

Do Retail Investors Imitate Institutional Investors? Evidence from Berkshire Hathaway's 13F Disclosures

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Abstract

We study retail investor trading around institutional investment disclosures by Berkshire Hathaway. Using 13F filings from 2007 to 2023, we examine whether retail investors mimic Berkshire Hathaway's portfolio adjustments and whether such behaviour affects subsequent returns. We find that retail investors actively engage in institutional copy trading. Stocks associated with Berkshire Hathaway's new holdings and buy disclosures earn positive abnormal returns for up to 15 days following disclosure, with stronger effects for new positions, but these gains subsequently reverse. In contrast, sell and exit disclosures trigger weaker reactions, consistent with constraints on retail investors' ability to sell. Taken together, the return dynamics indicate that imitation of a highly visible institutional investor generates short-run gains but does not lead to persistent outperformance. Our results contribute to the literature on retail trading, disclosure effects, and copy trading by providing evidence on how retail investors process and respond to institutional portfolio disclosures.

Keywords

Retail trading; Berkshire Hathaway; Investment Disclosures; 13F filings

1. Introduction

Individual investors account for a substantial share of modern equity markets, holding 37.6% of the US market as of October 2019 (Brownen-Trinh et al. 2025). Despite their economic importance, a large body of research documents that retail traders, on average, earn poor trading returns. These losses are often attributed to behavioural biases, limited access to timely and accurate information, and difficulties in processing complex signals (Barber et al. 2009; Barber and Odean 2000). Behavioural distortions, such as overconfidence, attention driven-trading, and misinterpretation of public information, systematically affect retail decision-making and often result in suboptimal outcomes (Barber et al. 2022; Barber and Odean 2000; Tetlock 2011; Titman et al. 2022).

More recent evidence, however, challenges the view that retail investors are uniformly naïve or purely heuristic-driven. Brownen-Trinh et al. (2025) show that Robinhood investors display relatively sophisticated behaviour when responding to SEC comment letters. They document spikes in abnormal Google search volume around severe comment letter disclosures and corresponding reductions in investor holdings decline, consistent with expectations of future price declines. Similarly, Welch (2022) suggests that Robinhood investors did not panic during COVID-19 market collapse. Instead, they increased market participation and achieved strong market timing performance with positive excess returns. Laarits and Wurgler (2025) further show that retail investors rely on a distinct research style, emphasizing price charts, analyst opinions, and salient news events rather than traditional risk measures. Their attention is concentrated on prominent news, earnings announcements, and firm size.

At the same time, retail investors can exhibit strong collective behaviour in the absence of firm-specific news. The GameStop episode illustrates how coordinated retail trading can generate extreme price swings and raise concerns about market stability. In early 2021, the stock price GameStop faced a surge of over 700% within a single week, largely driven by individual investors' speculative activities (Long et al. 2023).

Following the COVID-19 pandemic, retail participation in financial markets increased substantially (Welch 2022), further amplifying their influence on the financial markets. This rising participation has brought greater attention to understanding the trading behaviour of retail investors. Existing studies consistently find that retail traders tend to lose when trading against institutions, which earn profits by taking the opposite side of retail trades (Barber et al. 2009; Barber and Odean 2000). Barber et al. (2009) show that these losses are economically

larger and mainly accrue to institutional investors. Odean (1999) also finds that excessive trading in a simulated market reduces investor wealth.

Barber and Odean (2000) attribute persistent retail losses to overconfidence, which encourages repeated trading despite poor outcomes. Barber et al. (2022) further document that retail trading is heavily concentrated on high-attention stocks, leading to herding behaviour that affects market returns. In parallel, retail traders have increasingly engaged in copy trading through various platforms. An emerging literature examines copy trading as the number of such platforms has expanded in recent years (Apesteguia et al. 2020; Pelster 2017; Röder and Walter 2019). Grennan and Michaely (2021) argue that technological advancements have lowered information-sharing costs, enabling retail investors to observe and replicate others' trades. On some online brokerage platforms, users can directly access information about other users' portfolio positions and automatically copy them (Apesteguia et al. 2020). Imitation can be an effective decision-making approach under certain conditions (Alos-Ferrer and Schlag 2009).

Imitation involves replicating others' actions rather than forming independent strategies and is a common feature of human decision-making (Schlag 1998). It is widespread because it requires relatively little information about the environment, although effective imitation still requires agents to decide whom to imitate, when to do so, and how closely to follow observed actions (Alos-Ferrer and Schlag 2009). In financial markets, such behaviour appears in the form of copy trading, where investors observe others' performance and replicate their trades, a mechanism long been studied in models of herding and social learning (Bikhchandani et al. 1992; De Long et al. 1990). Imitation takes place when investors perceive others as more skilled. Warren Buffett's long term investment record places him among the most successful investors in history, making Berkshire Hathaway a natural focal point for retail imitation. Evidence from social trading platforms show that investors are more likely to copy traders with strong performance and return momentum (Pelster 2017; Röder and Walter 2019). Moreover, Apesteguia et al. (2020) demonstrate that information about others' investment success encourages risk-taking behaviour and can reduce investors' welfare, even when copying appears rational.

Although prior studies have examined retail copy trading across various platforms (Apesteguia et al. 2020; Röder and Walter 2019), little is known about whether retail traders copy institutional investment strategies. Our study addresses this critical gap by investigating retail trading responses to Berkshire Hathaway's investment disclosures. This setting is important

because retail investors often experience losses from independent trading, while imitating an established institutional investor, like Berkshire Hathaway, may offer an alternative strategy. In addition, we examine whether retail investors respond symmetrically to Berkshire Hathaway's purchases and sales, and whether such behaviour impacts their investment outcomes. Specifically, we test whether retail investors achieve positive returns by imitating Berkshire Hathaway's portfolio adjustments. Given the growing interest in copy trading, this analysis helps assess whether following an institutional expert enhances retail investors' profitability.

We analyse Berkshire Hathaway's 13F filings from 2007 to 2023. Our findings suggest that retail investors exhibit clear mimicking behaviour following two types of portfolio adjustments: increases in existing positions and acquisitions of new stocks. These results align with Brav et al. (2008), who show that activist hedge fund disclosures via 13D filings lead to abnormal returns and elevated trading activity. Additionally, our analysis reveals that retail responses to sell disclosures and position exits are much weaker compared to their reaction to new holdings and buy disclosures. This asymmetry is consistent with Barber and Odean (2008), who suggest that retail investors are more responsive to attention-induced buy signals and face constraints when selling.

We also document post-disclosure return patterns. Stocks associated with new holdings and buy disclosures exhibit positive abnormal returns up to day 15 following the disclosure, with stronger statistical significance for new holdings. Additionally, we observe a reversal in returns across all disclosure types. For new holdings and buys, returns decline through day 30, whereas for sells and exclusions, returns rebound over the same horizon. These dynamics highlight differences in how retail investors process and respond to institutional trading signals.

The rest of the paper will be organised as follows. Section 2 contains a literature review and hypothesis development. Section 3 describes the sample selection; Section 4 describes the methodology. Section 5 discusses the results. Section 6 offers the conclusion.

2. Literature Review and Hypothesis Development

Our paper contributes to the literature related to retail and copy trading. First, retail traders are more prone to irrational behaviour in the financial market. There is an ongoing debate about retail traders being uninformed, thus creating noise in the market. They can move the market if they start buying or selling some stock collectively. Previous studies provide evidence that if

retail traders show intense buying behaviour, the stock will be overpriced. If they start intense selling, it will cause undervaluation of the particular stock (Barber et al. 2009; Bloomfield et al. 2009).

