Influence of endogenous reference points on the selling decisions of retail investors *

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Abstract

We examine the influence of the endogenous reference points on the selling decisions of investors in stocks. We investigate whether endogenous stock-specific reference points, 'realized-return', and 'peak-return' of the previous round of investment significantly influence the selling propensity when they repurchase the same stock, using trader-level data. We find that the selling propensity significantly rises when the return in the repurchase round is close to the 'realized-return' and the 'peak-return' of the previous round. The results imply that the stock-specific past experience significantly impacts the reference formation. The paper also documents several heterogeneities in the influence of the two reference points. First, their role is more significant for traders with a relatively short holding period. Second, the impact is also lower when the time between the consecutive rounds of investment is shorter, implying a recency effect. Finally, The reference points have a more significant impact on traders with relatively more concentrated portfolios, likely due to the lower scattering of attention when traders hold fewer stocks.

Key words: Investment Experience, Investor Behaviour, Behavioural Finance

JEL classifications: G11, G40, G41

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1. Introduction

The decision-making of participants is known to be influenced by reference points in contexts such as financial markets (Odean, 1998) and housing markets (Genesove & Mayer, 2001). It is widely documented that loss aversion (Kahneman & Tversky, 1979) driven decision making in financial markets is the outcome of traders' employing status-quo as a reference point. As an outcome, the influence of status-quo as a reference point is argued to drive the disposition effect (Odean, 1998; Shefrin & Statman, 1985) where the purchase price acts as a reference point, and traders exhibit a strong reluctance to sell stocks with negative returns.[1] When evaluating the gain and loss of an investment with respect to status-quo, every decision-maker employs the zero percent return level as the reference point. Such a reference point, common to all traders, is exogenous to the decision-makers. In contrast, when the reference point is shaped by the individual-specific inputs, such as past experience, the reference points become endogenous to the decision-maker. When evaluated based on endogenous reference points, the assessment of gains and losses could vary across investors.

Endogenous reference points are known to be shaped by the past experience (Crawford & Meng, 2011; W. Lin & Meng, 2015; Strahilevitz, Odean, & Barber, 2011) and prior expectations (Kőszegi & Rabin, 2006) of the decision-makers. For instance, Crawford and Meng (2011) document that the probability of stopping the work on a certain day by New York cab drivers increases when their earnings on the day reach the average of past daily earnings. W. Lin and Meng (2015) find the investors are more likely to sell their stocks when the return on the position crosses the level of average return earned over the previous investments. Strack and Viefers (2019) find that regret averse agents prefer to gamble until the payoff matches the best offer from the past. Despite the significance of endogenous reference points in influencing investor decisions, its influence is not widely studied in the financial markets, possibly due to the paucity of data that allows researchers to trace the formation of endogenous reference points. It leaves several interesting questions unaddressed. For instance, it is not yet known how the experience of investment in a particular asset impacts the selling decisions in the subsequent rounds of investment in the same asset.

[1] The influence of status-quo as a reference point on investor decision making has been examined extensively across various asset classes (Choe & Eom, 2009; Genesove & Mayer, 2001; Odean, 1998). In contrast, Meng and Weng (2017) argue that the disposition effect is an outcome of the decision-makers evaluating their position based on prior expectation rather than status-quo.

This study investigates how certain endogenous reference points influence selling decisions in the stock market. The examination is made possible through trader-level data, which allows us to track the investors' stock-specific trading experience and identify the reference points. Particularly, we investigate how the 'realized-return' and maximum possible attainable 'peak-return' of the immediately prior round of investment in a stock influence the selling decision in a subsequent round of investment in the same stock.

In contrast to the focus of this study on the influence of stock-specific endogenous reference points on the selling decisions, earlier research has focused on such influence on the repurchase decision. For instance, Strahilevitz et al. (2011) argue that memory of regret associated with selling a stock at a loss or observing an increase in prices after selling a stock reduces the likelihood of its repurchase. Huang (2019) find that investors are more likely to buy stocks of companies that belong to industries in which they had previously earned positive returns.

Selling decisions are likely influenced by past trading experience when the traders find themselves in a similar environment, such as reinvesting in a previously held stock. Bordalo, Gennaioli, and Shleifer (2020) suggest that similar prior experience being easy to recall is likely to shape the reference point of the decision-maker. Furthermore, during memory retrieval, brain activity is known to closely resemble the activity at the time of the original experience (Folkerts, Rutishauser, & Howard, 2018; Manning, Polyn, Baltuch, Litt, & Kahana, 2011). Hence, it is likely that the selling decision in a repurchased stock is evaluated based on the endogenous reference points shaped by the previous trading experience in the same stock.

Studies have examined the role of previous realized outcomes in shaping the reference formation. As argued by Crawford and Meng (2011) and W. Lin and Meng (2015), the mean value of prior realized outcomes is likely to act as a reference point. Hence, when reinvesting in a stock, it is likely that traders would expect to earn at least as much as the level of 'realized-return' from the previous round of investment in the same stock. In which case, the traders would exhibit reluctance to sell below the 'realized-return' of the previous round and a strong proclivity to sell when the return in the repurchase round in the vicinity of the 'realized-return'. The selling decisions of investors is also likely to be influenced by salient stock feature, such as the peak price (Brettschneider, Burro, & Henderson, 2020; Fioretti, Vostroknutov, & Coricelli, 2018; Gneezy, 2005; Lee & Piqueira, 2019; Strack & Viefers, 2019). Strack and Viefers (2019), in their experiment, observe that subjects are reluctant to sell below the observed peak-payoff and

conjecture that regret associated with missing the best possible outcome drives their reluctance to sell. Fioretti et al. (2018) document a similar influence of regret associated with missing a peak. Gneezy (2005) finds that investors employ historical peak prices as reference levels for their selling decisions. Lee and Piqueira (2019) find that insiders are likely to use the 52-week high price as a reference point for selling decisions. Based on these evidences, it can be argued that the 'past-peak' could be a source of regret (Fioretti et al., 2018; Strack & Viefers, 2019) as well as a reference point (Gneezy, 2005; Lee & Piqueira, 2019). As a result, investors' propensity to sell might be asymmetrical below and above the level of the previous round's 'peak-return' when investors repurchase the same stock in the future. We examine the influence of two endogenous reference points, the level of returns earned by traders (referred to as 'realized-return') and the highest possible return that could have been earned if the stock was sold at the highest price point during the previous round of investment in the same stock (referred to as 'peak-return').

To investigate the influence of endogenous reference points based on the prior investment experience in a particular stock influence the selling decision when an investor reinvests in the same stock, we employ investor-level trade data from a large discount brokerage firm from 1991 to 1996. We employ a linear probability model and compute the likelihood of a trader to sell in the vicinity of the endogenous reference points, the 'realized-return', and the 'peak-return', based on the trading experience of the investors in a particular stock.[2] The analysis considers only those trader-stock specific transactions in which that particular trader has invested in that stock at least two separate rounds.

The key results and their implications are as follows. First, we find strong evidence that the endogenous reference points based on prior investment experience in a stock significantly influence the trading decisions when traders reinvest in the same stock. Specifically, for traders having a holding period of less than 20 trading days, we find that the likelihood of selling is 14% when the return on the stock is in the $\pm 5\%$ band of the 'realized-return' level of the previous round. Given that investors are 17% more likely to sell the stocks that are in gains compared to those in losses, the influence of 'realized-return' of the previous round as a reference point is comparable to the influence of status-quo as a reference point. When the return on a stock is in the $\pm 5\%$ band of the 'peak-return' level of the previous round, the likelihood to sell among the traders is 10.2%. The influence of 'peak-return' is also economically and statistically significant.

[2] As a robustness check, we carry out the same analysis using Cox proportional hazard model (Cox, 1972).

Overall, we find that both 'realized-return' and 'peak-return' act as reference points in investors' trading decisions; however, the influence of 'realized-return' is greater than the influence of the 'peak-return'.

Second, the influence of the endogenous reference points increases with their magnitude. When the 'realized-return' is between 10% to 15%, the probability of selling the stock in the vicinity of the 'realized-return' increases by 18%. In comparison, the probability of selling increases only by 9% when the level of 'realized-return' is less than 5%. We find a similar pattern of increase in the influence of 'peak-return' on the selling decisions with the magnitude of 'peak-return'. The findings imply that the influence of stock-specific reference points increases with their salience in the minds of the traders.

As expected, disposition bias continues to influence the selling decisions irrespective of the holding period and the time between consecutive rounds of investments. The overall evidence implies that the influence of endogenous reference points is comparable to that of status-quo, particularly on the selling decisions of short horizon traders. We also consider the average return earned by a trader over the previous investments as examined by W. Lin and Meng (2015) as a reference point; however, its impact on the trading decision is substantially lower than the two endogenous stock-specific reference points investigated in the study.

Third, the endogenous reference points based on an investor's trading experience in a particular stock have an impact even among the traders who invest in that particular asset in more than two rounds. Even for traders investing in a stock in the seventh round, the previous round's reference points continue to influence the trading decisions. The impact of the endogenous reference points despite the increasing investor experience reflects their systematic influence on the selling decisions. Furthermore, the influence of 'realized-return' of a round continues over two subsequent rounds. For an investor in the fourth round of investment in the same stock, the 'realized-return' of the third and the second round significantly impact the trading decisions. However, 'peak-return' does not have any influence beyond one round. The findings imply that either the 'realized-return' is more salient and easily re-callable for the traders than 'peak-return' or the relevance attached to the 'realized-return' is greater than the 'peak-return'. The declining influence of the endogenous reference points with every subsequent round is likely due to recency effect (Glenberg, Bradley, Kraus, & Renzaglia, 1983; Greenwood & Shleifer, 2014; Malmendier & Nagel, 2011) as the traders are may attach lower weights to stock-specific experience of a

round with the passing of each successive round.

Fourth, we find that the reference points based on the previous round of investment have the greatest influence on the trading decision when the holding period of the traders in the repurchase round is low. When the stock is held for a long time, then the impact of 'realized-return' and 'peak-return' on the trading decisions declines, though it remains economically significant. For traders having a holding period of $21 - 60$ trading days, the selling propensity around the 'realized-return' level and the 'peak-return' level is 2.8% and 2.5%, respectively. These findings are coherent with the literature on temporal discounting, where the decision-maker attaches a higher weight to recent outcomes and lower weights to distant outcomes (Greenwood & Shleifer, 2014; Grosshans & Zeisberger, 2018; Malmendier & Nagel, 2011; Nolte & Schneider, 2018).

Furthermore, the investor-stock-specific endogenous reference points based on the previous investment have the greatest impact when the time between the end of the previous round and the start of the repurchase round is lower. As the time duration between the consecutive rounds of investment increases, the impact of the stock-specific reference points declines substantially. When the time between the consecutive rounds is less than 20 calendar days, the propensity to sell around the 'realized-return' and 'peak-return', among the traders having a short holding period in the repurchase round, is 19.7% and 16.7%, respectively. The declining influence of endogenous reference points with the time between consecutive rounds is coherent with the findings of literature on recency effect. Hence, the traders may not attach high weights to their previous investment experience in a stock if there is a substantial time gap between consecutive rounds of investment in the same stock. Overall, the findings imply that the influence of the endogenous reference points is strongly dependent on the holding period and the time duration between the consecutive rounds.

Fifth, the influence of the endogenous reference points is stronger among the investors holding a less diversified portfolio. Among investors holding five of fewer stocks in their portfolio, the likelihood of selling around the 'realized-return' and the 'peak-return' is 14.9% and 11.8%, respectively. Among the traders holding a diversified portfolio, we observe a substantially lower influence of the investor-stock specific reference points. The increase in the probability of selling a stock is only 10.6% and 4.2% in the vicinity of 'realized-return' and the 'peak-return', respectively, for traders holding a relatively diversified portfolio of more than five stocks. There might be two possible reasons for a greater influence of endogenous reference points among the traders

holding concentrated portfolios. The first reason is that unsophisticated investors are more susceptible to base their decisions on their past experiences. Using the same brokerage data as ours, Goetzmann and Kumar (2008) find that unsophisticated traders are more likely to hold under-diversified portfolios. Second, the ease of recollection of stock-specific salient points from the previous round is likely to be higher when the investors hold fewer stocks. Fernandes and Moscovitch (2000) find that the memory retrieval process faces substantial interference when the attention is divided among the several tasks. Hence, with many stocks in the portfolio, the traders will find it challenging to recall past stock-specific experience.

Finally, we examine the variation in the influence of endogenous reference points with respect to the demographic characteristics and prior trading experience of the market participants. We find significant heterogeneity in the impact of the reference points on the trading decisions of male and female market participants. While the 'realized-return' of the previous round influences the trading decision of both male and female traders in the repurchase round, the influence of 'peak-return' is prevalent only among the male traders. The results are consistent with literature that documents a systematic difference between risk aversion (Croson & Gneezy, 2009), trading aggressiveness (Barber & Odean, 2001), and reference-dependent preferences (Takahashi, Shen, & Ogawa, 2020) of male and female traders. Based on the self-reported prior trading experience, we find that experienced traders are more likely to base their decisions on their previous stock-specific experience than inexperienced traders. We do not find any substantial variation in the impact of the reference points based on the investors' age.

This study significantly contributes to the literature on the influence of endogenous reference points on investor decision making by documenting their influence on selling propensity (Arkes, Hirshleifer, Jiang, & Lim, 2008; Gneezy, 2005; Kőszegi & Rabin, 2006; W. Lin & Meng, 2015; Song, 2016). Research has documented that status-quo (Kahneman & Tversky, 1979), past outcomes (W. Lin & Meng, 2015) and expectations (Kőszegi & Rabin, 2006; Song, 2016) can act as reference points. We empirically find that investors' stock-specific experience (investor stock-specific 'realized-return' and 'peak-return') can act as an endogenous reference point, thereby influencing their subsequent trading decisions. Furthermore, we empirically examine the role of endogenous reference points on the trading decision in the real markets. Given that previous stock-specific experiences may have no information about future price movements, their continued influence implies that investors might be forming beliefs by attaching higher weight

to their personal experience and a relatively lower weight to the information from the market. The findings suggest that the reference points from past investment experience have a strong influence on future trading decisions.

By documenting the role of past outcomes on selling decisions, we add to the literature that attempts to understand the trading behaviour of investors (Huang, 2019; W. Lin & Meng, 2015; Strahilevitz et al., 2011). The literature has examined the influence of the factors impacting the repurchase decisions (Huang, 2019; Strahilevitz et al., 2011); however, the factors influencing the selling decision of repurchased stocks have not been examined deeply. We explicitly examine the selling decision of the repurchased stocks and document a strong influence of investor-stock-specific endogenous reference points over and above the influence of the exogenous reference points such as status-quo.

We further extend the literature on the influence regret associated with missing the previously observed peak on the selling decisions (Fioretti et al., 2018; Strack & Viefers, 2019). We find that investors are less likely to sell the stock below the level of 'peak-return' of the previous round, and their likelihood of selling the stock increases when the return on position is in the vicinity of the 'peak-return'. While research provides experimental evidence of the impact of regret associated with missed peak (Fioretti et al., 2018; Strack & Viefers, 2019) on subsequent decisions, whether such influence exists on trading decisions of investors in a real market, who are influenced by a myriad of factors, remained unexplored. We provide empirical evidence of the impact of regret associated with missing the 'peak-return' in prior rounds on trading decisions of investors in subsequent rounds.

Lastly, we deepen the understanding of investor behaviour by examining the heterogeneity in the impact of investor-stock-specific reference points based on trader's holding period, the time between consecutive rounds of investment, portfolio concentration, trading experience, and demographic characteristics such as age and gender. Unlike status-quo, which influences the trading decision across all the dimensions of investor heterogeneity, the impact of endogenous reference points varies significantly across the investor characteristics above-mentioned.

The rest of the study is organized as follows. Section 2 presents the conceptual background and proposes hypotheses. Section 3 provides a description of the data and the empirical methodology employed in the study. Section 4 provides the main results and Section 5 concludes.

2. Conceptual background and hypotheses

Decision-makers are known to judge an outcome either as a gain or a loss based on a reference point. Evaluation of an outcome based on a reference point is extensively used as a framework to explain decision-making in several contexts in financial markets (Barberis, Huang, & Santos, 2001; Benartzi & Thaler, 1995; Meng & Weng, 2017; Odean, 1998). The literature on reference-dependent preferences documents the influence of various reference points on the decision making process.[3] Studies document the significant role of current status (Kahneman & Tversky, 1979; Odean, 1998), counterfactuals (Strack & Viefers, 2019), social comparison (Bailey, Cao, Kuchler, & Stroebel, 2018; Cao, Liang, & Zhan, 2019), end goals (Carpena, Cole, Shapiro, & Zia, 2019; Soman & Zhao, 2011), and prior expectations (Kőszegi & Rabin, 2006; Meng & Weng, 2017) as reference points in financial decision-making. In this study, we focus on the influence of reference points shaped by the decision maker's past experience. These are referred to in the literature as endogenous reference points as they are determined by the decision-maker, and their value is shaped by the past experience of the decision-maker (Crawford & Meng, 2011; W. Lin & Meng, 2015). In contrast, the exogenous reference points, such as status-quo (Kahneman & Tversky, 1979), are not affected by the past outcomes experienced by the decision-maker. In this section, we primarily discuss the significance of endogenous reference points in general and identify the two likely endogenous reference points, which may strongly influence the selling preferences of traders in stock market.

2.1. Exogenous reference points

The exogenous reference points, widely employed in studies on trader behaviour, such as Odean (1998) and Ben-David and Hirshleifer (2012) are not shaped by the decision maker's past experience. For instance, when status-quo is employed as a reference point, the gains and losses are judged based on the current state (Kahneman & Tversky, 1979; Odean, 1998; Shefrin & Statman, 1985).[4] Two traders purchasing an asset at the same price will have identical reference

[3] Apart from humans, evidence of reference dependence decision making has been documented even among non-human primates. Brosnan et al. (2007) and Chen, Lakshminarayanan, and Santos (2005) document loss-aversion and reference-dependent decision making among chimpanzees and capuchin monkeys, respectively, suggesting that these behavioural traits might have an evolutionary basis rather than a social basis.

[4] In the context of financial markets, the current state is often taken as the purchase price. When translated into a return, the 0% return level acts as the current state. Hence, for decision making in the financial markets, status-quo is typically considered the 0% return level.

points as per the status-quo even though their past trading experience may vary substantially.

Exogenous reference points are known to influence the selling decisions in contexts such as the financial markets (Odean, 1998) and the housing markets (Genesove & Mayer, 2001). In both cases, the decision-makers are reluctant to sell their asset below the purchase price. The influence of status-quo as a reference point is invoked to explain the 'endowment effect,' which refers to the willingness to pay a significantly lower amount for an item compared to the minimum amount that the subjects are willing to accept to sell the same item if they already own it (Kahneman, Knetsch, & Thaler, 1990; Thaler, 1980). Benartzi and Thaler (1995) invoke reference-dependent loss-aversion with respect to the purchase price to explain the equity premium puzzle.[5] Hu and Scott (2007) argue that annuities are an unpopular choice among retirees as the perceived losses are large if the buyer of the annuity product dies early compared to the perceived gains that would accrue if the buyer lives for a long time after purchasing the annuity. A high level of loss aversion is also offered as an explanation for the low participation rate of households in the stock markets (Ang, Bekaert, & Liu, 2005; Barberis, Huang, & Thaler, 2006; Dimmock & Kouwenberg, 2010). In all cases mentioned above, the decision-maker does not rely on the memory of the past outcomes to make a choice.

In the context of financial markets, the influence of exogenous reference points, particularly status-quo, has been extensively examined. In contrast, the influence of endogenous reference points on the participants' decisions in the financial markets has not been examined widely, despite the strong evidence of past experience shaping the subsequent decisions (Baucells, Weber, & Welfens, 2011; Crawford & Meng, 2011; Strack & Viefers, 2019).

2.2. Endogenous reference points

Endogenous reference points are determined by the decision-maker and are a function of the decision maker's prior experience, making them specific to the decision-maker. For example, two traders purchasing an asset at the same price can have a substantially different expectations about the target level of return, based on their past experience. Hence, despite both the traders having the same exogenous reference point as per the status-quo, the level of return expected from the investment is endogenous to each trader. In the context of decision making under risk,

[5] Mehra and Prescott (1985) coined the term "equity-premium puzzle". It refers to the implausibility of the observed risk-aversion levels to explain the premium earned by the stocks over the bonds.

the endogenous reference points could be features such as previously experienced high payoffs (Fioretti et al., 2018; Gneezy, 2005; Heath, Huddart, & Lang, 1999; Lee & Piqueira, 2019; Strack & Viefers, 2019), prior expectation (Kőszegi & Rabin, 2006; Meng & Weng, 2017), and prior realized outcomes (Crawford & Meng, 2011; W. Lin & Meng, 2015). The financial markets participants are known to form reference points based on their personal experience (Huang, 2019; W. Lin & Meng, 2015; Strahilevitz et al., 2011) and base their future purchase decisions on their personal asset-specific experience.

