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Market Bubbles and Wasteful Avoidance: Tax and Regulatory Constraints on Short Sales

MICHAEL R. POWERS,* DAVID M. SCHIZER,** AND MARTIN SHUBIK***

I. INTRODUCTION

In recent years, a speculative bubble in Internet stocks has burst and several "blue chip" firms have failed amidst high profile allegations of corporate misconduct. Why did high-tech start-ups with no earnings attain such lofty valuations? Why didn't sophisticated investors keep prices at saner levels? And why didn't more sophisticated investors look past accounting gimmicks much earlier to uncover problems at Enron and other firms? More generally, why did the mechanisms of market efficiency prove inadequate? While there obviously is no single answer to these complex questions, this Article focuses on one piece of the problem: U.S. tax and regulatory rules raise the cost of betting against the market, making it more costly for sophisticated investors to police the markets in this way. A short sale is the standard way to bet that publicly traded stock will decline in value. The seller sells stock that she does not own, hoping to purchase it later for a lower price. To implement this bet, the seller borrows

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stock (or, to be precise, the seller's broker borrows it).\footnote{For instance, assume the short sale occurs on January 1, when the stock price is $100. If the stock declines to $40 on June 1, the short seller can cover the short by buying shares for $40 and returning the stock to the lender, netting a $60 per share profit. She buys the stock for $40 and sells it for $100, albeit in reverse order. This Article focuses on legal rules governing the short sales of equities, but other assets also can be sold short, including bonds, currency, and commodities.}

Although short sales serve an important function in financial markets, they face legal constraints that do not govern long positions.

While others have criticized these constraints, these commentators have not focused rigorously enough on the precise contours of current law. Some short sale constraints are mischaracterized\footnote{For instance, several commentators focus on the fact that short sellers must pledge the short sale proceeds as collateral, and cannot earn a return on these funds. Douglas W. Diamond & Robert E. Verrecchia, Constraints on Short-Selling and Asset Price Adjustment to Private Information, 18 J. Fin. Econ. 277, 292-97 (1987); Stephen Figlewski, The Informational Effects of Restrictions on Short Sales: Some Empirical Evidence, 16 J. Fin. & Quantitative Analysis 463, 469 (1981); Edward M. Miller, Risk, Uncertainty, and Divergence of Opinion, 32 J. Fin. 1151, 1160 (1977). Yet many commentators fail to mention that hedge funds and institutional investors typically can negotiate for a return on these funds. See note 11 and accompanying text.} and others are omitted entirely, such as the higher tax rate on short sales.\footnote{The only exception is Patricia M. Dechow, Amy P. Hutton, Lisa Meulbroek & Richard G. Sloan, Short-Sellers, Fundamental Analysis, and Stock Returns, 61 J. Fin. Econ. 77, 80 (2001). The authors mention the tax rule in passing.} Likewise, the existing literature neglects many strategies that enable well-advised investors to circumvent these constraints. This avoidance probably reduces the impact of short sale constraints on market prices, but contributes to social waste in other ways.

To fill these gaps in the literature, this Article provides a careful look at existing law, drawing on the economics of capital markets and public finance. We offer three conclusions. First, short sales play a valuable role in the financial markets; while there may be plausible reasons to regulate them—most notably, concerns about market manipulation and panics—current law is poorly tailored to these goals. Second, investor self-help can mitigate some of the harm from this poor tailoring, but at a cost. Third, relatively straightforward reforms can eliminate the need for such self-help while accommodating legitimate regulatory goals.

A further contribution of this Article is its focus on a burden that other commentators have neglected: Profits from short sales generally are ineligible for the reduced tax rate on long-term capital gains, even if the short sale is in place for more than one year. Although this differential tax treatment of short sales is ill advised, the case is more nuanced than it seems at first blush. For example, the difference in tax rates will not discourage (or even affect) some short sellers. In
addition, some of the justifications for a reduced capital gains rate apply more comfortably to longs than they do to shorts.

This Article proceeds as follows. Section II offers a general discussion of the effect of short sale constraints on market efficiency. In many cases these constraints will be harmful, but in others they could have no effect and could even prove helpful. Much depends on the precise scope of the short sale constraint at issue. Is it narrowly tailored to legitimate regulatory goals? To answer this question, Sections III and IV turn to current law, considering three legal burdens that apply to short sales but not to long positions5 ("short-specific constraints"). In addition to the tax differential between longs and shorts, we offer a brief discussion of the "uptick" rule and "locate requirement."6 We show that these three burdens are not narrowly tailored to the concerns identified in Section II, and should be repealed. Section V provides our recommendations, including a proposal that additional disclosure should accompany certain large short sales. Section VI is the conclusion.

II. COMPETING EFFICIENCY EFFECTS OF SHORT SALE CONSTRAINTS

This Section surveys the positive contributions of short sales, as well as the policy concerns they raise. The purpose is to determine when legal constraints on short sales are efficient, and when they are not.

A. Reasons Why Short Sale Constraints May Prove Costly

This Subsection develops the familiar point that short sale constraints can prove costly because short sales generally contribute to market efficiency, whether the market operates rationally or is dominated by noise traders.

1. Unimportance in a Perfectly Functioning Market

We begin with the assumption that markets function rationally, although there is an irony in beginning here: If markets were perfectly

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5 We use the term "long" to describe a bet that the market will rise, including the acquisition of an asset or of a derivative that simulates such ownership.

complete, as the general equilibrium (GE) model posits, short sales would be unnecessary—and so would all trading of shares.\textsuperscript{7} Without transaction costs, asymmetric information, taxes, or other imperfections, currency would be unnecessary and credit would be unconstrained. The only financial instruments would be bundles of contingent goods.\textsuperscript{8} As market actors would have to satisfy only one budget constraint at the end of time, they could simply borrow in the interim, instead of selling their bundles. At the end of the game, income from the bundles would precisely offset the borrowing.

This unrealistic scenario suggests two methodological limitations of the GE model that obscure the value of short sales. First, the model finesses cash-flow constraints by implicitly positing perfect trust. Second, the model assumes that parties' expectations are consistent (or "rational"). We relax these assumptions to highlight the importance of short sales in a well-functioning market.

2. Life Cycles and Liquidity

Once credit constraints require individuals to minimize their borrowing, trading in financial assets becomes necessary as current consumers sell financial assets to future consumers. Theoretically, short sales could serve as substitutes for borrowing if the seller immediately gained access to sale proceeds. Yet short sellers generally must leave these funds on deposit with their stock lender.\textsuperscript{9} While other commen-

\textsuperscript{7} We distinguish among: (1) new issues and the second-hand stock market, (2) multi-stage general equilibrium with complete markets or incomplete markets, (3) "rational" and other expectations, (4) the roles of expertise and perception, and (5) the roles of asymmetric taxes and transaction costs. We concentrate on the second-hand market for items (2), (3), (4), and (5), and omit discussion of new issues, except for a brief discussion in Subsection III.D.1.

\textsuperscript{8} The general equilibrium model typically assumes such perfect conditions. It posits: a set $I$ of individuals, $i = 1, 2, \ldots, n_i$; a set $J$ of firms, $j = 1, 2, \ldots, n_j$ (each of which issues shares so that individuals own firms); a set $G$ of basic goods, $g = 1, 2, \ldots, n_G$; a set $S$ of states of nature, $s = 1, 2, \ldots, n_S$; and a set $T$ of time periods, $t = 1, 2, \ldots, n_T$. To avoid accounting for time or uncertainty, the commodity set is enlarged to include as many as $n_Gn_T$ commodities. These new or synthetic commodities combine a basic commodity with a state and an age. For example, the basic commodity "wheat" may be replaced by a set that includes, inter alia, two distinct commodities: two-year-old wheat in a period when the weather is good and two-year-old wheat in a period when the weather is bad. As Debreu and others showed, this somewhat tortuous abstraction of the economy, complete with all futures markets, is sufficient to demonstrate the existence of an efficient price equilibrium. See Gerard Debreu, Theory of Value: An Axiomatic Analysis of Economic Equilibrium (1959).

\textsuperscript{9} Short sellers in U.S. capital markets must deposit cash proceeds from short sales as collateral with the stock lender (that is, the party that lent stock to the short seller). See Federal Reserve Board Regulation T, 12 C.F.R. 220.12 (2004). A further requirement, which does not apply to broker-dealers selling short for their own accounts, is to deposit additional margin: generally 50% of the stock's initial fair market value. Id. The NYSE
tators often criticize this short sale constraint because it supposedly keeps short sellers from earning a return on these funds,\textsuperscript{10} the reality is not so unfavorable. Although retail investors earn no return, hedge funds and other institutional investors typically negotiate for a so-called "rebate."\textsuperscript{11} Even so, short sales are not a pervasive source of liquidity, if only because they are risky; the amount to be repaid varies with the underlying stock price.\textsuperscript{12}

3. Speculation, Inconsistent Expectations, and Spanning the Market

Aside from liquidity, the main rationale for trading financial assets in the secondary market—and, indeed, for selling short—is to place a bet.\textsuperscript{13} Obviously, there is little point in betting—whether the bet is a long or a short—if everyone has the same information, preferences, and expectations. So, again, simplifying assumptions about market behavior, such as the idea that all information is evenly disseminated, obscure the importance of short selling and thus of short-sale constraints.\textsuperscript{14}

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\textsuperscript{10} See note 3.


\textsuperscript{12} An exception is a form of so-called convertible arbitrage. Hedge funds in effect finance the purchase of convertible bonds by short-selling the underlying stock (thereby earning a rebate on short sale proceeds that nearly covers their borrowing cost). The short sale and convertible bond are economically offsetting (as long as the portfolio is dynamically rebalanced), and the hedge fund earns a positive spread because the coupon on the convertible bond exceeds the net borrowing cost. For a description of coupon stripping, see William M. Gentry & David M. Schizer, Frictions and Tax-Motivated Hedging: An Empirical Exploration of Publicly-Traded Exchangeable Securities, 56 Nat'l Tax J. 167, 186-87 (2003).

\textsuperscript{13} In this context investors are functioning as traders, who are willing to be on either side of the market, depending on price. Of course, few consumers have either the time or desire to short coffee, butter, or their houses when they feel that prices are too high. Knowledge, experience, training, and habit introduce considerable asymmetries among economic agents. But in the financial markets, with their low transaction costs and high liquidity, economic agents are more likely to function as traders.

\textsuperscript{14} John Lintner, The Aggregation of Investor's [sic] Diverse Judgments and Preferences in Purely Competitive Security Markets, 4 J. Fin. & Quantitative Analysis 347 (1969) (arguing that short-sale constraints do not matter if all traders share the same assessment of price and risk). Indeed, the capital asset pricing model generally presumes that expectations are homogeneous and that the market portfolio is mean-variance efficient, such that every trader holds a market portfolio containing the same proportion of each security. On these assumptions, short sales are unnecessary. But once trader preferences are not homo-
Short sales enable market pessimists to optimize their portfolios. Indeed, short sales can be an important element of a diversified portfolio because they tend to appreciate during market declines, thereby reducing a portfolio’s market exposure. Shorts are needed not only for bets against the market, but also for market-making, hedges, and bets about volatility—transactions that are not inherently pessimistic about market prices. For example, specialists engage in short sales in order to provide liquidity. When securities dealers supply put options to clients—transactions that clients might use as hedges for existing positions or as bets that the market will decline—the dealers typically hedge these derivatives by engaging in short sales. In another example, convertible arbitrageurs often use the combination of convertible bonds and short sales of the underlying stock as bets on the volatility of the underlying stock. “Risk” arbitrageurs bet that a


15 Miller, note 3, is the seminal paper on this point.

16 This negative beta is the rationale for “pairs” or “long-short” trading, a strategy that many hedge funds use. Kwan, note 11, at 871. Cf. Frans A. De Roon, Theo E. Nijman & Bas J.M. Werker, Testing for Mean-Variance Spanning With Short Sales Constraints and Transaction Costs: The Case of Emerging Markets, 56 J. Fin. 721, 733-38 (2001) (while adding emerging market stocks to a portfolio generally is thought to improve mean variance efficiency of market portfolio, these benefits do not materialize when short sales are constrained in emerging markets).

17 In an example of market-making, if a flurry of buy orders come in, the specialist will fill them with a short position and then will cover the shorts within a brief time, profiting from the commission spread more than the price change. Anand K. Bhattacharya & George W. Gallinger, Causality Tests of Short Sales on the New York Stock Exchange, 14 J. Fin. Res. 277 (1991) (finding empirical support for idea that specialists short as market rises and cover as market falls, such that their short selling activity has no informational content).

