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Short sales constraints and price adjustments to earnings announcements: Evidence from the Hong Kong market

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ABSTRACT

This study examines how short sales constraints affect the stock price adjustment to the release of public information in the Hong Kong Stock Exchange. Using a unique feature of this market that allows us to directly investigate the impact of short sales restriction, we find the following. First, non-shortable stocks react more strongly to the publication of negative information than shortable stocks do. Second, non-shortable stocks are overpriced before negative earnings announcements. Hence, part of the strong market reaction of non-shortable stocks on announcement day could be due to the correction of such overpricing. Third, the prices of non-shortable stocks reverse following the announcement of negative information, suggesting that investors overreact to negative information on announcement day. Fourth, it takes longer for the prices of non-shortable stocks to adjust to negative earnings information. On the whole, our results support the research that finds short sales restrictions reduce the efficiency of stock markets.

1. Introduction

Generally, during financial market crises, regulators around the world attempt to constrain short selling activities. Looking for an escape route due to political pressure or their genuine beliefs, regulators argue that short sales destabilize the markets and lead prices to deviate far from their fundamental values. They also argue that through banning short sale activities, they could dampen sudden and significant drops in stock markets. Beber and Pagano (2013) report that, among the 30 markets in their sample, 21 imposed a short selling ban during the 2008–2009 crisis, either on whole stock markets or specific sectors.

However, research questions the effectiveness of such a drastic practice of imposing a short selling ban. For example, Diamond and Verrecchia (1987) develop a rational expectations model where investors take into account short sales constraints when making their investment decisions. According to their model, since investors with private information are prevented from short selling, it takes longer for information to be incorporated into prices, especially negative information. Hence, when the information is made public, stocks with short sales constraints will react more strongly to the information than stocks without such constraints will. Hence, the model of Diamond and Verrecchia (1987) has two empirically testable predictions: 1) stocks with short sales constraints react to private information more slowly than stocks without such constraints, particularly to negative information; and 2) stocks with short sales constraints react more strongly to public information than stocks without such constraints. Our study empirically examines Diamond and Verrecchia (1987) by looking at how stocks with different levels of short sales constraints react to earnings announcements.

Few studies have empirically tested these predictions. For example, Chen and Rhee (2010) use trade-by-trade data to compare the speeds of price adjustment for stocks before and after they are allowed to be sold short. The authors find that short selling increases the speed of price adjustment to both firm-specific and market-wide information in both up and down markets, suggesting that short selling increases market efficiency. Reed (2007), using loan prices determined in the equity market to proxy for the difficulty of short selling, finds that, when short selling is costly, stock prices are slow to incorporate private information and react strongly to information announcements. Fung and Draper (1999), also employing transaction data, provide evidence that lifting short selling constraints speeds up market adjustment and reduces the mispricing of index futures contracts. Bris, Goetzmann, and Zhu (2007) conduct a cross-sectional and time-series study on 46 equity markets around the world. They find that prices incorporate negative information faster in countries where short sales are allowed and implemented. Mashruwala and Mashruwala (2014), though focusing on examining the torpedo effect to earnings news, do provide evidence on the asymmetric reaction of stocks to good and bad earnings announcements when short selling constraints are binding.

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In this paper, we examine Diamond and Verrecchia's (1987) prediction regarding short selling restrictions and stock price efficiency more directly in two aspects: first, unlike most previous studies that use proxies for short selling constraints, we use a more direct measure. We conduct our study on stocks from the Hong Kong Stock Exchange (HKSE), where only designated stocks that meet certain requirements are allowed to be sold short while the other stocks are strictly forbidden from being sold short. The list of designated shortable stocks is revised regularly, with stocks that become newly eligible being added to the list while no longer eligible stocks are removed. Such a practice enables us to compare the reactions of stocks with and without short sales constraints to the same type of information. More importantly, the direct measure of short sales constraints enables us to rule out other interpretations caused by using imperfect proxies. For example, Mashruwala and Mashruwala (2014), who use short interest data to proxy for short sales constraints, acknowledge that short interest is a measure of short selling activity rather than short selling constrains, hence they cannot definitively rule out the possibility that their findings could be caused by "short-sellers shorting stocks that are overpriced for reasons other than short-sales constraints (p. 540)". Our direct measure can best prevent this problem. Several studies explore the effects of short selling constraints using HKSE data (e.g., Bai & Qin, 2014; Chang, Cheng, & Yu, 2007; Chen & Rhee, 2010), but their focus differs from ours. Chang et al. (2007) examine Miller's (1977) overpricing theory and Bai and Qin (2014) focus on the impact of short sales constraints on stock liquidity. The most closely related study is that of Chen and Rhee (2010), who also examine Diamond and Verrecchia's (1987) predictions. But their paper focuses on the asymmetric speed of price adjustment to new information between shortable and non-shortable stocks, while ours looks more at the asymmetric magnitude of price reactions to public information, complementing the work of Chen and Rhee (2010).

