

## Short Selling's Positive Impact on Markets and the Consequences of Short-Sale Restrictions

### I. Introduction

Short selling plays an important role in efficient capital markets, conferring positive benefits by facilitating secondary market trading of securities through improved price discovery and liquidity, while also positively impacting corporate governance and, ultimately, the real economy. However, short selling and short sellers have received negative attention over the years, primarily due to general concerns that short selling is purely speculative and potentially destabilizing for markets.<sup>1</sup> Short sellers are often scapegoats in a market down cycle,<sup>2</sup> while firm management is also generally wary of short sellers, as short selling positions pay off when a firm's stock price declines.<sup>3</sup> However, to the extent that short selling improves the efficiency of capital markets, many of these criticisms appear to be unwarranted.

Recent policy proposals and discussions on the role of short selling in our capital markets focus on mandatory public disclosure requirements for short sale transactions. The "Brokaw Act," introduced in the Senate Banking Committee in August 2017, would require short sellers to file public disclosure statements after accumulating short interests of 5% or more of a company's stock.<sup>4</sup> Advocates of this proposal point to the disclosure requirements for long positions, arguing that a similar requirement for short positions would be appropriate.<sup>5</sup> However, the rationale for disclosure requirements for long positions are related to voting rights and control, and there is no analogous rationale for short positions, as those powers do not accrue to short sellers.

More recently, a similar legislative proposal has been pushed by a group of proponents that includes the New York Stock Exchange and NASDAQ. Their proposal would mandate disclosure

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<sup>1</sup> See Massimo Massa, Bohui Zhang & Hong Zhang, *The Invisible Hand of Short Selling: Does Short Selling Discipline Earnings Management?*, Rev. of Fin. Studies, 2014.

<sup>2</sup> See Ekkehart Boehmer, Charles M. Jones & Xiaoyan Zhang, *Shackling Short Sellers: The 2008 Shorting Ban*, Rev. of Fin. Studies 2013; and see, Kinsey Grant, "NYSE President Tom Farley Blasts Short Sellers, Call Them 'Un-American' and 'Icky'", thestreet.com, Jun. 27, 2017.

<sup>3</sup> See e.g., Time, Sept. 18, 2008 (quoting Morgan Stanley CEO John Mack, "It's very clear to me—we're in the midst of a market controlled by fear and rumors, and short sellers are driving our stock down.")

<sup>4</sup> See S. 1744, August 3, 2017.

<sup>5</sup> See e.g., Wachtell, Lipton, Rosen & Katz, Petition for Rulemaking Under Section 13 of the Securities Exchange Act of 1934, submitted to the Securities and Exchange Commission, Mar. 7, 2011.

of a short position that exceeded 5% of a stock's weekly average trading volume.<sup>6</sup> Since the disclosure requirements for long positions are not based on trading volume, the mandate for short positions would be unique, naturally leading to a question as to why this would be appropriate for short sales. As of this writing, this proposal has yet to receive any congressional backing.<sup>7</sup> The common feature of each of the short selling disclosure proposals is a public disclosure requirement for short sellers, identifying individual positions along with the identity of the short seller, rather than simply disclosing overall short selling activity. Overall short selling activity is already disclosed fairly extensively under SRO rules. Pursuant to discussions with the SEC, U.S. exchanges publish on their websites daily aggregate short selling volumes on a per security basis.<sup>8</sup> Additionally, exchanges publicly disclose data on individual short sale transactions, with a one-month lag.<sup>9</sup> FINRA rules also mandate public reporting of off-exchange short sale volumes, requiring member firms to “report total short positions in all customer and proprietary firm accounts in all equity securities to FINRA on a bi-monthly basis.”<sup>10</sup> FINRA publicly releases aggregate data on a per security basis, pursuant to a request by the SEC.<sup>11</sup>

Considering these recent proposals, the policy discussions surrounding short sales should include both an examination of the role of short selling in financial markets and the potential negative consequences of a mandatory disclosure rule. It is particularly important to weigh the motivations for the proposals (and whether they would have their desired effect) against the consequences. Empirical studies on short selling help inform us of the consequences, confirming multiple benefits associated with shorting activity. Short selling improves both price efficiency and liquidity in the stock market, improving overall market quality. Short selling activity also serves as an external discipling mechanism on firm management, thereby improving corporate governance. Relatedly, restrictions on short selling – including outright bans of the practice - have been found to impact markets negatively, primarily due to the loss of the benefits listed above. If

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<sup>6</sup> See Michelle Celarier, *The Dangers of Short-Selling Disclosure*, Institutional Investor, Mar. 29, 2018.