18 Specifically, dealers engage in so-called “dynamic” hedging. They compute the “delta” of the derivative—that is, the number of cents by which the derivative’s value changes for each dollar change in the underlying property’s value. For instance, assume that the dealer’s short put position declines by 80 cents for each dollar of decline in the stock price. Given this delta of .80, the dealer’s hedge will be based on 80% of the position. For instance, if the put is for 1000 shares, the dealer will short 800 shares. Since the delta of an option changes with the stock price, the size of the hedge will change constantly. For a discussion of dynamic hedging, see Schizer, Frictions, note 9, at 1372-77.

19 In buying a convertible bond, the arbitrageur in effect buys a call option and makes a loan. With a short sale, the arbitrageur in effect can finance the position (thus canceling out the loan), while hedging the option. To be precise, the short sale hedges the option against changes in the price of the underlying stock (assuming the size of the short sale is constantly adjusted, as noted in the prior note). Yet the short sale does not necessarily hedge against changes in the volatility of the underlying stock. Thus, this “hedged” posi-
merger will go through by shorting the acquirer and buying the target.\textsuperscript{20} In facilitating various bets,\textsuperscript{21} short sales play a valuable role in completing financial markets.\textsuperscript{22}

Not only do short sales help individual traders, but, perhaps even more importantly, they generate positive externalities by making prices more accurate. Thus, short sales discipline corporate managers and allocate resources more efficiently.\textsuperscript{23} It is well understood that

\textsuperscript{20} Dechow et al., note 4, at 81. In addition, investors who hold highly appreciated securities and feel undiversified may engage in tax-motivated hedging that simulates a sale but does not trigger tax; as one of us has written elsewhere, though, these tax-motivated strategies often are a source of social waste. See generally Schizer, Frictions, note 9; see also Averil Brent, Dale Morse & E. Kay Stice, Short Interest: Explanations and Tests, 25 J. Fin. & Quantitative Analysis 273 (1990) (finding that a significant proportion of short sales is associated with tax deferral efforts, hedging, and arbitrage that is not information-based). Tax-motivated traders can be information-based if the taxpayer expects the stock to decline in value, but in many cases the taxpayer has no view on the stock's future and merely feels undiversified. In the wake of a 1997 tax reform, IRC § 1259, tax-motivated hedging generally relies on derivatives instead of short sales, but the providers of these derivatives, securities dealers, typically engage in short sales to hedge their own positions.

\textsuperscript{21} To what extent does empirical evidence indicate that short sales are vehicles for placing bets? Although short selling constitutes a small part of total trade—ranging from 3% to 10.5% of total trading, as indicated by Table 2—mere quantity does not signify importance. Especially in rising markets, one would not expect heavy shorting, except to correct overly sanguine expectations.

\begin{table}
\centering
\begin{tabular}{lcccccccccc}
\hline
\hline
Shares & 39.7 & 45.3 & 51.4 & 66.9 & 73.4 & 87.2 & 104.6 & 133.3 & 169.7 & 203.9 \\
Shorts & 3.5 & 4.1 & 3.9 & 5.0 & 5.8 & 7.1 & 9.2 & 12.8 & 17.8 & 20.6 \\
\hline
\end{tabular}
\caption{Volume of reported share trading and short sales on the NYSE in billions of shares. NYSE Fact Book, 91, 101 (1999).}
\end{table}

Short selling is a common practice of two distinct groups, as suggested by Table 3, which contrasts short selling of stock by members of the NYSE and others. Members, who have accounted for 50% to 65% of the volume, often engage in short sales as part of market-making efforts (though sometimes they do so as part of trading or arbitrage strategies). In contrast, private shorts are likely to be more speculative in nature.

\begin{table}
\centering
\begin{tabular}{lcccccccccc}
\hline
\hline
Members & 2.2 & 2.7 & 2.7 & 3.2 & 3.6 & 3.8 & 4.6 & 6.9 & 9.8 & 11.6 \\
Others & 1.4 & 1.3 & 1.2 & 1.8 & 2.2 & 3.3 & 4.6 & 5.9 & 8.0 & 9.0 \\
\hline
\end{tabular}
\caption{Volume of short trading on the NYSE in billions of shares. Id. at 101.}
\end{table}

\textsuperscript{22} For a discussion of the economic significance of completing markets, see Martin Shubik, The Theory of Money and Financial Institutions (1999).

\textsuperscript{23} For instance, in a study of 47 countries, some of which allow short sales and some of which do not, Bris, Goetzmann and Zhu find more cross-sectional variation in equity returns in markets where short selling is feasible and practiced. As a result, they conclude that short sales enhance price discovery, while short-sale constraints impede this process. Arturo Bris, William N. Goetzmann & Ning Zhu, Efficiency and the Bear: Short Sales and Markets Around the World 2-3 (Yale ICF Working Paper No. 02-45, 2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=357800. For other empirical studies
excluding the short seller may undermine this benefit by slowing the market’s progress toward an equilibrium price. If pessimists cannot trade, optimists are likely to have a disproportionate influence on prices.\textsuperscript{24}

4. The Contribution of Short Sales in a Market With Noise Traders

Short sales can be especially important if "noise traders" have significant influence over the market.\textsuperscript{25} A noise trader pays insufficient attention to a financial asset’s real value, instead trading on market momentum, unsound theories, inaccurate information, and the like. Thus, if noise traders dump a stock (or sell it short), the market could decline steeply unless sophisticated traders go long. Likewise, if noise traders bid up an asset price, a bubble is averted only if sophisticated investors sell short.\textsuperscript{26}

\textsuperscript{24} Miller proposed this idea in an influential paper that applies the “winner’s curse” to a market with short-sale constraints. Miller, note 3; see also Lintner, note 14, at 386 (modeling idea that if traders have heterogeneous expectations, short-sale constraints raise the market price of risk); Michael J. Harrison & David M. Kreps, Speculative Investor Behavior in a Stock Market With Heterogeneous Expectations, 92 Q.J. Econ. 323 (1978) (modeling effect of short-sale constraints on price in market with speculators); Laurence Carassus & Elyes Jouini, Investment and Arbitrage Opportunities With Short Sale Constraints, 8 Math. Fin. 169 (1998) (offering formal proof that short sale constraints render arbitrage impossible even in a frictionless economy in which all assets have negative present value); Franklin Allen, Stephen Morris & Andrew Postelwaite, Finite Bubbles With Short Sale Constraints and Asymmetric Information, 61 J. Econ. Theory 206 (1993) (modeling speculative bubbles and arguing that short-sale constraints are precondition); Eli Ofek & Matthew Richardson, DotCom Mania: The Rise and Fall of Internet Stock Prices, 58 J. Fin. 1113 (2003) (using model of heterogeneous expectations and short-sale constraints to explain Internet bubble). In response to Miller, Robert Jarrow proposed a circumstance in which easing short-sale constraints may cause some prices to rise, instead of falling (as Miller predicted). Jarrow’s claim depends on the premise that short sales can be used as a source of financing; the idea is that some traders will be able to buy more of a stock (and thus will drive up its price) if they can finance the purchase by shorting other stocks. Robert Jarrow, Heterogeneous Expectations, Restrictions on Short Sales, and Equilibrium Asset Prices, 35 J. Fin. 1105, 1112 (1980). As noted above, the premise that traders can use short sales as a source of funding generally does not hold. See text accompanying note 9.

\textsuperscript{25} For a formal statement of the role of short sales in preventing bubbles, see Appendix A.

\textsuperscript{26} For a discussion of the effect of noise traders on stock prices, see J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers & Robert Waldmann, Noise Trader Risk in Financial Markets, 98 J. Pol. Econ. 703 (1990). In addition to the noise trader literature, another literature grounded in behavioral law and economics explores the extent to which cognitive biases spawn market imperfections. For example, optimism bias may cause traders to have too much confidence in their own judgment. Yet this bias is not unique to short sellers. Indeed, we are not aware of any cognitive bias that uniquely impacts short sellers. Even without cognitive biases or noise traders, moreover, speculative bubbles are still possible. Rational traders can bid up the price while expecting to sell before the price falls.
While noise traders could be either long or short, optimistic noise traders pose a particular threat because, for two reasons, their overly rosy assessment is less likely to be corrected than an overly pessimistic view. First, many market “gatekeepers” who monitor managers and market prices have private incentives to de-emphasize negative information and, in some cases, to fuel a speculative bubble. For instance, research analysts are often reluctant to issue sell recommendations because the downgraded firm might retaliate by withholding underwriting business from the analyst’s investment bank. Likewise, auditors historically have had incentives to cooperate with misleadingly optimistic accounting practices as a way to win consulting business for their accounting firms.

Second, while sophisticated short sellers might correct for these conflicts, the economic fragility of short sales could discourage short sellers from intervening—a deterrent that is wholly separate from legal burdens unique to short sales. Shorts present the risk of unlimited losses; unlike the buyer of a long position, who cannot lose more than the purchase price of the long, a short seller theoretically can lose an infinite amount as the price rises. Likewise, shorts present only limited opportunity for gain; unlike a long, which can yield an infinite profit, a short can yield no more than the short sale proceeds (that is, the value of the security when it is sold short). In addition, short sellers generally do not have access to these proceeds, so their costs rise as the short sale remains in place (assuming the short sale rebate does not provide an adequate return). Finally, whether they are short or long, arbitrageurs are prone to liquidity constraints and other costs. Their investors typically expect quick results, and may view short-run

Short-sale constraints also are a precondition for this type of bubble. See Allen et al., note 24.

27 For a discussion of how gatekeepers such as auditors, lawyers and research analysts may fail to prevent corporate fraud, see John C. Coffee, Jr., Understanding Enron: “It’s About the Gatekeepers, Stupid,” 57 Bus. Law. 1403 (2002); see also Harrison Hong & Jeffrey D. Kubik, Analyzing the Analysts: Career Concerns and Biased Earnings Forecasts, 58 J. Fin. 313 (2003) (showing that securities analysts are more likely to be promoted if they offer optimistic assessments, particularly of stocks underwritten by their employers).


29 In response, some short sellers automatically cover after a stock rises by a stated amount, such as 25%. Lewis Braham, The Art of Selling Short, Bus. Wk., Aug. 5, 2002, at 104.


31 For an estimation of various costs of arbitrage, including the risk that markets will not converge, the cost of borrowing stock to sell short, the cost of posting margin, and the like, see Mark Mitchell, Todd Pulvino & Erik Stafford, Limited Arbitrage in Equity Markets, 57 J. Fin. 551, 564-76 (2002); see also Ofek & Richardson, note 24, at 1118-20 (explaining why
unprofitability as a mark of incompetence. As a result, arbitrageurs are likely to underinvest in long-term bets that could prove unprofitable in the short run.\textsuperscript{32} Likewise, they know they may leave their current job, and thus may no longer be managing the portfolio when the long-term bet pays off.\textsuperscript{33} Given these built-in obstacles to market-correcting short sales, legal constraints on short sales could prove all the more harmful.\textsuperscript{34}

\textbf{B. Reasons Why Short-Sale Constraints May Be Unimportant}

Thus far, we have shown that short sales play a vital role in optimizing individual portfolios and policing market prices, whether the market functions rationally or is dominated by noise traders. Yet for two reasons, it does not follow that the short-sale constraints under current law are necessarily inefficient. First, these constraints may have no effect on market prices because the market has adjusted to them, or because they are easy to avoid. Second, even if the constraints do have an effect on market prices or individual portfolios, the constraints may serve a valuable function that offsets the distortions discussed above. These possibilities are developed in the following Subsections.

1. \textit{Sophisticated Investors Adjust Their Expectations}

While short-sale constraints may prevent pessimists from optimizing their individual portfolios, they do not distort market prices if the owners of overvalued securities pick up the slack. For instance, assume that \textit{Sarah} the short seller has negative information about a stock. Does it matter if a legal rule keeps \textit{Sarah} from selling short? Assuming that \textit{Larry}, the owner of a long position, has the same information and thus decides to sell, excluding \textit{Sarah} from the market is less likely to distort prices (though it will keep \textit{Sarah} from optimizing

\textsuperscript{32} For a description of how arbitrageurs may be forced out of positions when markets fail to converge in the short term, see Andrei Shleifer & Robert W. Vishny, The Limits of Arbitrage, 52 J. Fin. 35 (1997). In addition, arbitrageurs may be tempted in the short run to trade \textit{ahead of} the noise traders, instead of trading against them. For example, during a speculative bubble, arbitrageurs may \textit{buy} shares with the hope of selling them at a profit to noise traders before the bubble bursts. See Gilson & Kraakman, Hindsight, note 1, at 733.


