Leaving the (fund) gate ajar: investor protection or marketing ploy? *

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Abstract

This study explores for the first time discretionary inflow gates in mutual funds. Using a unique dataset of fund inflow restrictions in China, we show funds that leave a partly-closed gate to investors substantially expand their retail investor base and increase future inflows. Contrary to managers' claim, we find little evidence that inflow gates protect existing investors' interests. Despite their superior past performance, inflow-restricted funds' subsequent performance does not outperform the benchmark or matched control funds. Rather, they shift their investment allocations by bearing greater market risk and leaning toward growth stocks. Additional analysis reveals that partly-closed gates are associated with higher fund sales commissions. Overall, our evidence suggests partly-closed fund gates appear more of a marketing strategy than investor protection.

Key words: mutual funds, flow restriction, inflow gate, mutual fund marketing, retail investors

JEL Classification: G11, G23

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1. Introduction

China is en-route to becoming the world's second largest fund market after the US, with the country's mutual fund assets forecast to reach USD 7.5 trillion (RMB 47 trillion) by 2025.[1,2] The exponential growth of the mutual fund market in China is appealing to many global asset management companies, which are already tapping into the world's largest retail investor base and fundraising opportunity.[3] While foreign fund houses expect large inflows into their onshore funds in China, their local peers are restricting inflows. For instance, at the end of the third quarter in 2019, around 27% of domestic open-end equity funds in China were placing varied daily purchase limits.[4] Given that mutual funds compete for better performance and greater inflows, this phenomenon raises two questions: First, why do Chinese fund managers impose inflow gates on investors? Second, how do they choose different levels of restriction?

Utilizing a sample of all domestic open-end equity funds in China, with 52% of them imposing at least one inflow restriction event between 2006 and 2016, we study for the first time discretionary use of inflow gates by mutual funds. We test two hypotheses on the motivations for these inflow gates. The *investor protection* hypothesis, the most commonly stated reason funds use to restrict inflows, posits that fund managers impose inflow gates to protect investor interests. By restricting inflows, a gate should allow the fund to maintain its good performance or optimal portfolio. The reason seems legitimate given evidence that fund size erodes performance due to diseconomies of scale (e.g., Chen et al., 2004), and liquidity-motivated trading adversely affects fund return (e.g., Edelen, 1999).

[1] 'China's fund industry predicted to grow fivefold by 2025.' April 8, 2018. *Financial Times.* Available at: https://www.ft.com/content/ca76b3a8-398a-11e8-8b98-2f31af407cc8

[2] For easiness of interpretation, we use a fixed exchange rate 1 USD = 6.29 RMB in this study.

[3] 'UBS remains top-performing foreign fund house in China.' April 21, 2019. *Financial Times*. Available at: https://www.ft.com/content/7517b4a6-61da-11e9-b285-3acd5d43599e

[4] Source: WIND

The *marketing ploy* hypothesis, on the other hand, argues that funds impose inflow gates in an effort to differentiate themselves from peers by signaling scarcity. The 'scarcity principle' in marketing suggests that announcing 'limited availability' of a commodity often draws public attention and attracts more customers (e.g., Lynn, 1991; Verhallen and Robben, 1994). Anecdotal evidence also supports the marketing ploy hypothesis. For example, funds in China make public announcements when imposing daily purchase limits with the announcements also sent to existing investors through instant message.[5] In addition, inflow-restricted funds are often named in news articles as being 'good buys'.[6] The public announcement and/or media attention of an inflow gate not only implies a fund's superior past performance, it also signals good stewardship of the fund. The signal appears to indicate that the fund manager is acting in the best interest of investors at the expense of earning higher management fees from higher inflows. Further, the 'scarcity marketing' tactic predicts that investors' fear of missing out on investment opportunities in a good (past) performing fund often incentivizes them to buy. We therefore posit that the intention of inflow restrictions is to attract fund flows rather than investor protection. Local media also questions if the discretionary inflow gate is merely a marketing tactic to lure more fund purchases by capping inflows.[7]

A unique feature of our setting is that inflow gates are set at the investor level and have varying caps. This differs from the US where mutual fund inflow restrictions (hard closures) stop

[5] See examples of fund inflow gate announcements and instant messages sent to investors in Appendix 1.
[6] For example, an article from *CHINA FUND* was titled "Superior performance! Daily purchase limits on 18 funds with the tightest cap at RMB 1000" and named a few inflow-restricted funds with superior past performance as good buys. Available at http://news.stcn.com/2019/0829/15359692.shtml (in Chinese).
[7] 'A growing number of funds announcing inflow restrictions: size control or scarcity marketing?' March 7, 2014. *YICAI*. Available at: https://www.yicai.com/news/3549913.html (in Chinese)

all inflows, or soft closures in the UK where funds set the minimum investment levels.[8,9] During the 2006–2016 period, the daily purchase cap per investor in China's mutual fund market ranges from zero (completely closed) to more than RMB 100 million (USD 16 million) (partly-closed).[10] As restrictions vary, we categorize all inflow gates into three groups based on the daily purchase limit in each event: (1) *closed gate*, when a fund is completely closed to all investors; (2) *narrow gate*, when the daily investment cap is less than or equal to RMB 100,000 (USD 16,000), signalling the fund is only limited to small purchases; and (3) *wide gate*, when the daily purchase cap is set at more than RMB 100,000 (USD 16,000), e.g., RMB 10 million (USD 1.6 million), aiming to prevent large purchase requests from institutional investors. The focus of our study is to investigate why mutual funds leave the gate partly-closed to investors.

Using our sample funds with 693 inflow restriction events, we first test the *investor protection* hypothesis and find little supporting evidence. Despite their superior past performance, inflow-restricted funds' subsequent return dramatically declines over the year and varies with gate tightness. For example, the average size-adjusted return of narrow gate funds drops from 12% in the quarter before, to an insignificant –0.77% in the quarter after an inflow restriction, worsening to a significantly negative –4.5% in the third quarter after the event. We also construct a propensity score matched sample and find that inflow-restricted funds are not statistically different in alpha to matched peers in the subsequent four quarters, regardless of the restriction level. Further, we find little evidence for the claim that funds use inflows gates to maintain an optimal portfolio. On the contrary, narrow-gate funds significantly shift their investment strategy by bearing greater

[8] Note that fund closures in the US, in most cases, are closing to new investors only (e.g., Chen et al., 2012), while inflow restrictions in China's mutual fund market are applied to all investors. We have more discussions of the differences between fund closures in the US and inflow gates in China in Section 2.

[9] Our setting is also different from fund soft closures in the UK. With a soft closure, the fund generally raises the charges to the highest possible level to stem inflows, or adjusts the minimum investment level that put the fund out of reach for most retail investors. However, few mutual fund studies explore soft closures in the UK setting.

[10] We use the terms purchase limit, purchase cap and investment cap interchangeably in this study.

market risk and leaning toward growth stocks. Not surprisingly, only a closed gate is effective in reducing the fund's liquidity-risk exposure. Overall, our results cast doubt on the 'investor protection' argument that the intention of inflow gates is to maintain superior performance or optimal portfolio.

We find strong evidence consistent with the *marketing ploy* hypothesis. Partly-closed inflow gates are associated with *greater* future fund flows. Specifically, compared to non-restriction periods and other funds, imposing a narrow inflow gate attracts 14% (74%) more money in the quarter (year) following the restriction, controlling for fund characteristics. So do wide gates but to a lesser extent. More strikingly, funds using narrow gates substantially expand their investor base. On average, narrow inflow gates lead to a 45% increase in the number of investors and a 5.8% rise in retail investor ownership, suggesting that narrow inflow gates are effective in attracting more retail clients. This is consistent with retail investors being unsophisticated and often fooled by scarcity marketing. Given that there is little evidence of superior future performance in the inflow-restricted funds, our empirical results suggest that leaving the fund gate ajar to investors is an effective marketing tactic for funds to expand their investor base and increase future flows.

We note that imposing an inflow gate may also divert investor attention to other funds in the same fund family (Zhao, 2004). Yet, we find little evidence of family spillover effects. Additionally, we show the use of narrow gates is not costless. It is associated with a 10% increase in commission paid to fund sales agencies, which may partly offset the benefits of greater inflows brought about by the marketing ploy. However, despite the commission cost, partly-closed gates have become markedly favourable among small- and mini-size funds, which have strong motivations to survive longer after China Securities Regulatory Commission (CSRC) requires to disclose a possible fund liquidation since 2014. This again confirms the marketing role of partly-closed inflow gates to attract investors. As a further extension, we find that the flow-performance

sensitivity significantly diminishes in top-performing funds when a closed gate is in place, implying actual inflows are lower than would be expected given their superior past performance. This finding is important as it helps reconcile difference in the flow-performance sensitivity between the US and Chinese mutual funds.[11]

Overall, our study makes several contributions. First, to the best of our knowledge, this study provides a first look at the discretionary use of inflow gates by mutual funds, which are rarely observed in developed mutual fund markets. We thus add to the nascent literature on mutual fund flow restrictions. Prior studies have speculated on the motives of restricting investor inflows, with limited evidence based on a small sample of fund closures in the US.[12] These motives include fund flow spillover in a family (Zhao, 2004), rent seeking by increasing management fees in the closed funds (Bris et al., 2006), and closing funds to divert flows to cloned funds (Chen et al., 2012). We extend this line of research by offering evidence that, instead of fund closure, restricting investor purchases through partly-closed gates makes the fund stand out and attracts greater fund flows.

Second, our work is related to the literature examining marketing efforts in mutual funds. Previous research confirms the importance of fund advertising (Jain and Wu, 2000), fund recommendation in the press (Reuter and Zitzewitz, 2006) and media coverage of fund holdings (Solomon et al., 2014) for attracting inflows. However, these efforts are often associated with non-

[11] Prior studies find no asymmetric flow-performance relationship or no smart money effect in China's mutual fund market (e.g., Jun et al., 2014; Feng et al., 2014). This is contradictory to evidence on US mutual funds. A potential explanation is that the discretionary use of inflow gates in China's fund market alters the flow sensitivity to top-performing funds. We re-examine the mutual fund flow-performance relation in the presence of inflow restrictions in Section 5.4.

[12] Our sample consists of 693 inflow restriction events among domestic equity funds between 2006 and 2016 in China. As a comparison, the number of fund closing events examined in prior US studies is 228 over 1995–2004 (Chen et al., 2012) and 140 over 1993–2004 (Bris et al., 2006) periods. One reason for the relatively small US sample is that fund closures are not very common. Another reason is that researchers have difficulties in determining the actual closing dates since most fund closures in the US are not publicly announced.

trivial advertising costs.[13] Fund managers may thus turn to less costly marketing channels, such as signalling scarcity by imposing an inflow gate, which we find to be effective in attracting inflows, particularly in a capital market dominated by retail investors.

Third, from a broader perspective, our results have important regulatory implications. Mutual fund managers typically have authority to restrict investor flows in extreme circumstances. For instance, funds limit outflows by imposing a redemption gate, which establishes a maximum proportion of fund assets (e.g., 10%) that can be withdrawn under severe market conditions.[14] In contrast, the scenarios for the use of purchase gates are less clearly articulated. Mutual fund prospectuses in China allow fund managers to restrict or eliminate fund inflows when 'accepting purchase orders would have an unfavorable impact on existing investors' interests'. Therefore, fund managers have incentives to impose inflow gates at their discretion and choose a certain restriction level for the purpose of promoting business and claiming to protect investors' interests. Our findings contradict their 'investor protection' claim and suggest the need for regulatory scrutiny. Coincidentally, some institutional investors in China have recently called for tighter regulation on discretionary inflow restrictions, which, they argue, are detrimental to the development of the fund industry in the long run.[15]

The remainder of this paper proceeds as follows. Section 2 introduces the institutional background of the mutual fund market in China. Section 3 presents the characteristics of inflow-

[13] For example, in the US the average fund family monthly advertising expenditure increased from USD 1.3 million in 1992 to 2.8 million in 2001, accounting for 0.91% of fund family size (Reuter and Zitzewitz, 2006; Gallager et al., 2015). There is a lack of advertising expenditure data in China's mutual fund sector.

[14] In practice, redemption gates have almost never been applied in equity mutual funds either in the US (e.g., Chen et al., 2010) or in China.

[15] 'Discretionary fund purchase limits cause controversy and the industry calls for tighter regulation'. September 23, 2019. *CHINA FUND*. Available at: http://chinafund.stcn.com/paper/zgjjb/html/epaper/index/content_1370352.htm (in Chinese)

restricted funds. Section 4 provides the methodologies and empirical results. Section 5 discusses extensions to our main analyses and Section 6 concludes the paper.

2. Institutional background

Mutual fund managers in China frequently impose inflow restrictions on fund investors. For example, in 2006 and 2007, almost 65% of all domestic equity funds imposed at least one inflow gate that served to prevent or slow down investor purchase requests. This is unsurprising given that the average quarterly flows to domestic equity funds in 2006–2007 is 60% and nearly 10% of fund-quarters experienced more than 151% net inflows.[16] The hectic fund flows are mainly driven by the world's largest retail investor base. At the end of 2007, 9% of domestic equity funds had more than one million investors in each fund, with the largest fund having 3.3 million investors. Therefore, an inflow gate appears to be effective in cooling off the accelerating fund flows, reducing the manager's forced trading at unfavorable prices or preventing the fund from growing too big to be managed efficiently. However, inflow restrictions may be costly in terms of foregone management fees from higher inflows (Chen et al., 2012). Discretionary inflow gates also impair investors' options by limiting the purchase of good performing funds while leaving other obscure funds available. This criticism has become more prominent after fund-of-funds (FOFs) were introduced in China in 2017, as fund managers' discretion to limit investor purchases would adversely affect the development of FOFs. As a result, some institutional investors in China have recently called for tighter regulation on the prevalent use of inflow gates.

While inflow gates in China and fund closures in the US are meant to restrict investor flows, there are important differences between them. First, inflow gates have varying caps. When announcing a *closed gate*, the fund manager expresses a concern about rapid capital influx or large

[16] As a comparison, the domestic equity funds in the US, on average, receive 3%-4% quarterly fund flows (e.g., Chen et al., 2010; Dubofsky, 2010).

fund size and decides to close the fund. In contrast, a *wide gate*, e.g., a daily purchase cap at RMB 1 million (USD 160,000) per investor, may suggest that fund inflow or size is less of a concern for the manager as the fund is still open to most investors (except, perhaps, for large institutional investors). Of particular interest is a *narrow gate*, when the daily investment cap is less than or equal to RMB 100,000 (USD 16,000).[17] Such a restrictive gate only allows small purchases.

We argue that funds impose narrow gates to catch the attention of retail investors and trigger their reactions. An inflow gate signals a fund's scarcity and quality, e.g., a strong level of (past) performance and good stewardship. According to the scarcity marketing strategy, a product will suddenly become more attractive if its supply is limited (e.g., Verhallen and Robben, 1994). A narrow gate also indicates limited investment opportunities in a good performing fund to retail investors because only small purchase orders are accepted.[18] Further, compared to a wide gate, a narrow gate may implicitly indicate a higher probability of a 'hard' fund closure in the near future, suggesting the narrow gate may be for a limited time only.[19] Therefore, retail investors' fear of missing out on a good fund motivates them to respond more intensely to a narrow inflow gate, say, a daily purchase limit of RMB 10,000 (USD 1,600) per person, as opposed to a wide gate set at RMB 1 million (USD 160,000). Given that China has a large retail investor base and the median proportion of retail investor ownership in domestic equity mutual funds is greater than 90%,[20] we

[17] To test the sensitivity of our choice of the cut-off in defining gates, we also conduct all analysis by reclassifying *narrow gate* as having a daily inflow cap of less than or equal to RMB 50,000 (USD 8,000), which is the median value of the gate amount in all inflow restriction events and results (untabulated) remain unchanged.
[18] Though narrow-gate funds do not specify that the intention of the restriction is to discourage institutional investors, the daily maximum purchase limit of RMB 100,000 or less is just too small for institutional investors to squeeze in.
[19] It is widely accepted among the fund investment community that funds have a natural capacity. Managers often find the going tough once their fund exceeds a certain size. From an investor's perspective, an inflow gate may signal that the fund has almost reached its maximum capacity and is likely to shut the door soon. However, based on our observations, few narrow-gate funds would completely close their door. This raises the question of whether a narrow gate is a genuine gate to cap inflows in order to maintain an optimal fund size or a marketing tool to attract investors.
[20] See Table 2 for descriptive statistics of domestic equity funds in China.

expect that a narrow inflow gate, being a signal of both quality and limited supply, has the most pronounced marketing effect.

