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# RESTRICTIONS ON SHORT SALES: AN ANALYSIS OF THE UPTICK RULE AND ITS ROLE IN VIEW OF THE OCTOBER 1987 STOCK MARKET CRASH

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On October 29, 1929 the stock market crashed. Congress used the crash as an opportunity to introduce the pervasive regulation of securities markets that exists today. One of many practices for which Congress considered regulation appropriate was short sales. Representative Adolph Sabath of Illinois wanted to ban all short sales<sup>1</sup> in order to “eliminate what we term ‘short selling’ . . . the greatest evil that has been permitted or sanctioned by the Government that I know of.”<sup>2</sup>

Fifty-eight years later, on October 19, 1987 the stock market crashed again. In response to the crash, Congress and other regulators once again have called for increased regulation of the securities markets. And as before, there have been calls for increased regulation of short sales, although now the calls for regulation of short sales extend to the derivative markets as well. For example, Congressman Edward Markey, Chairman of the House Telecommunications and Finance Committee, reportedly considered a plan to limit short sales in the futures market.<sup>3</sup>

Short sales provide a convenient target for criticism since they allow investors to profit when a stock price falls. In a short sale, an investor who expects a stock price to fall sells borrowed stock so

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<sup>1</sup> H.R. REP. No. 4639, 72d Cong., 1st Sess. (1932).

<sup>2</sup> *Short Selling of Securities, 1932: Hearings on H.R. 4, H.R. 4604, H.R. 4638, H.R. 4639 Before the House Comm'n on the Judiciary*, 72d Cong., 1st Sess., pt. 1, at 7 (1932) [hereinafter *House Hearings*].

<sup>3</sup> See Clough, *Markey May Try to Limit Short Selling in Futures*, INVESTMENT DEALERS DIG., May 30, 1988, at 11. See also Mayer, *Some Watchdog, How the SEC Helped Set the Stage for Black Monday*, 67 BARRON'S 18 (1987).

that he can profit by purchasing the stock in the future at a lower price.<sup>4</sup> Commissioner Joseph Grundfest of the Securities and Exchange Commission ("SEC"), commenting on calls for more stringent regulation of short sales, said that political support for restrictions on short sales arises because: "When you sell short, you are in a sense betting against the team. At a minimum, it is an emotional issue."<sup>5</sup>

Short sales are criticized for their potentially harmful effects on both individual companies and the entire market. At one level, short sales facilitate the manipulation of stock prices. Allegedly, speculators sell stock short, spread false rumors about the company, and then purchase shares after the stock price has fallen. The reputation of the company can be damaged, perhaps irretrievably.<sup>6</sup> In addition, short selling can exacerbate a market decline. Many argue that in the 1920s bear raids began the stock price decline that turned into the crash. In the 1980s, program trading, which in some situations relies on short selling, is a frequently cited villain of increased market volatility in general and the October 19, 1987 crash in particular.

In contrast, some view short selling as an economically beneficial practice that promotes market efficiency. Short selling provides a method by which investors who know that a security is overvalued can trade on the information, thereby promoting more efficient pricing. Short selling facilitates arbitrage and enables investors to hedge against stock price declines, allowing investors to take larger positions which in turn adds liquidity to the market. Finally, index arbitrage, the type of program trading that involves short selling, promotes the linkage between the futures and cash markets and thus improves both the general efficiency of the securities markets and their ability to allocate capital to its highest valued uses.

In this paper we review the theoretical and empirical evidence on both short sales and restrictions on short sales, concentrating on the uptick rule. The uptick rule, Rule 10a-1, implemented in the wake of the 1929 crash and changed only slightly since then, states that a "short sale can only occur at a price above ("plus tick") the

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<sup>4</sup> In 1987 there were a record high 3.98 billion shares sold short on the NYSE (3.11 billion in 1986), of which 3.05 billion (77%) were made by NYSE members. See NEW YORK STOCK EXCHANGE, INC., 1988 FACTBOOK (1988) [hereinafter NYS FACTBOOK]. The short interest (total number of shares sold short that have not been covered) on the NYSE rose in 1987, peaking at 546.3 million shares in August.

<sup>5</sup> Wise, *Are Short Sales on the Up & UP? NYSE Suspects Violators, But Can't Find Them*, Washington Post, May 8, 1988, at H1, col. 5.

<sup>6</sup> See Ingrassia & Chipello, *Loaded for Bear Raid by Short Sellers on a Once Sleepy S&L is Bruising Both Sides*, Wall St. J., June 16, 1988, at 1, col. 1; Rotbart, *Market Hardball, Aggressive Methods of Some Short Sellers Stir Critics to Cry Foul*, Wall St. J., September 5, 1985, at 1, col. 6.

immediate sale price, or at a price equal to the price of the most immediate sale if the most recent price change was positive.”<sup>7</sup> In section I we review the legislative history of the uptick rule. In section II we discuss short sales restrictions. Section III discusses the theoretical and empirical evidence on the effect of the uptick rule on the pricing of individual securities. In section IV we discuss the economic arguments and evidence on the effects of the uptick rule on program trading and on the market. Finally, we draw implications in section V.

## I

### HISTORY OF THE UPTICK RULE

Numerous examples exist throughout history of attempts to regulate or eliminate short sales, including restrictions by Holland in 1610 and Great Britain during the Middle Ages.<sup>8</sup> During World War I, the New York Stock Exchange (NYSE) implemented restrictions on short selling because of the fear that short selling could hamper the war effort by “demoralizing” the stock market.<sup>9</sup> Even the NYSE Constitution contains a restriction against such “demoralizing” practices.<sup>10</sup>

The 1929 crash led to new demands for restrictions on short selling.<sup>11</sup> In 1931, in an attempt to head off restrictions on short sales and to gather data on them, the NYSE required exchange members to mark sell orders as long or short and to report short interest statistics.<sup>12</sup> In addition, concerns about short selling played a central role in the 1934 Congressional hearings that led to the enactment of the Securities and Exchange Act of 1934.<sup>13</sup> At that time the Senate Banking and Currency Committee found that “few subjects relating to exchange practices have been characterized by

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<sup>7</sup> 17 C.F.R. § 240.10a-1 (1988) contains the most recent variation of this rule.

<sup>8</sup> See J. MEEKER, *SHORT SELLING* 13 (1932).

<sup>9</sup> *Id.* at 122. There was also a fear that enemy agents might engage in bear raids, which would be feasible since they would be willing to lose large amounts of money if they could drive the market down. Meeker states that the fear of bear raids was the origin of the “demoralization clause” that was put into the NYSE Constitution.

<sup>10</sup> *Id.* at 120-24.

<sup>11</sup> Meeker notes that the NYSE quickly initiated an investigation and concluded there was no support for the hypothesis that the crash was due to short selling. *Id.* at 125.

<sup>12</sup> *Id.* at 147.

<sup>13</sup> See REPORT OF SPECIAL STUDY OF SECURITIES MARKETS OF THE SECURITIES AND EXCHANGE COMMISSION, H.R. REP. NO. 95, 88th Cong., 1st Sess., pt. 2, at 247 (1963) [hereinafter *SPECIAL STUDY*]. See also Short Sales of Securities, Exchange Act Release No. 13,091 [1976 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 80,837 (Dec. 21, 1976) [hereinafter *Short Sales of Securities*] for a review of the legislative history of the uptick rule.

greater differences of opinion than that of short selling."<sup>14</sup>

Critics of short selling in the 1930s stressed the harmful effects of bear raids on the pricing of individual securities and the overall market:

Some speculative operator or group of operators would get information that an individual, or a group of individuals, was carrying a large block of a particular stock with borrowed funds, and that the price of that stock had declined so much since purchase that the creditor was asking or on the verge of asking for additional cash or securities, and that it was doubtful whether the owner could supply much more of either. The 'raider' would then proceed to sell the stock short—hoping to push the price down further, even if only temporarily, to a point at which some of the hypothecated stock would have to be sold. And he hoped that if this occurred, such selling would itself drive the price down still further, giving the raider the opportunity to cover his short position at a profit.<sup>15</sup>

Critics further alleged that bear raiders spread false bad information about the stock. The fear was not just that individual stocks would decline, but that bear raids would drive the entire market down.

Short selling had its defenders, however. In 1931 Richard Whitney, President of the NYSE, testified that:

[If] there had been no short selling of securities, I am confident that the stock exchange would have been forced to close many months ago. It was the willingness of people who had sold short at higher levels to buy when prices were breaking that helped to maintain the markets.<sup>16</sup>

Another proponent of short selling, J. Edward Meeker, wrote in 1932 that short selling benefited the market by stabilizing price movements.<sup>17</sup>

Despite the calls for stringent regulation of short sales, Congress did little to regulate short sales directly in the Securities Exchange Act of 1934. Instead it gave most of the power to regulate such sales to the SEC.<sup>18</sup> In addition, Section 7 of the Act gave the

<sup>14</sup> See SPECIAL STUDY *supra* note 13, at 247. SENATE COMM. ON BANKING AND CURRENCY, STOCK EXCHANGE PRACTICES, S. REP. NO. 1455, 73d Cong., 2d Sess. 50 (1934).

<sup>15</sup> F. MACAULAY & D. DURAND, SHORT SELLING ON THE NEW YORK STOCK EXCHANGE vi-vii (1951).

<sup>16</sup> *House Hearings, supra* note 2, at 97.

<sup>17</sup> J. MEEKER, *supra* note 8, at 13.

<sup>18</sup> In its relevant part, Section 10 of the Securities and Exchange Act of 1934 states:

It shall be unlawful for any person, directly or indirectly, by use of any means or instrumentality of interstate commerce or of the mails, or of any facility of any national securities exchange—

(a) To effect a short sale, or to use or to employ any stop-loss order in connection with the purchase or sale, of any security registered on a

Federal Reserve Board regulatory control over margins on short sales,<sup>19</sup> and Section 16 prohibited short sales by officers, directors, or shareholders who own 10 percent or more of a class of equity securities.<sup>20</sup>

The SEC took several steps to regulate short sales. In 1935, at the request of the SEC, 16 exchanges codified the NYSE rule that members should not effect a sale that would demoralize the market.<sup>21</sup> This regulation represented an early implicit version of the uptick rule, since many at this time considered sales, especially short sales, at a price lower than the last price to be demoralizing.<sup>22</sup>

In the fall of 1937 an increase in volume and volatility on the NYSE occurred contemporaneously with a substantial market decline. The SEC studied the market decline and concluded that, for leading stocks, short sales comprised a significant part of the declining market's sales.<sup>23</sup> The study suggested that short selling exacerbated the market's decline. From this study, and the belief that the existing exchange regulations were ineffective, came the uptick rule.<sup>24</sup> The SEC felt that this regulation met the three necessary objectives of a short-sale rule:

(1) Allow relatively unrestricted short sales in an advancing market;

(2) Prevent short selling at successively lower prices—thus, eliminate the use of the short sale by the “bear raider” to drive the market down;

(3) Prevent short sellers from accelerating a declining market by exhausting all remaining bids at one price level, causing suc-

national securities exchange, in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors.

15 U.S.C. § 78a (1982).

<sup>19</sup> 15 U.S.C. § 78j (1982).

<sup>20</sup> 15 U.S.C. § 78p (1982).

<sup>21</sup> SPECIAL STUDY, *supra* note 13, at 251.

<sup>22</sup> The SEC had formulated the rule and the exchanges were requested to adopt it. The SEC anticipated that the rule would “preserve those features of short selling which are in the public interest.” *Id.* See also FIRST ANNUAL REPORT OF THE SECURITIES AND EXCHANGE COMMISSION 16 (1935).

<sup>23</sup> Adoption of Regulations Governing Short Sales, Exchange Act Release No. 1548 [1938-39 Transfer Binder] 2 Fed. Sec. L. Sec. (CCH) ¶ 25,153 at 14,115; ¶ 25,351 at 14,151 (1938).

<sup>24</sup> The 1938 Rule X-3b-3 defined a short sale as:

The term short sale means any sale of a security which the seller does not own or any sale which is consummated by the delivery of a security borrowed by, or for the account of the seller.