\textsuperscript{34} Indeed, a recent study reports that 70\% of mutual funds are prohibited by their charters from selling short. Andres Almazen, Keith C. Brown, Murray Carlson, David A. Chapman, Why Constrain Your Mutual Fund Manager?, J. Fin. Econ. (forthcoming), available at http://jfe.rochester.edu/03140.pdf, at 8-9.
Market prices are unaffected, however, only if the longs learn what the shorts know and interpret the common information in the same way. We should be careful about this assumption because, in many cases, expectations are inconsistent and information is unevenly disseminated; indeed, empirical studies show that short sellers often have superior information and that mispriced securities are more likely to be overvalued than to be undervalued.

Even if longs do not learn what the shorts know (or would have uncovered), short-sale constraints still would not distort prices if the longs adjusted their valuations to account for the exclusion of shorts from the market. Yet any estimates of this missing volume are imprecise. In addition, changes in short-sale volume are a noisy signal because spikes in short-sale volume do not necessarily connote market pessimism (that is, since short sales are used to bet on market volatil-

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35 Likewise, excluding Sarah from selling short seems less harmful if Sarah can sell a different security that she owns, and this security tends to correlate in value with the security she would like to short. Jarrow, note 24, at 1109. This theory is less reassuring to the extent that firm-specific risks do not correlate in this way.

36 See Milton Harris & Artur Raviv, Differences of Opinion Make a Horse Race, 6 Rev. Fin. Stud. 473 (1993) (certain empirical market regularities may be explained if we assume that investors draw different inferences from the same information).

37 Charles M. Jones & Owen A. Lamont, Short-Sale Constraints and Stock Returns, 66 J. Fin. Econ. 207 (2002) (using early 20th century U.S. data to show that stocks that are expensive to short have high valuations and low subsequent returns); Dechow et al., note 4, at 87 (finding that high short interest is a strong indicator of poor future performance); Paul Asquith & Lisa Meulbroek, An Empirical Investigation of Short Interest (Harvard Bus. Sch., Working Paper 96-012, 1995) (on file with the Tax Law Review) (detecting strong negative relation, during the period 1976-93, between short interest and subsequent returns); A.J. Senchack, Jr. & Laura T. Starks, Short-Sale Restrictions and Market Reaction to Short-Interest Announcements, 28 J. Fin. and Quantitative Analysis 177 (1993) (showing that unexpected increase in short interest on nonoptioned stocks leads to negative returns); Chen et al., note 34 (using narrow share ownership as proxy for difficulty of selling short, and showing that narrow share ownership predicts abnormal negative returns during period from 1979 to 1998). But cf. J. Randall Woolridge & Amy Dickinson, Short Selling and Common Stock Prices, Fin. Analysts J. 50-1, at 20 (1994) (finding that increase in short interest corresponds with small but statistically insignificant increase in price). While Woolridge and Dickinson’s result is an outlier, Dechow, Hutton, Meulbroek and Sloan attribute the discrepancy to the fact that the former chose stocks at random, whereas the latter chose stocks with a short interest that is above a specified threshold. As a result, they avoid stocks in which short interest is a product of liquidity trading instead of information-based trading. Dechow et al., note 4, at 81, 87.

38 For instance, using price earnings ratios and the level of firm repurchases and issuances of new stock, Finn, Fuller, and Kling identified a portfolio of undervalued stocks and a portfolio of overvalued stocks. The undervalued securities modestly outperformed the market while the overvalued securities dramatically underperformed. They concluded, therefore, that mispricing is “mostly on the short side.” Mark T. Finn, Russell J. Fuller & John L. Kling, Equity Mispricing: It’s Mostly on the Short Side, Fin. Analysts J. 55-6, at 117 (1999).

39 Diamond & Verrecchia, note 3, at 302.

40 Figlewski, note 3, at 465 (average discounting will be incorrect).
ity, the success of mergers, and the like). Not surprisingly, empirical evidence shows that short-sale constraints do indeed inflate market prices. In any event, even if market actors are able to correct for distortions arising from the above rules, at least to an extent, short sellers cannot optimize their individual portfolios. In addition, the efforts of market actors to correct for missing short sales are themselves costly. It would be better to eliminate this costly self-help by crafting short-sale constraints with greater precision.

2. Constraints May Be Balanced By Offsetting Benefits

Even if traders cannot adjust their valuations, short-sale constraints can prove unimportant if other factors heighten the appeal of short sales. A constraint should not deter short sellers if they expect an offsetting legal benefit. Even if the law penalizes some short sales ex post (for example, because a penalty applies but a benefit does not), risk-neutral short sellers should not be discouraged ex ante if the

\[ \text{See text accompanying notes 17-20.} \]

\[ \text{Bris et al., note 23 (showing that markets that restrict short sales offer less efficient price discovery); Bartley R. Danielson & Sorin M. Sorescu, Why Do Option Introductions Depress Stock Prices? A Study of Diminishing Short Sale Constraints, 36 J. Fin. and Quantitative Analysis 451 (2001) (concluding that the introduction of options trading, which facilitates short sales, leads to decline in stock price, especially in volatile and high beta stocks); Joseph K.W. Fung & Li Jiang, Restrictions on Short-Selling and Spot-Futures Dynamics, 26 J. Bus. Fin. & Acct. 227 (1999) (offering time series data in Hong Kong to show that relaxing short-sale constraints narrowed gap between spot and futures prices); Gerald D. Gay & Dae Y. Jung, A Further Look at Transaction Costs, Short Sale Restrictions, and Futures Market Efficiency: The Case of Korean Stock Index Futures, 19 J. Futures Markets 153 (1999) (offering empirical evidence that Korean short-sale constraints serve to inflate equity prices relative to futures prices, since only the former are subject to short-sale constraints); Robert A. Jarrow & Maureen O'Hara, Primes and Scores: An Essay on Market Imperfections, 44 J. Fin. 1263 (1989) (showing that when financial engineers divided common stock into primes and scores, the combined value of the pieces exceeded the value of the stock, and attributing this failure of the no-arbitrage rule to short-sale constraints); Li Jiang, Joseph K.W. Fung & Louis Cheng, The Lead-Lag Relationship Between Spot and Futures Markets Under Different Short-Selling Regimes, Fin. Rev. 38-3, at 63 (2001) (same); Alexander Kempf, Short Selling, Unwinding and Mispricing, 18 J. Futures Markets 903 (1998) (using data from German equity spot and futures markets to show that short-sale constraints lead to mispricing in the spot market); Owen A. Lamont & Richard H. Thaler, Can the Market Add and Subtract? Mispricing in Tech Stock Carve-Outs, 111 J. Pol. Econ. 227 (2003) (observing instances in which the value of stock to be spun off exceeds the value of the distributing company, such as the spinoff of Palm by 3Com, and explaining these blatant mispricings with short-sale constraints); Eli Ofek, Matthew Richardson & Robert F. Whitelaw, Limited Arbitrage and Short Sales Restrictions: Evidence From the Options Markets, J. Fin. Econ. (forthcoming), available at http://jfe.rochester.edu/03238.pdf (offering empirical evidence that short-sale constraints prevent arbitrage and thus allow stock to be overpriced relative to the underlying options and showing that this mispricing increases with the strength of the short-sale constraint, as measured by the size of the short-sale rebate). Cf. Jonathan M. Karpoff, Costly Short Sales and the Correlation of Returns With Volume, 11 J. Fin. Research 173 (1988) (offering empirical evidence that short-sale constraints reduce volume in bear market).}
probability and magnitude of the penalty and benefit are comparable. Thus, these short sellers can still optimize their portfolios and influence market prices.

3. **Sophisticated Investors Avoid the Constraints**

Even if there are no offsetting benefits, short-sale constraints should be less important if market pessimists can avoid them easily. For instance, if avoidance is costless, all would-be-short sellers can still sell short, so the constraints should not affect market prices or the ability of traders to optimize their portfolios. The cost of avoidance is not so trivial, however, and it probably varies for different constraints and classes of traders. The existing literature provides very little guidance on this issue. A few commentators mention the public options market as a way around short-sale constraints, and show that short interest is greater for optionable stock. But this literature does not give a sense of how costly such avoidance is, except that two commentators suggest it is expensive. The literature does not mention other methods of avoidance or distinguish among the various constraints.

To begin filling this gap, we describe ways in which well-advised traders can avoid various short-sale constraints, as well as some limits on this avoidance. Not surprisingly, the constraints differ in various ways. A constraint could prove less harmful if it is easier for sophisticated traders to avoid than for noise traders. Yet a constraint will be a less effective filter if some noise traders can still avoid the constraint, and if some sophisticated traders are likely to be shut out. The latter scenarios are especially troubling if the excluded short sellers would have been marginal (and thus price setting) traders; and, in theory, in a market with heterogeneous preferences, every trader is marginal as to the last share she holds or shorts. Finally, even if all sophisticated traders can sell short, this avoidance may be expensive. We do not offer empirical data on these issues. Yet Sections III and IV lay the groundwork for such research by offering careful legal analysis and anecdotal evidence to illuminate the type of avoidance that is possible, and some of the costs it presents.

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44 Dechow et al., note 4; Asquith & Meulbroek, note 37 ("Hedge fund managers and other practitioners involved in short selling maintain that they cannot effectively use the options market. In interviews, they repeatedly claimed that the options market provides less liquidity and is more expensive than the short sales market when trying to establish a large position on a hard to borrow stock.").

45 Lintner, note 14.
C. Reasons Why Short-Sale Constraints May Be Valuable

We have shown that in some cases short-sale constraints are harmful, and in some cases they are likely to be unimportant. Yet in still other cases, short-sale constraints could enhance efficiency. This Subsection considers when short sales would lead to unappealing results, so that constraints are useful.

1. Moral Hazard and Panics

By taking a large enough position, a short seller could depress the price (at least in a thin market), thereby manufacturing profits on the short as the price declines. Obviously, if this price starts out at too high a level (for example, because noise traders have bid up the price), this use of a short sale is not objectionable. But in some circumstances a short seller could trigger a decline even if the market price already is at an appropriate level—for instance, by spreading false rumors. Not only might a sophisticated investor use short sales in manipulating the market, but, as noted above, noise traders might use short sales in a way that precipitates or intensifies a panic—that is, a steep market decline that market fundamentals do not justify.46 While manipulation and noise traders may offer valid rationales for regulation,47 these justifications are not unique to short sales. Similar issues arise for long positions.48 For instance, a sophisticated investor could buy a large block, and then profit as this trade induces unsophisticated investors to buy at higher prices. Likewise, there is no a priori reason to believe that panics are worse than bubbles. Thus, the proper regulatory response is to target all manipulative and noise trading, without singling out short sales.

2. Cascading Defaults

If the stock price rises dramatically after a short sale—so that the short seller has misjudged the market—it will be expensive for the short seller to return the stock she has borrowed. If she is unable to raise the funds, the stock lender will lose her stock, a loss that, for instance, could keep the stock lender from repaying margin debt. Preventing such a cascade of defaults by ensuring that shorts can cover their positions is a plausible rationale for regulation. Yet this

46 Indeed, there is empirical support for the intuitive idea that, in markets that allow short sales, panics are somewhat more frequent and intense. Bris et al., note 23, at 25.
47 For a disclosure-based regulatory response, see Section V.
48 A difference is that, theoretically, a short seller does not need capital to sell short, since she is selling borrowed stock; as a practical matter, though, the margin rules operate to require short sellers to put up capital. See note 9.
MARKET BUBBLES AND WASTEFUL AVOIDANCE

concern is not unique to short sales. There is a similar need to ensure that a purchaser of securities can repay loans that funded the purchase price.\textsuperscript{49} The margin rules and related requirements address these concerns for long positions; they also apply to short sales, and rightly so.\textsuperscript{50} Because this regime is not unique to short sales, we do not focus on it below.

3. Incomplete Markets and Second-Best Concerns

There is no developed market for short sales outside the financial markets, for instance, in personal property, land, buildings, or human capital.\textsuperscript{51} Since there are no short sales of human capital or residential real property, should there be short sales in the financial markets? If the absence of short sales causes prices to rise, it may be better to have this distortion apply across the board.

