Short-Selling as a Market Discipline Mechanism: A Survey of Academic Literature

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Short-Selling as a Market Discipline Mechanism: A Survey of Academic Literature

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Abstract

This paper presents a comprehensive review of the theoretical and empirical literature on short-selling, with a focus on its mechanisms, informational dynamics, and implications for corporate behavior. We begin by examining the theoretical foundations of short-selling, including its mechanics and the strategic role of short-sellers in financial markets. The review further explores the concept of information superiority among short-sellers, the key determinants influencing short-selling activity, and the various metrics used to capture and analyze such activity. We then synthesize existing evidence on the impact of short-selling threats on corporate governance structures—both internal (e.g., board composition, executive compensation) and external (e.g., external auditors, financial analysts). In addition, we assess how the presence of short-sellers affects corporate financial reporting transparency through its components, particularly reporting quality, private information acquisition, and the information dissemination. Finally, we extend the discussion to the broader consequences of short-selling pressure on corporate performance, encompassing both financial and non-financial dimensions such as environmental and social responsibility. Based on the reviewed literature, we identify several gaps and propose future research directions aimed at deepening our understanding of the role of short-sellers as market disciplinarians and potential sources of pricing pressure, and their overall influence on capital market efficiency and corporate decision-making.

Keywords: Short-selling, Disciplining hypothesis, Price pressure hypothesis, Financial reporting transparency, Firm performance.

1. Introduction

Investors employ a variety of strategies to benefit from market movements, irrespective of whether asset prices are rising or falling. One of the most straightforward approaches is taking a long position, whereby investors purchase stocks or bonds with the expectation that their value will increase over time, enabling them to realize gains upon subsequent sale (Guo & Chunchi, 2022). In contrast, when anticipating price declines, sophisticated investors may utilize financial derivatives such as put options, which provide the right—but not the obligation—to sell an underlying asset at a predetermined strike price within a specified period, thereby offering protection against downside risk (Chan et al., 2023). Another more direct method of profiting from falling prices is short-selling, a practice in which an investor borrows shares, sells them at the current market price, and aims to repurchase them later at a lower price to return them to the lender, thus capturing the price differential as profit (Hu et al., 2025). This mechanism, known as short-selling, plays a critical role in price discovery and market efficiency, and serves as a key focus of the present research.

Short-selling was not always a common practice in financial markets. Its origins can be traced back to 1609, when Isaac Le Maire, an investor in the Dutch East India Company, is credited with initiating the first known short-selling activity in the Netherlands. Le Maire reportedly engaged in short sales by spreading pessimistic predictions about the company's ships, suggesting they might sink or lose valuable cargo during their long voyages from the East Indies to Europe. In response to these actions, authorities imposed a ban on short-selling the following year (Bris et al., 2007). Since then, the practice has remained a subject of debate, with ongoing discussions about the efficacy of short-selling restrictions. Over time, various jurisdictions have adopted and revised policies and regulations to govern short-selling activities, reflecting evolving perspectives on its role in financial markets (Edwards et al., 2024).

Short-selling remains a highly controversial practice in financial markets. Proponents argue that it plays a crucial role in promoting market efficiency by enhancing price discovery, improving liquidity, and contributing to the overall functioning of capital markets and the real economy. By allowing investors to act on negative information, short-sellers help incorporate unfavorable firm-specific insights into stock prices, which can lead to more accurate asset valuation (Chen et al., 2016; Henry, 2019). This corrective mechanism is particularly valuable when firms are perceived as overvalued, enabling market prices to reflect a broader set of available information.

Conversely, critics contend that short-selling may harm market stability and investor confidence. Concerns persist that speculative short-selling activities can reduce market liquidity and potentially destabilize prices, especially during periods of financial stress (Ljungqvist & Qian, 2016; Liu, 2015; Brunnermeier & Oehmke, 2014). One notable issue is the potential for abuse, where short sellers may engage in manipulative practices such as spreading false or misleading information about a company to drive down its stock price and profit from the decline (Karpoff & Lou, 2010). These contrasting perspectives underscore the ongoing debate regarding the net impact of short selling on market integrity and efficiency.

During periods of financial market distress or heightened uncertainty, regulatory authorities often impose restrictions on short-selling, perceiving it as a potential source of instability. As a result, short-selling bans and constraints have been intermittently enforced for nearly as long as organized stock exchanges have existed. However, empirical studies and academic research suggest that such interventions are largely ineffective in curbing market declines. Rather than stabilizing prices, these restrictions frequently impair market quality, reducing liquidity, increasing bid-ask spreads, and distorting price discovery. This trend has been particularly evident during major financial crises, including the global market turmoil triggered by the COVID-19 pandemic (Bessler & Vendrasco, 2022; Lin et al., 2022; Ferreruela & Martin, 2022; Beber & Pagano, 2013; Bohl et al., 2016; Frino et al., 2011). For instance, Clifton & Snape (2008) found that following the imposition of a short-selling ban, bid-ask spreads in restricted stocks increased by 140%, compared to only a 56% rise in control stocks. Moreover, the spread widening in prohibited stocks was 150% greater than that observed in unrestricted counterparts.

Despite regulatory skepticism, short-selling remains a significant component of modern financial markets, accounting for approximately one-quarter of daily trading volume in U.S. equity markets. Managers are highly sensitive to their firm’s stock price in the secondary market and are strongly incentivized to maintain or enhance it (Chen et al., 2018). Given that short-sellers contribute to price efficiency, they also serve as a market-based disciplinary mechanism. By exerting downward pressure on stock prices when managerial decisions are perceived as value-destroying, short-sellers discourage opportunistic behavior and promote accountability (Deng et al., 2020). Consequently, the threat of short-selling can act as a deterrent against poor corporate governance and help mitigate agency conflicts between managers and shareholders (Guan et al., 2022).

This review is motivated by the growing influence of short-selling in modern financial markets and the ongoing debate over its broader implications for corporate behavior and market efficiency.

First, there is increasing recognition of short-sellers as external monitors who may enhance corporate governance by exposing managerial inefficiencies or misconduct. However, the extent to which they fulfill this role consistently across various institutional and regulatory environments remains an open question.

Second, short-selling also has important implications for the integrity and transparency of financial reporting. Through its effects on reporting quality, private information gathering, and the timeliness and accuracy of public disclosures, short-selling pressure can shape the credibility and usefulness of corporate financial statements. Nevertheless, empirical evidence in this area is mixed, calling for a more integrated analysis of the available findings.

Third, while much of the existing literature focuses on the financial consequences of short-selling, relatively little attention has been devoted to its impact on non-financial dimensions of corporate performance, particularly environmental and social outcomes. In light of the rising emphasis on ESG (Environmental, Social, and Governance) factors, it is increasingly relevant to examine whether short-selling incentives align with—or undermine—a firm's commitment to long-term sustainability goals.

In light of these issues, this review aims to identify key gaps in the current literature and propose directions for future research. By integrating theoretical and empirical insights from multiple perspectives, it seeks to contribute to a more comprehensive understanding of short-selling's evolving role in capital markets and its influence on corporate decision-making.

The remainder of the review is structured as follows: *Section 2* explores the motivations driving short-selling activity, delving into its mechanics and the types of information leveraged by short-sellers. It also investigates the characteristics of stocks typically targeted and the key metrics employed in empirical studies. *Section 3* evaluates the dynamics of short-selling by weighing its advantages—such as enhancing market efficiency, facilitating price discovery, and its disciplinary role—against potential drawbacks, including increased market and recall risk, volatility, and risks of manipulation. *Section 4* synthesizes empirical findings on the real-world impacts of short-selling, focusing on its influence on corporate governance reforms, financial reporting transparency across critical dimensions (e.g., the quality of corporate financial reporting, the acquisition of private information, the dissemination of information), and implications for firm performance. *Section 5* identifies existing gaps and limitations in current research while offering recommendations for future inquiry. *Section 6* presents conclusions for this review.

2. Short-Selling: A Comprehensive Conceptual Framework

2.1. Why Investors Go Short: A Closer Look

Short-selling is a financial strategy where investors borrow shares and sell them, hoping to buy them back later at a lower price and profit from the difference. There are several reasons why investors engage in short-selling (Alaminos et al., 2024; Guo &Wu, 2022; Hackney et al., 2020; Khan, 2024). One common reason is *speculation* —investors bet that a stock's price will fall because of poor company performance, bad news, or economic concerns (Bessler &Vendrasco, 2022). While this can be profitable if the price drops, it's risky because if the price rises instead, losses can be huge since there's no limit to how high a stock can go (Deng et al., 2021). Some also worry that aggressive short-selling might manipulate markets by pushing prices down unfairly (Gao et al., 2025).