The idea of endogenous reference points based on prior expectation was formulated by Bell (1985) and Loomes and Sugden (1986). They proposed a decision-making framework in which the actual outcome is evaluated based on the decision maker's prior expectation, and accordingly, they experience either disappointment or elation. Kőszegi and Rabin (2006) also developed the theoretical framework in which the decision-makers use their 'forward-looking' expectation as a reference point. The main difference between the approach of Bell (1985) and Loomes and Sugden (1986) and the approach of Kőszegi and Rabin (2007) is how the reference point is formulated. In the disappointment aversion framework of Bell (1985) and Loomes and Sugden (1986), the reference is common for each state, and all the possible outcomes are compared to a common reference point. In contrast, the models proposed by Kőszegi and Rabin (2006) and Kőszegi and Rabin (2007) have the flexibility of reference point to vary for each state. Hence, the outcome of each state is compared to the reference point for that particular state. A key feature of these models is the endogenization of the reference points in the form of lagged prior expectations. A critical assumption of all these models is that the reference point is a function of future outcomes, whose expectations are formed before the outcome is revealed. A lagged expectation model assumes that the decision-makers have complete information about the probability distribution of the futures states and the associated outcomes.

In contrast to the theoretical models that assume complete knowledge about the probability distribution of future outcomes, several empirical studies on endogenous reference points assume the reference point to be a function of the past outcomes (Baucells et al., 2011; W. Lin & Meng, 2015; Strack & Viefers, 2019). A plausible reason for considering the endogenous reference points to be a function of the past outcomes could be that the decision-makers envisage the future outcomes to mirror the past outcomes closely; hence they may assume reference points to be the statistical expectation of the past outcomes. Crawford and Meng (2011) consider the

average of past earnings as the reference point and investigate the stopping decision of New York cab drivers based on daily earnings and the number of hours of work. W. Lin and Meng (2015) find that average return earned over past investments serves as a reference point in the selling decision of the traders. The findings of Baucells et al. (2011), Strack and Viefers (2019), Crawford and Meng (2011) and W. Lin and Meng (2015) suggest that prior experience shapes the reference point and that the decision-makers are likely to update their reference levels with time.

In the context of financial markets, both the endogenous and exogenous reference points are invoked to explain the same phenomenon, such as disposition bias, despite their difference in the formulation based on an investor's past experience. While disposition bias is widely attributed to the reluctance to sell any asset, which is in loss relative to status-quo (Odean, 1998), Meng and Weng (2017) model disposition effect based on the framework proposed by Kőszegi and Rabin (2006) and suggest that disposition bias is an outcome of traders employing reference point based on lagged expectation.

Consistent with the findings of Barberis and Xiong (2009), Meng and Weng (2017) find that the observed disposition bias is inconsistent with the status-quo as the reference point. Instead, with status-quo as the reference point both Meng and Weng (2017) and Barberis and Xiong (2009) predict a lower disposition bias which is contrary to the simple loss-aversion based explanation of disposition bias proposed by Odean (1998). Rather, in conjunction with a reference point based on expected final wealth, loss-aversion predicts a level of disposition bias that is coherent with the levels observed in the markets. Despite the potential role of endogenous reference points in shaping the trading choices of the participants in the financial markets, their influence is not examined widely.

Compared to the exogenous reference points, examining the influence of reference points based on past experience is relatively difficult as it requires reliable individual-level data of decision-making. Financial markets offer one such opportunity if we can track the decision of the market participants over a period. The existing studies examining the influence of past experience on selling decisions in financial markets do not consider the influence of reference points based on stock-specific investment experience. In the next section, we elaborate on the possible influence of stock-specific reference points on the selling decisions when the traders reinvest in the same stock.

2.3. Reference points based on stock-specific trading experience the traders

2.3.1. 'Realized-return' of the previous round of investment

The realized outcomes of previous trading decisions are known to influence risk aversion level (Barberis et al., 2001), learning (Choi, Laibson, Madrian, & Metrick, 2009; Seru, Shumway, & Stoffman, 2009), subsequent repurchase decisions of a stock (Strahilevitz et al., 2011) and IPO subscriptions (Kaustia & Knüpfer, 2008). Prior realized outcomes also shape the effort provision decisions (Crawford & Meng, 2011). The selling decisions in financial markets are also influenced by the realized outcomes of previous choices, as documented in W. Lin and Meng (2015). They empirically estimate the reference points from the investor level trade data and find that traders are very likely to sell their investments around the average return level from the previous investments. Furthermore, they also document substantial heterogeneity in the reference level based on the frequency of trading. The patient traders have a significantly higher reference level of return than their impatient (frequent traders) counterparts. They consider several other potential reference points, including the risk-free rate, stock's own return over the past 12 months, market return over the past 12 months, and contemporaneous market returns. Their analysis indicates that a trader's own experience strongly influences reference point formation. However, they do not examine the influence of traders' stock-specific experience on their reference point formation and subsequent trade decisions.

Strahilevitz et al. (2011) and Frydman and Camerer (2016) examine the influence of stock-specific realized outcomes on the subsequent repurchase decisions. Strahilevitz et al. (2011) find that stocks that were sold at a gain are significantly more likely to be repurchased than the stocks previously sold at a loss. Furthermore, they also document that the stocks that increased in value after selling are less likely to be repurchased by the traders. Huang (2019) find that traders are more likely to repurchase the stocks of industries in which they previously had made a profit. In an experimental setup, Frydman and Camerer (2016) examine the influence of stock-specific regret on the future purchase decision. They observe a strong neurological regret signal when a stock that they had not purchased increases in value. Furthermore, the likelihood of repurchasing such a stock is also lower among the participants. Overall, the empirical and experimental studies examining the influence of stock-specific reference points find that the realized return from a stock investment has a very strong influence on the repurchase decision

of the stock in the future.

The studies examining the influence of a trader's stock specific experience have so far investigated only the repurchase decision. Despite the strong likelihood of the stock-specific experience influencing the selling decisions even after the same stock has been repurchased, possibly no study has examined the selling decisions after repurchasing. We strongly believe that the 'realized-returns' from the previous round will significantly influence the selling decisions in the repurchase round for the following reasons. First, as suggested by the "Retrieved Context Theory", the context-specific memory might be triggered as soon as the traders reinvest in the same stock (Kahana, 2012; Wachter & Kahana, 2019). Second, the traders may experience regret if they sell their stocks in the repurchase round below the minimum threshold level of return they expect to earn.

The "Retrieved-Context Theory" of decision-making implies that when decision-makers find themselves in a situation that resembles one from their past experience, their likelihood to base their decision on the outcome of the retrieved memory increases (Kahana, 2012; Wachter & Kahana, 2019). Hence, context-specific experience from the past will have a more significant impact on the decision than the memory of an experience from an unrelated context. The possibility of context-specific memory getting triggered is high when a trader reinvests in a previously owned stock. Hence, the 'realized-return' from the previous round of investment in a stock is likely to act as a reference point in the repurchase round.

Regret is an emotion that is felt when the decision-maker compares the actual outcome with a counterfactual outcome that could have been achieved (Bell, 1982; Loomes & Sugden, 1982). Regret is strongly associated with reinvestment decisions (Strahilevitz et al., 2011), the timing of reinvestment decisions (Magron & Merli, 2015), order placement strategies (Deuskar, Pan, Wu, & Zhou, 2020), and the tendency to book gains at a higher rate than the losses (Shefrin & Statman, 1985). An essential criterion for evaluating prospects under the regret framework is that the decision-maker should be able to view the counterfactual outcome. In the stock market, this criteria is readily satisfied, as traders can observe how the prices evolve with time and assess whether their decision was optimal. As the market participants are likely to experience regret if they sell the stock below the reference level of return, they may refrain from selling below the reference level to avoid the feeling of regret. Consequently, the probability of selling will be relatively lower below the 'realized-return' level from the prior round of investment in the same

stock.

Given the above arguments, the stock-specific reference points from the previous round of investment are likely to have a strong influence on the selling decisions. Hence, we hypothesize that:

Hypothesis 1a *The probability of selling a stock in the repurchase round will be higher when the return on the stock is in the vicinity of the 'realized-return' of the previous round of investment in the same stock.*

The horizon of the trader and the weight attached to the previous stock-specific experience are likely to moderate the influence of the stock-specific 'realized-return' on the selling decision in the repurchase round. Since the traders are likely to attach a higher weight to more recent outcomes than the outcomes from distant past due to recency effect (Greenwood & Shleifer, 2014; Malmendier & Nagel, 2011), the influence of reference points from the past experience may be low when the time gap between the consecutive rounds of investment is very large. Furthermore, the likelihood of traders to base their decisions on their stock-specific experience from the previous round may also decline if a stock is held for an extended period. Hence, we propose the following hypotheses:

Hypothesis 1b *In the repurchase round, the probability of selling a stock in the vicinity of the 'realized-return' of the previous round of investment in the same stock will be higher when the holding period in the repurchase round is shorter.*

and,

Hypothesis 1c *In the repurchase round, the probability of selling a stock in the vicinity of the 'realized-return' of the previous round of investment in the same stock will be higher when the time gap between the consecutive rounds of investment in the same stock is lower.*

2.3.2. 'Peak-return' of the previous round of investment

Apart from the realized outcomes from the past, the memory of the maximum possible attainable outcome is also likely to influence the choices of the decision-makers in several contexts. Experimental studies such as Gneezy (2005) and empirical studies such as W. Lin and Meng

(2015), document an influence of past peak on the trading decisions and argue that the experienced peak could be acting as reference points in the mind of decision-maker. Gneezy (2005) investigates the predictions of 'Prospect Theory' with the purchase price and the historical peak as a reference level and finds that the historical peak as a reference point has higher consistency with the trading pattern of the respondents. Findings of Gneezy (2005) are coherent with asymmetric updating of reference points (Arkes et al., 2008; Erawan, 2015; Wang, Villupuram, & Schwebach, 2017), where investors are quick to update their reference to current levels after experiencing gains but keep the purchase price as a reference level when they experience losses. W. Lin and Meng (2015) find that the probability of selling increases once the current returns exceed the highest return since purchase. In other words, before selling an asset, investors compare its performance with the highest level of returns (from selling other stocks) they have earned since its purchase.

Experimental studies such as Nolte and Schneider (2018) and Borsboom and Zeisberger (2020) document that the peak of the price path is a salient point, and it has a strong influence on the investment decisions and the risk perception of the subjects. Strack and Viefers (2019), in their experiment, examine the influence of dynamic regret and document a reluctance among the subjects to stop below the previously witnessed maximum payoff level. They argue that investors raise the cut-off after experiencing a peak, and the regret associated with it leads to a lower inclination to sell below 'previous-peak.'

While retrieving the context-specific memory, if the subjects recall the maximum possible attainable outcome and the realized outcome, then it is likely that both the features of past experience act as a reference point for future decisions. In the context of stock trading, if the market participants repurchase a previously owned stock, then their subsequent selling decision is likely to be influenced by both the realized outcome as well as the maximum possible attainable outcome of the previous round.

In the case of the 'peak-return' of the previous round, we expect the influence on the selling decision in the repurchase round to be most significant when the traders have a short holding period. Furthermore, the influence of the 'peak-return' of the previous round is likely to be greater when the time between the previous round and repurchase round is lower and when traders have a lower holding period. Hence, we propose the following hypotheses:

Hypothesis 2a *The probability of selling a stock in the repurchase round will be higher when the return on the stock is in the vicinity of the 'peak-return' of the previous round of investment in the same stock.*

Hypothesis 2b *In the repurchase round, the probability of selling a stock in the vicinity of the 'peak-return' of the previous round of investment in the same stock will be higher when the holding period in the repurchase round is shorter.*

Hypothesis 2c *In the repurchase round, the probability of selling a stock in the vicinity of the 'peak-return' of the previous round of investment in the same stock will be higher when the time gap between the consecutive rounds of investment in the same stock is lower.*

We do not have a hypothesis on which of the two endogenous reference points would have a greater influence on the selling decisions in the repurchase round. While the literature documents the salience of both the realized outcome and maximum possible achievable outcome on the subsequent decision, it does not indicate which of the two has a greater influence.

3. Data and methodology

3.1. Data

To examine the influence of the endogenous reference points from past experience, we need a dataset in which the choices of the decision-makers can be tracked over a period of time. Furthermore, we also require the data to be such that the decision-makers find themselves in a similar situation multiple times; only then can we examine the influence of context-specific memory on future decisions. A data set of trades made by participants in a financial market in which the traders invest in a particular asset multiple times satisfies both the conditions.

In this study, we use investor level trade data from a discount brokerage firm operating in the USA and includes the trade and position entries of 78,000 households from January 1991 to December 1996 in the US stock market.[6] The same dataset has been used in multiple studies (Barber & Odean, 2000; Ben-David & Hirshleifer, 2012; Strahilevitz et al., 2011) to understand

[6]The data was shared by Prof. Terrance Odean

investor trading behaviour.[7] The trade file consists of fields indicating investors' account number, CUSIP, product code, date of trade, the quantity of trade, the price at which the trade is carried out, and trade commission involved in the transaction. As mentioned in Barber and Odean (2000), 66,465 out of 78,000 households, in the original data, invest in common stocks at least once. In the sample period, almost 60% of the total investment is in common stocks. A single household can have multiple accounts. This analysis in this study is at an account level, a more granular level of analysis than at a household level.

The sample data for the study is selected by adopting the following steps. First, we do not consider investments in delegated portfolios, such as mutual funds, where an external fund manager takes the decision rather than the investor who is supplying the capital. We exclude the delegated investments because investors trade in these assets in a divergent manner compared to their investment in common stocks. For instance, traders exhibit disposition bias in their investments in common stocks but a reverse disposition effect in their investments in mutual funds (Chang, Solomon, & Westerfield, 2016).[8] Second, we exclude the transactions in warrants, options, bonds as the overall investment in these assets is significantly lower compared to investment in the common stock. Third, we consider only those stock transactions which can be matched with the 8-character CUSIP in CRSP database. Fourth, we exclude investor-stock entries if the trade commission on any transaction is negative, as the broker may have reversed such transactions. Fifth, we exclude all stocks in which the position becomes negative at any point in time, implying a short-sale transaction.[9] Sixth, we exclude stocks, which had any non-active trading day in the past 250 trading days to exclude illiquid stocks from the analysis. Lastly, we exclude the first purchase transaction of all the investor-stock positions in the data. Similar sample selection is also carried by Ben-David and Hirshleifer (2012) for cleaning the same discount brokerage data in their analysis.

As we are interested in examining the influence of stock-specific past experience on future trading decisions in the same stock, we only consider investors who invest in a particular common stock

[7] Barber and Odean (2000) find that excess trading leads to under-performance with respect to the market. Strahilevitz et al. (2011) find the stocks previously sold at a loss are less likely to be repurchased and Ben-David and Hirshleifer (2012) examine the possible role of beliefs about future price movements on the trading decisions.

[8] Chang et al. (2016) document that investors are more likely to sell their mutual funds investments that are trading at a loss than the funds that are trading at a gain. This is the opposite of what the traders do in common stock. While investing in common stocks, the traders are more likely to sell the stocks that are in gains and are more likely to hold on to the stocks losses (Odean, 1998)

[9] Short sale transactions are typically geared towards driving the prices to the fundamental level rather than being based on endogenous reference points of the trader.

in at least two rounds. For this analysis in this study, an investment round in a stock refers to the time from beginning a position in a stock to the complete exit from the stock. In one round, an investor can have multiple purchase and sale transactions; however, when the net position becomes zero, we recognize that as the end of the round. If an investor buys the same stock later, we classify that as the beginning of another round.

Using the selected data, we construct an investor-stock-day level file indicating the number of stocks held by investors on each day. For example, consider an investor who buys Stock A on 1^{st} January, Stock B on 3^{rd} January, and sells her entire position on 15^{th} January. On each trading day from 1^{st} January to 14^{th} January, the investor-stock-day level data will indicate that investor has one Stock of A, and on all trading days from 3^{rd} to 14^{th} January the investor-stock-day level data will indicate that investor has one Stock of B. For each open stock position of a trader, we compute the daily gains and losses by comparing the stock's closing price on that trading day with the weighted average cost of purchase. Similarly, for all traders with an open position, we compute the portfolio level gains and losses by taking the weighted average of the returns of all the open stock positions of the trader. We use the CRSP data to make adjustments for splits and dividends.

In Table 3, we provide insights into the characteristics of accounts with multiple rounds of investment in a stock. We also contrast them with the characteristics of accounts that do not reinvest in a previously owned stock. In the data provided by Prof. Terrance Odean, the number of account numbers trading in the common stocks is 104198; however, only 76,903 accounts remain in the sample after applying the exclusion criteria mentioned above. Out of these 76,903 accounts, 13,864 accounts (approximately 18% of 76,903) have multiple investment rounds in at least one stock. While the proportion of accounts reinvesting in any stock is only 18%, around 57% of all the transactions in the data are carried out from these accounts. The average holding period of any stock from these accounts is around 120 trading days, which is significantly lower than the average stock holding period of accounts that do not reinvest (451 trading days). The number of stocks held and the average investment amount in each stock is also higher for the accounts that reinvest in a previously owned stock than the accounts that do not. Furthermore, the average investment in the repurchase round is around $25,000, which is almost 50% greater than the average amount invested in the prior round, approximately $16,000. There is no significant difference in the average age or proportion of female traders between the

two sets of accounts.

3.2. Empirical methodology

We examine whether the traders exhibit a higher tendency to sell a repurchased stock when the return on that stock in the repurchase round is close to the endogenous reference points based on the experience in the previous round of investment in the same stock. Since we are interested in capturing the incremental probability of selling around the reference level of returns, we employ a linear probability model with an indicator variable as the dependent variable. Furthermore, the key independent variables of interest are also indicator variables due to which the interpretation of each coefficient is in terms of conditional increase or decrease in the probability of the dependent variable to take a value of 1 when the respective independent variable takes a value of 1. Chang et al. (2016) and An, Engelberg, Henriksson, Wang, and Williams (2019) follow a similar approach to examine the investor trading decision at a stock-date level.[10] The specification of the empirical model is as follows.

$$
\begin{aligned}
Sell_{ijt} = \quad & \beta_1 \; Portfolio^{+}_{it} + \\
& \beta_2 \; Stock^{+}_{ijt} + \\
& \beta_3 \; \Delta ref\text{: -15 to -5}_{ijt} + \\
& \beta_4 \; \Delta ref\text{: -5 to 5}_{ijt} + \\
& \beta_5 \; \Delta ref\text{: 5 to 15}_{ijt} + \\
& \beta_6 \; \sqrt{Days}_{ijt} + \\
& \beta_7 \; Volatility_{jt} + \\
& \gamma_i + \delta_j + \kappa_t + \\
& \epsilon_{ijt}
\end{aligned}
\tag{1}
$$

The dependent variable $Sell_{ijt}$ takes a value of 1 when trader i, makes a selling transaction in stock j on trading day t. $Portfolio^{+}_{it}$ is an indicator variable that takes a value of 1, if investor $i's$ portfolio on day t is in gains. This variable captures the influence of portfolio level

[10] Both the studies are carried out on the same discount brokerage data that we employ in this study.

outcomes on the trading decision, as demonstrated in An et al. (2019). $Stock^{+}_{ijt}$ in an indicator variable that takes a value of 1, if investor $i's$ return on stock j on day t in the current round of investment is positive. Ben-David and Hirshleifer (2012) highlight that the return on the stock has a direct influence on the propensity to it. Since both $Sell_{ijt}$ and $Stock^{+}_{ijt}$ are indicator variables, β_2 represents the increase in the probability of selling the stock when the return on that stock is positive, which is a direct measure of disposition bias (An et al., 2019; Chang et al., 2016). Similarly, β_1 represents the increase in the probability of selling the stock when the trader's overall portfolio is in gains. A negative value of β_1 would indicate that the probability of selling a stock declines when the trader's portfolio is in gains.

$\Delta ref:\ -5\ to\ 5_{ijt}$ takes a value of 1 if the return on position in the repurchase round by trader i in stock j as on day t is in the $\pm 5\%$ interval around the reference level of return, else 0. The intervals capture how close is the return earned in the repurchase round to the reference level under consideration. The size of the interval is not uniform for all investors, and it varies on the level of reference. For example, if the trader's reference return level is 20%, then the $\pm 5\%$ interval will range from 19% to 21%. For an investor with a 10% reference level, the $\pm 5\%$ interval will be from 9.5% to 10.5%. $\Delta ref:\ -15\ to\ -5_{ijt}$ and $\Delta ref:\ 5\ to\ 15_{ijt}$ capture whether the return on position in the stock in the repurchase round is in the -15% to -5% range or the 5% to 15% range of the reference level of return or not, respectively. β_4 represents the increase in the probability of selling a stock when the stock return is in the $\pm 5\%$ range (interval) around the reference level of return. The interpretation of β_3, β_5 is similar to the interpretation of β_4. The baseline analysis considers two potential stck-specific endogenous reference points, the 'realized-return' and the missed 'peak-return' of the stock from the previous round of investment. In the baseline analysis, we examine the influence of only one endogenous reference point at a time.

The time since initiation of position is known to have a strong influence on the trading decisions Ben-David and Hirshleifer (2012). To control for the investment time, we include $\sqrt{Days}_{ijt}$ as a control variable. $\sqrt{Days}_{ijt}$ captures investor $i's$ the square root of the number of trading days since investment in stock j as on day t, in the repurchase round. Since the investors' trading decisions are known to be influenced by the volatility of the stock, we add it as a control variable. $Volatility_{jt}$ is the average of the absolute value of daily returns of stock j in the last 250 trading days, as computed on day t.

