Not All Capital Gains are Consumed Equally

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Abstract

This paper studies how changes in the salience of investments affect consumption out of capital gains. We leverage granular, account-level data on mutual fund investments and expenditure records from 200,000 active users of a leading mobile payment platform. We find that investments that are made more salient elicit a greater consumption response, exploiting two quasi-experiments that introduce exogenous variation in the displayed ranking of funds. First, the platform defaults to displaying the most recently acquired fund at the top of the holdings page, grouping it with older funds from the same company. We find that investors' consumption response is stronger to capital gains from funds of the same companies as their recent purchases. Second, after a display setting change which allowed sorting by performance, the consumption response to top-performing compared to lower-performing funds becomes more pronounced.

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1 Introduction

Individuals are presented with diverse forms of information on a daily basis, and recent innovations in financial technology have introduced an even greater multitude and immediacy of information. A wealth of information may create a poverty of attention. The information individuals act upon is, hence, largely determined by the information they pay attention to or what information is salient. Consumption decisions out of capital gains are no exception. We use account-level information from a leading mobile payment platform in China to understand how individuals' spending responds to investments' capital gains that are more or less salient. We follow Kaniel and Parham (2017), who show that mutual funds displayed on WSJ Category Kings solicit media attention and investment flows, Agarwal et al. (2020), who show that individuals chase mutual fund returns and forego consumption to do so, Loos et al. (2020), who link sales of investments and spending, but without direct variation in attention, and Gargano and Rossi (2018), who look at how attention affects investment performance.

The recent micro- and macroeconomics literature has emphasized the heterogeneity in marginal propensities to consume (MPC) across economic agents to understand the distributional effects of aggregate fiscal and monetary shocks. Behavioral research, such as the studies by Kahana (2012) and Bordalo et al. (2012, 2013, 2020), emphasize two sources that lead to heterogeneity in paying attention: salience and memory. Salience pertains to the prominence of certain information or events, drawing investors' focus to the most noticeable aspects. Memory, on the other hand, plays a crucial role in shaping what information is readily available to investors, influencing their decision-making processes by highlighting past experiences and learned patterns. These factors contribute to selective attention, affecting how investors process information and make financial decisions.

In this paper, we utilize a novel dataset of 200,000 active investors in 2019 and 2020. Our data captures investors' holdings, trading, and spending. We show that monthly capital gains, unrealized and in- or excluding dividends, from funds that are listed at the top of the page, which are funds that the investor recently invested into, attract a larger consumption response than those from funds invested in the more distant past. In addition, capital gains from top-performing funds lead to greater consumption responses than proceeds from worse-performing funds. The heterogeneity in MPCs across investments that are more or less salient suggests that selective attention may render money non-fungible for investors.

While recency is likely more troubled by endogeneity concerns than the status as the top-performing fund, we go on to exploit two quasi-experimental settings that support a causal interpretation of the above findings. First, the platform's default setting presents the fund that investors most recently acquired at the top of their fund holding page. Additionally, mutual funds from the same fund company as the fund recently bought, even if they were acquired a long time ago, are grouped in a single block. This rule introduces plausibly exogenous variation in the salience of funds that were from the same fund company as the fund recently bought and funds that were not. We then show that investors' consumption response is stronger to capital gains of the funds that were from the same fund company as the fund they bought recently.

Second, we exploit a change in the platform's display settings. In July 2020, the platform introduced the option for investors to sort their portfolio funds based on holding period performance instead of the recency of their investments. We then show that, after the change, the consumption response to proceeds from top-performing funds relative to worse-performing funds becomes more pronounced.

We conduct further analyses to explore the mechanism behind our main findings. First, we investigate whether attention constraints amplify the effects. Investors who

hold many funds are likely to have greater difficulty distributing attention across holdings. Consistent with this, we find that both the recency and top-performer effects are more pronounced among those holding more funds. Second, we distinguish between consumption responses to gains and losses and find a stronger response to gains—particularly for high-attention funds—suggesting that attention primarily amplifies the effect of gains. Third, we decompose consumption into online and on-site spending and find that the effects are stronger for on-site purchases. Lastly, we examine investors' redemption behavior and find that capital gains are generally associated with higher redemptions, with additional effects for gains from recent and top-performing funds. Taken together, these results support the role of salience in affecting marginal propensities to consume.

The remainder of this paper is organized as follows. Section 2 reviews the literature. Section 3 describes the data and the institutional background. Section 4 presents the main results in this paper. Section 5 further shows the identification strategies and their corresponding results. Section 6 conducts several robustness checks to validate the findings. Section 7 discusses the results, and Section 8 concludes the paper.

2 Literature review

The behavioral finance literature has shown that retail investors pay more attention to capital gains rather than losses and explored the implications of selective attention for trading behavior (Karlsson et al., 2009; Golman et al., 2017; Olafsson and Pagel, 2017; Gargano and Rossi, 2018; Andries and Haddad, 2020; Quispe-Torreblanca et al., 2020, 2021; Birru et al., 2019). Despite this maturing literature, it remains an open question whether attention also affects investors' consumption and savings. In this paper, we follow Loos et al. (2020) who exploit a German tax reform that affected

the displayed purchase prices in investors' online portfolios and document that individuals sell "fictitious" winners, i.e., losers with respect to the original purchase price, displayed as winners after the reform and that investors increase their consumption in response to such liquidations. While Loos et al. (2020) focus on the change in displayed purchase prices, we focus more directly on changes in the ordering of funds in investors' portfolios that induce changes in attention. After all, a range of studies in behavioral economics/finance and psychology document top-of-the-list effects (see, e.g., Kaniel and Parham, 2017).

Our study demonstrates that behavioral biases in trading impact individual consumption of mutual funds' capital gains and dividends. Since stock market wealth constitutes a significant portion of household net worth (about one-quarter) and consumption represents the largest component of GDP (Campbell, 2006; Poterba, 2000; Di Maggio et al., 2020), understanding the relationship between attention in investing and consumption is important. Additionally, our results establish that behavioral biases in trading directly affect utility through consumption rather than only indirectly through wealth. There exists a small literature on investors as consumers showing that advertising products to investors increases demand for the corresponding stocks (Lou, 2014), company earnings announcements generate retail foot traffic (Noh et al., 2021), and individual stock ownership increases spending at the corresponding companies' stores (Medina et al., 2021).

We also contribute to the literature on consumption out of stock market wealth, which includes studies employing aggregate and regional variation (e.g., Davis and Palumbo (2001), Dynan and Maki (2001), and Case et al. (2005)).[1] There also exist studies employing household-level data. Baker et al. (2007) use CEX data and show that withdrawals that are likely used for consumption respond strongly to changes in

[1]See Poterba (2000) for a survey of the literature.

dividend payments but not to changes in stock prices. They also provide suggestive evidence that this behavior is driven by mental accounting. Furthermore, Di Maggio et al. (2020) obtain the same findings using annual household consumption and asset holdings data from the Swedish wealth registry. More recently, Imas et al. (2022) find that the individuals increase their entertainment-related consumption after experiencing large positive and negative stock market shocks. We also contribute to a recent literature looking into how expectations and attention are related to the macroeconomy Coibion and Gorodnichenko (2015); Link et al. (2023). Finally, our paper contributes to the literature examining the link between capital gains, cash flows, consumer sentiment, and consumption (Parker, 1999, 2015; Agarwal et al., 2007; Jappelli and Pistaferri, 2010; Olafsson and Pagel, 2018; Meyer et al., 2018; Gillitzer and Prasad, 2018) and relates to the extensive literature on household consumption in response to income and cash-flow shocks, such as Johnson et al. (2006), Agarwal and Qian (2014), Olafsson and Pagel (2018), Jappelli and Pistaferri (2014), Jappelli and Pistaferri (2000), among others.

3 Data and Institutional Background

Our data are sourced from Alipay, a third-party mobile and online payment platform launched by the Alibaba Group in 2004. By 2013, Alipay had overtaken PayPal to become the world's largest digital payment provider. As of June 2020, the platform served over 1.3 billion users and 80 million merchants globally (Hong Kong Exchange News, October 20, 2020), and held approximately 55% of the third-party payment market in mainland China as of Q4 2018. Given this dominant market position, Alipay captures a significant share of users' day-to-day consumption activity. Beyond payments, Alipay has evolved into a comprehensive financial "super-app," offering a

wide array of services including ride-hailing, healthcare appointments, travel bookings, and, importantly for our study, mutual fund investments.

In addition to its role in digital payment, Alipay is also a central player in China's asset management sector. Through its investment platform, Ant Fortune, Alipay has become the country's largest mutual fund distribution platform by assets under management (AUM) as of the end of 2024. The platform provides access to a broad range of fund types, including money market funds, bond funds, mixed-asset funds, equity funds, index funds, Qualified Domestic Institutional Investor (QDII) products, and gold funds. These offerings cater to a wide spectrum of retail investors, enhancing the platform's representativeness in capturing investment behavior.

Taken together, Alipay's dual function as both a dominant payment provider and the leading distributor of mutual funds uniquely positions it to reflect users' broader financial behaviors. We therefore regard the consumption and investment data from Alipay users as reasonably representative of household-level financial activity in China.