Another reason is *hedging*, which is like insurance for investment portfolios. Institutional investors often use short positions to protect against potential losses in their other investments (Khan, 2024). For example, if they own many tech stocks but expect a market drop, they might short-sell tech-related assets so that any losses in their main holdings are balanced by gains in the short positions. *Arbitrage* is another motive, where investors take advantage of price differences between related assets (Jiang et al., 2022). They might, for instance, buy a stock that seems cheap while shorting a similar one that looks expensive, expecting the prices to eventually align and create a profit.

Lastly, some investors use short-selling for *tax purposes*, especially near the end of the year. By shorting a stock they already own, they can delay paying taxes on any gains while still locking in profits (Guo &Wu, 2022). However, this depends heavily on the tax laws of the country—some places, like Egypt, don't really support such strategies due to their current tax system and limited short-selling mechanisms. Overall, short-selling plays an important role in *making markets more efficient* by helping set accurate prices, adding liquidity, and allowing investors to manage risk.

2.2. Mechanics of the Short-Selling Process

In a typical short-sale, the investor borrows shares from current stock owners for a fee and then sells the shares at the current stock price in the open market. At a future date, the investor closes the short position by buying back the shares in the open market and then returning the shares to the lender (jiang et al, 2020; Anufriev et al., 2013). Therefore, it constitutes a speculative undertaking enabling one to capitalize on market downturns, profiting from declining prices.

The short-selling process is carried out through six main steps (Taulli, 2004):

1. *Establish a Margin Account*: To engage in short-selling, an investor must first open a brokerage account that permits trading on margin. This type of account enables the investor to borrow assets from the broker.

2. *Conduct Market Research*: The investor identifies a company whose performance appears to be deteriorating. Despite weak fundamentals, the stock price remains high, suggesting that it may be overvalued relative to its intrinsic value.

3. *Initiate the Short Sale Order:* The investor contacts the broker or places an order through their online trading platform to initiate a short sale of selected stocks of the targeted company.

4. *Borrowing stocks*: The broker attempts to locate stocks available for borrowing. This is typically done by checking other client accounts under margin agreements. If shares are found, they are borrowed. If not, the broker seeks shares from external institutions or custodians. In some cases, a borrowing fee may apply. If no shares are available, the short-sale cannot proceed.

5. *Sell the Borrowed Stocks*: Once the stocks are successfully borrowed, the broker sells them at the current market price. The proceeds from this sale are then held in an escrow account.

6. *Covering the Position*: When the stock price declines, the investor instructs the broker to "cover" the short position by repurchasing the same number of shares that were sold. These stocks are then returned to the original lender (typically a client or institution). Short-selling profits are calculated by the difference between the initial selling price and the lower buyback price, minus any fees or interest incurred during the transaction. However, if the stock price rises instead of falling, the investor incurs a loss upon closing the position.

The short-selling process involves three primary participant groups: securities lenders, securities borrowers (short-sellers), and agent intermediaries (broker) (Carroll & Clarke, 2014). Securities lenders are typically large institutional investors such as mutual funds, pension funds, and insurance companies that own shares and are willing to lend them for a fee. These lenders provide the borrowed stock necessary for executing a short sale. On the other hand, securities borrowers are short-sellers—often hedge funds—who seek to profit from an anticipated decline in a stock's price. Finally, agent intermediaries act as facilitators, including entities such as broker-dealers. These intermediaries assist in locating available shares for borrowing, executing the sale of those shares in the market, and managing the eventual return of the borrowed securities.

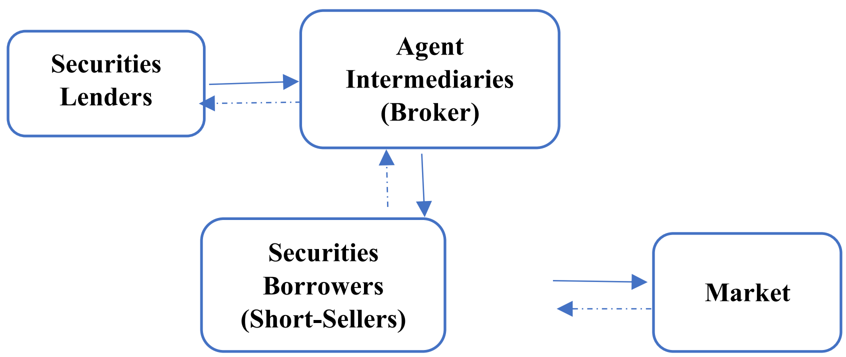

Figure 1. Short Selling Mechanism Process
Source: Prepared by the researchers

2.3.Types of Short-Selling

Short-selling is broadly classified into two main types: covered and non-covered short-selling (Geracia et al., 2018), which differ primarily in their execution methods and regulatory treatment. Covered short-selling, the more common and regulated form, occurs when an investor borrows the security from a broker before selling it in the open market by establishing a stock lending transaction (repurchase agreement (repo)). This traditional approach ensures the seller can deliver the shares to the buyer, as the borrowed shares serve as collateral. Most financial markets permit covered short-selling under strict reporting requirements, as it contributes to price discovery and market liquidity while posing relatively lower systemic risks (Jiang et al., 2022). Institutional investors and hedge funds often employ covered short selling as a hedging strategy or to capitalize on anticipated price declines.

In contrast, uncovered short-selling involves selling shares without first borrowing them or confirming their availability (Evans et al., 2019). This practice carries significantly higher risks, as the seller may fail to deliver the promised shares to the buyer by the settlement date, resulting in a failure to deliver (FTD) (Stratmann &Welborn, 2016). Due to its potential to artificially depress stock prices and facilitate market manipulation through "bear raids," uncovered short-selling is heavily restricted or outright banned in most jurisdictions, including under SEC Rule 204T in the United States and the EU Short-Selling Regulation (Howell, 2016). The 2008 financial crisis highlighted its dangers when uncovered short-selling was implicated in the rapid decline of financial stocks, prompting global regulatory crackdowns. While market makers may be exempt from uncovered shorting prohibitions to maintain liquidity, the practice remains controversial and subject to stringent oversight to prevent market abuse and protect investor confidence.

The distinction between these two forms carries significant implications for market stability and regulatory policy. Covered short-selling, when properly regulated, serves legitimate market functions by improving price efficiency (Li et al., 2018) and allowing investors to express negative views on overvalued securities (Chen et al., 2020). However, the unconstrained nature of uncovered short-selling can exacerbate volatility and undermine market integrity (Lecce et al., 2012), leading most regulators to implement strict borrowing requirements and settlement rules. Academic research suggests that while short-selling restrictions may temporarily reduce volatility, they can also impair market quality by limiting informed trading, highlighting the delicate balance regulators must strike between preventing abuse and maintaining efficient markets (Helmes et al., 2017). The ongoing evolution of short-selling regulations continues to reflect this tension, particularly in emerging markets where financial systems may be more vulnerable to speculative pressures.

Table 1. The Differences Between Covered and Uncovered Short-Selling

	Covered Short-Selling	Uncovered Short-Selling
Securities borrowed?	Yes	No
Delivery Guarantee	Yes	No
Settlement Risk	Low (shares secured)	High (risk of FTDs)
Legality	Legal and regulated	Often illegal or restricted
Market Impact	Price discovery & liquidity	Artificial price drops
Usage	Hedging, speculation	Can be used for manipulation

Source: Prepared by a researcher based on previous literature

2.4. The Information Source of Short-Selling

The academic literature identifies two primary perspectives to explain the superior stock valuation ability of short-sellers: the public information perspective and the private information perspective. These viewpoints reflect the different channels through which short-sellers obtain and exploit information to identify mispriced securities and generate profits. (Anderson et al., 2012; Christophe et al., 2010).

2.4.1. Public information perspective

Short-sellers are highly sophisticated investors capable of processing publicly available information more efficiently. These investors often conduct fundamental analysis to identify firms whose market prices significantly exceed their intrinsic values. By analyzing accounting data and comparing fundamental-to-price ratios, short-sellers identify overvalued stocks likely to experience downward corrections. Empirical studies support this perspective, showing that short-sellers tend to target firms with temporarily inflated valuations and subsequently close their positions as prices revert to more reasonable levels (Cheng et al., 2012; Dechow et al., 2001). This behavior underscores their analytical superiority in leveraging publicly accessible financial information to inform trading decisions (Deshmukh et al., 2015).

