



Interaction of investor trades and market volatility: Evidence from the Tokyo Stock Exchange

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Abstract

This paper examines the relation between market volatility and investor trades by identifying who supplies and demands market liquidity on the Tokyo Stock Exchange. Because the different trading patterns of various investor types such as individual investors, institutional investors, and foreign investors affect market liquidity differently, we find that market volatility fluctuates significantly depending on which investor types participate in trade. We show that market volatility increases by more than 50% from the average level when there are greater buy trades by momentum investors that demand liquidity and there are less sell trades by contrarian (or profit-taking) investors that supply liquidity. On the other hand, volatility dampens by more than 57% when there are greater sell trades by profit-taking investors, mostly by domestic investors, while there are less momentum buy trades.

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1. Introduction

This paper investigates the relation between equity market volatility and the trade interactions of different investor types such as individual investors, institutional investors, and foreign investors. In essence, we look into the relation between volatility and investor trades by identifying who supply and demand liquidity in the equity market. Our paper shows that the interactions of buy and sell trades among various investor types matter because trading patterns of

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various investor types affect market liquidity differently. We use weekly trading volume data from the Tokyo Stock Exchange (TSE) as they are among the few data that record both buy and sell volumes of various investor types for the entire equity market.

Our paper connects the growing empirical literature that examines trading patterns of various investor types to the literature on the volatility of equity returns. Recent empirical studies have found that different investor types follow different trading patterns. In particular, many studies have reported that individual investors trade in a contrarian fashion in various equity markets. Using data of individual investors that trade using a major U.S. discount broker, Odean (1998, 1999) found that individual investors tend to cash in on winners and hold onto losers. Shefrin and Statman (1985) labeled such behavior as “disposition effect,” which is consistent with a contrarian trading pattern as investors profit-take more aggressively by selling stocks. Grinblatt and Keloharju (2000, 2001), using Finnish data, found that sell trades of individual investors are more sensitive than buy trades to high past returns and that these investors demonstrate strong profit-taking behavior. Several empirical studies have similarly found contrarian trading patterns for individual investors in other equity markets; Choe, Kho, and Stulz (1999) in the Korean market and Richards (2005) in six Asian emerging markets. Also, Karolyi (2002) and Kamesaka, Nofsinger, and Kawakita (2003) have reported that net buy trades of Japanese individual investors follow contrarian trading patterns. Our paper finds that the contrarian trading pattern of Japanese individual investors is mainly driven by the profit-taking pattern of sell trades.

Existing empirical studies find rather mixed results for the trading patterns of institutional investors in different markets. For U.S. institutional investors, Griffin, Harris, and Topaloglu (2003), Cai and Zheng (2004), Lakonishok, Shleifer, and Vishny (1992), and Nofsinger and Sias (1999), among others, reported results that they follow momentum trading patterns. In Finland, Grinblatt and Keloharju (2000, 2001) found that institutional investors show contrarian trading patterns. Karolyi (2002) and Kamesaka, Nofsinger, and Kawakita (2003) also found Japanese institutional investors follow contrarian trades, which contrasts with the momentum patterns of U.S. institutions. Compared with the mixed empirical results for institutional investors, most studies found foreign investors follow momentum trading patterns in various markets (Brennan and Cao, 1997; Choe et al., 1999; Froot et al., 2001; Grinblatt and Keloharju, 2000, 2001; Richards, 2005). Brennan and Cao (1997) provide an information based explanation of momentum trading pattern of foreign investors. If foreign investors are less informed and do not have as much private information as local investors, foreign investors need to gather more information from market prices. Therefore, when prices of local equities rise, foreign investors tend to buy more, which generate momentum trading patterns.

When various types of investors trade with each other, we are interested in how their different trading styles affect market prices and/or volatility. Because momentum traders demand liquidity as price increases, their trading styles might lead to further increases in prices or greater volatility. De Long, Shleifer, Summers, and Waldman (1990a) have suggested that momentum or positive feedback traders destabilize the market. Their results hold if other investors in the market do not provide liquidity to the momentum traders. If momentum investors trade against contrarian investors, we conjecture market volatility would be dampened because contrarian investors would be providing liquidity to momentum investors. Although there are many studies that document the different trading patterns of various investor types, few empirical studies examine their implications on market prices. Among the few are recent studies by Avramov, Chordia, and Goyal (2006) and Kaniel, Saar, and Titman (in press). By decomposing sell trades into contrarian and herding (or momentum) trades, Avramov, Chordia, and Goyal (2006) found that contrarian sell trades decrease volatility of daily individual stocks while herding sell trades increase volatility.

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