The second major difference is that fund inflow restrictions in China are much more prevalent than the US. More than half of all domestic equity funds in China's market imposed at least one inflow restriction between 2006 and 2016, while equity fund closures in the US only accounted for a mere 1%–2% of equity funds in each year from 1995 to 2004 (Chen et al., 2012). This setting thus provides us with sufficient observations for empirical analysis. In addition, public announcements of fund closures are rare in the US (Smaby, 1995), making it difficult for researchers to determine the actual event dates (Zhao, 2004; Bris et al., 2006).[21] In contrast, implementation of inflow gates in China's mutual fund market are all publicly announced, providing details on daily purchase cap per investor, starting date and reasons for the inflow restriction. The announcement (or instant message) of an inflow gate potentially provides a channel through which the inflow-restricted fund attracts public or media attention instead of employing costly advertisement. Since the actual restriction dates are available, we are better able to examine the impact of fund inflow gates on subsequent fund performance and flows.

Third, the median duration of fund closures in the US is 20 months (e.g., Chen et al., 2012), as opposed to a median value of 27 days for inflow restriction events in our sample. Around 25% of all inflow gates are for less than a week. Such a short restriction period casts doubt on the effectiveness of an inflow gate in maintaining fund performance or optimal portfolio allocation. Because of the relatively short restriction period, the announcement of an inflow gate in China is typically one or two business days prior, while that of a fund closure in the US is one or two months before the actual closure date (Bris et al., 2006). Taken together, the unique setting of inflow

[21] Researchers examining fund closures in the US mainly search fund closure information from Factiva news archive or call each fund to confirm the dates of closing (e.g., Bris et al., 2012).

restrictions in China's mutual fund market with both completely- and partly-closed fund gates is of interest to academics, investors and foreign fund houses.

3. Data

We obtain a dataset on inflow restriction events in China's mutual fund market for the period 2006–2016 from Wind Information Co. (WIND).[22,23] We also verify the details of all inflow restriction events (e.g., daily purchase cap, starting date and the stated reason for imposing the inflow gate) with public announcements, which are available on the fund information disclosure website of the CSRC and fund companies' websites.[24] Following prior studies of mutual fund closures in the US (e.g., Bris et al., 2006; Chen et al., 2012), we restrict our analysis to domestic equity open-end mutual funds by excluding index, bond and international funds. We also exclude funds with an operating history of less than two years to mitigate incubation bias (e.g., Evans, 2010). The final sample consists of 495 unique equity funds, with 260 of them invoking at least one inflow restriction (a total of 692 events) during the period from January 2006 to December 2016.[25] Fund characteristics are also sourced from WIND. We next summarize the sample of inflow restriction events and characteristics of inflow-restricted funds.

3.1 Descriptive statistics of inflow gates

Figure 1 presents the monthly proportion of fund-day observations with inflow restrictions in our sample, together with the Shanghai Stock Exchange (SSE) Composite Index over the period 2006−2016. As Figure 1 shows, the large proportions of inflow restrictions generally coincide with

[22] WIND is a leading data vendor of financial and economic information in China, with complete data on stock, bonds, funds, derivatives, indices and the macro-economy (See http://www.wind.com.cn/en/data.html).
[23] Although fund inflow restrictions in China are all publicly announced, compiled data of fund inflow restrictions was not available in most mutual fund databases in China until early 2017 when WIND first collated such information.
[24] The information disclosure of all mutual funds in China (since 2010) is available at the CSRC website: http://eid.csrc.gov.cn/fund/disclose/stat_fund_view.html. The events of inflow gates before 2010 are verified by checking fund companies' websites.
[25] The sample presents little survivorship bias because none of the equity mutual funds in China's market ceased operation during the sample period.

rebounds in China's stock market. For example, the yearly distribution of fund inflow restriction events in Table 1 Panel A shows that over 60% of equity funds in 2006 and 2007 announced at least one inflow restriction event. This is unsurprising as the SSE Index increased by 237% in these two years with only a few hundred domestic equity open-end funds operating. Another spike of inflow restriction occurred in early 2015 when the SSE index gained 84% in less than six months from the fourth quarter of 2014. The feverish purchase requests from fund investors in 2015 triggered some 110 inflow gates, accounting for 16% of total events during the whole sample period. In comparison, only seven inflow restriction events occurred during the 2012 bear market. Overall, 52.5% of all domestic equity funds imposed at least one inflow gate (a total of 692 events) during the sample period.

[Insert Figure 1 here]

[Insert Table 1 here]

Table 1 Panel B lists the announced reasons for imposing inflow gates by our sample funds. About three-quarters of all inflow restriction events claim 'to control fund size/maintain fund performance' or 'to protect investor interests'. The remaining events were due to 'heavy-weight stock suspended' (16.9%) and 'fund dividend distribution' (8.1%). Interestingly, since 2009 funds have started to use the same reason 'investor protection' for inflow restrictions. The 'standard' claim accounted for an overwhelming 93% of all inflow gates between 2009 and 2016, suggesting the need to explore more of the underlying motives of restricting investor inflows.

Figure 2 depicts the frequency of daily purchase cap per investor among all inflow restriction events. It demonstrates that daily purchase limits vary from zero to more than RMB 100 million (USD 16 million). Of all events, roughly 46% completely shut the door to all investors (closed gate), while the median daily inflow cap is set at RMB 50,000 (USD 8,000) per investor. Excluding

closed-gate events, the mean (median) daily purchase cap among partly-closed gates is RMB 40,000 or USD 6,360 (RMB 1 million or USD 160,000). An interesting observation is that, fund managers in China tend to set a gate amount starting with the digit '1' or '5' (e.g., 50,000 and 100,000, 5 million and 10 million, etc.), implying that fund managers choose inflow restriction levels at their discretion instead of accurate flow forecasts. Note that when an inflow-restricted fund announces a change in the daily investment cap during its inflow-restricted period (say, from RMB 1 million down to 500,000), we count them as two separate events because different purchase limits may send different signals to fund investors.[26]

[Insert Figure 2 here]

Table 1 Panel C lists the duration of inflow restriction events by gate type. Among all 692 inflow restriction events, 318 (46%) of them completely closed the funds to all investors, and the remaining 374 events either imposed a narrow gate (92 events or 13%) or a wide gate (282 events or 41%). Moreover, the median duration of all inflow restriction events is 27 days with the bottom (top) 10% at 3 (186) days. As a comparison, the median duration of fund closures in the US is 20 months and its minimum value is one month (Chen et al., 2012). This comparison makes it questionable whether such short-term inflow restrictions are effective in protecting investor interests.

3.2 Characteristics of inflow-restricted funds

Table 2 reports mean and median characteristics of inflow-restricted funds and the sample of all domestic equity funds in China. The unit of observation is fund-quarter. Columns (1) – (3) report fund-quarters in which a closed, narrow or wide gate is observed, respectively. Column (4) includes all fund-quarters with no inflow restrictions and column (5) summarizes the overall

[26] See Section 5 for further discussions on flow restriction changes.

sample of all domestic equity funds. On average, fund-quarters with inflow restrictions are larger, deliver higher raw returns and exhibit higher fund flows than fund-quarters with no inflow restrictions. The average total net assets (TNA) of funds with closed gates is RMB 9.8 billion (USD 1.6 billion), which is three times the size of the average fund in the sample. The large size is partly due to massive fund flows before closing the gate. For example, funds with closed gates exhibit an average implied fund flow of 79% (45%) in the event quarter (prior quarter). This compares with an average of 0.12% implied flows for fund-quarters with no inflow gates. In addition, inflow-restricted funds have higher past returns. The average 1-quarter lag raw return of inflow-restricted fund-quarters is in excess of 10.5%, while that of non-restriction fund-quarters is 3.5%. Further, inflow-restricted funds' average stock holding concentration is nearly twice as high as the sample average (e.g., 1.44 for narrow-gate funds vs. 0.88 for all groups), suggesting that their superior past performance may be partly attributable to their highly concentrated portfolios. Overall, the descriptive statistics suggest that managers use inflow gates when anticipate excessive cash inflows rushing into funds after superior past performance.

Comparison of fund characteristics among different gate types also reveals interesting patterns. The mean (median) size of closed-gate funds is almost three times the mean (median) size of narrow- or wide-gate funds. Similarly, the total number of investors in closed-gate funds is higher with a median of 248,170, as opposed to 105,640 and 58,520 in funds with narrow and wide gates, respectively. The average number of stocks in closed funds is 95, which is 1.5 times the number of stocks held in funds of other categories. This is generally consistent with the view that size may be less of a concern for fund managers imposing narrow or wide gates. Moreover, funds with narrow gates differ from others by having the lowest average fundholding of 15,470 units or RMB 27,560 per client. Narrow-gate funds also have the highest top-10 stock weight at 47.33%. Therefore, the descriptive statistics show that partly-closed funds differ from completely closed

funds or other non-restricted funds in observable characteristics. This raises a question regarding the underlying motive of leaving the fund gate partly-closed to investors—a topic we investigate next.

[Insert Table 2 here]

4. Empirical analysis

4.1 Determinants of inflow gates

We start our empirical analysis with investigating the determinants of fund managers' decision to restrict investor inflows through different gates. Drawing upon the supply-demand framework in economics, we assume that the primary forces that influence a fund manager's decision to restrict inflows are (1) concentrated investor demand for investment in the equity fund, and (2) the cost of supplying or selling fund units immediately to investors. From the demand side, when actual or expected purchase requests from investors are high, a fund manager may choose an inflow gate to prevent the fund from growing too big or too fast. Hence, we include observed fund flows as a proxy for realized demand and fund past performance for expected purchase requests.

From the supply side, a fund's asset composition could determine its ability to expand its size or sell fund units to investors. First, funds with concentrated portfolios are more likely to restrict inflows. Highly concentrated portfolios are often associated with better performance (e.g., Kacperczyk et al., 2005), so they may benefit more from stemming an influx of investors' money that could dampen fund returns. More importantly, due to regulatory constraints in China, funds with concentrated portfolios have difficulty in expanding their optimal allocation by investing in existing favorable stocks. Specifically, the so-called 'double ten-percent' rule in China requires that both an individual fund's position and the aggregate positions by all funds within a fund house

in a single listed stock cannot exceed 10% of the total issued shares of that listed stock.[27] We thus expect that funds with more concentrated portfolios, which are captured by the fund's stock concentration ratio and top-10 stock weight, are more likely to impose inflow gates due to concern of return dilution and/or regulatory constraints.

We also consider the possibility that fund managers limit investor inflows because they are not able to generate new investment ideas after the existing opportunities in the market have been fully exploited. This is also one of the possible scenarios listed in mutual fund prospectuses for the use of inflow gates. When there is a lack of investment opportunities, fund managers tend to restrict investor inflows in order to maintain an existing investment strategy rather than adding unfavorable stocks. A large cash reserve in a fund may also suggest that the manager is less willing to invest and awaiting better investment opportunities (e.g., Simutin, 2013). Therefore, we include the total number of the underlying stocks and cash position as proxies for fund managers' ability or willingness to exploit additional investment opportunities. We also include fund age to capture a fund's experience in dealing with large fund flows.[28]

We use a logistic regression model to examine the determinants of inflow restriction. We first model the probability of an equity fund *i* imposing at least one inflow gate in quarter *t* as a function of various fund characteristics. Time (year-quarter) and fund family fixed effects are also included. The findings are reported in Table 3 Panel A. Consistent with the descriptive evidence in Table 2, the results in Table 3 Panel A show that, overall, funds with higher purchase demands, a larger size and a shorter operating history are more likely to impose an inflow gate. As expected,

[27] The 'double ten-percent' rule was applicable during our sample period from 2006 to 2016. In 2017, CSRC revised the stock holding concentration in mutual funds. For example, the aggregate holdings in a particular listed stock by all mutual funds in a fund company cannot exceed 15% of the *total tradable shares* (instead of *total issued shares)* of that listed stock.

[28] Fund expense variable is not included because fund expenses in China are regulated and almost the same across all equity funds. Prior studies do not find any significant effect of fund expenses on fund flows in the China setting (e.g., Jun et al., 2014).

we also find that highly concentrated portfolios (i.e., significant-sized positions in underlying holdings or a large proportion of assets allocated to top-10 stocks) are positively associated with the use of inflow gates.

In order to explore managers' choice of different restriction levels, we further estimate the following multinomial logistic regression model with a categorical dependent variable, $Gate^z$, which captures different inflow restriction levels as revealed by the daily purchase limit:

$$Gate_{i,t}^{z} = \alpha + \beta^{z}\mathbf{X} + \varepsilon_{i,t}, \quad (1)$$

where $Gate_{i,t}^{z}$ equals 0 if fund *i* imposes no restriction, 1 if a closed inflow gate, 2 if a narrow gate and 3 if a wide gate in quarter *t.* **X** is a vector of fund characteristics. Table 3 Panel B presents the multinomial logistic regression results of equation (1), which reveal common drivers of inflow restrictions, including superior past performance, large flows and high top-10 stock weight. We also identify other factors associated with the tightness of inflow gates. For example, results in column (1) show that funds with a larger fund size (*Ln(TNA)*), a higher level of cash reserve and a larger number of stocks tend to use a closed gate. This is consistent with the conjecture that managers of closed-gate funds are concerned with the large fund size and/or lack of investment opportunities in the market. However, fund size is not associated with managers' decision to impose a partly-closed gate, with the coefficients of *Ln(TNA)* in columns (2) and (3) being statistically insignificant. Further, the results in column (3) suggest that younger funds and funds with highly concentrated portfolios and less cash reserves are more likely to enact wide inflow gates. In contrast, compared to other gate categories, narrow-gate funds seem to have the least legitimate reasons (except for the common drivers) to limit investor inflows. In column (2), the decision to impose a narrow gate is not related to predictors like fund size (which indicates whether the fund will achieve its maximum capacity), fund age (which serves as a proxy for managers' experience in dealing with large inflows), or cash reserve (which implies managers' willingness to

invest). This again raises doubt over managers' intention to leave a narrow inflow gate to investors. Overall, our results in Table 3 are consistent with the view that, in general, mutual funds are more likely to restrict investor inflows when facing an imbalance between concentrated investor demand and the cost of immediately supplying fund units to investors.

[Insert Table 3 here]

4.2 Fund performance around inflow restriction events

We next examine the *investor protection* hypothesis, which posits that preventing or slowing down investor inflows enables fund managers to maintain their superior past performance. To do this, we examine fund returns subsequent to purchase limits being placed on investors. Table 4 Panel A reports excess returns around the inflow restriction event quarter t, from $t - 1$ to $t + 4$. Excess return is size-adjusted return, measured as the difference between the raw return of an inflow-restricted fund and the benchmark return. We define the benchmark return as follows. At the beginning of each event quarter, we independently sort all sample funds into quintiles by size (total net asset value) and prior-quarter raw return. We calculate the benchmark return in each quarter as the equal-weighted return of funds that are in the same size and prior performance quintile.

[Insert Table 4 here]

Table 4 Panel A shows that inflow-restricted funds earn significant abnormal returns in the quarter before imposing inflow gates, but their excess returns decline drastically following inflow restrictions. In particular, the average excess return of funds with narrow inflow gates drops from a statistically significant 12% in the quarter before to an insignificant –0.77% in the quarter after the inflow restriction event, further deteriorating to a significantly negative –4.5% in quarter $t +$ 3. Similarly, funds with closed gates earn a 7% excess return in the pre-event quarter, but deliver

a significantly negative return of –2.4% in the $t + 4$ quarter. As for wide-gate funds, their average excess returns in quarters $t + 1$ and $t + 2$ are only half of their pre-event returns.

Following Bris et al. (2006) and Chen et al. (2012), we report in Table 4 Panel B cross-sectional means of time-series averages of quarterly excess returns in the year before and after the event quarter t. We also compare the pre- and post-event excess returns for these inflow-restricted funds. The results clearly show that the excess return of inflow-restricted funds declines dramatically after the event, with the drop ranging from –5.04% to –8.94%. Funds with a closed- or narrow-gate even deliver below-average returns one year after inflow restrictions. In short, despite their superior past performance, inflow-restricted funds all end up with returns being comparable with or even underperforming their size-adjusted benchmarks over the year after imposing inflow gates.