This is a difficult question because, in theory, partial moves toward completing the market have ambiguous results; if the market will remain incomplete anyway, a partial step toward completion can either enhance or reduce welfare, depending upon the precise facts (which typically are not measurable).\textsuperscript{52} In the absence of data, we favor a presumption in favor of incremental steps toward complete markets, if only because the market otherwise cannot become complete. Thus, in order to allow markets to become complete, legal impediments to short selling should be narrowly tailored.

4. Social Waste From Speculation

Short sales arguably share a deficiency that sometimes is attributed to speculation in general: Since one party’s market prediction will be correct, and the other’s will not, speculation is a zero-sum game in which transaction costs represent social waste.\textsuperscript{53} We are skeptical

\textsuperscript{49} The main difference is that losses on a long position are limited to the purchase price of the security, while losses on a short sale are theoretically unlimited.

\textsuperscript{50} See text accompanying notes 9-12.

\textsuperscript{51} The difference is that financial markets impose lower transaction costs, offer greater liquidity, and serve as a perception and evaluation device to help resolve inconsistent expectations. On the last point, even the most resolute fundamental value analyst regards the economic system at best as “an equilibrium-tending device,” rather than a system that is truly in equilibrium.


\textsuperscript{53} Stout, note 6. In fact, although speculation is a zero-sum game in terms of cash—in that one party’s gain is the other party’s loss—it is not necessarily a zero-sum game in terms of utility. The parties to these bets both improve their utilities, as measured before they know whether their market prediction was correct. For instance, assume that the owner of a large undiversified position in Microsoft decides to sell a portion of her posi-
about this argument because we believe accurate market prices yield significant positive externalities. In any event, if this concern is valid, it is not unique to short sales. A legal response (such as a securities transfer tax, designed to dampen the volume of secondary market trading) presumably should constrain speculative longs to the same extent as speculative shorts.

5. Executive Incentives and Insider Trading

Special concerns arise when executives short their employer's stock, since this transaction might undermine their incentives and serve as a means of misappropriating the firm's proprietary information through insider trading.\textsuperscript{54} These issues are beyond this Article's scope because we focus on investors as opposed to managers.

6. "Sin," "Unpatriotic" Short Sales, and a Brief Note on Political Economy

In the popular mind, short sellers sometimes are viewed as unsavory, and even unpatriotic.\textsuperscript{55} Long positions are admired as investments, while short positions are dismissed as speculation. This perspective is naive. Setting aside the primary market (in which investors buy securities directly from the firm),\textsuperscript{56} any secondary market activity—whether it is a long or a short—is a speculative bet. As such, it can contribute to liquidity and more accurate pricing, thereby enhancing the primary market's appeal, disciplining corporate managers, and having useful allocative effects for the rest of the economy.

\textsuperscript{54} Thus, officers, directors, and certain large shareholders are not permitted to sell short unless they cover within 20 days. Securities Exchange Act of 1934, § 16(c), 15 U.S.C. § 78p(a) (1988). In contrast, short positions in derivatives are permitted for hedging (that is, if the so-called "§ 16 insider" owns as many shares as are the subject of the derivative short position). See SEC Rule 16c-4, 17 C.F.R. § 240.16c-4 (2004). These provisions are outside the scope of this Article. For a discussion, see David M. Schizer, Executives and Hedging: The Fragile Legal Foundation of Incentive Compatibility, 100 Colum. L. Rev. 440 (2000).

\textsuperscript{55} Nick Evans, Don't Shoot the Short Sellers, 33 Euromoney 20 (2002) (describing view among general public that "short- sellers are evil people, they have robbed us of our money and they must be stopped"); also quoting Axa Chairman Claude Bebear's description of short sellers as "'irrational, even immoral'"; Japan Sells Itself Short, 13 Asiawise 1 (2002) ("'Short sellers are mean-spirited sorts bent on making money by getting a jump on ordinary investors.'") (quoting Japanese finance minister Maajuro Shiokawa).

\textsuperscript{56} For discussion of the primary market, see Section III.D.1.
Nevertheless, the "sin" rhetoric can prove helpful to interest groups that benefit from short-sale constraints. While the political economy of short-sale constraints is beyond this Article's scope, it should be noted that managers of publicly traded firms benefit when their employer's stock rises, and suffer financial injury from "bear raids."57 Inflated equity prices also reduce a firm's cost of capital.58 Likewise, investment banks and research analysts generally benefit when stock prices rise.59

D. Implications for Legal Constraints on Short Sales

We have shown that short selling serves a socially useful function, whether the market operates rationally or is dominated by noise traders. Aside from the special case of firm managers, then, regulators generally should permit short sales to the same extent as longs. Regulation may be needed to prevent market manipulation and panics, but any constraint on short sales should be narrowly tailored to these concerns and also should apply to long positions. Of course, poor tailoring will not distort market prices as much if market actors can avoid the constraint, but this self-help can be a separate source of social waste. The next two Sections identify three legal constraints that single out short sales: ineligibility for the reduced tax rate for long-term capital gains, the uptick rule, and the locate requirement. We ask whether these rules are narrowly tailored and, if not, whether they are easy to avoid. In general, we find that these rules are likely to undermine market efficiency, and thus should be reconsidered.

III. The Higher Tax on Short Sale Profits

This Section evaluates a short-specific constraint that other commentators have overlooked: Unlike gains from long positions, short-sale gains are not eligible for favorable long-term capital gain tax rates even if the short sale remains open for more than a year.60 Of course, one might question whether the tax rate should be reduced for any long-term capital gain; we do not address this issue. Our point is that,

57 We thank Jack Coffee for this observation.
59 See Section II.A.4. Relatedly, anecdotal evidence suggests that fund managers and investment banks that profit from rising markets have tried to drive certain professional short sellers out of business. For a discussion, see Benjamin Mark Cole, The Pied Pipers of Wall Street: How Analysts Sell You Down the River (2001).
60 For individuals, long-term capital gain generally is taxed at a 15% rate. IRC § 1(h). Short-term capital gain is taxed at the taxpayer's marginal rate for ordinary income, the maximum being 35%. See IRC § 1.
if a reduced rate is offered to long positions, it generally should be available to short sales on comparable terms. To develop this argument, we consider three issues: why the higher tax on short sales might be harmful, why it might not matter, and why it might prove socially useful.

A. Why the Higher Tax On Short Sales Could Prove Inefficient

To benefit from a reduced rate for capital gains, a taxpayer must hold the relevant asset for the requisite holding period, which currently is one year.\(^{61}\) Short sellers are ineligible for this benefit because of a quirk in the computation of holding period. For a short sale, the holding period is based not on the length of time that the short sale is open, but on the time the taxpayer holds the stock that is delivered to the stock lender to cover the short.\(^{62}\)

As an example, assume that on January 1, 2004, a taxpayer enters into a short sale of stock for $100 by borrowing the necessary shares from her broker (the “stock lender”). Two years later, on January 1, 2006, the taxpayer covers the short at a $60 per share gain by purchasing shares for $40 and immediately delivering them to the stock lender. Even though the short sale lasted for more than a year, the taxpayer held the stock for only a matter of minutes. As a result, the taxpayer’s gain is treated as short-term.

This rule relies on a formalistic definition of holding period. Although the taxpayer places a two-year bet, the short sale is a liability, not something that the taxpayer is “holding,” and so no “holding” period accrues. Rather, the only thing the taxpayer actually “holds” is the stock purchased to cover the short, and that stock is held only briefly.\(^{63}\) In effect, the tax law relies on an uneconomic definition of the relevant transaction, focusing on the asset purchased to cover the short sale, instead of on the short sale itself.

The bottom line is that, under the current rate structure,\(^{64}\) individuals who bet on market increases generally face a lower long-term tax

\(^{61}\) IRC § 1222(3).

\(^{62}\) See IRC § 1233; Reg. § 1.1233-1(a)(3) (“Generally, the period for which a taxpayer holds property delivered to close a short sale determines whether long-term or short-term capital gain or loss results.”).

\(^{63}\) Assume, again, that the taxpayer shorts the stock on January 1, 2004, and purchases stock to cover the short on January 1, 2006. But assume that, instead of actually covering the short, the taxpayer holds this stock for a year, and covers the short on January 2, 2007. Although she held the stock for more than one year, the gain is still short-term. Reg. § 1.1233-1(c).

\(^{64}\) While there currently is a significant gap between the rate for long-term capital gain and the rate for short-term capital gain and ordinary income, this gap has been both broader and narrower at various points in history. For instance, in 1986, when Congress temporarily repealed the capital gains preference, Tax Reform Act of 1986, Pub. L. No. 99-
rate (15%) than individuals who bet on market declines (short-term capital gains rates that are approximately 35% in the maximum bracket). As we argued in the preceding Section, such favoritism for long positions can prevent individuals from optimizing their portfolios and can distort market prices.

Nor can this rule be justified as a response to manipulative short sales. The rule applies to all short sales by individuals, without asking whether the trader has manipulative intent. Indeed, the rule penalizes long-term short positions, which are less likely than short-term bets to be involved in manipulative schemes. After all, the market is likely to discover the inaccuracy of a manipulative rumor by the time a position has been in place for a year.

Instead of treating short sales differently under a formalistic rule, it would seem advisable to conform with the rule for long positions. To do so, we would measure the holding period for naked shorts by the length of time that the short sale is open, and not by the holding period of property used to cover the short. Before drawing this conclusion, we consider reasons why this higher tax rate on short sales could prove unimportant or even useful.

B. Why the Higher Tax on Short Sale Profits Could Prove Unimportant: Offsetting Tax Benefits From Short-Sale Losses

There are two reasons why the extra tax burden on short sales might not distort market prices. First, the tax burden we describe (a high rate on short-sale gains) is offset, to an extent, by a tax benefit (a potentially more valuable deduction for short-sale losses). Second, short sellers sometimes can avoid the higher rate on their gains.

514, § 301(a), 100 Stat. 2085, 2216, the tax rate on longs and shorts was comparable. For a historical survey of the capital gains preference, see David M. Schizer, Realization as Subsidy, 73 N.Y.U. L. Rev. 1549, 1601 (1998).

For both long and short positions, the tax rates in the text are overstated. Given the taxpayer's ability to defer recognition of gain, and the tax-reducing effect of deferral, the effective tax rate is lower for each type of position. The benefits of deferral, however, are available to both long and short positions. For a discussion of strategic trading, see text accompanying note 76.

For discussion of those who are not covered by the rule, including corporate taxpayers, see Subsection III.B.2.

The tax rule's adverse effect falls on long-term traders. Short-term traders—whether long or short—always will be subject to the higher short-term tax rates. In contrast, long-term traders can benefit from the reduced tax rate if they buy stock, but not if they sell it short.

Of course, a trader could take a position, wait a year, and then begin spreading rumors, but the trader would have to be exposed to a year's unhedged risk before commencing manipulative activity, and this extra risk is likely to discourage most would-be manipulators.
These alleviating factors, which are discussed in the next two Subsections, offer some comfort on balance, but are not complete solutions.

1. Two Reasons Why Tax Rates on Risk Can Be Irrelevant

Ironically, a high tax rate is not necessarily unappealing to investors. While it means the government claims a larger share of gains, it also means that the government bears a larger share of losses. Since this point is somewhat counterintuitive—after all, don't investors always prefer a low tax rate?—we begin with two reasons why an investor might not mind the higher tax rate. We then offer three reasons why the higher rate on short sale profits nevertheless proves to be unattractive here.

First, a higher tax rate might not discourage short sellers because they do not know, ex ante, whether they will have gains or losses; assuming a full deduction for losses is offered—an assumption that we revisit below—a high rate is better for losses (that is, because the deduction is more valuable). As a simple illustration, assume that a long bet (Long) and a short bet (Short) each generate the same pretax cash flow: $200 if the bet is successful, and zero if it is not. Assuming success and failure are equally likely, a risk-neutral investor would value either bet at $100. This obviously is true if the tax rate is zero, but it remains true for any other tax rate and—notably for our purposes—it remains true if Long and Short are subject to different tax rates. Thus, Long is still worth $100 if subject to a 15% tax rate. Compared with a zero tax rate, the taxpayer is worse off if the bet succeeds (keeping $185 instead of $200), but better off if it fails (keeping $15

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70 This is an application of a more general point: That inconsistencies will not necessarily prompt planning, as long as the treatment of gains matches the treatment of losses. For a fuller statement of this idea, and an associated reform proposal for financial instruments, see David M. Schizer, Balance in the Taxation of Derivative Securities: An Agenda for Reform, Colum. L. Rev. (forthcoming 2004) [hereinafter Balance].