2.4.2. Private information perspective

Complementing the public information view, short-sellers often possess access to non-public or non-financial information that grants them an informational edge. This advantage may stem from networks, industry expertise, or information leakage, enabling them to anticipate negative events before they are publicly disclosed. Several studies have documented short-sellers’ ability to identify firms likely to suffer adverse disclosures, such as financial misconduct (Karpoff & Lou, 2010), accounting restatements (Desai et al., 2006), credit rating downgrades (Henry et al., 2015), analyst downgrades (Christophe et al., 2010; Meng et al., 2017), large insider sales (Chakrabarty & Shkilko, 2013), private placements (Berkman et al., 2017), and asset write-downs (Liu et al., 2012). These actions suggest that short-sellers often act on signals that precede negative announcements, enabling them to strategically build positions in advance.

In particular, Anderson et al. (2012) find that short-selling based on private information is more pronounced in family-controlled firms, where information leakage is more likely to occur. This leakage can result in informed trading prior to key corporate events such as earnings announcements, indicating that the short-sellers' informational advantage extends beyond publicly available data. Therefore, short-sellers' informational advantages can arise from both the superior processing of public information and access to private or non-public insights. These dual channels enhance their ability to identify overvalued stocks and play a central role in improving market efficiency by incorporating adverse information into stock prices before it becomes widely known.

2.5. Determinants of Short-Selling Activity

Short-selling activity is influenced by a variety of firm-specific and market-level factors that shape the incentives and constraints faced by short-sellers. Prior research has identified several key determinants (Linnertová, 2015; Zhang, 2014), which are discussed below:

2.5.1. Market-Level Determinants

1. Equity lending supply (LS): The availability of borrowable shares fundamentally constrains short-selling activity. Tsai et al. (2021) demonstrate that limited LS creates a "shorting constraint," where the potential profits may not justify the costs of information production and borrowing. Conversely, abundant LS incentivizes informed traders to conduct deeper fundamental analysis, uncover hidden agency problems, and accelerate price correction toward intrinsic value.

2. Market conditions: In economic downturns (bear markets), short-selling activity increases as investors seek to profit from or hedge against falling stock prices. In contrast, bullish periods or strong market momentum may reduce short-selling as the risk of losses from upward price movements increases (Wang &Wang, 2023).
3. Regulatory Environment: Governments and financial regulators may impose short-sale bans or implement circuit breakers during periods of extreme market volatility to prevent excessive downward pressure on stock prices. Moreover, requirements like the "uptick rule" (Dercole & Radi, 2020) or mandatory disclosure of short positions in developing countries (Jank et al., 2021). These regulations can temporarily reduce shorting activity.

2.5.2. Firm-Level Determinants

1. Valuation Mispricing: Overvalued stocks are often prime targets for short-sellers who anticipate a future decline in price. When a company's market value appears disproportionately high relative to its fundamental metrics, short-sellers view it as an opportunity to profit by betting on a correction (Fernando et al., 2024). Common indicators of potential overvaluation include elevated price-to-earnings (P/E) ratios, high market-to-book (M/B) ratios, and signs of earnings manipulation or aggressive accounting practices. As a result, such stocks tend to attract higher levels of short interest as investors seek to capitalize on perceived mispricings in the market.
2. Stock Characteristics (Jiang et al., 2022):
   - Liquidity: More liquid stocks are easier to short-sell due to the ease of borrowing and trading.
   - Volatility: Highly volatile stocks may attract short-sellers seeking larger price swings.
   - Analyst Coverage: Lower analyst coverage can increase uncertainty, which in turn can lead to higher short interest (Zhu et al., 2021)
3. Corporate Governance: Weak governance structures (e.g., poor board oversight, lack of independence) can lead to higher short interest (Rahman et al., 2021).

2.6. Short-Selling Metrics

Short-selling activity is commonly quantified using a variety of financial metrics designed to capture the intensity and implications of short-selling activity (i.e., investor sentiment, market expectations, and potential price movements) in financial markets. Among the most widely adopted metrics is the Short-Interest Ratio (SIR), which reflects the proportion of shares sold short relative to shares outstanding (Purnanandam & Seyhun, 2018; Shkilko et al., 2012; Boehmer et al., 2010). Another common indicator is the Days-to-Cover Ratio, which divides short interest by average trading volume to estimate the number of days required to cover all short positions. Both measures are used to detect bearish outlooks and assess the potential for short squeezes (Guo & Wu, 2022). However, these foundational indicators often require further refinement to isolate meaningful patterns from broader market trends or firm-specific characteristics.

To improve the precision of analysis, several advanced measures have been developed in the literature. These include the Equal-Weighted Short-Interest (EWSI), which aggregates and detrends short-interest data to reflect market-wide pessimism (Rapach et al., 2016), and the Residual Short-Interest metric, which controls for institutional ownership and hedging motives. Standardized measures are also used to capture abnormal deviations from historical norms of short-selling. Additionally, event-driven metrics such as Abnormal Short Turnover are employed to detect spikes in short interest around corporate disclosures or critical announcements (Chen et al., 2016).

In cases where the ex-ante effect of short-selling or short-selling threats is being measured, many studies employ a dummy variable (taking the value of 1 when short-selling is permitted or expected, and zero otherwise) (Zhou et al., 2023; Bui et al., 2023). This method is particularly beneficial in data-constrained environments, where detailed transactional data is not readily available, especially in emerging markets where the short-selling mechanism is newly introduced.

Table 2. Measures of Short-Selling

Measure	***Formula / Method***	***Interpretation***	***Key Advantages***	***Limitations***	***Key References***
Short-Interest Ratio (SIR)	$\frac{\text{Shorted Shares}}{\text{Shares Outstanding}}$	Indicates market bearishness; high SIR suggests negative future returns	Stable, less volatile	Does not account for trading volume	Boehmer et al. (2010); Purnanandam & Seyhun (2018)
Days-to-Cover Ratio	$\frac{\text{Shorted Shares}}{\text{Average Daily Tradin Volume}}$	Estimates how many days it would take for short sellers to cover positions; a high ratio signals a potential short squeeze	Forward-looking; captures liquidity risk	Sensitive to volume spikes	Guo & Wu (2022)
Equal-Weighted Short-Interest (EWSI)	Average of SIR across all stocks; then detrended: $log(EWSI_t) = \alpha + \beta TREND_t + u_t$ *TREND signifies the time-related trend variable.*	Captures overall market pessimism and predicts aggregate stock returns	Removes secular trends	Lacks firm-specific granularity	Rapach et al. (2016)
Residual Short-Interest	SIR= β_0+β_1 IO+β_2 CONVERT+β_3 TREND+ ξ The measure = residual *IO stands for institutional ownership, while CONVERT is a binary variable that equals one when a company possesses*	Filters out non-information-based shorting; reflects private negative information	Controls for hedging motives	Complex estimation	Bao et al. (2019)

	convertible bonds or convertible preferred stock, and zero otherwise.				
Standardized Short Interest	$\text{Short interest} = \frac{\left(\frac{SI}{SO}\right)_t - \mu\left(\frac{SI}{SO}\right)}{\sigma\left(\frac{SI}{SO}\right)}$ *SI/SO represents the normalized short-interest ratio.*	Standardizes SIR against the historical average to detect abnormal activity.	- Identifies statistically abnormal shorting activity - Comparable across stocks/markets	- Requires sufficient historical data - Assumes normal distribution of SIR	Purnanandam & Seyhun (2018)
Abnormal Short Turnover	$\text{Abnormal short turnover}_{i.t} = \frac{\text{short volume}_{i.t}}{\text{trading volume}_{i.t}} - \frac{\text{average short volume over }(t-40.t}{\text{average trading volume over}(t-40.t}$	Detects unusual shorting behavior linked to specific corporate events (e.g., earnings, scandals)	-Isolates event-driven shorting -Controls for stock-specific liquidity patterns	Requires clean event windows	Chen et al. (2016)

Source: Prepared by the researchers

This situation applies to Egypt, where comprehensive data on short-selling activity is not publicly available. Therefore, this study will rely on the use of a dummy variable serving as a proxy for the presence of short-selling mechanisms in the market. These measures collectively offer a comprehensive view of short-selling dynamics and their implications for financial markets. Table 2 summarizes these measures, their applications, and key methodological considerations for empirical analysis.

3. Analysis of Short-Selling: A Dual-Edged Mechanism

Short-selling remains one of the most debated practices in financial markets. On the one hand, it serves as a powerful tool that enhances market efficiency by correcting overvaluations, increasing liquidity, and exerting external pressure on corporate governance. On the other hand, it carries inherent risks, including the potential for unlimited losses, vulnerability to short squeezes, and concerns over market manipulation. This section explores the dual nature of short-selling, weighing its contributions to price discovery and managerial oversight against its possible threats to market stability and investor confidence.