Behavioural biases are a significant component among individual investors, ultimately causing losses and noise in the market. Previous studies exhibit that behavioural biases faced by retail traders cause them to make errors while making investment decisions (Barber and Odean 2000; Barberis et al. 1998). Barberis et al. (1998) Examine how psychological biases impact financial decision-making and shed light on behavioural biases in the financial sector. The authors highlight several cognitive biases frequently displayed by investors, including overconfidence and loss aversion. Another study indicates that inadequate information in the market can worsen these biases. The limited knowledge of investors on a particular group of securities substantially impacts their investment decisions and the overall market values. This highlights how the absence of complete information can result in market inefficiencies (Merton 1987).

Whereas Kumar (2009) argues that when stocks are hard to value, individual investors exhibit more substantial behavioural biases, such as the disposition effect and overconfidence. These biases are common among less-informed investors and strategically exploited by more informed market participants. This interaction between different types of investors highlights a dynamic market environment where sophisticated investors use the predictable errors of less experienced ones to optimise their trading strategies. Ultimately, these biases often lead investors to make decisions that deviate from rationality, which can result in systematic errors and suboptimal financial outcomes (Barberis et al. 1998).

Other related papers explore imitation in terms of general, within the economic settings, and specifically in the financial market (Alos-Ferrer and Schlag 2009; Duffy et al. 2019; Offerman and Schotter 2009), such as Weizsäcker (2010) shows that generally, people tend to give more weight to their private information and not enough to social information. In other words, people fail to learn from others when they should due to bias towards their private information. Similarly, Pool et al. (2015) show that fund managers who connect more often have similar holdings and trades. Moreover, fund managers who live in a neighbourhood have a higher similarity of funds than managers who live in the same city but not in the neighbourhood.

On the other hand, Ammann and Schaub (2021) examine the impact of social interaction on investment decisions and suggest that followers start copying more shared portfolios of traders after comments are posted. Similarly, Offerman and Schotter (2009) use a production choice

and a takeover game to examine the role of peer information in situations where random factors impact payoffs. They suggest that imitation influences the participants' behaviour, often leading to riskier behaviour, though imitation is not optimal in their scenario.

Another study suggests that the disposition effect becomes stronger after investors take advice from friends. They investigate the anomaly disposition effect and find that investors tend to sell early in the upmarket, whereas they hold for too long when it's a down market (Heimer 2016). Similarly, Goeree and Yariv (2015) and Duffy et al. (2019) demonstrate that in social learning experiments, a significant fraction of participants are strongly inclined to follow others, even if there is no information regarding their performance. Wohlgemuth et al. (2016) suggest that various factors beyond performance can impact other investors' copying trade strategy decisions. For example, investors can build trust by adding personal details to their profile, such as a profile picture and full name. Whereas Apesteguia et al. (2020) exhibit that increased risk-taking behaviour in investors is due to the information they receive regarding the success and investment decisions of others. Apesteguia observes it through experimental settings to understand behaviour in copy trading platforms.

The central hypothesis is framed as follows:

H1: Retail investors mimic Berkshire Hathaway's investment decisions.

Moreover, previous studies have shown an asymmetric reaction to different types of news among different traders. Lee (1992) indicates that small traders consistently buy after some news is revealed, regardless of the nature of the news. At the same time, large traders' reactions vary according to the news. Similarly, Nofsinger (2001) suggests that good news leads to increased trading volume of retail investors. Additionally, their trading behaviour is impacted by the visibility of news publications.

Additionally, Barber and Odean (2008) suggest that retail investors respond differently in buying and selling decisions of stocks. Since they can only sell stocks they already have, individuals usually do not short-sell. Retail investors experience challenges in short selling, making it difficult for them to respond to selling news in the same way they react to buying news. Boehmer et al. (2008) suggest that only more sophisticated retail investors are involved in short-selling activities, as retail investors may face entry restrictions and more lending fees in short-selling. They exhibit that institutions engage in short selling about 75%, and

individuals show less than 2%. Given the potential barriers to short selling, retail investors may exhibit delayed or no response to sell disclosures of Berkshire Hathaway.

Therefore, our second hypothesis is framed as

H2: Retail investors' reactions are asymmetric towards Berkshire's buy vs. sell disclosures, showing more pronounced responses following buy disclosures.

Liu et al. (2014) show that copied trades have a larger probability of positive returns than standard trades. Still, the return on investment is smaller than standard successful trades. Further, in the case of negative returns, losses are typically higher for copied trades. Apesteguia et al. (2020) exhibit increased risk-taking behaviour in investors, which is directly related to the information they receive regarding the success and investment decisions of others. Their findings show that directly copying others or learning from their performance can reduce the welfare of investors. Similarly, according to Offerman and Schotter (2009)

Imitation is not optimal for economic agents, as it creates the behaviour of following someone blindly. In such a case, they cannot consider the possibility that those who have done better might have chosen irresponsibly.

H3: Retail investors' reactions are sub-optimal, leading to eventual reversals in cumulative abnormal returns (CARs).

The hypothesis explores whether returns experience CAR reversals after the disclosure day across different disclosure categories.

3. Sample description and disclosure categories

To identify the dates of portfolio disclosures and the specific stocks bought or sold by Berkshire Hathaway, we rely on 13F data. 13Fs are filed quarterly with the SEC within 45 business days of an entity attaining assets valued at \$100 million or more in any class of the company's securities. These filings document the market value and size of the purchases. Since 1975, 13F filings have informed the SEC about the investment activities of larger managers. Institutional money managers are required to file 13Fs. Each quarterly disclosure of stock holdings by an institution to the Securities and Exchange Commission (SEC) is called a "13F filing." We collected all Schedule 13F filings of Berkshire Hathaway from the SEC's Edgar database for the 16 years from the first quarter of 2007 through the second quarter of 2023. The disclosure

of Berkshire Hathaway's portfolio for each quarter on a specific date is known as a filing. Therefore, the total number of filings corresponds to the total number of quarters, resulting in 64 filings for our study period.

These filings include data on the number of shares Berkshire Hathaway holds, their market value, the company names related to the securities, and their CUSIPs. Refinitiv/LSEG DataStream could not identify 34 CUSIPs from these filings due to changes in company names or CUSIPs over time. These filings include two fund indexes, which are collective investment schemes that aim to replicate the performance of a specific financial market index. These funds hold a portfolio of assets that mirrors the components of the index they track, such as the S&P 500. In our study, our initial sample includes 128 securities. We exclude fund indexes because they represent broad market performance rather than specific investment choices made by fund managers. We exclude American Depositary Receipts (ADRs) and a non-Nasdaq OTC security. ADRs are foreign companies traded over the counter without being listed on a US exchange. Non-Nasdaq OTC (Over-the-Counter) securities are traded directly between parties or through broker-dealer networks rather than on formal exchanges like the NYSE or Nasdaq. These securities often do not meet the listing standards of major exchanges and can include stocks, bonds, and derivatives.

Table 1. Sample selection

Table 1 presents the details regarding the number of events and companies related to them.

Sample selection process	Number of events	Equities
Total number of events and equities	2848	171 LOCs:162 companies
Less: ADRs and index funds	(123)	9: 2 funds, 6 ADRs, 1 non-Nasdaq OTC
Less: 34 unidentifiable LOCs	(505)	34 LOCs:33 Companies
Total number of events and equities	2220	128 companies
Add: Exclusions	98	89 companies
Less: missing returns and ask, bid data	(37)	15 Companies
Total sample in the first analysis	2281	127 companies

We collect market return data from the French (2020) data library; however, for returns index data, we use LSEG DataStream using LOCs of stocks. We extract ask, bid, and price tick data from Refinitiv DataScope for retail trading calculations. To do this, we first obtain RICs from Refinitiv DataScope and then use these RICs to extract the data. Five RICs are missing for five LOCs; therefore, we manually search for them on Refinitiv Workspace, utilising the company's name. Data for 37 events related to returns and retail trading is missing. This data pertains to 15 stocks, including one for which ask and bid price data for the entire sample is unavailable

on Refinitiv DataScope. Data missing for returns and ask/bid price is primarily related to the dates of mergers involving those stocks. We exclude events for which data is unavailable from the 30 working days preceding and following the event. Therefore, we have 127 stocks and 2,281 events for the final analysis.