We note that the results in Table 4 could be influenced by benchmark funds that are vastly different from inflow-restricted funds in the sample. Thus a comparison of benchmark-adjusted returns in Table 4 may not be sufficient to fully capture post-event performance differences between inflow-restricted funds and benchmark funds. It is also possible that unobservable fund characteristics may affect both the manager's decision to enact an inflow gate and the fund's subsequent performance. So, the decision to restrict investor flows is an endogenous choice of the fund manager (Aiken et al., 2015). As we cannot observe an inflow-restricted fund's counterfactual (i.e., future performance had the fund not imposed an inflow gate), we instead compare the realized performance of inflow-restricted funds with a control group of funds with similar ex ante observable characteristics but not imposing any inflow gate. We therefore employ a propensity score matching (PSM) approach to select control funds.[29] Specifically, we obtain the

[29] The PSM approach is often used in prior hedge fund studies to examine fund performance after share restrictions (e.g., Hong, 2014; Aiken et al., 2015)

propensity score by estimating the logistic regression used in Table 3 Panel A, Model 2, to predict the probability of imposing an inflow gate with status *z* (a closed, narrow or wide gate) in quarter *t*. Then, for each inflow-restricted or treated fund, we select a control fund from the same event quarter that has the closest propensity score. The control fund is thus matched with the treated fund in each event quarter on ex-ante fund characteristics, including past performance, 1-quarter lag fund flows, fund size, fund age, fund's position in underlying stocks, top-10 stock weight, cash holdings and the number of stocks. Using this matching approach, any subsequent performance differences that we observe between inflow-restricted and control funds are associated with the treatment effect of inflow restrictions.

Table 5 presents the comparison of quarterly and cumulative risk-adjusted return (alpha) between event funds and control funds over four quarters after inflow restriction events.[30] For completeness, we also show the performance in event quarter *t* and quarter *t* – 1. We find that the average performance of inflow-restricted funds, either quarterly or cumulative risk-adjusted return, insignificantly differs from matched funds from quarter *t* + 1 to *t* + 4, regardless of the gate status.[31] The result suggests that inflow-restricted funds neither outperform nor underperform their matched peers after limiting investor purchases. Overall, the findings in Tables 4 and 5 imply that imposing an inflow gate may not necessarily maintain superior fund performance, casting doubt over fund managers' 'investor protection' claim for restricting inflows.

[Insert Table 5 here]

[30] In Table 5, quarterly risk-adjusted return is compounded return based on monthly risk-adjusted return that is estimated as the intercept term plus the monthly residual from Fama-French (1996) three-factor model regressions over the previous 12 months.

[31] Note that since our propensity score matching model includes lagged returns, there is no significant performance difference between inflow-restricted funds and control funds in quarter *t* - 1.

4.3 Changes in risk exposure during the inflow-restricted periods

It is perceivable that fund managers restrict inflows in order to maintain existing investment strategy after a period of high excess returns (Chen et al., 2012). Under certain circumstances, fund managers may have difficulties finding attractive investment opportunities or adding existing favorable stocks to their portfolios. An inflow gate may prevent or slow down investor purchases and thus help managers invest in line with their existing strategy. If these claims are true, we would expect fund managers not to shift their portfolio allocations during the inflow-restricted period. We next verify this potential explanation by examining whether inflow-restricted funds shift risk exposure when a fund gate is in place.

As discussed previously, the public announcements of inflow gates in China allow us to better investigate the impact of inflow restrictions with event dates known. Taking this advantage, we regress in Table 6 Panel B an individual fund's daily excess returns on the Fama-French (1993) three factors plus the Amihud (2002) market-wide illiquidity factor (Model 1) or a momentum factor (Model 2), as well as their respective interaction terms with daily inflow gate status, $Gate^z$, as follows:

$$Daily\ Excess\ Return_{i,t} = a + \beta_1 mkt_t + \beta_2 smb_t + \beta_3 hml_t + \beta_4 liq_t\ (or\ umd_t)$$

$$+ \boldsymbol{\lambda_1^z} Gate_{i,t}^z \times mkt_t + \boldsymbol{\lambda_2^z} Gate_{i,t}^z \times smb_t + \boldsymbol{\lambda_3^z} Gate_{i,t}^z \times hml_t + \boldsymbol{\lambda_4^z} Gate_{i,t}^z \times$$

$$liq_t\ (or\ umd_t) + \delta \times Gate_{i,t}^z + e_{i,t}\ , \qquad (2)$$

where $Gate_{i,t}^z$ is a categorical variable taking values of z = 0, 1, 2, or 3 if fund i imposes no restriction, a closed gate, a narrow gate or a wide gate on day t, respectively. *Daily excess return*

is the fund's daily return in excess of the risk-free rate.[32] Our interest is on coefficients, $\boldsymbol{\lambda}^{z}$, which reflect changes in risk exposures of the inflow-restricted funds when an inflow gate *z* is in place.

[Insert Table 6 here]

Table 6 Panel A summarizes daily risk factor measures for the Chinese market, which are sourced from the China Asset Management Academy.[33] The average market daily excess return (MKT) is 0.09% over the period 2006–2016, suggesting a relatively large risk premium of 21.4% per year in China's stock market, though it is associated with large volatility. The average daily return on the size factor (SMB) and value factor (HML) is 0.09% and –0.01%, respectively, implying a significant return premium of small firms and the dominance of growth stocks in China's stock market. The momentum factor is also associated with a negative daily return of –0.02%.

We find the regression results in Table 6 Panel B striking. The results suggest that narrow-gate funds implement a significantly different investment strategy during their restriction periods. This is in stark contrast to managers' claim that an inflow gate is invoked to 'ensure the smooth operation of the fund'. Specifically, the coefficients on the interaction term, *Narrow gate*×*MKT* (*Narrow gate*×*HML)*, in Models 1 and 2 are all positive (negative) and statistically significant at the 1% level. The finding demonstrates that narrow-gate funds drastically shift their investment allocations by bearing greater market risk and leaning toward growth stocks. Similar shifts are also observed in wide-gate funds but to a lesser extent and only significant at the 10% level in Model 1. Moreover, we find that closed gates help funds reduce their market liquidity risk exposure. The coefficient of *Closed gate*×*LIQ* in Model 1 is negative and significant at the 1% level. A possible explanation is closed-gate funds tend to invest more in large companies during the closing period

[32] The risk-free rate is the daily interest rate on the one-year official deposit rate.
[33] Available at: http://sf.cufe.edu.cn/list4s2.jsp?urltype=tree.TreeTempUrl&wbtreeid=1198

as the coefficients of *Closed gate* × *SMB* are significantly negative in both models. Taken together, Table 6 provides strong evidence that narrow-gate funds significantly shift their allocations during the inflow-restricted periods, which is inconsistent with the *investor protection* claim.

4.4 Future fund flows and investor base following inflow gates

Having shown that inflow-restricted funds do not generate superior fund returns nor make investments in line with their existing strategy, we now test the *marketing ploy* hypothesis. We argue that an inflow gate, in particular a narrow gate, serves as an advertisement signaling both quality and scarcity to potential investors, making it an effective marketing tool to attract fund flows. Given no superior future performance in the inflow-restricted funds, if there are high fund flows and/or expansion of the client base after inflow gates, the results would be consistent with the marketing ploy hypothesis.[34] To examine the impact of inflow gates on future fund flows, we employ a regression framework, which helps control for various factors that may also influence fund flows. The general form of the regression is given by the following equation:

$$Fund\ flow_{i,t+1} = \alpha + \beta^{z} Gate_{i,t}^{z} + \delta \mathbf{F} + \varepsilon_{i,t}, \tag{3}$$

where *Fund flow* is measured in two ways: *Implied fund flow (%)*, which is the commonly used fund flow measure (e.g., Sirri and Tufano,1998),[35] and *Netflow in units (%)*, which is defined as net purchase/redemption of fund units divided by the total fund units at the beginning of a given quarter.[36] We use the categorical variable approach to investigate whether different restriction levels work differently to stem or attract future fund flows. The categorical variable, $Gate_{i,t}^{z}$, takes values of z = 0, 1, 2, or 3 if fund i imposes no restriction, a closed gate, a narrow gate or a wide

[34] We do not test the possibility of rent-seeking that managers increase fee rates after inflow restriction (e.g., Bris et al., 2006). This is because fund management fee is regulated and fixed in China's mutual fund industry. For example, the management fee of domestic active equity open-end mutual funds is fixed at 1.5% p.a. of total net assets.

[35] In this study, *Implied fund flow (%)* over the period t - 1 to t is defined as $\frac{TNA_{i,t} - TNA_{i,t-1} \times (1+RET_{i,t})}{TNA_{i,t-1}} \times 100$.

[36] Specifically, *Net flow in units (%)* is calculated on a quarterly basis as $\frac{Net\ purchase/redemption\ units_{i,t}}{Total\ fund\ units_{i,t-1}} \times 100$.

gate in quarter *t*, respectively. **F** is a vector of fund characteristics, including prior performance, prior flow, fund size and age. A significantly positive (negative) coefficient, β^z, suggests that fund gate *z* attracts (stems) flows, after controlling for fund characteristics. We estimate equation (3) with both time (year-quarter) and fund fixed effects and cluster standard errors at the fund level.[37] Regression results are presented in Table 7. The dependent variable in columns (1) and (3) is *Netflow in units (%)* and in columns (2) and (4) is *Implied fund flow (%).*

[Insert Table 7 here]

Consistent with the *marketing ploy* hypothesis, we find that partly-closed funds are associated with *greater* subsequent fund flows. Specifically, the results in columns (1) and (2) of Table 7 show that funds with a narrow (wide) gate attract 23% (26%) more purchases of fund units or 14% more money in the quarter subsequent to inflow restriction, controlling for fund size, fund age and prior performance. Similar to Jain and Wu (2000), we also include lagged flows and risk-adjusted return in columns (3) and (4). The coefficients of *Narrow gate* and *Wide gate* and the corresponding *t*-statistics are similar to those in columns (1) and (2). In contrast, the negative but insignificant coefficients of *Closed gate* across columns (1)–(4) suggest that closed gates not only stem fund purchases, but also encourage existing investors to stay in the closed funds, resulting in little net redemption. The results are robust to using performance rank and/or an alternative calculation of implied fund flows.[38] Overall, our results in Table 7 demonstrate that funds imposing a partly-closed inflow gate (either a narrow or wide gate) experience significantly larger future flows. Since there is little evidence of superior post-event performance in inflow-restricted funds, a narrow or wide inflow gate seems to play a marketing role in attracting fund flows.

[37] Note that in equation (3), the regression intercept and the fixed effects are combined together and represented by α, which is omitted from the results table for brevity.

[38] Following Bris et al., (2006), we also calculate fund flow as $\frac{TNA_{i,t}-TNA_{i,t-1}\times(1+RET_{i,t})}{TNA_{i,t-1}\times(1+RET_{i,t})}\times 100$ and the results remain (see Table IA1 in the Internet Appendix).

We next explore the source of greater fund flows caused by partly-closed inflow gates. In particular, we examine whether and how inflow gates lead to changes in fund investor base. Do inflow gates attract new money from existing investors or new investors? Are retail investors often fooled by funds' marketing ploy? Taking advantage of the detailed disclosure of investor base in China's mutual funds, we adapt the baseline model in equation (3) by using *Investor base*$_{i,t+1}$ as the dependent variable. *Investor base* is measured in different ways: *Ln(Number of investors)*, *Ln(Average fundholding in units), Ln(Average fundholding in RMB)* and *Retail investor ownership (%).*[39] The coefficient (β^z) on the categorical variable, *Gate*^{z}, is of particular interest, which indicates whether the inflow gate status *z* significantly attracts new investors, changes the average fundholding or increases the retail investor ownership. Table 8 reports the regression results.

[Insert Table 8 here]

We find that announcing a narrow inflow gate has the most pronounced marketing effect. As column (1) of Table 8 shows, when regressing the future total number of investors on different restriction levels of inflow gates, we obtain a significantly positive coefficient on *Narrow gate* (coef. = 0.37, *t*-stat. = 3.68). The coefficient estimate suggests that imposing a narrow inflow gate leads to an average 45% increase in the future number of investors. Given that the average number of investors in domestic equity funds is around 148,000, such a huge increase is fairly driven by new retail investors. Correspondingly, in columns (2) and (3), we document a significant drop in the average fundholding when a narrow gate is enacted. Narrow gates are associated with a 22% or RMB 12,760 (USD 2,028) decrease in the average fundholding per investor, statistically significant at the 1% level. This confirms that the increased number of fund investors documented in column (1) is mainly caused by a substantial increase in new retail investors with small

[39] Note that information on investor base is disclosed every six months in fund semi-annual and annual reports. The dependent variable, $Investor\ base_{i,t+1}$, is thus the next available reported number after inflow restriction event in quarter *t*.

purchases, which dilute the average fundholding. We find further evidence of increased retail client base in column (4). It shows that the average retail investor ownership in narrow-gate funds increases by 5.8% following the inflow restriction, statistically significant at the 10% level. In stark contrast, neither a closed gate nor wide gate results in any significant change in their investor base. For robustness, we re-run the regressions in Table 8 by including lagged performance rank or lagged risk-adjusted returns and the results are unchanged.[40] In sum, Table 8 provides strong evidence supporting the *marketing ploy* hypothesis. Funds announcing a narrow inflow gate, which broadcasts both quality and scarcity of the fund, are able to expand their investor base and attract more retail clients.[41]

A follow-up question is whether the marketing effect of inflow restrictions is short-lived or long-lasting. To find out, we regress the post-event 4-quarter cumulative excess fund flow on the type of inflow gates, $Gate_{i,t}^{z}$, and other fund characteristics. Excess fund flow is median-adjusted flow, measured in a similar way as excess return in Table 4, except that the benchmark is the median flow of funds in the same size and past-performance quintile. The regression results are shown in Table 9, with cumulative excess flows in units in Panel A and cumulative excess implied fund flows in Panel B.

[Insert Table 9 here]

Table 9 shows that, regardless of the flow measure, partly-closed gates are associated with significantly larger fund flows for as long as one year after the inflow restriction. The most noticeable increase in future flows occurs in narrow-gate funds, which are associated with a 140% (74%) increase in cumulative fund units (fund RMB) over the subsequent four quarters, both

[40] See Table IA2 in the Internet Appendix.

[41] Note that it is highly unlikely for institutional investors to invest in a fund with a narrow inflow gate (0 < daily investment cap ≤ RMB 100,000). Therefore, a narrow gate would prevent any dramatic increase in institutional ownership.

statistically significant at the 1% level. This finding has an intuitive explanation. Retail investors are unsophisticated and fairly insensitive to poor performance (e.g., Sirri and Tufano, 1998; Chevalier and Ellison, 1997; Huang et al., 2007). It is expected that they are often fooled by scarcity marketing and are less likely to withdraw even if the fund's return deteriorates after imposing an inflow gate, bringing in enhanced fund flows for as long as one year subsequent to the restriction event. We also re-run the test using different measures of fund returns and/or fund raw flow measures and find similar results.[42] Therefore, the results in Table 9 provide further evidence supporting the *marketing ploy* hypothesis that funds leave a partly-closed gate to investors in order to attract future fund flows.

4.5 Inflow restriction and family spillover effect

Fund houses may limit investor purchases in a particular fund in order to divert investors' attention to other funds in the same fund family (e.g., Zhao, 2004). In order to test this alternative motive of placing inflow gates, we examine the impact of inflow restrictions on future fund flow and investor base of other non-restriction funds in the same family.

We first identify inflow restriction activities at the family level. We construct an indicator variable, *Family closed (narrow or wide) gate*, which equals one if a non-restriction fund *i*'s family imposes at least one closed (narrow or wide) inflow gate on other family equity funds in quarter *t*, and zero otherwise. In addition, we expect that the family spillover effect, if any, would be greater when an inflow gate is imposed on a flagship fund. This is because flagship or top-performing funds are more visible in the press and investors may believe that the good governance in the flagship fund is likely to spill over to other funds in the same family. We identify flagship funds if a fund's raw return in the year before the restriction event was ranked at the top quintile among

[42] See Table IA3 in the Internet Appendix.

the universe of all equity funds in the market. We thus construct an indicator variable *Flagship closed (narrow or wide) gate*$_{i,t}$ if (1) a non-restriction fund *i*'s family has a flagship fund, and (2) this flagship imposes a closed (narrow or wide) inflow gate in quarter *t*. In a similar vein, *Non-flagship closed (narrow or wide) gate* is identified if a non-flagship fund in the family imposes a closed (narrow or wide) inflow gate. Since we are interested in the spillover effect of an inflow gate to the rest of the fund family, inflow-restricted funds are all excluded from the full sample. The test sample thus includes 235 unique equity funds that have never imposed any inflow gate during our sample period.