<sup>7</sup> Id.

<sup>8</sup> SEC Release 2009-172, SEC Takes Steps to Curtail Abusive Short Sales and Increase Market Transparency, Jul 27, 2009, available at <http://www.sec.gov/news/press/2009/2009-172.htm>.

<sup>9</sup> Id.

<sup>10</sup> FINRA, *Short Reporting Instructions*, available at <http://www.finra.org/industry/short-interest/short-interest-reporting-instructions>.

<sup>11</sup> See FINRA Information Notice, *Publication of Daily and Monthly Short Sale Reports on the FINRA Web Site*, Sep. 29, 2009.

the proposed mandatory disclosure requirements become *de facto* restrictions on short selling, then our capital markets may suffer similar negative consequences. Recent research supports these concerns, finding that mandating disclosures of short positions can indeed chill short sale activity, harming capital market efficiency and quality. Given the recent policy discussions aimed at short sellers, the Committee on Capital Markets Regulations thinks it is important to highlight the current state of the academic research on the effects of short selling on financial markets and the potential unintended consequences of mandatory disclosure rules.

## II. Market Benefits of Short Selling

Short selling confers several benefits both *directly* to the capital markets themselves and *indirectly* to the real economy. Theoretical and empirical studies have shown that short selling improves overall market quality by contributing to (i) price efficiency, (ii) liquidity, and (iii) corporate governance.<sup>12</sup> In addition, examinations of the impact of various short-selling bans and restrictions have shown overwhelming negative effects on market quality, further exemplifying the importance of short selling in financial markets. Given the potential for disclosure regulations to serve as a *de facto* short sale restriction, it is important to understand the benefits of short selling that are at stake.

### (i) Price Efficiency Benefits

Short selling contributes to the accuracy and efficiency of prices in securities markets, primarily by ensuring that both positive and negative public information about firms are promptly reflected in prices.<sup>13</sup> Absent a short selling mechanism, security prices would face an upward bias and would not completely reflect a security's underlying fundamentals. Diamond and Verrecchia (1987) offer a voting analogy to illustrate this bias.<sup>14</sup> If voting on a referendum is unconstrained, i.e. voters can either vote "yes" or "no," then an unbiased result is achieved. However, if a voter is constrained to voting either "yes" or otherwise abstaining entirely, then an upward bias on the results would be introduced in favor of "yes" voters. The final tally would not reflect the collective

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<sup>12</sup> See, e.g. Katherine McGavin, Short Selling in a Financial Crisis: The Regulation of Short Sales in the United Kingdom and the United States, 30 Nw. J. Int'l L. & Bus. 201 (2010).

<sup>13</sup> See Diamond & Verrecchia (1987).

<sup>14</sup> Diamond & Verrecchia, *Constraints on Short-Selling and Asset Price Adjustment to Private Information*, J. of Fin. Econ. 18, 1987.

will of the electorate. Similarly, removing the ability of short sellers to transact in the market would introduce bias on securities prices, since short sellers would be restricted from trading on their information. Security prices would not be fully reflective of underlying fundamentals.

In theoretical models of short selling, short sellers are considered rational, informed traders, i.e., traders with “value-relevant information.”<sup>15</sup> Short sellers, therefore, should theoretically contribute to pricing efficiency by trading on superior information, thus pushing mispriced stocks closer to their fundamental value.<sup>16</sup> Alternative theoretical models, however, posit a contrasting view, claiming that short sellers may use their superior information to engage in manipulative and predatory trading that harms price discovery.<sup>17</sup> While it could be the case that both theoretical views persist in the market, i.e., some short sellers contribute positively to market quality and others behave more perversely, the empirical evidence from recent academic studies strongly supports the more positive view of short selling’s impact on price efficiency. The studies find that short sellers are indeed informed traders,<sup>18</sup> and more importantly, that short selling activity helps correct valuation errors.<sup>19</sup>