3.1. Market Benefits of the Short-Selling Mechanism

A growing body of empirical literature affirms the value-enhancing role of short selling in modern capital markets. By enabling investors to profit from anticipated price declines, short-selling contributes to the correction of overvalued assets, fosters liquidity, and promotes sound corporate governance through external monitoring. The following subsections elaborate on the specific dimensions of these benefits.

3.1.1. Price Efficiency Benefits

Short-selling significantly contributes to the informational efficiency of markets by facilitating the timely incorporation of both positive and negative information into asset prices. Short-sellers are typically informed traders who act on value-relevant insights that may not yet be fully reflected in market valuations (Jiang et al., 2022). Through their trading activities, they help bring stock prices closer to their intrinsic values, often by revealing fundamental weaknesses overlooked by overly optimistic investors. In this context, short selling acts as a corrective mechanism that enhances pricing accuracy and transparency (Fan & Gao, 2024; Diamond & Verrecchia, 1987; Dixon, 2021; Strych, 2022).

3.1.2. Liquidity Benefits

Theoretical and empirical studies suggest that allowing short-selling results in narrower bid-ask spreads and reduced price impact, both of which signify greater liquidity. This occurs because short-selling facilitates the dissemination of negative information that might otherwise be delayed, thus reducing information asymmetry for market makers. Conversely, restrictions on short-selling tend to widen spreads and increase trading costs, undermining market quality (Beber & Pagano, 2013; Ye et al., 2020). Therefore, short selling plays a critical role in maintaining deep, liquid, and well-functioning markets.

3.1.3. Corporate Governance Benefits

Beyond its pricing and liquidity effects, short-selling also serves an important governance function by acting as a market-based disciplinary mechanism. Short-sellers have strong incentives to uncover and publicize managerial inefficiencies, fraud, or strategic missteps, as these may lead to declines in stock prices from which they can profit (Massa et al., 2015; Fang et al., 2016; Lu et al., 2024). The threat of short interest increases scrutiny of management practices and accelerates the exposure of corporate misconduct, thereby deterring opportunistic behavior. Empirical evidence suggests that this external monitoring reduces agency problems and strengthens the accountability of corporate executives (He et al., 2024). In this sense, short-selling complements other market mechanisms that enforce managerial discipline, enhancing the overall governance framework within firms.

3.2. Risks of Short-Selling

Despite its strategic potential, short-selling remains a high-risk investment approach that can expose market participants to substantial financial losses and broader systemic concerns (Asness, 2004). While it does not require an initial capital outlay like traditional long positions, it introduces a unique risk profile that can affect both individual investors and the stability of financial markets. The following subsections outline the major risks associated with short-selling.

3.2.1. Market (Downside) Risk

Market risk is perhaps the most direct and significant danger in short-selling. This arises from the inherent unpredictability of asset price movements. Short-sellers engage in this strategy expecting a decline in the value of the borrowed securities; however, if prices rise instead, they are exposed to potentially unlimited losses

(Fan & Gao, 2024; Engelberg et al., 2018). Unlike long investors, whose maximum loss is limited to their initial investment, short-sellers can lose multiples of their capital since there is no cap on how high a stock price can rise (Allen et al., 2025). To manage this risk, traders often employ stop-loss orders, which automatically close out positions once a pre-defined price threshold is reached, thereby capping potential losses (Liston et al., 2024).

3.2.2. Recall Risk

Recall risk arises from the borrower-lender relationship inherent in short-selling transactions. Securities borrowed for short selling can be recalled at any time by the lender (Glover & Hulley, 2022). If a broker cannot locate alternative shares for lending, the short-seller may be compelled to cover the position prematurely, often by repurchasing the stock at an unfavorable price. Such forced closures, particularly in volatile or illiquid markets, can trigger significant losses. This phenomenon, known as a short squeeze or market corner, becomes especially acute when many short-sellers are forced to exit simultaneously, driving prices sharply upward (Engelberg et al., 2018; Schultz, 2024; Stice-Lawrence et al., 2025).

3.2.3. Liquidity Risk

Liquidity risk refers to the possibility that a short-seller may be unable to buy back shares to close a position due to insufficient market supply. In conditions of low trading volume or reduced availability of lendable shares, short-sellers may face difficulties in executing trades at reasonable prices—or at all (Wang et al., 2017). This lack of liquidity heightens the risk of large losses or default, particularly in stressed market environments (Chague et al., 2017). Liquidity constraints can compound other risks and increase the volatility of financial outcomes associated with short-selling positions.

3.2.4. Market Abuse and Manipulation

Short-selling also carries reputational and regulatory risks due to its potential for abuse. In particular, it may facilitate manipulative practices, such as the intentional dissemination of false or misleading information to depress stock prices and profit from ensuing panic (Gao et al., 2025). Such unethical behavior undermines market integrity and investor confidence. Although most short-sellers operate within legal boundaries, instances of abuse have prompted calls for stricter oversight and transparency in short-selling activities to curb potential market distortions.

3.2.5. Market Instability and Systemic Risk

A more systemic concern is posed by uncovered short-selling, in which sellers execute trades without first borrowing the securities. These transactions can be conducted rapidly, at lower costs, and in high volumes, intensifying downward price momentum and increasing the risk of delivery failure (Evans et al., 2019). During periods of heightened market stress, uncovered short-selling may amplify price declines, create settlement disruptions, and raise the likelihood of widespread default. Such instability can weaken market functioning, increase transaction costs, and reduce investor participation (Howell, 2016). The extent of this risk largely depends on the effectiveness of regulatory safeguards and enforcement mechanisms in place (Jain et al., 2012).

Therefore, while short-selling serves important market functions, it exposes participants to a spectrum of financial and systemic risks that warrant careful management and regulatory scrutiny. These risks underline the need for robust oversight, risk mitigation strategies, and investor awareness in short-selling practices.

4. Literature Review

4.1. Competing Perspectives on the Impact of Short Selling

4.1.1. The Disciplining Hypothesis

This hypothesis suggests that the presence of short-sellers plays a monitoring role in financial markets (Jain, 2025; Shi et al., 2021; Wang et al., 2022; Clinch et al., 2019). Short-sellers, driven by the prospect of profiting from overvalued stocks, have a strong incentive to uncover and publicize corporate misconduct, including earnings manipulation. Their activity increases market scrutiny and enhances price informativeness, thereby raising the probability that managerial manipulation will be quickly detected. As a result, managers face higher reputational and financial risks if they engage in deceptive practices. The increased likelihood of detection, due to the presence of informed short-sellers, acts as a deterrent. Under this hypothesis, short-selling contributes positively to financial reporting quality by discouraging earnings management and encouraging greater transparency.

4.1.2. The Price Pressure Hypothesis

In contrast, this hypothesis views short-selling as a potential source of negative pressure that may incentivize undesirable managerial behavior (Yao, 2022; Meng et al., 2020; Lasser et al., 2010). The argument is that short-selling can amplify price declines, particularly when firms underperform or are close to missing earnings expectations. This added pressure may create an environment in which managers feel compelled to manipulate earnings not to deceive investors for private gain, but to avoid triggering further negative attention and stock price drops fueled by short-sellers. Essentially, the fear of a bear raid or an aggressive downward price movement can push managers to engage in earnings management as a defensive strategy. Under this hypothesis, short-selling may indirectly encourage manipulation, thereby reducing the quality of financial reporting.

4.2. The Impact of Short-Selling on Corporate Governance

4.2.1. Short-Selling and Internal Corporate Governance

A growing body of literature has examined the influence of short-selling on capital markets, with recent studies expanding the scope to consider how these market mechanisms affect corporate behavior and managerial decision-making. The findings consistently highlight the role of short-selling as a disciplinary force that impacts not only internal managerial choices but also decisions made by external stakeholders (Chang et al., 2019; Fang et al., 2016; Grullon et al., 2015; Massa et al., 2015). In addition, research indicates a positive correlation between short-selling activity and the strength of corporate governance frameworks. This includes features such as independent board structures (Mishra et al., 2021; Rahman et al., 2021), enhanced internal controls (Chen et al., 2019; Singer et al., 2018), more effective managerial incentive schemes (DeAngelis et al., 2017), and greater accountability among various market participants (Hope et al., 2017; Chun & Yang, 2021).

