Global Finance Journal 25 (2014) 136–147

Contents lists available at ScienceDirect

Global Finance Journal

journal homepage: www.elsevier.com/locate/gfj

The effectiveness of competing regulatory regimes and the switching effects: Evidence from an emerging market ☆

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ARTICLE INFO

Available online 10 June 2014

JEL classification:
G15

Keywords:
Price limits
Circuit breakers
Volatility and trading behaviour

ABSTRACT

I investigate the effectiveness of two competing regulatory regimes and the effect of switching from strict price limits to circuit breakers on volatility spillover, and also on trading interference hypotheses. I find that switching to the circuit breakers' regime increases volatility and disrupts the price discovery mechanism. Stock prices are prevented from reaching their equilibrium levels and traders are unable to obtain their desired positions on limits hit day. Moreover, I find that volatility is spread out over the following 2 days post-limit hits within the strict price limits regime. Finally, the results show that price limits interfere with trading activity and affect investors' beliefs and liquidity positions.
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1. Introduction

Price limits are regulatory tools in both equity and futures markets in which further trading is prevented for a pre-specified duration either across the whole market or for a particular stock – with the intention of cooling traders' emotions and reducing price volatility.[1] Price limits have become very popular

☆ The author is grateful to the organising committee of the 20th Global Finance Conference 2013 in Monterey for the best paper award. I would also like to thank my anonymous referees and the editor (Professor Manuchehr Shahrokhi) for their valuable suggestions, which have greatly improved the exposition of the paper, along with the comments from the seminar participants at Birmingham University in the UK. The usual disclaimer applies.
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[1] Kim and Yang (2004) differentiate between three main categories of these regulatory tools, namely: price limits, firm-specific trading halts and market-wide circuit breakers. The trigger for price limits occurs when prices hit particular pre-specified price boundaries. With firm-specific trading halts, trading is ceased for a particular stock(s) for a given period of time within the session, or until the end of the trading session, if prices hit the predetermined limit. Finally, with market-wide circuit breakers, trading may be stopped – for a pre-specified duration – across the whole market if the market index hits a pre-determined level.

http://dx.doi.org/10.1016/j.gfj.2014.06.005
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and are widely used by different stock exchanges over the world. Despite the popularity of price limits, there is a remarkable debate in the academic literature regarding the effectiveness of such regulatory tools and whether or not they actually cool down market sentiment and reduce price volatility as intended. Chan, Kim, and Rhee (2005) argue that price limits are the main reason for order imbalance. Subrahmanyam (1994) finds that imposing circuit breakers increases price volatility rather than cooling the volatility. Lee, Ready, and Seguin (1994) argue that the announcement of trading halts leads to a dispersion of investors' belief about the equilibrium prices, and thus some irrational traders are drawn to the market under the effect of excessive media coverage.[2] This results in an increase in both trading volume and volatility (Farag & Cressy, 2012).

Price limits may also cause price volatility to spread out over few days post-limit hits (volatility spillover hypothesis); see for example Fama (1989), Kim and Rhee (1997), Chen (1997), George and Hwang (1995), and Chen, Kim, and Rui (2005), Chen, Rui, and Wang (2005). Moreover, it is argued that price limits prevent security prices from reaching their equilibrium levels, and disrupt the price discovery mechanism due to the suspension of trading for a period of time (Delayed price discovery hypothesis); see, for example, Fama (1989), Lehmann (1989), Lee et al. (1994), Kim and Rhee (1997) and Phylaktis, Kavussanos, and Manalis (1999). On the other hand, if trading is prevented by price limits then shares become less liquid, and this leads to intensive trading activity during the following trading days (trading interference hypothesis); see, for example, Fama (1989), Telser (1989), Lehmann (1989), Lauterbach and Ben-Zion (1993), Kim and Rhee (1997) and Corwin and Lipson (2000).

The existing body of the literature on price limits investigates narrow/strict price limits (5%–7%) in many stock exchanges e.g. Taiwan, Tokyo and Athens Stock Exchanges, Chen (1997), Kim and Rhee (1997), Phylaktis et al. (1999). The empirical findings of these papers are mixed, therefore we can't really decide whether or not strict price limits decrease price volatility and cool down the market. No other studies – to the best of my knowledge – have investigated the potential effect of a switch from narrow price limits to wider limit bands. I investigate, in the context of the Egyptian stock market, the effect of the changes in regulatory policies on three main hypotheses, namely (i) the volatility spillover hypothesis, (ii) the delayed price discovery hypothesis, (iii) and the trading interference hypothesis. In addition, the paper investigates the impact of regulatory policies on the dynamic relationship between trading volume and volatility.

The literature on price limits investigates the above hypotheses only for stocks that hit and nearly hit their limits (0.90 of the upper and lower limit bands); see, for example, Kim and Rhee (1997), Chen, Kim, et al. (2005) and Chen, Rui, et al. (2005). However, no other studies – to the best of my knowledge – have empirically investigated the relative efficiency of the alternative price limit regimes (circuit breakers/price limits). One of the compelling reasons for studying price limits in the context of the Egyptian Stock Exchange is that it is a unique example of the switch from strict price limits (SPL) (+/−5%) to circuit breakers (CB). The switch is accompanied by a move to much wider price limits (+/−10%–20%). There are only a few stock exchanges throughout the world that have switched to a wider price limits, e.g. Thailand from 10% to 30%, and the Korean Stock Exchange from 6% to 15%. Therefore, there is an obvious policy implication as we can identify the effect of regime change to wider limit bands on price volatility and trading behaviour.

I find evidence – consistent with the volatility spillover hypothesis – that volatility is spread out over 2 days subsequent to limit hit day within the SPL regime. Moreover, the price discovery mechanism is disrupted when stocks experience greater volatility for a few days post-limit hits and therefore stock prices are prevented from reaching their equilibrium levels. These deviations from the true prices are expected to prevail within the SPL regime as trading is suspended until the following day (trading session) when the prices hit their limits.

However, within wider bands of limits followed by trading halts (CB), investors have a chance to adjust their portfolios' position within the same trading session. These results are consistent with Kim and Rhee (1997) and Lee et al. (1994). The results also show that price continuation behaviour occurs more frequently within the SPL regime; however price reversal behaviour seems to occur more frequently

[2] Lee et al. (1994) find that trading halts increase both trading volume and stock price volatility by 230% higher than the following non-halt control periods. They argue that the media coverage plays an important role in explaining the post-halt price behaviour due to the increase in the heterogeneity of investors' beliefs.

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