Boehmer and Wu (2013) find that short selling by informed short sellers facilitates rational price discovery in multiple respects. The study examines the impact of short selling on efficient prices by decomposing a stock’s transaction price into its *efficient price* plus its *pricing error*:<sup>20</sup>

$$\text{current stock price} = \text{efficient price} + \text{pricing error}$$

The pricing error represents the temporary deviation between the current stock price and its efficient price. In a perfectly efficient market, the pricing error would be zero and the current stock price would equal its efficient price. The pricing error, therefore, serves as a measure of price efficiency: the *lower* the pricing error, the *more efficient* the current stock price. The Boehmer and Wu empirical study finds that short selling activity leads to more efficient prices. Specifically, *higher* short sale volumes for a stock lead to *lower* pricing errors, i.e. more efficient prices. The

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<sup>15</sup> Boehmer & Wu (2013).

<sup>16</sup> See e.g., Diamond & Verrecchia (1987).

<sup>17</sup> For theoretical models of this theory, see e.g. Goldstein and Guembel (2008).

<sup>18</sup> See e.g., Christophe, Ferri, and Angel (2004), Boehmer, Jones and Zhang (2008), and Diether, Lee and Werner (2008).

<sup>19</sup> Boehmer & Wu (2013).

<sup>20</sup> Note the efficient price is the component of the stock price that follows a random walk.

result is both statistically significant and economically significant. Stocks with the median volume of shorting activity (approximately 18.4% of daily trading volume) experience pricing errors that are 20% less than stocks with no shorting activity.

The Boehmer and Wu study also examines the speed with which public information is incorporated into stock prices, finding that more active short selling leads to faster incorporation of information into prices. Stocks in the top 10% of shorting activity by volume incorporate new fundamental information into current stock prices at *double* the speed of stocks in the bottom 10% of shorting activity (0.8 days for the top 10% versus 1.6 days for the bottom 10%).

Boehmer and Wu (2013) also find that there is no evidence supporting claims that short selling exacerbates large stock price declines.<sup>21</sup> Conversely, it finds that short selling *improves* the accuracy of prices, particularly on the most volatile of trading days. Overall, Boehmer and Wu (2013) provide compelling evidence that short selling has a significantly positive impact on price discovery.

Other recent empirical studies provide further evidence of the important role of short selling in improving price efficiency. Saffi and Sigurdsson (2011) shows that when short selling is restricted for certain stocks, the mispricing of those stocks is more persistent and pronounced.<sup>22</sup> Choi, Getmansky and Tookes (2009) show that short selling improves price discovery in the convertible bond market, thus demonstrating the importance of short selling in securities other than stocks.<sup>23</sup>

A common criticism of short selling is that it exacerbates crises by artificially depressing stock prices during a market decline. If this concern were valid, then increased shorting activity should correspond closely with *negative* returns. The shorting activity would be destabilizing since it would contribute to an accelerating downward spiral in prices. However, Bailey and Zhang (2013) find the opposite effect.<sup>24</sup> Short selling volumes are typically higher on days with *positive* returns than on days with negative returns, showing that short sellers do not increase short positions

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<sup>21</sup> Boehmer & Wu (2013).

<sup>22</sup> Saffi & Sigurdsson (2011).

<sup>23</sup> Choi, Getmansky & Tookes, *Convertible Bond Arbitrage, Liquidity Externalities, and Stock Prices*, J. of Fin. Econ. 91, 2009.

<sup>24</sup> See, Bailey & Zhang, *Banks, Bears, and the Financial Crisis*, Jour. of Fin. Serv. Res. (2013).

when stock prices fall (which would exacerbate declines), but rather when they rise. By trading in the opposite direction of price movements, short sellers tend to correct market overreactions and bring prices more in line with fundamental supply and demand. Short sellers, therefore, have a stabilizing effect on prices during crisis periods.<sup>25</sup>

To the extent there is legitimate concern about the potential of short-selling to drive the market down during periods of steep declines over a short period of time, the SEC has already addressed it through its 2010 amendment to Regulation SHO, which instituted a short-sale circuit break in the form of the alternative up-tick rule.<sup>26</sup> The alternative uptick rule is aimed at preventing short selling from further pushing down a firm's stock price if the price has already dropped more than 10 percent in a day.<sup>27</sup> Specifically, the rule mandates that a trading center must adopt policies and procedures to prevent short sales at prices below or equal to the current national best bid price if the stock has dropped 10% or more since the prior day.<sup>28</sup> While the merits of the uptick rule and short sale-related circuit breakers can be debated, those rules are a much more effective approach than the proposed mandatory disclosure requirements.