To focus on users with meaningful investment activity, we restrict our sample to Alipay users whose mutual fund holdings exceeded 10,000 RMB at the beginning of 2019. From this group, we randomly selected 200,000 investors and tracked their behavior from January 2019 to December 2020. For each user, we collected detailed information on monthly mutual fund investments, monthly consumption, and individual characteristics.

To address the concern that hyperactive investors may exhibit distinct behavioral patterns—particularly, the tendency to underreact to capital gains due to shorter attention spans—we exclude from our main analysis those investors whose trading frequency ranks in the top 10% of the sample.[2] We also conduct robustness checks using the full

[2]Panel A of Appendix Figure B1 shows that this top decile of active investors trades, on average, about 120 times per month—four times more than the top 20% decile and roughly eight times more than the top 30% decile. Importantly, this high trading frequency is not driven by wealth differences, as shown in Panel B.

investor sample, and results are reported in Internet Appendix Tables B1 and B2. All variables are winsorized at the 0.5 and 99.5 percentiles to reduce the influence of outliers.

Our dataset includes demographic and socioeconomic characteristics such as gender, age, residential location, and whether the investor works in their city of residence. We also observe investors' self-reported risk tolerance, which is collected through mandatory surveys in accordance with China Securities Regulatory Commission (CSRC) guidelines. According to Panel A in Table 1, we have 61% male investors, with an average age of 38 and self-reported risk tolerance level of 3 out of a 0 to 5 range.[3]

[Insert Table 1]

For consumption data, we utilize each user's monthly spending recorded through Alipay, which is categorized into Taobao and non-Taobao spending. Taobao consumption refers to purchases on Alibaba's flagship e-commerce platform, while non-Taobao spending captures other transactions such as in-person purchases at restaurants, supermarkets, or local merchants. Given Alipay's substantial market share, especially in mobile payments, we consider monthly consumption through Alipay to be reasonably representative of these users' overall consumption behavior. According to Panel B in Table 1, the average monthly spending per user is approximately 6,525 RMB, including 1,559 RMB on Taobao and 4,883 RMB on non-Taobao purchases.[4]

Regarding mutual fund investment activity, we obtain detailed monthly records of purchase and redemption transactions for each investor and each product on the Ant Fortune investment platform. In addition, we collect monthly, product-level data on

[3]Based upon a series of questions regarding investment choices and attitudes, the system will assess each investor's risk level scaled from 0 to 5, with 0 indicating the highest level of risk aversion and 5 indicating the lowest.

[4]We omit the starting month of the sample (i.e., January 2019) when reporting the summary statistics as it is not used in the regression analysis due to the lagged construction of regressors.

holdings and capital gains. Our analysis focuses primarily on unrealized capital gains, as well as the sum of unrealized capital gains and dividends. In China, dividends from actively managed mutual funds are typically discretionary and depend on the decisions of fund managers within the scope of the fund's prospectus. In contrast, index funds generally aim to pass through dividends received from the constituent stocks of the benchmark index, often on a scheduled basis, though the exact distribution frequency and method may vary by fund.

As shown in Panel C of Table 1, the average mutual fund holding per user is 82,820 RMB, with a median of 36,512 RMB. On average, users hold approximately eight funds per month, with a median of six. We classify funds into top-performing and other funds based on their cumulative gains and losses. Panel C shows that the average monthly capital gain from top-performing funds is 671 RMB (or 706 RMB when including dividends), while the average capital gain from other funds is 901 RMB (or 960 RMB with dividends). When categorizing funds based on investment timing, we find that recent investments—those made within the past month—generate an average monthly capital gain of 522 RMB (or 558 RMB with dividends). In contrast, earlier investments yield an average monthly capital gain of 1,038 RMB (or 1,096 RMB when dividends are included). These capital gains also exhibit substantial variation, with standard deviations ranging from 2,383 RMB to 4,503 RMB, depending on the category.

This study was remotely conducted on the Ant Open Research Laboratory in an Ant Group Environment. All data was sampled, desensitized, and analyzed on the Ant Open Research Laboratory. The laboratory is a sandbox environment where the authors can only remotely conduct empirical analysis, and individual observations are invisible. The main regression variables include basic variables, investment variables, and consumption variables.

4 Main Results

4.1 Recently Acquired Funds

During our sample period, the default setting on the Ant Fortune investment platform is to display recent investment at the top of the investors' holding page. To test whether gains from these recent investments are more salient—and thus have a greater impact on consumption—we examine the incremental consumption response to capital gains from funds purchased within the past month, relative to the response to total capital gains. Specifically, we estimate the following two regression models:

$$\begin{aligned} Consumption_{i,t} = \alpha + \beta_1\ CG_{i,t-1} \times Recent_{i,t-1} + \ \beta_2\ CG_{i,t-1} + \beta_3 Recent_{i,t-1} \\ + Controls + \epsilon_{i,t} \end{aligned} \tag{1a}$$

$$\begin{aligned} Consumption_{i,t} = \alpha + \beta_1\ (CG + Div)_{i,t-1} \times Recent_{i,t-1} + \ \beta_2\ (CG + Div)_{i,t-1} \\ + \beta_3 Recent_{i,t-1} + Controls + \epsilon_{i,t} \end{aligned} \tag{1b}$$

where $Consumption_{i,t}$ is total consumption spent by investor i in month t, $CG_{i,t-1}$ stands for capital gains/losses for investor i in month $t-1$, and $Recent_{i,t-1}$ is the fraction of capital gains in month $t-1$ generated by funds purchased by investor i during that same month. That is, $Recent_{i,t-1}$ is equal to capital gains from funds purchased in $t-1$ divided by total capital gains from all funds in $t-1$. If the investor purchases a fund multiple times, we consider the most recent purchase date, ensuring the measure reflects the most recent investment activity. The coefficient of interest, β_1, measures the incremental consumption response to gains from recent investments, beyond the effect of overall portfolio gains.

Similarly, in the second equation, we define total gains as the sum of capital gains and dividends, $(CG + Div)_{i,t-1}$. We control for the total value and number of mutual

funds held by investor i in month $t-1$, as specified. All regressions include account and year-month fixed effects.

[Insert Table 2]

Table 2 reports our regression estimates and highlights a striking distinction in how households adjust consumption in response to capital gains from more recent versus earlier mutual fund investments. In column (2), which includes the full set of controls, we find that a 100 RMB capital gain on recently purchased funds leads to a 1.60 RMB increase in consumption in the subsequent month. Importantly, 0.60 RMB of this represents the incremental response over and above the effect of capital gains across the portfolio more broadly. In contrast, capital gains from earlier investments elicit a more muted consumption response–just 1.00 RMB per 100 RMB of gains.

This distinction persists when we extend the analysis to capital gains plus dividends, as shown in columns (3) and (4). Column (4), in particular, indicates that a 100 RMB increase in total proceeds from recent investments is associated with a 1.62 RMB rise in consumption, of which 0.67 RMB is attributable to the incremental salience of those gains.

Taken together, these findings point to a higher marginal propensity to consume (MPC) out of gains on recently acquired funds relative to earlier ones. This pattern is consistent with the information display investors face: in the default interface of mutual fund platforms, holdings are ordered by purchase date, with the most recent investments occupying the top and most visually prominent positions. This design feature likely draws attention toward recent investments, amplifying the salience of gains on those holdings and, in turn, their impact on consumption behavior.

4.2 Top-Performing Funds

In this subsection, we examine whether investors exhibit selective attention to the top-performing mutual fund within their portfolio, and whether gains from this salient holding elicit a stronger consumption response. To identify the top-performing fund, we rank each investor's mutual fund holdings by cumulative gains or losses at the end of each month, designating the fund with the highest gains as the top performer. We also explore the robustness of this finding by ranking funds based on cumulative return, instead of cumulative gains. The corresponding results are exhibited in Appendix Table B3.

To quantify the consumption response, we estimate two regression specifications analogous in structure to Equations (1a) and (1b), allowing us to isolate the marginal propensity to consume out of gains specifically attributable to the top performer in the portfolio:

$$\begin{aligned} Consumption_{i,t} = \alpha + \beta_1\ CG_{i,t-1} \times Top_{i,t-1} + \ \beta_2\ CG_{i,t-1} + \beta_3 Top_{i,t-1} \\ + Controls + \epsilon_{i,t} \end{aligned} \tag{2a}$$

$$\begin{aligned} Consumption_{i,t} = \alpha + \beta_1\ (CG + Div)_{i,t-1} \times Top_{i,t-1} + \beta_2 (CG + Div)_{i,t-1} \\ + \beta_3 Top_{i,t-1} + Controls + \epsilon_{i,t}, \end{aligned} \tag{2b}$$

where $Top_{i,t-1}$ stands for the fraction of capital gains from the top-performing fund of investor i in month t—that is, the capital gains from the top-performing fund divided by total capital gains across all funds in that month. The construction of other variables follows Equations (1a) and (1b). The coefficient of interest, β_1, measures the incremental consumption response to gains from top performers, beyond the effect of overall portfolio gains.