To control for trader and stock level heterogeneity, we add trader level and stock level fixed

effects. Fixed effects can capture any unobservable explanatory variable that may be correlated with the explanatory variables in the model, thereby improving the consistency of the estimates (Roberts & Whited, 2013). For example, any unobserved trader specific characteristic such as the trader's best friend's advice may influence which stock the trader holds in the portfolio. In such a case, the advice of the friend is likely correlated with the overall portfolio performance. While we can not explicitly control for unobserved variables such as the friend's advice, we can capture their effect using a fixed-effect model, thereby making the estimator consistent.[11] To control for the influence of seasonality in trading patterns, we add a trading day level fixed effect. Trading day level fixed effects also control for the influence of any systematic variation in the mood and the trading activity across the days of the week.[12] To control for the fact that errors may be correlated in each cluster, we compute multi-way robust standard errors clustered at investor, stock, and trading day levels.

While we do not have the actual bid-ask spread data of the stocks in the sample, we employ the data provided by Prof. Shane A Corwin on his website to get an estimate of the bid-ask spread from the daily high and low prices. Using the daily values of the high and low prices Corwin and Schultz (2012) propose a method to get an estimate of the bid-ask spread in case the actual trade and quote data is unavailable. We examine the high-low spread of the stocks in the sample-period and find that the average spread is around 1%. The average return earned by traders in the sample period during their first investment round in a stock in which they make repeated investments is in the range of 7.5% to 12%. Hence, investors may lose around 8% to 13% of the profit amount due to transaction costs.[13] Hence, we choose return intervals up to ±15% of the reference return level to examine the selling propensity around the reference level of the previous round.

In addition to the sample selection criteria describes earlier, we apply an additional set of exclusion criteria to arrive at the sample for baseline analysis. Table 4 provides a summary of the number of observations that are affected by each criteria.[14] First, we consider only the instances in which the 'realized-return' in the previous round was positive. More than 75% of

[11] A consistent estimator converges in probability to the true value.

[12] Birru (2018) documents a cross-sectional variation in anomaly returns depending on the day of the week. Furthermore, the literature argues about the presence of higher mood on Fridays compared to Mondays (Rossi & Rossi, 1977; Watson, 2000; Young & Lim, 2014)

[13] 1% of 12% return is around 8% of the total value of the profit amount. Similarly, 1% transaction cost on a return of 7.5% leads to around 13% reduction in the total profit amount

[14] As a robustness check, we re-estimate the baseline results by including all the observations which are excluded in the baseline sample in Section 4.7.

repurchase transactions are executed by traders who earned positive return in their previous investment in the stock. Furthermore, if the 'realized-return' on previous round is negative, then it is unlikely to shape the reference formation as traders exhibit strong reluctance to sell their investments in losses.

Second, we consider only those investor-stock observations in which the traders make a complete exit from their stock position with a single sell transaction. Around 82% traders in the repurchase round make a complete exit from their position with a single sell transaction. Third, we exclude the stock observations with a price less than 5% away from the 52-week high price levels, as the volume of trade in a stock near the 52-week high is likely to be abnormally high (Huddart, Lang, & Yetman, 2009). Furthermore, trades in a stock near its 52-week high price levels are likely driven by the market-wide salience of the event rather than driven by endogenous reference points of market participants. Fourth, since speculative trading is more prevalent in penny stocks, we exclude the stocks with a nominal price less than \$5 to control for the possible influence of speculative trading by the participants in the sample. Lastly, in the baseline analysis, we consider the set of investor-stock observation in which the time duration between the two consecutive rounds in the same stock is less than 100 calendar days. The primary reason being that the traders might rely less on their stock-specific experience as the time duration increases. As part of robustness checks, we also carry out the analysis on an extended sample with all the observations which were excluded in the baseline sample.

While investigating the influence of the 'peak-return' of the prior round, we apply an additional criterion. We only consider the observations in which the 'peak-return' was at least 20% greater than the realized return of the prior round. For example, if the previous round's realized return was 10%, then we consider such investor-stock-round combination in the analysis of 'peak-return' only if the missed 'peak-return' was at least 12%. The primary reason is that if 'realized-return' and 'peak-return' are very close to each other, then capturing the independent influence of 'peak-return' on the selling decision in the repurchase round poses a challenge. Furthermore, the intuition behind keeping the 20% cutoff is as follows. The $(-15\%, -5\%)$ interval around the 'peak-return' of 12% would range from 10.2% to 11.4%, and does not include the 'realized-return' of 10%. Hence, in all the regressions examining the influence of the 'peak-return' on the selling decisions, the independent variable Δ*peak: -15 to -5* does not capture the 'realized-return'. Lastly, given the average bid-ask spread of 1% in the stocks in the sample period,

ensuring that 'realized-return' and 'peak-return' are significantly apart helps disentangle the separate influence of both the endogenous reference points.

We split the sample of investor-stocks-trading day observations based on the holding period of the traders' in the repurchase round. We define the holding period as the number of trading days between the initiation of the position in a stock to complete exit from the stock by an investor. The primary reason for splitting the sample based on the holding period is that traders are less likely to attach high decision weights to outcomes from distant past due to recency effect (Greenwood & Shleifer, 2014). Ben-David and Hirshleifer (2012) argue that investors are less likely to recall even the purchase price of the stock when it is held for a long time. As a result, traders are less likely to base their decisions on endogenous stock-specific reference points is the stock is held for a sufficiently long period of time in the repurchase round.

In the baseline analysis, we split the sample into three sub-samples based on the holding period in the repurchase round. The first part consists of observations where the holding period is less than or equal to 20 trading days, which corresponds to a holding period of approximately one calendar month at the most. The second part consists of observations where the holding period is between 21 and 60 trading days, which corresponds to a holding period between one and three calendar months. The third part consists of observations with a holding period between 61 and 120 trading days, which corresponds to a holding period between three to six calendar months. We do not examine the trading decisions of investors who have a holding period of more than six calendar months in the repurchase round in the baseline analysis. Such traders are unlikely to base their decision on past experiences.

4. Findings and discussion

4.1. Selling propensity around endogenous reference points - univariate results

The analysis begins with comparing the selling propensities of the traders around various reference points and otherwise. The summary statistics of the selling propensities when the traders sell their stocks in the vicinity of the various reference points in the repurchase round is provided in Panel A of Table 5.

Each of the selling propensity figures given in the table is the ratio of investor-stock-day obser-

vations that register a sell transaction to the total number of 'investor-stock-day' observations. For instance, the overall selling propensity is the ratio of the number of observations recording a sell transaction to the total number of 'investor-stock-day' observations. Similarly, the propensity for gain realization is the ratio of the number of transactions in which the traders sell their stocks in gains to the total number of observations in which the traders' stock position is in gains. Likewise, the propensity of selling a stock in the ±5% interval around the 'realized-return' of the previous round is the ratio of the number of observation with a sell transaction in the ±5% interval around the realized-return' to the number of observation in which the return on the position is in the ±5% interval around the 'realized-return'.

The first row of Panel A gives the overall selling propensity across all the 'investor-stock-day' observations. For traders with a holding period of less than 20 trading days, the overall selling propensity is around 12.7% (row (1) column (1) of Panel A of Table 5). As expected, the selling propensity of traders with shorter holding periods is higher relative to their peer group with longer-term holdings. For the traders having a holding period of $21 - 60$ trading days, the overall selling propensity declines to 3% (row (1) column (2) of Panel A). The corresponding figure for traders having a holding period of $61 - 120$ trading days is 1.3% (row (1) column (3) of Panel A).

Across the three trader groups by holding period, the propensity for selling by stock-accounts in gain is higher at 15.7% (row (2) column (1) of Panel A of Table 5) relative to the overall selling propensity. As the holding period increases, we observe that the propensity declines. Among the traders having a holding period of 21 to 60 trading days, the selling propensity reduces to 4%. The corresponding value for traders having a holding period of 61 to 120 trading days is 2% (Panel A row (2) columns (2) and (3), respectively). Row (3) of Panel A presents the propensity of investors to sell their investments in losses.[15] As the figures in row (3) indicate the propensity to sell the stocks that are in losses is lower compared to the propensity to sell the stocks that are in gain for all the holding periods, indicating a strong disposition bias among the traders.[16]

The subsequent rows of Panel A provide the selling propensity around the endogenous reference points 'realized return' and 'peak return'. The propensity of traders to sell around ±5% of

[15]The figure represents the proportion of investor-stock-day observations with a capital loss which record a sell transaction out of the total investor-stock-day observations in losses.

[16]Using the same discount brokerage data, Odean (1998) also document a strong disposition bias among the traders.

the 'realized-return' level of the previous round is presented in row 4 of Panel A of Table 5. For computing this figure, we include all investor-stock-day observations with returns in the ±5% interval around the 'realized-return' of the previous round of investment in the same stock. Compared to the propensity of selling in gains of 15.7% (row (2) column (1) of Panel A of Table 5), the propensity to sell around the 'realized-return' level of the previous round is 30.4% for traders with a holding period of less than 20 trading days (row (4) column (1) in Panel A of Table 5).

The significantly higher propensity to selling in the vicinity of 'realized-return' than the unconditional propensity to realize gains suggests a strong influence of 'realized return' as a reference point. For longer-horizon traders, the difference in the propensity for selling around the 'realized-return compared to the propensity for realizing gains declines, but the impact of 'realized-return' continues to influence the selling decisions. For traders having a holding period of $21-60$ trading days, the propensity to sell near the 'realized-return' of the previous round is 6.6% and for the traders having a holding period of $61-120$ trading days is 3.84%. The comparison of the selling propensity suggests that the influence of stock-specific realized return of the previous round has a significant influence on the trading decisions of the investors for long-horizon traders. A similar comparison of selling propensity around the 'peak-return' level of the previous round is given in row (5) of Panel A. For traders having a holding period of less than 20 trading days (column (1)), we find that selling propensity in the vicinity of the 'peak-return' of the previous round is around 26.6%. The selling propensity is lower than the selling propensity around competing reference point 'realized-return'; however, it is significantly higher than the propensity for selling the stocks in gains. These figures demonstrate that the endogenous stock-specific reference points have a strong influence on the selling decisions over and above the exogenous reference points, such as status-quo.

Comparing the selling propensity around the 'peak-return' and 'realized-return' indicates that the latter has a greater influence on the selling. For longer holding periods exceeding 20 trading days, we find a similar pattern of higher selling propensity around the 'realized-return' compared to the 'peak-return'. However, the difference is smaller compared to that of the corresponding figures for short holding period investors. Furthermore, for the long horizon traders, the selling propensity around the 'realized-return' and the 'peak-return' of the previous round is not substantially different in magnitude. Overall, the increased selling propensity around the two

proposed endogenous reference points suggests that the traders' stock-specific experience significantly influences the trading decisions. The pattern of the selling propensity for traders with varying holding periods also suggests that the short horizon investors are more likely to base their decisions on endogenous stock-specific reference points from the prior investment experience.

While the endogenous reference points such as 'realized-return' and 'peak-return' are driven by an investor's experience in a particular stock, the trading may also be influenced by other endogenous reference points specific to the trader but not to a particular stock. One such reference point is the average return realized over all the investments in common stocks in previous investment rounds (W. Lin & Meng, 2015). In the data, the selling propensity around ±5% of the average return (row 6 of Panel A of Table 5) is 21.5% for traders with less than 20 days holding period. The selling propensity is higher than that of selling stocks in gains (row (2) column (1) of Panel A of Table 5). The greater likelihood of selling around the 'average-return' implies that the influence of the endogenous reference point based on prior trading experience across all previous stock investments also has a strong influence on the subsequent selling decisions, as documented by W. Lin and Meng (2015). A comparison with the corresponding propensities of 'realized-return' and 'peak-return' implies that while reinvesting in a stock, the influence of an investor's stock-specific reference points is greater than the reference points based on an investor's trading experience across all the stocks.

The summary of daily excess return earned by the trader groups selling around the various reference points in the repurchase round is presented in Panel B of Table 5. We also compare the excess returns earned in the repurchase round with the excess returns earned in the immediate prior round. During the repurchase round, the average excess return earned over the market by the traders is significantly lower than the excess return earned from the investment in the same stock in the previous round (row 2 of Panel B). We find that the traders who sell around the level of 'realized-return' of the previous round earn substantially higher excess returns than the average traders who repurchase a previously owned stock (row (3) of Panel B of Table 5). This pattern is prevalent among the traders having a longer holding period as well. Furthermore, traders who sell around the missed 'peak-return' of the previous round earn a higher return than traders who sell around the 'realized-return' level of the previous round (row 4 of Panel B). A comparison of the performance of traders selling around the various reference points suggests that selling around the average return level of previous investments leads to marginally lower

returns compared to 'realized-return' and 'peak-return' of previous stock-specific round (row (5) of Panel B).

In summary, the univariate comparison presents evidence to support the significant role of the proposed endogenous reference points in shaping the selling decisions of the market participants. In the following section, we examine the marginal contribution of the endogenous reference points in a multivariate set up which controls various investor and stock characteristics.

4.2. Influence of stock-specific endogenous reference points - multivariate analysis

In the multivariate analysis, we estimate the linear probability model described in Equation 1 separately for 'realized-return' and 'peak-return' of the previous round of investment in a stock. In Table 6, we present the incremental probability of traders to sell their stock in the repurchase round in the vicinity of 'realized-return' (columns (1)-(3)) and the 'peak-return' (columns (4)-(6)) of the previous round.

We find that for short-term traders, with a holding period of less than 20 trading days in the repurchase round, the probability of selling increases as the traders get closer to the 'realized-return' of the previous round. The probability of selling declines once the investors cross the level of 'realized-return' (column (1) of Table 6)). For instance, the increase in the probability of selling a stock when the return is in the ±5% interval around the 'realized-return' (coefficient of Δ*realized: -5 to 5*, in column (1)) is roughly 14%. The corresponding increase in probability represented by coefficients of Δ*realized: -15 to -5* and Δ*realized: 5 to 15* is 9% and 11%, respectively. From the results, we can infer that the probability of selling the repurchased stock is highest when the return is in the close neighborhood of the 'realized-return'.[17]

A similar pattern of increase in selling propensity emerges for the $61 - 120$ day holding period (column (3)). The probability of selling attains a local maximum value in the ±5% range around the 'realized-return' of the previous round. However, the magnitudes are lower than the probability of selling exhibited by traders with a lower holding period. This findings of the study are coherent with the predictions of heightened sensitivity around the endogenous reference points, and the sensitivity declines as one moves away from the reference points. Overall, the

[17]The coefficient of Δ*realized: -5 to 5* in column (1) is statistically greater than the coefficient of Δ*realized: -15 to -5* in column (1). The coefficient of Δ*realized: -15 to -5* and Δ*realized: 5 to 15* in column (1) are statistically not different from each other.

results on the influence of the 'realized-return' provide a strong support for Hypothesis 1a.

The influence of 'realized-return' is greater on the selling decision of traders with shorter holding periods. The coefficient of Δ*peak: -5 to 5* drastically declines from 14.1% in column (1) to 1.8% in column (3), implying an inverse relationship between the influence of the 'realized-return' and the holding period. The decline in the influence of 'realized-return' with the holding period conclusively validates Hypothesis 1b.[18] The results imply that the traders are likely to attach lower value to the benchmarks once they hold the stock for a long time due to the recency effect (Greenwood & Shleifer, 2014; Malmendier & Nagel, 2011). Furthermore, the salience of the reference points is also likely to decline in the minds of the traders after holding on to the stock for a long duration.

We also find that traders in the sample exhibit significant disposition bias as captured by the coefficient of $Stock^{+}_{ijt}$. In line with the previous studies that analyze trader behaviour with the same data set (Ben-David & Hirshleifer, 2012; Odean, 1998), we find that participants exhibit strong disposition bias in the repurchase round as well. For the traders having a holding period of less than 20 trading days, a stock in gain is 17% more likely to be sold than a stock in a loss. The influence of the endogenous reference point, 'realized-return' of the previous round, is comparable to the influence of the exogenous reference point, status-quo, especially for traders having a holding period of less than 20 trading days. The 14.1% probability of selling a stock around the 'realized-return' of the previous round ($\pm$5% interval) is economically and statistically significant, given the probability of selling a stock in gain is 17%. While the earlier studies (for instance, Ben-David & Hirshleifer, 2012; Odean, 1998) documented a strong disposition bias among traders in the same data set, our analysis demonstrates that their selling decisions are also strongly influenced by the stock-specific endogenous reference points.

Furthermore, we also find that the probability of selling a stock declines substantially when the overall portfolio of the traders is in gains (coefficient of $Portfolio^{+}_{it}$ in columns (1)-(3)). Across the traders with different holding periods in the repurchase round, the sign of $Portfolio^{+}_{it}$ is negative and significant, which is in line with the findings of An et al. (2019). The results imply that the stock level selling decisions are strongly influenced by the performance of the traders' overall portfolio. The coefficient of $\sqrt{Days}$ is consistently positive and significant, implying that

[18]The coefficient of Δ*realized: -5 to 5* in column (1) is statistically greater than the coefficient of Δ*realized: -5 to 5* in column (2) and (3).

the probability of selling a stock increases with the time since the initiation of the position. The higher likelihood of selling a stock with a longer prior holding period is also documented by Ben-David and Hirshleifer (2012). We find that the volatility of a stock does not significantly influence the selling decision of traders with a relatively shorter holding period. However, among the traders having a longer holding period, the probability of selling a volatile stock is greater.

In columns (4) - (6) of Table 6, we present the results for the influence of the missed 'peak-return' of the previous round on the selling decision in the repurchase round. We find that for traders having a holding period of less than 20 trading days (column (4)), the selling propensity is significantly higher in the vicinity of the missed 'peak-return' level of the previous round, after controlling for the investor, stock and trading day fixed effects. We also control for the disposition bias and the potential role of the portfolio returns on the selling decisions in the analysis.

The coefficient of Δ*peak: -5 to 5* is 10.2% in column (4), implying that the probability of selling a stock increases by about 10% when the return is close to the missed 'peak-return'. Given the 17% higher probability of selling a stock in gain, the increase in the probability of selling a stock by 10% near the 'peak-return' is economically significant. The corresponding coefficient of Δ*peak: -15 to -5* and Δ*peak: 5 to 15* is 9.7% and 7.3%, respectively. The coefficients suggest that the probability of selling attains the maximum value around the reference point and declines as the return earned moves away from the reference point. Consistent with Hypothesis 2a, the results indicate that traders' selling decisions are significantly influenced by the 'peak-return' of the previous round.

Similar to the influence of 'realized-return', the positive influence of 'peak-return' on selling propensity is also more pronounced among the traders with a short holding period. Among the trader having the holding period of $21 - 60$ trading days (column (5)), the coefficient of Δ*peak: -5 to 5* is 2.5%, which is markedly lower than 10.2% estimated for short-horizon traders (column (4)). However, even in column (5), the coefficient of Δ*peak: -5 to 5* is greater than the coefficient of Δ*peak: -15 to -5* and Δ*peak: 5 to 15*, 1.3% and 2.1%, respectively.[19] Overall, the results in columns (4)-(6) strongly support Hypothesis 2b that the influence of the 'peak-return' declines with longer holding periods.

[19]The coefficient of Δ*peak: -5 to 5* in column (4) is statistically greater than the coefficient of Δ*peak: -5 to 5* in column (5) and (6).

4.3. Comparison of relative influence of 'realized-return' and 'peak-return'

Comparing the relative influence of 'realized-return' and 'peak-return', we find that influence of 'realized-return' is substantially greater than the 'peak-return', particularly for the traders having a short holding period (less than 20 trading days). The selling propensity near the 'realized-return' is about 14% compared to 10% near the 'peak-return'. Secondly, the jump in the selling propensity around the 'realized-return' level is sharper than that near the 'peak-return'. For instance, in column (1), the selling propensity around the 'realized-return' jumps from 9.2% (coefficient of Δ*realized: -15 to -5*) to 14.1% (coefficient of Δ*realized: -5 to 5*), but around the 'peak-return' the selling propensity jumps from 9.7% (coefficient of Δ*peak: -15 to -5*) to only 10.2% (coefficient of Δ*peak: -5 to 5*). The comparison implies that the influence of 'realized-return' as an endogenous reference point is greater than the influence of 'peak-return'.

Why does the 'realized-return' of the previous round leave a greater impact on the selling propensity than the missed 'peak-return', which is by construction greater than the 'realized-return'. We conjecture that the 'peak-return' is less likely to be retrieved from the memory as it is not actively experienced. On the other hand, the 'realized-return' is an outcome of an action taken by the traders, thereby making it more "cognitively accessible" in the short term (Rajagopal, Raju, & Unnava, 2006). The higher influence of 'realized-return' compared to 'peak-return' is also in line with the studies which document a greater impact of action than inaction (Deuskar et al., 2020). Deuskar et al. (2020) find that the regret associated with a sub-optimal order placement is greater in the case of an executed order than an un-executed order. Similarly, it can be argued that while 'peak-return' is a counterfactual outcome that results from inaction, the 'realized-return' is an outcome that is experienced by the trader as a result of their action.