(ii) *Liquidity Benefits*

Short selling also positively impacts overall market quality through improvements in market liquidity. The primary liquidity measures impacted by short selling include (i) bid-ask spreads and (ii) price impacts, proxied by the Amihud illiquidity measure (which measures the average daily ratio of a stock's return to its volume). Theoretical models of short selling suggest that short selling should improve each of these liquidity measures. If short selling were restricted in a stock, informed short sellers would be prevented from trading on negative fundamental information.<sup>29</sup> This would reduce price efficiency, as explained above, causing prices at any given moment to be less reflective of current information and contain higher pricing errors. As a result, liquidity providers in the stock must be compensated for the higher pricing errors, reflected through a higher bid-ask spread. The higher bid-ask spread imposes higher trading costs for the stock, reducing its liquidity. Similarly, the Amihud illiquidity measure would also be negatively impacted

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<sup>25</sup> Boehmer et al. (2013) (referencing Bailey & Zhang (2013)).

<sup>26</sup> SEC Release No. 34-61595, Amendments to Regulation SHO, May 2010.

<sup>27</sup> Id.

<sup>28</sup> Id.

<sup>29</sup> See Diamond & Verrechia (1987).

by restrictions on short sale activity. Recent empirical studies confirm both of these theoretical predictions.

Beber and Pagano (2013) examine the liquidity impacts of short selling bans across 30 countries, finding a decline in liquidity when shorting constraints are more severe.<sup>30</sup> The study finds that a complete ban on all short sales leads to an increase of 1.98% in the bid-ask spread. The effect is both statistically significant and economically significant, given that the average bid-ask spread in the study's sample was 4.05%. The study also looks at the effect of short sale bans on the Amihud illiquidity measure, finding that banning short sales leads to significant deterioration in the liquidity measure.<sup>31</sup>

*(iii) Corporate Governance Benefits*

Short selling also contributes positively to strong corporate governance by serving as an external disciplining mechanism on firm management. In theory, since short sellers are motivated to uncover wrongdoing by management (and then trade on that information through short sales), the probability and speed with which corporate misconduct is discovered increase.<sup>32</sup> As a result, there is less incentive for management to engage in such misconduct, thus improving the corporate governance of the firm.

Massa, Zhang and Zhang (2015) examine the corporate governance impact of short selling, finding that the presence of short sellers does indeed improve the behavior of firm managers. The study looks at the degree of shorting potential for a given stock (the "short-selling potential" or "SSP"), proxied by the total supply of shares that are available to be lent for short sales. The study finds that the higher the SSP, the less likely that firm management manipulates corporate earnings, thus illustrating the disciplining effect of short sales. The Massa et al. study also examines the effects of short selling bans globally, finding that regulations that restrict short-selling lead to greater earnings manipulation, i.e., weakened corporate governance when short selling is restricted by regulation. Moreover, the disciplining impact of short selling has increased over time, corresponding with an increase in shorting activity. Importantly, the results of the Massa et al.

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<sup>30</sup> Beber & Pagano (2013).

<sup>31</sup> Beber & Pagano (2013).

<sup>32</sup> Massa et al. (2015).

study show that it is the mere *possibility* of short sale activity that disciplines firm managers, regardless of whether short sales are actually conducted in the firm's stock. Therefore, any rules that serve to reduce even the possibility of short sales, such as the mandatory disclosure rules under discussion, will likely harm corporate governance.