The uptick rule (Rule X-10A-1) stated:

(a) No person shall, for his own account or for the account of any other person, by the use of any facility of any national securities exchange effect a short sale of any security at or below the price at which the last sale thereof, regular way was effected on such exchange.

cessively lower prices to be established by longer sellers.<sup>25</sup>

A 1939 amendment changed the rule to the version that exists today.<sup>26</sup> The amendment allowed "short sales at the same price as the last sale, provided that the last sale price was higher than the last different price which preceded it."<sup>27</sup>

No major changes have occurred in the basic uptick rule since 1939, despite numerous calls for changes. The 1963 Special Study noted that from 1939 to 1963 the NYSE had unsuccessfully urged the SEC to change the rule, suggesting that short sales be permitted without restriction at any price higher than the close the previous day. The Special Study recommended that the rule be supplemented, although it did not make specific recommendations.<sup>28</sup> In 1976 the SEC ordered an investigation and request for comments on whether "regulation of short sales . . . is needed in today's regulatory environment."<sup>29</sup> The SEC noted:

It appears . . . that certain of the major manipulative practices intended to be remedied by short sale regulation of the type currently in effect no longer do, or could, afflict today's market in the same manner they did in the period prior to the adoption of the existing market regulatory framework. For example, the Commission believes that, as a result of the improved reporting of transactions in exchange-traded securities (resulting from the implementation of the consolidated system) and the development of more sophisticated techniques for market surveillance by the Commission and various self-regulatory organizations, practices like the traditional "bear raid" are now much more difficult to engage in, since any attempt at such an effort under today's market

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<sup>25</sup> SPECIAL STUDY, *supra* note 13, at 251.

<sup>26</sup> The rule was changed because there had been a decline of more than 50% in the volume of short sales, due in part to the requirement that short sales take place on an uptick. *Id.* at 252. Aggregate data from this period, which reports total short interest (number of open short positions), shows that a decline in short positions did not begin until several months after the February 8, 1938 implementation of the rule. A report commissioned by the NYSE, F. MACAULAY & D. DURAND, *supra* note 15, at 59, states monthly short interest figures for the NYSE from 1931-1948. In the months around the implementation of the rule the total short interest on the NYSE was: 11/27/37 1,184,215; 12/29/37 1,051,870; 1/27/38 1,249,478; 2/24/38 1,142,482; 3/29/38 1,097,858; 4/27/38 1,384,113; 5/26/38 1,343,573; 6/28/38 1,050,164; 7/27/38 837,063; 8/29/38 729,480; 9/28/38 588,345; 10/26/38 670,330. However, data on total short interest reveals little about the volume of short sales because short sales may be made and covered within the data collection period (month), and thus the activities are not reflected in the short interest figures.

<sup>27</sup> Short Selling Rules, Exchange Act, Release No. 2039 [1938-39 Transfer Binder] 2 Fed. Sec. L. Serv. (CCH) ¶ 25,351 at 14,115 (Mar. 10, 1939). The SEC also allowed an exemption from the rule for short sales made for special international arbitrage accounts.

<sup>28</sup> See SPECIAL STUDY, *supra* note 13, at 294.

<sup>29</sup> Short Sales of Securities, *supra* note 13.

and regulatory conditions is likely to be detected and stopped.<sup>30</sup>

By 1985, competition from the London Stock Exchange, which did not have an uptick rule, had prompted the President of the NYSE, John Phelan, to announce the NYSE was considering loosening the uptick rule.<sup>31</sup> Finally, the NYSE's Katzenbach Report on the market crash questioned whether the uptick rule was still useful.<sup>32</sup> The report stated:

In today's market, we doubt whether the continued existence of the short-sale rule is justified, other than perhaps to provide some investors with a semblance of confidence in the markets. The short sale rule favors price movement in the up direction and attempts to cushion it in a decline. It lacks logic, but may help to discourage speculation in a down market. However, no such rule does—or even can—exist on the index futures exchanges, so to present the rule contributes to tension between related markets.<sup>33</sup>

## II

### PRESENT UPTICK RULE

#### A. The Rule

The uptick rule, Rule 10a-1, states that: “No person shall . . . effect a short sale . . . (A) below the price at which the last sale . . . was reported pursuant to an effective transaction reporting plan; or (B) at such price unless such price is above the next proceeding different price at which a sale of such security . . . was reported. . . .”<sup>34</sup> Thus, short sales are only allowed on a plus tick—price above the price of the last sale, or a zero plus tick—price equal to the last sale if the last preceding transaction at a different price was at a lower

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<sup>30</sup> *Id.* The SEC proposed three temporary rules for comment that would have, to varying degrees, suspended the tick test. However, the SEC withdrew the proposed temporary rules in 1980, reporting that the few comments received indicated that “the ‘tick’ test provisions of Rule 10a-1 work well and should not be modified”. See Short Sales of Securities, Exchange Act Release No. 34-17,347, 45 Fed. Reg. 80,834-01 (1980) (to be codified at 17 C.F.R. § 240.10a-1).

<sup>31</sup> See McMurray, *Big Board May Relax Rule that Bars Short Selling to Depress Share Prices*, Wall St. J., Dec. 5, 1985, at 47, col 1.

<sup>32</sup> Report of the New York Stock Exchange, *An Overview of Program Trading and its Impact on Current Market Practices* (Dec. 30, 1987).

<sup>33</sup> *Id.* at 17.

<sup>34</sup> 17 C.F.R. § 240.10a-1 (1988). The operation of the uptick rule is illustrated by the following table taken from the SPECIAL STUDY, *supra*, note 13, at 252:

price.<sup>35</sup> The uptick rule applies to any security registered on, or admitted to unlisted trading privileges on, a national securities exchange, whether the trade is made on the exchange or over the counter. An exchange can choose whether the prices for the tick test are from trades on its own market or any market in the composite transaction reporting system.<sup>36</sup> In addition, 13 exceptions to Rule 10a-1 exist.<sup>37</sup>

Sequence of Sale	Sale Price	Short Sale Permitted	Reason
1	40	—	
2	39 7/8	no	Minus tick
3	39 7/8	no	Zero-minus tick
4	40	yes	Plus tick
5	40	yes	Zero-plus tick
6	39 3/4	no	Minus tick
7	39 5/8	no	Minus tick
8	39 3/4	yes	Plus tick
9	39 7/8	yes	Plus tick
10	39 7/8	yes	Zero-plus tick.

<sup>35</sup> Short sales are defined in Rule 3b-3:

The term "short sale" means any sale of a security which the seller does not own or any sale which is consummated by the delivery of a security borrowed by, or for the account, of the seller. A person shall be deemed to own a security if (a) he or his agent has the title to it; or (b) he has purchased, or has entered into an unconditional contract, binding on both parties thereto, to purchase it but has not yet received it; or (c) he owns a security convertible into or exchangeable for it and has tendered such security for conversion or exchange; or (d) he has an option to purchase or acquire it and has exercised such option; or (e) he has rights or warrants to subscribe to it and has exercised such rights or warrants: Provided, however, that a person shall be deemed to own securities only to the extent that he has a net long position in such securities.

17 C.F.R. § 240.3b-3 (1988).

<sup>36</sup> The major exchanges have chosen to use the last price on their exchange as the governing price for the tick test for a security traded on one or more securities exchanges. *See, e.g.*, New York Stock Exchange Rule 440.B (1988).

<sup>37</sup> The exceptions to Rule 10a-1 are contained in paragraph e of the rule. 17 C.F.R. § 240.10a-1(e) (1988). In brief the exceptions are:

(e)(1) Exempts a seller who owns the security sold and intends to deliver the security as soon as possible, but for some reason must borrow the security for settlement.

(e)(2) Exempts a broker or dealer from a sale, for an account which he has no interest, which is marked long even if the sale is in fact short.

(e)(3) Exempts any sale by an odd-lot dealer on an exchange or an over-the-counter sale by a third market maker to offset odd-lot orders of customers.

(e)(4) Exempts any sale on an exchange by an odd-lot dealer or over-the-counter by third market maker to liquidate a long position, which is less than a round lot, providing the sale does not change the position of the odd-lot dealer by more than one unit of trading.

(e)(5) Exempts short sales covered by § 240.10a-1(a) by a registered specialist, registered exchange market maker for its own account, or third market maker for its own over-the-counter account (i) effected at a price equal to or above the last sale regular way, reported for such security pursuant to an effective transaction reporting plan or (ii) effected at a price equal to or above the most recent offer communicated for that se-

## The uptick rule does not apply to securities traded over the

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curity by such registered specialist, registered exchange market maker, or third market maker if, when the offer was made it was equal to or above the last sale, regular way, reported for the security under an effective transaction reporting plan. Under this exception, the major exchanges may not allow their specialists to avail themselves of the exception to ensure that regional market specialists are able to execute their transactions at the primary market price.

See New York Stock Exchange Rule 440B (b) (1988), which states:

No specialist shall effect on the Exchange a short sale of any security in which such specialist is registered for his own account or for the account of any other person in reliance upon the exception afforded by paragraph (e)(5) of Rule 10a-1 of the Securities and Exchange Act of 1934, as amended.]

(e)(6) Exempts transactions covered by paragraph (b) of this section on a national securities exchange effected with the approval of that exchange that are necessary to equalize the price of the security on that exchange with the current price on another national securities exchange which is the principal exchange market for such security.

(e)(7) Exempts certain short sale arbitrage transactions. Exemptions include trades for a special arbitrage account by a person who then owns another security (such as convertible rights) by virtue of which he is, or presently will be, entitled to acquire an equivalent number of securities of the same class as the securities sold, provided the sale, or the purchase which such sale offsets, is made for the bona fide purpose to profit from a current price difference between the security sold and the security owned and that the right of acquisition was originally attached to another security or was issued to all holders of any class of securities of the issuer.

(e)(8) Exempts transactions made on a national securities exchange as part of an international arbitrage opportunity, where the seller has the bona fide purpose of profiting from the price difference between the security on an international market outside the jurisdiction of the United States and the security in a market within the jurisdiction of the United States, provided the seller knows or has reasonable grounds to believe that an offer enabling him to cover such sale is then available in such foreign security markets and he intends to accept the offer immediately.

(e)(9) Exempts transactions made as part of a special offering plan made in accordance with a special offering plan declared effective by the SEC pursuant to paragraph (d) of § 240.10b-2.

(e)(10) Exempts short sales by an underwriter or any member of the distribution syndicate in connection with the over-allotment of securities, or any lay-off sale by such person in connection with a distribution of securities pursuant to § 240.10b-8 or a standby underwriting commitment.

(e)(11) Exempts certain short sales covered by paragraph (a) of this section by a broker or dealer, at a price equal to the most recent offer communicated by such broker or dealer if such offer when communicated was above the price at which the last sale was reported pursuant to an effective transaction reporting plan or at the price of the last sale if the last sale price was above the next preceding different sale price at which a sale of such security was reported pursuant to an effective transaction reporting plan.

(e)(12) For the purposes of (e)(8) of this section a depository receipt for a security shall be deemed the same as the security represented by the receipt. For paragraphs (e)(3), (4), and (5) of this section the term third market maker shall mean any broker or dealer who holds itself out as willing to buy and sell a security for its own account on a regular basis otherwise than on an exchange in amounts of less than block size.