In the analysis above, we estimate the selling probability in the vicinity of the stock-specific endogenous reference points up to a distance of $\pm 15\%$ from the respective reference point. To examine the selling propensity over a wider range of returns during the repurchase round, we re-estimate the linear probability model with the independent variables for each 5% interval from -100% to $+100\%$ around each of the two endogenous reference points. We depict the coefficient estimates along with the 99.95% confidence interval for traders having a holding period of $1-20$ trading days in the repurchase round in Figure 1. Since we only consider observations in which the 'realized-return' in the previous round was positive, the -100% distance from the

endogenous reference points corresponds to the 0% return on the position in the repurchase round. Figure 1a (Figure 1b) plots the propensity around the 'realized return' ('peak return'). Both the figures clearly illustrate that the propensity for selling is heightened around the two stock-specific endogenous reference points.

The selling pattern in Figure 1 differs from pattern documented by Ben-David and Hirshleifer (2012). Ben-David and Hirshleifer (2012) find that for traders with a short holding period of fewer than 20 days, the probability of selling a stock with capital gains is an increasing function of the magnitude of return. In contrast to their results, we find that traders in the repurchase round exhibit a distinct selling pattern. The probability of selling increases with the return earned until the magnitude equals the endogenous reference point level and reduces afterward. The findings imply that the traders do not exhibit simple magnitude realization preference while selling the stock in the repurchase round.

In summary, we find that the two stock-specific endogenous reference points strongly influence traders' selling decisions in the repurchase round. The results are also in line with the studies that bring out the role of endogenous reference points on decision-making in non-financial contexts (Crawford & Meng, 2011; Kőszegi & Rabin, 2006). While traders with short holding periods are significantly influenced by the endogenous reference points shaped by their past stock-specific experience, the traders with longer holding periods are influenced to a lower extent. In the following section, we examine the heterogeneity in the influence of the endogenous reference points, based on the time between the consecutive rounds of investments, the magnitude of the reference points, portfolio concentration, prior experience of the traders, and their demographic characteristics.

4.4. Heterogeneity in the influence of endogenous reference points

4.4.1. Time between consecutive rounds of investment

While the traders in the sample, particularly with shorter holding periods, are prone to base their selling decisions around the reference points based on their past experience, it is essential to examine whether the influence of such reference points declines with the time between the rounds. It is likely that the traders place lower importance on the stock-specific reference points from the distant past. Hence, as per Hypothesis 1c and Hypothesis 2c, we expect a greater impact of the

reference points on the selling decisions when the time between consecutive rounds of investment is shorter. To carry out the analysis, we split every subsample based on the holding period in the repurchase round into three further subsamples based on the time duration between the previous round and the repurchase round. For example, the subsample of traders who have a holding period of less than 20 trading days is further split into three subsamples in which the time between consecutive rounds is $1-20$, $21-60$, and $61-100$ calendar days. The results for the estimation of traders having a holding period of $1-20$ trading days are presented in Table 7.

For traders with a holding period of less than 20 trading days, we find that the influence of 'realized-return' declines as the time between the consecutive rounds increases (columns (1)-(3)). The reference point has the greatest influence when the time between consecutive rounds is less than 20 calendar days (column (1)), where the probability of selling in the vicinity of the 'realized-return' of the previous round is about 19.7%. When the time between the rounds is between 21 to 60 calendar days, the propensity declines to 12.2% (column (2)) and further declines to 5.3% when the time gap is between 61 to 100 calendar days (column (3)).

Furthermore, the heightened sensitivity to sell around the 'realized-return' is also prevalent only in case when the time between rounds is less than 60 calendar days (Column (1)-(2)). In both columns (1) and (2), we find that the propensity of selling increases as the return in the repurchase round reaches the level of 'realized-return' of the previous round and declines once that reference level is crossed. In line with Hypothesis 1c, we find that when the time gap between the consecutive rounds increases, the influence of the endogenous reference point diminishes. In columns (4)-(6) of Table 7, we examine the same phenomenon with respect to the influence of the 'peak-return'. Similar to the case of 'realized-return', we find that the influence of the 'peak-return' of the previous round diminishes as the time between the consecutive rounds increases. The findings are coherent with Hypothesis 2c. The coefficient of Δ*peak: -5 to 5* is statistically significant only in the case when the time between the consecutive rounds is less than 20 calendar days (column (4)).

Overall, we find that the influence of endogenous reference points declines with the time between the consecutive rounds of investment. The diminishing influence of the reference points with the time between the consecutive rounds is also in sync with our finding regarding the lower influence of reference points on traders with longer holding periods. As mentioned in the earlier discussion on the holding periods, the pattern is likely to occur if traders' place lower importance

on the events from the distant past due to recency effect (Greenwood & Shleifer, 2014).

4.4.2. Magnitude effect of the stock-specific reference points

The influence of the endogenous reference points is likely to depend on the magnitude of the reference point and is expected to be more pronounced at higher levels. For example, the salience of a reference point, such as the missed 'peak-return', is likely to be lower when the magnitude is 3% compared when it is 15%. Furthermore, the ease of recollection of the stock-specific experience is likely to increase with the magnitude of endogenous reference points. In this section, we investigate how the influence of the endogenous reference points varies with its magnitude.

For the analysis, we split the baseline sample into four subsamples based on the endogenous reference level from the previous round and re-examine the selling decisions in the repurchase round. The estimation results for traders having a holding period of less than 20 trading days are presented in Table 8.

In the subsamples based on the level of 'realized-return' in columns (1) - (4)), the strength of the influence of the 'realized-return' increases with its magnitude. For instance, when the magnitude of the 'realized-return' of the previous round is less than 2% (column (1) of Table 8), the coefficient of Δ*realized: -5 to 5* is insignificant. When the magnitude of 'realized-return' is between 2% to 5% (column (2)), the coefficient's value increases to 7%. When the 'realized-return' is between 5% to 10%, the coefficient's value increases to 13.3% (column (3)). Lastly, when the magnitude of 'realized-return' is between 10% to 15%, the value of the coefficient increases to 18.1% (column (4)). The pattern clearly indicates that the influence of the 'realized-return' of the previous round increases with the magnitude. Furthermore, as the level of the endogenous reference point, 'realized-return' increases, the influence of the status-quo (purchase price or the 0% return level) as a reference point declines. The findings are in line with the pattern of reduced disposition effect observed by Frydman and Rangel (2014) when the purchase price is not displayed saliently. A higher magnitude of the endogenous reference points dampens the salience of status-quo, and subsequently, the influence of status-quo on the selling decision in the repurchase round declines substantially.

We carry out a similar analysis to examine any variation in the influence of missed 'peak-return'

based on its magnitude (columns (5)-(8) of Table 8). The influence of 'peak-return' is not very strong when the 'peak-return' level is below 10%. The influence of the 'peak-return' becomes prominent when the level is above 10%. In the subsample where the level of 'peak-return' is greater than 10%, (column (8)), the coefficient of Δ*peak: -5 to 5* is 12.7%.[20] The results imply that the traders base their selling decisions on 'peak-return' only when its magnitude is non-trivial. As observed in the 'realized-return' case, the influence of status-quo (0% return level) declines in magnitude as the level of the 'peak-return' increases.

Overall, the results suggest that the influence of both the endogenous reference points on the selling decisions increases as their salience in traders' minds increases. The Model of Bordalo, Gennaioli, and Shleifer (2012) suggests that the decision-makers assign a disproportionately higher weight to the salient events. As a result, economic agents' decisions are more likely to be influenced by features as high prices (Bordalo, Gennaioli, & Shleifer, 2013b). Bordalo, Gennaioli, and Shleifer (2013a) suggest that traders in financial markets exhibit a preference for salient payoffs, which is reflected in the abnormal demand for stocks with high skewness and the overvaluation of growth stocks in the market.

4.4.3. Concentrated portfolios and the influence of stock-specific reference points

The influence of the endogenous stock-specific reference point is most likely to depend on the traders' ability to recollect their stock-specific experience and is likely to vary across traders holding a diversified portfolio and those holding a concentrated portfolio. If traders hold a large number of stocks in their portfolio, they are less likely to recollect their stock-specific reference points. Conversely, if the traders hold only one to two stocks in their portfolio, then stock-specific memory might be easier to retrieve.

We investigate the possible variation in the influence of the reference points across investors with varying portfolio concentration by re-estimating Equation 1 with two sub-samples: (a) investors holding five or fewer stocks in their portfolio, and (b) investors holding more than five stocks in their portfolio. In the sample, in only 25% of the observations, the traders hold more than five stocks in their portfolios. The estimation results are presented in Table 9 for traders having a holding period of less than 20 trading days.

[20] In unreported results, then the magnitude of 'peak-return' is between 15% and 20%, the coefficient of Δ*peak: -5 to 5* increases to 22.8%.

We find that the influence of stock-specific 'realized-return' is greater on the selling propensity of investors holding five or fewer stocks in their portfolio. The increase in the probability of selling around the 'realized-return' is substantially greater for the traders holding concentrated portfolios. For instance, the coefficient of Δ*realized: -5 to 5* is 14.9% for traders holding fewer stocks (column (1)) and 10.6% for traders holding more than five stocks (column (2)). Hence, investors holding a concentrated portfolio are more likely to recall and base their decision on previous stock-specific experience. In Figure 3, we plot the coefficient of Δ*realized: -5 to 5* along with the 99% confidence interval for each subsample based on the number of stocks held in the portfolio by the traders. Based on 99% confidence interval, the coefficient of Δ*realized: -5 to 5* is significant only when the traders hold either one or two stocks in their portfolio.

A similar pattern emerges in the influence of 'peak-return' on selling decisions (columns (3)-(4) of Table 9). The influence of the 'peak-return' of a previous round is significant only among the traders holding a concentrated portfolio. The coefficient of Δ*peak: -5 to 5* among traders holding fewer stocks (column (2)) is 11.8%, which is statistically and economically significant. The coefficient of Δ*peak: -5 to 5* is statistically insignificant among traders holding more than five stocks (column (4)).

The finding on the diminished impact of stock-specific reference points for traders with diversified portfolios is in line with several strands of literature on attention and memory (Anderson, Craik, & Naveh-Benjamin, 1998; Fernandes & Moscovitch, 2000; Naveh-Benjamin, Craik, Perretta, & Tonev, 2000). The memory retrieval is likely to be significantly impacted if the subjects' attention is divided (Anderson et al., 1998; Naveh-Benjamin et al., 2000). Fernandes and Moscovitch (2000) argue that "if the neocortical representation system is engaged in processing material similar to that which is part of the memory trace, then retrieval of that trace is impaired". As the evaluation of multiple stock positions would require the same neurological circuitry, the retrieval of stock-specific memory is likely to be significantly lower when the trader holds multiple stocks in the portfolio. Another likely reason for the lower influence of stock-specific reference points on the decision of traders holding a diversified portfolio is that such traders are more sophisticated compared to traders holding a relatively less diversified portfolio. Using the same data as ours, Goetzmann and Kumar (2008) find that sophisticated and experienced traders hold diversified portfolios compared to their unsophisticated counterparts. Hence, it is also likely that traders who are not susceptible to reference-based decision-making may be holding diversified portfolios.

4.4.4. Investor heterogeneity and the influence of stock-specific reference points

In this section we investigate the likely variation in the influence of the endogenous reference points on account of several investor characteristics such as prior trading experience, gender, and age. These characteristics are known to influence the trading behaviour of market participants. For instance, male participants are known to trade more aggressively than their female counterparts (Barber & Odean, 2001). Furthermore, market participants' trading decisions are documented to improve with experience (Seru et al., 2009); hence, the influence of stock specific endogenous reference points could vary substantially based on the traders' age and experience.

Using the traders' self-reported prior experience as a proxy for experience, we examine the variation in the influence of the endogenous reference points in Table 10. The increase in the probability of selling around 'realized-return' is about 9.8% for traders having 'Extensive' experience (coefficient of Δ*realized: -5 to 5*, column (1)), about 12.6% for traders having 'Good' experience (column (2)) and 9.1% for traders having 'Limited' experience (column (3)). Traders reporting no prior experience do not base their trading decisions on the 'realized-return' of the previous round (column (4)). The results indicate that the experienced traders rely more on the 'realized-return' as a benchmark for their selling decisions. The significant influence of 'peak-return' on selling decisions is limited to traders with high self-reported experience ('Good' and 'Extensive'). The coefficient of Δ*peak: -5 to 5* for traders having extensive experience is 12.6% and for traders having a good experience is 6.6%. The coefficient of Δ*peak: -5 to 5* is not statistically significant for traders having limited and no prior trading experience. Taken together, we find that experienced traders are more likely to base their selling decision on the stock-specific endogenous reference points from the previous round.

The variation in the influence of the endogenous reference points based on the traders' age and gender is presented in Table 11. Both male and female traders are likely to base their selling decisions in the repurchase round around the 'realized-return' of the previous round (columns (1)-(2) of Table 11). The magnitude of the marginal increase in the probability of selling near the 'realized-return' is 13.8% for male traders (coefficient of Δ*realized: -5 to 5* in column (1)) and 14.6% for female traders (column (2)). Based on the magnitude, both male and female traders are more likely to sell in the vicinity of the 'realized-return' from previous stock-specific experience. The influence of 'peak-return' is prevalent only on the selling decision of the male

traders (Column (6)). For the male traders, the probability of selling increases by 9.5% when the return in the repurchase round is in the ±5% interval of the 'peak-return' of the previous round. The results contribute to the literature on the trading behaviour and risk preferences of male and female traders (Barber & Odean, 2001; Croson & Gneezy, 2009; Takahashi et al., 2020).

We find no variation in the influence of the reference points across age groups for traders with less than a 20 day holding period. There is no systematic variation in the selling propensity around the 'realized-return' level of the previous round (columns (3)-(5) of Table 11). Relatively young traders of age less than 30 years, as well as older traders above the age of 50, exhibit a higher probability of selling their stocks near the 'realized-return' of the previous round of investment. The coefficient of Δ*realized: -5 to 5* for traders with age less than 30 years is 56.1% (column (3)), and for traders above the age of fifty is 17.1% (column (5)). The influence of 'peak-return' is majorly concentrated among the investors in the age group of $30-50$ and above 50 (columns (9)-(10) of Table 11) and the corresponding coefficients of Δ*peak: -5 to 5*, are 9.1% and 11.4%, respectively.

Overall, we document several dimensions on which the influence of the endogenous reference points exhibits substantial heterogeneity. First, the time duration between the consecutive round of investment significantly influences the traders' ability to recollect their previous stock-specific experience. Second, the magnitude of the reference points impacts their salience in the mind of the traders. Third, the number of stocks held in the portfolio affects the investor attention and their ability to recollect the stock-specific reference points. Lastly, market participants with extensive trading experience rely more on the endogenous reference points while selling their stocks in the repurchase round.

The investigation of the influence of the endogenous reference points discussed so far had been limited to just one subsequent round of investment in the same stock. While the endogenous reference points from a previous round significantly influence the trade decisions in the repurchase round, their influence likely carries on to several subsequent rounds. The next section examines how far the endogenous reference points impact traders' selling decisions when they invest in the same stock over several subsequent rounds.

4.5. Influence of the stock-specific reference points across multiple rounds of investments

If traders experience poor investment outcomes by relying on the endogenous reference points, then they may rely less on such markers with experience gained over multiple rounds of investing (Campbell, Ramadorai, & Ranish, 2013). On the other hand, traders may rely more on such references if their investment generates positive outcomes, even if such an outcome is purely random. Hence, it is insightful to examine how the investors' reliance on the endogenous stock-specific reference points evolves with the trading experience involving multiple rounds of reinvestment in the same stock.

We examine the influence of the 'realized-return' over multiple rounds in Table 12. In line with the findings of baseline analysis, we find that the probability of selling around the 'realized-return' of previous round is significantly high (column (1)). In column (2), we examine the subset of traders who invest in a particular stock in at least three separate rounds. We find a strong influence of the 'realized-return' from the previous two rounds of investment. The increase in the probability of selling around 'realized-return' of the immediately prior round is 14.5% (coefficient of $\Delta realized_{-1}$ in column (2)). The corresponding increase in the probability of selling around the 'realized-return' from the round before the previous round is 9.7% (coefficient of $\Delta realized_{-2}$ in column (2)). Both the coefficients are statistically and economically significant; however, the magnitude of influence declines with each passing round. The magnitude of the coefficient of $\Delta realized_{-1}$ is greater than that of $\Delta realized_{-2}$ in all the columns of Table 12. In the subsequent columns, we investigate the selling decisions of the traders who invest in one more round. The findings imply that the influence of reference point associated with a specific round declines with each subsequent round, and after two rounds have passed, the traders are unlikely to be influenced further.

The likely explanation for the decline in the influence of the reference points could be that investors attach lower importance to outcomes that occurred in the distant past. As a result the decision weight attached to outcomes declines with each successive round due to recency effect (Greenwood & Shleifer, 2014). Hence, the traders may consider the reference points from the investment experience beyond the prior two rounds to be irrelevant for their current investment decisions. Even among the traders who trade in a particular stock in at least seven different rounds (column (6)), the reference point from their immediately prior stock-specific experience

influences their trading decisions. The coefficient of $\Delta realized_{-1}$ is statistically and economically significant in all the columns of Table 12. Overall, the findings indicate that traders' reliance on their immediate prior stock-specific experience does not disappear with multiple rounds of investment in the same stock. Hence, the context-specific retrieved memory, as documented in Wachter and Kahana (2019), continues to influence the decisions even when the investment is made in the stock multiple times.

Analogous to the estimation in the 'realized-return' across multiple subsequent rounds, we examine the continued influence of the 'peak-return' on the subsequent rounds of investments as well (Table 13). Unlike the 'realized-return, the 'peak-return' influences the trading decisions only up to the immediately following investment round. For instance, in the third round of investment in a particular stock, only the 'peak-return' of the second round influences the trading decisions (column (2)). The 'peak-return' of the first round has no impact on the selling decisions in the third round. However, the influence of the 'peak-return' of the immediate prior round continues to influence the selling decisions of participants who invest in a particular stock even in the fifth round (column (4)), similar to the case of 'realized-return'. For instance, in the fifth round of investment, the 'peak-return' of the fourth round significantly influences the selling decisions (column (4)). Furthermore, the magnitude of influence of the 'peak-return' from the immediate prior round ($\Delta peak_{-1}$) does not decline as the number of rounds increases. Even in the fifth round of investment, the coefficient of $\Delta peak_{-1}$ is 20.2%.

As the 'peak-return' is the hypothetical maximum return that the trader could have clocked, its retrievability is likely to be lower than that of the 'realized-return' of previous rounds. Consequently, the traders' likelihood to recall the 'peak-return' beyond one subsequent round may be severely limited compared to their likelihood of recalling the 'realized-return'. Hence, the influence of the 'peak-return' does not extend beyond one subsequent round, but the 'realized-return' continues to have an impact up to two subsequent rounds.

4.6. Relative influence of status-quo, average realized return and stock-specific endogenous reference points

In this section, we compare the relative influence of the various reference points that the investors are likely to employ while transacting in the financial markets. Such a comparison would provide

insights into the relative significance of the endogenous reference points related to context-specific memory on the trading decisions. We include an exogenous reference point, status-quo, and three endogenous reference points in the comparison. The endogenous reference points include 'realized-return' and 'peak-return' of the previous round, and the average return earned by a trader across all the previous stock investments. The 'average-return' is a reference point specific to an investor but not specific to an investor's experience in a particular stock.

We plot the regression coefficients from Equation 1 in Figure 2 for the four chosen reference points. The estimate for 'status-quo' depicts the coefficient of $Stock^{+}_{ijt}$ in Equation 1. The bars in the figure correspond to the coefficients of Δ*ref: -5 to 5* for 'realized-return', 'peak-return' and 'average-return'. The figure shows that the exogenous reference point, which is status-quo, has the greatest influence on the trading decisions, which is already well-documented in the literature. The probability of selling a stock in a gain is approximately 17% higher than the probability of selling a stock in a loss for the traders having a holding period of less than 20 trading days. The probability of selling in the $\pm$5% interval around the 'realized-return' is about 14%. Therefore, the increase in the probability of selling near the 'realized-return' has a similar level of influence as that of status-quo. The corresponding probability of selling in the $\pm$5% interval around the 'peak-return' is approximately 10%.

A likely explanation for the greater influence of status-quo is that the traders do not have to recall their past investments when basing their decision on the status-quo. In the case of the 'realized-return' and the 'peak-return', the traders have to retrieve their previous stock-specific experience. While the overall influence of endogenous reference point is marginally lower than that of status-quo, their impact is statically and economically significant. Among the endogenous reference points based on past experience, the stock-specific reference points, the 'realized-return', and the 'peak-return' have a more significant influence than the reference point based on the average across all past investment outcomes (coefficient magnitude is approximately 5%). The results imply that both stock-specific endogenous reference points have a substantial and comparable impact on the selling decisions of traders in the repurchase round.

