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# Strategic delivery failures in U.S. equity markets ☆

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**Abstract**

Sellers of U.S. equities who have not provided shares by the third day after the transaction are said to have "failed-to-deliver" shares. Using a unique data set of the entire cross-section of U.S. equities, we document the pervasiveness of delivery failures and evidence consistent with the hypothesis that market makers strategically fail to deliver shares when borrowing costs are high. We then show that many firms that allow others to fail to deliver to them are themselves responsible for fails-to-deliver in other stocks. Finally, we discuss the implications of these findings for short-sale constraints, short interest, liquidity, and options listings in the context of the recently adopted SEC Regulation SHO.
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## 1. Introduction

U.S. equity shares are normally delivered three days after the transaction. Sellers that have not provided shares by that time are said to have "failed-to-deliver". Inadvertent

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failures can result from errors or delays caused by investors holding securities in physical rather than book-entry form. Recent work by Evans et al. (2003) introduces the idea of *strategic* failures-to-deliver, which result when short sellers *choose* not to deliver shares that would be expensive to borrow. Evans et al. (2003) show that strategic failures by options market makers can reduce short-selling constraints for stocks that have options listed. More generally, strategic fails may extend beyond those of options market makers, thus reducing short-sale constraints for non-option stocks as well.[1]

On July 28, 2004, the Securities and Exchange Commission (SEC) adopted Regulation SHO to modify rules for short sales in U.S. equity markets. The adopting release states that one objective is to restrict "naked" short selling, which "generally refers to selling short without having borrowed the securities to make delivery."[2] Toward that objective, Rule 203 of Regulation SHO imposes a number of new borrowing and delivery requirements on short-sellers, including additional requirements for stocks with long-lived delivery failures. To the extent Regulation SHO reduces strategic delivery failures, short selling will become more tightly constrained.

This paper has four goals. First, it provides an empirical description of delivery failures in U.S. equity markets prior to Regulation SHO. It then provides evidence consistent with the hypothesis that pre-Regulation SHO, equity and options market makers strategically failed to deliver shares that were expensive or impossible to borrow. Third, it examines various explanations that have been suggested by market participants as to why firms allow others to fail to deliver shares to them. Finally, it discusses the implications of Regulation SHO for short-selling constraints, short interest, liquidity, volatility, and options listings.

We find that prior to Regulation SHO, most U.S. equity issues experienced at least a small percentage of failures-to-deliver each day. While the average amount of failed shares is very small as a percentage of shares outstanding (0.15% for listed stocks and 0.91% for unlisted stocks), a substantial fraction of issues (42% of listed stocks and 47% of unlisted stocks) had persistent fails of 5 days or more. About 4% of U.S. equity issues had fails that would have classified them as "threshold" securities with mandatory close-out requirements under Regulation SHO.

We argue that long-lived ("persistent") fails are more likely the result of strategic fails rather than inadvertent delivery delays. Consistent with the hypothesis that pre-Regulation SHO, equity and options market makers strategically failed to deliver shares that were expensive or impossible to borrow, we find some evidence that these long-lived fails were more likely to occur when stocks were expensive to borrow, as proxied by institutional ownership, book-to-market, and market cap. We find some evidence that strategic fails were more likely for stocks with options listings, consistent with the conclusion of Evans et al. (2003) that options market makers strategically fail when stocks are expensive to borrow. We also provide evidence that strategic fails (i.e., naked short sales) likely

[1]Although Evans et al. (2003) introduce the idea of strategic fails for equity markets, Fleming and Garbade (2002) provide a detailed discussion of strategic fails in Treasury markets.

[2]See SEC adopting release, p. 7. In addition to Rule 203, Regulation SHO contains several other rules, including Rule 200, which defines security ownership for short sale purposes and provides specifications for aggregation of long and short positions and requirements for marking sales as "long", "short", or "short exempt"; and Rule 202T, which enables the SEC to conduct a pilot program to study elimination of the tick test Rule 10a-1. Regulation SHO can be obtained in full at www.sec.gov. This paper addresses Rule 203.

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