Table 1 outlines the sample selection process, highlighting discrepancies in the number of Lines of Credit (LOCs) and companies. These discrepancies arise because different share classes of some companies are included in the sample. The "Equities" column indicates the number of equities associated with the events listed in the "Number of Events" column.

Table 2. Descriptive stats of disclosure categories

The new holdings (Buy) variable is computed as the number of new stocks included in Berkshire Hathaway's portfolio yearly; exclusions are the number of stocks that exited the portfolio. Whereas buy, sell, and unchanged are stocks with increased, decreased, and the same number of shares in Berkshire Hathaway's portfolio compared to the previous quarter. These variables are calculated quarterly, and then the sum is taken yearly. These variables are calculated after excluding data for missing events.

year	Buy	sell	Unchanged	New holdings(buy)	Exclusions	N
2007	21	12	53	7	3	86
2008	19	11	82	4	2	112
2009	17	21	82	6	2	120
2010	12	32	65	1	9	109
2011	18	11	50	8	6	79
2012	34	31	39	9	5	104
2013	37	14	80	9	2	131
2014	36	19	91	5	3	146
2015	29	20	98	7	5	147
2016	20	17	109	5	4	146
2017	19	17	112	5	4	148
2018	29	22	100	6	4	151
2019	21	16	127	7	2	164
2020	24	47	102	9	10	173
2021	21	40	101	7	11	162
2022	35	27	108	11	6	170
2023	18	26	89	6	6	133

Table 2 exhibits descriptive statistics for disclosure categories. The buy, sell, and unchanged categories are based on whether the number of shares in Berkshire Hathaway's portfolio for each stock increased, decreased, or remained unchanged compared to the previous quarter. New holdings represent stocks that appeared in the portfolio for the first time (or after a gap), while exclusions represent stocks that disappeared in the current quarter. We remove some events due to missing data, which causes discrepancies between the total N and the number of buy and sell categories. After calculating these variables quarterly, we sum them up yearly.

4. Methodology

In this study, we first examine the main hypothesis, which is that retail traders mimic the trading actions of Berkshire Hathaway. We calculate retail participation and imbalance and then calculate abnormal returns surrounding the 13F disclosure.

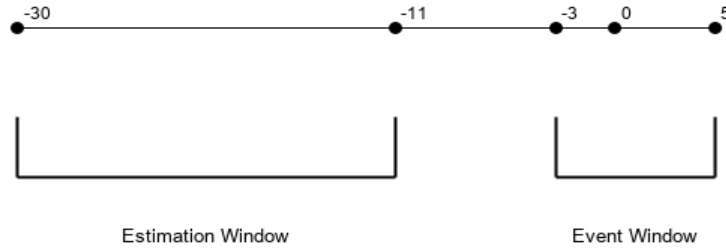
4.1. Event study methodology

Event study methodology has become a widely used approach in empirical research within finance and economics. Ball and Brown (1968) and later Fama et al. (1969) formally developed a proper event study structured approach. However, according to MacKinlay (1997), the origin of the event study methodology can be traced back to Dolley (1933). The event study methodology is based on the efficient market hypothesis, which suggests that any significant event in the market will be reflected in stock price movements. This allows researchers to assess how the market responds to new information and how specific events impact stock price movements. For instance, Gaver et al. (1992) utilise the methods to evaluate how the stock market reacts to the implementation of long-term incentive plans for senior executives. Similarly, Agrawal and Kamakura (1995) evaluate the impact of celebrity endorsements by examining abnormal stock returns. Thompson (1993) investigate the anticipated effects of the Canada–United States Free Trade Agreement on industry-level stock performance, concluding that trade liberalization had a generally positive economic impact. Additionally, Katselas (2018) analyses abnormal returns over the five days following insider trade announcements to investigate how such announcements convey new information in the stock market. The study finds significant abnormal returns for insider purchases but not for insider sales. Additionally, it reveals an inverse relationship between firm size and abnormal returns. Moreover, Ainsworth and Lee (2023) suggest that individual investors actively trade to gain imputation tax credits and, as a result, drive prices up before the ex-dividend date and cause a price drop afterwards. They report that while individuals benefit from tax credits, institutions gain from trading volume.

Based on prior research, this study employs an event study methodology to analyse retail investor activity and the cumulative abnormal returns (CARs) of stocks included in Berkshire Hathaway's 13F disclosure filings.

4.2. Event study setup

This study investigates the mimicking behaviour of retail investors in response to Berkshire Hathaway's quarterly 13F portfolio disclosures in the market. Using an event study methodology, we analyse how retail traders react and how stock returns behave around the disclosure dates. The estimation window is set from day -30 to -11 , while the event window spans from day -3 to $+5$, allowing us to observe return patterns before, during, and after the disclosure day. To examine whether any abnormal returns reverse and gains over time, we also analyse extended event windows of $(0,5)$, $(0,10)$, $(0,15)$, $(0,20)$, $(0,25)$, and $(0,30)$.



4.2.1. Retail ratios

We use the Boehmer et al. (2021) algorithm to identify retail participation. This algorithm relies on retail trades receiving price improvement in a small fraction of a cent over the National Best Bid or Offer (NBBO) for market orders. For this, we calculate Z :

$$Z = 100 \times \text{mod}(\text{price}, 0.01) \quad (1)$$

Trades will be identified as retail trading if z is not equal to 0, 0.5. To sign trade direction, we use the improved method proposed by Barber et al. (2023); it recognises retail sales (Exchange ID "ADF") that are being traded on prices less than the midpoint and as buys that are more than the midpoint of the best ask and best bid price. Meanwhile, trades between 40% and 60% of the national best bid or offer (NBBO) do not have signed directions (Buy/sell), as trades near the midpoint could be institutional. ADF started operating permanently in 2007. Therefore, we restrict our sample to the 2007 first quarter. Using retail trading data, we further calculate retail participation and retail imbalance ratios.

$$\text{Retail Participation \%} = \left(\frac{\text{Total retail trade volume}}{\text{Total trade volume}} \right) \times 100 \quad (2)$$

$$\text{Retail order imbalance \%} = \left(\frac{\text{Retail buy volume} - \text{Retail sell volume}}{\text{Retail buy volume} + \text{Retail sell volume}} \right) \times 100 \quad (3)$$

Further, we use the following method to calculate abnormal proportions during the event window for the above retail trading ratios.

$$\omega_{i,t} = \chi_{i,t} - \bar{\chi}_i \quad (4)$$

Where $\omega_{i,t}$ presents the retail participation and retail imbalance. We use the above equation to calculate the abnormal proportion for each ratio by subtracting it from its respective average ratio during the estimation period. We took its average and compared it with zero through a t -test.

Where

$$\bar{\chi}_i = \frac{\sum_{t=-30}^{t-11} \chi_{i,t}}{20} \quad (5)$$

We measure abnormal retail trading ratios for each event window by taking the difference between each retail trading ratio during the event window and the estimation window.

4.2.2 Abnormal returns

Abnormal returns around the disclosure dates of the 13F filings are measured by the difference between the actual returns of security i and expected returns:

$$AR_{it} = R_{it} - E(R_{it}) \quad (6)$$

We initiate 20 days of returns in the interval $[t-30, t-10]$ for the estimation window, where t denotes the date of the 13F filing. We draw upon MacKinlay (1997) as the methodological basis to estimate expected returns. Mackinlay defines the market model as a statistical model that links the market portfolio's return with the return of any given security.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \quad (7)$$

$$E(R_{it}) = \hat{\alpha} + \hat{\beta} R_{mt} \quad (8)$$

Where R_{it} and R_{mt} are return index and market index for the security i .