The results imply that the influence of context-specific memory on the trading decision is significantly greater than the influence of the average outcomes over all the possible investments from the past. The evidence is in line with the arguments presented in Bordalo et al. (2020); Kahneman and Miller (1986); Wachter and Kahana (2019). The retrieval of memory from past

experience is easier when the subjects encounter a similar context (Wachter & Kahana, 2019), and the recalled memory in such cases is more likely to act as a norm and influence the decisions (Bordalo et al., 2020; Kahneman & Miller, 1986). Hence, the memory of prior investment in the same stock has a greater influence than the memory of the outcomes across all prior investments.

4.7. Robustness of the findings

In this section, we carry out several robustness checks to further establish our findings on the influence of the endogenous reference points. First, we re-examine the influence of endogenous reference points using Cox proportional hazard model (Cox, 1972). Second, in the baseline analysis, we investigated the influence of only one endogenous reference point at a time. In this section, we examine the simultaneity of the influence of multiple reference points on the traders' selling decisions. Third, in the baseline analysis, we employed a sample after excluding observations based on multiple criteria discussed in section 3.2.[21] However, it is likely that due to the exclusion of the observations, the heterogeneity of the baseline sample reduces, which makes the documented influence of the endogenous reference points a sample specific phenomenon. To demonstrate that the baseline results are robust to the inclusion of additional observations, we carry out the analysis on samples that encompass the observations excluded based on the various criteria. Lastly, we show the results for the heterogeneity in the influence of reference points based on portfolio concentration, demographic characteristics for traders having a holding period of greater than 20 trading days.

4.7.1. Estimations with proportional hazard model

In the baseline analysis, we employed a linear probability model in which we are able to account for the influence of unobservable heterogeneities at investor, stock and trading day levels. However, one serious drawback of the linear probability models is that the predicted values of the dependent variable can be negative or greater than 1 which violates the axioms of a probability measure. As a robustness check we re-estimate the influence of endogenous reference points in the baseline sample by employing Cox proportional hazard model (Cox, 1972). The specification

[21] The number of observations in the sample after applying each criterion is given in Panel A of Table 4.

of our model is as follows:

$$\begin{aligned} h_{i,j}(t|X(t)) = & h_0(t) \exp\{\beta_1 Portfolio_{it}^{+} + \beta_2 Stock_{ijt}^{+} + \\ & \beta_3 \Delta ref:\ \text{-}15\ to\ \text{-}5_{ijt} + \\ & \beta_4 \Delta ref:\ \text{-}5\ to\ 5_{ijt} + \\ & \beta_5 \Delta ref:\ 5\ to\ 15_{ijt} + \\ & \beta_6 Volatility_{jt}\} \end{aligned} \tag{2}$$

$h_{i,j}(t|X(t))$ is the probability of selling stock j by trader i on trading day t conditional on the no sell transaction upto day t. $h_0(t)$ is the conditional probability of selling when all the covariates are 0.

We present the results of estimation in Table A1. In line with out baseline findings we document a heightened probability of selling stocks in the vicinity of the endogenous reference level of returns. For 'realized-return' the influence of greatest on the selling decision of traders with short horizon. For traders having a holding period of less than 20 trading days (column (1)), the conditional probability of selling increases by 59% when the return is in the ±5% interval around the 'realized-return' of the previous round. For 'peak-return', the corresponding increase in the probability of selling is around 34%. Overall, the results of linear probability model and Cox proportional hazard model suggest similar influence of endogenous reference points on the selling decisions.

4.7.2. Simultaneous influence of multiple reference points

In section 4.6, we separately investigated the relative influence of the endogenous reference points. However, the stock-specific reference points may not impact the selling decisions when we control for the influence of other reference points simultaneously. In this section, we examine the simultaneous influence of all the reference points on the selling decisions and report the results in Table A2. Another concern that might arise from the baseline analysis is that we excluded the observation in which the 'peak-return' was less than 20% away from the 'realized-return' of the previous round. This exclusion criteria may impact the estimate of the influence

of the 'peak-return' on the selling decisions. In section, we examine the simultaneous influence of both the 'realized-return' and 'peak-return', by including the observations in which both the stock-specific reference points are close to each other.

The results suggest that the influence of stock-specific endogenous reference points continue to hold when the explanatory variables for all other reference points are included in the estimation. The results also imply that the separate influence of the individual endogenous reference points in the baseline analysis is not driven by excluding other reference points from the estimation. Furthermore, the magnitude of influence of 'realized-return' and 'peak-return' is of the same order in Table A2, 12.2%, and 12.1%, respectively. Hence, both the endogenous stock-specific reference points induce a heightened sensitivity among the traders to sell their stocks in the repurchase round. Since this analysis also includes observations in which the 'realized-return' and the 'peak-return' return of the previous round of investment in the stock are the same, the relative influence of these two endogenous reference points cannot be isolated in such cases. Lastly, similar to the results in section 4.6, we find that the stock-specific endogenous reference points have a greater influence on the selling decisions than the reference point based on past experience of a trader across all previous stock investments.

4.7.3. Market wide and stock-specific reference points

In the baseline analysis, we excluded the observations in which the market price of the stock was less than 5% away from the 52-week high prices to disentangle the influence of market-wide reference points such as the 52-week high and the investor specific reference points. This section includes the observations near 52-week high price levels and re-estimates the propensity for selling around the endogenous reference points. The analysis would assess whether the results documented in the baseline analysis hold when there is a simultaneous presence of market-wide exogenous reference points.

The results in Table A3 suggest that the magnified propensity to sell the stocks in the vicinity of the endogenous reference points is only marginally lower compared to the baseline estimates. For instance, among the traders having a holding period of less than 20 trading days (row (1)), the probability of selling a stock in the ±5% return interval around the 'realized-return' drops marginally to 12.5% from 14.1% in the baseline analysis. The results imply that the stock-specific

endogenous reference points continue to have an independent influence on the traders' selling decisions even after accounting for the heightened selling when the stocks reach the 52-week high price level.

4.7.4. Analysis including investments with longer time gap between consecutive rounds of investments

As the influence of the past trading experience is likely to decline with time, in the baseline analysis, we had only considered investor stock observations in which the time gap between the previous round and repurchase round was less than 100 calendar days. In Table A4, we re-estimate Equation 1 by including all the observations irrespective of the time period between the rounds of investment. The analysis will clearly indicate if the baseline analysis results are robust to the inclusion of investors' trades with a large time gap between the consecutive rounds.

The results in Table A4 imply that when observations with a large time gap between the consecutive rounds of investment are included, the influence of endogenous reference points continues to hold but with a decline in the magnitude. For instance, among the traders having a holding period of less than 20 trading days (row (1)), the probability of selling a stock in the ±5% return interval around the 'realized-return' drops to 10.5% from 14.1% in the baseline analysis. The results imply that the decision weights attached by the traders to the outcomes of past investment experience declines with time.

4.7.5. Analysis including partial sell transactions

In the baseline analysis, we had only considered the stock investments in which the traders exit their position with a single sell transaction. This sample selection criterion was applied as it is more likely for traders having a single sell transaction to base their decision on a particular reference point compared to traders executing multiple sell transactions in the same stock.

In Table A5, we present the results of the re-estimation of Equation 1 after including the stock positions in which the traders execute multiple sell transactions. The estimates of the coefficient of Δ*realized: -5 to 5* and Δ*peak: -5 to 5* (in Table A5) are very close to the estimates in the baseline analysis (in Table 6). The results imply that even among the traders executing multiple sell transaction in a single round of investment, the stock specific endogenous reference points

continue to influence their selling decisions.

The findings of the analysis in this section are at odds with our expectations. We expected a decline in the influence of the endogenous reference points after including the observations of traders with multiple sell transactions. A likely reason for the estimates in Table A5 and the baseline analysis being very close, is that 82% of observations in the sample are of traders who exit their respective stock positions in the repurchase round with a single sell transaction.

4.7.6. Analysis on the extended sample without exclusions

We re-estimate Equation 1 by including all the observations that were excluded based on various criteria as mentioned in Panel A of Table 4. In the analysis of the extended sample, we find that the nature of the influence of both the endogenous reference points is similar to the results of the baseline analysis (in Table A6). The results imply that the influence of the endogenous reference points is robust to baseline sample selection criteria such as market wide exogenous reference point, multiple sell transactions, and the time between consecutive rounds.

4.7.7. Robustness of heterogeneity

The heterogeneity in the influence of the reference points, on account of the differences in the portfolio concentration, the demographic characteristics, and the time between consecutive rounds for traders, has been examined on a sample of traders with a holding period of 20 trading days or lower. In this section, we show the results for traders having a longer holding period (Table A7 to Table A14). We find that even among traders having a longer holding period, the influence of endogenous reference points is more pronounced among those holding a concentrated portfolio of five or fewer stocks. The influence of 'realized-return' is present on the trading decisions of both male and female traders. However, 'peak-return' has an influence only among the male traders. Finally, similar to the baseline analysis results, we do not observe any specific pattern in the variation of the influence of the reference points on account of investor age.

5. Conclusion

The role of reference points in decision making is central to understanding investor behaviour as the decision-makers evaluate outcomes based on a reference level. While evaluating gains and losses based on endogenous reference points has become a widely accepted framework, how endogenously determined reference points shape the decisions of traders remains relatively unexplored in the context of real financial markets. We conjecture that traders' stock-specific experience shapes their reference points, thereby influencing their selling decisions when they repurchase the same stock.

The literature documents a significant influence of previously realized outcomes and the maximum attainable outcome on the reference level and subsequent choices of the decision-makers. Furthermore, the 'Retrieved-Context Theory' suggests that context-specific memory can have a disproportionately greater influence on the reference formation of the subjects. Therefore, we conjecture that the 'realized-return' and the 'peak-return' from the previous round of investment in a stock will have a strong influence on investors' selling decisions when they repurchase the same stock in the future.

Using trader-level data from a large discount brokerage firm, we examine how experience in a particular stock determines reference formation and influences market participants' trading decisions. We consider a set of traders who invest in a stock in at least two separate rounds and investigate whether two stock-specific endogenous reference points, the 'realized-return' and the 'peak-return', impact the trading decisions in the repurchase round. We find that both 'realized-return' and 'peak-return' strongly influence investors' selling decisions in the repurchase round. When the stock's return in the repurchase round is in the close neighborhood of the stock-specific endogenous reference points, traders exhibit a heightened probability of selling their stock. The propensity to sell is relatively lower when the stock return is below the endogenous reference level of return.

The influence of endogenous stock-specific reference points is comparable to the influence of 'status-quo' on the selling decisions, particularly among the traders having a lower holding period. Furthermore, the endogenous reference points have a greater influence when the traders have a shorter holding period, and when the time gap between the consecutive rounds of investment in the same stock is relatively lower. The findings indicate that traders attach declining

weight to outcomes of distant past due to recency effect, resulting in the lower influence of endogenous reference points on the subsequent selling decisions when the stock is held for a longer duration and when the time gap between the consecutive rounds increases.

Apart from recency effect, the attention of traders is also likely to moderate the influence of the endogenous reference points. Among the traders holding concentrated portfolios of five or fewer stocks, the influence of the endogenous reference points is more pronounced than the influence on the selling decision of traders holding diversified portfolios. The traders' attention likely gets divided when they hold a large number of stocks in their portfolio, making it arduous to retrieve the memory of stock-specific reference points from the previous round. Furthermore, the influence of the endogenous reference points increases with their magnitude. For example, 'realized-return' of 10% has a greater influence than the realized return of 5%. These findings imply that the influence of the endogenous reference points increases with their salience in the traders' minds.

Contrary to our expectation, we find that the traders with extensive prior trading experience are more likely to base their trading decision on the endogenous reference points. We find no significant influence of the endogenous reference points on the trading decision of market participants with no or relatively lower prior trading experience. The male traders in the sample are more likely to base their trading decisions on their past stock-specific experience than their female counterparts. However, we find no heterogeneity in the influence of reference points across investors in different age groups

We also compare the influence of reference points based on the trading experience across all previous stock investments. Specifically, we examine the influence of the traders' average return across all of their previous stock investments. The relative influence of the 'average-return' on the selling decision in the repurchase round is lower than the influence of the stock-specific endogenous reference points. These findings indicate that context-specific memory is likely to have a greater influence on the market participants' decisions. We also find that the relative influence of 'realized-return' is greater than the influence of the maximum possible attainable level of 'peak-return'. The likely reason for the greater influence of 'realized-return' is that it is an experienced outcome, while the 'peak-return' is a hypothetical return level that could have been earned had the trader sold the stock at the maximum price level. Hence, the memory of 'realized-return' is likely to be easier to retrieve than the memory of 'peak-return'.

We assess the robustness of our findings and demonstrate that the influence of endogenous reference points is not a sample-specific phenomenon, by re-estimating the baseline results using a cox hazard model. We also re-estimate the results on an extended sample by including observation, which we had excluded in the baseline analysis. Specifically, we carry out a separate analyses after including observations near the market wide salient reference points such as the 52-week high, observation in stock positions with multiple sell transaction in a single round, and observation with a larger time gap between the consecutive rounds of investments. In all the additional analyses, we find that the results are largely in line with the baseline analysis results. Lastly, we re-examine the influence of endogenous reference points in an extended sample without excluding any observation. In the extended sample as well, we find that stock-specific reference points from the previous round of investment have a substantial influence on investors' selling decisions in the repurchase round. Overall, the robustness checks demonstrate that the baseline results are not a sample specific or a method specific phenomenon.

The study makes several contributions to the various strands of literature in investor behaviour and reference-based decision making. First, we contribute to the literature on decision making based on endogenously determined reference points. The literature on the influence of reference points on investors' trading decisions in financial markets has majorly focused on exogenous reference points such as status-quo (Ben-David & Hirshleifer, 2012; Kahneman & Tversky, 1979; Odean, 1998) and the past performance of the trader (C.-H. Lin, Huang, & Zeelenberg, 2006). Meng and Weng (2017) theoretically examine the influence of prior expectation on the trading decisions. In comparison, few studies, such as Strahilevitz et al. (2011) and Huang (2019), examine the influence of endogenous reference points. We extend the literature on the influence of endogenous reference points by empirically examining their role in shaping participants' trading decisions in the real markets.

Second, we contribute significantly to the literature on investor behaviour and the influence of past outcomes on the trading decisions (Huang, 2019; W. Lin & Meng, 2015; Strahilevitz et al., 2011). The examination of the influence of endogenous reference points has so far focused only on the repurchase decision (Strahilevitz et al., 2011). To the best of knowledge, ours is the first study to examine the influence of stock-specific endogenous reference points on the selling decisions of stocks that are repurchased by traders. The study demonstrates that the stock-specific reference points from the previous round of investment continue to influence the

trading decisions in the repurchase round.

Third, by demonstrating the role of missed peak return on the selling propensity, we contribute to the literature on the role of regret in the decision making of the participants in the financial markets (Fioretti et al., 2018; Strack & Viefers, 2019). While the existing studies examine the influence of missed peak in an experimental setting, we provide empirical evidence of the influence of the missed 'peak-return' of the previous round of investment on the traders' selling decisions in the repurchase round. Lastly, by documenting the heterogeneity in the influence of the endogenous reference points based on the traders' attention, prior trading experience, age, and gender, we significantly contribute to the literature on retail traders' behaviour.

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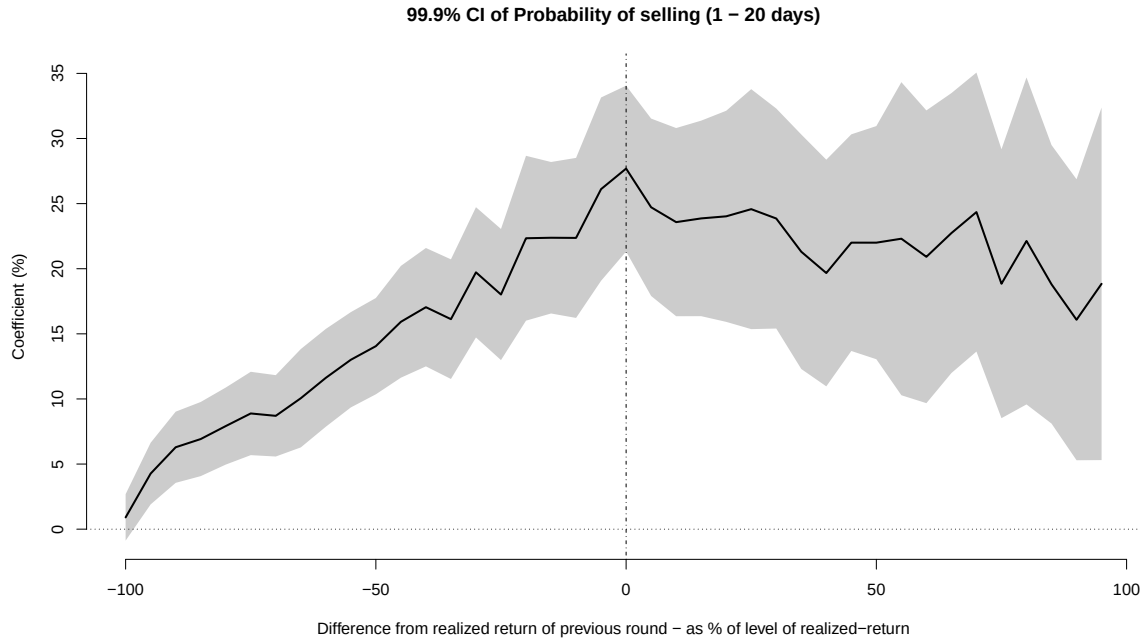
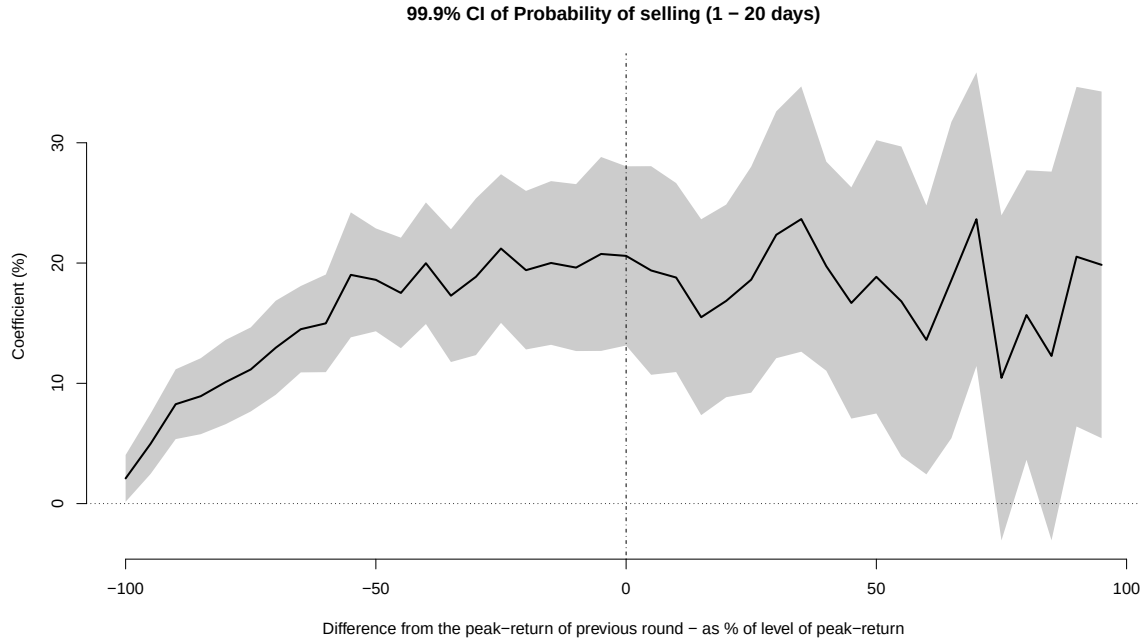


(a) Selling propensity and the 'realized-return' of the previous round



(b) Selling propensity and the 'peak-return' of the previous round

Figure 1: Selling propensity of investors around the endogenous reference points

Figure 1a and Figure 1b depict the regression estimates of the linear probability model with the sell dummy as the dependent variable. The analysis is carried for the set of traders having a holding period of 20 trading days or less in the repurchase round. The independent variables are the dummy variables capturing the interval of how far the return on investment in the repurchase round is from the 'realized-return' in Figure 1a and the 'peak-return' in Figure 1b, respectively. In both the figures, the interval size is 5% of the reference level of return of the previous round, ranging from -100% to $+100\%$. For example, if an investor's reference level of return from the previous round of investment is 20%, then the 5% interval size will correspond to a 1% return on the position in the repurchase round. In the regressions, we also control for a dummy capturing if the investor's portfolio is at a gain or a loss, time since initiation of investment in this round, and the stock's volatility in the past one year. We also control for the investor, stock, and date fixed effects in the model. The gray band represents the 99.95% confidence interval around the estimated values with the standard errors clustered at investor, stock, and trading day level.

