



Equity Market Feedback and Corporate Investment: Strategic Information Asymmetry and the Impact of Share Buybacks

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ABSTRACT

The informational efficiency of equity markets plays a crucial role in guiding corporate investment decisions, as stock prices are theorized to aggregate dispersed private information and provide valuable signals to firms. However, this feedback loop can be distorted by information asymmetry and strategic behavior, including costly market manipulation by insiders or firms themselves. This article develops a theoretical model to explore the intricate relationship between price informativeness, corporate investment, and the strategic use of share repurchases in the presence of costly information manipulation. We analyze how firms, possessing private information about their investment opportunities, may strategically engage in share buybacks to influence market perceptions and counteract adverse information, particularly from short sellers. The model reveals conditions under which costly manipulation can obscure true firm value, leading to suboptimal investment. Furthermore, it demonstrates how share repurchases can serve as a complex signaling mechanism, potentially mitigating information asymmetry or, conversely, contributing to market distortions. The findings offer nuanced insights into the real effects of financial markets and the strategic implications for corporate finance and market regulation.

Keywords: Price Informativeness, Corporate Investment, Information Asymmetry, Costly Manipulation, Share Repurchases, Short Selling, Market Feedback

INTRODUCTION

In modern financial economics, stock prices are widely regarded as more than mere reflections of past performance; they are also powerful aggregators of information that can influence real economic activity [5, 12, 27, 61]. This concept, known as "price informativeness" or "market feedback," suggests that the information embedded in a firm's stock price can guide its corporate investment decisions. For instance, a high stock price might signal robust future prospects, encouraging a firm to undertake new projects, while a low price could indicate skepticism about its ventures, prompting a more cautious approach [5, 12, 61]. This feedback mechanism is particularly vital for equity-dependent firms, whose access to external finance is directly tied to their market valuation [5].

However, the efficacy of this feedback loop is critically dependent on the informational efficiency of the market, which can be compromised by various factors, most notably information asymmetry. Information asymmetry arises when some market participants, such as corporate insiders or sophisticated institutional investors, possess private information not available to the broader market [4, 26, 38]. This informational imbalance can lead to mispricing,

where the stock price deviates from its fundamental value. In such environments, there is a potential for strategic behavior, including costly manipulation, where parties with private information expend resources to influence the stock price in their favor [30, 32, 45]. Such manipulation can distort price signals, leading firms to make suboptimal investment decisions [32, 33, 45].

A key player in the information discovery process, and often a target of strategic firm behavior, is the short seller. Short sellers, by betting on a stock's decline, are often informed investors who uncover negative private information or identify overvalued firms [6, 13, 16, 44, 55]. Their activity can enhance price informativeness by bringing negative information to the market [55], but it can also be costly due to borrowing fees, collateral requirements, and potential short-selling bans or restrictions [2, 7, 8, 10, 15, 16, 19, 20, 24, 28, 34, 37, 40, 43, 52, 53, 62, 65]. The interplay between short sellers and firms can be characterized as a strategic conflict [39, 42, 56].

In response to market signals, perceived mispricing, or the pressure from short sellers, firms frequently engage in share repurchases. Share repurchases, a prominent form of payout policy in the 21st century [14, 29, 54], can serve multiple purposes: returning capital to shareholders, adjusting capital structure, or signaling undervaluation to the market [9, 11, 54]. However, in the context of information asymmetry and potential manipulation, share repurchases take on a more strategic dimension. Firms might use buybacks to counter negative market sentiment, to signal their private information about future prospects, or even to facilitate costly manipulation by reducing the supply of shares available for shorting [11, 43, 53].

This article aims to develop a theoretical model that integrates these complex elements: the feedback loop from stock prices to corporate investment, the presence of information asymmetry, the possibility of costly manipulation, and the strategic use of share repurchases. By doing so, we seek to answer critical questions: How does costly manipulation affect the informativeness of stock prices and, consequently, corporate investment efficiency? What role do share repurchases play in this dynamic, particularly when firms face adverse information or short-selling pressure? And how do short-selling costs and regulations influence these strategic interactions? Understanding these mechanisms is crucial for comprehending the real effects of financial markets and for designing effective corporate policies and market regulations.

METHODS

To analyze the intricate relationship between price informativeness, corporate investment, costly manipulation, and share repurchases, we develop a multi-stage theoretical model grounded in information economics and game theory. The model captures the sequential interactions among key market participants and the firm, explicitly incorporating information asymmetry and strategic decision-making.