To generate the expected return, equation (8) uses the alpha and beta from the market model equation (7), estimated on returns from $[-30, -11]$. We then replace the returns of the market index on day t to calculate the expected return of stock i on day t , where R_{it} and R_{mt} are the return index and the market index for the security i .

The final step is calculating cumulative aggregate abnormal returns (CARs) from Eq. (6). We calculated it by summing the abnormal returns for every unique pair of disclosure dates and stocks within each window. Subsequently, we aggregated these sums for each respective window. The analysis then uses a standard parametric one-sample t -test. The t -test is calculated for the CARs of each event window.

5. Results

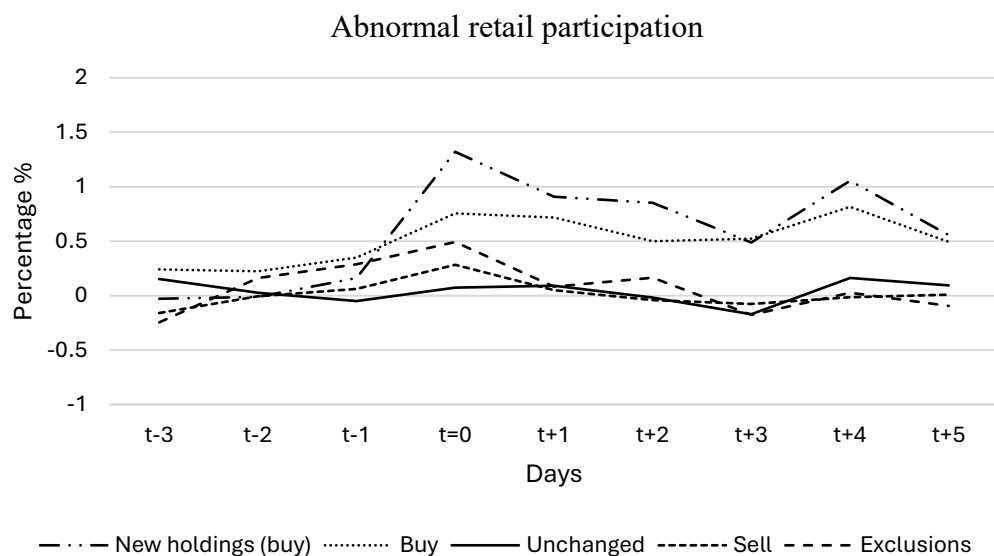
We first document whether retail participation and imbalance are impacted for the stocks included in the 13F document submitted by Berkshire Hathaway around its disclosure date. Further, we analyse the CARs around 13F disclosures. We consider day 0 as the next day of the 13F filing date, except for one filing, as the acceptance time of the 13F filing documents for all the disclosures from 2007 to 2023 is after working hours, excluding that one filing. We adjust that one filing accordingly.

5.1. Abnormal Retail Participation

Figure 1 illustrates how retail investor activity changes in response to different types of 13F disclosures over a window of days surrounding the disclosure date (from $t-3$ to $t+5$). The five categories represent New Holdings (Buy), Buy, Unchanged, Sell, and Exclusions, each present different information, revealing how retail investors interpret and react to institutional trading signals. The most striking feature of the graph is the sharp spike in abnormal retail participation on day 0 for the New Holdings (Buy) category. This peak reflects a highly pronounced and immediate reaction from retail investors when a stock appears for the first time in Berkshire Hathaway's portfolio. The steep rise suggests that retail traders interpret new holdings as a strong positive signal, prompting a surge in trading activity, primarily buying. The Buy category also shows a noticeable increase in retail participation on day 0, though the magnitude is clearly lower than that of new holdings. This indicates that while retail investors do respond to Berkshire increasing its stake in existing holdings, the signal is perceived as less novel or urgent compared to entirely new additions. The response, although significant, is more moderate and tapers off more quickly. In contrast, the Sell and Exclusion categories exhibit smaller but still visible increases in retail participation on day 0. These increases likely reflect a mix of buying and selling activity, as retail investors react to the perceived negative signal. However, the intensity of the response is more subdued, possibly because retail investors can only sell stocks they already own, limiting the breadth of their reaction. The exclusion category, in particular, may trigger stronger selling among those who hold the stock, but the overall

participation remains lower than in buy-related disclosures. The Unchanged category remains relatively flat throughout the event window, with no significant deviation on or around day 0. This flat trend confirms that retail investors do not react to disclosures that indicate no change in institutional holdings, as such information does not convey any new signal or strategic shift. Overall, the graph visually reinforces the findings from the statistical analysis: retail investors are most responsive to new and increased holdings, with the strongest reaction occurring on the day of disclosure. Negative signals, such as sell and exclusion disclosures, prompt more limited responses, and unchanged positions are largely ignored. This pattern underscores the role of perceived informational value in shaping retail trading behaviour around institutional disclosures.

Fig 1. Abnormal retail participation surrounding 13F disclosure
Figure 1 shows movement of retail participation on day 0 compared to 3 days prior and 5 days following the event day.



The results presented in Table 3 provide compelling evidence of how retail investors respond to Berkshire Hathaway's 13F disclosures, with varying degrees of intensity depending on the nature of the disclosure. The most notable reaction is observed in the case of new holdings (buy), where retail participation increases sharply by 1.320% on day 0. This significant spike suggests that retail investors interpret the appearance of a stock for the first time in Berkshire's portfolio as a strong buy signal. The sustained significance of this increase in the days following the disclosure further indicates that such announcements have a lasting influence on retail trading behaviour, likely due to the perceived credibility and success of Warren Buffett. Buy

disclosures, where Berkshire increases its stake in existing holdings, also elicit a positive response, though to a lesser extent. The abnormal retail participation of 0.756% on day 0, which remains statistically significant through day 5, reflects that retail investors still view these disclosures as valuable signals. However, the slightly lower magnitude compared to new holdings may be due to the perception that increasing an existing position is a reaffirmation rather than a new strategic move. In contrast, the unchanged category, where the number of shares held remains the same as the previous quarter, shows no significant retail response. This lack of reaction is logical, as unchanged positions do not convey new information or shifts in investment strategy. Retail investors appear to be primarily motivated by perceived changes or new insights, rather than static disclosures. Sell disclosures result in a modest increase in retail participation of 0.283% on day 0. This suggests that retail investors do respond to Berkshire's decision to reduce or eliminate positions, likely interpreting them as signals to exit or reduce exposure. However, the relatively lower magnitude of the response can be attributed to a practical limitation: retail investors can only sell what they already own. Therefore, the impact of sell disclosures is inherently constrained by the overlap between Berkshire's holdings and retail investors' portfolios.

Similarly, exclusions where a stock is completely removed from the portfolio trigger a 0.492% increase in retail participation on day 0. This indicates that retail investors who hold these stocks react strongly, likely viewing the exclusion as a negative signal. However, the overall response is not strongly significant, as only a subset of retail investors is directly affected. This suggests that while the intensity of individual reactions may be high, the aggregate market response is muted due to limited exposure. These findings collectively support the hypothesis that retail investors engage in copy trading based on Berkshire Hathaway's portfolio changes. This aligns with the findings of Apesteguia et al. (2020), who argue that the visibility of others' success in trading can lead to increased risk-taking among investors. Although their study focuses on online trading platforms, the underlying psychological mechanism of confidence derived from perceived expertise applies here as well. Retail investors, observing Buffett's long-term success, may feel more secure in mimicking his trades, even without fully understanding the fundamentals behind them.