We model future fund flows (investor base) of non-restriction funds in a fund-level regression using the following specification:

$$Fund\ flow_{i,t+1}\ or\ Investor\ base_{i,t+1} =$$

$$a + \beta \times Family\ closed\ (narrow, wide)\ gate_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}, \quad (4)$$

where *Family closed (narrow, wide) gate* is an indicator variable, which takes the value of one if non-restriction fund *i*'s family imposes at least one closed (narrow, wide) inflow gate on other family equity funds in quarter *t*, and zero otherwise. The dependant variables, *Fund flow* and *Investor base*, are as defined in Tables 7 and 8. **X** is a vector of fund- and family-level control variables: *Ln(Fund TNA)*, *Fund return, Fund age, Ln(Family TNA)* and *Family performance*. Following Zhao (2004), we calculate family-level variables by excluding values of the specific fund under consideration. For example, *Family performance*$_{i,t}$ is the asset-weighted average of the quarterly raw returns of all other equity funds (excluding fund *i*) in the same family in quarter *t*.

Table 10 Panel A reports results of regressing non-restriction funds' future flows (columns 1 and 2) and investor base (columns 3 to 5) on their family funds' inflow restriction activity. The coefficients on *Family closed gate* and *Family narrow gate* are statistically insignificant across all

model specifications, suggesting that a potential spillover on other family funds is not a primary driver for the decision to impose a closed or narrow gate. Nevertheless, imposing a wide gate, aiming to prevent large purchases from institutional investors, brings an average of 7.8% greater fund flows and 2.2% higher institutional ownership to other family members in the quarter subsequent to the restriction event, controlling for various fund- and family-level characteristics.

We further examine whether the spillover effect documented in Table 10 Panel A is driven by inflow-restricted flagships. We adapt the model in equation (4) by employing *Flagship closed (narrow or wide) gate* and *Non-flagship closed (narrow or wide) gate* as the test variables. Consistent with Table 10 Panel A, the results in Panel B show that closed or narrow gates do not result in any family spillover effect regardless of whether the inflow-restricted family fund is a flagship. Additionally, the significantly positive coefficient of *Flagship wide gate* and the insignificant *Non-flagship wide gate* indicate that wide gates create family spillovers only when they are enacted on top-performing funds. Nevertheless, such a spillover effect only lasts for a fleeting moment and disappears from quarter $t + 2$ onwards.[43] To summarize, the results in Table 10 suggest that, in general, inflow gates do not succeed in diverting investor attention to other funds in the same fund family. Even though imposing a wide gate on a flagship fund may help attract more investment from institutional investors in other family funds, it is, at best, a short-lived effect.

[Insert Table 10 here]

[43] See Table IA4 in the Internet Appendix.

5. Extensions

5.1 Potential costs of imposing inflow gates

If imposing a narrow inflow gate attracts retail investors and future flows, one natural question to ask is why would all good performing funds not do that? A plausible explanation is that attracting and/or maintaining retail investors is not costless. Mutual fund products in China are sold via two channels: (1) direct channel, such as fund companies' website or mobile app, and (2) sales agencies, e.g., banks, stock brokers, third-party online fund sales platform, etc.[44] According to Asset management Association of China (AMAC), mutual fund sales in 2010 via agents accounted for 69% of total sales in China's fund sector.[45] Therefore, fund sales agencies in China have great bargaining power to charge a high commission (on average, 21%) from management fees received by funds.[46] If narrow-gate funds attract more retail investors who purchase the fund via agents, the benefits arising from greater flows could be partly offset by a larger amount of commission fees.

[Insert Table 11 here]

In this section, we investigate the potential cost associated with the use of inflow gates. We first report annualized sales commission fee at the fund level in both RMB (in million) and percentage of management fees in Table 11 Panel A. On average, our sample funds pay RMB 8 million (USD 1.2 million) or 22% out of their management fees to sales agencies annually. Interestingly, narrow-gate funds pay the highest commission rate among all inflow-restricted funds

[44] At the end of April 2014, there were 238 mutual fund sales agencies registered in China's market, consisting of 95 banks, 98 stock brokers and 45 others. Source: List of fund sales agencies (April 2014) – CSRC. Available at: http://www.csrc.gov.cn/pub/csrc_en/participants/FundsRelatedList/FundSalesAgencies/201405/t20140509_248746.html (in Chinese).
[45] Available at: http://finance.sina.com.cn/zl/2018-06-21/zl-ihefphqk7038602.shtml (in Chinese).
[46] According to AMAC, the amount of sales commissions in China's mutual fund sector is RMB 12.85 billion (USD 2 billion) in 2018, accounting for 21% of management fees. Available at: https://www.amac.org.cn/researchstatistics/publication/cbwxhsy/202003/t20200302_6710.html (in Chinese).

when the gate is in place, with the median rate at 20% as opposed to 16% in closed-gate and wide-gate funds.[47]

Next, we regress fund sales commission (%) on different gate status and other fund characteristics. The regression results in Table 11 Panel B are consistent with the notion that smaller, younger funds and funds with poorer past performance and lower fund flows are spending more marketing efforts and thus associated with higher sales commission rate.[48] Of particular interest is the significantly positive coefficient on *Narrow gate* (coef. = 2.04, *t*-stat = 2.19). The estimate suggests that the use of narrow inflow gates is associated with a 10% increase or an additional RMB 1 million (USD 0.16 million) annual commission at the fund level paid to sales agencies, controlling for fund size, age, past performance and flows. We also add family-level controls in column (2) and the inferences are unchanged.

The findings in Table 11 have two implications. First, the use of narrow gates is not costless. Note that most institutional investors do not use agents to purchase fund products. Also, there is no commission cost to the fund if retail investors buy the fund via direct channels. We show in Section 4.4 that narrow gates attract more fund flows that are mainly from retail investors. But, if a majority of these retail investors purchase fund units via agents, a non-trivial portion of the benefits (e.g., on average, 22%) from greater fund inflows is transferred to sales agents. Given that 10% of our sample funds are paying more than 40% of their management fees to sales agents as commissions, attracting more retail investors via a narrow gate may not be a sound marketing strategy for all good performing funds. Second, if fund managers impose inflow gates for marketing purposes, they may also pay higher commissions to sales agencies, which can further

[47] Note fund sales commissions in our sample differ from 12b-1 fee in the US. The commissions in China's fund market are not levied on fund assets. They are paid by funds from the management fees funds received.
[48] Note that the number of observations in Table 12 is less than that of the full sample in Table 2. This is because the amount of fund sales commission was not disclosed in fund financial reports until the end of 2008.

convey such information among potential investors and help aggressive marketing of the fund. This is also consistent with the view that highly compensated intermediaries (i.e., fund advisors, brokers) help portfolio managers exploit naïve customers (Stoughton et al., 2011; Christoffersen et al., 2013). Therefore, the results in Table 11 lend further support for the *marketing ploy* hypothesis.

5.2 Partly-closed gates in small funds

In this section, we explore a potential motive of small funds imposing partly-closed gates. Intuitively, funds with a small size would not impose inflow gates as they are far from reaching their capacity. If performance is good, small funds should be happy to see more investor purchases. However, nearly 12.5% of the inflow-restricted fund-quarter observations have their fund size ranked at the bottom quintile of the full sample. Further, the proportion of these small size funds among inflow-restricted funds increased from 3% in 2013 to 9% in 2014 and 19% in 2016 (untabulated). This seems counterintuitive as small funds should not cap inflows when facing growing competition. In fact, this trend coincides with the mandatory disclosure of 'mini-size' funds required by CSRC (CSRC [2014] No. 104) starting from August 2014.[49] Specifically, CSRC requires that a fund must disclose in its financial reports if (1) the fund size is below RMB 50 million (USD 7.8 million), or (2) the number of investors is less than 200, for 20 consecutive business days. In addition to the disclosure requirement, if either of the two fund conditions lasts for at least 60 consecutive business days, the fund has to file with CSRC a planned solution (e.g., change fund types, merge with other funds, or even liquidate). In other words, such disclosure indicates a high probability of fund liquidation. It is also accompanied by a heading in a negative tone – "*Warning about the fund size or number of holders*". Therefore, we expect that managers

[49] Available at: http://www.csrc.gov.cn/pub/zjhpublic/G00306201/201407/t20140711_257656.htm?keywords= (in Chinese)

of small or mini funds have strong motivations to attract inflows or stem outflows in order to avoid disclosing such a 'warning'. This is grounded on the conclusive evidence from financial disclosure studies that managers tend to withhold reporting bad news (see e.g., Healy and Palepu, 2001).

Given that no redemption gate has been observed in our sample, we conjecture that partly-closed inflow gates could give small funds a helping hand to attract investor flows and survive longer due to its marketing effect.[50] We thus examine whether the CSRC requirement to disclose a possible fund liquidation increases the likelihood of small funds imposing partly-closed inflow gates. We estimate a logistic regression of the following specification using a sample of observations covering two years before and after the effective date of CRSC [2014] No.104:

$$\Pr(partly\ close = 1) = \beta_1 Treat + \beta_2 Post + \gamma Treat \times Post + \delta Controls, \quad (5)$$

where the dependent variable is an indicator variable which equals 1 if a fund announced at least a partly-closed gate (either a narrow or wide gate) in a quarter, and 0 otherwise. *Treat* is an indicator variable which equals 1 if (1) the fund is close to the alert threshold as indicated by the beginning-of-quarter fund size being lower than RMB 60 million or the number of investors being less than 300 (Model 1), or (2) the fund size is ranked at the bottom quintile among the universe of all equity funds at the beginning of a quarter (Model 2), and 0 otherwise. *Post* is an indicator variable which equals 1 for quarters ending on or after the third quarter in 2014 when CSRC [2014] No. 104 became effective. Fund and family characteristics are the same as in our main tests. Time (year-quarter) and fund indicators are also included. The coefficient of interest in equation (5) is γ

[50] Though hedge fund studies have identified that redemption restrictions help fund survival, redemption restrictions have never been observed in our mutual fund sample. One possible explanation is that the implementation of redemption gates may lead to investor outrage over being unable to access their capital and have a detrimental impact on fund family reputation (Aiken et al., 2015). In addition, from the theoretical perspective, redemption gates may cause pre-emptive runs that would not otherwise occur (Cipriani et al., 2014; Lenkey and Song, 2016). Further, the use of redemption gates is much less discretionary than inflow gates. For instance, according to fund prospectuses, funds can limit outflows by imposing a redemption gate when at least 10% of fund assets are withdrawn. Therefore, one way for small- and mini-size funds to survive longer is to spend more marketing efforts to attract investors.

on *Treat* × *Post*, which captures the change in the probability of small funds using partly-closed gates following CSRC [2014] No. 104.

[Insert Table 12 here]

Table 12 presents the regression results. As expected, the negative coefficient on *Treat* in Model 1 (coef. = –3.82, *t*-stat = –7.44) suggests that mini-size funds are generally not expected to impose inflow gates. However, the coefficient γ on *Treat* × *Post* is positive and statistically significant (coef. = 4.33, *t*-stat = 9.32). This implies that, in order to avoid liquidating the fund under the CSRC [2014] No. 104, mini-size funds are more likely to impose partly-closed gates, which we find in Section 4.4 to be effective in attracting fund flows and thus helping the mini-size funds survive longer. Our inferences are unchanged in Model 2 when *Treat* is coded as the bottom-quintile-size funds. The coefficients on other control variables are consistent with the determinants of inflow gates in Table 3. Again, Table 12 confirms the marketing role of partly-closed inflow gates, which have become markedly favourable among small- and mini-size funds in order to stay operating.

5.3 Inflow restriction changes

In our main analysis, we treat each inflow gate announcement as a separate inflow restriction event. This is because different purchase gap may send different signals to investors. Though not very common, funds may announce two or more consecutive inflow gates with an increase or a decrease in the restriction level. Therefore, in this section we consider the effects of inflow restriction changes.

We first classify changes in the restriction levels of an inflow-restricted fund within a particular quarter into (1) *Decrease*, if the daily purchase cap loosens (e.g., from RMB 10,000 to 50,000 per investor), (2) *Increase*, if the daily purchase limit tightens (e.g., from RMB 1 million

to 10,000), and (3) *No change*, if only one restriction level imposed. We then compare the average size-adjusted return, risk-adjusted return and abnormal flow one quarter before and after inflow restriction changes in Table 13.

[Insert Table 13 here]

We find little impact of restriction changes on fund abnormal return or flow, with the pre- and post-change differences all statistically insignificant. Nonetheless, we call for caution in interpreting the effects of restriction changes due to a small number of observations. As shown in Table 13, decreases (increases) in inflow restrictions account for only 2.6% (4.3%) of all inflow-restricted fund-quarter observations.[51]

5.4 Inflow gate and fund flow-performance sensitivity

As a further extension of our analysis, we examine the effect of inflow restrictions on the flow-performance relation. Early studies find no asymmetric flow-performance relationship or smart money effect in China's mutual fund market (e.g., Jun et al., 2014; Feng et al., 2014). This is contradictory to evidence on US mutual funds. Despite differences in capital market characteristics and investor base between China and the US, a potential explanation is that the discretionary use of inflow gates in China's fund market alters the flow sensitivity to good performing funds. We therefore re-examine the mutual fund flow-performance relation in the presence of inflow restrictions, which are rarely observed in developed fund markets and largely ignored in prior Chinses mutual fund studies.

[51] We can also classify restriction changes based on the three gate categories used in our main analysis. For example, a narrow gate is tightened (loosened) to a closed (wide) gate. However, such observations are even rare. Only 6 (9) out of 155 narrow gate fund-quarters changed to closed (wide) gate. Therefore, we report restriction changes in Table 13 based on the changes in purchase limits instead of gate categories.

We posit that the flow sensitivity to good performing funds would be dampened when purchase limits are placed on fund investors. We first explore the baseline flow-performance sensitivity for three ranges of past returns (funds with low-, mid-, and high-range past returns) in column (1) of Table 14.[52] The baseline flow-performance relation for all domestic equity funds shows that better performing funds command a disproportionately larger amount of fund flows, while investors fail to flee from the poorest performing funds. The coefficients on high, mid and low performance in column (1) are 10.0 (*t*-stat = 4.46), 2.4 (*t*-stat = 4.76) and 1.5 (*t*-stat = 0.59), respectively.

[Insert Table 14 here]

We next examine how inflow restrictions affect the shape of the flow-performance relation for individual funds. We re-run the model in column (1) by adding interaction terms of performance range with an indicator variable, *Inflow gate*, which equals 1 for funds imposing at least one inflow gate in the prior quarter, and 0 otherwise. Column (2) shows that the flow sensitivity for top-performing funds nearly vanishes when the gate is in place. The coefficient on *Inflow gate* × *High Perf* is –14.22, significant at the 5% level, compared to 11.53% for top-performing funds without any inflow gate. This suggests the actual inflows are much lower than would be predicted in the inflow-restricted top-performing funds given their superior past performance. We also employ the categorical variable approach in column (3) to further examine the impact of different inflow restriction levels on the flow-performance relation. As expected, for top-performing funds imposing a closed gate or wide gate, the flow sensitivity significantly diminishes. However, the sensitivity to top-performing funds is not attenuated by the imposition

[52] Following Sirri and Tufano (1998), fund performance is divided into three unequal groups. The bottom performance group (*Low Perf*) is the lowest quintile of performance, defined as Min(Rank, 0.2). The middle three performance quintiles are combined into one group (*Mid Perf*) defined as Min(0.6, Rank – Low Perf), and the highest performance quintile (*High Perf*) is defined as Rank – (Low Perf + Mid Perf).

of a narrow gate. Rather, the coefficient on *Narrow gate* × *Low Perf* is significantly positive. The results thus imply a potential marketing effect of announcing 'scarcity' of the fund. Overall, we provide evidence that the presence of inflow restrictions dampens the estimated flow sensitivity of the top-performers. Our findings also help reconcile the difference in the flow-performance sensitivity between the US and Chinese mutual funds.

6. Conclusions

This study explores the discretionary use of inflow restrictions by mutual funds. Utilizing a unique sample of Chinese funds imposing inflow gates with varying caps, we show that partly-closed gates are associated with greater future fund flows and a larger retail investor base. Specifically, narrow inflow gates on average bring in 74% more money over the year subsequent to the restriction event and expand the number of investors by 45%. Our results confirm the anecdotal observations that imposing narrow inflow gates is for marketing purposes.

