The Invisible Hand of Short Selling:

Does Short Selling Discipline Earnings Management?

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Abstract

We hypothesize that short selling has a disciplining role vis-à-vis firm managers that forces them to reduce earnings management. Using firm-level short-selling data for 33 countries collected over a sample period from 2002 to 2009, we document a significantly negative relationship between the threat of short selling and earnings management. Tests based on instrumental variable and exogenous regulatory experiments offer evidence of a causal link between short selling and earnings management. Our findings suggest that short selling functions as an external governance mechanism to discipline managers.

Keywords: Short selling, earnings management, international finance, governance.

JEL Codes: G30, M41

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Short selling has traditionally been identified as a factor that contributes to market informational efficiency.[1] However, short selling has also been regarded as "dangerous" to the stability of financial markets and has even been banned in many countries during financial crises.[2] Notably, these two seemingly conflicting views are based on the same traditional wisdom that short selling affects *only* the way in which information is incorporated into market prices by making the market reaction either more effective or overly sensitive to existing information but does not affect the behavior of firm managers, who may shape, if not generate, information in the first place.

However, short selling may also directly influence the behavior of firm managers. To understand the intuition, consider a manager who can manipulate a firm's earnings to reap some private benefits but who faces reputational or pecuniary losses if the public uncovers this manipulation. The manager will be confronted with a trade-off between the potential benefits and losses. The presence of short sellers affects this trade-off. As short sellers increase price informativeness and attack the misconduct of firms (e.g., Hirshleifer, Teoh, and Yu, 2011, Karpoff and Lou, 2010), their presence, by increasing the probability and speed with which the market uncovers earnings management, reduces managers' incentives to manipulate earnings. We call this view *the disciplining hypothesis*.

On the other hand, the downward price pressure of short selling may increase the negative impact of failing to meet market expectations. Therefore, any additional downward price pressure arising from short selling may incentivize firms to manipulate earnings. In other words, the threat of potential bear raids may drive managers to manipulate earnings to avoid the attention of short sellers and thus the confounding impact associated with the downward price pressure of their trades. We call this view *the price pressure hypothesis*. These considerations, together with the aforementioned traditional wisdom implying that managers may simply ignore the existence of short sellers (which can thus be labeled *the ignorance hypothesis*), suggest that short selling may have conflicting effects in the real

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[1] Please see Miller (1977), Diamond and Verrecchia (1987), Duffie, Garleanu, and Pedersen (2002), Bris, Goetzmann, and Zhu (2007), Boehmer, Jones, and Zhang (2008), Boehmer and Wu (2013), Saffi and Sigurdsson (2011), and Akbas et al. (2013).

[2] The general public concern is the potential that short selling is inherently speculative and exerts downward price pressure that may destabilize the market. The SEC, for instance, believes that the adoption of a short sale-related circuit breaker is beneficial as it avoids the price impact of manipulative or abusive short selling (http://www.sec.gov/rules/final/2010/34-61595.pdf.)

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economy. Distinguishing among these competing hypotheses is critical to elucidate the real impact of short selling, which is the aim of this paper.

To detect the potential impact of short selling, we focus on the *ex ante* "short-selling potential" (SSP)—i.e., the maximum potential impact that short sellers may have on firm behavior or stock prices[3]—as opposed to the *ex post* actions taken by short sellers in response to observed firm manipulation. The main proxy for SSP is the total supply of shares that are available to be lent for short sales (hereafter, *Lendable*). This variable is directly related to the theory on the *ex ante* impact of short selling. Diamond and Verrecchia (1987), for instance, demonstrate that short-sale constraints reduce informative trades and the speed of adjustment to private information. A limited supply of lendable shares imposes precisely this type of constraint (Saffi and Sigurdsson, 2011). Thus, a high fraction of shares lendable to short sellers implies a high degree of SSP that may either discipline managers or exert price pressure. Moreover, more active shareholders are also less likely to lend shares to short sellers on a large scale (e.g., Prado, Saffi, and Sturgess, 2013).[4] This unique property will also help us to identify the passive supplies of lendable shares as an instrument to control for the spurious impact of internal monitoring.

We focus on earnings management because it represents one of the "most tangible signs" of distorted information in global markets (e.g., Leuz, Nanda, and Wysocki, 2003). Moreover, earnings management has important normative and policy implications in numerous countries that have fallen under regulatory scrutiny, following Regulation Fair Disclosure and the Sarbanes-Oxley Act in the US (Dechow, Ge, and Schrand, 2010). In line with the literature (e.g., Jones, 1991, Dechow, Sloan and Sweeney, 1995, Dechow, Ge, and Schrand, 2010, Hirshleifer, Teoh, and Yu, 2011), we use discretionary accruals as the main proxy for earnings management. In this context, the disciplining

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[3] Even with limits to arbitrage, small short sellers can also affect stock prices of hard-to-short companies by using media campaigns (Ljungqvist and Qian, 2014).

[4] Activist investors have less incentive to lend out their shares because the ownership and voting rights of lendable shares will be transferred because of the short sale–and the lack of voting rights is known to discourage the participation of active institutional investors (e.g., Li, Ortiz-Molina, and Zhao, 2008). Indeed, lending may occur precisely to transfer voting rights rather than exercising voting rights (e.g., Christoffersen et al. 2007), and majority lenders do not seem to actively exercise the voting power of their lendable shares, evident by the fact that only less than 2% of shares on loan are called back on the proxy voting record date (Aggarwal, Saffi, and Sturgess 2013).

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hypothesis posits that SSP reduces discretionary accruals, while the price pressure hypothesis posits the opposite. No effect is expected under the ignorance hypothesis.

We test these hypotheses by using a worldwide sample of short selling covering 17,555 firms from 33 countries over the 2002-2009 period. We begin by documenting a strong negative correlation between the SSP of a stock and the extent of the firm's earnings management. This effect is both statistically significant and economically relevant. A one-standard-deviation increase in SSP is associated with 5.12% standard deviation less earnings management. This relationship is robust to the use of fixed effects and the adoption of a dynamic-panel generalized method of moments (GMM) estimator (Arellano and Bond, 1991). These findings offer the first evidence supporting the disciplining hypothesis.

To address issues of potential endogeneity and spurious correlation, we adopt a twofold approach. First, we use an instrumental variable approach based on the ownership of exchange-traded funds (ETFs) that fully replicate benchmarks. On the one hand, fully replicating ETFs are passive investors. These funds typically do not monitor firms or blow the whistle on corporate fraud (Dyck, Morse, and Zingales, 2012), as they thrive on a low-fee strategy, which makes active monitoring unlikely, if not impossible. On the other hand, the same low-fee strategy also induces ETFs to supply lendable shares to the short-selling market, which enables them to further reduce fees. In this regard, the astonishing 40% annual growth rate of the ETF industry over the last decade, driven by investor demand for index investment, provides large exogenous variation in the amount of shares that are available for short selling. In line with our expectations, ETF ownership significantly explains the SSP variations in our sample. All of these features—the passive nature of ownership, the supply of lendable shares motivated by fees, and the time series variations in ETF ownership attributable to investor flows focusing on benchmarks—make ETF ownership an ideal instrument for the share of SSP unrelated to earnings management. To further control for unobservable firm characteristics, we use both firm-level and industry-wide ETF ownership in our tests.

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