[Insert Table 3]

Table 3 presents the regression results. We find that consumption responds more strongly to proceeds generated by top-performing funds than from other holdings. In column (1), a 100 RMB capital gain from the top-performing fund leads to a 3.27 RMB increase in consumption the following month, of which 2.28 RMB is incremental relative to the average response to overall portfolio gains. By contrast, the same gain from other funds yields only a 0.99 RMB increase. Column (2), which controls for portfolio size and the number of funds held, confirms the robustness of this differential response.

This pattern persists when we broaden the definition of proceeds to include both capital gains and dividends, as shown in columns (3) and (4). For example, according to column (3), a 100 RMB increase in total proceeds from top-performing funds leads to an 3.23 RMB in consumption, with 2.25 RMB representing the incremental effect. The gap between top-performing and other funds remains substantial even after controlling for investor holdings.

In sum, gains from top-performing funds that are likely to attract greater investor attention elicit a higher marginal propensity to consume. These results are consistent with selective attention as a key mechanism driving heterogeneity in consumption responses across assets and over time.

5 Identification

In the previous section, we interpret the recency and the top performer effects as investors' selective attention, causing varying consumption responses. Such an interpretation, however, could be confounded by other factors. For example, investor sentiment may cause them to invest and consume simultaneously. In this section, we exploit two

quasi-experimental settings associated with the display rules of the fund holding page on the Ant Fortune platform to provide causal evidence for our interpretation.

5.1 Group-Based Display Rule

During our sample period, Ant Fortune's group-based display rule organizes investors' fund holdings by placing the most recently acquired fund at the top of the holdings page. In addition, funds from the same fund company are grouped together within a single block. This interface design generates plausibly exogenous cross-sectional variation in the attention investors allocate to earlier investments within their portfolios. Panel A of Figure 1 illustrates this display rule.

Consider, for example, an investor who holds three funds: A, B, and C. Fund A is the most recently purchased (in the last month), while B and C were acquired earlier. Suppose A and C are from the same fund company. According to the display rule, after purchasing A, the holdings page lists A at the top, followed by C (due to the shared fund company), and finally B. In this setting, fund C—though acquired earlier—receives greater visual prominence than B. We exploit this variation to study the effect of differential attention on investor behavior.

Using a regression specification analogous to Equations (1a) and (1b), we examine how total consumption responds to capital gains from earlier investments that vary in visual salience, while controlling for gains from recent purchases. If investor attention influences the marginal propensity to consume (MPC), we expect a stronger consumption response to capital gains from earlier funds that receive greater visual prominence. Table 4 reports the results. The variable *Same Company* is defined as the share of those capital gains (plus dividends) from invested funds that are in the same fund company as the recently invested funds.

[Insert Table 4]

Across all specifications, we find evidence consistent with our hypothesis. As shown in Column (2), a 100 RMB gain from a high-attention earlier investment is associated with an additional 2.14 RMB in consumption the following month, above and beyond the average portfolio-level response. In contrast, the corresponding effect from a low-attention earlier investment is only 0.26 RMB. When we extend the analysis to total proceeds (including dividends), Column (4) reports MPCs of 2.10% and 0.26% for high- and low-attention funds, respectively.

These findings, leveraging variation induced by the group-based display rule, underscore the role of salience in generating heterogeneity in MPC across different assets within an individual's portfolio.

5.2 Display Enabling Discretion in Sorting Holding Funds

Prior to July 2020, mutual funds held by investors on the Ant Fortune platform were displayed according to the order of purchase, as described in the preceding section. In July 2020, Ant Fortune introduced a new feature allowing investors to customize the ordering of their fund holdings. While the default setting remained available, investors were given the flexibility to sort their portfolios based on several alternative criteria, including cumulative gains or losses over the holding period, daily returns, cumulative returns, daily proceeds, or the timing of NAV updates. Each sorting option could be applied in either ascending (default) or descending order. Panel B of Figure 1 illustrates this change in the display interface.

We hypothesize that, following this change, some investors opted to sort their portfolios based on performance-related metrics, particularly cumulative gains or losses during the holding period—a metric that many investors inherently focus on. As a

result, we expect the cumulative gains or losses of their top-performing fund become more salient to these investors, leading to a stronger consumption response from gains on that fund relative to other funds.

To evaluate this hypothesis, we define a dummy variable, *After*, which equals one for July 2020 and later months, and zero otherwise. We include two interaction terms in the regression specifications of Equations (2a) and (2b): *Capital gains* $\times$ *Top performer* $\times$ *After*, and *Capital gains* $\times$ *After*. If our hypothesis is correct, the coefficient on the triple interaction should be positive. Table 5 reports the results.

[Insert Table 5]

The findings are consistent with our expectations. Prior to July 2020, as shown in Column (1), a 100 RMB gain from the top-performing fund was associated with only a 0.42 RMB increase in consumption beyond the response to overall portfolio gains, compared to 0.48 RMB for other funds. After the display policy change, the same gain from the top-performing fund leads to a 3.92 RMB increase in consumption—an almost tenfold increase. This suggests that the top-performer effect documented earlier (Table 3) is largely driven by investor behavior following the introduction of customizable fund ordering.

In contrast, for non-top-performing funds, the post-policy change effect is more modest: the additional consumption increases by only 0.83 RMB, roughly one-fifth of the corresponding effect observed for top performers (3.92 RMB). A similar pattern emerges when total proceeds—including both capital gains and dividends—are used, as shown in Columns (3) and (4).

In summary, these results support our hypothesis that funds receiving greater investor attention—particularly through interface-driven salience—generate a larger marginal propensity to consume out of gains.

6 Further Analyses

6.1 Heterogeneous Effects: Attention Constrainedness

Investors could hold multiple funds at the same time, which may limit investors' attention allocated to each fund. We conjecture that investors' differential consumption responses to capital gains of recent and top-performing funds versus other funds should be stronger among more attention-constrained investors. We test this idea in Table 6.

[Insert Table 6]

We proxy investors' attention constrainedness with the number of funds they hold. We separate the sample into two subsamples based on the number of funds held in the first month of the sample above or below the median (5 funds), and present the results for investors holding at least 6 funds in columns (1) and (3) and for those holding at most 5 funds in columns (2) and (4). We run the baseline specifications of Equations (2a) and (2b) for the recency and top-performing effects in Panels A and B, respectively.

Panel A indicates that the distinction in the consumption responses to proceeds from recent versus earlier investments mainly exists among investors who hold more funds. Consistently, Panel A shows that the distinction in the consumption responses to proceeds from top-performing versus other investments mainly exists among more attention-constrained investors. Thus, our findings further confirm the effect of attention in creating heterogeneous responses in consumption across different investments.

6.2 Gains versus Losses

In this subsection, we explicitly distinguish gains and losses and further test whether there is any asymmetric consumption response to investment gains versus losses.

[Insert Table 7]

As illustrated in Table 7, investors demonstrate varying responses to gains versus losses with respect to the recency and top-performing effects. Specifically, as shown in the recency effect analysis in Columns (1) and (2), investors tend to react more strongly to *gains* from both high-attention and low-attention funds compared to *losses* from the same funds. In Column (1), the response to gains from high-attention funds is 1.81 cents per RMB relative to losses and statistically significant. In contrast, the response to gains from low-attention funds is only 0.56 cents per RMB relative to losses, and statistically insignificant. In the top-performing effect analysis shown in Columns (3) and (4), investors exhibit a stronger response to gains from top-performing funds, with a response rate of 6.98 to 6.32 cents per RMB higher than their response to losses from these funds, both statistically significant. In summary, investors show a more pronounced reaction to gains than to losses, with this tendency being especially pronounced for high-attention funds.

6.3 Taobao Consumption versus Non-Taobao Consumption

Our data on each user's monthly consumption is categorized into Taobao consumption and non-Taobao consumption. Taobao consumption includes purchases on Alibaba's flagship online shopping platform, while Non-Taobao consumption covers a wide range of activities outside Taobao, such as QR code payments at restaurants, supermarkets, or local merchants. In this section, we analyze Taobao versus non-Taobao consumption separately to determine whether the recency and top performer effects differ across these categories. The results are presented in Panel A and Panel B of Table 8.

[Insert Table 8]

The recency effect on Taobao versus non-Taobao consumption is consistent with our previous finding based on total consumption. As shown in Columns (1) and (2) of Panel A, the response to earlier capital gains for Taobao consumption is 0.17 cents per RMB, compared to 0.18 cents per RMB for recent capital gains. Columns (3) and (4) in Panel A in Table 8 show that a 1 RMB gain from the recently invested fund leads to 1.40 to 1.41 cents additional non-Taobao consumption compared to the magnitude of 0.83 to 0.79 cents for earlier invested funds. The smaller coefficients observed in Columns (1) and (2) compared to Columns (3) and (4) is partly due to Taobao consumption representing only about 20% of total consumption in our sample period.

Regarding the top-performing effect on Taobao versus non-Taobao consumption, Panel B in Table 8 shows that the top-performer effect is evident for both types of consumption. For Taobao consumption, the response to top-performing funds is 0.33 cents per RMB, compared to 0.09 cents per RMB for other fund capital gains. For non-Taobao consumption, the response to top-performing funds ranges from 1.93 to 1.96 cents per RMB, while the response to other fund capital gains is 0.52 to 0.55 cents per RMB. Similar to the recency effect, the response is much stronger in non-Taobao consumption.