Table 3. Abnormal retail participation

This table presents the abnormal retail participation following the new holdings, buy, unchanged, sell, and exclusions 13F disclosures of Berkshire Hathaway. Each disclosure includes the number of shares for the stocks Berkshire Hathaway holds in its portfolio. We then classify those stocks based on whether the number of shares increased for existing holdings (buy disclosures), decreased (sell disclosures), remained the same (unchanged disclosures), appeared for the first time in the portfolio (new holdings disclosures) or appeared for the last time (exclusion disclosures) in the portfolio. The abnormal retail participation for each stock is calculated by subtracting the ratio average for the same stock in the window between $t-30$ and $t-11$. ***, **, and * denote significance at the 1%, 5% and 10%.

	$t-3$	$t-2$	$t-1$	$t = 0$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$	N
New holdings (Buy)	-0.029	-0.012	0.160	1.320***	0.908***	0.853***	0.486	1.055***	0.554**	112
Buy	0.241*	0.223*	0.350***	0.756***	0.718***	0.500***	0.523***	0.815***	0.492***	410
Unchanged	0.151**	0.026	-0.049	0.074	0.090	-0.017	-0.171***	0.162**	0.094	1488
Sell	-0.160	-0.006	0.062	0.283**	0.051	-0.041	-0.078	-0.014	0.007	383
Exclusions	-0.246	0.162	0.289	0.492*	0.082	0.163	-0.176	0.026	-0.094	84

These findings collectively support the first hypothesis that retail investors engage in copy trading based on Berkshire Hathaway's portfolio changes. The behaviour is consistent with the perception of Warren Buffett as an expert investor whose decisions are worth copying. This aligns with the findings of Apesteguia et al. (2020), who argue that the visibility of others' success in trading can lead to increased risk-taking among investors. Although their study focuses on online trading platforms, the underlying psychological mechanism, confidence derived from perceived expertise, applies here as well. Retail investors, observing Buffett's long-term success, may feel more secure in mimicking his trades, even without fully understanding the fundamentals behind them. From a practical standpoint, these results have several implications. For retail investors, they highlight the importance of critically evaluating institutional trades rather than blindly following them. For financial platforms and brokers, there is an opportunity to develop tools that contextualize 13F filings, helping users make more informed decisions. Additionally, regulators and market analysts should be aware of the potential for copy behaviour driven by high-profile disclosures, which can amplify market volatility. In summary, the data reveal a clear pattern: retail investors are not only aware of institutional disclosures but actively respond to them, particularly when the information signals a change in strategy. Their behaviour reflects a broader trend of increased engagement and reactivity in modern financial markets, driven by the influence of prominent institutional investors.

5.2. Abnormal Retail Imbalance

Abnormal retail imbalance is computed like abnormal retail participation, with both metrics evaluated across different types of 13F disclosure activities. Figure 2 visualizes how abnormal retail imbalance behaves in the days surrounding 13F disclosure dates. These patterns closely mirror those observed in Figure 1, which focuses on retail participation. On the disclosure date (denoted as day 0), there is a notable spike in abnormal retail imbalance for stocks categorized as new holdings and buys. This surge indicates heightened buying interest from retail investors in response to newly disclosed institutional purchases. Among these, the spike for new holdings is especially pronounced, suggesting that retail investors are particularly responsive to institutional investors initiating new positions. In contrast, stocks in the sell and exclusion categories exhibit a sharp decline in abnormal retail imbalance on day 0. This drop reflects a significant reduction in net buying or an increase in net selling by retail investors, in reaction to Berkshire Hathaway disclosures of reduced or eliminated positions. The decline is more severe for exclusions than for the general sell category, highlighting a stronger retail reaction

when institutions completely exit a position. These movements underline the trends seen in abnormal retail participation (Figure 1), where increased activity in the sell and exclusion categories was attributed to retail investors engaging in selling behaviour. Together, the figures suggest that retail investors not only follow Berkshire Hathaway trades but also differentiate between the types of disclosures, reacting more strongly to new entries and complete exits.

Fig 2. Abnormal retail imbalance surrounding 13F disclosure

Figure 2 shows the movement of retail participation on day 0 compared to 3 days prior and 5 days following the event day.

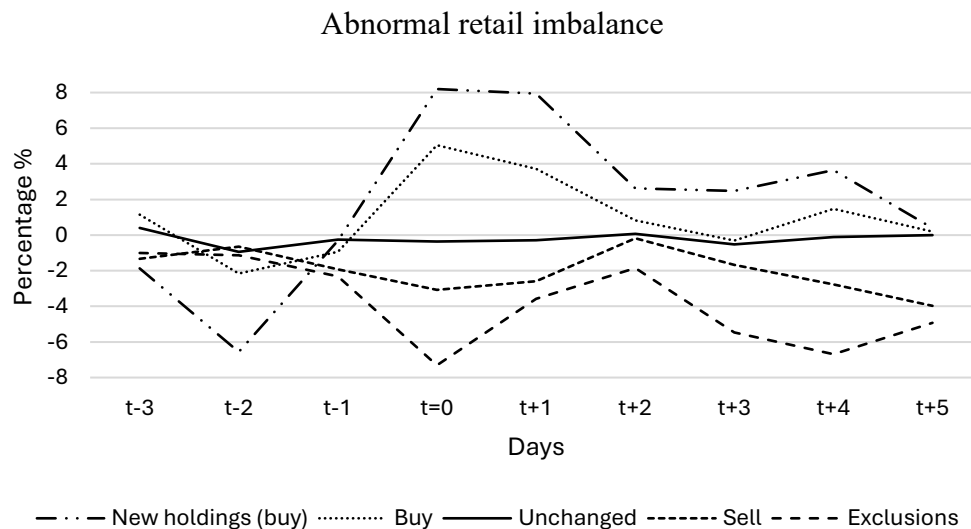


Table 4 presents the results for abnormal retail imbalance around 13F disclosure dates, offering insight into the directional behaviour of retail investors in response to Berkshire Hathaway's portfolio changes. Consistent with the findings in Table 3, new holdings disclosures demonstrate the strongest reaction on day 0, with an abnormal retail imbalance of 8.198%. This indicates that retail buying significantly outweighs selling, with 54.10% of total retail trading volume attributed to buys and 45.90% to sells. Such a pronounced imbalance underscores the strong belief retail investors place in newly disclosed positions, likely interpreting them as high-confidence signals from Berkshire Hathaway. The buy category also shows a positive imbalance, though less intense, with a 5.044% abnormal retail imbalance on day 0. This corresponds to 52.52% buying and 47.48% selling, suggesting that while retail investors do respond positively to increased stakes in existing holdings, the reaction is more measured compared to entirely new additions. This difference reinforces the idea that new holdings are perceived as more informative or indicative of a strategic shift. On the other hand, sell disclosures show a negative imbalance of 3.078%, with retail sales exceeding buying (51.54% vs. 48.46%). This suggests that retail investors are inclined to follow Berkshire's lead in

reducing exposure to certain stocks, although the magnitude of the response is relatively modest. This again may be due to the practical limitation that retail investors can only sell stocks they already own.

Exclusion disclosure where a stock is completely removed from the portfolio triggers a stronger negative imbalance of 7.311%, with 53.67% of retail trading volume being sells and only 46.33% buys. This indicates a more intense reaction among retail investors who hold these stocks, likely interpreting the exclusion as a clear signal to exit. However, as with sell disclosures, the overall market impact is moderated by the proportion of retail investors who actually hold the excluded stocks. The unchanged category, consistent with earlier findings, does not exhibit any significant abnormal imbalance. This further supports the conclusion that retail investors are primarily responsive to perceived changes in Berkshire Hathaway's strategy, rather than static information. Overall, the results in Table 4. provide a directional view of retail investor behaviour, showing significant buying pressure in response to buy and new holdings disclosures, and significant selling pressure in response to sell and exclusion disclosures. These patterns align with the earlier findings and strongly support the hypothesis (H1) that retail investors engage in copy trading based on Berkshire Hathaway's 13F filings. The directional imbalances reflect not only the presence of a response but also its nature, whether retail investors are buying into or exiting positions based on the perceived signals from Warren Buffett's investment decisions. These findings have practical implications for understanding market sentiment and retail behaviour. For regulators and analysts, the results underscore the influence of Berkshire Hathaway's disclosures on retail trading dynamics and the potential for copying behaviour, particularly when driven by high-profile investors.