We rule out other alternative motives of restricting fund inflow. Contrary to managers' claim, we find little evidence that funds impose inflow gates to effectively maintain superior fund performance or existing investment strategy. Despite earning superior past performance, inflow-restricted funds do not outperform the benchmark or matched peers in size-adjusted or risk-adjusted return subsequent to the inflow restriction. We also find that narrow-gate funds drastically shift their allocations during the restriction period by bearing greater market risk and tilting toward growth stocks. These results are inconsistent with the hypothesis that inflows are capped to protect investor interests. Further, there is little family spillover effect by restricting a fund's inflows. Therefore, we provide an important piece of new evidence contributing to the mutual fund literature that, leaving the fund gate ajar to investors appears to be a marketing tactic rather than investor protection, particularly in an emerging market dominated by retail investors.

Additionally, we show that the use of narrow gates is associated with a higher sales commission, which may partly offset the benefits of greater inflows brought about by the marketing ploy. We further extend our analysis to re-examine the flow-performance relation in the presence of inflow gates, which we find significantly dampen the estimated flow sensitivity of the top-performing funds. Overall, our findings demonstrate that discretionary inflow restrictions are an important feature in mutual funds. As an exploratory study of inflow gates, we confine our sample to equity funds. It is a promising area for future research that investigate whether the intention of imposing inflow gates differs in bond funds or money market funds.

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Figure 1. Inflow gates and Shanghai Composite Index

This figure presents the monthly proportion of fund-day observations with inflow gates in our sample, together with the Shanghai Stock Exchange (SSE) Composite Index over the period 2006−2016. The full sample includes 495 unique equity funds. The solid line represents the proportion of aggregated fund-day observations with investor inflow gates in each month. The dotted line is SSE Composite index.

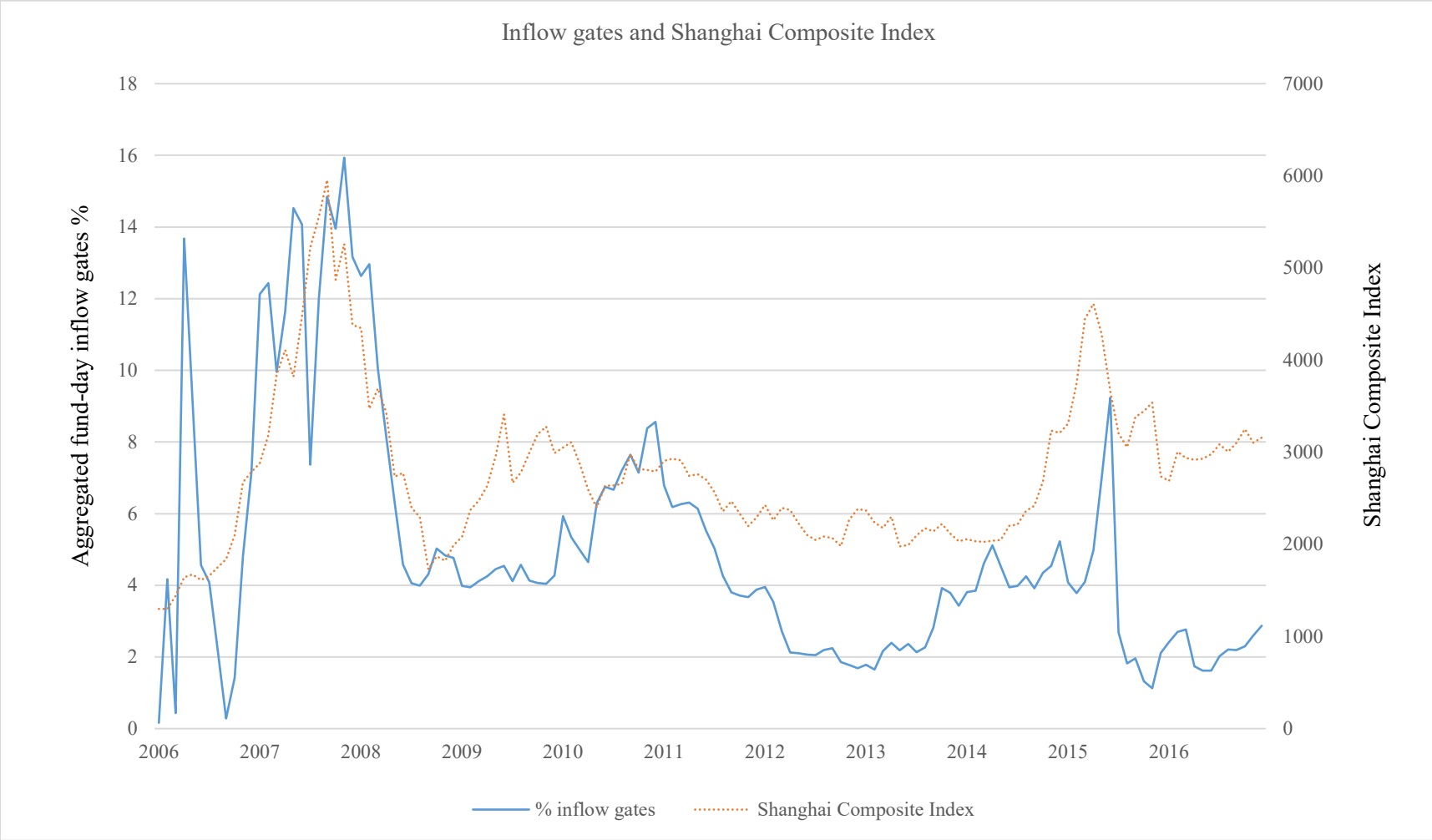

Figure 2. Histogram of daily purchase cap in inflow restriction events

This figure depicts the distribution of inflow gate cap in our sample. Gate amount or daily investment cap is the daily purchase cap in thousands RMB per investor imposed on investors in each inflow restriction event.

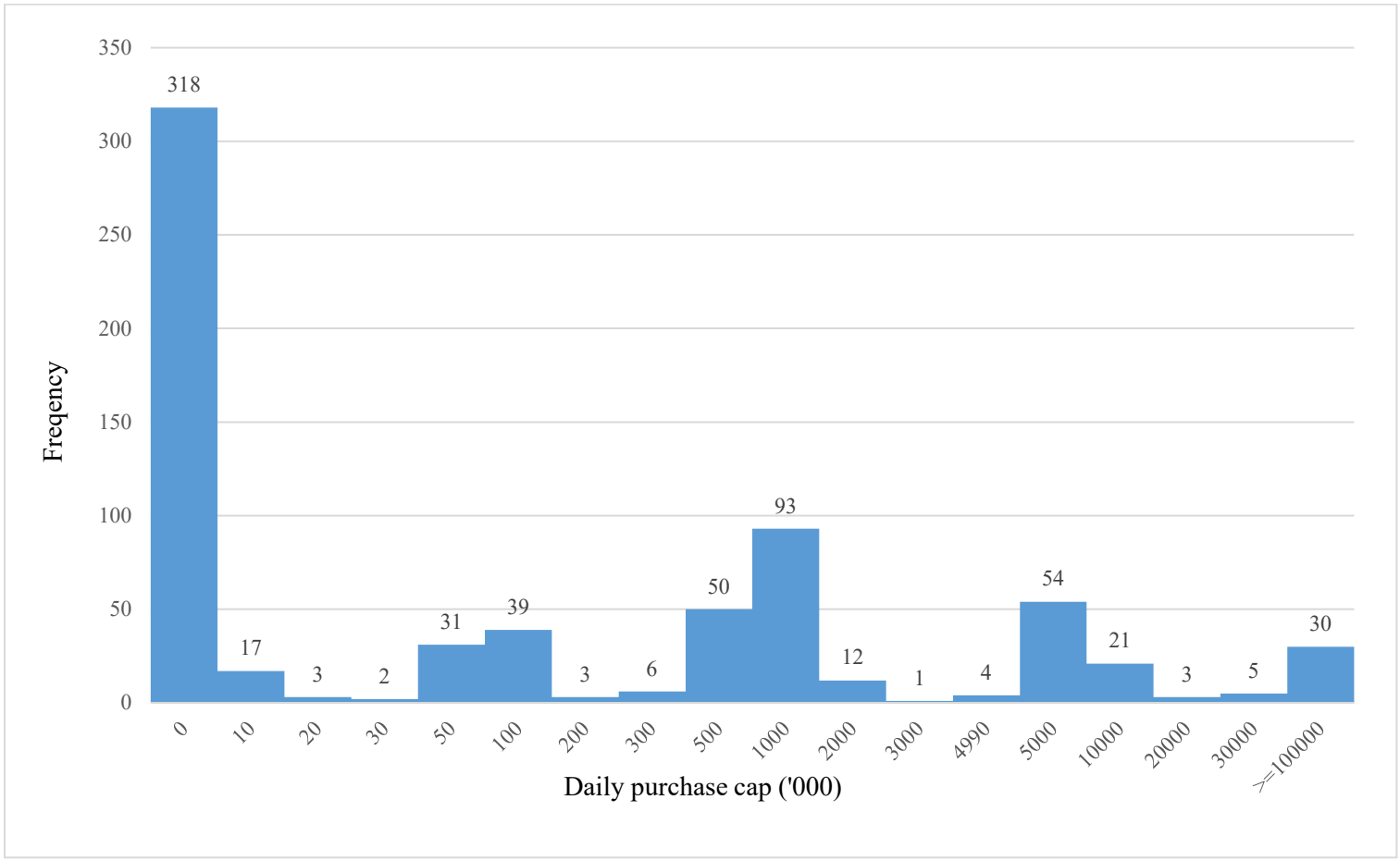

Table 1. Descriptive statistics of inflow restriction events

Panel A reports the number of equity funds at the end of each year and the frequency of inflow restriction events by year over the sample period 2006–2016. Panel B lists the stated reasons for inflow gates by fund managers in the announcements. Panel C reports the duration of inflow restriction (in days) by different levels of gate amount, which is the daily purchase cap in thousands RMB per investor per trading day.

Panel A. Frequency of inflow gate events by year

Year	# of equity funds	# of events	# of funds with at least one event	% of funds with at least one event	% change in SSE index
2006	95	125	67	70.5	114.5
2007	163	151	99	60.7	57.3
2008	197	14	13	6.6	–54.6
2009	236	19	16	6.8	50.2
2010	288	59	36	12.5	–8.6
2011	338	48	11	3.3	–21.1
2012	394	25	7	1.8	4.0
2013	427	33	29	6.8	–14.8
2014	468	65	46	9.8	57.9
2015	495	110	70	14.1	–14.7
2016	495	43	33	6.7	15.4
All	495	692	260	52.5	

Panel B. Stated reasons for inflow gates

Stated Reasons	Freq.	Percent
1. Fund dividend distribution	56	8.09
2. To control fund size/maintain fund performance	82	11.85
3. Heavy-weight stock suspended	117	16.91
4. To protect investor interests	437	63.15
Total	692	100

Panel C. Duration of inflow gate (in days)

	# of events	mean	p10	median	p90
Closed gate (*Daily purchase cap = 0*)	318	80	3	25	130
Narrow gate (*0 < Daily purchase cap ≤ RMB 100,000*)	92	101	11	36	230
Wide gate (*Daily purchase cap >RMB 100,000*)	282	83	1	21	236
Total	692	84	3	27	186

Table 2. Fund characteristics and inflow restrictions

This table reports the mean and median value of various characteristics of flow-restricted funds and of the full sample. The unit of observation is fund-quarter. Columns (1), (2) and (3) are for fund-quarters in which a closed, narrow and wide gate is observed, respectively. Column (4) includes all fund-quarters in which no restrictions are imposed and column (5) reports on all fund-quarters of the full sample, *TNA* is a fund's total net assets measured in millions of RMB. *Fund age (years)* is the number of years from a fund's inception day to the beginning of the flow restriction quarter. *Netflow in units (%)* is calculated on a quarterly basis as $\frac{Net\ purchase/redemption\ units_{i,t}}{Total\ fund\ units_{i,t-1}} \times 100$. *Implied fund flow (%)* is calculated on a quarterly basis as $\frac{TNA_{i,t}-TNA_{i,t-1}\times(1+RET_{i,t})}{TNA_{i,t-1}} \times 100$. *Fund raw return (%)* is quarterly fund return. *Number of investors (in '000)* is the total number of investors (in thousands) in a fund. *Ownership by retail investors (%)* is the proportion of total net assets in a fund owned by retail investors. *Average fundholding in units ('000)* is the average number of fund units (in thousands) held by each investor. *Top-10 weight (%)* is the total weight of the ten largest stocks position. *Stock holding concentration* is the value-weighted ratio of a fund's holding in individual stocks relative to the total market value of those stocks. *Number of stocks* is the total number of stocks in a fund's equity portfolio. *Cash holdings (%)* is cash reserve as a percentage of total net assets in a fund. *Alpha (%)* is compounded return based on monthly risk-adjusted return estimated as the intercept term plus the monthly residual from Fama-French three factor model regressions over the previous 12 months.

	(1) Closed gate *(Daily purchase cap = 0)*		(2) Narrow gate *(0 < Daily purchase cap ≤ RMB 100,000)*		(3) Wide gate *(Daily purchase cap > RMB 100,000)*		(4) No gate		(5) All groups	
	mean	median	mean	median	mean	median	mean	median	mean	median
TNA (in RMB million)	9851.24	7708.82	3546.86	2939.47	3839.92	2758.90	2915.08	1616.74	3166.43	1730.78
Fund age (years)	3.40	3.01	4.65	3.84	4.20	3.52	4.73	4.26	4.67	4.17
1-quarter lag fund flow in units (%)	95.46	–2.77	28.93	–2.23	15.02	–2.04	4.60	–3.54	8.02	–3.47
Fund flow in units (%)	156.19	–2.48	25.23	–2.38	47.38	–0.66	2.55	–3.43	9.01	–3.35
1-quarter lag implied fund flow (%)	45.21	–3.67	41.13	–2.36	13.05	–2.98	0.92	–3.89	3.14	–3.85
Implied fund flow (%)	78.91	–2.99	33.29	–2.04	32.51	–2.02	0.12	–3.75	3.99	–3.69
1-quarter lag fund raw return (%)	10.68	5.69	15.77	12.57	10.54	8.92	3.45	1.71	4.05	1.99
Fund raw return (%)	8.46	5.69	6.21	5.59	9.96	6.00	3.25	1.35	3.66	1.57
Number of investors (in '000)	492.75	248.17	156.55	105.64	129.32	58.52	137.09	54.88	148.05	57.16
Ownership by retail investors (%)	83.89	95.26	78.54	84.47	69.08	75.82	82.12	90.70	81.71	90.47
Average fundholding in units (in '000)	31.09	21.87	15.47	12.36	37.33	23.47	46.30	23.00	45.18	22.88
Average fundholding in RMB (in '000)	44.38	29.41	27.56	23.32	73.59	33.87	58.17	25.54	57.88	25.82
Top-10 weight (%)	37.32	36.06	47.33	45.33	42.52	42.71	39.93	39.12	40.02	39.21
Stock holding concentration	1.73	1.40	1.44	1.17	1.56	1.19	0.82	0.53	0.88	0.57
Number of stocks	95.43	73.00	62.03	50.00	63.39	51.00	63.40	50.50	64.37	51.00
Cash holdings (%)	11.67	9.26	10.31	8.77	10.13	7.88	11.72	9.76	11.65	9.66
Alpha (%)	2.41	1.75	1.88	1.31	1.96	1.78	0.78	0.41	0.88	0.50
# fund-quarters	410	410	155	155	428	428	12286	12286	13279	13279

Table 3. Determinants of inflow gates

This table presents the logistic regression results for determinants of imposing inflow gates by equity funds (Panel A) and determinants of different gate types (Panel B). In Panel A, the dependent variable takes the value of one if an equity fund announces at least one inflow restriction event in a given quarter, and zero otherwise. In Panel B, a multinomial logistic regression is performed. The dependent variable in a given quarter is a set of four choices: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). All independent variables are as defined in Table 2. Time (year-quarter) and fund family fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Logistic regression estimates

Dependent variable: Inflow gate (1= at least one inflow restriction event in a given fund-quarter)		
	(1)	(2)
Fund return	0.0426***	0.0411***
	(6.43)	(6.45)
Implied fund flow	0.0008**	0.0012**
	(2.10)	(2.48)
Ln(TNA)	0.2725***	0.1035
	(3.10)	(1.14)
Fund Age	–0.0951**	–0.0815*
	(–2.00)	(–1.65)
Stock shareholding concentration		0.2497***
		(3.06)
Top ten weight		0.0268***
		(3.67)
Cash holdings		0.0007
		(0.09)
Number of stocks		0.0034*
		(1.89)
Constant	–6.5221***	–4.8113***
	(–3.77)	(–2.74)
Time fixed effect	Yes	Yes
Fund family fixed effect	Yes	Yes
Pseduo-R^2	0.22	0.23
N	12780	12780