Short-sellers often rely on either publicly available or privately obtained information to take short positions ahead of earnings announcements, targeting stocks they anticipate will perform poorly in the future. Given that one of the board of directors' key responsibilities is to safeguard shareholder interests by ensuring a transparent and fair information environment around significant corporate events, it is expected that such transparency would prevent short-sellers from earning abnormal profits at the expense of less-informed market participants (Mishra et al., 2021). Consequently, effective board oversight—particularly when provided by independent directors—should enhance disclosure quality and limit the informational advantage of short sellers. This improved transparency is expected to reduce their ability to accurately anticipate earnings surprises before official announcements are made.

DeAngelis et al. (2017) examine how short-selling pressure influences the design of managerial incentive contracts. Their findings suggest that firms facing increased short-selling activity are more likely to award stock options to top executives and incorporate new anti-takeover provisions into compensation agreements. The authors argue that increased scrutiny of short-selling leads to more reflective stock prices, thereby improving the alignment between performance and executive compensation. They suggest that the rise in anti-takeover provisions following Reg SHO is a response to short-sellers' attacks —often referred to as "bear raiders"—driving down stock prices, which in turn heightens career risks for managers. Such provisions help mitigate these concerns by offering greater job security to executives (Edmans et al., 2012). Similarly, Bennett & Wang (2018) and Kunzmann & Meier (2018) find that short-selling increases the probability of forced CEO turnover, either by revealing unfavorable information or through strategic manipulation of stock prices.

The importance of internal control in addressing agency issues and enhancing corporate governance has grown significantly. firms facing high levels of information asymmetry or those with material weaknesses in internal control (ICMWs) are frequently targeted by short-sellers (Singer et al., 2022). Chen et al. (2019) explore the role of short-selling as a governance mechanism by examining its impact on internal control quality. Using a difference-in-differences methodology, they find that firms newly exposed to short-sale risk tend to strengthen their internal control systems, particularly in relation to the internal environment and monitoring processes. These improvements suggest that managers may respond proactively to the threat of short-selling (ex-ante short-selling pressure) by enhancing internal controls, aiming to boost financial reporting reliability and reduce their vulnerability to being shorted.

4.2.2. Short-Selling and External Corporate Governance

Short-selling can provide valuable benefits to various stakeholders in the financial market. Pownall & Simko (2005) suggest that in situations where a company receives limited analyst coverage, short-sellers can serve as alternative sources of information, acting as intermediaries who uncover and disseminate relevant insights. In a study on the risks associated with overvalued stocks, Jensen (2005) argues that compensation and audit committees may benefit from engaging with short-sellers who have taken positions against the firm, as these investors often possess critical perspectives on the company's management and strategic direction. Furthermore, Cassell et al. (2011) find that auditors take into account signals from short-selling activity when setting audit fees. This indicates that short-sellers contribute unique information regarding the risk of financial misreporting, beyond what is already known to auditors. This is consistent with (Chun &Yang, 2021), which finds that short-selling is positively associated with higher current audit fees, audit hours, and audit quality, indicating increased auditor effort.

Financial analysts play a crucial role as information intermediaries in capital markets. Their earnings forecasts significantly influence investor expectations, shape investment behavior, and impact stock price movements. However, analysts are not always neutral information providers; they may face conflicts of interest, particularly when issuing optimistic forecasts to support trading activity or maintain favorable relationships with corporate clients involved in underwriting or advisory services. In response to short-selling pressure on the stocks they cover, some analysts may amplify their optimistic bias as a strategy to defend the stock and retain client favor.

Despite these incentives, recent studies suggest that short-selling can mitigate analyst bias by enhancing the overall information environment. Hou et al. (2021) find that analysts incorporate the negative information uncovered by short-sellers into their forecasts, leading to a notable decline in forecast optimism. This indicates that short-sellers serve as an important source of credible, value-relevant information that analysts use to refine their predictions. These findings are consistent with Ke et al. (2023), who demonstrate that increased accessibility to short-selling leads to higher-quality analyst earnings forecasts—marked by reduced forecast bias and improved accuracy. The improvement in forecast quality can be attributed to two main mechanisms. First, the presence of short-sellers exerts a disciplinary effect on firms and market participants by increasing scrutiny and reducing opportunities for earnings management or selective disclosure. Second, short-selling contributes to greater price efficiency by accelerating the incorporation of new and relevant information into stock prices, which in turn enhances analysts' ability to form accurate expectations. Together, these effects highlight the broader role of short-selling in improving the informational efficiency of financial markets and supporting more informed analyst research.

Table 3. Summary on the Impact of Short-Selling on Corporate Governance

Mechanism	Findings	References
Internal Corporate Governance Mechanism		
Board Oversight	- **Transparent information environments, supported by independent directors, reduce the informational advantages of short-sellers.**	**Mishra et al. (2021)**
Executive Compensation Design	- **Increased short selling leads to more stock option-based pay and anti-takeover provisions to protect executives.** - **Helps align performance with compensation** - **Increases job security for managers facing short-seller-driven price drops.**	**DeAngelis et al. (2017); Edmans et al. (2012); Kunzmann & Meier (2018)**
CEO Turnover and Accountability	**Higher probability of forced CEO turnover due to exposure of negative information or price manipulation.**	**Bennett & Wang (2018); Kunzmann & Meier (2018)**
Internal Control and Risk Mitigation	**Short-selling targets firms with weak controls; exposed firms respond by strengthening internal control systems.**	**Singer et al. (2018); Chen et al. (2019)**
External Corporate Governance Mechanism		
External auditor	- **Short-sellers provide unique signals about financial misreporting risk.** - **Short-selling is linked to higher audit fees, audit hours, and better audit quality.**	**Cassell et al. (2011); Chun & Yang (2021)**
Financial Analysts	- **Short-selling improves forecast accuracy and reduces bias by enhancing the information environment.** - **Analysts incorporate short-seller insights into forecasts**	**Hou et al. (2021), Ke et al. (2023)**

Source: Prepared by the researchers

4.3. Short-Selling and Financial Reporting Transparency

The research presents a literature review examining the effect of short-selling on financial reporting transparency, focusing on its components: *the quality of corporate financial reporting, the acquisition of private information, and the dissemination of information*.

4.3.1. Short-Selling and the Quality of Corporate Financial Reporting

Lu et al. (2024) state that managers use disclosure tone (bad and good news) to convey a signal of private information and use it as a manipulation tool to manage investors and analysts' expectations by employing an overly optimistic or overly pessimistic tone, or by structuring their tone. Managers are motivated to conceal or delay negative news (Selmy & El-Giziry, 2016), but short-selling has the potential to influence these motivations in two ways (Clinch et al., 2019). *Firstly,* short-sellers, who are informed traders, help incorporate negative news into stock prices more swiftly. Additionally, an increase in short interest is often linked to significant negative returns in the future and tends to precede various negative corporate events. Therefore, changes in short interest can convey fresh information to the capital markets about the company, prompting investors to revise their beliefs. Since short-sellers and managers likely possess overlapping information, the advantage of managers withholding bad news diminishes as some of their information is already reflected in prices through the actions of short-sellers.

Secondly, prior research highlights the significance of litigation and reputational costs in managers' decisions regarding the disclosure of bad news. Managers find it advantageous to withhold bad news when there is uncertainty about whether the company possesses private information. However, if short-selling causes prices to reflect some of the bad news already known to managers, it becomes more challenging for managers to claim ignorance of that bad news. Consequently, if managers choose to withhold bad news, the likelihood of detection and subsequent higher litigation and reputational costs increases. When these two effects—a reduction in benefits and an increase in costs associated with withholding bad news—are combined, it suggests that short-selling encourages firms to disclose bad news more extensively and promptly (Fang et al., 2016; Hope et al., 2017; Karpoff & Lou, 2010; Massa et al., 2015).

Short-sellers not only help incorporate bad news in stock prices, as documented in prior research (e.g., Boehmer & Wu, 2013), but also indirectly help bring good news forward. While the former mechanism operates through short-sellers' information acquisition and trading, the latter occurs due to managers' incentives to discourage short-sellers, which refers to ex-ante pressure of short-selling that helps in improving the quality of information disclosure (Zhou, 2023). This previous support the disciplinary role of short-selling. However, there are also studies that find short-selling threat induces managers to withhold bad news and manipulate earnings to keep up the stock price. Bao et al. (2019) find a consistent negative relation between bad-news disclosure and residual short interest, suggesting that managers withhold bad news under short-selling pressure.