Table 4. Abnormal retail imbalance

This table presents the abnormal retail imbalance following the new holdings, buy, unchanged, sell, and exclusions 13F disclosures of Berkshire Hathaway. Each disclosure includes the number of shares for the stocks Berkshire Hathaway holds in its portfolio. We then classify those stocks based on whether the number of shares increased for existing holdings (buy disclosures), decreased (sell disclosures), remained the same (unchanged disclosures), appeared for the first time in the portfolio (new holdings disclosures) or appeared for the last time (exclusion disclosures) in the portfolio. The abnormal retail imbalance for each stock is calculated by subtracting the ratio average for the same stock in the window between $t-30$ and $t-11$. ***, **, and * denote significance at the 1%, 5% and 10%.

	$t-3$	$t-2$	$t-1$	$t = 0$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$	N
New holdings (Buy)	-1.878	-6.561**	-0.317	8.198***	7.947***	2.613	2.468	3.651	0.391	112
Buy	1.149	-2.160*	-0.941	5.044***	3.717***	0.824	-0.310	1.468	0.197	410
Unchanged	0.400	-0.944	-0.252	-0.365	-0.291	0.065	-0.532	-0.109	-1.173*	1488
Sell	-1.340	-0.648	-1.924*	-3.078**	-2.583**	-0.182	-1.676	-2.774**	-3.974***	383
Exclusions	-1.006	-1.133	-2.319	-7.311***	-3.589	-1.851	-5.472**	-6.696**	-4.924*	84

5.3. CARs

Figure 3 illustrates how CARs behave in the days surrounding these disclosures. Notably, there is a clear uptick in CARs on the event day (day 0) for both new holdings and buy disclosures, suggesting a positive market reaction to these signals. This pattern mirrors the trends observed in retail investor activity and imbalances. Conversely, both Figures 2 and 3 reveal a sharp drop in CARs on day 0 for sell disclosures and exclusions, indicating a negative market response to these types of filings. These contrasting movements highlight the market's differential interpretation of buying versus selling signals in institutional disclosures.

Fig 3. Excess return and trading around 13F disclosure dates

Figure 3 shows the movement of CARs on day 0 compared to 3 days prior and 5 days following the event day.

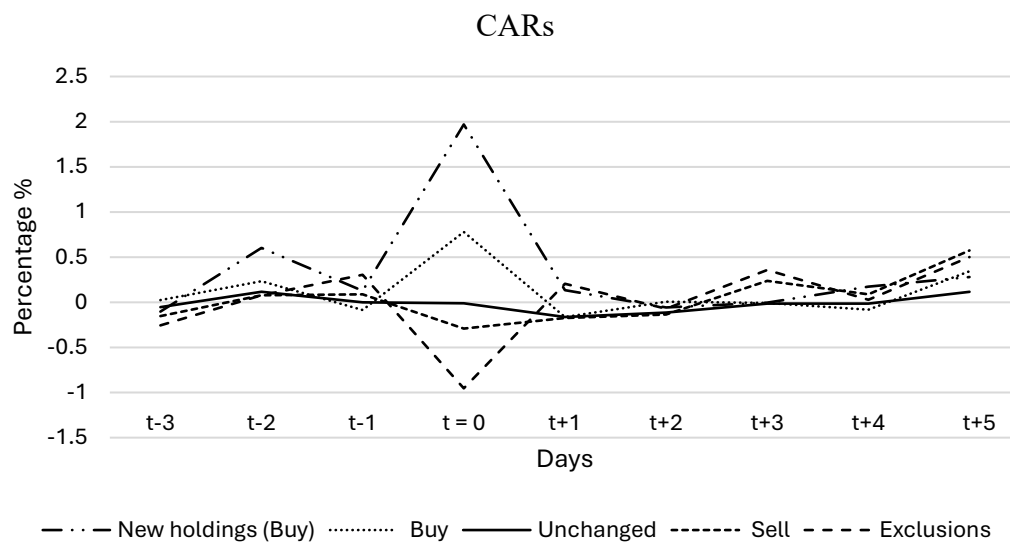


Table 5 presents cumulative abnormal returns (CARs) around the 13F disclosure dates, offering a market-level perspective on how the market responds to Berkshire Hathaway's portfolio change. The results reveal a clear pattern of return movements that mirror the direction of disclosed trades. On day 0, new holdings generate the strongest positive market reaction, with returns increasing by 1.932%. This substantial gain suggests that the market interprets the introduction of new stocks into Berkshire's portfolio as a highly credible signal, likely due to Warren Buffett's reputation for long-term value-driven investing. The strength of this reaction reinforces the idea that new holdings are perceived as fresh, high-conviction bets prompting immediate price adjustments. Buy disclosures also lead to a positive return of 0.731% on day 0, though the magnitude is smaller than that of new holdings. This indicates that while the market still reacts favourably to increased positions in existing stocks, the signal is interpreted as less novel or impactful. The difference in return magnitude between new holdings and buys

aligns with earlier findings on retail participation and imbalance, where new holdings consistently triggered stronger responses. In contrast, sell and exclusion disclosures are associated with negative abnormal returns on day 0. Sell disclosures result in a modest decline of 0.263%, while exclusions lead to a more pronounced drop of 0.844%. This suggests that the market reacts more strongly when Berkshire completely exits a position, viewing it as a more definitive negative signal compared to a partial reduction. These findings are consistent with the behavioural responses observed among retail investors, where exclusions also triggered more intense selling behaviour than sell disclosures.

The unchanged category, as expected, shows no significant abnormal returns, reinforcing the notion that the market does not react to disclosures that convey no new information. While some volatility is observed on other days, these fluctuations are likely attributable to unrelated market factors and do not exhibit consistent patterns tied to the disclosures. These results align with the broader literature on market reactions to institutional disclosures. For instance, Brav et al. (2008), find that activist hedge fund disclosures via 13D filings lead to abnormal returns and increased trading activity. Although the current analysis focuses on 13F filings, the underlying mechanism appears similar: disclosures from credible, high-profile investors like Warren Buffett generate confidence and influence market behaviour. The observed day 0 reactions across categories suggest that the market is relatively efficient, quickly incorporating new information into prices once it becomes public. Overall, the CARs in Table 5 complement the behavioural evidence from Tables 3 and 4, painting a consistent picture of how both retail investors and the broader market respond to Berkshire Hathaway's 13F disclosures. The findings support the hypothesis that investors engage in copy trading and price adjustments based on perceived signals from expert investors. They also highlight the informational value embedded in institutional disclosures and the speed with which markets react to them.

Table 5 CARs

This table presents the abnormal returns following the new holdings, buy, unchanged, sell, and exclusions 13F disclosures of Berkshire Hathaway. Each disclosure includes the number of shares of the stock Berkshire Hathaway holds in its portfolio. We then classify those stocks based on whether the number of shares increased for existing holdings (buy disclosures), decreased (sell disclosures), remained the same (unchanged disclosures), appeared for the first time in the portfolio (new holdings disclosures), or appeared for the last time (exclusion disclosures) in the portfolio. The abnormal returns are calculated as the difference between the daily return for a given stock minus the average daily abnormal return for the same stock between $t-30$ and $t-11$. ***, **, and * denote significance at the 1%, 5% and 10%.