Second, we examine stock reactions to a specific and special event: corporate earnings announcements, which also distinguishes our study from Chen and Rhee (2010). The benefits of selecting such an important event are threefold: 1) earnings announcements are scheduled events when companies release not only current earnings information but also substantial details to significantly reduce uncertainty about earnings (Berkman, Dimitrov, Jain, Koch, & Tice, 2009). Before the public announcements, investors with private information can establish long or short positions in the stocks that they expect to report positive or negative earnings surprises (Christophe, Ferri, & Angel, 2004). Uninformed traders, however, although they may anticipate the information, will observe the information only when it is made public via earnings announcements by the companies. Such a setting and information dissemination structure are consistent with Diamond and Verrecchia's (1987) framework.[1] Hence, by looking at the pricing adjustments of stocks with different levels of short selling constraints to earnings announcements, we can provide more direct evidence on how short selling restrictions affect the efficiency of price adjustments to public information. 2) For earnings announcements, we can deliberately and relatively precisely separate negative earnings announcements from positive ones. This is important because Diamond and Verrecchia (1987) predict asymmetric effects not only between shortable and non-shortable stocks in adjusting to private/public information, but also between their reactions to good news and bad news. Chen and Rhee (2010) provide indirect evidence on the latter effect by showing that the difference in the speed of price adjustment for shortable and non-shortable stocks is more significant in a down market than in an up market. However, stocks can receive bad news even in an up market or receive bad news in a down market, particularly firm-specific news. Hence, short selling restrictions could also be binding in an up market for some stocks. Our study separates good news from bad news at the firm event level, which helps us to provide more direct evidence on the asymmetric effect of short selling constraints on price adjustments to good and bad news. 3) We can use an event study methodology to examine our research question at the firm event level. Such a methodology enables us to perfectly time the publication of private information and thus precisely measure the adjustments of stock prices. In addition, by focusing on the short event window around earnings announcements, we can largely rule out other market-wide factors that could contaminate our results. Besides, the literature has long debated whether analyst forecasts reflect all publicly available information and whether they are prone to behavioral bias (e.g., Jagadeesh & Kim, 2010; Jagadeesh & Livnat, 2006). In this study, by identifying the publication of private news, we shall be able to see differences in price changes before and after earnings announcement dates between shortable and non-shortable firms, which helps us to gain more insights into the informational efficiency of stock markets.

Consistent with Diamond and Verrecchia's (1987) predictions, we find that, on the announcement day, prices change more significantly for stocks with short sales constraints than for stocks without constraints, for both positive and negative information. On average, abnormal returns of shortable stocks amount to −5.87% upon the announcement of negative information, while those of non-shortable stocks amount to −8.38%. Upon the announcement of positive earnings news, shortable and non-shortable stocks have average abnormal returns of 8.41% and 13.31%, respectively.

To gain more insight into the reactions of shortable versus non-shortable stocks, we further look at the price behavior of stocks around earnings announcements, that is, 10 days before and 60 days after the announcements. We find that during the 10 days before the announcement of negative earnings news, the prices of non-shortable stocks increase substantially more than those of shortable stocks (3.47% vs. 1.05%). Such a phenomenon is consistent with Miller's (1977) overpricing theory and Diamond and Verrecchia's (1987) prediction of slow adjustment to bad private information. Before the information is publicly available, there are heterogeneous expectations about the information; however, due to short sales constraints, while optimistic investors are able to incorporate their future expectations of firm performance into prices by simply buying the stocks, many pessimistic investors cannot sell the stocks because they do not own them. Hence, stocks with short sales constraints are overpriced until the information is made public and part of the greater price reaction of non-shortable stocks on announcement day consists of a correction of the previously formed overpricing. For good earnings information, over the 10 days before announcements, the abnormal returns for shortable and non-shortable stocks are −0.50% and −0.79%, respectively, but the difference is statistically insignificant.

We further investigate the pricing of stocks following announcements to see how efficiently prices adjust to public information, applying Savor's (2012) regression framework. Our results indicate that while the prices of shortable stocks react efficiently to negative information on announcement day, the prices of non-shortable stocks seem to overreact to the information, with prices reversing following the announcements. Therefore, part of the greater price reaction of non-shortable stocks on announcement day is caused by investors' overreaction. Further tests show that it takes, on average, 12 days for non-shortable stocks to fully correct for the mispricing. However, when we look at good earnings announcements, both shortable and non-shortable stocks react to the information efficiently. The result confirms Diamond and Verrecchia's (1987) prediction that short sales constraints affect stock price adjustment to negative information.

Our study contributes to the debate on the impact of short sales constraints on price efficiency by explicitly examining the price adjustments to earnings announcements of both stocks with short sales constraints and stocks without constraints. Besides providing direct empirical evidence to support the theoretical prediction that short sales constraints enlarge stocks' reactions to negative public information

[1] Diamond and Verrecchia (1987, p.298) specifically state that "one can measure efficiency by the average of the absolute value of the returns on the announcement of a piece of regularly released private information: for example, corporate earnings."