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Availability, recency, and sophistication in the repurchasing behavior of retail investors

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ABSTRACT

When determining a stock to buy, [Strahilevitz et al. \(2011\)](#) demonstrate that individual investors often repurchase a stock previously traded for a profit as a learning process. When evaluating a decision, people use the most available information that comes to mind. We posit that the most recently sold stocks are the most salient. Our analysis reveals that the presence of another more recently sold stock decreases a household's propensity to repurchase a different stock by 23%. This recency effect dominates the impact of prior profitability on the repurchasing decision. The repurchase activity of investors appears to be sub-optimal, partially due to commission costs and under-diversification of portfolios, which is magnified for households repurchasing at higher frequencies. More sophisticated investors demonstrate less of this behavior.

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1. Introduction

Faced with thousands of stocks to choose from and assimilating large amounts of information, individual investors are forced to rely on cognitive shortcuts and heuristics. The availability heuristic ([Tversky and Kahneman, 1973](#)) describes how a person evaluates the probability of events by the ease with which relevant instances come to mind. What are the salient events easily remembered? The attention bias of [Barber and Odean \(2008\)](#) demonstrate one example. Investors are attracted to stocks with recent attention-getting news and events even though they find that “all that glitters” does not produce positive abnormal returns. Another example is the repurchasing of stocks previous owned and sold for a gain ([Strahilevitz et al., 2011](#)). We introduce another set of available and salient stocks, those recently sold. We find that this recency bias seems to have a stronger impact on purchase behavior than measures of attention and prior repurchases.

The most easily recallable instances could be (but are not necessarily) the most recent events. Our study explores how individuals focus their attention on a few stocks they often repurchase after

a prior sale. [Strahilevitz et al. \(2011\)](#) find that individual investors frequently repurchase a stock previously sold for a gain. They argue that this comes from a simple form of learning whereby investors repeat actions that previously resulted in pleasure while avoiding actions that previously led to the pain of regret. We find that the recency of stock sales plays a profound and dominant role in this repurchasing behavior. To measure the impact of recency we form a variable that captures the presence of another stock being sold more recently than the stock being considered for repurchase and find the recency of another stock's sale decreases the propensity to repurchase a given stock by 23%.

We also examine the optimality of this repurchasing behavior and who engages in it. Individual investor trading data at a large discount brokerage house indicates that repurchasing is a fairly pervasive behavior, with about 40% of all households making at least one repurchase. These ‘repurchasing households’ account for nearly 80% (848,388 trades) of the total number and nearly 90% (\$10.55 billion) of the value of all stock purchases at the brokerage house. Repurchase trades account for 28% of value and 17% of the total number of all purchase trades made by repurchasing households.²

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E-mail addresses: john_nofsinger@wsu.edu (J.R. Nofsinger), avarma@ilstu.edu (A. Varma).¹ Tel.: +1 509 335 7200; fax: +1 509 335 3857.² The statistics on repurchase transactions are potentially understated due to the unavailability of trading records for these households prior to January, 1991.

Our study extends the Strahilevitz et al. (2011) learning behavior through evidence of positive abnormal returns observed during roundtrip trades (i.e., buy to sell) prior to repurchasing a stock, irrespective of the overall level of repurchasing activity of households. Our analysis of serial roundtrip trades at the household and stock level provides a more sequential description of individuals learning from prior trades. Odean (1998) finds that individuals in general show a greater preference for realizing their winners than their losers, referred to as the disposition effect (Shefrin and Statman, 1985). Studying roundtrip transaction returns is likely to overstate performance by highlighting the performance of winners being sold, thus favoring an information based explanation for repurchases. Yet, we find little evidence in support of an information based explanation for repurchases.

Beyond just the prior roundtrip trades in a given stock, individuals might potentially evaluate the impact of prior roundtrip trades in other stocks, while making a decision to repurchase a previously sold stock. We find that though the profitability of prior roundtrip trades in other stocks has little relevance, the timing of these roundtrips has interesting implications. Specifically, repurchasing households seem far less likely to repurchase a given stock if they have more recently completed a roundtrip trade in another stock. If households appear less likely to repurchase a stock only on observing a profit in a more recent roundtrip in another stock, then we could attribute this to households betting on their recent winners. However, we find that the occurrence of either a gain or loss in a more recently (recent in comparison to the stock being analyzed) concluded round-trip transaction, results in a significantly lower likelihood of repurchasing a given stock. Individuals appear to pay greater attention to recently sold stocks while repurchasing. This tendency to over-emphasize recent data or events while ignoring historical data is referred to as a recency bias. Ebbinghaus (1913) highlights the recency effect in his ground-breaking contribution to the experimental study of memory with the forgetting curve, which shows that humans tend to half their memory of newly learned knowledge within a few days or weeks unless they consciously review the material learned. Recency bias has been found in reports issued by auditors (Ashton and Jane, 2002) and analyst forecasts (Lee et al., 2008). We find that the documented recency bias appears to play a more significant role in the repurchasing decision for a stock than the profitability of a prior roundtrip trade in the stock being evaluated for possible repurchase. Furthermore, our analysis reveals that even in the presence of a greater potential for informed trading, the impact of recency on repurchase remains strong.