	$t-3$	$t-2$	$t-1$	$t=0$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$	N
New holdings (Buy)	-0.161	0.518***	0.168	1.932***	0.162	-0.040	0.003	0.150	0.263	112
Buy	0.005	0.090	-0.016	0.731***	-0.060	0.046	0.026	-0.113	0.272***	410
Unchanged	-0.074*	-0.032	-0.006	-0.064*	-0.020	-0.114***	0.016	-0.062	0.058	1488
Sell	-0.179**	-0.060	0.098	-0.263***	-0.135*	-0.084	0.245**	0.015	0.550***	383
Exclusions	-0.227	-0.003	0.217	-0.844***	0.143	-0.033	0.331*	0.145	0.518**	84

5.4. Comparison between Different Disclosure Categories

To assess how retail investor responses vary across different 13F disclosure categories, Table 6 presents two-sample t-test comparisons across three dimensions: abnormal retail participation (Panel A), abnormal retail imbalance (Panel B), and cumulative abnormal returns (CARs, Panel C). The comparisons include key pairings such as new holdings vs buy, buy vs sell, buy vs unchanged, sell vs exclusions, and new holdings vs exclusions. For the comparisons involving buy vs sell and new holdings vs exclusions, the signs of the sell and exclusion categories were reversed to allow for a direct comparison of response intensity, regardless of direction. However, for retail imbalance, we use absolute values to measure the difference in magnitude terms.

Panel A shows that on day 0, new holdings disclosures are associated with 0.563% higher abnormal retail participation than buy disclosures. Although this difference is only marginally significant, it suggests that retail investors react more strongly to new additions in Berkshire Hathaway's portfolio than to increases in existing holdings. However, from days 1 to 5, the difference becomes statistically insignificant, indicating that the initial spike in participation for new holdings does not persist. Buy disclosures also generate 1.039% more retail participation than sell disclosures on day 0 and 0.595% more in the post-event window, confirming that buy signals elicit stronger and more sustained retail engagement. Similarly, buy vs unchanged shows a 0.683% higher participation on day 0 and 0.578% more post-event, reinforcing that those unchanged disclosures, those with no change in shareholding, do not trigger meaningful retail trading activity. The comparison between sell and exclusions shows no significant difference in participation, suggesting similar levels of retail response to both types of negative signals. However, new holdings vs exclusions reveal a substantial difference: new holdings generate 1.812% more retail participation on day 0 and 0.771% more post-event. This stronger response may be partly due to a practical constraint: retail investors can only sell what they already hold, limiting their ability to act on exclusion disclosures.

Panel B compares abnormal retail imbalance, which reflects the directional pressure in retail trading. We compare retail imbalance by taking its absolute values. Specifically, the imbalance is significantly higher for new holdings (buy) compared to buy disclosures, both on day 0 and over the post-event window. This suggests that retail investors react more intensely when Berkshire initiates new positions. Additionally, buy disclosures show significantly lower imbalance than unchanged disclosures in the post-event period. This indicates that retail trading is more active and divergent for unchanged holdings, possibly due to speculative behaviour or

uncertainty. Similarly, sell disclosures show significantly lower imbalance than exclusions, implying that retail investors respond more strongly to stocks removed from the portfolio than to those simply sold. The remaining comparisons, including buy vs sell and new holdings vs exclusions, are statistically insignificant. This shows no meaningful difference in retail trading intensity between those categories.

Table 6. Comparison of disclosure categories

Table 6 presents the results of comparisons between new holdings and buy, buy and sell, buy and unchanged, sell and exclusions, and new holdings and exclusions for abnormal retail participation (Panel A), abnormal retail imbalance (Panel B), and CARs (Panel C), using a two sample t-test. ***, **, and * denote significance at the 1%, 5% and 10%.

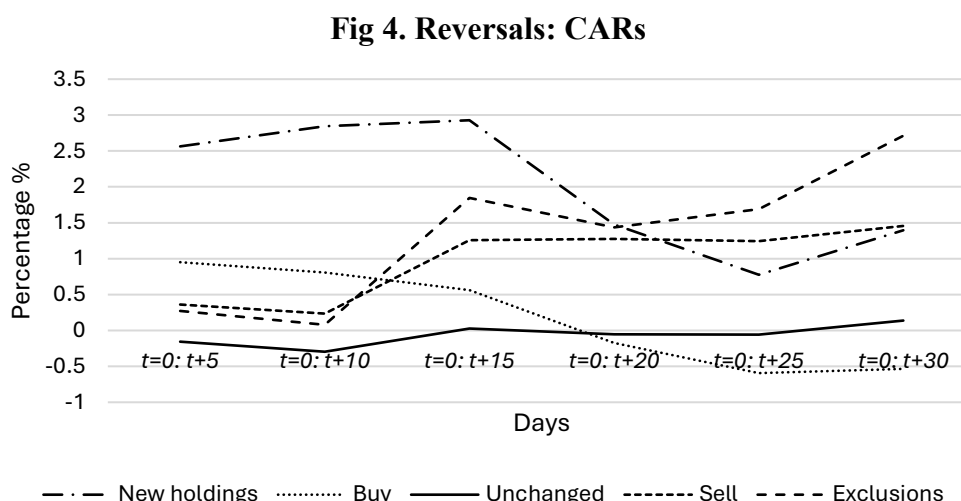
	<i>t=0</i>	<i>t+1:t+5</i>
<i>Panel A: Abnormal retail participation</i>		
New holdings (buy) vs buy	0.563*	0.162
Buy vs sell	1.039***	0.595***
Buy vs unchanged	0.683***	0.578***
Sell vs exclusions	-0.209	-0.015
New holdings(buy) vs exclusions	1.812***	0.771***
<i>Panel B: Abnormal retail imbalance</i>		
New holdings (buy) vs buy	3.248*	2.207***
Buy vs sell	-0.864	0.328
Buy vs unchanged	-1.180	-1.333***
Sell vs exclusions	-0.927	-1.447*
New holdings(buy) vs exclusions	1.457	1.087
<i>Panel C: CARs</i>		
New holdings (buy) vs buy	1.201***	0.073
Buy vs sell	0.468***	0.152***
Buy vs unchanged	0.795***	0.059
Sell vs exclusions	0.581**	-0.103
New holdings(buy) vs exclusions	1.088***	0.328***

Panel C presents comparisons of cumulative abnormal returns (CARs) across the different disclosure categories. New holdings disclosures are associated with 1.201% higher CARs than buy disclosures on day 0, indicating a stronger positive market reaction. Buy vs sell shows a 0.468% higher return for buy disclosures, while buy vs unchanged shows a 0.795% higher return. These results suggest that the market responds more favourably to signals of increased institutional interest than to reductions or unchanged positions. The sell vs exclusions comparison shows a 0.581% difference, with sell disclosures yielding slightly better returns than exclusions. This aligns with the broader observation that exclusions often trigger more negative price reactions. The most notable difference is between new holdings and exclusions, where new holdings generate 1.201% more abnormal returns on day 0. This reinforces the

conclusion that new holdings are perceived as the most impactful type of disclosure, both by retail investors and the broader market. In summary, the results across all three panels indicate that new holdings disclosures consistently generate the strongest retail and market responses. Buy disclosures also elicit meaningful engagement, while sell and exclusion disclosures prompt more muted or constrained reactions. These findings support the second hypothesis that retail investors exhibit a more pronounced response to buy-related disclosures than to sell-related ones. Moreover, the consistent patterns in retail participation conclusively highlight the importance of disclosure type in shaping investor behaviour and market outcomes.

5.5. Gains and Return Reversals

To assess whether stock returns reverse following 13F disclosures, we calculate compounded cumulative returns for each event-stock pair over multiple post-disclosure windows: days 0–5, 0–10, 0–15, 0–20, 0–25, and 0–30. For each window, we then compute the arithmetic mean of these compounded returns across all events, along with their corresponding *t*-values.