Panel B. Multinomial logistic regression

	Dependent variable: Inflow gate (0,1,2,3)		
Reference category: No inflow gate	(1) Closed gate (Daily purchase cap = 0)	(2) Narrow gate (0 < Daily purchase cap ≤ RMB 100,000)	(3) Wide gate (Daily purchase cap > RMB 100,000)
Fund return	0.0072	0.0654***	0.0492***
	(0.73)	(5.77)	(6.24)
Implied fund flow	0.0010***	0.0020***	0.0010**
	(2.98)	(3.48)	(2.29)
Ln(TNA)	0.1499*	–0.1343	0.0944
	(1.90)	(–1.21)	(1.37)
Fund Age	–0.0445	0.0020	–0.1057***
	(–1.28)	(0.04)	(–4.05)
Stock shareholding concentration	0.0596	0.1715	0.4631***
	(0.85)	(1.61)	(7.60)
Top ten weight	0.0267***	0.0474***	0.0144**
	(3.63)	(4.79)	(2.30)
Cash holdings	0.0222**	–0.0130	–0.0148*
	(2.56)	(–0.87)	(–1.68)
Number of stocks	0.0062***	0.0039*	–0.0019
	(6.39)	(1.73)	(–1.11)
Constant	–22.7083	–26.2198	–7.0468***
	(–0.01)	(–0.00)	(–3.86)
Time fixed effect	Yes		
Fund family fixed effect	Yes		
Pseduo-R^2	0.31		
N	13279		

Table 4. Fund performance after inflow gate

This table presents the average size-adjusted performance of inflow-restricted funds. Panel A reports quarterly excess returns in quarters around the restriction event quarter *t*. Panel B reports cross-sectional means of time-series quarterly average excess returns in the year before and after the event quarter *t*. Excess returns are defined as a fund's raw return minus the benchmark return. Benchmark return is determined as follows. At the beginning of each event quarter *t*, we independently sort all funds into quintiles by total net assets and 1-quarter lag fund return. Using funds that are in the same size and past-performance quintile, we calculate their equal-weighted average return as the benchmark return in each quarter. The *t*-statistics (in parentheses) reported in Panel A and the first two columns in Panel B are for testing the hypothesis that excess return is zero. The *t*-statistics (in parentheses) reported in column (3) of Panel B are for testing the difference in excess returns before and after the event quarter. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Event-study size-adjusted returns (%)

Gate status in quarter *t*	*t – 1*	*t*	*t + 1*	*t + 2*	*t + 3*	*t + 4*
1.Closed gate	7.04***	4.88***	2.46**	–1.07	–0.41	–2.41***
	(7.26)	(4.96)	(2.42)	(–1.09)	(–0.42)	(–2.95)
2.Narrow gate	11.91***	2.50	–0.77	1.31	–4.51***	–1.05
	(6.79)	(1.41)	(–0.42)	(0.79)	(–3.14)	(–0.87)
3.Wide gate	6.79***	6.21***	3.46***	3.40***	0.08	–0.54
	(8.02)	(6.34)	(4.09)	(3.77)	(0.10)	(–0.62)

Panel B. Time-series averages (%) in the year before and after the event quarter

Gate status in quarter *t*	(1) Year before	(2) Year after	(3) Difference (2) – (1)
1.Closed gate	7.41***	–1.54***	–8.94***
	(11.23)	(–2.72)	(–8.86)
2.Narrow gate	6.06***	–1.17*	–7.23***
	(7.88)	(–1.82)	(–6.47)
3.Wide gate	5.35***	0.31	–5.04***
	(11.01)	(0.69)	(–7.51)

Table 5. Robustness check on fund performance after inflow gate using PSM method

This table reports risk-adjusted fund returns around inflow gate events using a propensity score matching (PSM) approach. A set of matched control funds are chosen from the funds available in the full sample. The control funds are matched using PSM by estimating Model 2 of Panel A in Table 3 to predict the probability of an inflow gate with gate status *z* (closed, narrow and wide gate) in quarter *t*. We then match each inflow-restricted fund in the event quarter with a control fund that has the closest predicted probability but did not have an inflow gate. We report mean quarterly risk-adjusted returns and mean cumulative risk-adjusted returns of inflow-restricted funds versus non-restriction control funds from quarter $t - 1$ to $t + 4$. *t*-statistics (in parentheses) are for testing the difference in fund returns between inflow-restricted funds and non-restriction control funds. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Closed gate

	Quarterly risk-adjusted returns			Cumulative risk-adjusted returns		
Quarter	(1) No gate	(2) Closed gate	Diff. (1) – (2) *t*-stat	(1) No gate	(2) Closed gate	Diff. (1) – (2) *t*-stat
t – 1	2.00	2.64	–0.64 (–1.44)	-	-	-
t	2.35	2.92	–0.56 (–1.16)	-	-	-
t + 1	2.30	2.45	–0.15 (–0.33)	2.30	2.45	–0.15 (–0.33)
t + 2	1.38	1.97	–0.59 (–1.19)	3.63	3.60	0.03 (0.04)
t + 3	1.16	1.69	–0.53 (–1.17)	4.20	4.46	–0.26 (–0.25)
t + 4	0.37	1.07	–0.70* (–1.82)	4.44	5.34	–0.90 (–0.73)

Panel B. Narrow gate

	Quarterly risk-adjusted returns			Cumulative risk-adjusted returns		
Quarter	(1) No gate	(2) Narrow gate	Diff. (1) – (2) *t*-stat	(1) No gate	(2) Narrow gate	Diff. (1) – (2) *t*-stat
t – 1	1.35	1.84	–0.48 (–0.69)	–	–	–
t	0.33	2.16	–1.83** (–2.44)	–	–	–
t + 1	–0.33	0.61	–0.94 (–1.10)	–0.33	0.61	–0.94 (–1.10)
t + 2	0.40	–0.58	0.98 (1.26)	0.39	–0.08	0.48 (0.35)
t + 3	0.12	0.12	–0.01 (–0.01)	0.69	0.18	0.51 (0.30)
t + 4	0.34	–0.08	0.42 (0.56)	1.15	0.40	0.76 (0.37)

Panel C. Wide gate

	Quarterly risk-adjusted returns			Cumulative risk-adjusted returns		
Quarter	(1) No gate	(2) High gate	Diff. (1) – (2) *t*-stat	(1) No gate	(2) High gate	Diff. (1) – (2) *t*-stat
t – 1	2.11	1.79	0.32 (0.71)	-	-	-
t	1.50	1.79	–0.29 (–0.59)	-	-	-
t + 1	1.26	0.89	0.37 (0.76)	1.26	0.89	0.37 (0.76)
t + 2	1.56	1.26	0.29 (0.65)	2.98	2.89	0.09 (0.08)
t + 3	0.55	0.66	–0.11 (–0.25)	3.88	3.90	–0.02 (–0.02)
t + 4	0.75	0.78	–0.03 (–0.08)	2.70	2.35	0.34 (0.43)

Table 6. Inflow gate and the shift in risk loadings

This table presents results from regression of fund daily excess return on Fama-French three factors plus the aggregate Amihud market illiquidity (Model 1) or a momentum factor (Model 2) and their interactions with inflow gate status. Panel A summarizes daily risk factor measures that are sourced from China Asset Management Academy. Panel B reports regression results of models in equation (2): $Daily\ Excess\ Return_{i,t} = a + \beta_1 mkt_t + \beta_2 smb_t + \beta_3 hml_t + \beta_4 liq_t(or\ umd_t) + \lambda_1^z Gate_{i,t}^z \times mkt_t + \lambda_2^z Gate_{i,t}^z \times smb_t + \lambda_3^z Gate_{i,t}^z \times hml_t + \lambda_4^z Gate_{i,t}^z \times liq_t(or\ umd_t) + \delta Gate_{i,t}^z + e_{i,t}$. $Gate_{i,t}^z$ is a categorical variable that indicates a set of four inflow gate types for fund *i* on day *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). Fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Summary of daily factor measures

	mean	sd	p10	median	p90	# of trading day
MKT(%)	0.0856	2.0554	–2.1954	0.2102	2.2744	2,673
SMB(%)	0.0879	0.7687	–0.7992	0.1542	0.8895	2,673
HML(%)	–0.0079	0.6739	–0.7522	–0.0317	0.7532	2,673
UMD(%)	–0.0159	1.0138	–1.2013	0.0344	1.1514	2,673
LIQ	0.1201	0.3344	0.0206	0.0583	0.2568	2,673

Panel B. Daily inflow gate and risk loadings

	Model 1		Model 2	
	Coef.	*t*-stat	Coef.	*t*-stat
MKT	0.5994***	(63.69)	0.5917***	(63.03)
1.Closed gate # MKT	–0.0127	(–0.43)	–0.0126	(–0.42)
2.Narrow gate # MKT	**0.1308*** **	**(4.98)**	**0.1290*** **	**(4.74)**
3.Wide gate # MKT	0.0518*	(1.69)	0.0455	(1.46)
SMB	0.00214	(0.29)	–0.0156**	(–2.24)
1.Closed gate # SMB	–0.1349***	(–3.85)	–0.1122***	(–3.34)
2.Narrow gate # SMB	0.0467	(0.98)	0.0408	(0.80)
3.Wide gate # SMB	0.0230	(0.52)	0.0114	(0.24)
HML	–0.3889***	(–42.37)	–0.3505***	(–38.45)
1.Closed gate # HML	0.0118	(0.21)	0.00978	(0.17)
2.Narrow gate # HML	**–0.3440*** **	**(–4.75)**	**–0.3701*** **	**(–5.05)**
3.Wide gate # HML	–0.1221*	(–1.69)	–0.1201	(–1.60)
LIQ	0.0007***	(15.34)		
1.Closed gate # LIQ	–0.0006***	(–4.22)		
2.Narrow gate # LIQ	0.0025	(1.08)		
3.Wide gate # LIQ	0.0009	(1.31)		
UMD			0.1164***	(31.34)
1.Closed gate # UMD			–0.0170	(–0.80)
2.Narrow gate # UMD			–0.0493	(–1.00)
3.Wide gate # UMD			0.0063	(0.21)
1.Closed gate	0.0001	(1.17)	0.0000	(0.47)
2.Narrow gate	–0.0005*	(–1.84)	–0.0003	(–1.56)
3.Wide gate	0.0000	(0.26)	0.0001	(1.26)
Constant	–0.0000***	(–2.68)	0.0001***	(7.22)
Fund fixed effect	Yes		Yes	
Adj-R^2	0.72		0.73	
N	863,369		863,369	

Table 7. Inflow gate and fund flow

This table reports results from regressions of quarterly fund flow on different status of inflow gate and other fund characteristics. The basic regression model is $Fund\ flow_{i,t+1} = \alpha + \beta^z Gate^z_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$. Two measures of fund flow are used: *Net flow in units (%)* and *Implied net flow (%)*. $Gate^z_{i,t}$ is a categorical variable that indicates a set of four inflow gate types for fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). β^z is the coefficient corresponding to different gate type *z*. **X** is a vector of fund-level control variables. All variables are as defined in Table 2. Time (year-quarter) and fund fixed effects are included and standard errors are clustered at the fund-level. Regression intercepts are omitted from the table for brevity. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable: Fund flow$_{t+1}$

	(1) Net flow in units (%)	(2) Implied fund flow (%)	(3) Net flow in units (%)	(4) Implied fund flow (%)
1.Closed gate	–24.0801*	–5.6166	–13.6935	–3.8588
	(–1.79)	(–0.62)	(–1.04)	(–0.42)
2.Narrow gate	**22.9928*** **	**14.2890** **	**26.2879*** **	**17.0988*** **
	(3.22)	**(2.24)**	**(3.51)**	**(2.69)**
3.Wide gate	25.8825**	14.3233*	26.4576**	14.5533*
	(1.99)	(1.86)	(2.01)	(1.86)
Ln(TNA)$_t$	–46.2008***	–34.1655***	–43.5135***	–33.1375***
	(–7.11)	(–9.02)	(–6.63)	(–8.88)
Fund Age$_t$	6.2349***	6.2693***	5.0830***	5.0915***
	(6.09)	(7.48)	(5.23)	(6.23)
Fund Return$_t$	1.1342***	0.9422***		
	(4.85)	(5.82)		
Flow$_t$			–0.0654***	–0.0347***
			(–5.37)	(–3.48)
Flow$_{t-1}$			–0.0494***	–0.0313***
			(–7.90)	(–4.59)
Alpha$_t$			1.3254***	1.1589***
			(4.72)	(5.90)
Alpha$_{t-1}$			0.9103***	0.7062***
			(3.75)	(4.10)
Time fixed effect	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes
Adj-R^2	0.11	0.10	0.12	0.10
N	13279	13279	13279	13279

Table 8. Inflow gate and investor base

This table reports results from regressions of investor base on different types of inflow gate and other fund characteristics. The basic regression model is $Investor\ base_{i,t+1} = \alpha + \beta^z Gate^z_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$. Four measures of investor base are used: *Ln(Total number of investors)*, *Ln(Average fundholding in units)*, *Ln(Average fundholding in RMB)* and *Retail investor ownership (%)*. $Gate^z_{i,t}$ is a categorical variable that indicates a set of four inflow gate types of fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). β^z is the coefficient corresponding to different gate type *z*. **X** is a vector of fund-level control variables. All variables are as defined in Table 2. Time (year-quarter) and fund fixed effects are included and standard errors are clustered at the fund-level. Intercepts in regressions are omitted from the table for brevity. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable: Investor base$_{t+1}$

	(1) Ln(Total number of investors)	(2) Ln(Average holding in units)	(3) Ln(Average holding in RMB)	(4) Retail investor ownership (%)
1.Closed gate	0.0056	0.0094	–0.0511	–0.6002
	(0.11)	(0.29)	(–1.39)	(–0.53)
2.Narrow gate	**0.3699*****	**–0.3037*****	**–0.2467*****	**5.7758***
	(3.68)	**(–2.76)**	**(–2.71)**	**(1.78)**
3.Wide gate	0.0340	–0.0201	0.0221	0.6659
	(0.41)	(–0.29)	(0.28)	(0.40)
Ln(TNA)	0.5922***	–0.0210	0.0846***	–3.3555***
	(21.97)	(–0.97)	(3.95)	(–4.52)
Fund Return	0.0032***	0.0037***	0.0068***	–0.2221***
	(3.65)	(5.91)	(11.62)	(–9.33)
Fund Age	0.1355***	–0.1099***	–0.1696***	3.2391***
	(8.31)	(–11.88)	(–16.09)	(9.81)
Time fixed effect	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes
Adj-R^2	0.51	0.22	0.31	0.10
N	13279	13279	13279	13279

Table 9. Cumulative excess flows after inflow gate

This table reports results from regressions of cumulative excess flows on different types of inflow gates and other fund characteristics. The regression model is $Cumulative\ fund\ flow_{i,[t+1,t+n]} = \alpha + \beta^{z} Gate^{z}_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$, n = 2, 3, 4. In Panel A, the dependent variable is *Cumulative excess flow in units (%)*. In Panel B, the dependent variable is *Cumulative excess implied fund flow (%)*. $Gate^{z}_{i,t}$ is a categorical variable that indicates a set of four inflow gate types of fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). β^{z} is the coefficient corresponding to different gate status *z*. **X** is a vector of fund-level control variables as used in Table 4, including *Ln(TNA), Fund return* and *Fund age*. All variables are as defined in Table 2. Time (year-quarter) and fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Cumulative excess flows in units

	(1) Cumulative flow [t + 1, t + 2]	(2) Cumulative flow [t + 1, t + 3]	(3) Cumulative flow [t + 1, t + 4]
1.Closed gate	–58.3088**	–59.4040*	–72.5362**
	(–2.26)	(–1.67)	(–2.01)
2.Narrow gate	**67.7304*****	**101.1757*****	**139.7733*****
	(3.24)	**(3.28)**	**(3.46)**
3.Wide gate	59.6783	128.3114**	142.2134**
	(1.61)	(2.14)	(2.44)
Controls	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.21	0.29	0.36
N	12289	11795	11301