(e)(13) A broker-dealer that has acquired a security while acting in the capacity of a block positioner shall be deemed to own the security for the

counter (OTC) unless the OTC security also is listed on an exchange and thereby part of the consolidated transaction system. OTC securities were historically exempt from the uptick rule because last sales reports were not available for them, and because little reason to believe OTC short sales "would have a manipulative or destabilizing impact on the markets" existed since OTC short sales were not publicized.<sup>38</sup> However, with the growth of the National Market System (NMS), last sale price reporting has become available for a large portion of the OTC market. The SEC has recognized the change in the OTC market, and has specifically exempted NMS stocks from Rule 10a-1 until it has completed further study of short sale regulation of NMS securities specifically, and OTC securities generally.<sup>39</sup>

### B. The *Merrill Lynch* No-Action Letter

In December, 1986 the SEC Division of Market Regulation issued a no-action letter to Merrill Lynch for certain sales related to index arbitrage.<sup>40</sup> The letter stated that the Division would take no action under Rule 10a-1(a) and (b) if those paragraphs were applicable to sales of securities by Merrill Lynch as part of the unwinding of an index arbitrage position, where the index is the subject of a financial futures contract (or options on futures) traded on a board of trade or a standardized option contract.<sup>41</sup> Specifically, the letter said that Merrill Lynch could sell stock without regard to Rule 10a-1(a) and (b) if:

(1) the firm has a long stock position as part of an index arbitrage position as described above;

(2) the stock is being sold in the course of "unwinding an index arbitrage position" as described above; and

(3) the sale would be deemed to be a short sale as defined in Rule 3b-3 solely as a result of the netting of the index arbitrage long position with one or more short positions created in the course of *bona fide* arbitrage, risk arbitrage, or *bona fide* hedge activities as those terms are employed in Securities Exchange Act

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purposes of § 240 3b-3 even if the broker dealer does not have a net long position in the security if and to the extent the broker dealer's short position in such security is offset by positions created in the course of *bona fide* arbitrage, risk arbitrage, or *bona fide* hedge activities.

<sup>38</sup> See Short Sale of Securities, Exchange Act Release No. 34-22,414, [1985-86 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 83,915, at n.15.

<sup>39</sup> Short Sales of Securities, Exchange Act Release No. 34-22,975, 45 Fed. Reg. 8801-01 (1986) (to be codified at 17 C.F.R. § 240.10a-1).

<sup>40</sup> Merrill Lynch, Pierce, Fenner & Smith, Inc., SEC No-Action Letter, [1986-1987 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 1142C3, at 76,167 (Dec. 17, 1986).

<sup>41</sup> *Id.*

Release No. 15,533 (January 29, 1979).<sup>42</sup>

The no-action position resulted from a request originally outlined in a 1986 letter from Merrill Lynch to the SEC. That letter noted how the interaction of the uptick rule and definition of short sales, and certain activities undertaken by Merrill Lynch, hampered Merrill Lynch's index arbitrage abilities.<sup>43</sup> Merrill Lynch engaged in *bona fide* arbitrage, risk arbitrage, and *bona fide* hedging.<sup>44</sup> Merrill Lynch also engaged in index arbitrage.<sup>45</sup> At some point in index arbitrage there is an "unwinding transaction," which is either an elimination of each long or short position at the expiration of the futures or option contract, or the earlier termination of both the stock and futures or options' positions. Because it is important to be able to unwind quickly in order to preserve the profit opportunity arising from the difference in the futures and cash (stock) prices, the uptick rule, which slows the ability to sell stock, can interfere with index arbitrage.

The legal problem in index arbitrage for a firm such as Merrill Lynch that engages in all the above transactions arises because the definition of short sales fails to consider all economically equivalent securities in defining a net long position. At some point in unwinding an index arbitrage position involving the sale of stocks, Merrill Lynch, even if long in all stocks in the index arbitrage department, may be considered short in certain stocks because of the definition of short sales and because of *bona fide* arbitrage, risk arbitrage, or *bona fide* hedging. In determining whether a firm has a "net long position" in a security for the purposes of the uptick rule, all accounts of the firm must be aggregated. However, the definition of a short sale, Rule 3b-3, only considers holdings in convertible securities, options, rights, and warrants as long positions if they have been converted or exercised. Firms selling stock short, but also fully hedged with economically equivalent securities, because of

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<sup>42</sup> *Id.*

<sup>43</sup> Letter from Andrew Klein, on behalf of Merrill Lynch, Pierce, Fenner & Smith to Richard Ketchum, Director, Division of Market Regulation, Securities and Exchange Commission (Oct. 2, 1986) (applying for exemption from Rule 10a-1 under the Securities Exchange Act of 1934) [hereinafter Letter from Andrew Klein].

<sup>44</sup> *Bona fide* arbitrage, risk arbitrage, and *bona fide* hedging are defined in Securities Transactions by Members of National Securities Exchanges, Exchange Act, Release No. 15,533, 44 Fed. Reg. 6084 (1979) (to be codified at 17 C.F.R. § 240.10a-1).

<sup>45</sup> *Bona fide* arbitrage occurs when market professionals make contemporaneous purchases and sales of the same security in different markets or economically equivalent instruments to profit from a pricing differential. Economically equivalent securities can include stock, stock purchase warrants, options, and other convertible securities. Risk arbitrage is risking capital on a contingent corporate event, for example, speculating on the possibility of a merger or tender offer. *Bona fide* hedging is the offset of risk in a long (short) position in a security with a contemporaneous short (long) transaction in an economically equivalent security. See *infra* note 116 for a discussion of index arbitrage.

*bona fide* arbitrage, risk arbitrage, or *bona fide* hedging may be considered short if some of the same securities that are included in the index arbitrage position.

An example most easily demonstrates the problem. Suppose Merrill Lynch has sold IBM stock short in *bona fide* arbitrage, and therefore Merrill Lynch is long in an equal amount of economically equivalent securities of IBM, for example, unexercised call options. Suppose, also, the index arbitrage account is long in IBM stock. When an index arbitrage opportunity arises requiring Merrill Lynch to sell IBM, it must aggregate the long position in IBM in the index arbitrage department with the definitionally short holdings of IBM in the *bona fide* arbitrage account. This aggregation may result in Merrill Lynch being considered short in the stock even though the *bona fide* arbitrage account is fully hedged. Therefore, the index arbitrage trade may be subjected to the tick test, hampering the ability of Merrill Lynch to quickly sell IBM stock.<sup>46</sup>

In its letter, Merrill Lynch argued that the exemptions to the uptick rule are based on one or more of three basic factors: 1) the small possibility the practice could be used for market manipulation, 2) the lack of any incentive to use the practice to make manipulative short sales, and 3) the need to prevent the uptick rule from interfering in an "unwarranted way" with actions that contribute to pricing efficiency among and between markets.<sup>47</sup>

Merrill Lynch argued that the latter two factors provided a justification for granting an exemption from Rule 10a-1 for stock that is 1) long for an index arbitrage position; 2) sold as part of an unwinding of index arbitrage; and 3) sold in a sale which would be considered short because Merrill Lynch previously had sold the stock short for hedging or arbitrage. Because the stock is fully hedged in the other departments, there would be no incentive for manipulative short selling, as the profits on short positions in stock would be offset by losses in the equivalent securities. Further, index arbitrage promotes pricing efficiency by linking the futures and the cash markets. Finally, Merrill Lynch noted that this proposed exemption is analogous to exemption (e)(13), which allows a block positioner to ignore for the purposes of the tick test offsetting short positions created in *bona fide* arbitrage, risk arbitrage, or *bona fide*

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<sup>46</sup> For example, suppose Merrill Lynch has sold 100 shares of IBM short in *bona fide* arbitrage and has unexercised call options for 100 shares of IBM stock, and for index arbitrage has purchased 100 shares of IBM stock. When Merrill Lynch wants to sell the 100 shares of IBM for index arbitrage, it would be considered a short sale because the call options are not counted and because Merrill Lynch would be considered to not have a long position in IBM (the 100 shares sold short offset the 100 shares).

<sup>47</sup> See Letter from Andrew Klein, *supra* note 43, at 8.

hedging.<sup>48</sup>

The SEC received bitter criticism for the no-action letter after the crash. Martin Mayer, for example, argued that an effective uptick rule helps keep computer trading from causing significant market declines. Therefore, Mayer considered the SEC's relaxation of the rule to be harmful to orderly markets and the investing public and to be a major factor in the crash. The validity of this criticism must ultimately rest on the economic effects of index arbitrage.<sup>49</sup>

### III

#### ECONOMIC EFFECTS OF THE SHORT SALE RESTRICTIONS

Short selling improves the efficiency of securities pricing and increases liquidity. The investor who has asymmetric information indicating a stock is overpriced can sell it short with the expectation that the stock will be purchased in the future at a lower price. Investors can use short sales to arbitrage away price differences between markets and between related securities. More recently, short selling has become part of index arbitrage. Index arbitrage arises when the difference between the price of a futures contract on an index and the cash value of the underlying index becomes sufficiently large to warrant arbitrage activity. Index arbitrage improves the efficiency of security markets by moving prices toward their equilibrium level.

Arbitrage, by linking markets, thus increases liquidity. While liquidity alludes a precise definition, Grossman and Miller suggest it is closely related to the ability to trade immediately.<sup>50</sup> Increased liquidity improves market efficiency and facilitates hedging (taking

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<sup>48</sup> See Securities and Exchange Commission Release No. 34-20,230, File No. S7-995, 28 SEC Docket 1447 (Sept. 27, 1983) for a discussion of the block positioning exemption.

<sup>49</sup> Note also that contrary to Mayer's argument, which said: "In effect, this letter exempts broker/dealer firms—only broker/dealer firms, but all of them—from the long-standing uptick rule[.]" see Mayer, *supra* note 3, at 18, the no-action letter did not exempt broker dealers from the uptick rule. Instead, it permitted under the uptick rule, sales of stock pursuant to index arbitrage unwinding without aggregation with other fully hedged positions. No new short positions were created and the firm would not benefit from a price decline. It would only affect the sales of a few stocks that were traded both in index arbitrage and in other hedging or arbitrage transactions. Finally, as a practical matter the SEC found no evidence of reliance on this letter in index arbitrage on October 19, 1987. In a survey of the October 1987 trading of 13 brokerage firms, only one firm quantified its reliance on the no-action position in index arbitrage trading (its main unwinding transaction occurred on October 16). Other firms did not rely on the no-action position or could not quantify their reliance. See DIVISION OF MARKET REGULATION SECURITIES AND EXCHANGE COMMISSION, REPORT ON THE OCTOBER 1987 MARKET BREAK 3-26 n.68 (1988) (this study is commonly referred to as the "SEC Study of the Market Break" but was actually conducted by the Division of Market Regulation and does not represent the opinion of the SEC) [hereinafter MARKET BREAK STUDY].

<sup>50</sup> See generally Grossman & Miller, *Liquidity and Market Structure*, 43 J. FIN. 617 (1988).

opposite positions in similar assets), which reduces investor risk. In addition to the indirect effect on hedgers through increased liquidity, hedgers who wish to protect themselves against price declines use short selling directly. In turn, hedging increases liquidity because reduction of risk enables traders and market makers to take large positions. Finally, the ability of specialists to sell short helps them maintain an orderly market during periods of large buy orders without having to maintain a large costly inventory.<sup>51</sup>

Notwithstanding its benefits, short selling is subject to more severe regulation,<sup>52</sup> including higher margin requirements and the uptick rule, than other security transactions. Federal margin regulations require a short seller to deposit the net proceeds of a short sale plus 50% of the proceeds in a margin account.<sup>53</sup> Thus, a short seller cannot access the funds raised in the short sale for use in other investments. We concentrate here on the uptick rule and ask whether this rule is necessary to protect individual securities and the entire market from abusive short selling and market manipulation.

Some questions arise as to whether the evils that the uptick rule was implemented to rectify ever presented a significant problem. The perception in the 1930s was that short sales generally, and bear raids specifically, contributed to the crash and continued with harmful effects. However, only anecdotal evidence supports this view. Conversely, Meeker reported in 1932 that there was no truth to the rumor that bear raids had caused the 1929 panic.<sup>54</sup> He cited statistics from the NYSE short interest inquiry of November 13, 1929 that short interest on November 1, 1929 was a mere 1/8 of one percent of the total NYSE market value. Meeker argued that, if anything, insufficient short selling exacerbated the crash because short sellers eventually become buyers as the market falls.

In 1951 the Twentieth Century Fund study of short selling commissioned by the NYSE found, "in the twenty years since May 1931, there appears no conclusive statistical evidence that short selling materially affected the extent of a major decline or a major advance in the market as a whole."<sup>55</sup> The Twentieth Century Fund

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<sup>51</sup> Specialists' short sales were 46.2% of all short sales in 1987 and 41.6% of all short sales in 1986. Specialists do not maintain a short position for long periods. The NYSE reports that only a negligible share of short interest is held by specialists. NYSE 1988 FACT BOOK, *supra* note 4, at 59.

