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



Do regulatory policies affect the flow of information in emerging markets?¹

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ARTICLE INFO

Article history:

Received 20 May 2010

Received in revised form 15 November 2010

Accepted 21 November 2010

Available online 17 February 2011

JEL classification:

G15

Keyword:

Volatility

Trading volume

Trading halt

Price limit

ABSTRACT

In a previous paper we established that volatility is best explained by contemporaneous rather than lagged trading volume in the Egyptian stock exchange (EGX). The main objective of this paper is to investigate the effects of regulatory policies – namely the switch from price limit to circuit breaker – on the dynamic relationship between trading volume and stock returns volatility in the EGX. Using daily returns data for 20 actively traded companies as well as the EGX30 market index, the Generalised Method of Moments (GMM), results show that the volume–volatility relationship is not only endogenous but is also *structurally altered* by the switch.

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1. Introduction

Information-based models are widely used to explain the dynamic relationship between trading volume and stock returns volatility. The Mixture of Distributions Hypothesis (MDH) introduced by Clark (1973) and developed by Epps and Epps (1976), Tauchen and Pitts (1983) and Lamoureux and Lastrapes (1990) argue that incorporation of trading volume in the conditional variance for stock returns produces a secular decrease in estimated conditional volatility persistence.

MDH assumes that the information arriving to the market is available to all traders simultaneously, so that dissemination of information is symmetric and the new equilibrium is attained consequent

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¹ We are indebted to the Editor and referees for insightful comments. The usual disclaimer applies.

on this. In the light of MDH *contemporaneous* trading volume explains stock price volatility, as there is no information content in lagged trading volume with respect to stock price change. However, the model assumes that all traders receive information simultaneously. Copeland (1976), Jennings et al. (1981) and Smirlock and Starks (1985) therefore introduced an alternative explanation of the volume–volatility relationship namely, the Sequential Information Arrival Hypothesis (SIAH). According to SIAH, investors receive information randomly and *sequentially*, so that the dissemination of information is asymmetric and the final equilibrium is the sum of the sequential equilibria. Informed traders adjust their positions according to the information arrived to the market sequentially, so that lagged trading volume now has predictive power over future stock price changes.

The present paper provides a critical test of the two competing theories (MDH and SIAH) using emerging market data, specifically from Egypt, one of the leading emerging stock markets in the MENA region.² The Egyptian stock market (EGX) provides unique data for such a test as firms were progressively moved from a price limit regime (SPL) to a circuit breaker (CB) over the period of study.

During the global financial crisis of 2007–2008 the Egyptian economy achieved a remarkable real GDP growth rate of 7.2% in 2007 and 4.2% 2008, whilst some leading developed economies languished with negative or zero growth. As a result, Egypt was chosen by the Economic Reform Forum of the World Bank among the seven best countries in the world in taking effective steps for economic reform and enhancing the investment climate. According to the World Federation of Exchanges' (WFE) statistics in 2008 the Egyptian stock exchange (EGX) is one of the leading emerging markets in the Europe – Africa – Middle East region. The EGX was ranked 13th with a market capitalization of 85 247.2 million US\$ in 2008, compared to 139 273.8 million US\$ in 2007 and ahead of many leading world stock exchanges. Also EGX was ranked 9th in terms of number of listed companies (373 in total). The trading value of the exchange in 2008 was 93 475.7 million US\$, and in that same year average daily turnover 383.1 million US\$. Finally the average P/E ratio in 2008 was 9.3.

EGX30 trading regulations initially maintained a 5 percent ceiling/floor restriction over a stock's price, compared to its closing price in the last trading session. However, as the stock market developed, the need to remove or relax price controls became seen as imperative. On 21 July 2003, EGX commenced a new price ceiling system, whereby the daily price limit was widened to ± 20 percent. To ensure market fairness and investor protection, if any of the stocks weighted average price exceeded ± 10 percent from its opening price during the trading session, the trading would be halted for half an hour. When the session was resumed, if the stock's weighted average price exited the 20 percent band, trading on this stock would be halted until the end of the session.

The current paper, then, has two main objectives – using data on 20 most actively traded companies as well as the Egyptian stock market index EGX30 – to establish whether information arrives to market participants contemporaneously (the Mixture of Distributions or MDH hypothesis) or sequentially (the Sequential Information Arrival or SIAH hypothesis); and to examine whether or not the flows of information are structurally altered when the regulator switches the control of its stock price from a strict price limit regime (SPL) to a circuit breaker (CB) regime. Thus, the paper has obvious policy implications for stock market since links the volume–volatility relationship to regulatory actions. We find an evidence to validate *both* MDH and SIAH hypotheses, *conditional on the regulatory regime*.

The results of Generalised Method of Moments (GMM) show that there is a contemporaneous effect of daily flow of information on both trading volume and stock return volatility in SPL window, therefore volume and volatility are endogenous to the system. This result supports the argument of MDH as both volume and volatility can be driven from assumed exogenous variable namely information dissemination, Farag and Cressy (2010). However, significant negative relationship between lagged trading volume, and stock returns volatility are found within CB windows, so that, and consistent with Blume et al. (1994), Foster (1995), Ciner (2002), and Farag and Cressy (2010) trading volume convey valuable information to predict stock return volatility within CB window.

² The history of the Egyptian stock exchange can be traced to the 19th century and the exchange is therefore one of the oldest Middle Eastern stock markets, according to the World Federation of Exchanges (WFE) statistics in 2007 and 2008.

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