71 .5($200) + .5(0) = $100. To avoid issues about timing and the time value of money, we assume there is no delay in the receipt of either return.

72 For any tax rate $\tau$, 
\[ .5[200 - \tau (200 - 100)] + .5[0 - \tau (0 - 100)] = 100 - \tau \cdot 50 + \tau \cdot 50 = 100. \]
instead of zero), leaving the same average value of $100. The same analysis holds if Short is subject to a 35% tax rate. The taxpayer is even worse off if the bet succeeds (with $165 instead of $185 under a 15% tax rate or $200 under a zero tax rate), but is even better off if the bet fails (with $35 instead of $15 or zero). Because of the higher tax rate, Short offers less after-tax profit if the bet succeeds, but also less after-tax loss if the bet fails. As a result, Short and Long have the same value in this example, notwithstanding the difference in tax rates.

Admittedly, the range of possible returns is different. The Long can yield a profit of $85, while the Short can yield only $65. Yet this brings us to the second reason why an investor might not mind a higher tax rate. To cancel out their added tax burden, short sellers can increase the size of their bet, and thus their range of returns. On these facts, instead of betting $100, they can bet $130.77. After a 35% tax on gains, this scaled-up bet yields an $85 profit or loss. This obviously is the same after-tax loss as a $100 bet taxed at a 15% rate. If it is costless to scale up shorts, the fact that the tax burden is higher should not matter to the taxpayer.

2. Three Reasons Why the Higher Tax Rate Still Matters Here

Nevertheless, there are three reasons why the higher tax rate should indeed matter, so that short sales are less attractive than longs. First, the analysis above assumes that short sale losses are fully deductible, so that generous treatment of short sale losses can offset ungenerous treatment of short sale gains. The reality, however, is that the treatment of losses from short sales is not necessarily more generous than the treatment of losses from long positions. Second, even if short-sale losses are treated favorably, taxpayers will not take full account of this tax benefit for losses if they expect a profit, for instance, because they

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73 The government bears $15 of the loss if the taxpayer deducts the loss and thus avoids $15 of tax on $100 of other long-term capital gain.

74 .5[$200 - (.2)($200 - $100)] + .5[0 - (.2)(0 - $100)] = $100 - (.2)$50 + (.2)$50 = $100.

75 .50[$200 - (.35)($200 - $100)] + .50[0 - (.35)(0 - $100)] = $100 - (.35)$50 + (.35)$50 = $100.

76 Ironically, a high tax rate can even be better if taxpayers can control the timing of their tax. As a result, they can claim deductions currently while deferring the tax on gains (thereby reducing its present value). In such strategic trading, the high tax rate raises the value of the deductions, while deferral reduces the rate for gains (even if the rate is high in nominal terms). As long as losses are fully deductible, this strategic trading is more valuable when the tax rate is high. Jeff Strnad, Periodicity and Accretion Taxation: Norms and Implementation, 99 Yale L.J. 1817, 1823-24 (1990).

77 If the bet wins, the taxpayer has $261.54 and a tax liability of $45.77 ((.35)($261.54 - $130.77)), leaving $215.77, or a profit of $85. If the bet loses, he has a loss of $130.77 and a tax deduction worth $45.77 ((.35)($130.77 - 0)), which yields a net loss of $85.
have uncovered new information; in other words, even if tax rates do not matter in equilibrium, they can matter in disequilibrium. Third, scaling up is unlikely to be costless here. We discuss these points in turn.

a. Reason #1: The Limited Tax Advantage of Short-Sale Losses

Is it safe to assume that losses from short sales are more valuable than losses from long positions? The assumption is crucial because a more valuable deduction for short-sale losses is needed to compensate, ex ante, for the higher tax on short-sale profits. In general, a deduction has value in sparing the taxpayer from tax on other income. Losses from short sales would be more valuable if they offset high-tax income and losses from long positions offset low-tax income.

At first blush, these conditions appear to hold: Losses from a “naked” short sale are always short-term capital losses, regardless of how long the short sale lasts, whereas losses from long positions are long-term capital losses if the taxpayer holds the property for more than one year. The advantage of short-term capital losses is that they automatically can be used to offset short-term capital gains. On closer inspection, though, it turns out that losses from short sales are not always more valuable than losses from long positions. For one thing, losses from long positions also can qualify as short-term, provided that the taxpayer disposes of the depreciated position before she has held it for a year. To be clear, this means that longs can generate low-tax gains and also high-tax losses, a double benefit that shorts can never match. Moreover, even if losses from a long position are long-term (for instance, because the long does not decline in value until after a year has past), these losses sometimes can still shelter short-term capital gains. Gains and losses of a like character are first netted against each other (for example, long-term loss against long-term gain), and then any excess is netted against other types (for example, long-term loss against short-term gain). If a taxpayer has only short-term gains and only long-term losses, she can use these losses to offset the short-term gains. In addition, sometimes short-term losses are used to offset long-term gains—for instance, if the taxpayer does not have any short-term gains. In other words, shorts can generate high-tax gains and low-tax losses, a double burden that will not saddle longs (at least if they last for more than one year). Finally, sometimes

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78 For instance, assume a taxpayer has $100 of long-term capital gain (taxable at 15%) and $100 of short-term capital gain (taxable at approximately 35%). If the taxpayer has $100 of short-term capital loss, she can use it to avoid tax on the short-term gain (so the losses are worth $35); in contrast, if the taxpayer has $100 of long-term capital loss, she can use it only to avoid tax on the long-term capital gain (so the losses are worth $15).
neither long- nor short-term losses can be used at all, for instance, if taxpayers have no capital gain\textsuperscript{79} or if the wash sale rules apply.\textsuperscript{80} The bottom line is that losses from short sales are \textit{not} always more valuable than losses from long positions. As a result, the prospect of more generous treatment of losses cannot wholly offset the prospect of less generous treatment for short-sale gains.

\textit{b. Reason #2: The Importance of Tax Rates in Disequilibrium}

Even assuming that losses from short sales were treated more favorably than losses from long positions—and the preceding discussion shows the limitations of this assumption—taxpayers still will discount this tax advantage if they expect to have a gain instead of a loss, for instance, because they have uncovered new information. In the above example, the $100 market valuation of the \textit{Long} and \textit{Short} positions reflects a 50:50 probability of yielding either $200 or zero. As noted above, a taxpayer who agrees with this probability will value either position at $100 even if different tax rates apply (and, of course, will not trade in equilibrium). But if the taxpayer disagrees with the market valuation—for instance, because she believes the probability of a $200 payout is 60%, instead of 50%—then her expected profit from trading (and thus her willingness to trade) obviously will vary with the tax rate. A low tax rate leaves the taxpayer with a larger share of gains and, in this state of disequilibrium, this factor matters more than reducing the taxpayer's share of losses.

Unfortunately, the tax differential could prove more daunting to sophisticated traders than to unsophisticated ones. The extra tax on profits presumably is most costly to well-informed traders, since they have more reason to expect a profit and thus have less interest ex ante in deducting losses.\textsuperscript{81} In other words, the tax constraint may have ex-

\textsuperscript{79} Under the capital loss limitations, individual taxpayers can deduct up to $3,000 of capital loss from ordinary income, and must carry the rest forward to later tax years. IRC §§ 1211(b), 1212(b).

\textsuperscript{80} The wash sale rules prevent taxpayers from claiming a deduction when they immediately reacquire the position (a sign that they are selling merely to claim the deduction). IRC § 1091(a). These rules explicitly apply to short positions, IRC § 1091(e), although their scope is somewhat narrower than when they apply to longs. For instance, the rule arguably does not apply when a short sale is replaced with a put option, but it clearly applies when a long is replaced with a call option. For a discussion, see David M. Schizer, Scrubbing the Wash Sale Rules, Taxes 67 (2003); see also David M. Schizer, 184-4th: Taxation of Financial Instruments: Special Rules, Tax Mgmt. Portfolio (BNA) (forthcoming 2004).

\textsuperscript{81} The extra tax on profits also could discourage uninformed traders who are overconfident, perhaps as a result of a cognitive bias such as optimism bias. Chilling the enthusiasm of these traders can be a useful contribution, although its value is undermined by the lack of a corresponding check on overconfident longs.
actly the wrong sorting effect, discouraging informed traders more than it discourages uninformed ones.\textsuperscript{82}

An example illustrates the effect on an informed trader in disequilibrium. Assume there are two stocks, $S_1$ and $S_2$, and two risk-neutral traders, a long buyer and a short seller. Each stock is trading at $100 because each will yield either $200 or zero, and the market assigns a 50:50 probability to these scenarios. In equilibrium, neither trader will trade these stocks because $100$ is the correct price. In disequilibrium, however, the long buyer might consider stock $S_1$ to be undervalued, while the short seller might consider stock $S_2$ to be overvalued. Assume the long buyer believes there is a 60% probability that stock $S_1$ will go to $200$, and a 40% probability that it will go to zero. Meanwhile, the short seller believes there is a 60% probability that stock $S_2$ will go to zero and a 40% probability that it will go to $200$. In buying $S_1$, the long buyer expects pretax a profit of $20,\textsuperscript{83}$ and, in shorting $S_2$, the short seller expects the same pretax profit.\textsuperscript{84} Yet their expected profits diverge if the tax rates are different (that is, 15% on longs and 35% on shorts). The long expects .85($20), or $17, while the short seller expects .65($20), or $13. Appendix B offers a more formal statement of this point.

c. **Reason #3: Scaling Up Is Not Costless**

In theory, short traders who expect a profit can offset the higher tax rate on shorts by increasing the size of their bet, as noted above. This does not remedy the disparity between longs and shorts because the long trader also can scale up his position, and thus can earn still a higher profit. At some point, the long and short will not be able to increase the size of their bets (for example, due to credit constraints and other transaction costs), and, for any given size, the long’s bet will be more profitable, ex ante.

In addition, scaling up can cancel out the tax differential only if it is costless to increase the size of the bet. This seems especially unlikely for short positions. For one thing, the tax differential described here is not the only burden on short sellers. The various economic and legal burdens on short selling are likely to become even more severe

\textsuperscript{82} This result is the opposite of the rosier scenario that Diamond and Verrecchia posit, in which short sale constraints promote market efficiency if “a cost has the least effect on those who have a strong desire to short for informational reasons.” Diamond & Verrecchia, note 2, at 293. Of course, the deterrent effect on confident traders should not be overstated. As long as the tax rate on gains is less than 100%, the after-tax return from a successful short sale obviously is still positive (albeit less than the return on a correspondingly successful long).

\textsuperscript{83} .6($100) - .4($100) = $20.

\textsuperscript{84} .6($100) - .4($100) = $20.
as the scale of the bet increases.\textsuperscript{85} More generally, short traders (by definition) bet against long traders. Since the tax rate on the latter is lower, they have less incentive to scale up, and thus are likely to charge the short trader something extra for placing a bigger bet.\textsuperscript{86}

\textbf{C. Why the Higher Tax Rate on Short Sale Profits Could Prove Unimportant: Avoidance by Sophisticated Taxpayers}

Thus, notwithstanding the ability to deduct short sale losses and to scale up, short sellers should still view the higher tax burden on short sales as undesirable. Even so, there is another reason why this extra tax burden might not matter: Sometimes traders can avoid it through planning.