<sup>52</sup> For example, section 16(c) of the Securities Exchange Act of 1934 prohibits short sales by certain statutorily defined insiders including beneficial owners, directors, or officers. 15 U.S.C. § 78p(c) (1982).

<sup>53</sup> See 12 C.F.R. § 220 (1988); Securities Exchange Act of 1934, 48 Stat. 881 (1934) (codified as amended at 15 U.S.C. § 77 (1982)).

<sup>54</sup> See J. MEEKER, *supra* note 8, at 125.

<sup>55</sup> F. MACAULAY & D. DURAND, *supra* note 15, at ix.

study also noted that a bear raider would face risks and that bear raiding was not as attractive as others have claimed:

As he (bear raider) increased his short position, knowledge of his activities might leak out to someone who was willing to take a very large position on the *long* side of that particular stock—and this new operator might buy the stock from the short seller as fast as the short seller sold it; and as soon as the short seller showed unmistakable signs of wanting to cover, the purchaser might begin to bid up the price of the stock. The short seller could then find himself in a most difficult situation—forced to cover his short position at a loss or even at ruinously high prices. Indeed, covering might even have become quite impossible, if the purchasing operator had succeeded in buying enough stock.<sup>56</sup>

The SEC noted in 1976 that the 1937 SEC study of short selling used to justify the uptick rule has been criticized on several grounds,<sup>57</sup> most notably that the conclusions were drawn “from inadequate data and that the information released by the Commission merely demonstrates trends over a short period of time—trends which are inconclusive with respect to the general impact of short selling.”<sup>58</sup>

#### A. The Theoretical Impact of Short Sale Restrictions on the Pricing of Individual Securities

Finance literature has addressed the impact of short sale restrictions on the price of individual securities. Edward Miller argues that short sale restrictions inhibit trading by those with relatively pessimistic views of a stock, and thus short sale restrictions result in an upward bias in stock prices.<sup>59</sup> Because optimists are relatively more important in the determination of equilibrium prices in the presence of short sale restrictions, the upward bias will be greater the larger the dispersion in investors' views. However, Robert Jarrow suggests that the effect of short sale restrictions on prices is ambiguous.<sup>60</sup> He argues that an investor's demand for one stock, while unaffected by short-sale restrictions on that stock, also depends on short sale restrictions on other stocks. For example, suppose an investor is pessimistic about Ford but optimistic about IBM and she views her optimal investment strategy as buying IBM and short selling Ford. However, short-sale restrictions that keep the investor from short-

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<sup>56</sup> *Id.* at vii.

<sup>57</sup> Short Sales of Securities, *supra* note 13, at 87,209.

<sup>58</sup> *Id.*

<sup>59</sup> See, e.g., Miller, *Risk, Uncertainty, and Divergence of Opinion*, 32 J. FIN. 1151 (1977).

<sup>60</sup> Jarrow, *Heterogenous Expectations, Restrictions on Short Sales, and Equilibrium Asset Prices*, 35 J. FIN. 1105 (1980).

selling Ford will affect the investor's overall strategy and the amount of IBM that she buys.

Douglas Diamond and Robert Verrecchia add other considerations in their model of the effect of short sale restrictions: the distribution of security prices and the speed of price adjustment to the release of news.<sup>61</sup> They formulate a rational expectations model of trading where a specialist posts a bid-ask spread and traders incorporate and act on knowledge about the effects of short sale restrictions on other traders. The model incorporates the actions of informed traders who have private information, uninformed traders who have only public information and trade for liquidity reasons, and the specialist who observes the trades but who does not have private information. The specialist sets a bid-ask spread that on average equalizes his losses from trading with informed investors and his gains from trading with uninformed investors. Short-sale restrictions increase the costs of short selling and thus reduce the number of short sellers. Further, the restrictions have the greatest effect on uninformed traders and on informed traders with only slightly bad news. Short-sale restrictions, by increasing the expected return necessary to induce short selling, alter the mix of short sellers: the higher the level of short-sale costs the more informed are the traders that short sell. Therefore, restrictions on short sales convey information, and specialists and traders consider the informational content of short sales when making their trading decisions.

Several implications follow from Diamond and Verrecchia's model. They suggest that, while short sale restrictions eliminate some trades, the restrictions do not bias stock prices upward in the long run. However, short-sale restrictions generally reduce the speed of price adjustment to both good and bad news, especially bad news.<sup>62</sup> By reducing the knowledge the market has at any point in time, short-sale restrictions increase the price reaction when private news is made public and thus increase volatility.<sup>63</sup>

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<sup>61</sup> See Diamond & Verrecchia, *Constraints on Short Selling and Asset Price Adjustment to Private Information*, 18 J. FIN. ECON. 277 (1987).

<sup>62</sup> The speed of adjustment is reduced for all types of news because short-sale restrictions reduce the amount of information in the market. Specifically, by decreasing the number of short sales, short sale restrictions increase the number of periods when no trades take place. Therefore, the informational content of observing that no trades take place in a period is reduced, lowering the speed of price adjustment. The largest effect is on bad news since traders with bad news are directly affected by short-sale restrictions. Diamond and Verrecchia claim this is indirectly supported by empirical evidence. *Id.* at 299 (citing Lloyd-Davies & Canes, *Stock Prices and the Publication of Second-Hand Information*, 51 J. Bus. 43 (1978)). Lloyd-Davies and Canes find that an investment analyst's clients are more likely to act on a buy rather than a sell recommendation.

<sup>63</sup> The determinants of the effects of short sale restrictions in the model depend on

## B. Empirical Evidence on the Effects of Short Sale Restrictions

Stephen Figlewski tests the effects of short sale restrictions by comparing the excess returns earned by portfolios of stocks classified by their short interest.<sup>64</sup> Figlewski, based on Miller's arguments, hypothesizes that if short sale restrictions cause the market to exclude unfavorable information, then the higher the short interest (uncovered short sales) of a stock, the more likely unfavorable information about that stock has been excluded and hence the more overpriced the stock. He predicts that portfolios of high short interest stocks should underperform portfolios of low short interest stocks. In support of his theory, Figlewski finds that the low short interest portfolios earned greater excess returns than high short interest portfolios.<sup>65</sup> His results support the view that short sale restrictions, including the uptick rule, bias stock prices upward.

In contrast, two papers by Jennifer Conrad present evidence more consistent with the work of Diamond and Verrecchia. In the first paper, Conrad examines the stock price reaction to the introduction of options for 96 stock options between 1973 and 1980.<sup>66</sup> Since options can be used by investors who believe a stock is overpriced, the introduction of options may have the similar effects to reducing short sale restrictions.<sup>67</sup> The introduction of options may improve the efficiency of markets by allowing trading by traders previously restricted by short sale restrictions, which in turn may improve the efficiency of the pricing of securities. If true, Conrad notes we would expect that stock prices would increase upon the introduction of options.<sup>68</sup> On the other hand the introduction of

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the relative importance of two effects. Informational efficiency is reduced when the restrictions drive out informed traders, and informational efficiency is enhanced when the restrictions drive out uninformed traders. Diamond and Verrecchia argue that the usual effect of short sale restrictions is to reduce the speed of price adjustment, especially for bad news since some traders with bad private information will not short sell. *Id.* at 298.

<sup>64</sup> See, e.g., Figlewski, *The Informational Effects of Restrictions on Short Sales: Some Empirical Evidence*, 16 J. FIN. QUANTITATIVE ANALYSIS 463 (1981).

<sup>65</sup> *Id.* at 473-74. This result appears somewhat surprising, since it implies a profitable trading rule that has not been arbitrated away. *Id.* at 473. However, the results do not include estimates of transactions costs to test whether there actually is a profitable trading rule.

<sup>66</sup> Conrad, *The Price Effect of Option Introduction*, 44 J. FIN. 487 (1989).

<sup>67</sup> One commentator notes, "[a]n investor can largely replicate a short sale by simultaneously buying the put, selling the call, and borrowing the present value of the exercise price." Brealey, *How to Combine Active Management with Index Funds*, 12 J. PORTFOLIO MGMT. 4 (Winter 1986). The transaction presented by Brealey will only be strictly equivalent to a short sale if the options were European options.

<sup>68</sup> Conrad notes, however, that welfare improvements do not always lead to price increases in the financial markets. However, a price increase in the financial market would indicate an increase in welfare (citing Hakansson, *Changes in the Financial Market: Welfare and Price Effects and the Basic Theorems of Value Conservation*, 37 J. FIN. 977 (1982)). Conrad, *supra* note 66, at 493.

options could reduce stock prices if it allows investors with more negative information to trade. Also, the possibility exists that the introduction of options could decrease the price of the underlying security if the option introduction increased the possibility of a bear raid or the volatility of returns.

Conrad finds that the introduction of options is associated with a positive stock price increase.<sup>69</sup> Since options can be used to imitate short sales, Conrad's evidence does not support the hypothesis that short-sale restrictions bias stock prices upward.<sup>70</sup> She also finds that the introduction of options decreases the volatility of prices of the underlying equity security (variance of returns), and furthermore, the introduction of options does not affect the individual stocks' systematic risk, as measured by the stocks' betas.

In her second paper, Conrad performs a more direct test of whether traders incorporate available short selling information in their trading.<sup>71</sup> She examines the excess stock price returns around the monthly *Wall Street Journal* short interest announcement using a technique that distinguishes between informed short selling and uninformed (specialist) short selling. She finds that for short interest announcements there is a negative effect in regard to the unexpected informed component of short interest, and an insignificant positive effect exists from uninformed short interest. Conrad claims these results indicate that investors incorporate into their decisions others' negative private information, and that the market distinguishes between informed and uninformed short sales.<sup>72</sup> Combined with her evidence on option introductions this evidence on short interest indicates that at least some pessimistic information is incorporated into stock prices despite short-selling restrictions.<sup>73</sup> She

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<sup>69</sup> There was no stock price reaction to the subsequent introduction of put options on 36 of the stocks, where put options were introduced after the call options. Until 1980 put options on individual stocks were introduced after the call options had been introduced. Therefore, for most of the stocks in the main sample of option introductions, the introduction of option trading meant the introduction of call option trading. *Id.*

<sup>70</sup> The positive price effect could also arise if option introduction does not remove short sales constraints.

<sup>71</sup> J. CONRAD, *THE PRICE EFFECT OF SHORT INTEREST ANNOUNCEMENTS* (University of North Carolina, Working Paper, October 1987).

<sup>72</sup> *Id.*

<sup>73</sup> Other evidence exists on the relationship between short sales and stock price movements. Two papers test whether the aggregate specialists' short sale ratio (ratio of short sales made by specialists on the NYSE to all short sales) predicts future stock price movements in a way that can be profitably exploited by investors. Unlike the Conrad work, these papers are based on the hypothesis that, at least at the aggregate level, specialists have superior information about market movements. Under the assumption that specialists have superior information about the market in general and short sales result from unfavorable information, then when the specialist short sale ratio increases stock prices would be expected to decline (and vice versa). Reilly & Whitford, *A Test of the Specialists' Short Sale Ratio*, 8 J. PORTFOLIO MGMT. 12 (1982) find that while specialists may

states, however, that short selling restrictions may still affect the efficiency of price adjustments to negative information.

### C. Block Trading

While we argue that the uptick rule reduces market efficiency in general, certain groups potentially benefit from the rule. Firms listed on the major exchanges represent one group potentially harmed by a relaxation in the rule.<sup>74</sup> Firms generally would like to reduce the incentives for traders to release negative information, especially bad rumors, about their firms' prospects. However, the uptick rule does not stop all short selling; it just slows the process slightly. Traders with negative information still have incentives to short sell and release negative information. Furthermore, relatively small firms traded over the counter have a greater incentive to favor the uptick rule because their stock prices are more likely to be sensitive to unsubstantiated rumors. Only for thinly traded stocks is there a remote possibility of manipulative short sellers stampeding the price down.

