



Are Japanese margin buyers informed? ☆

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ABSTRACT

Using Japanese long sample (1977–2010) market data, we examine whether margin buying is informed trades about future stock returns and whether they are related to undervaluation of the market. We find that margin buying increases when temporary returns are higher contemporaneously. We do not find that Japanese margin buying is well-informed in predicting future permanent changes in stock returns. Further, we find that margin buying is not related to the undervaluation of stock market prices.

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1. Introduction

Margin buying (also known as margin purchase or buying on margin) refers to the purchase of stocks by borrowing money from a broker, which allows investors to buy more stocks than they would be able to normally do. It is a natural consequence of investment by credit based on market predictions. Regulators believe that margin buying could destabilize stock markets; consequently, they continuously monitor the margin-buying behavior of investors. While a number of studies have investigated short selling as an important policy issue, margin buying has been neglected in the

academic context despite the fact that margin buying is a mirror image of short sales to some extent.²

Chang, Luo, and Ren (2014) find that intensified margin-buying activities are related to lower contemporaneous returns; however, these trades have no predictive power in terms of stock returns in China. Hirose, Kato, and Bremer (2009) were the first to test the relationship between margin buying and stock returns for Japan. Their market-level and firm-level analyses show that margin buying traders follow herding behavior. However, their study focuses on the role of margin

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² The effects of short sales on stock markets have long been a major concern for regulatory bodies as well as practitioners and academics. Critics argue that short selling encourages speculation and pushes stock prices down, sometimes in a panicked market. Advocates argue that it provides important information about investor views on companies and maintains liquidity as well. The most debatable issue is whether short sales exert an unfavorable effect on stock prices. During the global financial crisis in 2008, many regulators restricted stock market participants from selling short. Academics have generally argued that such restrictions are against both the efficiency of the price discovery process as well as the enhancement of market liquidity. Financial historians warned that the bans in 2008 did not work and that such measures were often driven more by political concerns than by proved market theories. Meanwhile, at an aggregate market level, Ko and Lim (2006) find that short selling information cannot be used as an indicator for predicting future stock markets.

buying as a market sentiment in herding behavior of investors, not on the dynamic lead and lag relationship between changes in margin buying and stock market returns.

There are two types of margin buying similar to short selling in Japan: standardized margin buying and negotiable margin trading. Margin buying in Japan mainly involves individual investors, which implies that margin buying reflects a sentiment of individual investors, not that of institutional investors. Kamesaka, Nofsinger, and Kawakita (2003) and Ko, Kim, and Cho (2007) find that individual investors in the Japanese stock markets are not well-informed.³ When we combine the findings of all the relevant empirical studies and Japanese margin-buying characteristics, we can hypothesize that Japanese margin buying must be a consequence of past returns; however, it is not likely to predict future returns.

This study examines whether margin buying is informed trades about future stock returns and whether margin buying helps to predict future stock returns, especially the future permanent component of returns in addition to the temporary component of returns. We are interested in the relation between margin buying and the future permanent component of stock returns because if margin buyers are informed traders and contribute to future returns, they should be informed about the future permanent component of returns as well as the temporary component of returns. Additionally, we examine whether margin buying is associated with current undervaluation.

To examine the above issues, we propose an empirical framework that helps us identify the permanent and temporary components of stock returns, test whether margin buying involves informed decisions, and identify over- and undervaluation of the market prices. We use Japanese market data for more than 30 years (1977–2010) to study the effect of margin buying on stock prices at an aggregate market level. This study is different from the extant literature like Hirose et al. (2009) in the following respects: First, we employ a structural vector auto-regression approach to study the dynamic behavior of margin buying and stock returns at an aggregate market level. Second, market returns are decomposed into fundamental and non-fundamental parts to investigate the relationship between margin-buying behavior and undervaluation of stock prices. Finally, we also analyze the interrelationship between margin buying and short selling. Asian market regulators generally tend to be more concerned about the effect of margin buying on stock prices at an aggregate market level than at an individual stock level.⁴ Hence, understanding the nature of margin buying is important for making stock market policies in Japan.

The remainder of the paper is organized as follows. In Section 2, we describe the data. Section 3 explains how to identify the permanent and temporary components of stock returns based on a bivariate time-series model. We then discuss how to test whether margin buying constitutes informed trading based on the potential information asymmetry between investors and present empirical estimation results. Section 4 discusses how to identify over- and undervaluation of the stock market based on a multivariate time-series representation. The final section summarizes our findings and concludes the paper.