Overall, the recency and top-performer effects are primarily driven by offline consumption, suggesting that the influence of attention extends beyond impulse purchases made through online shopping.

6.4 Redemption Response to Capital Gains

One potential channel for financing increased consumption is through the redemption of capital gains. This subsection examines whether the recency and top-performer effects also influence redemption behavior in the following month.

Table 9 reports regression results where the dependent variable is redemption amounts, instead of consumption, using the same specifications as in Equations (1a) and (1b). We find a strong positive relationship across specifications. The left panel focuses on the recency setting. As shown in column (2), a 1 RMB increase in capital gains is associated with an additional 0.49 RMB in redemptions. The recency effect, captured by the interaction term CG $\times$ Recent, implies that a 1 RMB gain from recently purchased funds leads to an additional 0.76 RMB in redemptions, on top of the baseline 0.49 RMB response.

The right panel examines the top-performer setting. The baseline redemption response remains close to 0.5 RMB per 1 RMB of gains. For the top-performing fund, we estimate an additional 0.17 RMB in redemptions (column 6), though this effect is not statistically significant. When we expand the analysis to include total proceeds—capital gains plus dividends—the magnitude and statistical significance of the results remain largely unchanged.

Overall, capital gains increase redemption activity across all funds. Gains from recently acquired or top-performing funds are associated with even higher redemption amounts per RMB of gain, though the effect for top-performing funds lacks statistical significance. These findings are consistent with the idea that realizing gains may not be a necessary condition for increased spending.

[Insert Table 9]

6.5 Robustness Tests

Consumption Response to Cumulative Capital Gains

Trading apps like Alipay commonly display investment performance as cumulative proceeds rather than just focusing on returns from the last month or the last three

months. In this section, we further investigate the recency effect and the top-performer effect based on cumulative performance.

[Insert Table 10]

As shown in Panel A of Table 10, investors respond to both cumulative proceeds from recently invested and earlier invested funds. Still, the effect from recent investments is approximately twice as large as the effect from earlier investments. For the top-performer effect, Panel B shows that the consumption response to the cumulative proceeds of top-performing funds is approximately three to four times as big as that of proceeds from other funds. We, however, note that the coefficients reported in Table 10 cannot be interpreted directly as MPCs, as the constructions of consumption and capital gains are not at the same frequency of monthly flows.

Results Using Full Sample

In the main analyses, we exclude the top 10% most active investors to address concerns that hyperactive traders may under-react to monthly capital gains due to short attention spans. For robustness, we repeat the analyses from Tables 4 and 5 using the full randomly selected sample, including these investors. We report the corresponding analyses in Internet Appendix Tables B1 and B2. The results confirm that our findings remain robust, albeit with slightly reduced magnitudes. For example, Column (2) of Table B1 shows that a 100 RMB gain from high-attention investments leads to a 1.71 RMB increase in consumption in the following month, compared to 2.14 RMB in Table 4, where the most active investors are excluded.

7 Discussion

We start our discussion by reviewing what a standard portfolio choice model would predict in terms of the consumption response to capital gains. In a standard portfolio choice model with CRRA utility and multiple risky assets (see, e.g., Merton, 1969; Campbell and Viceira, 2002, and outlined in Internet Appendix A) an additional unit of wealth brings a proportional response in additional consumption. This proportional response equals the consumption-wealth ratio, which we denote as ρ, and which is independent of attention. For the log utility case, the consumption-wealth ratio boils down to $\rho = 1 - \beta$ with β denoting the agent's discount factor. If we, for example, take the point estimate for the annual discount factor in Gourinchas and Parker (2001) scaled to a monthly period, we have $\beta = 0.9569^{1/12} = 0.9963$. In this case, the proportional consumption response would equal $\rho = 0.0036$. Now, suppose instead of one risky asset, we have many, then one unit of additional returns will translate to consumption at an even lower level, e.g., when the allocation to each risky asset is 10%, we will obtain a proportional consumption response of approximately 0.0036*0.1=0.036%. We thus first observe that our estimated consumption response is a magnitude larger and varies with attention, two findings that go beyond standard portfolio theory.

We established that investors exhibit heightened sensitivity to the proceeds generated by funds they pay more attention to and that they will respond more to these proceeds in terms of their consumption. To gauge investor selective attention, we employed two proxies: the recency of their investments and the performance ranking of funds within their investment portfolios. We now review the existing literature in economics and finance that made us choose these two proxies for attention.

In terms of recency, insights from the field of psychology regarding memory indicate that individuals tend to give more weight to recent experiences (Kahana, 2012). In a

financial market context, Jiang et al. (2023) have documented that investors tend to recall their recent experiences in exercises like free recall. As investors are subject to limited attention capacity, they are more likely to allocate more attention to investments made more recently and, consequently, possess greater awareness of performance associated with more recent investments. Hence, we find that MPC, out of proceeds from a recently invested mutual fund, can have a more pronounced effect than an investment made in the more distant past.

In the field of economics, a recent literature pioneered by Bordalo et al. (2020) look at the interplay between memory and attention. Here, the authors also posit that more recent experiences are overweighted relative to previous ones.

That said, our recency findings are subject to endogeneity concerns. Our finding that capital gains from funds grouped with those in which investors recently invested elicit a larger consumption response is evidence that salience matters.

In terms of performance, it is widely acknowledged in the psychology literature that extreme ranks are inherently salient and captivating and play a pivotal role in decision-making (see Diecidue and Wakker (2001) and Wakker (2010) for a comprehensive literature review). In the economics literature, rank-dependent utility models, such as cumulative prospect theory introduced by Tversky and Kahneman (1992), propose that the order in which payoffs are ranked significantly affects their perceived importance. Additionally, recent literature has looked at how salience affects choice. In Bordalo et al. (2012), the salience of a potential gamble the decision-maker may or may not take depends on how different its payoffs are.

Our findings with respect to the different categories of consumption suggest that limited attention creates both online and offline varying consumption responses to capital gains. They further imply that the attention effect is not limited to impulse purchases such as online shopping.

8 Conclusion

This paper contributes to the expanding literature on the heterogeneity in the marginal propensity to consume (MPC) across economic agents by focusing on the impact of limited attention. Our findings reveal that individuals' limited attention to their investments' capital gains significantly influences their consumption responses. Contrary to the common view that money is fungible, the heterogeneity in MPCs suggests that limited attention renders money non-fungible for investors. We use variation in attention based on recency and top performers and show that monthly investment proceeds from recently invested funds and top-performing funds attract larger consumption responses.

We then further support the causal interpretation of these findings using two quasi-experiments. First, we show that variations in the platform's display settings create exogenous differences in the attention given to various funds, with those attracting more attention leading to a greater consumption response. Additionally, we use a change in the platform's display settings that allowed investors to customize the ordering of their holdings according to performance. In a before-after DiD setting, we show larger consumption responses to proceeds from top-performing funds compared to worse-performing funds after the change.

Overall, this research sheds light on the intricate relationship between attention, investment decisions, and consumption behavior, providing valuable insights for both academics and practitioners in the field of economics and finance.

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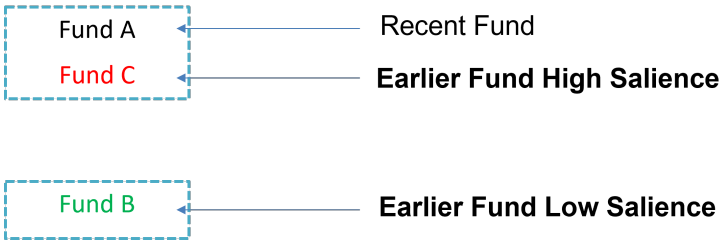
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Figure 1: **Illustration of the Identification Settings**



A. **Group-Based Display Rule**



B. **Display Rule After Customization Feature Introduced**

Notes: The top graph illustrates the group-based display rule. In particular, the most recently acquired fund is displayed at the top of the holdings page. In addition, funds from the same fund company are grouped together within a single block. The bottom graph shows the display rule after July 2020, when Alipay allowed investors to customize the order of their holdings. Investors could keep the original setting or choose to sort funds by cumulative returns over the holding period.

Table 1: **Summary Statistics**

This table presents descriptive statistics for the sample of 180,000 Alipay users in our main analysis. Panel A summarizes users' personal characteristics, including age, gender, and risk attitude, where risk aversion is measured on a scale from 0 (most risk-averse) to 5 (least risk-averse). Panel B reports total and category-specific monthly consumption, including Taobao and non-Taobao spending. Panel C presents investment-related variables, including monthly mutual fund holdings amount, number of funds held, capital gains, capital gains plus dividends, all measured at month end. Specifically, capital gains from recent investments refer to paper gains in month $t-1$ from funds purchased within $t-1$, while capital gains from earlier investments reflect unrealized gains in the current month from funds acquired earlier. Capital gains from top-performing (or other) funds are based on month $t-1$ gains from the top-performing fund, identified by ranking all funds held by an investor that month by cumulative return during the holding period. The highest-return fund is designated as the top performer; all others are classified as "other funds." All continuous variables are winsorized at the 0.5th and 99.5th percentiles to mitigate the influence of outliers.