Another group may be interested in retaining the rule—block traders and block positioners. Block trades are large trades, usually made by institutional investors. Institutional investors trade large

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be able to earn superior returns, investors trading on the specialists' short sale ratio can not earn excess returns. *But see* Bowlin & Rozeff, *Do Specialists' Short Sales Predict Returns?*, 13 J. PORTFOLIO MGMT. 59 (1987). Using a different estimation technique, their study concludes that specialists successfully predict future market performance and that trading on the specialists' short sale ratio would have earned excess returns. They do not show, however, that a trading rule could have led to excess returns after accounting for transactions costs.

John G. McDonald and Donald Baron examined risk and return on a sample of 100 NYSE listed firms from 1961 and 1966. They find no evidence that short sellers were able to earn abnormal returns and that there was a direct relationship between risk and short interest. They conclude the evidence suggests that short selling is more important for hedging purposes than for speculative short-sellers. McDonald & Baron, *Risk and Return on Short Positions in Common Stock*, 28 J. FIN. 97 (1973). More recent evidence consistent with McDonald and Baron is contained in J. WOOLRIDGE & C. GHOSH, AN ECONOMIC ANALYSIS OF SHORT SELLING AND SECURITY PRICES (Penn State University Working Paper 1987). Woolridge and Ghosh perform several empirical tests on a sample of 50 AMEX firms. They find that monthly changes in short positions are positively related to monthly stock returns, indicating that on average short sellers were shorting into rising prices. They also find that stocks with higher and more variable short interest positions have higher betas and find no evidence that short sellers have earned abnormal returns (and thus no support for the view that short sellers manipulate prices to earn excess returns).

<sup>74</sup> One comment letter sent to the SEC on the 1976 proposal to relax the uptick rule came from a listed firm. The Vice President of AT&T opposed the elimination of the tick test arguing that theoretical improvements in market efficiency were not sufficient to outweigh the increased risk and volatility. AT&T was especially opposed to the proposals to eliminate the tick test for some securities (including AT&T), arguing it would be unfair to the issuers and shareholders of those firms. Letter from William G. Burns to George A. Fitzsimmons (May 3, 1977).

blocks both for liquidity and informational reasons.<sup>75</sup> While block trades make up a relatively small portion of the NYSE trades (4% in 1987) they comprise over half of the total volume (51.2% in 1987).<sup>76</sup> The NYSE reports that in 1987 the exchange averaged 3639 block trades a day.<sup>77</sup> The importance of block trades has risen with the growth of institutional trading. As late as 1965 the NYSE averaged only 9 block trades a day (3.1% of volume), but by 1975 the average had increased to 136 a day (16.6% of volume) and by 1980 the average was 528 a day (29.2% of volume).<sup>78</sup> Jarrell documents the importance of institutional investors in regulations and actions of the NYSE and the SEC, and shows that the increasing importance of institutional investors caused deregulation of certain anticompetitive practices on the NYSE during 1968 to 1975.<sup>79</sup>

When an investor wants to make a block trade, he first contacts a block trader at a securities firm that belongs to the exchange on which he plans to trade.<sup>80</sup> The trading price is negotiated, and includes factors such as the price of the block, the commission, how the commission will be paid, and how quickly the transaction should be consummated.<sup>81</sup> The seller (buyer) of the block can give the block trader time to test the market, or they can agree on an immediate sale (buy) to the broker, who becomes a block positioner. Frequently, when the broker acts as a block positioner, the difference between the price paid by the block positioner and the price he receives for the block represents his compensation. Block positioners usually only buy blocks and do not short sell for block purchase orders.<sup>82</sup>

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<sup>75</sup> The New York State Exchange Rule 127.10 defines a block as follows:  
[A]t least 10,000 shares or a quantity of stock having a market value of \$200,000 or more, whichever is less, which is acquired by a member organization on its own behalf and/or for others from one or more buyers or sellers in a single transaction.

Rules of Board—Handling of Orders & Reports, N.Y.S.E. Guide (CCH) ¶ 2127.10 (Jan. 1989).

<sup>76</sup> See NYSE FACT BOOK, *supra* note 4, at 11, 13, & 75.

<sup>77</sup> *Id.* at 13.

<sup>78</sup> *Id.* at 75.

<sup>79</sup> See Jarrell, *Change at the Exchange: The Causes and Effects of Deregulation*, 27 J. L. & ECON. 273 (1984).

<sup>80</sup> Descriptions of the process of block trades are provided in T. COPELAND & J. WESTON, FINANCIAL THEORY AND CORPORATE POLICY 370 (3d ed. 1988); K. GARBADÉ, SECURITIES MARKETS 256 (1982); R. SCHWARTZ, EQUITY MARKETS STRUCTURE, TRADING, AND PERFORMANCE 106 (1988); Holthausen, Leftwich & Mayers, *The Effect of Large Block Transactions on Security Prices: A Cross-Sectional Analysis*, 19 J. FIN. ECON. 237 (1987).

<sup>81</sup> The compensation can be paid to the broker in several ways. A broker is paid a commission. In addition, when the broker acts as a block positioner the selling price of the block to the broker is adjusted to compensate the broker.

<sup>82</sup> See Holthausen, Leftwich & Mayers, *supra* note 80, at 265; R. SCHWARTZ, *supra* note 80, at 107.

Whether the block trader is trading for himself or a customer, he must contact institutional investors and other block traders to shop the block. A block trade cannot just be sent to the floor of the exchange because it is unlikely there would be enough traders to take the opposite side of the exchange. The block trader must be careful, however, to limit the spread of information about the impending trade because when information about an impending block trade reaches the market it can affect the price of the stock and thus be costly to the block trader.

Theoretically, several reasons explain a block transaction's effect on the stock price. Holthausen, Leftwich, and Mayers list three possible explanations for price changes associated with block transactions—liquidity costs, inelastic demand curves, and information effects.<sup>83</sup> Liquidity costs arise because of the difficulty of identifying potential buyers (sellers) of the block. The demand curve is inelastic when there are insufficient close substitutes for the firm's stock. Information effects on stock prices occur when the block transaction conveys information about the firm's prospects, or traders believe the trade contains information.<sup>84</sup>

Empirical evidence confirms that block transactions do affect stock prices. In some cases the effect on stock prices is temporary, such as the short run price movement after an informationless trade, while in other situations, such as when the trade conveys information, the stock price effect is permanent.<sup>85</sup> Holthausen, Leftwich, and Mayers contains the most recent evidence on the price effects of block trades.<sup>86</sup> They classify block trades as seller initiated if they trade on a downtick and buyer initiated if they trade on an uptick and test whether any price effects are permanent or temporary and if they vary with block size. They find that for seller-initiated transactions, a negative total price effect results that increases with the size of the block. Their evidence suggests, however, that most of this price effect is temporary.<sup>87</sup> For buyer-initiated transactions,

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<sup>83</sup> Holthausen, Leftwich & Mayers, *supra* note 80, at 239.

<sup>84</sup> Informationless trades such as portfolio insurance sales will not permanently affect stock prices. Therefore, there are calls for those making portfolio insurance trades to announce the trades in advance so that the price is not disrupted.

<sup>85</sup> For evidence on the price effects of block transactions, see generally Holthausen, Leftwich & Mayers, *supra* note 80; Kraus & Stoll, *Price Impacts of Block Trading on the New York Stock Exchange*, 27 J. FIN. 569 (1972); Mikkelsen & Partch, *Stock Price Effects and Costs of Secondary Distributions*, 14 J. FIN. ECON. 165 (1985); Scholes, *The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices*, 45 J. Bus. 179 (1972).

<sup>86</sup> Holthausen, Leftwich & Mayers, *supra* note 80.

<sup>87</sup> An earlier study testing a trading rule based on block transactions finds that prices 15 minutes after the execution of a block trade are unbiased estimates of closing prices on that day, indicating that prices completely adjust within 15 minutes after a

Holthausen, Leftwich and Mayers find a permanent price effect results that increases with block size, but little evidence of temporary price effects.<sup>88</sup>

Because block sales depress stock prices, the uptick rule can help protect block traders and block positioners from actions of market professionals. If market professionals learn about a pending block sale before its execution, they could sell the stock short, reducing the price the block trader/block positioner receives for the stock.<sup>89</sup> In certain cases the uptick rule protects the "property right in knowledge" about a pending block sale.<sup>90</sup> The uptick rule limits the ability of market professionals to sell short since each must wait for an uptick to do so.<sup>91</sup> However, the uptick rule provides very inefficient protection of the property right of block traders. The rule only helps block sellers from the actions of market professionals who are not long in the stock. The rule does not protect block buyers at all. In addition, the growth of the option market and international trading further reduce the ability of the uptick rule to insulate block trades from market professionals.

#### D. Summary of Economic Evidence

The argument that short-sellers manipulate markets to make a profit on declining prices is without theoretical and empirical support. Economic evidence overwhelmingly indicates that the stock market efficiently incorporates information about a firm's future in-

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block trade. Dann, Mayers & Raab, *Trading Rules, Large Blocks, and the Speed of Price Adjustment*, 4 J. FIN. ECON. 3 (1977).

<sup>88</sup> Holthausen, Leftwich, and Mayers suggest that temporary price effects are a function of liquidity costs, while permanent price effects are due to information. Therefore, they interpret their results that there are temporary effects of block sales but not purchases as consistent with two pieces of "street wisdom." First, the liquidity cost rationale for temporary price effects is more important for block sales than block purchases and second, block positioners will inventory stock if it is a block sale but do not usually sell short to facilitate a block purchase. See Holthausen, Leftwich & Mayers, *supra* note 80, at 264.

<sup>89</sup> This argument that block traders and block positioners would be harmed by relaxation of the uptick rule is made in many of the comment letters to the Securities and Exchange Commission's 1976 proposal to eliminate the uptick rule. See Exchange Act Release No. 13,091, *supra* note 13. For example, letters from The New York Stock Exchange and The Securities Industry Association make this point.

<sup>90</sup> New York Stock Exchange Rule 97 puts restrictions on further purchases by block positioners once they have acquired a block. This restricts block positioners from engaging in purchases to increase the price before it sells the block.

<sup>91</sup> The letter by the Securities Industry Association pursuant to the SEC's proposed relaxation of the uptick rule hypothesizes that the reason block positioners rarely short sell blocks to customers who want to buy a block and that institutions rarely "aggressively seek to purchase such blocks" is because market professionals would use knowledge of a pending block purchase to buy stock, driving up the price. Letter from Edward I. O'Brien to George A. Fitzsimmons (Apr. 15, 1977).

come stream into its stock price.<sup>92</sup> Profit motives of investors move security prices quickly to their equilibrium level, making it impossible to consistently “fool” investors in ways that would be necessary for individuals to manipulate the market and profit from falling stock prices.<sup>93</sup> Far from destroying the efficiency of markets through manipulation, short-sellers may enhance market efficiency by expediting the downward movement in prices to their equilibrium level.<sup>94</sup>

Even if market manipulation by short sellers posed a real threat, the present form of the uptick rule provides an inappropriate remedy. Bear raids, in which short sellers spread false negative rumors about a firm, are not likely to be effective for stocks traded on the major exchanges. Market professionals closely analyze and watch these stocks. In a short period of time a great deal of information is available to investors about these stocks; market professionals are not prone to be fooled by false rumors.<sup>95</sup> Bear raids succeed more often in thinly traded OTC stocks. Not as much public information

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<sup>92</sup> See Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970) for the seminal review article. According to Professor Michael Jensen of Harvard University, “[T]here is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Market Hypothesis.” Jensen, *Some Anomalous Evidence Regarding Market Efficiency*, 6 J. FIN. ECON. 95 (1978).

<sup>93</sup> In an *efficient market*, a security’s price will be a good estimator of its investment value—that is, the present value of its future prospects as estimated by well-informed and clever analysts. Any substantial disparity between price and value would reflect market inefficiency. In a well-developed and free market, major inefficiencies are rare. The reason is not hard to find. Major disparities between price and investment value will be noted by alert analysts, who will seek to take advantage of their discoveries.