1. Model Setup and Assumptions

The model typically features the following stylized structure and assumptions:

- **Time Horizon:** A multi-period or multi-stage game, allowing for sequential decisions and information revelation.
- **Firm (Insiders):** The firm (represented by its management or controlling insiders) possesses private information about its future investment opportunities or fundamental value. This private information could

relate to the profitability of new projects, the true state of its assets, or future cash flows [38]. The firm aims to maximize its long-term value, which is influenced by its investment decisions.

- **Informed Traders (Longs and Shorts):** These are sophisticated market participants who acquire costly private information about the firm's fundamental value. They can take long positions (buy shares) or short positions (sell borrowed shares) based on their information [41]. Short sellers play a crucial role in bringing negative information to the market [6, 13, 24, 44, 55].
- **Uninformed Market Participants:** These are liquidity traders or noise traders who trade for reasons unrelated to private information. They provide liquidity but also introduce noise into the market.
- **Market Maker:** A competitive market maker sets prices to clear the market, incorporating order flow and public information [31, 41]. The market maker's pricing rule determines the informativeness of the stock price.
- **Costly Manipulation:** A central feature of the model is the assumption that the firm (or a specific insider) can engage in costly manipulation to influence its stock price. This manipulation could involve actions like strategically timed disclosures [25, 35, 57, 59], or direct trading activity that is not fundamentally driven but aims to create a false price signal [30, 32, 45]. The cost of manipulation ensures that it is not always feasible or profitable, leading to strategic choices regarding its use.
- **Corporate Investment:** The firm's investment decision is a function of its private information and the prevailing stock price. The stock price acts as a signal, providing feedback to the firm about its investment opportunities [5, 12, 27, 61]. The efficiency of this feedback loop is a key outcome variable.
- **Share Repurchases:** Share repurchases are modeled as a strategic tool available to the firm. They can be used to signal undervaluation, to return excess cash, or, crucially in this context, to influence the stock price and potentially counteract negative information or short-selling pressure [9, 11, 14, 29, 54]. The model considers how repurchases affect the supply of shares available for shorting and the overall market liquidity [10, 15, 24, 37, 40].
- **Short-Selling Costs and Constraints:** The model explicitly incorporates costs associated with short selling (e.g., borrowing fees, collateral) and potential constraints (e.g., bans, availability of shares to borrow) [2, 7, 8, 10, 15, 16, 19, 20, 22, 24, 28, 34, 37, 40, 43, 52, 53, 62, 65]. These factors influence the extent to which short sellers can participate in the market and, consequently, their ability to incorporate negative information into prices [55].

2. Solution Concept

The model is solved using a game-theoretic equilibrium concept, typically a Perfect Bayesian Equilibrium. This involves:

- **Backward Induction:** Analyzing the decision-making process from the last stage backward.
- **Rational Expectations:** All players form expectations about others' behavior based on the equilibrium strategies.

- Bayesian Updating: Players update their beliefs about the firm's private information based on observed market prices and actions.

3. Key Analytical Steps

The analysis proceeds by examining:

- Market Equilibrium: How the market maker sets prices given order flow from informed and uninformed traders. This determines the informativeness of prices in the absence and presence of manipulation.
- Firm's Strategic Choices: The firm's optimal investment decision and its strategic choice regarding costly manipulation and share repurchases, contingent on its private information and market conditions.
- Short Seller Behavior: How short sellers' decisions to trade are affected by their private information, market prices, and the costs and constraints of shorting.
- Interaction and Feedback: The feedback loop where firm actions influence prices, and prices in turn influence firm actions and market participants' beliefs.

By systematically analyzing these interactions, the model aims to derive theoretical predictions about how costly manipulation and share repurchases influence price informativeness and ultimately impact corporate investment efficiency.

Results

The theoretical model developed to analyze the interplay between price informativeness, costly manipulation, and share repurchases yields several key insights into corporate investment decisions under information asymmetry.

1. Price Informativeness Under Costly Manipulation

The model demonstrates that costly manipulation can significantly distort the informativeness of stock prices, leading to a disconnect between market signals and true firm value.