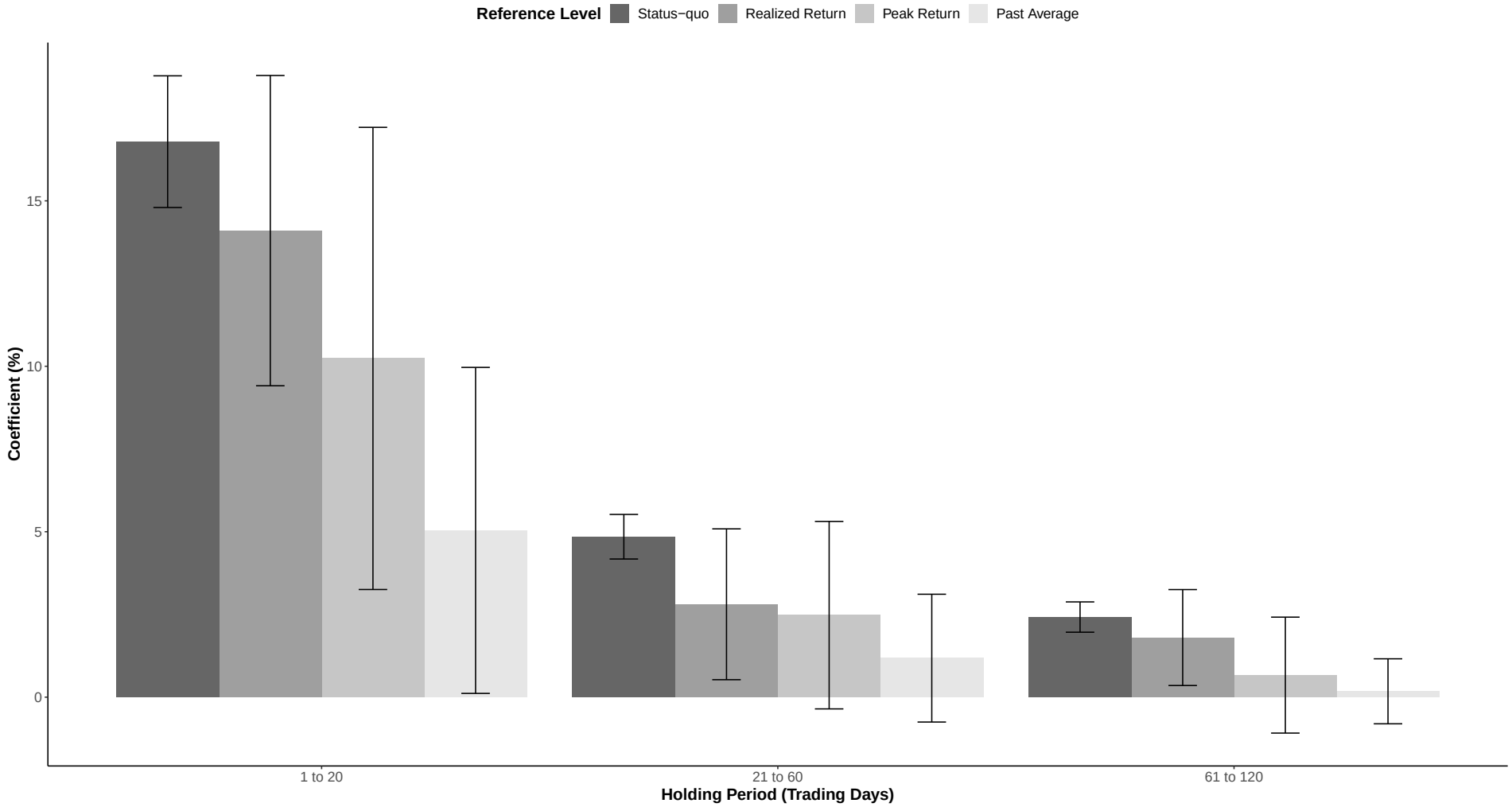


Figure 2: Comparison of the selling propensity of investors around the endogenous and exogenous reference points

Figure 2 depicts the regression coefficients of the Δ*ref: -5 to 5* in Equation 1. The reference points are 'realized-return', 'peak-return' of the previous round of investment in the same stock, and the average return earned over all the past investments in common stock. In each cluster the leftmost bar depicts the coefficient of $Stock^{+}_{ijt}$ in Equation 1, capturing the influence of status-quo. The second bar in each cluster represents the coefficient of Δ*realized: -5 to 5*; the third bar represents the coefficients of Δ*peak: -5 to 5*. The fourth bar in each cluster represents the coefficients of $\Delta avg_{\pm 5}$. The 99% confidence interval is also depicted for each coefficient.

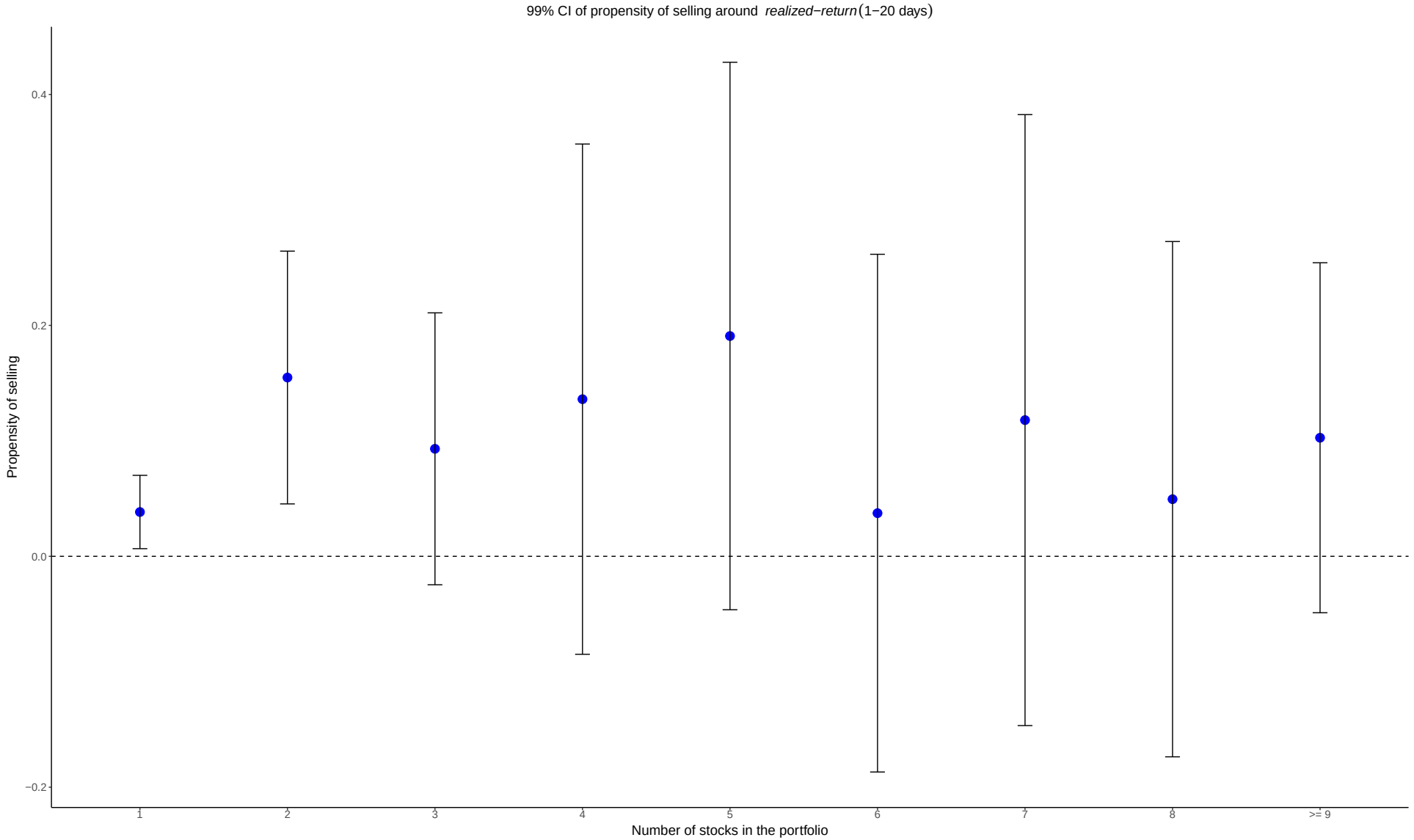


Figure 3: Comparison of the selling propensity of investors based on portfolio concentration

Figure 2 depicts the regression coefficients of the Δ*realized: -5 to 5* and the corresponding 99% confidence interval in Equation 1 based on the number of stocks held in the portfolio.

Table 1: Variable definitions

Variable Name	Description
$Sell_{ijt}$	1 if investor i sells stock j on day t, else 0
$h_{i,j}(t\|X(t))$	Probability of trader i to sell stock j on trading day t conditional on stock not having been sold until trading day t
$Portfolio^{+}_{it}$	1 if investor $i's$ net portfolio return on day t is positive, else 0
$Stock^{+}_{ijt}$	1 is investor $i's$ return in stock j on day t is positive, else 0
Δ*realized: x to* y_{ijt}	1 if investor $i's$ return on stock j since purchase is in $(x\%, y\%)$ interval around the 'realized-return' of the previous round of investment in the same stock, else 0. The interval depends on the level of return, for example, for a return level of 20%, the $(-5\%, 5\%)$ interval ranges from 19% to 21%
Δ*peak: x to* y_{ijt}	1 if investor $i's$ return on stock j since purchase in repurchase round is within $(x\%, y\%)$ interval around the the 'peak-return' of the previous round of investment in the same stock, else 0. The interval depends on the level of return, for example, for a 'peak-return' of 20%, the $(-5\%, 5\%)$ interval ranges from 19% to 21%
Δ*avg: x to* y_{ijt}	1 if investor $i's$ return on stock j since purchase is in $(x\%, y\%)$ interval around the 'average-return' across all the previous investments in common stocks made by investor i, else 0. The interval depends on the level of return, for example, for a return level of 20%, the $(-5\%, 5\%)$ interval ranges from 19% to 21%
$\Delta realized_{-n}$	1 if investor $i's$ return on stock j since purchase is in $\pm 5\%$ interval around the 'realized-return', from investment in the same stock n rounds back, else 0. The interval depends on the level of return; for example, for a return level of 20%, the $(-5\%, 5\%)$ interval ranges from 19% to 21%
$\Delta peak_{-n}$	1 if investor $i's$ return on stock j since purchase is in $\pm 5\%$ interval around the 'peak-return,' from investment in the same stock n rounds back, else 0. The interval depends on the level of return; for example, for a return level of 20%, the $(-5\%, 5\%)$ interval ranges from 19% to 21%
$\sqrt{Days}_{ijt}$	Square root of number of trading days since purchase of stock j in the repurchase round by investor i as on day t
$Volatility_{jt}$	Mean absolute value of daily return in the previous 250 trading days of stock j as computed on day t

This table contains a description of the variables employed in the analysis.

Table 2: Summary statistics of variables

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
$Sell\ Indicator_{ijt}(\%)$	256,747	3.37	18.06	0	0	0	100
$Portfolio^{+}_{it}(\%)$	256,747	38.32	48.62	0	0	100	100
$Stock^{+}_{ijt}(\%)$	256,747	43.67	49.60	0	0	100	100
Δ*realized: -15 to -5* (%)	256,747	1.37	11.64	0	0	0	100
Δ*realized: -5 to 5* (%)	256,747	1.25	11.12	0	0	0	100
Δ*realized: 5 to 15* (%)	256,747	1.00	9.96	0	0	0	100
Δ*peak: -15 to -5* (%)	175,847	1.15	10.64	0.00	0.00	0.00	100.00
Δ*peak: -5 to 5* (%)	175,847	0.94	9.67	0.00	0.00	0.00	100.00
Δ*peak: 5 to 15* (%)	175,847	0.75	8.62	0.00	0.00	0.00	100.00
$\sqrt{Days}_{ijt}$	256,747	5.13	2.32	1.41	3.16	6.86	11.00
$Volatility_{jt}(\%)$	256,747	2.23	0.80	0.50	1.64	2.72	6.34

This table provides summary statistics for the variables employed in the multivariate analysis. All the indicator variables are multiplied by 100 to express the summary statistics in percentage. The variable definitions are provided in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity.

Table 3: Comparison of investor accounts with single and multiple rounds of investment in a stock

	Accounts with multiple rounds	Accounts with single rounds
	(1)	(2)
Number of accounts	13,864	63,039
Proportion of the trades (%)	57.4%	42.5%
Holding period in trading days	120 (43)	451 (292)
Holding period of repurchased stock in trading days	139 (44)	NA
Number of stocks held in the portfolio	6.34 (4)	3.6 (2)
Investment per stock in $	16,113 (7,525)	7,994 (4,462)
Investment per stock in repurchased stock in $	24,902 (12,050)	NA
Number of accounts with gender and age information	6,968	31,192
Investor age in years	49.5 (48)	49.6 (48)
Proportion of Female Investors (%)	8.7 %	9.6%

This table presents the trading and demographic characteristics of the traders. Column (1) depicts the values for traders who repurchase at least one previously owned stock during the sample period. Column (2) depicts the values for traders who do not repurchase any previously owned stock during the sample period. Median values are provided in parenthesis.

Table 4: Baseline sample - selection and characteristics

Holding period in the repurchase round (trading days)	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)
Panel A: Construction the baseline sample			
All observations	126766	374568	599970
Positive return in previous round	96157	283690	456728
Complete exit with one selling action	109559	301168	416730
Away from 52 week high	96440	295798	502541
More than $5	123323	358906	571303
Less than 100 days between rounds	84482	214541	306397
Main sample with all filters	39084	93664	123999
Main sample with 'peak-return' substantially greater than 'realized-return'	27487	65792	82568
Panel B: Characteristics of accounts in the baseline sample			
Number of observations	39,084	93,664	123,999
Number of accounts	2,225	1,863	1,205
Number of stocks held	4.6 (3)	4.9 (3)	5 (3)
Investment per stock in repurchased stock ($)	32,939 (19,250)	25,253 (13,000)	21,592 (11,000)
Holding period in the previous round (trading days)	35.5 (12)	59.6 (27)	84 (43.5)
Holding period in the repurchase round (trading days)	8.1 (7)	37 (35)	87 (85)
Number of accounts with gender and age information	1,131	917	607
Investor age in years	48.6 (46)	48.96 (48)	49.31 (48)
Female Investors (%)	6.8%	7.2%	6%

Panel A of this table outlines the details of the exclusion criteria applied to the data to arrive at the baseline sample. Corresponding to each criterion, we display the number of observations remaining after the application of that criterion. The second last row depicts the number of observations that remain after applying all criteria. These observations form the part of the baseline analysis in which we investigate the influence of the 'realized-return' of the previous round on the selling decision in the repurchase round. The last row depicts the number of observations that remain after applying an additional exclusion criterion of 'peak-return' of the previous round to be at least 20% higher than the 'realized-return' of the previous round. The details of the process can be found in subsection 3.2. Panel B of the table outlines the trading and demographic characteristics of the investors in the baseline sample. We arrive at the baseline sample after applying the criteria detailed in Panel A. Median values are provided in the parenthesis.

Table 5: Propensity of selling and return earned around the reference points

Holding period in the repurchase round (Trading Days):	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)
Panel A: Selling propensity of traders (%)			
Overall	12.66	2.97	1.30
At gain	15.72	4.09	1.96
At loss	8.75	1.92	0.85
±5% of the 'realized-return'	30.41	6.60	3.84
±5% of the 'peak-return'	26.55	6.67	3.25
±5% of the average return	21.49	5.44	2.98
Panel B: Summary of daily excess return earned over the market return (%)			
Previous round (%)	0.8 (0.3)	0.4 (0.2)	0.1 (0.1)
Repurchase round (%)	0.6 (0.4)	0.1 (0.1)	0 (0)
±5% of the 'realized-return'	1.5 (1)	0.3 (0.2)	0.1 (0.1)
±5% of the 'peak-return'	1.6 (1)	0.3 (0.3)	0.2 (0.2)
±5% of the average return	1.3 (0.9)	0.3 (0.2)	0.1 (0.1)

Panel A provides a summary of the proportion of observations that record a sell transaction in the repurchase round under different conditions in percentage. Row (1) of Panel A gives the portion of observations recording a sell transaction out of all the observation in the repurchase round. Row (2) of Panel A provides detail about the proportion of observation recording a sell transaction in the repurchase round out of all the observations in which the return on investment was positive. Row (3) of Panel A provides detail about the proportion of observation recording a sell transaction in the repurchase round out of all the observations in which the return on investment was negative. Row(4) to (6) of Panel A provide a summary of the proportion of observations recording a sell transaction out of all the observation in the ±5% interval around the respective reference point. 'Realized-return' refers to the level of return earned in the previous round of investment in the same stock. 'Peak-return' refers to the maximum possible attainable return in the previous round of investment in the same stock. Average return refers to the mean return earned over all the previous stock investments by a trader. In Panel B, we provide a summary of the average daily excess return over the market earned by the traders in the main sample under different selling conditions in percentage. Median values are indicated in the parenthesis. Row (1) of Panel B provides a summary of return earned in the previous round of investment in a stock over the market return. Row (2) of Panel B, provides the details about the average return earned by traders in the repurchase round of investment in a stock over the market return. Row (3) to (5) of Panel B provide the detail of return earned over the marker return when the traders sell their stock in the repurchase round in the ±5% interval around the respective reference points. All figures are in percentages. The key explanatory variables are defined in Table 1.

Table 6: Influence of the endogenous reference points on the selling propensity

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	-0.229^{***}	-0.068^{***}	-0.028^{***}	-0.234^{***}	-0.070^{***}	-0.027^{***}
	(0.010)	(0.004)	(0.002)	(0.011)	(0.004)	(0.003)
$Stock^{+}$	0.168^{***}	0.048^{***}	0.024^{***}	0.173^{***}	0.046^{***}	0.024^{***}
	(0.008)	(0.003)	(0.002)	(0.009)	(0.003)	(0.002)
Δ*realized: -15 to -5*	0.092^{***}	0.028^{***}	0.007			
	(0.015)	(0.007)	(0.004)			
Δ*realized: -5 to 5*	0.141^{***}	0.028^{***}	0.018^{***}			
	(0.018)	(0.009)	(0.006)			
Δ*realized: 5 to 15*	0.108^{***}	0.043^{***}	0.010^{*}			
	(0.021)	(0.009)	(0.006)			
Δ*peak: -15 to -5*				0.097^{***}	0.013	0.022^{***}
				(0.026)	(0.009)	(0.007)
Δ*peak: -5 to 5*				0.102^{***}	0.025^{**}	0.007
				(0.027)	(0.011)	(0.007)
Δ*peak: 5 to 15*				0.073^{***}	0.021^{**}	0.008
				(0.026)	(0.010)	(0.007)
$\sqrt{Days}$	0.094^{***}	0.023^{***}	0.006^{***}	0.104^{***}	0.024^{***}	0.006^{***}
	(0.003)	(0.0004)	(0.0002)	(0.004)	(0.001)	(0.0003)
$Volatility$	2.498	1.888^{***}	1.059^{**}	0.512	2.500^{**}	0.824
	(2.038)	(0.627)	(0.489)	(2.857)	(0.971)	(0.540)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,084	93,664	123,999	27,487	65,792	82,568
Adjusted R^2	0.181	0.063	0.033	0.188	0.063	0.034

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 7: Influence of endogenous reference points and the time period between consecutive rounds

	Dependent variable: Sell Indicator$_{ijt}$					
Calendar days between consecutive round:	$1-20$	$21-60$	$61-100$	$1-20$	$21-60$	$61-100$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.254***	−0.263***	−0.253***	−0.251***	−0.275***	−0.270***
	(0.013)	(0.014)	(0.020)	(0.015)	(0.017)	(0.026)
$Stock^{+}$	0.189***	0.146***	0.105***	0.180***	0.138***	0.114***
	(0.011)	(0.011)	(0.014)	(0.013)	(0.012)	(0.018)
Δ*realized: -15 to -5*	0.101***	0.077***	0.061*			
	(0.024)	(0.024)	(0.037)			
Δ*realized: -5 to 5*	0.197***	0.122***	0.053			
	(0.025)	(0.031)	(0.033)			
Δ*realized: 5 to 15*	0.115***	0.082***	0.174***			
	(0.032)	(0.031)	(0.051)			
Δ*peak: -15 to -5*				0.102***	0.072*	0.026
				(0.038)	(0.037)	(0.052)
Δ*peak: -5 to 5*				0.167***	0.050	0.013
				(0.041)	(0.039)	(0.050)
Δ*peak: 5 to 15*				0.065	0.078*	0.049
				(0.042)	(0.045)	(0.041)
$\sqrt{Days}$	0.108***	0.120***	0.162***	0.124***	0.132***	0.118***
	(0.005)	(0.005)	(0.010)	(0.006)	(0.006)	(0.019)
$Volatility$	9.779**	12.774**	48.463**	7.956	20.643**	94.578***
	(3.940)	(5.952)	(21.679)	(5.649)	(8.830)	(32.963)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,110	13,678	6,296	13,747	9,440	4,300
Adjusted R^2	0.226	0.232	0.230	0.233	0.237	0.256

The table represents the variation in the influence of the endogenous reference points of the previous round of investment with respect to the time gap between the consecutive rounds of investment in the same stock. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 8: Magnitude of endogenous reference points and the influence on the selling propensity