W. SHARPE, *INVESTMENTS* 68 (3d ed. 1985).

<sup>94</sup> This ignores short sellers who trade on insider information. However, laws against insider trading are the appropriate way to deal with such investors, not the impairment of liquidity through the restrictions on short sales.

<sup>95</sup> There is no systematic evidence that supports the notion that false rumors damage a company’s reputation. The market is extremely proficient at distinguishing rumors from true information. Consider airline crashes. Following a crash, there is much speculation about which party is at fault; in most cases, the Federal Aviation Administration (FAA) does not assign responsibility until several months afterwards. While many rumors immediately abound following a crash as to which party is at fault, recent evidence by Mitchell & Maloney, *Crisis in the Cockpit? The Role of Market Forces in Promoting Air Travel Safety*, 32 J.L. & ECON. 329 (1989) indicates that false rumors do not fool market professionals. Their study finds that during the immediate wake of the crash, the stock market devalues the stock prices for those airlines to be judged at fault months later by the FAA, but for those airlines judged not to be at fault, no stock price decline exists in the immediate wake of the crash. It is highly unlikely therefore that a manipulative investor could spread false rumors, sell short, and drive the stock price down for an airline following a crash not the fault of the airline.

More specifically, a masters thesis by Cynthia A. Brown, “A Financial Market Analysis of Managerial Decision Making at Proctor & Gamble: Product Line Diversification and Logo Removal,” Clemson University, 1986, examines the impact that false rumors can have on a company’s stock price in an examination of continual rumors during the early 1980s’ linking Proctor & Gamble’s “man in the moon” logo with Satanism. She

exists about these firms and investors could more probably be stamped into selling by false information.<sup>96</sup> For these smaller infrequently traded, firms outliers in analysts' forecasts could bias stock prices.<sup>97</sup> However, the uptick rule does not apply to OTC stocks. If regulators were really worried about market efficiency and bear raids, they would consider eliminating the uptick rule from exchange traded stocks and applying it to OTC stocks.

#### IV

### THE UPTICK RULE, PROGRAM TRADING, AND THEIR IMPACT ON THE 1987 STOCK MARKET CRASH

#### A. Background

Certain trading strategies, such as index arbitrage and portfolio insurance—commonly called program trading—have fallen under intense criticism since the October 19, 1987 market crash. Both the Report of the Presidential Task Force on Market Mechanisms<sup>98</sup> and the Division of Market Regulation of the Securities and Exchange Commission<sup>99</sup> have cited program trading as exacerbating the market decline on October 14-16 and the subsequent crash on October 19. These reports suggest that program trading worsened the decline begun by fundamental factors.<sup>100</sup> Calls for restrictions on pro-

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finds little evidence that the false rumors had a negative impact on Proctor & Gamble's stock price.

<sup>96</sup> Joe Feshbach, a partner in a firm that does short selling, states: "The whole bear raid thing is a joke unless there's a lot of stock owned on margin and you're able to pressure a margin call." See Crossen, *Program Traders Find an Unlikely Ally in Bid to Abolish 'Uptick Rule' on the Big Board*, *Heard on the Street*, *Wall Street Journal*, January 11, 1988, at 53, col. 3.

<sup>97</sup> To this extent small firms have incentive to release all information to reduce the dispersion in their stock price. See generally Verrecchia, *On the Theory of Market Information and Efficiency*, 1 J. ACC. & ECON. 77 (1979).

<sup>98</sup> REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS (1988) (commonly referred to as the "Brady Commission Report").

<sup>99</sup> MARKET BREAK STUDY, *supra* note 49.

<sup>100</sup> The alleged harmful effects of program trading at the time of the crash are disputed in the studies conducted by the Division of Economic Analysis and the Division of Trading and Markets of the United States Commodity Futures Trading Commission, *Final Report on Stock Index Futures and Cash Market Activity During October 1987 to the United States Commodity Futures Trading Commission*, (January 1988) and the Report of the Chicago Mercantile Exchange (1988).

The fundamental factors that are purported to have triggered the crash include a higher than expected trade deficit, rising interest rates, increased worries about the government deficit, and changes in the tax treatments of takeovers proposed by the House Ways and Means Committee. Mark Mitchell and Jeffrey Netter argue that the major factor triggering the market decline that turned into the crash was the proposed restrictions on favorable tax treatments of takeovers introduced by the House Ways and Means Committee the week before the crash. Mitchell & Netter, *Triggering the 1987 Stock Market Crash: Antitakeover Provisions in the Proposed House Ways and Means Tax Bill?*, 23 J. FIN. ECON. no. 1 (1989) (forthcoming).

gram trading strategies and the derivative products that make them possible abound in Congress and the popular press.

The calls for restrictions on program trading and derivative products extend to the uptick rule because the uptick rule plays an important role in one type of program trading—index arbitrage. Consequently, calls for restrictions on index arbitrage often involve strengthening the uptick rule. Therefore, we examine the effects of both types of program trading most cited as causes of the crash—index arbitrage and portfolio insurance—and discuss the relationship of the uptick rule to these strategies.

Program trading involves the trading of a portfolio of stocks in a single transaction. While program trading frequently employs computers—particularly the NYSE's Designated Order Turnaround (DOT) system which allows a trader to send orders to many trading posts simultaneously—it does not require their use. Rather, program trading simply represents a trading technique that in certain instances facilitates investment strategies. Index arbitrage and portfolio insurance are two such trading strategies. Both of these strategies have been blamed as causes of the market crash.

In the early 1980s, largely in response to the increase in the relative importance of institutional investors, a rapidly growing market arose in stock index futures contracts. While several market indexes exist on which futures contracts are traded, including the New York Stock Exchange Index, the Major Market Index, and the Value Line Index, for ease of exposition we will phrase our discussion in terms of the most well-known index—the S&P 500 Index. The S&P 500 Index is a market-value weighted index of 500 selected firms, most of which are traded on the NYSE.<sup>101</sup> The cumulative market value of the S&P 500 represents approximately 80 percent of the market value of the NYSE. The value of the index changes when the price of the stocks comprising the index changes. The S&P 500 futures contract is traded on the Chicago Mercantile Exchange and represents the purchase or sale of the 500 stocks in the S&P 500, based on the weights in the index, at a specified expiration date.

The existence of index futures contracts has lowered the cost of certain types of portfolio trading and has provided benefits to investors in general—especially institutional investors. Trading a broad-based market index enables institutional investors to hedge against market risk as part of their investment strategy. When the costs of hedging are reduced, institutional investors are able to assume larger positions, which in turn benefits all investors by enhancing

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<sup>101</sup> The weights are assigned based on the market value of the stock. See R. KOLB, *UNDERSTANDING FUTURES MARKETS* (2d ed. 1988) (more complete discussion of the construction of the S&P 500 Index and index futures contract).

liquidity in the markets. Index futures benefit institutional investors directly because the cost of trading index futures is far less than the cost of trading the underlying stocks. Hans Stoll reports that the costs of trading a \$120 million portfolio of S&P 500 Index stocks is 0.48 percent while the estimated cost of trading a S&P 500 Index futures on the same amount of stock is 0.025 percent.<sup>102</sup>

The index futures market also serves as a price discovery market. The Report of the Division of Market Regulation of the SEC states that lower transactions costs, lower margins, and high levels of liquidity "have made the futures market the 'market of choice' for many active institutional traders."<sup>103</sup> Empirical evidence developed by financial economists shows that the futures market incorporates news more quickly than the equity market. Kawaller, Koch, and Koch examine the intraday price relationship between the S&P 500 futures and S&P 500 Index and find that futures price movements lead index movements by 20 to 45 minutes, while index movements rarely affect futures beyond one minute.<sup>104</sup> Harris examines trading from October 12, 1987 to October 23, 1987 (including the October 19 crash) on each S&P 500 stock and for the December, 1987 S&P 500 futures contract and also finds that futures strongly lead the underlying cash market.<sup>105</sup>

The pricing of the S&P 500 Index future contract can be thought of as the cost of carrying the underlying stocks until the expiration of the contract, since at expiration the cash price of the index and the price of the futures must be equal. The costs of carrying the stocks depend on the riskless rate of interest and the dividends paid on the stocks. Stoll reports the relationship between the stock index futures price (F) and the cash price of the index (S) is:  $(F-S)/S = r - d$ , where  $r$  is the riskless interest rate and  $d$  is the dividend yield.<sup>106</sup>

The existence of the index futures contract gives rise to an arbitrage opportunity when the price of the futures contract and the cash price of the underlying index diverge by more than transactions costs.<sup>107</sup> Index arbitrage provides a trading strategy of buying (selling) stocks in an index and selling (buying) the futures contract

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<sup>102</sup> Stoll, *Portfolio Trading*, 14 J. PORTFOLIO MGMT. 20, 21 (1988).

<sup>103</sup> See Letter from Andrew Klein, *supra* note 43, at 3-6.

<sup>104</sup> Kawaller, Koch & Koch, *The Temporal Price Relationship between S&P 500 Futures and the S&P 500 Index*, 42 J. FIN. 1309 (1987).

<sup>105</sup> Harris, *The October 1987 S&P 500 Stock-Futures Basis*, 44 J. FIN. 77 (1989).

<sup>106</sup> Stoll, *supra* note 102, at 21. See also Furbush, *Program Trading and Price Movement: Evidence From the 1987 Market Crash*, 18 FIN. MGMT. 68 (1989); Kawaller, Koch & Koch, *supra* note 104, and R. KOLB, *supra* note 101, for discussions of the relationship between the index futures price and the cash index price.

<sup>107</sup> Transactions costs include commissions and costs associated with the bid-ask spread.

for that index when stock prices in the index are low (high) relative to the futures price. The arbitrageur can earn a "risk free" return above the market risk free interest rate, if she can react quickly enough to the arbitrage opportunity.

Index arbitrage promotes efficient pricing in both the cash and futures markets. By eliminating the spread between the cash price of the stock index and the futures price, index arbitrage transmits changes in market prices from one market to the other. This information transmission increases the value of the futures market as a hedge against market movements. Index arbitrage does not destabilize the markets but instead occurs contemporaneously with the markets' reaction to some event that has changed the underlying value of securities. As Fama states, index arbitrage is a stabilizing force; "By linking stock and futures prices, index arbitrage should reduce the noise in the combined signals from the two markets."<sup>108</sup>

The other type of program trading most cited as a cause of the crash is portfolio insurance.<sup>109</sup> Portfolio insurance represents a trading strategy that attempts to change the payoff pattern of a portfolio of risky assets by allowing the value of the portfolio to increase if the market rises, while not allowing its value to fall below a certain level in the event of a market decline.<sup>110</sup> Portfolio insurance techniques attempt to give the insured the ability to sell a portfolio at a fixed price (long put option). Furbush notes investors could purchase perfect portfolio insurance if there were liquid markets available "in European payout-protected puts on market indexes with appropriate striking prices and maturity."<sup>111</sup> Since such markets do not exist, investors use put options on stock indexes, which directly creates long put protection, or use a dynamic trading strategy to synthesize a put option. Dynamic strategies include "dynamic hedging with stocks and riskless assets such as Treasury Bills or dynamic hedging with futures on the stock index and Treasury Bills."<sup>112</sup>

Portfolio insurance that uses dynamic hedging can be destabilizing because the trades reinforce market movements, although the effects and the mechanism depend on the type of portfolio insurance. Hill and Jones discuss the different effects of various types of

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<sup>108</sup> E. Fama, *Perspectives on October 1987 or What Did We Learn from the Crash?* in BLACK MONDAY AND THE FUTURE OF FINANCIAL MARKETS 78 (R. Kamphuis, Jr., R. Kormendi & J. Watson, ed. 1989).

<sup>109</sup> See Harris, *The Dangers of Regulatory Oversight to the October 1987 Crash*, 74 CORNELL L. REV. 927 (1989).

<sup>110</sup> The cost of portfolio insurance is that an "insured" portfolio will not increase in value as much as a comparable "uninsured" portfolio if the market increases.