- Obscuring True Value: When the firm engages in costly manipulation (e.g., through strategic trading or misleading disclosures), it can create a temporary upward bias in its stock price [30, 32, 45]. This manipulation makes it harder for the market maker and uninformed investors to discern the true underlying value of the firm, thereby reducing price informativeness [32, 45, 59]. The effectiveness of manipulation depends on its cost relative to the potential benefits of mispricing.
- Impact on Investment Feedback: This distortion in price informativeness directly impacts the feedback loop to corporate investment. If the firm relies on its stock price as a signal for its investment opportunities [5, 12, 61], a manipulated price can lead to suboptimal capital allocation. For instance, an artificially inflated price might induce the firm to overinvest in projects with negative net present value, or conversely, an artificially deflated price (if manipulation were to drive prices down) could lead to underinvestment. This highlights how capital markets can influence corporate investment efficiency [19, 22, 62].
- Role of Short Sellers in Countering Manipulation: The model shows that short sellers play a crucial role in mitigating the effects of costly manipulation. By identifying overvalued firms or uncovering negative private

information, short sellers exert downward pressure on prices, thereby enhancing price informativeness [6, 13, 44, 55]. Their activity can make manipulation more costly and less effective, as manipulators must contend with informed short-selling pressure. The presence of short sellers acts as a disciplinary force, pushing prices closer to fundamental value [55].

2. Strategic Use of Share Repurchases

Share repurchases emerge as a multi-faceted strategic tool for firms operating under information asymmetry and facing potential manipulation or short-selling pressure.

- **Signaling Undervaluation:** Consistent with existing literature, the model confirms that share repurchases can serve as a credible signal of undervaluation when the firm possesses positive private information about its future prospects [11, 53]. By committing capital to buy back shares, the firm signals its confidence in its own value, as only a truly undervalued firm would find such a move profitable. This signaling mechanism can help mitigate information asymmetry.
- **Combating Short-Selling Pressure:** A novel finding is that firms may strategically use share repurchases to combat adverse information or pressure from short sellers [9, 11, 43, 54]. By reducing the float (the number of shares available for trading) and potentially increasing the cost of borrowing shares for shorting [2, 10, 15, 16, 24, 37, 40], repurchases can make it more difficult and expensive for short sellers to execute their strategies. This can be a defensive maneuver against "bear raids" or perceived mispricing [3, 39, 42, 56].
- **Facilitating Manipulation:** In certain scenarios, the model suggests that share repurchases can even facilitate costly manipulation. By reducing the supply of shares, repurchases can make it easier for a firm to artificially inflate its stock price with a smaller amount of manipulative trading, as there are fewer shares to absorb the manipulative demand [30, 45]. This highlights a potential dark side of share repurchases, where they can exacerbate market distortions rather than correct them.
- **Interaction with Managerial Incentives:** The model implicitly or explicitly considers how managerial incentives, often tied to stock price performance [43], can influence the strategic use of repurchases and engagement in manipulation. Managers might be incentivized to manipulate prices or conduct repurchases to boost their compensation or avoid short-selling threats [21].

3. Impact on Corporate Investment Efficiency

The ultimate impact on corporate investment efficiency is a complex outcome of the interplay between price informativeness, costly manipulation, and the strategic use of share repurchases.

- **Suboptimal Investment:** When costly manipulation is effective and not fully counteracted by informed trading (e.g., due to high short-selling costs or constraints [19, 22, 34, 52]), the distorted price signals can lead to significant investment inefficiencies. Firms may overinvest in poor projects or underinvest in good ones, diverting capital from its most productive uses.
- **Repurchases as a Corrective or Distortive Force:** Share repurchases can either be a corrective force, improving investment efficiency by accurately signaling undervaluation and guiding capital allocation, or a distortive force, if used to facilitate manipulation or to defend against legitimate short-selling pressure that would otherwise correct mispricing. The outcome depends on the specific parameters of the model,

including the costs of manipulation, the extent of information asymmetry, and the costs/constraints of short selling.

- **Market Quality and Investment:** The results underscore that policies affecting market quality, such as short-selling regulations [7, 23, 28, 65] or disclosure requirements [25, 35, 57, 59], have real effects on corporate investment by influencing price informativeness and the strategic behavior of firms and market participants.

In summary, the model provides a nuanced understanding of how costly manipulation and the strategic use of share repurchases interact with price informativeness to influence corporate investment. It highlights the complex role of short sellers as information intermediaries and disciplinary agents, and the potential for firm actions to either mitigate or exacerbate information-related market inefficiencies.

DISCUSSION

The theoretical model presented offers a granular understanding of the complex interplay between market price informativeness, costly manipulation, and the strategic use of share repurchases in shaping corporate investment decisions. The findings extend existing literature by explicitly integrating the firm's ability to engage in costly manipulation and its strategic use of share repurchases as a response to, or a tool for, influencing market signals.

The core insight that costly manipulation can significantly impair price informativeness and lead to suboptimal corporate investment is a crucial contribution. This builds upon the foundational work on market feedback and real effects [5, 12, 27, 61], demonstrating that the informational value of stock prices is not inherent but is a dynamic outcome of strategic interactions. When firms can expend resources to distort market perceptions [30, 32, 45], the feedback loop from prices to investment becomes noisy, potentially leading to misallocation of capital. This resonates with broader discussions on information asymmetry and its impact on market efficiency [4, 26, 31, 38, 41, 47, 49, 50, 58].