	Dependent variable: Sell Indicator$_{ijt}$							
Reference level based on previous round	$< 2\%$	$2\% - 5\%$	$5\% - 10\%$	$10\% - 15\%$	$< 2\%$	$2\% - 5\%$	$5\% - 10\%$	$10\% - 15\%$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Portfolio^{+}$	−0.302***	−0.283***	−0.254***	−0.268***	0.220	−0.317***	−0.272***	−0.293***
	(0.031)	(0.019)	(0.016)	(0.018)	(0.253)	(0.043)	(0.019)	(0.021)
$Stock^{+}$	0.225***	0.188***	0.173***	0.125***		0.272***	0.196***	0.163***
	(0.024)	(0.016)	(0.012)	(0.013)	(0.000)	(0.031)	(0.016)	(0.016)
Δ*realized: -15 to -5*	−0.019	0.071***	0.101***	0.117***				
	(0.082)	(0.026)	(0.026)	(0.034)				
Δ*realized: -5 to 5*	0.120	0.070**	0.133***	0.181***				
	(0.073)	(0.033)	(0.031)	(0.041)				
Δ*realized: 5 to 15*	−0.033	0.056	0.123***	0.193***				
	(0.059)	(0.034)	(0.037)	(0.047)				
Δ*peak: -15 to -5*						0.174***	0.110***	0.020
					(0.000)	(0.062)	(0.037)	(0.042)
Δ*peak: -5 to 5*					−0.562	0.032	0.085*	0.127**
					(0.286)	(0.067)	(0.047)	(0.056)
Δ*peak: 5 to 15*						−0.044	0.043	0.138**
					(0.000)	(0.055)	(0.040)	(0.065)
$\sqrt{Days}$	0.174***	0.134***	0.119***	0.139***	−3.277***	0.222***	0.127***	0.129***
	(0.021)	(0.007)	(0.006)	(0.009)	(0.557)	(0.037)	(0.007)	(0.010)
$Volatility$	2.673	16.503*	18.005***	82.163***		62.588	−9.974	42.494**
	(21.503)	(8.793)	(5.966)	(18.863)	(0.000)	(63.639)	(10.596)	(20.292)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,270	7,934	10,853	6,669	155	2,479	7,305	5,403
Adjusted R^2	0.341	0.282	0.245	0.267	0.378	0.377	0.266	0.293

The table represents the variation in the influence of the endogenous reference points of the previous round of investment with respect to the magnitude of the reference point. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 9: Portfolio concentration and the influence of endogenous reference points

	Dependent variable: Sell Indicator$_{ijt}$			
Number of stock in the portfolio:	≤ 5	> 5	≤ 5	> 5
	(1)	(2)	(3)	(4)
$Portfolio^{+}$	-0.285^{***}	-0.054^{***}	-0.290^{***}	-0.072^{***}
	(0.011)	(0.018)	(0.012)	(0.026)
$Stock^{+}$	0.206^{***}	0.107^{***}	0.209^{***}	0.094^{***}
	(0.010)	(0.014)	(0.011)	(0.015)
Δ*realized: -15 to -5*	0.090^{***}	0.092^{**}		
	(0.016)	(0.037)		
Δ*realized: -5 to 5*	0.149^{***}	0.106^{**}		
	(0.020)	(0.043)		
Δ*realized: 5 to 15*	0.105^{***}	0.100^{**}		
	(0.023)	(0.043)		
Δ*peak: -15 to -5*			0.105^{***}	0.070
			(0.029)	(0.048)
Δ*peak: -5 to 5*			0.118^{***}	0.042
			(0.028)	(0.046)
Δ*peak: 5 to 15*			0.076^{**}	0.072
			(0.029)	(0.062)
$\sqrt{Days}$	0.100^{***}	0.099^{***}	0.112^{***}	0.111^{***}
	(0.003)	(0.006)	(0.004)	(0.008)
$Volatility$	3.566	3.632	4.763	-1.252
	(3.415)	(4.427)	(4.114)	(9.873)
Trader fixed effects	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes
Observations	29,485	9,599	20,672	6,815
Adjusted R^2	0.223	0.153	0.233	0.174

The table represents the variation in the influence of the endogenous reference points of the previous round of investment with respect to the portfolio concentration of the investors. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 10: Influence of endogenous reference points and investor experience

	Dependent variable: Sell Indicator$_{ijt}$							
	Extensive	Good	Limited	None	Extensive	Good	Limited	None
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Portfolio^{+}$	−0.260***	−0.225***	−0.306***	−0.324***	−0.278***	−0.242***	−0.292***	−0.292***
	(0.024)	(0.015)	(0.022)	(0.050)	(0.027)	(0.019)	(0.026)	(0.060)
$Stock^{+}$	0.154***	0.154***	0.179***	0.192***	0.152***	0.163***	0.174***	0.148**
	(0.019)	(0.012)	(0.019)	(0.043)	(0.021)	(0.014)	(0.023)	(0.058)
Δ*realized: -15 to -5*	0.035	0.127***	0.023	0.060				
	(0.033)	(0.028)	(0.031)	(0.087)				
Δ*realized: -5 to 5*	0.098*	0.126***	0.091***	0.110				
	(0.054)	(0.024)	(0.035)	(0.088)				
Δ*realized: 5 to 15*	0.039	0.143***	0.066	0.025				
	(0.046)	(0.032)	(0.054)	(0.097)				
Δ*peak: -15 to -5*					0.002	0.057*	0.018	0.155
					(0.055)	(0.030)	(0.059)	(0.202)
Δ*peak: -5 to 5*					0.126**	0.066**	0.108	−0.002
					(0.064)	(0.030)	(0.080)	(0.136)
Δ*peak: 5 to 15*					0.113**	0.061*	0.164*	0.018
					(0.048)	(0.035)	(0.089)	(0.167)
$\sqrt{Days}$	0.130***	0.107***	0.124***	0.155***	0.126***	0.117***	0.127***	0.141
	(0.007)	(0.005)	(0.009)	(0.048)	(0.012)	(0.006)	(0.012)	(0.088)
$Volatility$	10.014	6.628	19.126**	93.841***	35.640***	8.298	20.154	258.592***
	(7.269)	(4.639)	(8.146)	(28.150)	(12.313)	(6.320)	(16.732)	(61.546)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,650	14,026	5,823	1,698	4,853	9,417	4,155	1,219
Adjusted R^2	0.233	0.194	0.212	0.322	0.249	0.206	0.248	0.360

The table represents the variation in the influence of the endogenous reference points of the previous round of investment with respect to the self-reported prior trading experience of the investors. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 11: Influence of endogenous reference points and investor characteristics

Demographic:	*Dependent variable: Sell Indicator$_{ijt}$*									
	Gender		Age			Gender		Age		
	Male	Female	< 30	$30 - 50$	> 50	Male	Female	< 30	$30 - 50$	> 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$Portfolio^{+}$	−0.262***	−0.278***	−0.387***	−0.293***	−0.229***	−0.276***	−0.294***	−0.269*	−0.313***	−0.250***
	(0.011)	(0.031)	(0.098)	(0.014)	(0.015)	(0.012)	(0.046)	(0.145)	(0.016)	(0.016)
$Stock^{+}$	0.171***	0.140***	0.188*	0.190***	0.135***	0.175***	0.159***	0.091	0.196***	0.136***
	(0.010)	(0.026)	(0.101)	(0.012)	(0.013)	(0.011)	(0.041)	(0.155)	(0.014)	(0.015)
Δ*realized: -15 to -5*	0.098***	−0.039	0.378***	0.092***	0.068**					
	(0.019)	(0.064)	(0.115)	(0.023)	(0.027)					
Δ*realized: -5 to 5*	0.138***	0.146**	0.561***	0.101***	0.171***					
	(0.020)	(0.068)	(0.202)	(0.026)	(0.032)					
Δ*realized: 5 to 15*	0.090***	0.120*	0.174	0.080***	0.135***					
	(0.023)	(0.070)	(0.208)	(0.029)	(0.039)					
Δ*peak: -15 to -5*						0.107***	−0.073	−0.172	0.082**	0.104**
						(0.029)	(0.092)	(0.303)	(0.033)	(0.049)
Δ*peak: -5 to 5*						0.095***	0.081	−0.034	0.091***	0.114***
						(0.026)	(0.137)	(0.216)	(0.033)	(0.040)
Δ*peak: 5 to 15*						0.092***	−0.060	−0.227	0.065*	0.109*
						(0.035)	(0.101)	(0.201)	(0.033)	(0.057)
$\sqrt{Days}$	0.106***	0.125***	0.069	0.110***	0.116***	0.114***	0.171***	−0.191	0.121***	0.128***
	(0.004)	(0.018)	(0.108)	(0.004)	(0.006)	(0.004)	(0.030)	(0.411)	(0.005)	(0.007)
$Volatility$	7.597***	4.703	68.040	10.548***	8.760	8.659***	70.315	95.480	11.735***	12.842*
	(2.718)	(31.484)	(116.453)	(3.336)	(5.581)	(3.301)	(59.175)	(145.614)	(3.855)	(7.398)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,849	2,462	805	16,341	11,165	18,320	1,733	514	11,472	8,067
Adjusted R^2	0.195	0.246	0.345	0.226	0.189	0.202	0.241	0.158	0.241	0.195

The table represents the variation in the influence of the endogenous reference points of the previous round of investment with respect to the gender and age of the investors. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 12: Influence of the 'realized-return' on the selling propensity over multiple rounds of investments

	Dependent variable: Sell Indicator$_{ijt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.229***	−0.256***	−0.279***	−0.309***	−0.337***	−0.348***
	(0.010)	(0.014)	(0.019)	(0.026)	(0.037)	(0.046)
$Stock^{+}$	0.173***	0.193***	0.211***	0.240***	0.270***	0.270***
	(0.008)	(0.011)	(0.016)	(0.019)	(0.025)	(0.033)
$\Delta realized_{-1}$	0.132***	0.145***	0.122***	0.131***	0.123*	0.197**
	(0.018)	(0.026)	(0.036)	(0.047)	(0.063)	(0.082)
$\Delta realized_{-2}$		0.097***	0.098***	0.017	−0.001	−0.011
		(0.026)	(0.036)	(0.047)	(0.055)	(0.064)
$\Delta realized_{-3}$			0.042	0.038	0.001	0.055
			(0.038)	(0.051)	(0.069)	(0.122)
$\Delta realized_{-4}$				0.023	0.004	−0.052
				(0.060)	(0.075)	(0.084)
$\Delta realized_{-5}$					0.012	0.069
					(0.080)	(0.091)
$\Delta realized_{-6}$						0.083
						(0.081)
$\sqrt{Days}$	0.095***	0.095***	0.100***	0.094***	0.083***	0.104***
	(0.003)	(0.004)	(0.006)	(0.009)	(0.014)	(0.016)
$Volatility$	2.597	2.137	−6.090	−17.343*	−0.622	13.208
	(2.033)	(2.902)	(4.593)	(8.804)	(14.909)	(22.645)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,084	17,395	8,717	4,979	3,170	2,069
Adjusted R^2	0.178	0.210	0.224	0.260	0.269	0.316

The table represents the influence of 'realized-return' of the previous rounds of investment on the selling decisions of the traders in the repurchase round. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 13: Influence of the 'peak-return' on selling propensity over multiple rounds of investments

	Dependent variable: Sell Indicator$_{ijt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.234***	−0.262***	−0.285***	−0.350***	−0.390***	−0.361***
	(0.011)	(0.015)	(0.022)	(0.029)	(0.047)	(0.071)
$Stock^{+}$	0.175***	0.196***	0.211***	0.233***	0.257***	0.267***
	(0.009)	(0.013)	(0.019)	(0.026)	(0.038)	(0.061)
$\Delta peak_{-1}$	0.093***	0.134***	0.105*	0.204***	0.155	0.192
	(0.027)	(0.036)	(0.054)	(0.073)	(0.098)	(0.137)
$\Delta peak_{-2}$		0.048	0.091**	0.085	0.135	0.216
		(0.030)	(0.044)	(0.071)	(0.119)	(0.220)
$\Delta peak_{-3}$			−0.002	−0.046	−0.072	−0.173
			(0.050)	(0.067)	(0.123)	(0.167)
$\Delta peak_{-4}$				0.116	−0.042	0.149
				(0.086)	(0.134)	(0.176)
$\Delta peak_{-5}$					−0.122*	−0.196***
					(0.070)	(0.072)
$\Delta peak_{-6}$						−0.101
						(0.141)
$\sqrt{Days}$	0.104***	0.109***	0.122***	0.113***	0.112***	0.126***
	(0.004)	(0.005)	(0.010)	(0.014)	(0.023)	(0.024)
$Volatility$	0.584	0.993	−16.866*	−44.690***	−35.891	−33.119
	(2.869)	(5.606)	(8.922)	(14.499)	(38.883)	(50.578)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,487	11,951	5,882	3,272	1,973	1,231
Adjusted R^2	0.186	0.222	0.228	0.276	0.246	0.284

The table represents the influence of 'peak-return' of the previous rounds of investment on the selling decisions of the traders in the repurchase round. The analysis is carried out on the set of traders having a holding period of less than 20 trading days in the repurchase round. The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Appendix

Table A1: Influence of the endogenous reference points on the selling propensity - proportional hazard model

	Dependent variable: $h_{i,j}(t\|X(t))$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.993***	−1.049***	−1.037***	−0.989***	−1.029***	−0.932***
	(0.060)	(0.072)	(0.102)	(0.066)	(0.083)	(0.128)
$Stock^{+}$	0.891***	0.973***	1.108***	0.916***	0.916***	1.110***
	(0.050)	(0.068)	(0.089)	(0.056)	(0.078)	(0.110)
Δ*realized: -15 to -5*	0.380***	0.434***	0.149			
	(0.083)	(0.123)	(0.171)			
Δ*realized: -5 to 5*	0.587***	0.482***	0.318*			
	(0.082)	(0.131)	(0.165)			
Δ*realized: 5 to 15*	0.470***	0.351**	0.155			
	(0.124)	(0.140)	(0.182)			
Δ*peak: -15 to -5*				0.285***	0.141	0.552***
				(0.110)	(0.170)	(0.202)
Δ*peak: -5 to 5*				0.337***	0.439***	0.137
				(0.124)	(0.155)	(0.267)
Δ*peak: 5 to 15*				0.061	0.586***	−0.057
				(0.137)	(0.163)	(0.347)
$Volatility$	15.988***	4.503	3.005	15.502***	4.464	−3.216
	(3.286)	(4.068)	(4.597)	(3.739)	(4.282)	(5.937)
Observations	39,084	93,664	123,999	27,487	65,792	82,568
R^2	0.040	0.009	0.004	0.039	0.008	0.003
Max. Possible R^2	0.897	0.385	0.178	0.895	0.380	0.177

The dependent variable is probability of investor i to sell stock j on day t conditional on the stock not being sold until trading day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. The coefficients are estimated from Cox propoational hazard model (Cox, 1972) described in Equation 2. Standard errors are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A2: Simultaneous influence of multiple reference points

	Dependent variable: Sell Indicator$_{ijt}$		
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)
$Portfolio^{+}$	-0.231^{***}	-0.069^{***}	-0.028^{***}
	(0.009)	(0.004)	(0.002)
$Stock^{+}$	0.166^{***}	0.049^{***}	0.024^{***}
	(0.007)	(0.003)	(0.002)
Δ*realized: -5 to 5*	0.122^{***}	0.024^{***}	0.016^{***}
	(0.018)	(0.009)	(0.006)
Δ*peak: -5 to 5*	0.121^{***}	0.039^{***}	0.014^{*}
	(0.022)	(0.010)	(0.008)
$\Delta avg_{\pm 5\%}$	0.039^{**}	0.010	-0.0001
	(0.019)	(0.007)	(0.004)
$\sqrt{Days}$	0.096^{***}	0.023^{***}	0.006^{***}
	(0.003)	(0.0004)	(0.0002)
$Volatility$	1.158	1.896^{***}	1.026^{**}
	(2.185)	(0.659)	(0.492)
Trader fixed effects	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes
Observations	38,038	92,772	123,260
Adjusted R^2	0.180	0.063	0.033

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A3: Market wide and stock-specific reference points

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	-0.250^{***}	-0.077^{***}	-0.033^{***}	-0.258^{***}	-0.078^{***}	-0.032^{***}
	(0.008)	(0.003)	(0.002)	(0.010)	(0.004)	(0.003)
$Stock^{+}$	0.175^{***}	0.052^{***}	0.028^{***}	0.177^{***}	0.049^{***}	0.028^{***}
	(0.007)	(0.002)	(0.002)	(0.009)	(0.003)	(0.002)
Δ*realized: -15 to -5*	0.087^{***}	0.021^{***}	0.006^{**}			
	(0.013)	(0.006)	(0.003)			
Δ*realized: -5 to 5*	0.125^{***}	0.022^{***}	0.016^{***}			
	(0.014)	(0.006)	(0.004)			
Δ*realized: 5 to 15*	0.103^{***}	0.030^{***}	0.008^{*}			
	(0.016)	(0.007)	(0.004)			
Δ*peak: -15 to -5*				0.081^{***}	0.015^{**}	0.013^{**}
				(0.018)	(0.007)	(0.005)
Δ*peak: -5 to 5*				0.078^{***}	0.018^{**}	0.011^{**}
				(0.019)	(0.008)	(0.005)
Δ*peak: 5 to 15*				0.083^{***}	0.015^{**}	0.005
				(0.021)	(0.008)	(0.005)
$\sqrt{Days}$	0.095^{***}	0.023^{***}	0.007^{***}	0.104^{***}	0.024^{***}	0.006^{***}
	(0.003)	(0.0004)	(0.0001)	(0.003)	(0.0004)	(0.0002)
$Volatility$	4.202^{***}	1.173^{**}	0.532	3.803^{*}	1.350^{*}	0.654
	(1.498)	(0.515)	(0.401)	(2.091)	(0.689)	(0.451)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56,079	129,805	161,613	39,182	90,269	108,406
Adjusted R^2	0.177	0.060	0.028	0.182	0.059	0.027

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. The analysis in this table employs a sample comprising of the baseline sample and the observations obtained after muting the 52 week high exclusion criterion described in row 4 of Panel A of Table 4. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A4: Analysis including investments with longer time gap between consecutive rounds of investments

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.211***	−0.060***	−0.024***	−0.212***	−0.061***	−0.023***
	(0.008)	(0.003)	(0.001)	(0.009)	(0.003)	(0.002)
$Stock^{+}$	0.148***	0.040***	0.018***	0.146***	0.038***	0.018***
	(0.007)	(0.002)	(0.001)	(0.008)	(0.002)	(0.001)
Δ*realized: -15 to -5*	0.086***	0.022***	0.009***			
	(0.013)	(0.005)	(0.003)			
Δ*realized: -5 to 5*	0.105***	0.017***	0.012***			
	(0.014)	(0.005)	(0.003)			
Δ*realized: 5 to 15*	0.099***	0.032***	0.008**			
	(0.016)	(0.006)	(0.003)			
Δ*peak: -15 to -5*				0.088***	0.005	0.011***
				(0.019)	(0.006)	(0.004)
Δ*peak: -5 to 5*				0.090***	0.028***	0.004
				(0.019)	(0.008)	(0.004)
Δ*peak: 5 to 15*				0.062***	0.023***	0.007
				(0.020)	(0.008)	(0.005)
$\sqrt{Days}$	0.088***	0.022***	0.006***	0.098***	0.023***	0.006***
	(0.003)	(0.0003)	(0.0001)	(0.003)	(0.0004)	(0.0001)
$Volatility$	3.428***	0.524	0.714***	2.486	0.905*	0.542*
	(1.266)	(0.377)	(0.236)	(1.727)	(0.534)	(0.308)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	60,498	171,136	253,281	42,793	119,139	168,802
Adjusted R^2	0.152	0.055	0.027	0.155	0.055	0.026

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. The analysis in this table employs a sample comprising of the baseline sample and the observations obtained after muting the 100 days between consecutive rounds exclusion criterion described in row 6 of Panel A of Table 4. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A5: Analysis including partial sell transactions

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.214***	−0.060***	−0.022***	−0.218***	−0.061***	−0.022***
	(0.009)	(0.003)	(0.002)	(0.010)	(0.004)	(0.002)
$Stock^{+}$	0.167***	0.047***	0.023***	0.171***	0.044***	0.023***
	(0.008)	(0.002)	(0.002)	(0.009)	(0.003)	(0.002)
Δ*realized: -15 to -5*	0.085***	0.022***	0.006			
	(0.014)	(0.006)	(0.004)			
Δ*realized: -5 to 5*	0.137***	0.022***	0.017***			
	(0.018)	(0.008)	(0.005)			
Δ*realized: 5 to 15*	0.102***	0.034***	0.015***			
	(0.020)	(0.008)	(0.005)			
Δ*peak: -15 to -5*				0.102***	0.021**	0.021***
				(0.025)	(0.009)	(0.007)
Δ*peak: -5 to 5*				0.109***	0.025**	0.009
				(0.025)	(0.010)	(0.007)
Δ*peak: 5 to 15*				0.078***	0.027***	0.009
				(0.026)	(0.010)	(0.007)
$\sqrt{Days}$	0.088***	0.023***	0.007***	0.097***	0.024***	0.007***
	(0.003)	(0.0004)	(0.0002)	(0.004)	(0.0004)	(0.0002)
$Volatility$	1.816	1.287***	0.934**	0.614	1.649**	0.293
	(1.733)	(0.453)	(0.370)	(2.453)	(0.646)	(0.434)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	45,295	117,041	180,462	32,113	82,830	123,789
Adjusted R^2	0.163	0.057	0.030	0.169	0.057	0.029