<sup>111</sup> Furbush, *supra* note 106, at 70.

<sup>112</sup> *Id.*

portfolio insurance (and other program trading) on the market.<sup>113</sup> They note that in portfolio insurance implemented through options, the only market effect occurs when the option is purchased, since the insured does not need any later adjustments. However, in dynamic strategies the insured will vary the size of the positions in the instruments in the same way as the market movement, which can be destabilizing. For example, after the market falls, a portfolio insurance strategy using stock index futures will call for a sale of futures and for a freeze in stock market transactions. Such sales exert downward pressure on the futures market and will tend to make futures cheap relative to cash. Index arbitragers will sell stock and buy futures, thereby driving the stock market down further. Portfolio insurance that uses stocks requires investors to sell stock after the market falls and buy stock after a market increase. These movements will be transmitted to the futures market by arbitragers.

Grossman also argues that portfolio insurance that uses synthetic options adds to volatility more than portfolio insurance using a put option on a stock index.<sup>114</sup> Grossman suggests that when traders use dynamic strategies to synthesize options instead of real put options, the market loses valuable information on the extent of portfolio insurance in the market. Therefore, market participants do not have enough information about the future price volatility of present dynamic hedging strategies which reduces liquidity and increases volatility. Grossman also notes that government imposed position limits on options reduce the attractiveness of put options for large portfolios,<sup>115</sup> and cause portfolio insurers to substitute the synthetic options, which increases volatility.<sup>116</sup>

Commentators examining the destabilizing effect of portfolio insurance and the transmittal effect of index arbitrage have suggested that program trading is destabilizing. Portfolio insurance does add some destabilizing element to the market. However, value traders who take the other side of portfolio insurance transactions minimize this destabilizing effect. Portfolio insurance trades are informationless because the trades are not based on new information

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<sup>113</sup> See Hill & Jones, *Equity Trading, Program Trading, Portfolio Insurance, Computer Trading and All That*, 44 FIN. ANALYSTS J. 29 (1988).

<sup>114</sup> Grossman, *An Analysis of the Implications for Stock and Futures Price Volatility of Program Trading and Dynamic Hedging Strategies*, 61 J. BUS. 275 (1988); Grossman, *Insurance Seen and Unseen: The Impact on Markets*, 14 J. PORTFOLIO MGMT. 5 (1988).

<sup>115</sup> One commentator argues that option position limits contribute to market instability by essentially barring institutional investors from the options market increasing transaction costs and impairing market efficiency. See Gastineau, *The Time Has Come to Limit Option Position Limits*, 44 FIN. ANALYSTS J. 7 (1988).

<sup>116</sup> A trading strategy of buying (selling) stocks in an index and selling (buying) the futures contract for that index when stock prices in the index are low (high) relative to their fair value with the futures price.

about the underlying values of equities. Therefore, value traders—those traders who are trading on the underlying value of securities—are willing to take the opposite side of a portfolio insurance trade when the portfolio insurance trade moves the price. Eventually, there should be no price impact of a portfolio insurance trade.

### B. Effects of the Uptick Rule

The trading of index futures increases market efficiency and liquidity by allowing investors to hedge market risk more cheaply than directly through equities. Index arbitrage arises in response to a divergence in the prices of the cash and futures markets and effectively links the markets. However, the uptick rule hinders the ability of traders to engage in index arbitrage since traders engaging in index arbitrage must be able to react very quickly to differences between the futures and the cash price. If futures are trading at a discount to cash, the arbitrageur buys index futures and sells the basket of stocks underlying the futures contract. But because of the uptick rule, the arbitrageur must wait for an uptick to sell short those stocks which she does not hold.<sup>117</sup> As risk arbitrage becomes more costly, investors refrain from using it yet, without risk arbitrage, the markets are more likely to become unlinked. This can have critical effects in turbulent conditions such as those which prevailed on October 19, 1987.<sup>118</sup>

Another effect of the uptick rule on index arbitrage, in specific, and portfolio trades in general, is that the ability to make such trades is biased against smaller broker/dealers. Large broker/dealers can more easily afford the costs of holding portfolios encompassing large numbers of stocks than smaller firms—in large part because they hold stock for many reasons. Therefore, when index arbitrage (or any portfolio strategy) calls for selling baskets of stocks quickly, the firm long in most or all of the stocks can sell with less risk since they would not have to wait for upticks.

Index arbitrageurs can become long in stock to bypass the constraints of the uptick rule, but it is costly. If an arbitrageur has run out of its long position in stocks and reads market sentiment that a

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<sup>117</sup> The arbitrageur may choose to not trade some stocks underlying the index, but this increases the risk of the arbitrage transaction. See Report of the New York Stock Exchange, *supra* note 32, at 12 (recognizing the effect of the uptick rule in restricting index arbitrage sell programs). It states:

To take advantage of this arbitrage opportunity, the arbitrageur would have to sell stock, and if he did not own the stock as an investment, he would have to sell short. . . . Since Securities Exchange Act Rule 10a-1 prohibits the short sale of stock on a 'down tick' . . . an arbitrage which requires a short sale is more difficult to implement.

<sup>118</sup> See Grossman & Miller, *supra* note 50 (arguing that restrictions on arbitrage at the time of the crash, unlinked markets, decreased liquidity, and exacerbated the decline).

equity-sell program may become appropriate she can engage in an Exchange for Physical (EFP) on a foreign market, usually London.<sup>119</sup> In a typical EFP transaction, which for an NYSE member must occur when the NYSE is closed to avoid violating NYSE rules,<sup>120</sup> an arbitrager goes to another party (frequently a customer) in London and offers to buy a basket of stocks for a futures contract. The arbitrager offers terms for the agreement such that the party selling the stock will earn greater than the risk free interest rate in a risk free transaction (risk free because the equities are hedged by the futures). If the party selling the stock to the index arbitrager does not have the stock, he will short sell the stock in London.<sup>121</sup> The arbitrager is now long in the stock and prepared to sell if such an index arbitrage opportunity arises and the other party can cover the short sale later.

While EFPs facilitate index arbitrage, they are not without costs. First, the terms of the EFP are set to be attractive to the arbitrager's trading partner, so the arbitrager is paying a price to avoid the uptick rule. In addition, since EFPs must take place when the NYSE is closed, they are not feasible for an immediate reaction during NYSE trading hours when an arbitrager faces a sell stock situation and she is short in certain stocks.<sup>122</sup>

Portfolio insurance is not as directly affected by the uptick rule as index arbitrage. Portfolio insurance does not rely on the sort of immediate reactions hindered by the uptick rule. For example, portfolio insurance adjustments are frequently made overnight based on closing prices.<sup>123</sup> However, increased efficiency of trading mechanisms will increase the speed that traders wish to execute portfolio insurance trades in the future. In addition, the interaction

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<sup>119</sup> For a description of EFPs, see Commodity Futures Trading Commission, Division of Trading and Markets; Report on Exchanges of Futures for Physicals (Oct. 1, 1987). The SEC report states "a significant amount of index-related trading on October 14 to 16 was effected off the NYSE, primarily in the London market as exchanges-for-physicals ('EFPs')." MARKET BREAK STUDY, *supra* note 49, at 2-10.

<sup>120</sup> New York Stock Exchange Rule 390, the market responsibility rule, affects such transactions. In the Supplementary Material to Rule 390—Interpretations of the Market Responsibility Rule—it says in part "any member . . . may . . . outside of Exchange trading hours, may trade as principal or agent in any listed stock in a foreign country over-the-counter." *Id.*

<sup>121</sup> There is no uptick rule in London.

<sup>122</sup> Avoiding the uptick rule is not the only reason firms would engage in portfolio transactions in London. George Anders and Craig Forman report that program trades are more frequently being made in London. The extra time for portfolio trading to match buyers and sellers for large portfolios means that there is less market impact when the market learns of the trade. The article quotes a NYSE report that in a recent period 17% of program trading in U.S. stocks was done overseas, mainly in London. Anders & Forman, *Program Trades are Now Using the London Route*, Wall St. J., Sept. 21, 1988, at 4, col. 1.

<sup>123</sup> See Hill & Jones, *supra* note 113, at 36.

of portfolio insurance and index arbitrage does involve the uptick rule, especially in crisis situations. This interaction will be discussed in the next section.

### C. Empirical Evidence on Program Trading

Commentators and major reports that analyzed the crash, including the Brady Report and the SEC Division of Market Regulation Report, argue program trading has become a significant factor in increasing overall market volatility and turned a market decline into the crash.<sup>124</sup> A frequently mentioned cause of the crash is some variant of the "cascade scenario" where the market begins a decline, inducing portfolio insurance selling in the futures market, which is then transferred to the cash market by index arbitrage. The resulting decline in the equity market triggers further portfolio insurance selling in the futures market, and the selling is transferred from one market to the other by index arbitrage triggering further portfolio insurance selling and so on. While value-based investors should eventually step in and reverse the decline, they may not buy in sufficient quantities to stem the decline, such as on October 19, 1987.

However, recent evidence suggests that program trading does not increase volatility and that the crash may have been actually worsened by such restrictions on program trading as the uptick rule. Grossman studies the empirical relationship between daily program trading intensity and daily volatility on the NYSE from January through October 1987.<sup>125</sup> He finds "no relation between volatility and program trading intensity. The days on which volatility was high were not, systematically, the days on which program trading intensity was high."<sup>126</sup> Furbush empirically examines the effects of different types of program trading at the time of the crash by testing the effects of different types of program trading over 5 minute intervals from October 14 through October 20, 1987. The basic hypothesis is that a divergence in prices between the futures and the cash market should trigger index arbitrage, thereby reducing the divergence between the markets. Furbush defines the term "basis error" as the difference between the actual futures price and its theoretical fair value (what the futures price should be given the level of the index).<sup>127</sup>

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<sup>124</sup> See Mitchell & Netter, *supra*, note 100.

<sup>125</sup> See Grossman, *Program Trading and Market Volatility: A Report on Interday Relationships*, 44 FIN. ANALYSTS J. 18 (1988).

<sup>126</sup> *Id.* at 18.

<sup>127</sup> Theoretically basis error should arise when one market (usually futures) reacts to news faster than the other market. When basis error becomes large enough to outweigh transactions costs, an index arbitrage opportunity exists. The actions of the index arbitrageurs in capturing the profit opportunity move the markets together, thus reducing

The evidence from October 14-16 supports the hypothesis. Furbush finds that on October 14, 15, and 16, the level of basis error is a determinant of the amount of index arbitrage. Further, on October 14, 15, and 16, price movement in the cash market was significantly related to the amount of index arbitrage in the previous 5 minutes as index arbitrage closed the basis error. In sum, on October 14-16 Furbush finds that index arbitrage arose in response to basis error, and the effect of the index arbitrage was to move the prices of the markets together, lowering the basis error.

Furbush does not find a relationship between index arbitrage and basis error on October 19 and 20. Despite a large discount in the futures market (and thus a large basis error), index arbitrage did not occur at levels high enough to link the markets and close the discount. On October 19, while index arbitrage did occur, the timing of index arbitrage trading was not related to the basis error. Further, the occurrence of index arbitrage did not reduce basis error. Furbush reports that index arbitrage was virtually nonexistent on October 20 and neither was caused by nor affected by basis error.<sup>128</sup>

Furbush suggests several possible explanations for the breakdown of the index arbitrage relationship on October 19 and 20. Delays in executing trades caused price information to be inaccurate and the actual basis error may have been different from the reported basis error (the actual futures discount may be different than the reported discount). For example, Harris argues that part of the observed discount in futures at the time of the crash was due to nonsynchronous trading,<sup>129</sup> which occurs when the true value of the S&P 500 Index diverged from the reported value because some of the constituent stocks had not traded.<sup>130</sup> While the true value of the underlying stocks may have changed, this change is not incorporated into the S&P 500 Index until a trade actually occurs. This was especially true on October 19 and 20, when large numbers of stocks were not traded at various times (for example, at 10:40 A.M. on October 19, 37.3% of the value of the S&P 500 was closed—IBM did not open for over an hour). Harris develops a measure to correct for nonsynchronous trading and finds that he can explain some, but not all, of the large basis on October 19 and 20. He concludes that

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basis error. Therefore, basis error causes index arbitrage which in turn is a corrective force lowering basis error. See Furbush, *supra* note 106.