Considering the quality of disclosed information through the characteristics of financial information. The demand for precise and accurate financial information has significantly risen in emerging markets, particularly following a series of accounting fraud cases in recent years. Massa et al. (2015) examine the effect of short-selling on earnings management and find that short-selling can constrain firms' incentives to manipulate or misrepresent earnings through measuring discretionary accruals management. In a related context, a study conducted by Jiang et al. (2020) examined the relationship between threats of short-selling mechanisms and real earnings management on an international level, utilizing data from 22 countries spanning the period from 2003 to 2015. The study found that threats from short-selling mechanisms restrict real earnings management practices, especially in countries with weak shareholder protection. This study aligns with the findings of another study by Park (2017), which emphasizes the supervisory role played by short-selling mechanisms in operational decisions and earnings quality. It concluded that companies engaging in real earnings management face attacks from short-sellers, and this relationship is more pronounced and impactful when the costs associated with earnings management based on accruals are high. For example, this is the case when companies have low accounting flexibility or undergo more extensive, high-quality audits.

A study conducted by Cai et al. (2019) examined the impact of threats from short-selling mechanisms on companies' earnings management practices (proxied by discretionary accruals and real earnings management). The study finds that the removal of the ban on short-selling mechanisms and their availability in the financial market led to a decrease in discretionary accruals management. More importantly, it resulted in a simultaneous reduction in real earnings management. In other words, it did not lead to a shift from managing earnings based on discretionary accruals to real earnings management. The effect was more pronounced in companies with high analyst coverage. Thus, the study contradicted previous findings regarding companies transitioning from managing earnings based on discretionary accruals to engaging in real earnings management after an increase in analyst coverage for those companies.

Moreover, short-selling has an impact on corporate financial fraud (Lu et al., 2024). Short-sellers are informed investors who have greater professional competence and information processing ability (Hope et al., 2017). Therefore, short-sellers can gather evidence of financial fraud in companies and enhance the dissemination of negative information to the market (Karpoff & Lou, 2010). In addition, short-selling increases the losses suffered by companies when fraud is discovered (Meng et al., 2020), from a decline in the stock price to management turnover (Lu et al., 2024). Short-selling also reduces corporate fraud through auditors, as it can increase the litigation risk faced by auditors, thereby enhancing their independence and ability to prevent corporate fraud (Hop et al., 2017). This result matched with Lee & Rezaee's (2022) study, which finds a positive association between audit fees and financial statement fraud (FSF) disclosures, and this association increases with the level of short interest. These results increase the verifiability of financial reporting in addition to its accuracy (Faithful-Representation).

By reviewing other literature on short-selling mechanisms and their impact on information quality, Cheng et al. (2019) find that ex-ante short-selling pressure forces corporate managers to enhance comparability. This result suggests that short-selling suspect firms with low accounting comparability is associated with a high likelihood of bad news hoarding, even when earnings attributes and other fundamental financial analysis ratios seem fine. Furthermore, Kubick (2021) finds that when the threat of short-selling increases, firms improve their tax disclosures readability to weaken any signal of overvaluation and mitigate transparency concerns from more aggressive tax outcomes. In contrast, Li & Zhang (2015) explore the effect of short-selling on both fundamental and enhancing characteristics of financial information. They demonstrate that managers respond to short-selling pressure by reducing the precision of bad news forecasts (i.e., relevance) and the readability of bad news annual reports (i.e., understandability) (Sun & Xu, 2024), thereby supporting the price pressure hypothesis.

4.3.2. The Impact of Short-Selling on the Acquisition of Private Information

Moving on to the next component of financial reporting transparency, which involves the acquisition of private information and communication. In financial markets, access to private information creates a persistent asymmetry between different types of investors (Johan & Zhang, 2021). Insider traders—typically corporate executives, board members, or individuals with privileged access to internal firm data—can act on material non-public information before it is publicly disclosed (Arif et al., 2022). Likewise, institutional investors such as mutual funds, insurance companies, and private equity firms often command significant analytical resources and access to company management, which enhances their ability to gather and act on private information (Zhao et al., 2023). These informational advantages allow such actors to trade ahead of the market, often undermining price discovery and financial reporting transparency.

A large body of empirical literature—including Chen et al. (2022), Wang et al. (2022), Gao et al. (2018), and Massa et al. (2015)—document a significant negative association between short-selling activity and discretionary insider trading. Corporate insiders often have privileged access to material nonpublic information; however, the presence of short sellers serves to constrain opportunistic trading through multiple channels. (Wang et al., 2022). First, legal frameworks typically restrict or prohibit the use of inside information for personal gain. Second, insiders tend to place high value on their professional reputation, which plays a crucial role in long-term career prospects. Third, a substantial portion of insiders' wealth is often linked to company performance through incentive-based compensation structures. As a result, under the looming threat of short-selling pressure, insiders are more likely to refrain from engaging in strategic trades that could be perceived as exploitative, to minimize exposure to legal risks, reputational damage, and potential misalignment with shareholder interests.

Massa et al. (2015) identify a strategic channel through which short-selling influences insider trading behavior by introducing competitive dynamics in the exploitation of private information. In the presence of informed short-sellers, corporate insiders—aware that their informational advantage may be contested—

have increased incentives to accelerate both the processing of information and the timing of trades to preempt potential competitors. This behavioral adjustment leads to the faster dissemination of non-public information into market prices, resulting in greater market efficiency. Consequently, insider trading becomes more rapid and intense when short-sellers are active, as insiders seek to preserve their informational edge before it is potentially eroded by competing trades. The model predicts that in environments with credible short-selling activity, insiders face reduced profit opportunities and lower execution prices, due to heightened competitive pressure. Conversely, in the absence of such competition, insiders may trade more gradually to minimize market impact. Thus, the threat of short-sellers engaging in informed trading serves as a disciplining mechanism that encourages insiders to act more swiftly, ultimately expediting price discovery and enhancing the transparency of financial markets.

Wen et al. (2020) find that institutional investors who possess superior information—often due to existing business ties—adjust their trading strategies in response to the lifting of short-selling restrictions. Concerned about potential short-selling activity, these investors incorporate previously hidden negative information into their decision-making, which may trigger a rapid and coordinated release of unfavorable news. This dynamic can contribute to a sharp decline in stock prices, increasing the risk of a stock price crash.

Based on the above, the short-sellers serve as informational arbitrageurs, challenging the assumptions and narratives set by insiders or institutional investors. By carefully analyzing financial statements, identifying patterns of earnings manipulation, or exposing governance weaknesses, short-sellers accelerate the market's response to private or hidden risks. Their trading activity can lead to earlier price corrections, increased investor awareness, and, importantly, pressure on firms to improve the timeliness and quality of their financial disclosures. As a result, short selling acts as an external governance mechanism, reducing information asymmetry and enhancing financial reporting transparency.

4.3.3. The Impact of Short-Selling on the Dissemination of Information

Short-selling not only plays a role in correcting stock prices (price efficiency) and accelerating the incorporation of negative information into market valuations, but also pushes firms to adopt more effective investor communication strategies. Managers acknowledge the influence of short-selling on the spread of information (dissemination of information). In response, they tactically allocate resources to corporate investor relations (IR) initiatives, aiming to boost transparency, foster investor confidence, and alleviate the adverse consequences of short-selling on their company's valuation and financial stability (Ling et al., 2022).

Gong (2024) presents evidence showing that companies manage the tone of their press releases to minimize their vulnerability to short-selling pressures. This proactive engagement with investors is often intensified in environments where short-selling activity is more prevalent, as firms seek to counteract the potential for misinformation or premature disclosure of negative news. By enhancing disclosure practices and maintaining open communication channels, companies aim to ensure that accurate and timely information reaches the market before it can be distorted or exploited by informed short sellers (Bushman & Pinto, 2024).

Therefore, the relationship between short-selling and information dissemination is not one-sided; rather, it is a dynamic and interactive process. While short-sellers accelerate the flow of negative information into prices, firms actively respond by strengthening disclosure practices and communication channels, attempting to balance market efficiency with reputation protection.

Short-selling functions as a market-based mechanism that motivates firms to improve the accuracy and reliability of their financial reporting. Previous studies indicate that short-sellers act as an external governance mechanism, helping to regulate managerial behavior, reduce earnings manipulation, and financial fraud. By identifying companies engaged in questionable financial practices, short-sellers expose and circulate such information to outside stakeholders. This form of external oversight encourages firms to enhance the quality of their earnings, minimize deceptive tactics, and ultimately increase the transparency of their financial disclosures. In addition, the presence of short-selling exerts a disciplinary effect on both insider trading behavior and institutional investor conduct, deterring the opportunistic use of private information for personal benefit. Furthermore, firms strategically enhance their proactive communication efforts (i.e., media and investor relations) in response to short-sale threats, aiming to convey credible and timely information to external stakeholders.