Our findings in Table 7. indicate that investors who purchase on the disclosure date (day 0) typically realize short-term gains for new holdings. For new holdings, the average compounded return is 2.565% over days 0–5, rising to 2.843% by day 10 and peaking at 2.928% by day 15. Beyond this point, returns begin to taper off, dropping to 0.776% by day 25, suggesting a partial reversal of earlier gains. This pattern implies that while markets respond positively to new holdings disclosures, the effect diminishes over time. Buy disclosures also generate statistically significant short-term returns: 0.951% over days 0–5, 0.806% over days 0–10, and 0.562% over days 0–15. However, these gains do not exceed the initial day 0 return and decline sharply after day 15, turning slightly negative by days 25 and 30, indicating a full reversal of the initial

reaction. In contrast, sell disclosures and exclusions show no significant immediate impact. For sell disclosures, short-term returns are modest and statistically insignificant (e.g., 0.362% over days 0–5), but become positively significant after day 15, reaching 1.259% by day 30.

Table 7. Return Reversals. Table 7 presents CARs across multiple event windows, which allow inference about return reversal patterns. The methodology is described in Section 5.5. Statistical significance is denoted by ***, **, and, corresponding to the 1%, 5%, and 10% levels.

	$t=0: t+5$	$t=0: t+10$	$t=0: t+15$	$t=0: t+20$	$t=0: t+25$	$t=0: t+30$
New holdings	2.565 (4.18)***	2.843 (3.62)***	2.928 (2.78)***	1.476 (1.35)	0.776 (0.59)	1.395 (0.97)
Buy	0.951 (3.57)***	0.806 (2.31)**	0.562 (1.07)	-0.174 (-0.31)	-0.594 (-0.97)	-0.533 (-0.79)
Unchanged	-0.158 (-1.20)	-0.296 (-1.47)	0.025 (0.09)	-0.053 (-0.16)	-0.056 (-0.16)	0.138 (0.34)
Sell	0.362 (1.30)	0.235 (0.63)	1.259 (2.20)**	1.275 (1.96)*	1.246 (1.77)*	1.456 (1.87)*
Exclusions	0.272 (0.53)	0.079 (0.11)	1.846 (1.68)*	1.437 (1.18)	1.691 (1.30)	2.712 (1.88)*

Exclusions follow a similar pattern, with minimal early movement but a steady increase in returns, eventually reaching a 2.712% gain by day 30. These patterns suggest that while the market may initially react negatively to sell-related disclosures, prices tend to recover over time. Overall, the evidence supports the presence of return reversals following 13F disclosures. Investors who buy on day 0 can earn meaningful short-term gains from new holdings; however, these gains tend to reverse after two weeks. New holdings stocks can earn up to 2.928% abnormal returns for up to 15 working days. However, for buy disclosure stocks, their returns start reversing after 5 days. Conversely, sell disclosures and exclusions can present delayed opportunities. This shows that retail investors' imitation strategy towards Berkshire Hathaway is not based on a rational approach, as returns are reversed eventually. By adopting a contrarian strategy rather than imitating, investors may benefit from significantly improved returns.

5.6. Regression of retail trading participation against other determinants

To assess the impact of Berkshire Hathaway's 13F disclosures on retail investor behaviour and stock performance, we conduct a regression analysis controlling for several firm-specific and market-related factors. Specifically, we examine retail participation and cumulative abnormal returns (CARs) on the disclosure date ($t=0$). For each stock-event pair, we estimate the following regression models:

$$\text{Retail participation}_{it} = \beta_0 + \beta_1 \text{Mkt Cap}_{it} + \beta_2 \text{Buy}_{it} + \beta_3 \text{Sell}_{it} + \beta_4 \text{Residual Risk}_{it} + \beta_5 \text{Beta}_{it} + \beta_6 \text{Crisis}_{it} + \epsilon_i \quad (9)$$

$$CAARs_{it} = \beta_0 + \beta_1 Mkt\ Cap_{it} + \beta_2 Buy_{it} + \beta_3 Sell_{it} + \beta_4 Residual\ Risk_{it} + \beta_5 Beta_{it} + \beta_6 Crisis_{it} + \epsilon_i \quad (10)$$

In these models, Mkt Cap is the natural logarithm of the firm's market capitalization. Residual Risk and Beta are estimated using a market model, where residual risk captures firm-specific volatility not explained by market movements, and beta measures systematic risk relative to the market. Crisis is a dummy variable equal to one during the Global Financial Crisis (June 30, 2007 – December 30, 2009) and the COVID-19 period (January 1, 2020 – April 7, 2020) (Shehzad et al. 2020). Buy and Sell are dummy variables indicating whether the stock was disclosed as a buy or sell, respectively. To avoid the dummy variable trap, we exclude the “unchanged” category. We also do not include separate dummies for new holdings or exclusions, as they are subsets of the buy and sell categories and could introduce multicollinearity.

Table 8. Regression of Retail Participation and CARs against other variables

This table presents regression results of retail participation and CARs for all the control variables for time $t=0$. The dependent variable in the regression is retail participation and CARs t values are show in parentheses. ***, **, and * denote significance at the 1%, 5% and 10%.

	Abnormal retail participation	CARs
Intercept	1.479*** (3.01)	0.313 (1.03)
Mkt capital	-0.124*** (-3.01)	-0.028 (-1.10)
Buy	0.700*** (4.51)	0.793*** (8.20)
Sell	0.214 (1.34)	-0.221** (-2.21)
Residual risk	0.033 (0.44)	0.071 (1.52)
Beta	0.177 (-1.85)	-0.141** (-2.37)
Crisis	0.213 (1.24)	-0.258** (-2.42)
Obs.	2281	2281
Adj. R^2	0.0120	0.0374

Table 8 presents the regression results. The findings are consistent with earlier descriptive evidence. The Buy dummy has a coefficient of 0.700 in the retail participation regression. This indicates that, relative to unchanged disclosures, stocks disclosed as buys by Berkshire Hathaway are associated with an additional 0.700 percentage-point increase in retail participation on day 0. Similarly, the Buy dummy corresponds to an incremental +0.793 percentage points in cumulative abnormal returns (CAR) relative to unchanged disclosures,

while the Sell dummy is associated with an incremental -0.282 percentage points in CAR on the disclosure day.

These results are consistent with our key findings that, relative to unchanged disclosures, Berkshire's buy disclosures are associated with increased retail investor participation and incremental positive abnormal returns, whereas sell disclosures are associated with comparatively modest negative effects. Market capitalization is negatively associated with retail participation, with a 1% increase in market cap leading to a 0.124% decrease in abnormal retail participation. This aligns with expectations, as retail investors tend to favour smaller, more speculative stocks over large-cap firms. CARs are negatively impacted by beta as an increase in risk related to market movements causes a decrease in that stock's returns. Crisis dummy shows a negative impact on CARs; it aligns with the findings of (Shehzad, Xiaoxing & Kazouz 2020). They show that the global financial crisis and COVID-19 harm the returns in the financial market.

6. Conclusion

Using data from the SEC EDGAR database, we investigate abnormal retail participation, retail order imbalance, and cumulative average abnormal returns (CARs) surrounding Berkshire Hathaway's 13F disclosure dates. Portfolio changes are classified into five categories: buys, sells, unchanged holdings, new holdings, and exclusions based on quarterly changes in share counts. Our analysis reveals that retail investors respond strongly to disclosures of buys and new holdings while showing limited reaction to sells and exclusions, and virtually no response to unchanged holdings. This behaviour suggests a tendency toward mimicking Berkshire Hathaway's investment decisions. We find that stocks disclosed as new holdings and buys generate positive returns when purchased on the disclosure date ($t = 0$) and held over short-term windows. New holdings and buy show significant reversals from day 15 until day 30. Additionally, we detect return reversals for sales and exclusions disclosures by day 30. These findings support the hypothesis that retail traders mimic Berkshire Hathaway's trading decisions. Stocks flagged in sell and exclusion disclosures may offer gains if approached contrarian. This pattern suggests that retail investors' tendency to mimic Berkshire Hathaway's moves is not grounded in a rational strategy, as returns eventually reverse.

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