Panel B. Cumulative excess implied fund flows

	(1) Cumulative flow [t + 1, t + 2]	(2) Cumulative flow [t + 1, t + 3]	(3) Cumulative flow [t + 1, t + 4]
1.Closed gate	–17.3738	–11.0084	–19.2483
	(–1.08)	(–0.49)	(–0.85)
2.Narrow gate	**47.6661*****	**62.7602*****	**73.9222*****
	(2.61)	**(2.89)**	**(3.04)**
3.Wide gate	25.9434	53.3890*	53.2478*
	(1.46)	(1.92)	(1.93)
Controls	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.21	0.29	0.35
N	12289	11795	11301

Table 10. Inflow gate and fund family spillovers

This table reports results from regressions of quarterly fund flows of non-restriction funds on family inflow restriction events. The sample excludes all inflow-restricted funds and includes non-restriction funds that had never imposed any inflow gate during the 2006–2016 period. The regression model is $Fund\ flow_{i,t+1}\ or\ Investor\ base_{i,t+1} = a + \beta \times Family\ closed\ (narrow, wide)\ \ gate_{i,t} + \lambda X + \varepsilon_{i,t}$. The dependent variables in columns 1 to 3 are *Net flow in units (%), Implied fund flow (%)* and *Institutional investor ownership (%)*, respectively. In Panel A, *Family closed (narrow, wide) gate* is an indicator variable taking the value of one if non-restricted fund *i*'s family imposes at least one closed (narrow, wide) inflow gate on other family funds in quarter *t*. In Panel B, *Flagship closed (narrow, wide) gate* is an indicator variable which equals one if a fund in the family invoked a closed (narrow, wide) gate and its performance was ranked in the top 20% in terms of 1-year fund raw returns prior to the inflow restriction. *Non-flagship closed (narrow, wide) gate* is an indicator variable which equals one if a fund in the family invoked a closed (narrow, wide) gate and its performance was ranked lower than the top 20% in terms of 1-year raw returns prior to the inflow restriction. **X** is a vector of various fund- and family-level controls. Fund-level control variables are as the same as those in Table 4. Family-level control variables include *Ln(Family TNA)*, which is the natural logarithm of total net assets of all equity funds in the fund family (excluding fund *i*) to which fund *i* belongs, and *Family performance*, which is the asset-weighted average of fund raw returns of all other funds in the family (excluding fund *i*). Time (year-quarter) and fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Family closed (narrow, wide) gate

	Dependent variable: Fund flow/Investor base$_{t+1}$				
	(1) Net flow in units (%)	(2) Implied fund flows (%)	(3) Ownership of institutional investors (%)	(4) Ln(Number of investors)	(5) Ln(Average holding in units)
Family closed gate	–0.5088	–5.4294	2.2744	–0.0874	0.0675
	(–0.08)	(–0.80)	(1.62)	(–1.30)	(1.36)
Family narrow gate	0.3349	1.1424	–0.1261	0.0599	–0.0255
	(0.08)	(0.27)	(–0.10)	(1.24)	(–0.62)
Family wide gate	5.7079	7.7975**	2.1615*	0.0421	0.0448
	(1.36)	(2.06)	(1.82)	(1.29)	(1.36)
Ln(Fund TNA)	–22.5944***	–21.3537***	3.5555***	0.5559***	0.0376
	(–8.17)	(–8.74)	(3.27)	(15.09)	(1.18)
Fund Return	0.8413***	0.8070***	0.2077***	0.0034**	0.0016
	(4.55)	(4.77)	(5.65)	(2.42)	(1.57)
Fund Age	3.4913**	3.0594	–1.9682**	0.0834	–0.1256***
	(2.37)	(1.48)	(–2.02)	(1.57)	(–2.64)
Ln(Family TNA)	0.0723	0.0735	0.2763	0.0003	0.0068
	(0.07)	(0.11)	(0.77)	(0.04)	(0.79)
Family performance	0.2729	0.3018	0.1358***	0.0013	0.0022
	(1.03)	(1.36)	(2.84)	(0.76)	(1.56)
Time fixed effect	Yes	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.02	0.03	0.05	0.42	0.23
N	5517	5517	5513	5513	5513

Panel B. Flagship or non-flagship closed (narrow, wide) gate

Dependent variable: Fund flow/Investor base$_{t+1}$

	(1) Implied fund flows (%)	(2) Institutional investor ownership (%)
Flagship closed gate	–2.6007	1.8107
	(–0.34)	(1.17)
Flagship narrow gate	–1.7017	–0.2522
	(–0.37)	(–0.19)
Flagship wide gate	11.8462*	3.2172**
	(1.88)	(2.20)
Non-flagship closed gate	–6.2811	1.9886
	(–1.12)	(1.27)
Non-flagship narrow gate	1.8599	–0.4409
	(0.29)	(–0.32)
Non-flagship wide gate	–0.8826	–0.0418
	(–0.24)	(–0.04)
Controls	Yes	Yes
Time fixed effect	Yes	Yes
Fund fixed effect	Yes	Yes
Adj-R^2	0.03	0.06
N	5517	5513

Table 11. Inflow gate and fund sales commission

Panel A reports annualized sales commission at the fund level as a percentage of management fees and in million RMB from 2008 to 2016, segmented by inflow gate status. Panel B presents results from regressing sales commission (%) on inflow gate status and other fund/family characteristics. All control variables are as defined in Table 2. Time (year-quarter) and fund fixed effect are included in the regressions and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Descriptive of fund sales commission

	(1) Closed gate *(Daily purchase cap = 0)*		(2) Narrow gate *(0 < Daily purchase cap ≤ RMB 100,000)*		(3) Wide gate *(Daily purchase cap > RMB 100,000)*		(4) No gate		(5) All groups	
	mean	median	mean	median	mean	median	mean	median	mean	median
Sales commission (%)	18.93	16.01	22.21	20.20	19.18	16.52	21.91	19.17	21.78	19.04
Sales commission (in million RMB)	28.22	20.34	10.26	6.16	10.08	6.70	7.60	3.66	8.06	3.84

Panel B. Determinants of fund sales commission

	(1) Fund sale commission (%)	(2) Fund sale commission (%)
1.Closed gate	0.0542	0.0790
	(0.08)	(0.12)
2.Narrow gate	**2.0425****	**1.9044****
	(2.19)	**(2.07)**
3.Wide gate	0.7652	0.7845
	(1.21)	(1.24)
Ln(TNA)	–0.6925**	–0.7501**
	(–2.02)	(–2.23)
Fund age	–2.8793***	–2.8908***
	(–21.27)	(–21.21)
Fund $flow_{t-1}$	–0.0040**	–0.0040**
	(–2.53)	(–2.49)
Fund $flow_{t-2}$	–0.0025**	–0.0023*
	(–2.00)	(–1.85)
Performance $rank_{t-1}$	–0.1827***	–0.1867***
	(–5.16)	(–5.11)
Performance $rank_{t-2}$	–0.1084***	–0.1092***
	(–4.45)	(–4.46)
Ln(Family TNA)		0.1632
		(1.09)
Family performance		0.0310
		(1.61)
Time fixed effect	Yes	Yes
Fund fixed effect	Yes	Yes
Adj-R^2	0.19	0.19
N	12397	12295

Table 12. Inflow gates among small- and mini-size funds

This table reports regression results of equation (5): $\Pr(partly\ close = 1) = \beta_1 Treat + \beta_2 Post + \gamma Treat \times Post + \delta Controls$. The dependent variable is an indicator variable which equals 1 if a fund announced at least a partly-closed gate (either a narrow or wide gate) in a quarter, and 0 otherwise. *Treat* is an indicator variable constructed in two ways: (1) it equals 1 if the fund is close to the alert threshold as indicated by the beginning-of-quarter fund size being lower than RMB 60 million or the number of investors being less than 300 (Model 1); and (2) it equals 1 if the fund size is ranked at the bottom quintile among the universe of all equity funds at the beginning of a quarter (Model 2), and 0 otherwise. *Post* is an indicator variable that equals 1 for quarters ending on or after the third quarter in 2014 when CSRC [2014] No. 104 became effective. Fund and family characteristics are the same as those in the main tests. Time (year-quarter) and fund indicators are included. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable: Partly-closed gate (0, 1)

	Model 1	Model 2
Treat	–3.8170***	0.0749
	(–7.44)	(0.20)
Post × treat	**4.3283*** **	**0.7595** **
	(9.32)	**(2.20)**
Post	–0.0490	–0.0612
	(–0.09)	(–0.12)
Fund return	0.0173***	0.0166***
	(2.74)	(2.66)
Implied fund flow	0.0025**	0.0026***
	(2.55)	(2.59)
Ln(TNA)	0.3500**	0.4326***
	(2.53)	(2.83)
Fund Age	0.0352	0.0384
	(0.36)	(0.42)
Stock shareholding concentration	0.1940***	0.1698**
	(2.81)	(2.46)
Top ten weight	0.0136**	0.0142**
	(1.97)	(2.08)
Cash holdings	–0.0089	–0.0104
	(–1.13)	(–1.30)
Number of stocks	–0.0015	–0.0015
	(–0.59)	(–0.59)
Ln(Family TNA)	–0.0684	–0.0823
	(–0.68)	(–0.83)
Family performance	0.0344***	0.0345***
	(3.53)	(3.49)
Time indicators	Yes	Yes
Fund indicators	Yes	Yes
Pseduo-R^2	0.27	0.27
N	2147	2147

Table 13. Changes in inflow restrictions

This table reports the average size-adjusted return, risk-adjusted return and abnormal flow one quarter before and after inflow restriction changes. We classify changes in the restriction levels of an inflow-restricted fund within a particular quarter into (1) *Decrease*, if the daily purchase cap loosens (e.g., from RMB 10,000 to 50,000 per investor), (2) *Increase*, if the daily purchase limit tightens (e.g., from RMB 1 million to 10,000), and (3) *No change*, if only one restriction level is imposed. The *p*-value (in parentheses) are for testing the difference before and after the event quarter. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	Frequency		Size-adjusted return			Risk-adjusted return			Abnormal flow		
Restriction changes	N	%	Before	After	Diff. *p*-value	Before	After	Diff. *p*-value	Before	After	Diff. *p*-value
Decrease	26	2.62	19.29%	8.26%	(0.094)*	1.55%	0.99%	(0.750)	20.57%	20.28%	(0.986)
No change	924	93.05	7.03%	1.95%	(0.000)***	0.70%	0.23%	(0.062)*	35.07%	19.57%	(0.042)**
Increase	43	4.33	14.99%	8.12%	(0.130)	1.60%	1.28%	(0.793)	17.54%	37.96%	(0.477)

Table 14. Inflow gate and flow-performance sensitivity

This table reports fund flow-performance sensitivity tests. The dependent variable is $Implied\ fund\ flow_{i,t}$. The regressions include measures of the fractional performance rank (Rank) of fund *i* in each quarter *t* based on raw returns in the preceding year. Fund performance is divided into three unequal groups. The bottom performance group (*Low Perf*) is in the lowest quintile of performance, defined as Min(Rank, 0.2). The middle three performance quintiles are combined into one group (*Mid Perf*) defined as Min(0.6, Rank– Low Perf), and the top performance quintile (*High Perf*) is defined as Rank – (Low Perf + Mid Perf). In column (2), *Inflow gate* is an indicator variable that takes the value of 1 if fund *i* has at least one inflow gate in quarter *t – 1*, and 0 otherwise. In column (3), $Gate^{z}_{i,t-1}$ is the gate status of fund *i* in quarter *t –1*, with z = 0 (no gate), 1 (closed gate), 2 (narrow gate) or 3 (wide gate). Time (year-quarter) and fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	(1) Implied flow (%)	(2) Implied flow (%)	(3) Implied flow (%)
High Perf	9.9963***	11.5308***	11.5482***
	(4.46)	(4.55)	(4.56)
Inflow gate # High Perf		–14.2215**	
		(–2.38)	
1.Closed gate # High Perf			–15.6541**
			(–2.33)
2.Narrow gate # High Perf			–1.4335
			(–0.20)
3.Wide gate # High Perf			–21.9575**
			(–2.00)
Mid Perf	2.3962***	2.1336***	2.1426***
	(4.76)	(4.04)	(4.05)
Inflow gate # Mid Perf		3.4535	
		(1.17)	
1.Closed gate # Mid Perf			2.0654
			(0.53)
2.Narrow gate # Mid Perf			–1.9112
			(–0.91)
3.Wide gate # Mid Perf			6.7528
			(1.10)
Low Perf	1.4794	1.8077	1.8045
	(0.59)	(0.72)	(0.72)
Inflow gate # Low Perf		–1.6051	
		(–0.11)	
1.Closed gate # Low Perf			11.5367
			(0.64)
2.Narrow gate # Low Perf			23.1343*
			(1.69)
3.Wide gate # Low Perf			–38.0888
			(–1.19)
Inflow gate		4.0899	
		(0.20)	
1.Closed gate			–26.4385
			(–1.05)
2.Narrow gate			–22.4685
			(–1.34)
3.Wide gate			73.2390
			(1.64)
Controls	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.11	0.11	0.11
N	12249	12202	12202

Appendix 1: Example of inflow gate announcement

1. Public announcement of an inflow gate

Fund Name		Fullgoal Tianhe Wenjian Equity Fund
Fund Code		100026
Fund management company		Fullgoal Fund Management
Inflow gate	Inflow gate starting date	2014-03-24
	Daily investment cap per investor (RMB)	300,000
	Reason for restricting inflows	To ensure the smooth operation of the fund and to protect the interests of fund investors
Announcement date		2014-03-24

2. Notification of inflow gate through instant messages

The screen shot below is a notification of an inflow gate announcement sent to investors by an instant message. It was sent by China Southern Asset Management (CSAM) Company on November 25, 2019 to the existing investors of CSAM Gaotie mutual fund, which announced an inflow gate with daily investment cap of RMB 1 million per investor, starting from November 27, 2019.

Internet appendix:

This Internet Appendix reports robustness tests in this study.

Table IA1. Fund flow and inflow gates

This table follows the specifications of Table 7 with different sets of controls. The basic regression model is $Fund\ flow_{i,t+1} = \alpha + \beta^z Gate^z_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$. The dependent variables are *Net flow in units (%), Implied net flow1 (%)* and *Implied net flow2 (%)*. *Net flow in units (%)* is calculated on a quarterly basis as $\frac{Net\ purchase/redemption\ units_{i,t}}{Total\ fund\ units_{i,t-1}} \times 100$. *Implied fund flow1 (%)* is calculated on a quarterly basis as $\frac{TNA_{i,t} - TNA_{i,t-1} \times (1+RET_{i,t})}{TNA_{i,t-1}} \times 100$. *Implied fund flow2 (%)* is calculated on a quarterly basis as as $\frac{TNA_{i,t} - TNA_{i,t-1} \times (1+RET_{i,t})}{TNA_{i,t-1} \times (1+RET_{i,t})} \times 100$. $Gate^z_{i,t}$ is a categorical variable that indicates a set of four inflow gate types of fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). β^z is the coefficient corresponding to different gate type *z*. **X** is a vector of fund-level control variables. All variables are as defined in Table 2. Time and fund fixed effects are included and standard errors are clustered at the fund-level. Regression intercepts are omitted from the table for brevity. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	(1) Net flow in units (%)	(2) Implied fund flow1 (%)	(3) Implied fund flow2 (%)	(4) Net flow in units (%)	(5) Implied fund flow1 (%)	(6) Implied fund flow2 (%)	(7) Net flow in units (%)	(8) Implied fund flow1 (%)	(9) Implied fund flow2 (%)
1.Closed gate	–24.9507*	–6.2926	–4.1575	–12.7447	–2.9468	–1.8431	–13.3619	–3.4453	–2.2488
	(–1.85)	(–0.69)	(–0.60)	(–0.98)	(–0.32)	(–0.26)	(–1.02)	(–0.37)	(–0.32)
2.Narrow gate	**21.7264*** **	**13.3039** **	**12.0518** **	**24.1579*** **	**15.4755** **	**13.2969** **	**23.7723*** **	**15.1738** **	**13.0391** **
	(3.16)	**(2.16)**	**(2.41)**	**(3.32)**	**(2.46)**	**(2.57)**	**(3.29)**	**(2.45)**	**(2.57)**
3.Wide gate	24.9093*	13.5549*	10.2010*	25.6620*	13.9743*	10.5182*	25.1724*	13.5720*	10.1942*
	(1.91)	(1.76)	(1.73)	(1.95)	(1.77)	(1.74)	(1.91)	(1.72)	(1.69)
Ln(TNA)	–46.8447***	–34.6340***	–28.0750***	–43.3949***	–32.9287***	–26.8166***	–43.8785***	–33.3279***	–27.1505***
	(–7.08)	(–8.99)	(–10.04)	(–6.58)	(–8.81)	(–10.04)	(–6.64)	(–8.88)	(–10.13)
Fund Age	4.2901***	4.6589***	3.7877***	4.7355***	4.7883***	3.8930***	5.0782***	5.0720***	4.1171***
	(4.40)	(5.74)	(5.94)	(4.83)	(5.82)	(6.02)	(5.11)	(6.12)	(6.33)
Performance rank$_t$	2.0443***	1.8593***	1.7628***	2.0901***	1.9007***	1.7971***	1.3983**	1.3274***	1.3413***
	(5.00)	(6.55)	(7.87)	(5.06)	(6.61)	(7.93)	(2.32)	(3.37)	(4.47)
Performance rank$_{t-1}$	2.7618***	2.0911***	1.7717***	2.8827***	2.1860***	1.8482***	2.7316***	2.0402***	1.7061***
	(5.54)	(6.68)	(7.35)	(5.98)	(6.99)	(7.56)	(4.72)	(5.48)	(5.91)
Fund flow$_t$				–0.0668***	–0.0378***	–0.0343***	–0.0668***	–0.0382***	–0.0347***
				(–5.40)	(–3.87)	(–3.38)	(–5.37)	(–3.94)	(–3.47)
Fund flow$_{t-1}$				–0.0491***	–0.0315***	–0.0263***	–0.0496***	–0.0323***	–0.0274***
				(–7.93)	(–4.57)	(–3.41)	(–8.07)	(–4.76)	(–3.60)
Alpha$_t$							0.9853**	0.8178***	0.6510***
							(2.37)	(3.02)	(3.08)
Alpha$_{t-1}$							0.1671	0.1711	0.1753
							(0.53)	(0.80)	(1.03)
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.11	0.10	0.10	0.12	0.10	0.11	0.12	0.11	0.11
N	13279	13279	13279	13279	13279	13279	13279	13279	13279