Table 4. Summary on the Impact of Short Selling on Financial Reporting Transparency Components

Financial Reporting Transparency Components			Findings	References
Financial Reporting Quality	Financial Misconduct	Earnings Management	- Short-selling limits both discretionary accruals and real earnings management - More effective in firms with weak investor protection.	Fang et al. (2014); Massa et al. (2015); Jiang et al. (2020); Park (2017); Cai et al. (2019)
		Corporate Fraud Detection	- Short-selling increases fraud detection and associated losses (e.g., stock drops, executive turnover). - Increases auditor independence and reduces litigation risk, thereby decreasing fraud.	Yang et al. (2023; Karpoff & Lou (2010; Meng et al. (2019); Hop et al. (2016); Lee & Rezaee (2022)
	Financial Information Characteristics		- Short-selling improves the comparability of financial reports - Firms improve tax disclosure readability under short-sale threat - Some evidence that bad news forecasts become less precise or harder to understand.	Cheng et al. (2019); Kubick (2021); Li & Zhang (2015); Sun & Xu (2024)
Private Information Acquisition			- Short-sellers compete with insiders/institutions for private information. - Insider trading becomes more rapid and intense when short-sellers are active. - Reduces insider trading profits and encourages faster dissemination of non-public information	Massa et al. (2015); Wang et al. (2022); Chen et al. (2022)); Gao et al. (2018)
Information Dissemination			- Short-selling accelerates the release of negative information into prices. - Firms respond by enhancing investor relations and communication strategies. - Companies adjust press release tones to counteract short-selling pressure.	Wen et al. (2020); Ling et al. (2020); Gong (2024); Bushman & Pinto (2024)

Source: Prepared by the researchers

4.4. Short-Selling and Firm Performance (Financing and Investing Activities)

Various studies examining short-selling's impact on financing and investing activities produce diverse results. Short-selling functions as an external governance mechanism that helps constrain managerial overinvestment and short-termism. Empirical studies across various markets (e.g., Chang et al., 2015; Hu et al., 2019; Deng et al., 2020) demonstrate that the relaxation of short-selling restrictions enhances investment efficiency by aligning capital allocation more closely with value-generating opportunities and reduction in stock price crash risk. Similarly, research by Massa et al. (2015) shows that the threat of short-selling promotes long-term investment in R&D, especially among firms with weak governance structures, limited investor protection, or high levels of information asymmetry. However, Ding et al. (2021) find that under downward price pressures, firms might overinvest in labor as a signal of strength to stakeholders, leading to less efficient use of labor resources. Regarding payout policies, short-selling pressure compels managers—particularly in opaque firms—to increase dividend payouts as a signaling mechanism to deter potential short attacks. While this may stabilize stock prices in the short run, it can divert resources away from growth-oriented projects, ultimately harming long-term financial performance (Karpoff & Lou, 2010; Chen et al., 2019).

The impact of short-selling extends to corporate financing decisions. Firms facing higher short interest tend to adopt more conservative capital structures, often lowering leverage to avoid attracting further scrutiny. Studies indicate that the deregulation of short-selling can lead to reduced investment and falling stock prices, particularly in firms with strong managerial short-term incentives (Deng et al., 2023; Nezafat et al., 2021). Nonetheless, greater financial transparency and improved governance practices—often prompted by short-seller attention—can help reduce the cost of capital and support stronger long-term financial performance (Chen et al., 2020; Ni & Xu, 2023).

Short-selling also influences firms' environmental and social practices. In response to market scrutiny, many companies increase their investment in environmental and social responsibility initiatives, which contributes to reducing inefficiencies and lowering the risk of stock price crashes (Wang & Zhang, 2020). However, some firms may misuse CSR efforts as a cover for financial misconduct, which can mislead stakeholders and ultimately attract the attention of short sellers, undermining shareholder value (Lu et al., 2016; Gao et al., 2022). Therefore, short-selling serves a dual function: it enhances transparency, strengthens corporate governance, and enforces fiscal responsibility, ultimately contributing to sustained financial success. However, when mishandled by management, it may lead to reactive, defensive actions that hinder strategic growth and innovation.

Table 5. Summary on the Impact of Short Selling on Firm Performance (Financing and Investing Activities)

Firm Performance	Finding	References
Investment Efficiency	- **Enhances investment efficiency.** - **Aligns capital with value-generating projects.** - **Promotes long-term R&D investment.** - **Under price pressure, firms may overinvest in labor inefficiently as a signal of strength.**	**Chang et al. (2015); Hu et al. (2019); Deng et al. (2020); Massa et al. (2015); Ding et al. (2021)**
Payout Policy (Dividends)	- **Increases dividend payouts as a signal to deter short-sellers.** - **May reduce investment and stock prices, especially in firms with strong short-term managerial incentives.** -	**Karpoff & Lou (2010); Chen et al. (2019)**
Financing Decisions	- **Firms tend to adopt more conservative financial structures to avoid scrutiny, which reduce investment and stock prices, especially in firms with strong short-term managerial incentives.**	**Deng et al. (2023), Nezafat et al. (2021), Chen et al. (2020), Ni & Xu (2023)**
Environmental & Social Practices (CSR)	- **Can drive increased investment in CSR initiatives, reducing crash risk and inefficiencies.** - **Some firms misuse CSR to mask misconduct, misleading stakeholders and attracting more scrutiny.**	**Wang & Zhang (2020), Lu et al. (2016), Gao et al. (2022)**

Source: Prepared by the researchers

5. Discussion and Future Research

5.1. The Predictive Role of Short-Selling in Corporate Financial Distress: Implications for Risk Management and Market Stability

A promising avenue for future research lies in exploring the role of short-selling as a predictive tool for financial distress. This line of inquiry assesses whether short-selling activity serves as a reliable early warning indicator for corporate financial insolvency. Given short-sellers' expertise in identifying vulnerabilities in a firm's fiscal condition—often prior to broader market awareness—researchers could determine if short-selling metrics consistently predict financial failure. By mapping these behavioral patterns against subsequent corporate collapses, studies establish whether short-selling metrics reliably anticipate financial failure. Such insights hold significant practical value, empowering investors and stakeholders to leverage short-position data as a proactive alert system for distressed firms. This work could further position short-selling as a strategic component of risk mitigation models, providing policymakers and market participants with insights to bolster financial resilience and transparency.

5.2. The Dark Side of Short-Selling: Assessing Risks of Social Media-Driven Manipulation and Regulatory Challenges

Recent research does not address the potential for market manipulation associated with short-selling, particularly in the context of coordinated activities such as rumor spreading or social media campaigns aimed at influencing stock prices. With the growing impact of social media on financial markets, there is an increasing risk that short-sellers may engage in unethical practices, amplifying negative sentiment to manipulate prices in their favor. Future research could investigate whether short-selling is used in conjunction with these strategies to distort market perceptions and artificially drive stock values down. Such studies would be essential in developing regulatory frameworks that safeguard market integrity and protect investors from potential exploitation.

5.3. The Role of Institutional Frameworks in Shaping Short-Selling Dynamics

A critical avenue for future research lies in examining how institutional factors—such as legal frameworks, investor protection laws, and regulatory environments—moderate the dual effects of short-selling on corporate behavior. While existing studies highlight the disciplining role of short-sellers in improving governance and transparency (e.g., Chen et al., 2020; Ni & Xu, 2023), the extent to which these benefits materialize may depend heavily on the strength of institutional safeguards. For instance, in jurisdictions with robust legal systems and strong shareholder rights, short-sellers may operate more effectively as governance enforcers, leveraging litigation risks or regulatory penalties to deter managerial misconduct. Conversely, in markets with weak investor protection or opaque regulatory enforcement, short-selling could amplify price volatility and incentivize superficial compliance rather than substantive reforms (Gao et al., 2022).

Future research could explore cross-country comparisons to assess how variations in legal traditions (e.g., common law vs. civil law) or disclosure requirements influence the interplay between short-selling, corporate decision-making, and long-term value creation. Additionally, studies might investigate how changes in short-selling regulations—such as temporary bans during financial crises or the introduction of disclosure mandates for short positions—interact with institutional quality to shape market outcomes. Empirical analyses could also delve into whether institutional investors or activist shareholders mediate the relationship between short-selling pressure and corporate responses, particularly in environments with fragmented ownership structures. By integrating institutional theory with behavioral finance, such research would deepen understanding of how regulatory design can optimize short-selling's governance benefits while mitigating its destabilizing effects. Policymakers could then craft context-specific frameworks that balance market discipline with corporate resilience, ensuring short-selling contributes to sustainable capital allocation rather than exacerbating systemic risks.

