the quantity of public information released, however, there is no evidence that the flow of public information is any different on a trading Saturday than on a non-trading Saturday. Thus, over weekends with and without Saturday trading, the average flow of public information is held relatively constant while the volume of trade varies substantially. By observing the behavior of stock prices on weekends with and without Saturday trading it is possible to differentiate between the effects of public information and the effects of private information revealed through trading on stock return variance.

As it turns out, the variance of stock returns from Friday close to Monday close, the weekend return variance, is roughly 60 percent higher on weekends when the Exchange is open on Saturday than on weekends when the Exchange is closed on Saturday. This variance increase corresponds surprisingly close to the increase in trading volume. For example, remember that when the Exchange is open on a Saturday, it is open for half a normal trading day. In addition, the trading volume on Saturdays when the Exchange is open is about 60 percent of the volume on a normal trading day. Thus, over weekends during which there is Saturday trading, we observe an increase in trading volume equal to roughly 60 percent of one day's trading volume, and an increase in the weekend return variance of about 60 percent. This finding indicates that, holding the flow of public information constant, there is a close association between trading volume and stock return variances and it suggests that a significant fraction of stock price changes result from private information revealed through trading.

Now in most recent discussions of stock price volatility, there has been a popular perception that volatility is somehow bad. Thus, if this were the end of the story, I would be a little apprehensive

about telling it to our security market regulators. But, this is not the end of the story. You get a much more interesting view of the total picture if you start to widen the observation window a little bit. What happens, for example, if instead of looking just at the weekend variance, you look at the variance from Thursday to Tuesday or the weekly variance from Wednesday to Wednesday? As you widen this window, two very interesting events occur. First you observe that the extra volume that occurs on Saturday is not really new trading volume; it is simply existing volume that is drawn in from the surrounding days. If the Exchange is open on Saturday, there is more trading volume on Saturday than when the Exchange is closed. But, there is also a little less trading volume on the surrounding Thursday, Friday, Monday, and Tuesday. Opening the Exchange on Saturday does not increase the total number of trades; it simply rearranges them in time. Second, if you look at the weekly variance, say from Wednesday to Wednesday, there is no evidence that this weekly variance is higher for weeks when the Exchange is open on Saturday than for weeks when the Exchange is closed on Saturday. By opening the Exchange on Saturday, no new business has been created; there is no more trading than there otherwise would have been in that week. There is also no additional stock return variance; the weekly variance is no larger for weeks with Saturday trading than for weeks with no Saturday trading. But, because there is now trading on Saturday, some of the information that otherwise would have been revealed on Monday or Tuesday is now revealed on Saturday. The absolute price changes we observe are larger over the weekend but smaller on the subsequent days.

These results are actually quite consistent with several recent models of markets with heterogeneously informed traders. For example, Albert Kyle models a market with three types of traders: informed investors who trade strategically to maximize the profits from their private information, random liquidity traders whose buy and sell orders arrive randomly through time, and a specialist who has no private information, but who learns through price and volume changes.² In this model, private information is incorporated into prices over time at a constant rate (per trading hour), with the price at the end of the relevant trading interval reflecting all private information. The variance of returns over the entire trading interval reflects only the arrival rate of new information. The variance within the trading interval, however, also reflects the volume of trade by random liquidity traders. Trades of both informed and liquidity traders move prices since uninformed traders who learn

² Kyle, *Continuous Auctions and Insider Trading*, 53 *ECONOMETRICA* 135 (1985).

from price and volume changes cannot distinguish between the two. Thus, trading noise—variance in excess of that generated in a fully revealing rational expectations model—arises endogenously in this model because price movements and associated volumes are noisy signals for the information of informed traders. This trading noise is rational since the price established by the specialist is an unbiased estimate of the true price conditional on his information set, and the trading noise does not result in pricing errors that are systematically reversed.

Although Kyle does not estimate the specific effects of changing the Exchange trading hours, his analysis suggests that opening the Exchange on Saturday will not change the variance of weekly returns as long as the total amount of new public and private information is unaltered. Within the week, however, a change in the pattern of daily variances would be expected, reflecting the effects of the new trading hours on the arrival of traders. If the total weekly volume of liquidity trades is unchanged, but the intraweek distribution is spread evenly over the extended trading hours, then the return variance will be larger during weekends when the Exchange is open on Saturday because of the increased volume of both informed and liquidity traders during this interval. Variance should be lower on surrounding days because of the lower trading volume and the resulting reduction in the amount of information revealed by informed traders. This is precisely the result that we confirm in our analysis. This research suggests that the market plays an important role as a mechanism for aggregating and disseminating private information. Any efforts by financial market regulators that seriously encumber trading will potentially diminish this important role of the market.

I personally think that the uptick rule, as has been suggested here, is relatively impotent. If you go to the floor of the Exchange and attempt to short sell some stock, for the typical New York Stock Exchange firm you will not have to wait very long for an uptick in order to execute your trade. Thus, in the realm of rules and regulations that we can imagine in effect, I would say that the uptick rule is one of the less fearsome. On the other hand, I think that current lobbying and current efforts to strengthen this rule and to extend it to other markets such as the futures markets or options markets could be more pernicious. I realize it is probably politically infeasible to eliminate the uptick rule as it stands, but certainly let's try not to let it go any further.