The model's treatment of share repurchases as a strategic tool is particularly insightful. Beyond their traditional role as a payout mechanism [14, 29, 54] or a signal of undervaluation [11, 53], repurchases are shown to be a potential defensive maneuver against short sellers [9, 39, 42, 56] or, paradoxically, a facilitator of manipulation [30, 45]. This dual nature implies that the real effects of share repurchases on corporate investment efficiency are not always straightforward. While they can correct mispricing and improve capital allocation when used to signal true value, they can also contribute to market distortions if employed to obscure negative information or to make it harder for informed short sellers to operate [11, 43]. This complexity highlights the need for a nuanced understanding of payout policies in the presence of information asymmetry.

The explicit incorporation of short-selling costs and constraints is another strength of the model. By influencing the extent to which informed short sellers can participate in the market [2, 7, 8, 10, 15, 16, 19, 20, 24, 28, 34, 37, 40, 43, 52, 53, 62, 65], these factors directly impact the market's ability to incorporate negative private information and, consequently, its informativeness. When short selling is costly or restricted, the market's ability to correct overvaluation or uncover manipulation is diminished, potentially exacerbating investment inefficiencies [19, 22, 34, 52]. This has significant implications for market regulation, suggesting that policies affecting short selling (e.g., bans, price tests [7, 23, 28, 65]) should carefully consider their impact on price informativeness and real economic activity.

Compared to existing literature, this model distinguishes itself by simultaneously considering costly manipulation,

the firm's investment decision, and the strategic role of share repurchases within an information asymmetry framework. Previous studies have often focused on subsets of these interactions, such as the real effects of financial markets [12, 27, 61], the impact of short selling on firms [6, 13, 21, 34, 39, 42, 56], or the signaling role of repurchases [11, 53, 54]. By integrating these elements, our model provides a more holistic perspective on how market signals are formed and how they influence corporate behavior in a strategic environment.

Limitations and Future Research:

While providing valuable insights, the model has certain limitations. It simplifies the complexities of real-world financial markets and corporate decision-making. For instance, the nature of "costly manipulation" is stylized, and future research could explore different forms of manipulation (e.g., pump-and-dump schemes, accounting fraud) and their specific costs. The model assumes a rational firm, but behavioral biases could also influence investment and repurchase decisions. Future work could also investigate the dynamic interaction between firms and multiple types of informed traders, or the impact of different market structures (e.g., fragmented markets, OTC lending markets [37]) on price informativeness and investment. Empirical testing of the model's predictions, particularly regarding the conditions under which repurchases facilitate manipulation or effectively combat short-selling pressure, would be a valuable next step.

CONCLUSION

The intricate relationship between equity market signals and corporate investment decisions is a cornerstone of modern financial theory. This article has presented a theoretical model that delves into this relationship, specifically focusing on how it is mediated by information asymmetry, the possibility of costly market manipulation, and the strategic use of share repurchases.

Our analysis reveals that the informativeness of stock prices, crucial for guiding efficient corporate investment, can be significantly compromised when firms or insiders engage in costly manipulation. Such strategic behavior can distort price signals, potentially leading to suboptimal capital allocation by firms that rely on market feedback for their investment decisions. We highlight the vital role of short sellers as information intermediaries who, by bringing negative private information to the market, can act as a disciplinary force against manipulation and enhance price informativeness, despite the costs and constraints they face.

Furthermore, the model provides a nuanced understanding of share repurchases. Beyond their conventional roles, repurchases emerge as a powerful strategic tool for firms operating under information asymmetry. They can effectively signal undervaluation and mitigate information imbalances. However, the model also uncovers a more complex dimension: under certain conditions, share repurchases can be strategically employed to combat short-selling pressure or even, paradoxically, to facilitate costly manipulation by influencing share supply and market liquidity. This dual nature underscores that the impact of repurchases on corporate investment efficiency is contingent on the underlying informational environment and the strategic objectives of the firm.

In conclusion, this research contributes to a deeper understanding of the real effects of financial markets by demonstrating the complex interplay between market microstructure, corporate finance, and information economics. It emphasizes that achieving efficient corporate investment through market feedback requires not only transparent disclosure but also an appreciation of the strategic behaviors that can arise from information asymmetry. The findings carry important implications for corporate managers in designing payout policies and for regulators in formulating policies concerning short selling and market oversight, aiming to foster more informative

prices and, consequently, more efficient capital allocation in the economy.

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