### III. Effects of Mandatory Disclosure of Individual Short Positions

Short selling clearly has an important role in capital markets, as evidenced in part by the impact of short sale restrictions on price efficiency, liquidity, and corporate governance. While disclosure of overall short-sale activity (i.e. aggregate volumes of all short positions at a given time) does help inform markets in a worthwhile manner, disclosure requirements for *individual* investors' short positions would be much more disruptive. Mandatory disclosure of individual short sale positions is not a direct restriction on short selling, but it may serve as a *de facto* restriction by chilling short sale activity. Short sellers are generally motivated to maintain a high degree of secrecy and anonymity given (i) concerns about revealing proprietary trading strategies, which could increase the costs of implementing the strategy, (ii) fears of potential litigation initiated by the shorted firm, and (iii) the potential loss of access to the shorted firm's management, arguably the most important concern for overall market efficiency. Firm management can retaliate against holders of short positions and effectively inhibit their ability to properly analyze a firm's fundamentals, impairing the fundamentally-driven research and analysis that is vital to efficient markets.

Short sellers are arguably even more sensitive about revealing trading positions to competitors than investors taking long positions, since short positions are always part of an active trading strategy, while long positions can be part of an active or passive strategy. Short strategies are also typically short-term in nature, while long positions are often held over a longer term (but can be short-term as well). Therefore, short sellers are highly motivated to remain below a disclosure threshold, more so than long holders of equity.<sup>33</sup> To the extent that mandatory disclosure serves as a restriction on short selling, due to the chilling effect of disclosure rules, many of the benefits of short selling discussed above may be reduced or lost entirely.

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<sup>33</sup> Of course, some short sellers intentionally disclose their short positions as part of an activist short campaign. See Zhao, *Activist Short Selling*, Jan. 2, 2018 available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2852041](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2852041).



The SEC previously noted these concerns in a 2014 study on short sale transparency.<sup>34</sup> In the study, which was mandated by the 2010 Dodd-Frank Act, the SEC examined the costs and benefits of a real-time short position reporting program, looking at both public reporting and reporting only to the SEC and FINRA. The report identified the concern that public reporting could “facilitate copycat and order anticipation strategies that could discourage liquidity supply, fundamental analysis vital to price efficiency, and hedging that facilitates capital formation.”<sup>35</sup> Overall, the SEC determined that “[t]he potential net effect of a [public reporting requirement] on market quality and capital formation is unclear.”<sup>36</sup> Ultimately, the SEC report opposed a real-time public reporting requirement.<sup>37</sup>

A recent empirical study examines these potential concerns of mandatory disclosure. Jank, Roling and Smajlbegovic (2016) analyze the effects of mandatory short sale disclosure in the European Union, which imposed a mandatory disclosure rule for short positions in 2012.<sup>38</sup> The EU rule requires short sellers to notify regulators if a short position reaches 0.2% of the stock’s issued share capital and publicly disclose any short positions that reach 0.5%. The study tests whether the EU’s disclosure thresholds effectively restrict shorting activity, finding three notable effects.

First, short sellers have indeed restricted short selling activity in the face of the regulation, evidenced by a significant percentage of short sellers specifically avoiding crossing the disclosure thresholds. Second, those short sellers who avoid crossing the disclosure threshold tend to be better informed with superior information about a stock’s fundamentals. Third, given that it is the informed short sellers who limit shorting activity due to the disclosure mandate, price discovery is negatively impacted since the fundamental information held by informed short sellers does not get incorporated into prices as efficiently as if short selling were not impeded. Even more, the de facto short-sale restriction may exacerbate the loss of informational efficiency, since investors will be less incentivized to collect and analyze fundamental information in the first place. Overall, Jank et al. document that the EU’s mandatory disclosure requirements have caused a deterioration in

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<sup>34</sup> SEC, Short Sale Position and Transaction Reporting, 2014.

<sup>35</sup> SEC Report at iv.

<sup>36</sup> SEC Report at iv.

<sup>37</sup> SEC Report at Vii

<sup>38</sup> Jank et al. (2016); EU Regulation on Short Selling (No 236/2012).

market quality, noting that the transparency regulation has “impose[d] a negative externality on the informational efficiency of stock prices.”<sup>39</sup>

#### **IV. Conclusion**

The academic evidence on the effects of short selling on our capital markets is overwhelmingly positive. Short selling improves the efficiency of security prices, increases liquidity, and positively impacts corporate governance. Historical bans and restrictions on short selling have proved to negate many of these benefits, to the detriment of overall market quality. As policymakers evaluate proposals to mandate disclosure of individual short selling activity, the potential unintended consequences on market quality must be carefully considered.

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<sup>39</sup> Jank et al. (2016).