	N	mean	std	min	Median	max
Panel A. Personal Characteristics						
Age	180,000	37.796	8.822	20	36	85
Gender 1=Male, 2=Female	180,000	1.391	0.488	1	1	2
Risk Attitude (risk level 1-5)	179,992	3.07	2.052	0	3	5
Panel B. Consumption						
Total Consumption (RMB)	4,136,968	6,525	12,429	0	2,678	105,201
Taobao	4,136,968	1,559	3,441	0	396	28,735
Non-Taobao	4,136,968	4,883	10,718	0	1,597	93,612
Panel C. Investment						
Holding by each user	4,136,148	82,820	138,822	0	36,512	1,060,228
# of funds by each user	4,136,148	8.06	8.04	0	6	52
Capital gains from recent investment	4,136,968	522	3,010	-12,207	0	23,010
Capital gains from earlier investment	4,136,968	1,038	4,253	-13,897	72	34,127
Capital gains+dividends from recent investment	4,136,968	558	3,065	-12,000	0	23,622
Capital gains+dividends from earlier investment	4,136,968	1,096	4,332	-13,667	875	34,843
Capital gains from top-performing funds	4,136,148	671	2,383	-6,322	71	19,017
Capital gains from other funds	4,136,148	901	4,445	-18,367	72	32,890
Capital gains+dividends from top-performing funds	4,136,148	706	2,451	-6,230	78	19,652
Capital gains+dividends from other funds	4,136,148	960	4,503	-18,090	90	33,508

Table 2: **The Recency Effect**

This table presents the results from baseline regression models (1a) and (1b), which examine the recency effect using total consumption as the dependent variable. The key independent variables are capital gains (or capital gains plus dividends) from the previous month, a variable *Recent*, and their interaction. The variable *Recent* is defined as the proportion of capital gains (or capital gains plus dividends) generated by investments made in the previous month. Columns (1) and (2) report results based on capital gains, while columns (3) and (4) use capital gains plus dividends. Columns (2) and (4) additionally include controls for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
Capital gains × Recent	0.0046	0.0060*		
	(0.0031)	(0.0031)		
Capital gains	0.0165***	0.0100***		
	(0.0018)	(0.0018)		
Recent	-15.814	-15.962		
	(11.088)	(11.507)		
(Capital gains+dividends) × Recent			0.0054*	0.0067**
			(0.0030)	(0.0030)
Capital gains+dividends			0.0161***	0.0095***
			(0.0017)	(0.0017)
Recent			-17.675	-17.872
			(11.761)	(12.204)
Holdings		0.0017***		0.0017***
		(0.0002)		(0.0002)
# funds		1533.5***		1532.5***
		(200.74)		(200.74)
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
R-squared	8.06E-05	0.0003	8.46E-05	0.0003
N	4,136,986	4,136,986	4,136,986	4,136,986

Table 3: **The Top-Performer Effect**

This table presents the results from baseline regression models (2a) and (2b), which examine the top-performer effect using total consumption as the dependent variable. The key independent variables are capital gains (or capital gains plus dividends) from the previous month, a variable *Top performer*, and their interaction. The variable *Top performer* is defined as the proportion of capital gains (or capital gains plus dividends) generated by the top-performing fund in the investor's portfolio. Columns (1) and (2) report results based on capital gains, while columns (3) and (4) use capital gains plus dividends. Columns (2) and (4) additionally include controls for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
Capital gains × Top performer	0.0228***	0.0177***		
	(0.0046)	(0.0046)		
Capital gains	0.0099***	0.0061***		
	(0.0018)	(0.0018)		
Top performer	-18.956**	-19.063**		
	(8.2274)	(8.5667)		
(Capital gains+dividends) × Top performer			0.0225***	0.0181***
			(0.0045)	(0.0045)
Capital gains+dividends			0.0098***	0.0057***
			(0.0017)	(0.0017)
Top performer			-18.211**	-18.344**
			(8.3968)	(8.7385)
Holdings		0.0016***		0.0016***
		(0.0002)		(0.0002)
# funds		1496.4***		1498.2***
		(200.64)		(200.64)
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
R-squared	0.0000918	0.0003	0.00009338	0.0003
N	4,136,148	4,136,148	4,136,148	4,136,148

Table 4: **Group-Based Display: Funds from the Same Fund Company as the Recent Investment**

This table presents the results for consumption responses to gains from funds with high attention versus low attention by exploring a group-based display rule on the platform. The dependent variable is total consumption. The independent variables of interest in columns (1) and (2) (columns (3) and (4)) are *Capital gains* (+*dividends*) in the previous month, *Recent*, defined as the proportion of these capital gains (plus dividends) from funds invested in the previous month, and *Same Company*, defined as the share of capital gains (plus dividends) from earlier funds that belong to the same fund company as the recently purchased funds, relative to total capital gains from all earlier funds. Columns (2) and (4) include controls for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
Capital gains × (1-Recent) × Same Company	0.0503***	0.0214**		
	(0.0108)	(0.0108)		
Capital gains × Recent	0.0150***	0.0119***		
	(0.0028)	(0.0028)		
Capital gains	0.0035***	0.0026**		
	(0.0011)	(0.0010)		
(1-Recent) × Same Company	-34.763***	-36.354***		
	(12.957)	(13.255)		
Recent	-20.978***	-21.387***		
	(6.1684)	(6.3188)		
(Capital gains+dividends) × (1-Recent) × Same Company			0.0497***	0.021**
			(0.0106)	(0.0106)
(Capital gains+dividends) × Recent			0.0154***	0.0121***
			(0.0027)	(0.0027)
Capital gains+dividends			0.0036***	0.0026**
			(0.0010)	(0.0010)
(1-Recent) × Same Company			-36.336***	-38.099***
			(11.086)	(11.242)
Recent			-23.722***	-24.225***
			(5.1939)	(5.2607)
Controls	N	Y	N	Y
Account FEs	Y	Y	Y	Y
Year-Month FEs	Y	Y	Y	Y
R-squared	6.99E-05	0.0003	7.32E-05	0.0003
N	4,136,963	4,136,963	4,136,963	4,136,963

Table 5: **The Top-Performer Effect after the Change in Display Setting**

This table presents the results for the extended regression models from (2a) and (2b) about the top-performer effect after the change in display setting. The dependent variable is total consumption. The independent variables of interest in Columns (1) and (2) (Columns (3) and (4)) are *Capital gains* (+*dividends*) in the previous month, $Top\ performer$, defined as the share of those from the top-performing fund, and $After$, which is a dummy variable that equals 1 after the change in the display setting. Columns (2) and (4) include controls for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
Capital gains × Top performer × After	0.0392***	0.0373***		
	(0.0090)	(0.0090)		
Capital gains × Top performer	0.0042	0.0006		
	(0.0056)	(0.0056)		
Capital gains × After	0.0083**	0.0047		
	(0.0036)	(0.0036)		
Capital gains	0.0048**	0.0029		
	(0.0022)	(0.0022)		
Top performer × After	-20.202**	-21.276**		
	(8.4901)	(8.6614)		
Top performer	-11.001***	-10.687***		
	(3.8876)	(3.8953)		
(Capital gains+dividends) × Top performer × After			0.0347***	0.0335***
			(0.0088)	(0.0088)
(Capital gains+dividends) × Top performer			0.0058	0.0026
			(0.0055)	(0.0055)
(Capital gains+dividends) × After			0.0093***	0.0058
			(0.0035)	(0.0035)
Capital gains+dividends			0.0043**	0.0021
			(0.0022)	(0.0022)
Top performer× After			-23.868***	-24.874***
			(7.5494)	(7.7458)
Top performer			-8.9928***	-8.7362***
			(3.2489)	(3.2922)
Controls	N	Y	N	Y
Account FEs	Y	Y	Y	Y
Year-Month FEs	Y	Y	Y	Y
R-squared	0.0001	0.0003	0.0001	0.0003
N	4,136,148	4,136,148	4,136,148	4,136,148