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. The analysis in this table employs a sample comprising of the baseline sample and the observations obtained after muting the single sell transaction exclusion criterion described in row 3 of Panel A of Table 4. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A6: Analysis on the extended sample without exclusions

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round :	$1-20$	$21-60$	$61-120$	$1-20$	$21-60$	$61-120$
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	-0.188^{***}	-0.051^{***}	-0.019^{***}	-0.182^{***}	-0.050^{***}	-0.019^{***}
	(0.007)	(0.002)	(0.001)	(0.007)	(0.002)	(0.001)
$Stock^{+}$	0.126^{***}	0.034^{***}	0.016^{***}	0.117^{***}	0.030^{***}	0.015^{***}
	(0.006)	(0.002)	(0.001)	(0.007)	(0.002)	(0.001)
Δ*realized: -15 to -5*	0.085^{***}	0.019^{***}	0.007^{***}			
	(0.010)	(0.004)	(0.002)			
Δ*realized: -5 to 5*	0.111^{***}	0.017^{***}	0.014^{***}			
	(0.011)	(0.004)	(0.003)			
Δ*realized: 5 to 15*	0.095^{***}	0.023^{***}	0.011^{***}			
	(0.011)	(0.004)	(0.003)			
Δ*peak: -15 to -5*				0.062^{***}	0.006	0.006^{***}
				(0.010)	(0.004)	(0.002)
Δ*peak: -5 to 5*				0.065^{***}	0.011^{***}	0.005^{**}
				(0.011)	(0.004)	(0.002)
Δ*peak: 5 to 15*				0.040^{***}	0.010^{**}	0.003
				(0.012)	(0.004)	(0.002)
$\sqrt{Days}$	0.080^{***}	0.023^{***}	0.007^{***}	0.086^{***}	0.023^{***}	0.007^{***}
	(0.002)	(0.0002)	(0.0001)	(0.002)	(0.0003)	(0.0001)
$Volatility$	2.091^{***}	0.786^{***}	0.345^{***}	1.902^{**}	0.907^{***}	0.322^{***}
	(0.786)	(0.167)	(0.102)	(0.917)	(0.193)	(0.112)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	126,766	374,501	599,789	98,409	288,624	452,644
Adjusted R^2	0.120	0.046	0.021	0.116	0.044	0.020

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. The analysis in this table employs an extended sample that is obtained after muting all the exclusion criteria described in Panel A of Table 4. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A7: Influence of 'realized-return' and portfolio concentration across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round (Trading Days):	1-20		21-60		61-120	
Number of stock in the portfolio:	≤ 5	> 5	≤ 5	> 5	≤ 5	> 5
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.285***	−0.054***	−0.089***	−0.018***	−0.040***	0.001
	(0.011)	(0.018)	(0.005)	(0.005)	(0.003)	(0.003)
$Stock^{+}$	0.206***	0.107***	0.063***	0.029***	0.034***	0.013***
	(0.010)	(0.014)	(0.004)	(0.004)	(0.002)	(0.002)
Δ*realized: -15 to -5*	0.090***	0.092**	0.034***	0.015	0.009*	0.001
	(0.016)	(0.037)	(0.009)	(0.013)	(0.005)	(0.007)
Δ*realized: -5 to 5*	0.149***	0.106**	0.041***	−0.004	0.018***	0.021**
	(0.020)	(0.043)	(0.011)	(0.014)	(0.007)	(0.010)
Δ*realized: 5 to 15*	0.105***	0.100**	0.042***	0.024	0.014**	0.002
	(0.023)	(0.043)	(0.010)	(0.019)	(0.007)	(0.008)
$\sqrt{Days}$	0.100***	0.099***	0.022***	0.023***	0.005***	0.005***
	(0.003)	(0.006)	(0.0005)	(0.001)	(0.0003)	(0.0004)
$Volatility$	3.566	3.632	1.665*	7.403***	1.284**	1.600
	(3.415)	(4.427)	(1.003)	(1.849)	(0.571)	(1.088)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	29,485	9,599	70,244	23,420	90,882	33,117
Adjusted R^2	0.223	0.153	0.079	0.070	0.046	0.040

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A8: Influence of 'peak-return' and portfolio concentration across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round (Trading Days):	1-20		21-60		61-120	
Number of stock in the portfolio:	≤ 5	> 5	≤ 5	> 5	≤ 5	> 5
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.290***	−0.072***	−0.092***	−0.017**	−0.039***	−0.003
	(0.012)	(0.026)	(0.006)	(0.007)	(0.003)	(0.003)
$Stock^{+}$	0.209***	0.094***	0.062***	0.026***	0.034***	0.014***
	(0.011)	(0.015)	(0.004)	(0.005)	(0.003)	(0.003)
Δ*peak: -15 to -5*	0.105***	0.070	0.018*	−0.005	0.019**	0.035**
	(0.029)	(0.048)	(0.011)	(0.017)	(0.009)	(0.015)
Δ*peak: -5 to 5*	0.118***	0.042	0.030**	0.017	0.013	−0.001
	(0.028)	(0.046)	(0.013)	(0.019)	(0.009)	(0.009)
Δ*peak: 5 to 15*	0.076**	0.072	0.027**	−0.004	0.008	0.006
	(0.029)	(0.062)	(0.012)	(0.021)	(0.008)	(0.015)
$\sqrt{Days}$	0.112***	0.111***	0.023***	0.024***	0.005***	0.004***
	(0.004)	(0.008)	(0.001)	(0.001)	(0.0005)	(0.001)
$Volatility$	4.763	−1.252	2.495*	7.273***	1.020	0.763
	(4.114)	(9.873)	(1.336)	(2.556)	(0.679)	(1.286)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,672	6,815	48,584	17,208	59,899	22,669
Adjusted R^2	0.233	0.174	0.080	0.069	0.045	0.047

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A9: Influence of 'realized-return' and gender across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round (Trading Days):	1-20		21-60		61-120	
Gender:	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.262***	−0.278***	−0.082***	−0.080***	−0.032***	−0.054***
	(0.011)	(0.031)	(0.005)	(0.018)	(0.003)	(0.011)
$Stock^{+}$	0.171***	0.140***	0.054***	0.054***	0.029***	0.033***
	(0.010)	(0.026)	(0.003)	(0.011)	(0.002)	(0.010)
Δ*realized: -15 to -5*	0.098***	−0.039	0.023**	0.001	0.011*	−0.009
	(0.019)	(0.064)	(0.009)	(0.026)	(0.006)	(0.016)
Δ*realized: -5 to 5*	0.138***	0.146**	0.024***	0.058*	0.010*	0.031
	(0.020)	(0.068)	(0.009)	(0.034)	(0.006)	(0.028)
Δ*realized: 5 to 15*	0.090***	0.120*	0.039***	0.030	−0.002	−0.006
	(0.023)	(0.070)	(0.011)	(0.030)	(0.005)	(0.020)
$\sqrt{Days}$	0.106***	0.125***	0.023***	0.015***	0.006***	−0.007
	(0.004)	(0.018)	(0.0005)	(0.004)	(0.0003)	(0.006)
$Volatility$	7.597***	4.703	2.636***	10.604*	0.649	−0.267
	(2.718)	(31.484)	(0.833)	(5.785)	(0.512)	(1.988)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,849	2,462	61,859	4,838	80,346	5,390
Adjusted R^2	0.195	0.246	0.063	0.057	0.028	0.025

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A10: Influence of 'peak-return' and gender across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$					
Holding period in the repurchase round (Trading Days):	1-20		21-60		61-120	
Gender:	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
$Portfolio^{+}$	−0.276***	−0.294***	−0.081***	−0.067***	−0.031***	−0.048***
	(0.012)	(0.046)	(0.006)	(0.020)	(0.004)	(0.013)
$Stock^{+}$	0.175***	0.159***	0.050***	0.037***	0.027***	0.010
	(0.011)	(0.041)	(0.004)	(0.013)	(0.003)	(0.011)
Δ*peak: -15 to -5*	0.107***	−0.073	0.021*	0.068	0.012	0.011
	(0.029)	(0.092)	(0.011)	(0.057)	(0.008)	(0.012)
Δ*peak: -5 to 5*	0.095***	0.081	0.023**	−0.014	0.006	−0.001
	(0.026)	(0.137)	(0.011)	(0.048)	(0.007)	(0.025)
Δ*peak: 5 to 15*	0.092***	−0.060	0.029**	0.054	0.004	0.044
	(0.035)	(0.101)	(0.012)	(0.058)	(0.007)	(0.037)
$\sqrt{Days}$	0.114***	0.171***	0.023***	0.009	0.006***	−0.032***
	(0.004)	(0.030)	(0.001)	(0.006)	(0.0004)	(0.006)
$Volatility$	8.659***	70.315	2.509**	8.209	0.762	1.615
	(3.301)	(59.175)	(1.102)	(9.122)	(0.597)	(2.234)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,320	1,733	42,212	3,630	56,600	3,549
Adjusted R^2	0.202	0.241	0.061	0.067	0.027	0.020

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A11: Influence of 'realized-return' and age across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$								
Holding period in the repurchase round (Trading Days):	1-20			21-60			61-120		
Age:	< 30	$30 - 50$	> 50	< 30	$30 - 50$	> 50	< 30	$30 - 50$	> 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Portfolio^{+}$	−0.387***	−0.293***	−0.229***	−0.083***	−0.088***	−0.076***	−0.020*	−0.034***	−0.034***
	(0.098)	(0.014)	(0.015)	(0.029)	(0.006)	(0.007)	(0.011)	(0.004)	(0.004)
$Stock^{+}$	0.188*	0.190***	0.135***	0.053**	0.063***	0.046***	−0.006	0.030***	0.030***
	(0.101)	(0.012)	(0.013)	(0.022)	(0.005)	(0.004)	(0.011)	(0.003)	(0.003)
Δ*realized: -15 to -5*	0.378***	0.092***	0.068**	−0.027	0.021**	0.023*	0.008	0.014*	0.004
	(0.115)	(0.023)	(0.027)	(0.025)	(0.010)	(0.013)	(0.016)	(0.008)	(0.009)
Δ*realized: -5 to 5*	0.561***	0.101***	0.171***	0.097	0.051***	0.003	0.021	0.010	0.018*
	(0.202)	(0.026)	(0.032)	(0.064)	(0.014)	(0.009)	(0.024)	(0.008)	(0.011)
Δ*realized: 5 to 15*	0.174	0.080***	0.135***	0.091	0.029**	0.046***	0.058	−0.004	−0.003
	(0.208)	(0.029)	(0.039)	(0.067)	(0.013)	(0.017)	(0.044)	(0.006)	(0.008)
$\sqrt{Days}$	0.069	0.110***	0.116***	−0.092***	0.023***	0.024***	−0.008	0.005***	0.006***
	(0.108)	(0.004)	(0.006)	(0.022)	(0.001)	(0.001)	(0.015)	(0.0005)	(0.0003)
$Volatility$	68.040	10.548***	8.760	26.412	3.202***	4.443***	2.395	0.663	1.257
	(116.453)	(3.336)	(5.581)	(16.325)	(1.181)	(1.497)	(6.141)	(0.562)	(1.012)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	805	16,341	11,165	2,057	37,515	27,125	2,768	46,195	36,773
Adjusted R^2	0.345	0.226	0.189	0.190	0.066	0.059	0.014	0.029	0.030

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A12: Influence of 'peak-return' and age across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$								
Holding period in the repurchase round (Trading Days):	1-20			21-60			61-120		
Age:	< 30	$30 - 50$	> 50	< 30	$30 - 50$	> 50	< 30	$30 - 50$	> 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Portfolio^{+}$	−0.269*	−0.313***	−0.250***	−0.146***	−0.088***	−0.067***	−0.048**	−0.033***	−0.031***
	(0.145)	(0.016)	(0.016)	(0.038)	(0.008)	(0.007)	(0.020)	(0.004)	(0.005)
$Stock^{+}$	0.091	0.196***	0.136***	0.109***	0.061***	0.036***	0.007	0.027***	0.029***
	(0.155)	(0.014)	(0.015)	(0.025)	(0.006)	(0.005)	(0.018)	(0.003)	(0.003)
Δ*peak: -15 to -5*	−0.172	0.082**	0.104**	0.044	0.028**	0.022	0.094	0.013	0.008
	(0.303)	(0.033)	(0.049)	(0.044)	(0.014)	(0.018)	(0.071)	(0.010)	(0.010)
Δ*peak: -5 to 5*	−0.034	0.091***	0.114***	0.074	0.027*	0.011	−0.002	0.007	−0.001
	(0.216)	(0.033)	(0.040)	(0.088)	(0.015)	(0.017)	(0.010)	(0.009)	(0.010)
Δ*peak: 5 to 15*	−0.227	0.065*	0.109*	0.077	0.029	0.038**	0.00000	0.010	0.0002
	(0.201)	(0.033)	(0.057)	(0.176)	(0.018)	(0.018)	(0.015)	(0.010)	(0.009)
$\sqrt{Days}$	−0.191	0.121***	0.128***	−0.085**	0.024***	0.024***	−0.046***	0.006***	0.005***
	(0.411)	(0.005)	(0.007)	(0.038)	(0.001)	(0.001)	(0.011)	(0.0005)	(0.001)
$Volatility$	95.480	11.735***	12.842*	5.063	3.792**	4.401**	−4.726	1.026	0.823
	(145.614)	(3.855)	(7.398)	(20.291)	(1.649)	(2.099)	(3.945)	(0.686)	(1.126)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	514	11,472	8,067	1,346	25,621	18,875	1,780	32,084	26,285
Adjusted R^2	0.158	0.241	0.195	0.243	0.065	0.052	0.015	0.029	0.027

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A13: Influence of previous round's 'realized- return' - days between consecutive rounds across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$								
Holding period in the repurchase round (Trading Days):	1-20			21-60			61-120		
Calendar days between previous and repurchase round:	$1-20$	$21-60$	$61-100$	$1-20$	$21-60$	$61-100$	$1-20$	$21-60$	$61-100$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Portfolio^{+}$	−0.254***	−0.263***	−0.253***	−0.069***	−0.075***	−0.076***	−0.026***	−0.028***	−0.033***
	(0.013)	(0.014)	(0.020)	(0.006)	(0.006)	(0.007)	(0.004)	(0.003)	(0.004)
$Stock^{+}$	0.189***	0.146***	0.105***	0.056***	0.047***	0.039***	0.027***	0.025***	0.022***
	(0.011)	(0.011)	(0.014)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)
Δ*realized: -15 to -5*	0.101***	0.077***	0.061*	0.036***	0.020*	0.026*	0.009	0.003	0.009
	(0.024)	(0.024)	(0.037)	(0.013)	(0.011)	(0.016)	(0.010)	(0.007)	(0.007)
Δ*realized: -5 to 5*	0.197***	0.122***	0.053	0.022	0.040***	0.022	0.014	0.021**	0.018**
	(0.025)	(0.031)	(0.033)	(0.014)	(0.015)	(0.014)	(0.011)	(0.009)	(0.009)
Δ*realized: 5 to 15*	0.115***	0.082***	0.174***	0.038**	0.049***	0.031*	0.001	0.021*	0.003
	(0.032)	(0.031)	(0.051)	(0.015)	(0.014)	(0.018)	(0.010)	(0.011)	(0.007)
$\sqrt{Days}$	0.108***	0.120***	0.162***	0.024***	0.022***	0.023***	0.005***	0.004***	0.001
	(0.005)	(0.005)	(0.010)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
$Volatility$	9.779**	12.774**	48.463**	3.352**	7.377***	5.391*	2.441***	0.921	0.173
	(3.940)	(5.952)	(21.679)	(1.662)	(2.001)	(3.010)	(0.867)	(0.753)	(1.075)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,110	13,678	6,296	38,529	35,876	19,259	38,619	52,277	33,103
Adjusted R^2	0.226	0.232	0.230	0.066	0.068	0.068	0.045	0.035	0.033

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A14: Influence of previous round's 'peak- return' - days between consecutive rounds across different holding periods

	Dependent variable: Sell Indicator$_{ijt}$								
Holding period in the repurchase round (Trading Days):	1-20			21-60			61-120		
Calendar days between previous and repurchase round:	$1-20$	$21-60$	$61-100$	$1-20$	$21-60$	$61-100$	$1-20$	$21-60$	$61-100$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Portfolio^{+}$	−0.251***	−0.275***	−0.270***	−0.071***	−0.072***	−0.073***	−0.023***	−0.030***	−0.035***
	(0.015)	(0.017)	(0.026)	(0.007)	(0.007)	(0.008)	(0.004)	(0.004)	(0.005)
$Stock^{+}$	0.180***	0.138***	0.114***	0.051***	0.044***	0.037***	0.027***	0.024***	0.022***
	(0.013)	(0.012)	(0.018)	(0.005)	(0.004)	(0.006)	(0.004)	(0.003)	(0.003)
Δ*peak: -15 to -5*	0.102***	0.072*	0.026	0.006	0.024	−0.007	0.028*	0.020*	0.024*
	(0.038)	(0.037)	(0.052)	(0.015)	(0.015)	(0.016)	(0.016)	(0.011)	(0.012)
Δ*peak: -5 to 5*	0.167***	0.050	0.013	0.019	0.032*	0.018	0.015	−0.002	0.016
	(0.041)	(0.039)	(0.050)	(0.017)	(0.017)	(0.025)	(0.017)	(0.008)	(0.011)
Δ*peak: 5 to 15*	0.065	0.078*	0.049	0.012	0.042**	−0.002	0.024	−0.006	0.016
	(0.042)	(0.045)	(0.041)	(0.017)	(0.016)	(0.023)	(0.025)	(0.011)	(0.013)
$\sqrt{Days}$	0.124***	0.132***	0.118***	0.021***	0.022***	−0.027*	0.004***	0.003***	−0.002
	(0.006)	(0.006)	(0.019)	(0.001)	(0.001)	(0.014)	(0.001)	(0.001)	(0.003)
$Volatility$	7.956	20.643**	94.578***	3.508**	7.458***	3.433	2.566**	0.262	0.688
	(5.649)	(8.830)	(32.963)	(1.716)	(2.436)	(3.867)	(1.000)	(0.853)	(1.618)
Trader fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trading day fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,747	9,440	4,300	27,267	24,998	13,527	28,271	34,145	20,152
Adjusted R^2	0.233	0.237	0.256	0.066	0.067	0.077	0.045	0.036	0.039

The dependent variable is an indicator variable that takes a value of 1, if investor i sells stock j on day t. The key explanatory variables are defined in Table 1. The script denoting each specific investor i, stock j and trading day t have been omitted for brevity. In all the regressions, we add investor level, stock level, and date level fixed effects. Robust standard errors clustered at investor, stock, and date level are computed and are reported in parenthesis. ***, ** and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table A15: Summary of propensity of selling with respect to time between consecutive rounds

Time between consecutive rounds (Calendar Days):	$1-20$	$21-60$	$61-100$
	(1)	(2)	(3)
Panel A: Holding period in the repurchase round $1-20$ trading days			
Overall	14.01	11.37	11.21
At gain	17.78	14.00	13.42
At loss	9.58	7.67	8.23
±5% of the 'realized-return'	34.20	28.27	23.08
±5% of the 'peak-return'	31.72	23.81	17.74
±5% of the average return	23.80	19.51	18.97
Panel B: Holding period in the repurchase round $21-60$ trading days			
Overall	3.15	2.87	2.77
At gain	4.52	3.90	3.68
At loss	2.05	1.84	1.79
±5% of the 'realized-return'	7.11	6.91	5.24
±5% of the 'peak-return'	6.62	7.13	5.92
±5% of the average return	5.01	5.91	5.33
Panel C: Holding period in the repurchase round $61-120$ trading days			
Overall	1.47	1.20	1.23
At gain	2.35	1.84	1.70
At loss	0.97	0.74	0.83
±5% of the 'realized-return'	4.52	3.23	3.97
±5% of the 'peak-return'	3.32	3.35	3.05
±5% of the average return	4.35	2.82	1.95

This table provides a summary of the proportion of observations that record a sell transaction in the repurchase round under different conditions in percentage. Row (1) of each panel gives the portion of observations recording a sell transaction out of all the observation in the repurchase round. Row (2) of each panel provides detail about the proportion of observation recording a sell transaction in the repurchase round out of all the observation in which the return on investment was positive. Row(3) to (5) of each panel provide a summary of the proportion of observations recording a sell transaction out of all the observation in the ±5% interval around the respective reference point. 'Realized-return' refers to the level of return earned in the previous round of investment in the same stock. 'Peak-return' refers to the maximum possible attainable return in the previous round of investment in the same stock. Average return refers to the mean return earned over all the previous stock investments by a trader. All figures are in percentages. Panel A presents the results for traders having a holding period of $1-20$ trading days in the repurchase round. Panel B presents the results for traders having a holding period of $21-60$ trading days in the repurchase round. Panel C presents the results for traders having a holding period of $61-120$ trading days in the repurchase round. The key explanatory variables are defined in Table 1.