Most straightforwardly, the tax differential between longs and shorts does not apply to three classes of investors and, to an extent, these investors can counter the U.S. tax law's pro-long bias. Most importantly, foreigners generally do not pay U.S. capital gains tax. As a result, foreign trading firms can engage in information-based trading that brings prices closer to fundamental value, without incurring extra U.S. tax.\textsuperscript{87} Foreigners, however, are still likely to undersupply short arbitrage because of economic costs described above, such as liquidity constraints and the prospect of unlimited losses,\textsuperscript{88} as well as regulatory and tax constraints in their home jurisdictions. Second, tax-exempt entities such as pension funds and endowments pick up some of the slack because they also do not pay U.S. tax on their trading activity. Yet their contribution to tax arbitrage is limited because they typically do not invest on their own. Instead, they usually invest with a mutual or hedge fund, and tax considerations \textit{can} affect these trading firms.\textsuperscript{89} Third, U.S. corporations are taxed at the same capital gains rate for longs and shorts (generally 35\%) because they are not eligible for a reduced rate on long-term gain.\textsuperscript{90} Even so, a firm that engages solely in trading (such as a hedge fund) will not organize as a U.S. corporation because profits will be taxed at both the entity and investor level. Investment banks such as Morgan Stanley and Goldman Sachs organ-

\textsuperscript{85} Economic burdens on short selling are discussed above in Subsection II.A.4. Legal burdens are discussed Section IV.
\textsuperscript{86} See Schizer, Balance, note 70.
\textsuperscript{87} Section 864 provides a safe harbor for non-U.S. traders who trade in the United States. Passive investors are similarly protected. Foreign dealers must pay U.S. tax on their U.S. activities but, as noted below, dealers generally are unaffected by the tax differential for a different reason. See note 91.
\textsuperscript{88} See supra text accompanying notes 29-32.
\textsuperscript{89} For instance, tax considerations can influence their managers, as discussed below. See text accompanying notes 93-94.
\textsuperscript{90} IRC § 11.
ize as U.S. corporations in order to list on the U.S. capital markets. While these firms pay the same tax on shorts and longs, and have trading desks that engage in arbitrage, they have other reasons not to place too many short bets, including concerns about alienating CEOs, and thus losing lucrative underwriting business. In sum, there are important market players who are immune to the rate differential between shorts and longs, and thus will supply some (but probably not all) of the necessary arbitrage.

To be precise, the tax differential between longs and shorts affects only individuals who pay U.S. tax, including wealthy individual investors, professional short sellers, and funds that invest for these individuals, such as hedge funds. Obviously, retail investors also are affected. At first blush, this group may seem unimportant because, in general, they are unlikely to uncover new information. But retail investors cannot be dismissed so easily, given their large numbers. By encouraging them to favor long positions, the rate differential should push market prices upwards if more knowledgeable investors do not intervene with short sales.

The rate differential also will discourage at least some of these interventions—for instance, by professional traders such as hedge fund managers. This is unfortunate because these knowledgeable and highly motivated traders are well positioned to hunt for shaky financial statements or other evidence of overpricing. They also are more independent, and thus are freer of conflicts, than traders at investment banks.

To an extent, we can take comfort in the fact that these traders sometimes ignore tax considerations (and thus might not be deterred by the high tax burden on shorts), although it is hard to assess the pervasiveness of this tax indifference. In some circumstances, fund managers favor business considerations over tax planning. For instance, arbitrageurs may face liquidity constraints that discourage them from placing long-term bets. This market failure may thin the ranks of those who would be willing to engage in long-term short sales even if the tax rate was favorable. At the margin, though, arbitrageurs should be more willing to take long-term positions if the tax treatment is favorable and, again, it is favorable only for longs, not for shorts.

Fund managers are more likely to consider tax implications—and, in particular, the unfavorable treatment of short sales—if their own compensation is implicated, as is the case with hedge fund managers. The manager pays the same tax as investors pay (because the tax law

91 The trading desks of investment banks earn capital gain on shorts and longs, but their securities dealer affiliates earn ordinary income on their dealing activity. IRC § 475.
92 See text accompanying note 31.
views the manager as collecting a share of these investments, in effect
taxing her as an investor rather than as a wage earner). As a result,
a hedge fund manager can cut her tax in half by earning long-term
capital gains for investors.

While it is likely that a large class of traders are at least somewhat
tax sensitive, there is a final reason why the rate differential between
longs and shorts may not matter: With careful structuring, well-advised
traders who otherwise would earn short-term capital gain sometimes
can earn long-term capital gain. We should not take too much comfort
in this avoidance, which is costly and can be a separate source of
social waste. For instance, buying a put option can yield long-term
capital gain, although taxpayers must pay a premium for these options;
while they can sell a call to fund the premium, any profit from
this short call is ineligible for long-term capital gain. Alternatively,
over-the-counter (OTC) forward contracts can yield long-term capital
gain on short positions if structured properly. Fees on these transac-
tions are large (for example, 1% of the notional amount per year),
expensive legal advice may be necessary, and these deals are not avail-
able to everyone; the commodities laws set minimum wealth require-
ments for them. While exchange-traded securities futures promise

93 Note that investor tax burdens do not affect the pretax amount of a hedge funds
manager's compensation, which typically is a share of the fund's pretax profit.

94 Mutual fund managers, in contrast, cannot cut their taxes in this way. Their fee typi-
cally is taxed as a wage (that is, at ordinary income rates). Yet the pretax amount of
this fee generally is a percentage of assets under management, an amount that reflects
the manager's reputation and past performance. While performance evaluations traditionally
have focused on pretax returns, recent changes in the securities laws require funds to dis-
close after-tax performance. Mitchell L. Engler, A Missing Piece to the Dividend Puzzle:
Agency Costs of Mutual Funds, 25 Cardozo L. Rev. 215 (2003); see text accompanying
note 118. This change should focus more attention on tax considerations. Even if the tax
law has not prevented mutual funds from selling short, they generally have been reluctant
to do so, at least as a historical matter. This may be a vestige of legal restrictions that no
longer are in effect. See Joseph Chen, Harrison Hong & Jeremy C. Stein, Breadth of Own-
ership and Stock Returns, 66 J. Fin. Econ. 171 (2002) (noting that 70% of mutual funds
explicitly state in filings with the SEC that short sales are not part of their investment
strategy, a step that legally prevents them from selling short).

95 See IRC § 1234(a)(1). The options dealer who sells this put option typically will
hedge by engaging in a short sale. Unlike individual taxpayers, dealers do not face different
tax treatment for longs and shorts. See note 91 and accompanying text.

96 OTC derivatives are available through dealers such as Goldman Sachs, instead of an
organized exchange. Long-term capital gain is most clearly available when the derivative is
terminated prior to its scheduled maturity date. IRC § 1234A. For a discussion, see N.Y.
St. Bar Ass'n, Tax Sec., Notional Principal Contract Character and Timing Issues, 79 Tax
Notes 1303 (June 8, 1998). In some cases, short equity swaps can also yield long-term
capital gains, although recent proposed regulations may narrow the circumstances in which

97 For small investors, these contracts potentially could be unenforceable under either
the federal commodities laws or state gambling laws. These results are expressly avoided
for a designated class of large investors, so-called "eligible contract participants," under the
to be less expensive and more widely available, these short futures are taxed like short sales, so that long-term capital gain rates never apply.\textsuperscript{98} Indeed, it is unfortunate that Congress chose to extend the tax differential to this new market.\textsuperscript{99}

D. Why the Higher Tax Rate on Short Sales Could Prove Useful

We have considered reasons why the rate differential between longs and shorts may impede market efficiency, as well as reasons why it may be unimportant. But are there ways in which the rate differential could enhance efficiency? In particular, we turn now to traditional tax policy explanations for the capital gains preference and ask whether they apply to short sales.

1. An Incentive for Savings and Investment

One reason for the capital gains preference—to encourage investors to provide investment capital to businesses—obviously does not apply to short sales. Yet this rationale also does not apply to most longs. Specifically, this justification extends only to the primary market—that is, investors who buy securities directly from the issuer.\textsuperscript{100} Those who buy stock in the secondary market do not directly supply capital to firms. They play a different role—providing liquidity and policing

\begin{flushright}
\textsuperscript{98} IRC § 1234B(b) (if gain or loss from “the sale, exchange, or termination of a securities futures contract to sell property” is treated as capital gain or loss, such gain or loss is short-term). Alternatively, there is some authority that cash-settled short sales are taxed at long-term capital gains rates, although the authority is old and of uncertain reliability. Our sense is that this strategy is not commonly used. For a discussion, see N.Y. St. Bar Ass’n, Tax Sec., Comments on H.R. 3170 (July 14, 1998), 98 TNT 136-38, July 16, 1998, available in LEXIS, Tax Analysts File; see also I.T. 3721, 1945 C.B. 164 (gain on the assignment of a contract to sell stock on a “when-issued” basis is long-term if the contract has been held for the long-term holding period); cf. Am. Home Prods. Corp. v. United States, 601 F.2d 540, 548-51 (Ct. Cl. 1979) (holding that assignment of the contract to sell British pounds to a third party in exchange for cash produced long-term capital gain not subject to § 1233(b)); The Carborundum Co. v. Commissioner, 74 T.C. 730 (1980) (holding for taxpayer on facts similar to those of American Home Products Corp.), acq. 1984-2 C.B. 1.
\textsuperscript{100} In fact, Congress has provided a separate tax preference for those who invest directly in certain new ventures. See IRC § 1202 (providing a partial exclusion for gains from certain small business stock).
\end{flushright}
the accuracy of prices—and short sellers contribute equally to these functions.

A more persuasive rationale to favor longs is to encourage savings. In purchasing securities, taxpayers typically part with their money and thus defer consumption, something a short seller (theoretically) does not have to do. This difference could plausibly justify the rate differential between longs and shorts. Even if a savings incentive is advisable—a question we do not address here—the existing rate distinction between longs and shorts is a poorly tailored response. For example, longs are taxed favorably even if a full prepayment is not needed, as in a long forward contract or securities future\(^\text{101}\) or in an investment financed by borrowing. Nor does a lender enjoy a favorable tax rate for interest income, even though bonds are an important savings vehicle.

2. **A Response to Tax Planning**

A second reason to tax short sales less favorably is to discourage taxpayers from using them in wasteful tax planning. Two strategies come to mind, but the rate differential is not an effective response.

First, taxpayers might try to "age" appreciated longs that have not been held for a full year. For instance, assume a taxpayer buys stock that immediately appreciates. If she sells it a month later, the gain is short-term. What if, instead, she shorts the stock—a position that perfectly hedges the stock she owns—but does not actually sell the appreciated stock until a year later? The government will not want to allow the preference here because the stock has been hedged for all but one month.\(^\text{102}\) The current rule denying the preference is far broader than necessary: In general, taxpayers never earn long-term capital gain on

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\(^{101}\) A securities future is a publicly traded forward contract. In a forward contract, the "long" puts no money down (other than collateral) and commits to buy the property in the future for a fixed price. If the underlying property appreciates, the investor can terminate the contract at a profit without ever paying for the underlying property. For instance, the investor might commit to pay $109 in two years for a share of XYZ, which is currently trading at $100. If XYZ appreciates to $119, the investor can terminate the contract, receiving $10. Even though the investor puts no money down, he earns $10 of long-term capital gain if he holds the contract for a year before terminating it. See IRC § 1234A (governing gains or losses from the "cancellation, lapse, expiration or other termination" of over-the-counter forward contracts); § 1234B (governing gains or losses from the "sale, exchange or termination" of securities futures contracts).

\(^{102}\) The assumption here is that the government wishes to reward only long-term economic exposure, as opposed to mere formal ownership. While there is room to question this objective, and it is not our purpose here to defend it, one reason for such a policy preference would be to encourage long-term shareholder monitoring of management, which in turn might lead to better corporate governance, more accurate market pricing, and other positive externalities.
short sales.\textsuperscript{103} The policy objective here—not allowing holding period to accrue on hedged positions—obviously could be achieved while still allowing long-term treatment to short sales that are not part of a hedge.

A second planning strategy is to simulate a "tax-free" sale of appreciated assets. In a short sale against the box, the short sale hedges an appreciated asset, yielding sale proceeds and insulating the taxpayer from changes in the asset's value.\textsuperscript{104} Since the taxpayer's goal is to simulate a sale while deferring tax, the logical response is to tax short sales against the box as sales, as a 1997 reform requires.\textsuperscript{105} There is no need to apply a higher tax rate to every short sale, including one that is not part of a hedge.\textsuperscript{106}

3. A Second-Best Response to Other Tax Distortions

The tax rate for longs may be lower than the rate for shorts for still another reason. Perhaps our purpose in cutting the rate for longs does not apply to shorts. Two traditional tax policy rationales for the capital gains preference should be considered. First, the preference might correct for the double taxation of corporate profits. This rationale is not persuasive for short sellers—and so a rate differential might be justified—since shorts typically appreciate when the firm is \textit{not} profitable. This justification for a rate differential is unpersuasive for three reasons. First, a capital gains preference obviously is a much less effective remedy for double taxation than comprehensive integration of corporate and personal taxation. Second, the preference applies to assets that are not subject to double taxation, such as real estate and foreign corporations. Third, even if the main purpose of the preference is to alleviate double taxation, we may still want to extend it to

\textsuperscript{103} There is an exception for taxpayers who cover the short with property they held for more than one year before initiating the short sale. Reg. § 1.1233-1(a)(3); Reg. § 1.1233-1(c)(6) (Ex. 6). Otherwise, holding period is lost, and not merely suspended. Reg. § 1.1233-1(c)(2) (Rule 2). For instance, assume a taxpayer buys the stock on January 1, 2004, shorts the stock on December 1, 2004, and closes the short sale the next day, December 2, with newly acquired stock. Even though the stock was held for 11 months before the short sale, the taxpayer loses all of the holding period, and must hold the stock unhedged for 12 additional months in order to qualify for the reduced tax rate. Reg. § 1.1233-1(c)(6) (Ex. 2).