5.4. Toward New Frontiers: Exploring Governance-Driven Motivations in Short-Selling Dynamics

While notable progress emerges in the study of short-selling dynamics, current research highlights a persistent gap in analyzing the motivations driving such speculative activities. Scholars emphasize the need to address this void by examining how corporate governance frameworks influence short-sellers' strategic decisions. Future studies investigate whether robust governance structures act as deterrents to short-selling, given short-sellers' focus on mispriced stocks. Key areas for exploration include how short-sellers evaluate governance-related risks, such as weaknesses in internal controls, high executive turnover rates, directors facing ethical or compliance concerns, legal breaches, ineffective strategic planning, or indicators of long-term operational instability. These issues often remain unclear to external stakeholders but significantly impact future stock performance. Although some studies integrate governance as a moderating factor in analyzing short-selling outcomes, direct inquiry into how short sellers exploit informational asymmetries linked to governance quality remains limited. Researchers prioritize governance mechanisms that enhance transparency and accountability, offering perspectives on their influence on speculative market behaviors.

5.5. Exploring the Interplay Between Short-Selling and Corporate Social Responsibility (CSR)

With the growing global emphasis on sustainability and corporate social responsibility (CSR), it becomes increasingly important to examine how these non-financial factors influence financial market behaviors, particularly short-selling. Despite the rising interest in CSR and its impact on firm reputation and performance, little is known about whether short sellers actively target firms with poor CSR performance or how firms strategically respond to short-selling pressure through CSR engagement. Recent studies offer preliminary insights into this dynamic. For instance, Hou et al. (2019) find that Chinese firms tend to increase their corporate philanthropy (CP) activities in response to heightened short-selling threats. Their findings support the impression management hypothesis, suggesting that firms may use CP as a distraction tactic to divert attention from underlying weaknesses. However, CP alone captures only a narrow dimension of CSR, which encompasses broader aspects such as employee treatment, environmental stewardship, and governance practices.

Similarly, Brockman et al. (2020) show that firms affected by short-selling threats under Regulation SHO improved employee relations, which in turn led to better stock market performance. This suggests that substantive improvements in CSR dimensions — beyond mere symbolic actions like philanthropy — may serve as credible signals to the market. On the other hand, Jain et al. (2016) observe that short-sellers tend to avoid firms with high ESG (Environmental, Social, and Governance) scores, implying that responsible business practices may reduce the likelihood of being targeted. However, ESG metrics also fail to fully represent the comprehensive nature of CSR. Therefore, an integrated study examining the relationship between short-selling and CSR could provide valuable insights. Future research could explore:

- Whether short-sellers target firms with weak CSR performance, going beyond ESG scores to include qualitative and operational aspects of CSR.
- How firms alter their CSR strategies in response to short-selling threats — whether they engage in impression management (e.g., increased philanthropy) or make real operational improvements (e.g., better labor practices).
- The effectiveness of different CSR responses in mitigating short-selling pressure and improving investor perceptions.
- Cross-country comparisons are particularly relevant in emerging markets, where regulatory environments and stakeholder expectations vary.

This line of inquiry not only enriches our understanding of short sellers' behavior but also highlights the strategic role of CSR in corporate defense mechanisms and the creation of long-term value.

6. Conclusion

Short-selling exerts significant influence on asset price dynamics, market stability, and corporate financial strategies. Given these implications, the behavior of short-sellers has attracted considerable attention from both academics and regulators. This review synthesizes the existing academic literature on short-sale activities and proposes key areas for further exploration to enhance comprehension of their dual role: shaping capital market evolution and impacting organizational decision-making processes.

Short-sellers engage in extensive information gathering, utilizing both public and private sources to inform their trading strategies. This practice has significantly influenced how information is disseminated, how stock prices are determined, and how managers make strategic decisions. The mixed effects of the short-selling mechanism observed across the literature reflect the dual nature of its influence on corporate behavior. The *positive effects*, such as improved investment efficiency, enhanced long-term R&D investments, conservative capital structures, and stronger environmental/social accountability—are consistent with the *disciplining hypothesis*. Short-sellers act as external monitors, disciplining managers by mitigating overinvestment, reducing information asymmetry, and incentivizing transparency. These outcomes are particularly pronounced in firms with weak governance, opaque financial practices, or high agency costs (e.g., Chang et al., 2015; Massa et al., 2015; Wang & Zhang, 2020). By constraining managerial opportunism, short-selling aligns corporate strategies with shareholder value maximization, ultimately fostering long-term financial stability and performance (Chen et al., 2020; Ni & Xu, 2023).

On the other hand, the *negative effects,* such as labor overinvestment to signal strength, excessive dividend payouts, and reduced investment in growth projects—reflect the *price pressure hypothesis.* When firms face aggressive short-selling activity, managers may adopt defensive strategies to stabilize stock prices in the short term, often at the expense of long-term value creation (Ding et al., 2021; Karpoff & Lou, 2010). This hypothesis is further reinforced by findings that deregulation of short-selling can exacerbate downward price spirals, particularly in firms with short-term managerial incentives (Deng et al., 2023; Nezafat et al., 2021). Additionally, superficial CSR initiatives adopted to deflect scrutiny may mask underlying financial weaknesses, ultimately undermining stakeholder trust (Lu et al., 2016; Gao et al., 2022). The synthesis of these findings highlights the contextual nature of short-selling's impact. While it serves as a governance tool in environments with poor oversight or high opacity, it can also distort managerial decision-making under intense price pressures. Policymakers and practitioners must balance the benefits of market discipline against the risks of reactive corporate behavior.

The reviewed literature reveals several gaps that constrain the theoretical and practical understanding of short-selling dynamics. there is limited empirical validation of its predictive power in identifying corporate financial distress across diverse regulatory environments. Second, the absence of cross-country comparative analyses hinders insights into how institutional frameworks—such as legal systems or investor protection laws—moderate short-selling's effects on corporate behavior. Third, emerging risks, such as social media-driven manipulation and coordinated short-selling campaigns, remain underexplored, leaving a critical void in addressing modern market integrity challenges. Additionally, the motivational drivers behind short-sellers' targeting of governance weaknesses (e.g., poor internal controls or ethical breaches) are inadequately examined, limiting the development of governance-focused risk-mitigation strategies. Finally, the interplay between short-selling and corporate social responsibility (CSR) is often reduced to narrow metrics like ESG scores or philanthropy, neglecting broader operational and qualitative dimensions of CSR that may influence market perceptions.

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الملخص:

تُقدم هذه الدراسة مراجعة شاملة للأدبيات النظرية والتجريبية المتعلقة بآلية البيع على المكشوف، مع التركيز على آلياتها، وديناميكيات المعلومات المرتبطة بها، وانعكاساتها على سلوك الشركات. تناولت الدراسة مناقشة الأسس النظرية للبيع على المكشوف، بما في ذلك كيفية عمله والدور الاستراتيجي الذي يلعبه البائعون على المكشوف في الأسواق المالية. كما تستعرض مفهوم الميزة المعلوماتية لدى البائعين على المكشوف، والعوامل الرئيسة التي تؤثر في نشاط البيع على المكشوف، والمقاييس المختلفة المستخدمة لتقييم هذا النشاط وتحليله.

تُلخّص الدراسة الأدلة التجريبية حول تأثير تهديدات البيع على المكشوف على هياكل الحوكمة المؤسسية، بما في ذلك الأبعاد الداخلية (مثل تركيبة مجلس الإدارة وسياسات تعويضات التنفيذيين) والأبعاد الخارجية (مثل استقلالية المراجع الخارجي وفعالية تحليلات الخبراء الماليين). علاوةً على ذلك، تُحلل الدراسة تأثير الضغوط الناتجة عن البيع على المكشوف على شفافية التقارير المالية، من خلال مكوناته مثل جودة التقارير المالية، وامتلاك المعلومات الخاصة، ووصول المعلومات لمستخدميها. كما تستعرض آثار نشاط البيع على المكشوف على أداء الشركات، بما في ذلك الأبعاد المالية (مثل كفاءة الاستثمارات) وغير المالية (مثل المسؤولية البيئية والاجتماعية). من خلال تحليل نقدي للدراسات السابقة، تُحدّد الدراسة فجوات بحثية متعددة وتُقترح اتجاهات بحثية مستقبلية تهدف إلى تعزيز الفهم النظري والتطبيقي لدور البائعين على المكشوف كعناصر تنظيمية وكأدوات ضغط سعري، مع تسليط الضوء على آثارهم على كفاءة الأسواق واتخاذ القرارات الاستراتيجية داخل المؤسسات.

الكلمات المفتاحية: ألية البيع على المكشوف، الفرضية التنظيمية، فرضية ضغوطات التسعير، شفافية التقارير المالية، أداء الشركات.