Our study also attempts to determine and control for other stock characteristics that might proxy for high degrees of attention (Barber and Odean, 2008). However, the impact of these preferences pales in comparison to the impact of recency. We find that investors prefer to repurchase stocks that are in the technology sector or have a large market capitalization or receive attention based on extremely positive previous day returns. The technology sector preference relates to the general euphoria surrounding technology stocks in the 1990s. Preference for large stocks also captures an additional element of familiarity given the vast amounts of analyst following and news circulation surrounding them.

We argue that repurchasing a stock previously sold is a sub-optimal behavior. Repurchasing involves trading costs, which significantly impact net returns (Barber and Odean, 2000). In addition, each time an individual investor makes a purchase, he or she has a chance to diversify. Instead, many choose to invest in a stock they held in the past or currently hold in their portfolio. They often confuse their ease in recalling information about a stock with its superiority. They keep a close watch on stocks previously owned, particularly the most recently sold stocks and look to time re-entry after having exited an earlier position in the same stock with a

positive emotion. We also examine investor characteristics that proxy for sophistication. We find that individuals who generally consider themselves knowledgeable about investing seem less likely to repurchase stocks. Also, active traders seem far less likely to repurchase the same stocks in comparison to general traders.

2. Data and methodology

2.1. Data

The data covers the common stock trading activity (approx. 1.9 million trades) of households (77,995) at a large discount brokerage house during the period January 1991–November 1996, detailed further in Barber and Odean (2000). Our study focuses on repurchases. A “repurchase” refers to buying a stock that was previously sold. Households that make at least one repurchase are termed as a “repurchasing household.” Though repurchasing households represent about 41% (22,971 households) of all households that made any purchases, they account for nearly 80% (848,388 purchase trades) of the number and nearly 90% (\$10.55 billion) of the dollar values, of all purchase trades. Thus, repurchasing stocks previously sold seems to be a more pervasive trading activity among the households who exhibit the most trading activity among all households.³ Repurchase trades account for 28% (\$2.95 billion) of the value and 17% (144,829 purchases) of the total number of all purchase trades by the repurchasing households. Table 1 provides a description of trading activity based on the CRSP (NYSE/AMEX/NASDAQ stocks) size deciles defined on the last trading day in our sample (i.e. November 29, 1996). We find that the majority of the trading is concentrated in the large market capitalization stocks, more so for repurchases with about 80% of the value of trades concentrated in the top two deciles (refer Panel C).

Individuals in our sample display a preference for repurchasing large cap stocks and also seem to focus their repurchasing activity in a few stocks within a few industries. Table 2 presents a detailed distribution of the value of repurchase trades across various industries⁴ and the concentration of repurchases in the top two firms within each industry segment. The high concentration of repurchases in the technology sector stands out in this table, which could be attributed to the euphoria and general attention towards technology stocks in the 1990s. Also, we observe a high concentration of repurchasing activity in just a few firms within most industry segments. The mean and median percentage of the value of repurchases in the top three stocks within each sector, for all major industry segments is 53% and 47%, respectively.

To investigate the cross sectional difference across repurchasing households, we categorize them in Table 3 based on the number of repurchases made during the sample period.⁵ A majority of the repurchasing households (i.e., 63%) made more than one repurchase. Households that repurchase more frequently, also repurchase a greater amount relative to both the number of total purchases and the value of total purchases. Furthermore, we also observe a monotonic increase in the number of unique stocks traded and portfolio

³ Repurchasing households account for 78% of number and 83% of value of all trades (i.e., purchases and sales). Thus the figures in Table 1 largely depict the trades made by repurchasing households.

⁴ The definition of industry segments is obtained from Kenneth R. French's online data library. The SIC codes for each stocks are obtained from CRSP. There are a total of 49 industrial segments among which the repurchase trades are classified. Information relating to only 22 sectors is presented as these segments account for most of the repurchases (in specific 81% of total value of repurchases).

⁵ Number of times a household repurchases is not specific to a particular stock. For example, if a household repurchases the stock of Microsoft Corp twice and Boeing's stock once, the total number of repurchases is equal to three.

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