Table IA2. Investor base and inflow gates

This table follows the specifications of Table 8 with different sets of controls. The basic regression model is $Investor\ base_{i,t+1} = \alpha + \beta^z Gate^z_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$. The dependent variables are *Ln(Total number of investors)*, *Ln(Average fundholding in units)* and *Retail investor ownership (%)*. $Gate^z_{i,t}$ is a categorical variable that indicates a set of four inflow gate types of fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). β^z is the coefficient corresponding to different gate type *z*. **X** is a vector of fund-level control variables. All variables are as defined in Table 2. Time and fund fixed effects are included and standard errors are clustered at the fund-level. Regression intercepts are omitted from the table for brevity. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	(1) Ln(Total number of investors)	(2) Ln(Total number of investors)	(3) Ln(Total number of investors)	(4) Ln(Average holdings in units)	(5) Ln(Average holdings in units)	(6) Ln(Average holdings in units)	(7) Retail investor ownership (%)	(8) Retail investor ownership (%)	(9) Retail investor ownership (%)
1.Closed gate	0.0022	0.0044	0.0024	0.0060	0.0069	0.0078	–0.3508	–0.4460	–0.4538
	(0.04)	(0.09)	(0.05)	(0.19)	(0.21)	(0.24)	(–0.32)	(–0.40)	(–0.41)
2.Narrow gate	**0.3746*****	**0.3746*****	**0.3735*****	**–0.2977*****	**–0.3100*****	**–0.3095*****	**5.4973***	**6.1925***	**6.1944***
	(3.70)	**(3.70)**	**(3.70)**	**(–2.70)**	**(–2.82)**	**(–2.81)**	**(1.70)**	**(1.91)**	**(1.91)**
3.Wide gate	0.0344	0.0355	0.0340	–0.0183	–0.0243	–0.0235	0.6170	0.9389	0.9288
	(0.41)	(0.43)	(0.41)	(–0.26)	(–0.35)	(–0.34)	(0.37)	(0.58)	(0.57)
Ln(TNA)	0.5920***	0.5933***	0.5919***	–0.0214	–0.0232	–0.0225	–3.2861***	–3.2147***	–3.2127***
	(21.85)	(22.06)	(21.91)	(–0.97)	(–1.07)	(–1.03)	(–4.40)	(–4.39)	(–4.38)
Fund Age	0.1311***	0.1299***	0.1310***	–0.1161***	–0.1161***	–0.1167***	3.5861***	3.6098***	3.6202***
	(8.13)	(8.05)	(8.13)	(–12.55)	(–12.65)	(–12.71)	(10.90)	(11.16)	(11.16)
$Alpha_t$	0.0036***		0.0032**	0.0016		–0.0017	–0.1608***		0.0263
	(3.02)		(2.46)	(1.59)		(–1.40)	(–4.22)		(0.66)
$Alpha_{t-1}$	0.0002		0.0002	0.0019*		0.0001	–0.1375***		–0.0229
	(0.19)		(0.13)	(1.74)		(0.08)	(–3.53)		(–0.57)
Performance $rank_t$		0.0036**	0.0014		0.0102***	0.0114***		–0.6346***	–0.6535***
		(1.98)	(0.70)		(6.92)	(6.62)		(–11.65)	(–11.00)
Performance $rank_{t-1}$		0.0007	0.0005		0.0084***	0.0084***		–0.5270***	–0.5126***
		(0.39)	(0.23)		(6.20)	(5.59)		(–10.77)	(–9.95)
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.51	0.50	0.51	0.22	0.23	0.23	0.10	0.12	0.12
N	13279	13279	13279	13279	13279	13279	13279	13279	13279

Table IA3. Cumulative fund flow and inflow gate

This table follows the specifications of Table 9 with different sets of controls (Panels A and B) and fund raw flow as dependant variable (Panels C and D). The regression model is $Cumulative\ fund\ flow_{i,[t+1,t+n]} = \alpha + \beta^{z} Gate^{z}_{i,t} + \lambda \mathbf{X} + \varepsilon_{i,t}$, n = 2, 3, 4. In Panels A and C, the dependent variable is *Cumulative excess flow in units (%)* and *Cumulative raw flow in units (%),* respectively. In Panels B and D, the dependent variable is *Cumulative excess implied fund flow (%) and Cumulative raw implied fund flow (%),* respectively. $Gate^{z}_{i,t}$ is a categorical variable that indicates a set of four inflow gate types of fund *i* in quarter *t*: no inflow gate, an inflow gate with daily purchase cap of zero (a closed gate), an inflow gate with daily purchase cap less than or equal to 100,000 RMB (a narrow gate), and an inflow gate with daily purchase cap more than 100,000 RMB (a wide gate). $\beta^{z}$is the coefficient corresponding to different gate status *z*. **X** is a vector of fund-level control variables. All variables are as defined in Table 2. Time and fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Cumulative excess fund flows in units

	(1) Cumulative flow [*t* + 1, *t* + 2]	(2) Cumulative flow [*t* + 1, *t* + 3]	(3) Cumulative flow [*t* + 1, *t* + 4]
1.Closed gate	–60.0301**	–61.8912*	–75.8468**
	(–2.31)	(–1.74)	(–2.10)
2.Narrow gate	**68.6134***	**101.1937***	**139.5291***
	(3.26)	**(3.29)**	**(3.47)**
3.Wide gate	58.9716	126.6412**	139.4504**
	(1.59)	(2.11)	(2.39)
Ln(TNA)	–121.4315***	–203.7572***	–278.4001***
	(–6.38)	(–6.94)	(–7.87)
Fund Age	9.9129***	–4.9327	–2.9329
	(3.40)	(–0.52)	(–0.31)
Performance rank$_t$	4.5420***	5.2892***	4.7029***
	(6.19)	(6.35)	(4.19)
Performance rank$_{t-1}$	3.0052***	4.3164***	5.2551***
	(4.15)	(3.85)	(3.65)
Alpha$_t$	0.5147	0.5589	1.4298*
	(1.06)	(0.86)	(1.82)
Alpha$_{t-1}$	0.3249	1.1869*	1.1347
	(0.80)	(1.91)	(1.46)
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.21	0.29	0.36
N	12289	11795	11301

Panel B. Cumulative excess implied fund flows

	(1) Cumulative flow [$t+1, t+2$]	(2) Cumulative flow [$t+1, t+3$]	(3) Cumulative flow [$t+1, t+4$]
1.Closed gate	–18.7840	–12.7250	–21.2907
	(–1.17)	(–0.56)	(–0.94)
2.Narrow gate	**48.1907*****	**62.6903*****	**74.0859*****
	(2.63)	**(2.91)**	**(3.07)**
3.Wide gate	25.2065	52.0282*	51.6505*
	(1.41)	(1.87)	(1.87)
Ln(TNA)	–88.0936***	–142.4532***	–188.4479***
	(–7.96)	(–8.28)	(–9.23)
Fund Age	9.0559***	0.2728	7.7881
	(4.44)	(0.04)	(1.47)
Performance rank$_{t}$	3.5618***	4.3463***	4.3417***
	(6.69)	(7.02)	(5.74)
Performance rank$_{t-1}$	2.4306***	3.7282***	3.8938***
	(4.74)	(4.74)	(4.46)
Alpha$_{t}$	0.6523*	0.4232	0.7984
	(1.84)	(0.99)	(1.56)
Alpha$_{t-1}$	0.0976	0.4854	0.3003
	(0.34)	(1.09)	(0.60)
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.19	0.26	0.32
N	12289	11795	11301

Panel C. Cumulative fund raw flows in units

	(1) Cumulative flow $[t+1, t+2]$	(2) Cumulative flow $[t+1, t+3]$	(3) Cumulative flow $[t+1, t+4]$	(4) Cumulative flow $[t+1, t+2]$	(5) Cumulative flow $[t+1, t+3]$	(6) Cumulative flow $[t+1, t+4]$
1.Closed gate	–58.2671**	–59.4191*	–72.5486**	–60.0293**	–61.9610*	–75.9210**
	(–2.26)	(–1.67)	(–2.01)	(–2.32)	(–1.74)	(–2.10)
2.Narrow gate	**68.2264***	**101.9741***	**140.7044***	**68.8159***	**101.6251***	**140.0638***
	(3.26)	**(3.30)**	**(3.48)**	**(3.27)**	**(3.30)**	**(3.48)**
3.Wide gate	60.0274	128.8564**	142.8735**	59.1317	126.9230**	139.7949**
	(1.62)	(2.15)	(2.45)	(1.59)	(2.12)	(2.40)
Ln(TNA)	–121.6498***	–203.9748***	–279.3707***	–121.8476***	–204.9212***	–280.1449***
	(–6.36)	(–6.97)	(–7.93)	(–6.40)	(–6.99)	(–7.92)
Fund Age	13.2753***	5.7907	–7.2051	9.9172***	–4.9190	–2.8867
	(4.33)	(0.62)	(–0.78)	(3.40)	(–0.52)	(–0.31)
Fund Return	2.7753***	3.3247***	3.5600***			
	(6.31)	(7.81)	(6.50)			
Performance $rank_t$				4.5502***	5.3067***	4.7322***
				(6.20)	(6.37)	(4.21)
Performance $rank_{t-1}$				3.3643***	4.8024***	5.7848***
				(4.64)	(4.28)	(4.02)
$Alpha_t$				0.5148	0.5605	1.4302*
				(1.06)	(0.87)	(1.82)
$Alpha_{t-1}$				0.3295	1.1931*	1.1460
				(0.81)	(1.92)	(1.47)
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.21	0.29	0.36	0.21	0.29	0.36
N	12289	11795	11301	12289	11795	11301

Panel D. Cumulative implied fund raw flows

	(1) Cumulative flow $[t+1, t+2]$	(2) Cumulative flow $[t+1, t+3]$	(3) Cumulative flow $[t+1, t+4]$	(4) Cumulative flow $[t+1, t+2]$	(5) Cumulative flow $[t+1, t+3]$	(6) Cumulative flow $[t+1, t+4]$
1.Closed gate	–17.2947	–11.0190	–19.2229	–18.7409	–12.7778	–21.3104
	(–1.08)	(–0.49)	(–0.85)	(–1.16)	(–0.56)	(–0.94)
2.Narrow gate	**48.1723*****	**63.4859*****	**74.7264*****	**48.4593*****	**63.1559*****	**74.6514*****
	(2.63)	**(2.91)**	**(3.07)**	**(2.65)**	**(2.92)**	**(3.10)**
3.Wide gate	26.3185	53.9276*	53.8882*	25.4272	52.3791*	52.0943*
	(1.48)	(1.94)	(1.96)	(1.43)	(1.88)	(1.89)
Ln(TNA)	–88.3715***	–143.0817***	–190.3085***	–88.5603***	–143.6596***	–190.2488***
	(–7.95)	(–8.33)	(–9.35)	(–8.01)	(–8.35)	(–9.32)
Fund Age	11.6263***	8.4698	4.3152	9.0536***	0.2830	7.8295
	(5.47)	(1.30)	(0.82)	(4.44)	(0.04)	(1.47)
Fund Return	2.1545***	2.5319***	2.7896***			
	(7.41)	(8.54)	(7.83)			
Performance $rank_t$				3.5708***	4.3694***	4.3746***
				(6.70)	(7.05)	(5.78)
Performance $rank_{t-1}$				2.7223***	4.0721***	4.2263***
				(5.30)	(5.17)	(4.84)
$Alpha_t$				0.6547*	0.4229	0.7990
				(1.85)	(0.99)	(1.57)
$Alpha_{t-1}$				0.1028	0.4966	0.3131
				(0.35)	(1.11)	(0.62)
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.19	0.26	0.32	0.19	0.26	0.32
N	12289	11795	11301	12289	11795	11301

Table IA4. Fund family spillovers and inflow gate

This table follows the specifications of Table 10 (Panel B) with the dependant variable $Cumulative\ fund\ flow_{i,[t+1,t+n]}$, n = 2, 3, 4 in Panel A and $Institutional\ investor\ ownership(\%)_{i,t+n}$, n = 2, 3, 4 in Panel B. The regression model is $Future\ fund\ flow$ or $Future\ investor\ base = a + \beta \times flagship\ (Non - flagship)\ gate_{i,t} + \lambda \boldsymbol{X} + \varepsilon_{i,t}$. *Flagship closed (narrow, wide) gate* is an indicator variable which equals one if a fund in the family invoked a closed (narrow, wide) gate and its performance was ranked in top 20% in terms of 1-year fund raw returns prior to the inflow restriction. *Non-flagship closed (narrow, wide) gate* is an indicator variable which equals one if a fund in the family invoked a closed (narrow, wide) gate and its performance was ranked lower than the top 20% in terms of 1-year fund raw returns prior to the inflow restriction. **X** is a vector of various fund- and family-level controls same as those in Panel A of Table 10. The test sample excludes all inflow-restricted funds. Time and fund fixed effects are included and standard errors are clustered at the fund-level. *t*-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A. Future fund flows

	(1) Cumulative flow [t + 1, t + 2]	(2) Cumulative flow [t + 1, t + 3]	(3) Cumulative flow [t + 1, t + 4]
Flagship closed gate	–8.0166	–17.9727	–28.8484
	(–0.67)	(–1.17)	(–1.43)
Flagship narrow gate	–4.9687	–11.3590	–20.9855
	(–0.64)	(–1.08)	(–1.50)
Flagship wide gate	10.3435	7.8984	4.5060
	(1.34)	(0.79)	(0.43)
Non-flagship closed gate	–3.4430	–10.4020	–17.5928
	(–0.54)	(–1.01)	(–0.97)
Non-flagship narrow gate	4.1503	3.8857	0.0148
	(0.42)	(0.29)	(0.00)
Non-flagship wide gate	7.5156	8.1990	17.0726
	(1.27)	(1.12)	(1.25)
Controls	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.09	0.15	0.17
N	5050	4816	4583

Panel B. Future institutional investor ownership (%)

	(1) t + 2	(2) t + 3	(3) t + 4
Flagship closed gate	2.0883	2.0456	2.8402**
	(1.45)	(1.55)	(2.14)
Flagship narrow gate	–0.7115	0.2750	–1.8088
	(–0.54)	(0.19)	(–1.30)
Flagship wide gate	1.5295	0.9236	1.2526
	(1.08)	(0.68)	(0.99)
Non-flagship closed gate	1.8760	1.2791	1.4263
	(1.14)	(0.76)	(0.84)
Non-flagship narrow gate	–1.0545	–1.3407	–1.8232
	(–0.76)	(–0.77)	(–1.17)
Non-flagship wide gate	1.0325	2.0293*	0.5958
	(0.90)	(1.80)	(0.51)
Controls	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Fund fixed effect	Yes	Yes	Yes
Adj-R^2	0.05	0.03	0.03
N	5046	4812	4579