Table 6: **Heterogeneity: Attention Constrainedness**

This table presents the heterogeneous effects across investors with different number of funds in their portfolio. We divide the sample based on the number of funds held in the first month of the sample: investors holding at least 6 funds (above the median of 5) are shown in columns (1) and (3), while those holding 5 or fewer funds appear in columns (2) and (4). In Panel A, the independent variables are *Capital gains* (+*dividends*) in the previous month and *Recent*, defined as the proportion of these capital gains (plus dividends) from funds invested in the previous month, and their interaction. In Panel B, the independent variables are *Capital gains* (+*dividends*) in the previous month and $Top\ performer$, defined as the share of those from the top-performing fund, and their interaction. All regressions control for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
	Most constrained	Least constrained	Most constrained	Least constrained
A. The Recency Effect				
Capital gains × Recent	0.0084*	0.0032		
	(0.0045)	(0.0042)		
Capital gains	0.0062**	0.0147***		
	(0.0024)	(0.0026)		
Recent	-15.87	-18.48		
	(11.974)	(24.788)		
(Capital gains+dividends) × Recent			0.0085*	0.0045
			(0.0044)	(0.0041)
Capital gains+dividends			0.0062**	0.0136***
			(0.0024)	(0.0025)
Recent			-18.455	-10.006
			(13.218)	(12.229)
R squared	0.0003	0.0003	0.0003	0.0003
N	1,744,859	2,391,673	1,744,859	2,391,673
B. The Top-Performer Effect				
Capital gains × Top performer	0.0224***	0.0119**		
	(0.0077)	(0.0059)		
Capital gains	0.0028*	0.0104***		
	(0.0025)	(0.0026)		
Top performer	-17.926*	-31.206		
	(9.3631)	(21.121)		
(Capital gains+dividends) × Top performer			0.0234***	0.0122**
			(0.0074)	(0.0058)
Capital gains+dividends			0.0026	0.0099***
			(0.0024)	(0.0026)
Top performer			-19.354**	-7.3575
			(9.3283)	(15.147)
R squared	0.0003	0.0003	0.0004	0.0003
N	1,744,700	2,391,013	1,744,700	2,391,013
Controls	Y	Y	Y	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y

Table 7: **Consumption Response to Positive versus Negative Gains**

This table presents the results for heterogeneous consumption response to positive capital gains versus negative capital gains for the recency effect and the top-performer effect. The dependent variable is the total consumption. The independent variables of interest are CG (CG+Div) from high-attention funds (recently invested funds for the recency effect and top-performing funds for the top-performer effect) and CG (CG+Div) from low-attention funds (earlier invested funds for the recency effect and non-top-performing funds for the top-performer effect) and their respective interactions with a positive dummy, indicating whether the gain is positive or not. All regressions control for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at both the account level and year-month level are reported. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
	The Recency Effect		The Top-Performer Effect	
CG × High attention × Positive	0.0181**		0.0698***	
	(0.0090)		(0.0150)	
CG × High attention	-0.0074		-0.0523***	
	(0.0072)		(0.0126)	
CG × Positive	0.0056		-0.0021	
	(0.0054)		(0.0051)	
CG	0.0053		0.0046	
	(0.0042)		(0.0038)	
High attention	-15.779		-2.6724	
	(11.477)		(3.9173)	
(CG+Div) × High attention × Positive		0.0144*		0.0632***
		(0.0077)		(0.0146)
(CG+Div) × High attention		0.0033		-0.0475***
		(0.0059)		(0.0124)
(CG+Div) × Positive		0.0093***		-0.0028
		(0.0026)		(0.0049)
CG+Div		0.0011		0.0052
		(0.0012)		(0.0037)
High attention		-17.765		-2.0138
		(12.215)		(3.8726)
Controls	Y	Y	Y	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
R squared	0.00003	0.00003	0.00001986	1.8E-05
N	4,136,963	4,136,963	4,136,207	4,136,207

Table 8: **Heterogeneous Effect on Taobao versus Non-Taobao Consumption**

This table reports regression results for categorical consumption, Taobao and non-Taobao, on capital gains (plus dividends). Panel A examines the recency effect, based Equations (1a) and (1b), while Panel B examines the top-performer effect, based on Equations (2a) and (2b). The dependent variable is Taobao consumption in columns (1) and (2), and non-Taobao consumption in columns (3) and (4). All regressions control for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors are clustered at both the account level and year-month level are reported. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
A. The Recency Effect				
	Taobao Consumption		Non-Taobao Consumption	
CG × Recent	0.0001		0.0058**	
	(0.0007)		(0.0028)	
CG	0.0017***		0.0083***	
	(0.0004)		(0.0016)	
Recent	-2.1406**		-13.366	
	(1.0096)		(11.769)	
(CG+Div) × Recent		0.0001		0.0061**
		(0.0007)		(0.0027)
CG+Div		0.0017***		0.0079***
		(0.0004)		(0.0015)
Recent		-2.6670***		-14.436
		(0.7738)		(12.332)
R squared	0.00003	0.00003	0.0003	0.0003
N	4,136,968	4,136,968	4,136,968	4,136,968
B. The Top-Performer Effect				
	Taobao Consumption		Non-Taobao Consumption	
CG × Top performer	0.0024**		0.0141***	
	(0.0011)		(0.0041)	
CG	0.0009**		0.0055***	
	(0.0004)		(0.0016)	
Top performer	-0.9362		-17.723**	
	(1.713)		(8.6849)	
(CG+Div) × Top performer		0.0024**		0.0141***
		(0.0011)		(0.0040)
CG+Div		0.0009**		0.0052***
		(0.0004)		(0.0015)
Top performer		-2.4572		-15.297*
		(2.2339)		(9.0607)
R squared	0.00003	0.00003	0.00030	0.00030
N	4,136,148	4,136,148	4,136,148	4,136,148
Controls	Y	Y	Y	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y

Table 9: **Redemption Response to Capital Gains**

This table presents regression results examining the recency effect and top-performer effect on redemption behavior. The left panel corresponds to models (1a) and (1b), which assess the recency effect, while right panel corresponds to models (2a) and (2b), which assess the top-performer effect. Across all specifications, the dependent variable is the redemption amount for individual i in month $t+1$. In the left panel, *Recent* is defined as the proportion of capital gains (or capital gains plus dividends) generated by investments made in the prior month. In the right panel, *Top performer* is defined as the proportion of capital gains (or capital gains plus dividends) generated by the best-performing fund in the investor's portfolio. Columns (1), (2), (5) and (6) report results based on capital gains, while columns (3), (4), (7) and (8) use capital gains plus dividends. Columns (2), (4), (6) and (8) include controls for total fund holdings and the number of funds in the portfolio. Account fixed effects and year-month fixed effects are included where indicated. Within-group R-squared values are reported. Robust standard errors are clustered at the account level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

A. The Recency Effect					B. The Top-Performer Effect				
Dep. Var.: Redemption	(1)	(2)	(3)	(4)	Dep. Var.: Redemption	(5)	(6)	(7)	(8)
CG×Recent	0.6286***	0.7639***			CG×Top Performer	0.6942	0.1657		
	(0.057)	(0.056)				(0.5135)	(0.5007)		
CG	1.1946***	0.4923***			CG	0.7927***	0.5076***		
	(0.0399)	(0.0374)				(0.1108)	(0.1462)		
Recent	-26.622*	-46.564			Top Performer	-35.72***	-50.638		
	(14.659)	(63.487)				(9.4315)	(39.349)		
(CG+Div)×Recent			0.6221***	0.7439***	(CG+Div)×Top Performer			0.5564	0.0889
			(0.0566)	(0.0556)				(0.4722)	(0.4619)
(CG+Div)			1.2157***	0.5023***	(CG+Div)			0.8278***	0.5242***
			(0.0394)	(0.0369)				(0.1070)	(0.1429)
Recent			-23.278	-49.881	Top Performer			-31.441***	-48.907
			(15.714)	(65.734)				(10.750)	(40.208)
Controls	N	Y	N	Y	Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y	Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y	YearMonth FE	Y	Y	Y	Y
R squared	0.0127	0.0730	0.0133	0.0731	R squared	0.0216	0.0730	0.0215	0.0869
N	3,959,749	3,959,749	3,959,749	3,959,749	N	3,941,357	3,941,357	3,941,357	3,941,357

Table 10: **Consumption Response to Cumulative Investment Gains**

This table presents the results for the modified models using cumulative gains, instead of monthly gains as the dependent variable. In particular, Panel A shows the recency effect on consumption using the modified models similar to (1a) and (1b). Panel B shows the top-performer effect on consumption using the modified models similar to (2a) and (2b). The independent variables of interest are Cum. CG (CG+Div) × Recent in Panel A and Cum. CG (CG+Div) × Top Performer in Panel B. *Recent* is the proportion of Cum. CG (CG+Div) from funds invested in the previous month. *Top Performer* is the proportion of Cum. CG (CG+Div) from the top-performing fund. Columns (2) and (4) include controls for total fund holdings and the number of funds held. Account fixed effects and year-month fixed effects are included in all specifications. Within-group R-squared values are reported. Robust standard errors, clustered at the account level, are reported. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
A. The Recency Effect				
Cum. CG × Recent	0.0077***	0.0066***		
	(0.0012)	(0.0012)		
Cum. CG	0.0085***	0.0055***		
	(0.0007)	(0.0008)		
Recent	0.2815	0.3049		
	(0.2674)	(0.2645)		
(Cum. CG+Div) × Recent			0.0077***	0.0066***
			(0.0012)	(0.0012)
Cum. CG+Div			0.0085***	0.0055***
			(0.0007)	(0.0008)
Recent			0.1916	0.2152
			(0.2097)	(0.2077)
R squared	3.00E-04	4.00E-04	2.00E-04	5.00E-04
N	4,136,968	4,136,968	4,596,797	4,596,797
B. The Top-Performer Effect				
Cum. CG × Top performer	0.0228***	0.0177***		
	(0.0046)	(0.0046)		
Cum. CG	0.0099***	0.0061***		
	(0.0018)	(0.0018)		
Top performer	-18.956**	-19.063**		
	(8.2274)	(8.5667)		
(Cum. CG+Div) × Top performer			0.0225***	0.0181***
			(0.0045)	(0.0045)
Cum. CG+Div			0.0098***	0.0057***
			(0.0017)	(0.0017)
Top performer			-18.211**	-18.344**
			(8.3968)	(8.7385)
R squared	0.0000918	0.0003	0.00009338	0.0003
N	4,136,148	4,136,148	4,136,148	4,136,148
Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y

Internet Appendix

A Standard Portfolio Choice Model

In the following, we first lay out the backward induction solution procedure starting in period T for the finite-horizon setting and then move on to the infinite horizon.