\textsuperscript{104} For example, if the short is established at $100 and the stock drops to $60, the seller can cover by delivering the stock and, in essence, has sold shares at $100. The margin rules are more generous to short sales against the box than to naked short sales, allowing withdrawal of 95% of the proceeds. See Schizer, Frictions, note 9, at 1398-403.

\textsuperscript{105} IRC § 1259. For a discussion, see Schizer, Frictions, note 9, at 1398-403; David M. Schizer, Hedging Under Section 1259, 80 Tax Notes 345 (July 20, 1998).

\textsuperscript{106} The higher tax rate is also not an effective response to tax-free hedging. The higher tax rate does not apply if the appreciated asset has been held for at least a year before the short sale is initiated. Reg. § 1.1233-1(a)(3); Reg. § 1.1233-1(c)(6) (Ex. 3).
short sales in order to prevent other distortions, such as upward price pressure deriving from short-specific constraints.\textsuperscript{107}

A second rationale for the capital gains preference that could apply only to longs is inflation. By not increasing tax basis to account for inflation, our system overstates (and thus overtaxes) profits on longs; reducing the tax rate on longs may alleviate this concern. Of course, the best solution for this problem is to index the system for inflation, not to provide a reduced rate on a subset of profits. But assuming this superior solution is unavailable, does the inflation rationale for a reduced rate also apply to short sales? If not, it may be appropriate to tax shorts and longs at different rates. The question, then, is whether inflation causes short sales to be overtaxed. At first blush, the answer seems to be "no." Indeed, short sellers could be undertaxed if they received short sale proceeds upon executing the short sale; they would receive more valuable dollars at an earlier time, while spending less valuable dollars at a later time to cover the short. Since short sellers cannot access proceeds,\textsuperscript{108} however, inflation typically hurts them. Short sellers who do not earn a return on these proceeds get no compensation for inflation (and, while they may not be overtaxed, this is not terribly comforting). Those who do get a return are compensated for inflation, but this rebate is taxable in full without any adjustment for inflation.\textsuperscript{109}

\textit{E. Assessment}

In sum, all secondary market trading, whether long or short, should be subject to the same tax rates and holding period rules. If a reduced capital gains rate applies to longs (and we take no position about whether it should), the preference also should apply to shorts. Even without this formal parity, there is some comfort in the fact that many traders are indifferent to U.S. tax rules, while others can use self-help. Yet this avoidance is not available to all taxpayers, and avoidance costs can be a separate source of waste. Instead of relying on self-help, we should reform the rule.

\textsuperscript{107} Indeed, an argument might be made that these distortions justify a lower tax on shorts than on longs, not just parity between the two. We are reluctant to propose this more extreme response because of the difficult empirical judgments required in alleviating one regulatory distortion by creating another.

\textsuperscript{108} See notes 9-11 and accompanying text.

\textsuperscript{109} Another traditional rationale for the capital gains preference is lock-in. The concern is that, in order to defer their tax liability, taxpayers keep appreciated positions that they no longer want (that is, because tax is not due until they sell the position). The lower the tax rate, the less daunting is the toll charge for disposing of the position. While this concern is a plausible rationale for a capital gains preference, it applies equally to long and short positions. For either one, taxpayers can defer the tax by retaining the position.
IV. OTHER LEGAL CONSTRAINTS ON SHORT SALES

While our primary focus is on the tax rule, which other commentators have neglected, we also offer a brief discussion of two other short-specific constraints: the uptick rule and the locate requirement. We explore the same two themes that we developed above. First, is the constraint narrowly tailored to preventing panics and market manipulation? Second, is it easy to avoid? We find that the tailoring of these proposals, while inadequate, is somewhat better than that of the tax constraint—and not surprisingly since, unlike the tax rule, these actually were intended as financial market regulation. We also suggest that avoidance here is relatively easy, though it still imposes wasteful costs.

A. UpTick Rule

The uptick test limits short sales in a falling market. Short sales are permitted only (1) at a price higher than the previous price (an "up-tick"), or (2) at the previous price if the last different price was lower (a "zero-plus tick"). Obviously, there is no corresponding ban on bids in a rising market. While the SEC rule applies only to exchange-listed stocks (whether traded on exchanges or over-the-counter), NASDAQ secured SEC approval in 1994 for a similar rule for over-the-counter securities.

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110 Two other context-specific constraints are not considered here. First, it is illegal to cover certain short sales with stock received in a public offering. See Rule 105 of Regulation M, 17 C.F.R. § 242.105 (2004) under the Securities Act (prohibiting any person from covering a short sale "with offered securities from an underwriter or broker or dealer participating in the offering, if such short sale occurred" after a registration statement was filed and during the five business days before pricing). Second, Rule 14e-4 bans the tender of borrowed shares in a tender offer. Regulation 14E, 17 C.F.R. § 240.14e-4 (2004).

111 Section 10(a) of the Exchange Act gives the SEC authority to regulate short sales. 15 U.S.C. § 78j(a) (2003). After the market break of 1937, the SEC adopted the tick test in Rule 10a-1. See Exchange Act Release No. 1,548, 3 Fed. Reg. 213 (Jan. 26, 1938); Exchange Act Release No. 13,091, 41 Fed. Reg. 56,530 (Dec. 28, 1976) (describing the purposes of Rule 10a-1); see also Exchange Act Release No. 34,277, 59 Fed. Reg. 34,885 (July 7, 1994) (approving NASD Rule 3350); Exchange Act Release No. 44,030, 66 Fed. Reg. 14,235 (Mar. 9, 2001) (modifying NASDAQ tick test to take account of decimalization). These rules are policed and supplemented via disclosure. Short sellers are required to designate their orders as "short" (that is, each sale "ticket" is supposed to be labeled short or long), see Rule 10a-1(c), 17 C.F.R. § 240.10a-1(c) (2004), and also make periodic disclosure of the size of their uncovered short positions. See NYSE Rule 421, 2 New York Stock Exchange Guide (CCH) ¶ 2421, at 3724 (June 2002) (requiring "[m]ember organizations and individual direct clearing members for which the Exchange is the designated examining authority" to report short positions); NASD Rule 3360(a), NASD Securities Dealers Manual (CCH) 4960 (2003) (requiring the regular reporting by each member of short positions in certain "customer and proprietary firm accounts").
MARKET BUBBLES AND WASTEFUL AVOIDANCE

1. Tailoring

To an extent, the uptick rule is meant to address the concerns, discussed above, about using short sales to manipulate the market and to intensify a panic. Yet the rule is both over- and under-inclusive. It applies even if the stock is up for the day, as long as the current price is lower than the previous one. The rule applies not only to large positions that can move the market, but also to small positions. Similarly, it applies to liquid as well as illiquid stocks.

In some cases, moreover, the rule may fail to stop short sales that should be stopped. For instance, someone bent on manipulating the market might be happy to trade 100 shares on an uptick (or to invite a friend to do so), as a prelude to shorting one million shares in an effort to precipitate a panic. As a practical matter, the government is unlikely to detect such behavior. Even without such manipulation, moreover, the tick test has less bite now that share prices are quoted in pennies, instead of in eighths. In short, the rule is not well tailored.

2. Avoidance

This poor tailoring is less harmful because the tick test is easy to avoid, although, again, self-help can be a separate source of social waste. Well-advised investors sometimes can take advantage of the test’s exceptions—for instance, for market professionals engaged in certain arbitrage transactions, block trades or, in the case of the NASDAQ rule, market-making. In addition, the tick test does not apply to a sale if the seller is “net long”—that is, if the seller has more long positions than shorts (for example, by owning shares or holding derivative positions that count as ownership). Yet the regulation’s malleable definition of net long—and, in particular, the treatment of derivatives—sometimes allows for avoidance. For example, a trader might enter into a forward contract to purchase the stock—a step that

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counts as a long—even if no purchase price is specified, and so this long does not expose the trader to changes in the stock price.\footnote{114} Nor does the tick test apply in the options markets. The test generally also does not govern equity swaps and other OTC derivatives. Finally, investors often avoid the rule by booking short sales offshore (that is, when the U.S. markets are closed), although the legal basis for this strategy might be questioned.\footnote{115} Given these limitations, as well as empirical studies casting doubt on the rule’s effectiveness,\footnote{116} the SEC has at times proposed to repeal or revise the tick test, including most recently in October 1999.\footnote{117} We recommend repealing this rule.

2. **Locate Requirement**

Finally, a third short-specific constraint is the need for short sellers to borrow the stock—and, relatedly, the “recall” risk of having to return the stock before they want to close their shorts. Short sellers generally cannot engage in “naked shorts,” in which they bet against a stock without actually delivering shares. To borrow stock, the short seller will have to pay a fee, a cost that can surge unexpectedly when demand outstrips the supply of readily borrowed stock in a “short squeeze.”\footnote{118} The difficulty of borrowing stock during a bubble is well

\footnote{114} Although the SEC proposed a rule to foreclose this strategy, see Exchange Act Release No. 30,772, 57 Fed. Reg. 24,415 (June 9, 1992), this amendment has not been adopted. See Lofchie, note 113, at 300.

\footnote{115} The SEC has noted that “a portion of foreign trading in U.S. equities by U.S. broker-dealers or institutions is done to avoid off-board trading restrictions, transparency standards in the U.S. markets ... and other rules, such as the Commission’s short sale rule.” Exchange Act Release No. 30,920, 57 Fed. Reg. 32,587, 32,592 (July 22, 1992); see also H.R. Rep. No. 102-414, at 6 (1991) (“evasion of the [tick test] is possible, especially through overseas trading”). The SEC has noted that the rule does not contain any express exemption for overseas transactions. Exchange Act Release No. 21,958, 50 Fed. Reg. 16,302 (Apr. 25, 1985).

\footnote{116} See, e.g., Irving M. Pollack, Short-Sale Regulations of NASDAQ Securities (1986) (study commissioned by NASDAQ that recommends against implementing tick test).

\footnote{117} Exchange Act Release No. 42,037, 64 Fed. Reg. 57,996 (Oct. 28, 1999) (seeking comments about continued viability of tick test). In 1976, the SEC proposed to eliminate the tick test, but was persuaded not to do so by opposition from CEOs. See Lofchie, note 113, at 306 (“[T]he continuance of the Uptick Rules has been strongly supported by securities issuers who assert that so-called "bear raids"—the spreading of false negative rumors about an issuer combined with short selling of an issuer’s stock—are a significant problem.”) (emphasis deleted).

\footnote{118} Under SEC Rule 15c3-3, stock is most readily borrowed from brokers who hold customer stock in margin accounts. See H.R. Rep. No. 102-414, note 115, at 6. Thus, short squeezes are most likely for stock that is commonly held by investors in physical form or in cash accounts. The phenomenon is also especially likely for small stock offerings. Cf. Pollack, note 116, at 6 (“[W]hen extensive short selling occurs, stock is not readily available and sometimes cannot be borrowed at all.”). While the cost of borrowing stock is usually less than 1% per year, this cost can surge during a squeeze. D’Avolio, note 6, at 273 (using
documented, for instance, with Amazon.com,\textsuperscript{119} although there also is empirical evidence that stock borrowing fees often are manageable.\textsuperscript{120} In any event, recent tax legislation is likely to increase the cost of borrowing stock.\textsuperscript{121} The need to borrow shares can prevent an investor from even offering to make a short sale, since such offers can be made only after a source of borrowed shares has been identified (the locate requirement).\textsuperscript{122} In contrast, no corresponding constraint binds would-be buyers who wish to place a bid.

4. Tailoring

The locate requirement serves, in a modest way, to limit manipulation and panics. Since the investor's broker must locate the stock before the investor can offer to sell short, flooding the market with such sell orders is not a costless step. But obviously, this rule can constrain short sales that are not manipulative and can fuel speculative bubbles\textsuperscript{123}—facts that counsel in favor of abandoning the test.

\textsuperscript{119} See, e.g., Dechow et al., note 11, at 4 n.2; see also D'Avolio, note 6, at 272 (finding that while borrowing fees "might be small on average, they are systematically high when differences of opinion are high"); Mitchell et al., note 31 (offering data about stocks with negative short rebates during the period from October 1999 to October 2000, including Stratos Lighttwave).