<sup>128</sup> On October 20, the December S&P 500 Future traded at a substantial premium compared to cash in early trading, but this switched to a large discount after 10:00 A.M. See U.S. Commodity Futures Trading Commission Report, *supra* note 100, at 98.

<sup>129</sup> Harris, *supra* note 105.

<sup>130</sup> We argue in a later section that index arbitrage promotes market efficiency and did not and could not have caused the crash.

some of the basis was also due to a disintegration of the relationship between the two markets.

Another reason for the inability of index arbitrage to link the two markets was an increase in the transaction costs of using index arbitrage. A major transaction cost may have been uncertainty. Much of index arbitrage trading is accomplished through the DOT system, and on the afternoon of the 19th, while trades on DOT continued to be made, there was considerable uncertainty as to when and if such trades would be executed. This uncertainty raised the risk of index arbitrage and thus reduced its use. On October 20, the NYSE requested that member firms curtail their use of DOT for index arbitrage and other forms of program trading, thus effectively foreclosing index arbitrage.

Furbush also tests the effects of portfolio insurance selling in the cash market.<sup>131</sup> Since on October 14 and 15 little portfolio insurance existed, he only examines October 16, 19, and 20. He finds evidence of portfolio insurance selling being associated with downward cash movements on October 16 and 20. He notes that only on the day when the index arbitrage relationship did not hold was there a significant volume of portfolio insurance selling in the cash market. This is expected since portfolio insurance selling in the futures market is less costly and therefore preferable and only on the day when the markets became unlinked did portfolio insurance selling spill over into the cash market.

#### D. Summary of Empirical Evidence on Program Trading

The empirical evidence on the effects of program trading is not consistent with the popular wisdom that program trading caused the crash. Grossman suggests that program trading is not a cause of increased volatility in general. Indeed, the evidence indicates that much program trading was more a consequence of the crash than a cause. A persistent discount in the futures market existed on the crash dates. While nonsynchronous trading provides one possible reason for the discount, Harris finds that he can not explain all of the divergence between the cash and futures market with nonsynchronous trading, suggesting a disintegration of the relationship between the markets occurred. Furbush's results indicate, that at least in the cash market, index arbitrage and portfolio insurance trading did not overwhelm the market during the crash. Instead, selling by others overwhelmed program trading. On October 19 and 20, despite the large discount in futures, insufficient index arbi-

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<sup>131</sup> Furbush, *supra* note 106.

trage occurred to link the markets. Portfolio insurance had little effect on the decline.

#### E. Effects of the Uncoupling of the Futures and Cash Markets and the Role of the Uptick Rule

The disintegration of the linkage between the futures and the cash markets at the time of the crash had several harmful effects. It contributed to the general climate of uncertainty and weakening confidence in the markets just when confidence was imperative. In addition, the persistent discount in the futures market discouraged institutional buyers from entering the equity market, especially on the afternoon of October 19,<sup>132</sup> since the discount indicated that buyers of equity could wait and obtain even lower prices.<sup>133</sup> Similarly, the discounts discouraged block positioning firms from risking capital in positioning blocks of equities. Further, the discounts in futures prices induced portfolio insurance selling in the cash market rather than the futures market, perhaps causing a greater price decline than if the selling had occurred in the futures market.

The uptick rule may have contributed to the uncoupling of the futures and the cash market. The uptick rule makes index arbitrage more costly because it makes it more difficult to immediately sell a basket of stocks. This becomes especially relevant when index arbitrageurs do not hold a large equity position, and on October 19 and 20, index arbitrageurs may have been in that situation. To the extent that a discount in futures existed, arbitrageurs should have bought futures and sold stock. However, arbitrageurs may have been cash poor at that time after three days of selling (October 14, 15, and 16).<sup>134</sup> Therefore, as part of a sell program, they would have had to short sell certain stocks into the declining prices that prevailed on October 19. Those short sales would have had to wait for an uptick on the biggest one day decline in history. Not surprisingly, the uptick rule hampered index arbitrage.<sup>135</sup>

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<sup>132</sup> MARKET BREAK STUDY, *supra* note 49, at 3-13.

<sup>133</sup> This is also why there are calls for sunshine trading by portfolio insurers, a procedure where they announce their trading plans, thus limiting the price pressure of their trading.

<sup>134</sup> We have no aggregate data on the equity positions of arbitrageurs on October 19. However, several index arbitrageurs have told us their equity positions were depleted by October 19 and that the uptick rule inhibited their sales of equity. Further, MARKET BREAK STUDY, *supra* note 49, at 2-16 states that 25% of index arbitrage selling on October 19 was short selling.

<sup>135</sup> Letter from James E. Buck to George A. Fitzsimmons (Mar. 17, 1977) (The New York Stock Exchange); letter from William F. Deirn to George A. Fitzsimmons (Apr. 4, 1977) (The New York Stock Exchange Institutional Advisory Committee on Trading); letter from Edward I. O'Brien to George A. Fitzsimmons (Apr. 15, 1977) (Securities Industry Association); letter from Norman S. Poser to George A. Fitzsimmons (May 4,

Evidence suggests that index arbitrage failed to halt the uncoupling of the markets that occurred on October 19. Since there seemed to be a large profit opportunity for index arbitrageurs, it is not obvious why they failed to respond immediately to the divergence in prices between the futures and the cash markets. Again, the uptick rule, which inhibits the ability of arbitrageurs to immediately sell stock, may have been a factor.

The uptick rule therefore could have played a critical role in the failure of index arbitrage to link the markets and the resulting chaos. Uncoupling of the equity and futures markets may have been a major factor in the seeming breakdown in the markets during the crash. Fama states: "Breaking the links between stocks and futures prices can only add to the informational chaos of high volatility periods."<sup>136</sup> We argue the uptick rule may have contributed to the uncoupling of the markets during the crash. Policy makers should follow policies that link the markets, including relaxing the uptick rule, especially for index arbitrageurs. Those who argue the uptick rule has a place in the regulation of arbitrage desire a policy of "throwing sand in the gears" or slowing the markets down. Unfortunately, in today's environment such policies can only destabilize markets and hamper their efficiency.

## V

### CHANGING THE UPTICK RULE

Given that the uptick rule impairs market efficiency, why does it still exist? It is appropriate to address this question in two parts because of relatively recent developments in the securities markets. First, why was there little support for the 1976 SEC proposals for relaxation or elimination of the uptick rule?<sup>137</sup> Second, today, when the uptick rule interferes with index arbitrage, why does it still survive?

We identified a group that benefits somewhat from the uptick rule—block traders. The effect of the uptick rule on block trades likely was instrumental in the 1980 SEC decision to not relax the rule.<sup>138</sup> However, developments in financial markets in recent years

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1977) (American Stock Exchange Inc.). Crossen, *supra* note 96, reports that on January 8, 1988, when the Dow fell 140.58 points the uptick rule hindered the actions of index arbitrageurs and thus contributed to an unlinking of the futures and cash markets. Futures were selling at a discount and arbitrageurs wanted to sell stocks and buy futures. The uptick rule meant that many traders could not sell stock and thus eliminated futures buyers, which in turn contributed to a downward slide in futures prices.

<sup>136</sup> Fama, *supra* note 108, at 79.

<sup>137</sup> Short Sales of Securities, *supra* note 13.

<sup>138</sup> Letters written in 1977 by the New York Stock Exchange, The NYSE Institutional Advisory Committee on Trading, The Securities Industry Association, American

have made the uptick rule much less important to block traders. The growth in the trading of options has made it easier for market professionals to trade on knowledge of a pending block sale. Further, the growth of international trading, such as the London Stock Exchange, in markets without an uptick rule have provided other opportunities to trade on information about a pending block sale. Additionally, many other developments such as the growth of futures trading have contributed to much greater liquidity in today's market and less importance to block traders of the uptick rule. Finally, a broad limitation on all short sales is not an efficient way to protect block traders since it only helps block traders in certain situations while it hinders market efficiency in general.

Another group that may benefit from the uptick rule, and therefore would oppose its removal, is larger broker dealers. To the extent they hold large, well-diversified portfolios they can sell many stocks on bad information without waiting for an uptick. Smaller firms, however, who are not long in a stock would have to wait for an uptick to short sell. This can be especially critical in index arbitrage and can restrict smaller firms from using this strategy.

A broad restriction on short selling impairs market efficiency in general by delaying the execution of trades. Grossman and Miller suggest that the cost of delayed trades is in general the increased risk of an adverse price movement.<sup>139</sup> This cost climbs the greater the volatility of stocks. In today's equity markets, the delay costs of the uptick rule perhaps fall most on index arbitrage, which relies on the ability to trade large portfolios of stock quickly.

We suggest several reasons explain why the rule still exists. In part, it may be because of institutional inertia—although the purpose of the regulation is no longer relevant, the benefits from deregulation are not sufficient to induce deregulation.<sup>140</sup> In the late 1970s, the institutional costs of changing the rule, combined with the benefits of the rule to block traders, were sufficient to overcome the somewhat limited benefits to the market as a whole and the rule remained. In the mid 1980s, benefits from elimination of the rule grew and perhaps if the crash had not occurred, there would have

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Society of Corporate Secretaries, and the American Stock Exchange in response to the SEC proposal all mention the adverse effect on block traders as a reason to not change the uptick rule.

<sup>139</sup> Grossman & Miller, *supra* note 50.

<sup>140</sup> See McCormick, Shugart & Tollison, *The Disinterest in Regulation*, 74 AM. ECON. REV. 1075 (1984) (providing a general analysis of why many regulations continue to exist even when they appear to no longer to serve their original purpose. They argue the costs of regulation, such as the uptick rule, are the original rent seeking expenditures on activities that led to the regulation. Since the costs are sunk, there is little incentive for deregulation, but it is not worth the effort to change it). See also G. CALABRESI, *A COMMON LAW FOR THE AGE OF STATUTES* (1982).

been sufficient pressure to eliminate the rule. Exchanges are concerned that trading could be lost to overseas markets where short selling can occur without the rule. In addition, index arbitragers face higher costs because of the rule and would like to see it eliminated. However, the stock market crash has provided regulators and the stock exchanges with renewed interest in preserving the rule. From a public relations point of view, restrictions on short selling are popular with the investing public. Further, restrictions on index arbitrage reduce the attractiveness of the futures markets and thus may benefit the stock exchanges. Therefore, in the present climate an elimination of the uptick rule may not be politically feasible.

#### CONCLUSION

The uptick rule is a restriction on short selling which hinders the efficiency promoting aspects of short selling on the pricing of individual securities and index arbitrage. It is unlikely in today's highly developed market that "bear raids" could seriously disrupt the workings of the market. Bear raids are most likely to be a problem for OTC firms, where there is presently no uptick rule. However, the major cost of the uptick rule is in hampering index arbitrage. Index arbitrage relies on the ability to buy and sell baskets of stock quickly at prevailing prices. Index arbitrage improves market efficiency by linking the futures and cash markets, transferring information quickly between the markets. The uptick rule can hinder index arbitrage by delaying the ability of arbitragers to short sell a security quickly. While in certain cases the uptick rule protects property rights of block traders, this has become less important over time, and a broad restriction on short sales is not an efficient way to protect this property right.

Theory and empirical evidence suggest that restrictions on index arbitrage helped to uncouple the equity and futures market on October 19, 1987, exacerbating the decline and helping to turn the decline into a crash. To the extent the uptick rule had a role in the crash, it exacerbated the unlinking of the markets.

The implications of our arguments are that the uptick rule should at least be relaxed for index arbitragers, and probably for all traders. The uptick rule hinders the immediacy of trading so necessary in today's sophisticated markets. In today's markets it is imperative that traders have free access to index arbitrage. While politically the suggestion that the uptick rule be relaxed for program traders would not be attractive, a reasonable understanding of markets suggests this change would improve market operations.