A.1 Finite horizon

Consider a model as in Merton (1969), assume that returns are iid log-normally distributed $R_t = e^{r_t} \sim log - N(\mu_r, \sigma_r^2)$. The agent lives for $t = \{1, 2, ..., T\}$ periods. The maximization problem in period $T - i$ is

$$max\{E_{T-i}[u(C_{T-i}) + \beta V_{T-i+1}(W_{T-i+1})]\} \text{ subject to } W_{T-i+1} = (W_{T-i} - C_{T-t})R_{T-i+1}$$

and characterized by the following first-order condition:

$$\Rightarrow C^*_{T-i} = \frac{W_{T-i}}{1 + (\beta E_{T-i}[R^{1-\theta}_{T-i+1} Q^0_{T-i+1}])^{-\frac{1}{\theta}}} = W_{T-i}\rho_{T-i}$$

$$\text{with } Q^\tau_{T-i} = R^{1-\theta}_{T-i+\tau}\rho^{1-\theta}_{T-i+\tau} \prod_{j=1}^{\tau-1} R^{1-\theta}_{T-i+j}(1 - \rho_{T-i+j})^{1-\theta}$$

The value function is given by:

$$V_{T-i}(W_{T-i}) = u(W_{T-i})Q^0_{T-i}$$

$$Q^0_{T-i} = \rho^{1-\theta}_{T-i} + (1 - \rho_{T-i})^{1-\theta}\beta E_{T-i}[R^{1-\theta}_{T-i+1} Q^0_{T-i+1}])$$

Now with iid returns $\rho_{T-i} = \frac{1}{1+(\beta E_t[R^{1-\theta}_{t+1}])^{\frac{1}{\theta}} + ... + (\beta E_t[R^{1-\theta}_{t+1}])^{\frac{i}{\theta}}}$. Therefore, each period the agent consumes a constant fraction out of his wealth.

A.2 Infinite horizon

Let's move on to the $T \to \infty$ case which can be derived by taking the $T - i$ case to the limit or alternatively directly via the Bellman equation

$$V_t(W_t, C_t^{t-1}, C_{t+1}^{t-1}, ...) = max\{u(C_t) + \beta E_t[V_{t+1}(W_{t+1}, C_{t+1}^t, C_{t+2}^t ...)]\}$$

subject to the agent's budget constraint:

$$W_{t+1} = (W_t - C_t)R_t$$

Under CRRA utility, the first-order condition is then given by:

$$C_t^{-\theta} = (W_t - C_t)^{-\theta}\psi$$

The solution procedure follows a guess and verify approach. Guess that the solution has the following structure:

$$C_t^* = W_t\rho_t \text{ and } V_t(W_t) = u(W_t)Q_t^0$$

With ρ_t and Q_t^0 being iid, dependent on the realization of R_t only and independent of calender time or contemporaneous wealth W_t. The first-order condition can be derived under the guessed solution which then remains to be verified. Let's start with the left hand side, the derivative of the first part of the value function, consumption utility and gain-loss utility over contemporaneous consumption is given by:

$$\frac{\partial(u(C_t))}{\partial C_t} = C_t^{-\theta}$$

Under the guessed solution each future consumption level can be iterated to today's

consumption-savings decision:

$$C_{t+\tau} = W_{t+\tau}\rho_{t+\tau} = (W_t - C_t)R_{t+\tau}\rho_{t+\tau}\prod_{j=1}^{\tau-1} R_{t+j}(1-\rho_{t+j})$$

Moreover, note that for iid returns $E_t[R_{t+1}^{1-\theta}\rho_{t+1}^{1-\theta}] = E_t[R_{t+\tau}^{1-\theta}\rho_{t+\tau}^{1-\theta}]$ for any $\tau \geq 1$ thus the infinite sum in the value function simplifies considerably:

$$= E_t[R_{t+1}^{1-\theta}\rho_{t+1}^{1-\theta}]\sum_{\tau=1}^{\infty}\beta^{\tau}(E_t[R_{t+1}^{1-\theta}(1-\rho_{t+1})^{1-\theta}])^{\tau-1} = \frac{\beta E_t[R_{t+1}^{1-\theta}\rho_{t+1}^{1-\theta}]}{1-\beta E_t[R_{t+1}^{1-\theta}(1-\rho_{t+1})^{1-\theta}]} = Q$$

The second part in the first-order condition refers to the first derivative of the continuation value with respect to C_t. The marginal value of savings is given by:

$$\frac{d\beta V_{t+1}(W_{t+1})}{dC_t} = \frac{\partial u((W_t - C_t)R_{t+1})Q_{t+1}^0}{dC_t} = -(W_t - C_t)^{-\theta}\beta E_t[R_{t+1}^{1-\theta}Q_{t+1}^0]$$

Note that again for iid returns $\beta E_t[R_{t+1}^{1-\theta}Q_{t+1}^0] = \beta E_{t+\tau-1}[R_{t+\tau}^{1-\theta}Q_{t+\tau}^0] = \psi$ thus:

$$\psi = \beta E_t[R_{t+1}^{1-\theta}Q_{t+1}^0] = \beta E_t[R_{t+1}^{1-\theta}\rho_{t+1}^{1-\theta} + R_{t+1}^{1-\theta}(1-\rho_{t+1})^{1-\theta}\psi]$$

The expression left over in the first-order condition is given by:

$$(W_t - C_t)^{-\theta}\beta E_t[R_{t+1}^{1-\theta}Q_{t+1}^0] = (W_t - C_t)^{-\theta}\psi$$

Accordingly, ρ_t varies solely with the realization of R_t and is thus iid which verifies the guess about ρ_t:

$$C_t^* = \frac{W_t}{1 + (\frac{\psi + \gamma Q(\eta F(R_t) + \eta\lambda(1-F(R_t)))}{1+\eta F(R_t)+\eta\lambda(1-F(R_t))})^{\frac{1}{\theta}}} = W_t\rho_t$$

And the value function can be easily used to verify the guess about Q_t^0 being iid and

varying with the realization of R_t:

$$V_t(W_t) = u(W_t)Q_t^0 = u(W_t)(\rho_t^{1-\theta} + (1-\rho_t)^{1-\theta}\psi)$$

The three nonlinear equations for Q, ψ and ρ_t can be solved numerically: For any parameter combination the fixed point of Q, ψ and $\rho(Q,\psi)$, which gives out $\rho_t = \rho(R_t)$ for any R_t, can be found. The guess and verify procedure revealed a legal equilibrium.

Now, one may consider a return $R_t = R^f + (\tilde{R}_t - R^f)\alpha_{T-1}$ with $log(\tilde{R}_t) = r_t \sim N(r - \frac{\sigma_r^2}{2}, \sigma_r^2)$ and $R^f = e^{r^f}$, Campbell and Viceira (2002) show that a good approximation to the rate of return is

$$log(R_t) = r_t = r^f + \alpha_{T-1}\phi_t + \alpha_{t-1}\frac{\sigma_r^2}{2} - \alpha_{t-1}^2\frac{\sigma_r^2}{2} \text{ with } \phi_t \sim N(0,1).$$