\textsuperscript{120} See Christopher C. Geczy, David K. Musto & Adam V. Reed, Stocks Are Special Too: An Analysis of the Equity Lending Market, 66 J. Fin. Econ. 241 (2002) (using data from stock lender to show that the cost of borrowing stock is not sufficient to render various arbitrage strategies unprofitable, including long-short trading, shorting IPOs, and shorting Internet stocks, though this borrowing cost may be adequate to render merger arbitrage unprofitable).

\textsuperscript{121} Congress recently applied the long-term capital gains rate to certain dividends. Jobs and Growth Tax Relief Reconciliation Act of 2003, Pub. L. No. 108-27, § 302, 117 Stat. 752, 760-64. Yet the 15\% rate applies only to the dividend, and not to a substitute payment from someone who has borrowed stock. Thus, taxable investors will not want to lend their shares when a dividend is about to be paid.

\textsuperscript{122} For a description of the process of locating stock, see Darrell Duffie, Nicolae Gârleanu & Lasse Heje Pedersen, Securities Lending, Shorting, and Price, 66 J. Fin. Econ. 307 (2002).

\textsuperscript{123} See Duffie et al., note 122 (offering model in which need to borrow stock increases return earned by stock lenders, and this extra return increases the stock lender's valuation of stock, which in turn can increase market price of stock, thereby intensifying a bubble).
2. Avoidance

As with other short-specific constraints, well-advised investors sometimes can avoid the locate requirement.\(^{124}\) Again, though, this self-help itself can be a separate source of social waste. For instance, to avoid the rule, investors can enter into "short" swaps or other OTC derivative contracts (although they incur extra fees to do so). Since these short positions are settled in cash, there is no practical need or legal requirement to locate the stock. While the counterparty on such contracts, the derivatives dealer, may engage in short sales (for example, to hedge their "long" position on the derivative), market makers generally are exempt from the locate requirement.\(^{125}\) In addition, other players at times may fail to comply.\(^{126}\) Given these problems with the current rule, we would repeal it. To mitigate any concerns that short sellers would misuse a naked short, we would require them to post cash collateral equal to 150% of their liability, a step that already is required for most market actors.\(^{127}\)

V. Recommendations and a Disclosure Alternative

In general, the law should treat all secondary market trading—whether long or short—as contributing equally to the ability of individuals to optimize their portfolios, as well as to the liquidity and the accuracy of market pricing. As a result, the same tax rules generally should apply to long and short positions, and the uptick rule and locate requirement should be repealed.

We have acknowledged that market manipulation and noise traders offer a rationale for regulating both shorts and longs. While this problem is not the focus of this Article, we offer a few tentative suggestions. First, existing limitations on fraudulent misstatements are still needed to keep investors from shorting (or buying) and then spreading false rumors to influence the price. At the same time, other safe-

\(^{124}\) After all, the same share can be lent and sold many times, at least in theory, such that one share can be shorted repeatedly.

\(^{125}\) See NYSE Rule 440C, 2 New York Stock Exchange Guide (CCH) ¶ 2440C.10, at 3795-3 (2002) (requiring all members and member organizations to engage in diligent efforts to "borrow the necessary securities to make delivery"); NASD Rule 3370(b)(2)(B), NASD Securities Dealers Manual (CCH) 4961 (2003). At one point, short sales for non-member broker-dealers were not covered by this requirement, but the NASD has recently filled this gap. See NASD Notice to Members 04-03 (Jan. 2004).

\(^{126}\) Commentators have emphasized the lack of an effective sanction on broker-dealers who fail to deliver securities in making a short sale. The National Securities Clearing Corporation, which administers such settlements, will keep a record of what the dealer owes but will not require delivery. Nor will a customer who has purchased the securities through a broker necessarily know that securities have never been delivered. See generally Pollack, note 116, at 50-51.

\(^{127}\) See note 9.
guards may address the separate manipulation concern discussed above: the ability of a large short sale, by itself, to depress the price and prompt momentum traders to sell. For one thing, this concern does not arise for smaller trades, so a legal constraint is needed only for short sales that are large enough to move the market.

For these large positions, one response is to require disclosure. For example, anyone shorting more than a minimum percentage of shares could be forced to disclose, in a statement issued within a brief time period after the short sale, information including (1) the fact of the trade, (2) their identity, and (3) their reason for shorting the stock. Other market participants could then assess whether the short sale derives from a desire to manipulate prices, or from solid information. In the latter case, others would follow the short seller's lead but a decline in the market price would be socially desirable.

There remains the other concern described above: If unsophisticated noise or momentum traders are allowed to engage in short sales without limitation, they may be more likely (without any manipulative intent) to precipitate or intensify a panic. Of course, it is not clear that the existing constraints on short sales really mitigate this risk, since, as noted above, these constraints can be avoided in many cases. Nor is it clear that panics are more damaging to the economy than bubbles—in fact, bubbles may well cause more lasting effects. In any event, the best antidote to speculative panics may not be a more finely tailored short-sale constraint, but a market with full disclosure. In such an environment, sophisticated investors should be more comfortable betting against the noise traders, thereby containing the panic.

Disclosure after the short sale is preferable to disclosure before the short sale because, in the latter case, the short seller will have to give away valuable information and analysis before placing himself in a position to capitalize on this disclosure, a step that obviously could undermine incentives to engage in such analysis.

While there is a risk that disclosure statements themselves could be used to manipulate the market, such manipulations should not be effective once a trader develops a reputation for manipulative disclosure.

Obviously, in applying the minimum size requirement, a series of roughly contemporaneous short sales would need to be aggregated, as would the short sales of certain related parties. Likewise, if the short seller is a corporation, it may be necessary, in some cases, to require disclosure of the corporation's owners. These and other details of implementation are beyond the scope of this Article.

We thank Zohar Goshen for this observation.

Our premise is that the law should safeguard the integrity of the market, but should not necessarily protect each investor from placing foolish bets.
VI. Conclusion

Information is the lifeblood of financial markets. Likewise, arbitrage is essential in policing market prices and in countering the effect of noise traders. Unfortunately, arbitrage is an economically fragile phenomenon because arbitrageurs face liquidity constraints, as well as the potential for unlimited risk when they sell short. We should not compound these economic burdens with unnecessary legal burdens on arbitrage and short sales. On the contrary, legal rules should nurture the dynamic processes that develop and incorporate information into market prices. Short-sale regulations under current law fail this test. In some cases, creative advisors have found ways to plan around these rules. We should eliminate the need for this imperfect and wasteful self-help. Our law should recognize the legitimate—indeed, necessary—role of short sales.
APPENDIX A

The role of short sales in preventing bubbles can be presented formally. The intuition is that well-informed expert traders use short sales to trade against unsophisticated momentum traders, who buy merely because the price has just risen; as long as enough experts trade, the price remains at the correct (fundamentals-based) level. Consider a simple market with \( n \) homogeneous "expert" (fundamental) traders and \( \bar{n} \) homogeneous "momentum" (second-order price-tracking) traders. Let \( V_t = \mu \) denote a stock's perceived value at time \( t \) by one of the expert traders, where it is assumed that each expert is given some private "information" about the value of the stock through the parameter \( \mu \). Furthermore, let \( \bar{V}_t = P_{t-1} + \gamma (P_{t-1} - P_{t-2}) \) denote a stock's perceived value at time \( t \) by one of the momentum traders, where the constant \( \gamma > 0 \) governs the sensitivity of the momentum traders to recent price changes. Finally, let the market price of one share at time \( t \) be described by the simple weighted average \( P_t = \beta V_t + (1 - \beta) \bar{V}_t \), where

\[
\beta = \frac{n}{\bar{n} + n} \in [0,1]
\]

denotes the "expert ratio."\(^{133}\)

Rewriting the market price as \( P_t = \beta \mu + (1 - \beta)[(1 + \gamma)P_{t-1} - \gamma P_{t-2}] \), it is easy to show that this nonhomogeneous second-order difference equation possesses a general solution of the form \( P_t = C_1 m_1^t + C_2 m_2^t + \mu \), where

\[
m_1 = \frac{1}{2} \left[ (1-\beta)(1+\gamma) + \sqrt{(1-\beta)^2(1+\gamma)^2 - 4(1-\beta)\gamma} \right],
\]
\[
m_2 = \frac{1}{2} \left[ (1-\beta)(1+\gamma) - \sqrt{(1-\beta)^2(1+\gamma)^2 - 4(1-\beta)\gamma} \right],
\]

and the constants \( C_1 \) and \( C_2 \) are determined by the initial values \( P_0 = P_0 \) and \( P_1 = \beta \mu + (1 - \beta) \bar{V}_1 \). Checking various conditions on the (possibly complex) characteristic roots \( m_1 \) and \( m_2 \), it is straightforward to show that \( \|m_1\| < 1 \) and \( \|m_2\| < 1 \) if

\(^{133}\) Although the market price is modeled as a weighted average of \( V_t \) and \( \bar{V}_t \), this does not imply that price is determined as an average of all of the bids made by the various traders. Each trader (expert or momentum) can move in or out of the market whenever he chooses, and price is determined by the actions of individual traders on the margin. In essence, \( V_t \) is the marginally determined price in a market with only expert traders, and \( \bar{V}_t \) is the marginally determined price in a market with only momentum traders. We assume that, descriptively, the marginally determined price in our composite market may be expressed as a weighted average of these two marginally determined prices.
\[ \beta \in \left( \frac{2\gamma}{1+2\gamma}, 1 \right). \]

Thus, regardless of the initial prices \( P_0 \) and \( P_1 \), the market price will converge to \( P_\infty = \mu \) as long as the "expert ratio" is sufficiently large in comparison to the sensitivity parameter \( \gamma \). Path \( B \) of Figure 1 illustrates how a sufficient number of expert traders can prevent a price bubble (that is, Path \( A \)) by selling short at time \( t = 2 \).

**Figure 1**

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APPENDIX B

We argued in Section III.B.2.b that taxes have a significant impact in disequilibrium. This Appendix makes the point more formally. The intuition is that, if profits from short sales are taxed at a higher rate than profits from long positions, optimists are more likely to trade than pessimists, and so prices rise. Assume that a share of stock can take on either of two values, $200 or zero. Assume also that there are two types of traders, and both types are risk neutral: optimists (long buyers) and pessimists (short sellers). The optimists believe that Pr{share = $200} = p_B$ and the pessimists believe that Pr{share = $200} = p_S$, where $p_B > p_S$. Assume that there are equal numbers of optimists and pessimists with access to the market ($n_B = n_S$), but not all are willing to trade at any given time. Let $N_B \leq n_B$ denote the number of optimists that are willing to trade, and let $N_S \leq n_S$ denote the number of pessimists willing to trade. The proportion of optimists that trade is given by

$$\omega_B = \frac{N_B}{N_B + N_S},$$

whereas the proportion of pessimists is given by

$$1-\omega_B = \frac{N_S}{N_B + N_S}.$$

We will assume:

1. the prevailing price in the market is set as the weighted average of the certainty equivalents (under linear utility),

$$P = \omega_B(200p_B) + (1 - \omega_B)(200p_S); \quad (A)$$

and

2. the ratio of proportions,

$$\frac{\omega_B}{1-\omega_B} = \frac{N_B}{N_S},$$

is given by the ratio of the buyers' net after-tax expected gain to the sellers' net after-tax expected gain; that is,

$$\frac{\omega_B}{1-\omega_B} = \frac{[p_B(200-P)-(1-p_B)P](1-\tau_B)}{[p_S(P-200)+(1-p_S)P](1-\tau_S)}. \quad (B)$$

Solving equations (A) and (B) simultaneously yields

$$\frac{(P-200p_S)^2}{(200p_B-P)^2} = \frac{1-\tau_B}{1-\tau_S},$$

---

134 For a discussion of the role of the weighted average in setting price in our model, see note 133.
from which it in turn follows that

\[
\frac{dP}{d\tau_B} = -\frac{1}{1-\tau_s} \left(200p_B - P\right)^3 < 0 \quad \text{and} \\
\frac{dP}{d\tau_s} = \frac{1}{1-\tau_B} \left(P - 200p_s\right)^3 > 0 .
\]

Therefore, (1) the market price decreases as the tax rate on long positions increases, and (2) the market price increases as the tax rate on short positions increases. Both of these results are anticipated by intuition.