2. Data

We collect data from each issue of the Monthly Statistics Report (MSR) of the Tokyo Stock Exchange (TSE). The weekly margin-buying interests of the TSE are obtained from the section entitled “Outstanding Margin Transactions” of the MSR. We reassemble monthly margin-buying interests from the weekly data. Weekly data of margin buying are used for testing its information role. Monthly data are used for

³ Ko (2012) shows that domestic individual investors have information disadvantage in an Asian emerging index futures market.

⁴ Asian regulators tend to believe that they can stabilize stock markets by changing stock market policies. Since their goal is to stabilize domestic stock markets, they focus on the aggregate stock market, not individual stocks.

Table 1

Descriptive statistics.

This table shows descriptive statistics for margin buying (MB), short selling (SI), and market return for the TOPIX. The sample period is from October 1, 1977 to April 30, 2010. Panel A gives weekly statistics and Panel B, monthly statistics.

Variable	Average	Autocorrelation	Dickey–Fuller stat.	Correlation coefficients	
				Short (SI)	Market return
Panel A. Weekly statistics (# of observations = 1667)					
Margin (MB)	−.0038***	.0817***	−37.59***	.1610***	.0915***
Short (SI)	−.0014***	.1977***	−33.40***		.2156***
Market return	.0009	−.0370	−42.33***		
Panel B. Monthly statistics (# of observations = 391)					
Margin (MB)	−.0023***	.3420***	−13.79***	.2515***	.2930***
Short (SI)	−.0003	−.0691	−21.11***		.2823***
Market return	.0039	.0668	−18.43***		

*, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

testing its relationship with over- and undervaluation of stock prices because market fundamentals such as earnings, dividends, and discount rates are available on a monthly basis. Because the TSE has reported weekly data since September 1977, this study covers the sample period from October 1977 through April 2010. The MSR gives us all the other stock market data. Until 1990, margin buying had been allowed only for stocks in the first trading section; at present, it is allowed for the stocks designated by the TSE.⁵ Thus, the Tokyo Stock Price Index (TOPIX) is used for calculating market returns, i.e., the value-weighted stock index of the TSE first trading section.

Like short interests, margin-buying interest at time t is the sum of ‘margin-buying interests’ for all stocks available in the stock market. The investors’ behavior of margin buying for the t th week (or month) should be estimated by a change in margin buying from the end of $t - 1$ th week (or month) to the end of t th week (or month). On the other hand, margin-buying volume depends largely on market trading volume, hence, must be standardized by the previous week’s (or month’s) trading volume of the stock market. Here, we use market trading volume for the TOPIX. This approach is also used by Chang et al. (2014) while Hirose et al. (2009) do not standardize the change in margin-buying interests by market trading volume. This study employs the following definition or estimation method of margin-buying variable (i.e., MB or change in margin-buying interests):

$$MB_t = \frac{\text{Margin buying}_t - \text{Margin buying}_{t-1}}{\text{Trading Volume}_t}$$

Panel A of Table 1 shows the weekly statistics for three variables, i.e., margin buying (MB), short selling (SI), and market return. Short selling is a standardized change in weekly (or monthly) short interests as in margin buying. Average weekly margin buying and short selling are all negative. This implies that margin and short interests are likely to be offset-traded when trading volume is relatively small.⁶ Positively significant autocorrelations indicate the persistence of weekly margin buying and short selling. Dickey–Fuller tests confirm that all three variables are stationary. Interestingly, margin buying and short selling are positively correlated while they expect different future market status,

⁵ Since 1991, some stocks in the second trading section of the TSE have been allowed to buy on margin. Hence, margin-buying variable must not be related to stock market returns calculated by the index of the second trading section before 1991. Our preliminary tests confirm the non-existence of such a relationship. Due to the change of margin regulation, the TOPIX returns may not reflect the performance of all the stocks that can be bought on margin. However, we expect that the change of margin regulation would not have an effect on our results because the capitalization of the stocks allowed for margin buying in the second trading section is relatively too small compared to that of the TOPIX stocks.

⁶ Offset-trading is buying back stocks for short covering and selling margined stocks, which produces negative values for changes in margin and short interests.

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