As shown in Campbell and Viceira (2002), the optimal portfolio share for CRRA utility is then given by

$$\alpha_t = \frac{E_t[r_{t+1} - r^f]}{\theta\sigma_r^2}.$$

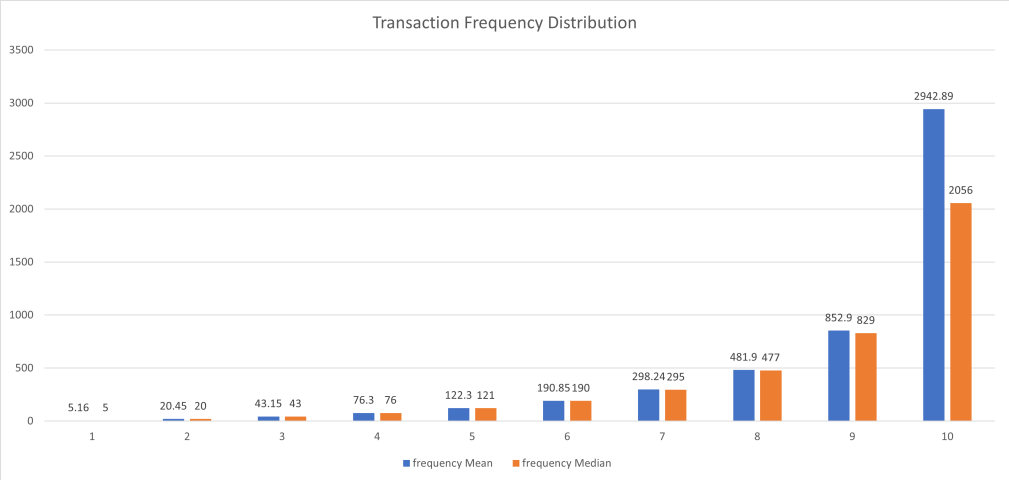
And in a model with many risky assets we have the vector

$$\boldsymbol{\alpha_t} = \frac{1}{\theta}\Sigma_t^{-1}E_t[r_{t+1} - r^f]$$

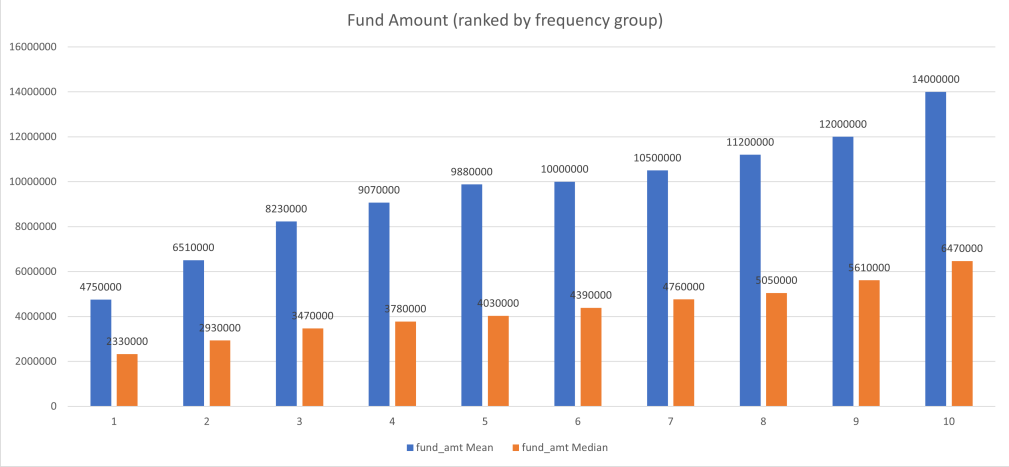
with the matrix Σ_t containing variances and covariances of excess returns.

B Appendix Figure and Tables

Figure B1: **Transaction Frequency**



A. Transaction Frequency Distribution



B. Fund Amount (Ranked by Transaction Frequency Deciles)

Notes: The top graph shows the overall sample's transaction frequency distribution by deciles. The bottom graph shows the mutual fund holding amount ranked by transaction frequencies in deciles. The blue bars denote the mean values, whereas the orange bars denote the medians.

Table B1: **Identification Test of the Recency Effect with Full Sample**

This table presents the results for consumption responses to gains from funds with high attention versus low attention by exploring a group-based display rule on the platform. It includes the top 10% most active investors. The dependent variable is total consumption. The independent variables of interest in Columns (1) and (2) (Columns (3) and (4)) are *Capital gains* (+*dividends*) in the previous month, *Recent*, defined as the proportion of these capital gains (plus dividends) attributable to funds invested in the previous month, and *Same firm*, defined as the share of those capital gains (plus dividends) from invested funds that are in the same fund company as the funds invested in the previous month. Control variables include total fund holdings and number of funds held in the portfolio. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
CG × (1-Recent) × Same Company	0.0475***	0.0171*		
	(0.0094)	(0.0094)		
CG × Recent	0.0133***	0.0101***		
	(0.0024)	(0.0024)		
CG	0.0037***	0.0029***		
	(0.009)	(0.009)		
(1-Recent) × Same Company	-8.4761	-9.1497		
	(13.631)	(14.11)		
Recent	-13.545*	-13.704		
	(8.1854)	(8.4549)		
(CG+Div) × (1-Recent) × Same Company			0.0473***	0.017*
			(0.0093)	(0.0092)
(CG+Div) × Recent			0.0136***	0.0102***
			(0.0024)	(0.0024)
CG+Div			0.0037***	0.0029***
			(0.0009)	(0.0009)
(1-Recent) × Same Company			-34.504***	-36.264***
			(9.9466)	(10.075)
Recent			-23.291***	-23.825***
			(4.8595)	(4.9159)
Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
R squared	7.66E-05	0.0004	8.11E-05	0.0004
N	4,596,792	4,596,792	4,596,792	4,596,792

Table B2: **Identification Test of the Top-Performing Effect with Full Sample**

This table presents the results for the extended regression models from (2a) and (2b) about the top-performer effect after the change in display setting. The dependent variable is total consumption. It includes the top 10% most active investors. The independent variables of interest in Columns (1) and (2) (Columns (3) and (4)) are *Capital gains* (+*dividends*) in the previous month, $Top\ performer$, defined as the share of those from the top-performing fund, and $After$, which is a dummy variable that equals 1 after the change in the display setting. Control variables include total fund holdings and number of funds held in the portfolio in the previous month. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Dep. Var.: Total Consumption	(1)	(2)	(3)	(4)
CG × Top Performer×After	0.0349***	0.0352***		
	(0.0085)	(0.0085)		
CG × Top Performer	0.0057	0.0018		
	(0.0053)	(0.0053)		
CG × After	0.0110***	0.0064**		
	(0.0032)	(0.0032)		
CG	0.0041**	0.0024		
	(0.0020)	(0.0020)		
Top Performer × After	-26.418***	-27.351***		
	(8.6573)	(8.8487)		
Top Performer	-5.3066*	-5.1574*		
	(3.0552)	(2.9793)		
(CG+Div) × Top Performer × After			0.0300***	0.0308***
			(0.0083)	(0.0083)
(CG+Div) × Top Performer			0.0072	0.0036
			(0.0052)	(0.0052)
(CG+Div) × After			0.0121***	0.0074**
			(0.0031)	(0.0031)
CG+Div			0.0037*	0.0017
			(0.0019)	(0.0019)
Top Performer × After			-24.376***	-25.398***
			(8.0145)	(8.2483)
Top Performer			-9.0571***	-8.8154***
			(3.2721)	(3.3176)
Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y
Year-Month FE	Y	Y	Y	Y
R squared	0.0001	0.0004	0.0001	0.0004
N	4,595,967	4,595,967	4,595,967	4,595,967

Table B3: **Top Performer Ranked by Fund Cumulative Return**

This table presents the results for the top-performer effect using fund cumulative return to rank all funds in an investors' portfolio. Panel A presents the results from the baseline regression models (2a) and (2b). Panel B presents the results for the extended regression models from (2a) and (2b) about the top-performer effect after the change in display setting. The sample includes the top 10% most active investors. The dependent variable is total consumption. The independent variables of interest in Columns (1) and (2) (Columns (3) and (4)) are *Capital gains* (+*dividends*) in the previous month, $Top\ performer$, defined as the share of those from the top-performing fund, and $After$, which is a dummy variable that equals 1 after the change in the display setting. Control variables include total fund holdings and number of funds held in the portfolio in the previous month. Robust standard errors are clustered at the account level. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Panel A: Baseline Setting				
	(1)	(2)	(3)	(4)
Dep. Var.: Total Consumption	Capital gain		Capital gain + dividend	
Top performer proceeds	0.0164**	0.0140**	0.0161**	0.0142**
	(0.0051)	(0.0051)	(0.0049)	(0.0049)
Total investment proceeds	0.0129***	0.0076***	0.0128***	0.0074***
	(0.0015)	(0.0015)	(0.0015)	(0.0015)
Top/Total	-0.9485	-0.4711	-10.128	-9.6146
	(7.894)	(7.9345)	(7.5272)	(7.5129)
Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y
YearMonth FE	Y	Y	Y	Y
R squared	0.00007144	0.0003	0.00007295	0.0003
N	4,135,923	4,135,923	4,135,923	4,135,923
Panel B: Identification Setting				
	(1)	(2)	(3)	(4)
Dep. Var.: Total Consumption	Capital gain		Capital gain + dividend	
Top performer proceeds	0.0031	0.0013	0.0043	0.0028
	(0.0062)	(0.0062)	(0.0061)	(0.0061)
Top performer proceeds * After	0.0316**	0.0304**	0.0276**	0.0270**
	(0.01)	(0.01)	(0.0097)	(0.0097)
Total investment proceeds	0.0046*	0.0018	0.0043*	0.0012
	(0.002)	(0.002)	(0.002)	(0.002)
Total investment proceeds * After	0.0152***	0.0109***	0.0157***	0.0115***
	(0.003)	(0.003)	(0.003)	(0.003)
Top/Total	-0.9156	-0.4571	-10.102	-9.6074
	(7.9071)	(7.9467)	(7.5311)	(7.5169)
Controls	N	Y	N	Y
Account FE	Y	Y	Y	Y
YearMonth FE	Y	Y	Y	Y
R squared	0.0001	0.0003	0.0001	0.0003
N	4,135,923	4,135,923	4,135,923	4,135,923