Price limit performance: evidence from transactions data and the limit order book

Soon Huat Chan\textsuperscript{a}, Kenneth A. Kim\textsuperscript{b}, S. Ghon Rhee\textsuperscript{c, *}

\textsuperscript{a}Block 160, Bishan Street, 13, #03-142, 570160, Singapore
\textsuperscript{b}State University of New York at Buffalo, School of Management, 344 Jacobs Hall, Buffalo, NY 14260, USA
\textsuperscript{c}University of Hawai‘i, College of Business Administration, 2404 Maile Way, Honolulu, HI 96822-2282, USA

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Abstract

In recent years, organized stock exchanges with daily price limits adopted wider limits as narrower limits were criticized for jeopardizing market efficiency. This study examines the impact of a wide price limit on price discovery processes, using data from the Kuala Lumpur Stock Exchange. Specifically, examined is the impact of daily price limits on (i) information asymmetry; (ii) arrival rates of informed traders; and (iii) order imbalance. Using both trade-to-trade transaction data and the limit order book, we compile evidence that price limits do not improve information asymmetry, delays the arrival of informed traders, and exacerbates order imbalance. These results suggest that price limits on individual securities do not improve price discovery processes but impose serious costs even when the limit band is as wide as 30%.

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1. Introduction

In the securities markets, daily price limits represent literal boundaries on where individual security prices are allowed to move, often both upward and downward, and they are typically prespecified by a percentage based on a previous trading session’s closing price. Such price limit mechanisms are employed in the U.S. futures markets, but they are also used in many stock exchanges around the world, including Austria, Belgium, France, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, Spain, Switzerland, Taiwan, and Thailand (Roll, 1989; Rhee and Chang, 1993; Rhee, 2000). Despite their significant presence, however, Harris (1998) contends that we still do not know enough about these market mechanisms to make informed decisions regarding market regulation. Harris (1998) states that appropriate study samples using U.S. data are difficult to obtain. For example, most price limit studies using U.S. futures market data are only able to employ a few contracts (e.g., Chen, 1998; Ma et al., 1989), which hinders cross-sectional analyses. Consequently, France et al. (1994) state that there are many unanswered questions regarding price limit mechanisms. In our paper, we attempt to provide some much-needed insight into the effects of price limits by investigating transactions data and the limit order book of a stock market that imposes a daily price limit on its individual securities. Specifically, we study the price limit system of the Kuala Lumpur Stock Exchange (KLSE) of Malaysia.

The primary impetus for studying the KLSE is that we wish to study a market with a wide price limit. The KLSE uses a 30% price limit per trading session. This limit band is much wider than most other exchanges. Recently, several papers have examined the impacts of narrow price limits and have found them to be overly restrictive. For example, Chen (1997) examines Taiwan’s previous 7% price limit, Chen (1998) and Park (2000) study the relatively narrow price limits of the U.S. futures markets, Kim and Rhee (1997) investigate the narrow limits of the Tokyo Stock Exchange, and Phylaktis et al. (1999) examine the 4–8% price limit of the Athens Stock Exchange. All of these researchers find potential problems with price limits. However, based on their research, we do not really know whether narrow price limits are bad, or if price limits per se are bad. A policy question that is often raised is “if price limits are to be adopted, then what is the appropriate level?” In fact, conventional wisdom even suggests that wide price limits may be harmless. For example, the Stock Exchange of Thailand recently increased their price limit from 10% to 30%, and the Korea Stock Exchange recently increased their price limit from 6% to 15%. Thus, the impact of wide price limits remains an important policy issue, and a study of wide price limits brings out practical merits for market regulators and for academicians with regulatory policy

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1 Recently, papers have begun studying the impacts of trading halts on individual stocks. For example, Christie et al. (2002) and Lee et al. (1994) study NASDAQ and NYSE imposed trading halts, respectively, and they both find that trading volume and volatility are higher after the halt. Corwin and Lipson (2000) argue that the lack of liquidity surrounding the halt causes the abnormal volatility. However, while the literature on trading halts can provide some hints into price limit effects, it is important to realize that halts differ from price limits in at least two significant ways. As pointed out by Kim and Sweeney (2002), (i) prices before a halt are not capped as they are with price limits and (ii) trading halts are not mechanically or predictably imposed but are subjectively imposed under certain circumstances (e.g., due to impending news or an order-imbalance).
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