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Short selling activity, price efficiency and fundamental value of IPO stocks ☆

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A B S T R A C T

In this study, we take advantage of the unique features of the Taiwan stock market, where short selling is forbidden within the first six months following an IPO. We examine the effects of short selling on IPO price efficiency and the relation between short selling activities and the fundamental value of IPO stocks. We find that price efficiency is improved with increased short selling after the lifting of short sale constraints on IPO stocks. We also show that short sellers tend to target IPO stocks with low fundamental ratios, but simultaneously avoid stocks with high transaction costs. In addition, we provide empirical evidence that short sellers focus more on temporary price fluctuations rather than temporary fluctuations in fundamentals.

1. Introduction

The short-term overvaluation and long-term underperformance of IPO stocks have been a longstanding puzzle in the finance literature. Numerous studies investigate this issue from a variety of perspectives. Michaely and Shaw (1995), Brav and Gompers (1997) and Carter et al. (1998) document that indicators of issue quality, such as auditor quality and underwriter prestige, are associated with long-run underperformance of IPO stocks. Aggarwal (2000) and Ellis et al. (2000) argue that underwriter price support in the IPO aftermarket may lead to price declines after these

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activities cease. Miller (1977) suggests that investor divergence of opinion can theoretically lead to short-run overvaluation and greater long-term underperformance. He asserts that the views of pessimists are not reflected in stock prices due to short sale constraints until these constraints are relaxed. Hanley et al. (1996) and Ljungqvist et al. (2006) conjecture that the short sale constraints following an IPO contribute to price inefficiencies in the short-term which are reversed in the long-term. However, in a recent study, Edwards and Hanley (2010) find that short selling occurs in 99.5% of IPOs on the offer day in the United States and the majority of first day short sales occur at the opening of trading. Their results are inconsistent with the role of short sale constraints in divergence of opinion models of IPO pricing and appear to suggest that short sellers do not limit observed underpricing.

In this paper, we examine the impact of short selling constraints on the price efficiency and fundamental value of IPO stocks in the Taiwan stock market, where shares are not eligible for short selling within the first six months of the IPO. We find that stock price efficiency improves after short sale constraints on IPO stocks are lifted. We also show that short sellers tend to target IPO stocks with low fundamental ratios, but simultaneously avoid stocks with high transaction costs. To our knowledge, this is the first study to test whether lifting short sale constraints makes IPO stock prices more efficient and more in line with their fundamental values.

Numerous studies show that short sellers play an important role in the price discovery process. Their trading activities make prices more efficient (e.g., Chang et al., 2007; Bris et al., 2007; Boehmer and Wu, 2010). Short sellers are viewed as informed traders who help correct overvaluation (e.g., Boehmer et al., 2008; Diether et al., 2009; Christophe et al., 2010; Chang et al., 2012). In Taiwan, the Taiwan Security Exchange imposes stringent regulations on the trading of IPO stocks. Short-selling is only allowed six months after IPOs, provided that the stocks meet certain criteria. The major criteria[1] are: (1) shares of any common stock have been listed on an exchange for six months; (2) the net worth per share is not less than par value; and (3) the securities exchange shall publicly announce them as shares eligible for margin purchase and short sale. It seems natural to assume that the absence of short sellers in the early IPO market leads to high stock valuation and price inefficiency. Thus our primary hypothesis is that the lifting of short sale constraints enhances IPO stock price efficiency and drives stock prices towards their fundamental values.

We employ several methods to test our hypothesis. First, we compare the price delay and the absolute value of quote midpoint return autocorrelations based on a 10-minute interval ("AR10") and a 30-minute interval ("AR30") in the six months before and after the lifting of short sale constraints on IPO stocks. Price delay captures the portion of individual stock return variation explained by lagged market returns to show the average delay with which a firm's stock price responds to information (Hou and Moskowitz (2005)). The larger the delay, the less efficient the stock price is. Hou and Moskowitz (2005) employ such a method to characterize the severity of market frictions and find that frictions associated with investor recognition appear most responsible for the delay effect. In addition, we adopt Boehmer and Wu (2010)'s high-frequency measure of efficiency, the absolute value of quote midpoint return autocorrelations computed from the intraday quote data. The intuition is that if the quote midpoint is the market's best estimate of the equilibrium value of the stock at any time, then a more efficient quote-midpoint process would be closer to a random walk and exhibit less autocorrelation in either direction. Therefore, a smaller absolute value of quote midpoint autocorrelation indicates greater price efficiency. We find that price delay, AR10, and AR30 decrease significantly after the lifting of short sale constraints, indicating improved price efficiency with the entry of short sellers.

We also apply the matched-firm approach (Alexander and Peterson, 2008) and regression analysis to explore the relationship between short selling flow and price delay six months after IPOs. Our results indicate that the price efficiency of matched firms whose stocks are allowed to short is significantly better than that of our sample firms whose stocks are under short sale constraints. Regression analysis shows that short selling has a significantly negative relation with price delay.

[1] The Taiwan Stock Exchange Corporation Specific Standards and Procedures for Determining Eligibility of Securities Margin Purchase and Short Sale Transaction are prescribed pursuant to Article 2, paragraphs 5, 6, and 12 and Article 3, paragraph 2 of the Standards Governing Eligibility of Securities for Margin Purchase and Short Sale.