On the Impact of Regulating Commissions:
Evidence from the Indian Mutual Funds Market

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Abstract

Commissions-motivated agents have historically helped the development of many markets, but research suggests brokers motivated by commissions sometimes steer consumers towards inappropriate products. This issue is particularly important in household financial markets where consumers may be unable to evaluate products on their own. While reforms attempting to limit commission payments have been undertaken worldwide, little research has evaluated the impact of these reforms. We study a major Indian investor protection reform that attempted to reduce commissions tied to mutual fund sales by banning the distribution fees that mutual funds had previously earmarked for commissions. We analyze the policy impact by comparing funds charging high versus low distribution fees pre-reform and find no evidence that the reform itself reduced fund flows. We argue that the most plausible explanation is that the Indian asset management industry maintained substantial commissions to brokers through other revenue sources apart from the banned distribution fees.

JEL classification: O16, G18

Key words: O16: Economic Development: Financial Markets, Saving and Capital Investment, G28: Financial Institutions and Services: Government Policy and Regulation

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The financial crisis of 2008 spurred an active worldwide policy debate on the optimal way to pursue consumer financial protection. Two main policy options have received attention. One approach is to empower consumers to make better financial decisions through financial literacy training and disclosure regulation. A growing literature has evaluated these financial literacy training programs, with mixed results.\(^1\)

A second policy approach is direct intervention into how financial products are sold, such as capping or banning commissions to financial product brokers. A small but growing literature suggests that brokers may not provide advice in the best interest of their consumers and that therefore regulating commissions might improve consumer welfare (Anagol, Cole, and Sarkar 2012; Giné, Martinez Cuellar, and Mazer 2014; Mullainathan, Noeth, and Schoar 2012). On the other hand, regulations that limit the incentives of brokers to sell products may slow the growth of financial markets, reducing the amount of productive capital in the economy and causing households to invest in suboptimal instruments. Historically, brokers have played an important role in the development of many major household financial markets (Zelizer 1983).\(^2\)

In describing the development of the life insurance industry in the United States, Burton Hendrick noted in a 1906 article in McClure’s magazine: “Men do not insure of their own free will. They must be clubbed into it. The company that employs no agents does no business.”

A number of significant reforms have already been made. The Financial Services Authority in the United Kingdom implemented a ban on commissions paid to independent financial advisors by financial product providers as of January 1, 2013 (Collinson 2012). Australia implemented a similar ban on commissions in July 2013 (Bowen 2011). The United States is yet to implement commissions reform, although there is an ongoing policy debate on whether mutual funds should be allowed to charge a separate class of operating expenses, known as 12b-1 fees, specifically for the purpose of paying distribution expenses such as broker commissions (Ferris and Chance 1987; Walsh 2004).\(^3\) However, there currently exists little empirical evidence on how regulations that affect brokers affect the growth of financial product markets.

These issues are of particular importance in developing countries, where the transition of households from informal financial products, such as physical savings in the form of land, jewelry, and livestock, towards formal financial products, such as bank accounts and equity products, is an important part of the process of economic development. In India the amount of savings in formal financial assets is approximately 8 percent of GDP compared to financial asset savings of 384 percent of GDP in the United States (Reserve Bank of India 2012; Federal Reserve Board 2015). There is substantial opportunity for savings in formal financial products to grow in the Indian economy.

There is also good reason to believe that commissions-motivated brokers will play an important role in the growth of savings in formal financial products in India. For example, in the mutual fund industry (the formal savings product studied here), individual investors own 84 percent of assets in equity products (Association of Mutual Funds in India 2015b). This fraction is quite similar to the fact that 89 percent of mutual funds in the United States are owned by individuals (Investment Company Institute 2015).\(^4\) An

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2 It is perhaps not surprising that brokers play an important role in the development of formal financial product markets. Experimenting with new financial products is likely to be costly, so an investor may prefer to get the advice of a trusted broker before making an investment. For evidence on trust playing a role in the demand for rainfall insurance in India see Gaurav, Cole, and Tobacman (2011). Brokers may also lower the investors' transactions costs, provide solace in case the investment does poorly, and provide guidance on when to exit the investment.


4 We were unable to find statistics on what fraction of pure equity mutual funds are owned by individuals in the United States, but this 89 percent number is based on equity, hybrid, and bond funds that are specifically aimed at individuals (i.e., it excludes the money-market funds that corporations use for cash management.)
important difference, however, is that a much larger fraction of Indian mutual fund investments come via commissions-motivated brokers; in 2015, for example, 91 percent of inflows into equity mutual funds in India came through brokers (Association of Mutual Funds in India 2015a), while only approximately 40 to 50 percent of US inflows comes through brokers (Investment Company Institute 2015; Christoffersen, Evans, and Musto 2005; Bergstresser, Chalmers, and Tufano 2009). The main reason for this difference is that in the United States much of the equity mutual fund investments made by individuals come through employer sponsored retirement plans, where there is no broker intermediating the transaction. In India, however, pension funds such as the Employees Provident Fund are permitted to invest very limited amounts in equity markets. The National Pension System also allows limited equity investments, but is currently very small, with only 10 million subscribers and USD 15 billion in assets as of July 2015 (National Pension System Trust 2015) (relative to the approximately 500 million total workers in India, or even the 40 million workers in the formal sector (Ministry of Labour and Employment 2015)). Given that brokers are particularly important for financial intermediation in the Indian context, policies that affect broker incentives could have large implications for the growth of the productive capital stock as a whole.5

This paper provides the first estimates of the impact of a major policy reform aimed at reducing commissions paid to brokers on the mutual fund market in a developing country. We evaluate a policy change that occurred on August 1, 2009, in which the Securities Exchange Board of India (SEBI) banned entry loads charged by all mutual fund firms operating in India.6 Prior to this reform, mutual fund firms used entry loads primarily to pay commissions to brokers who sold their products. The stated goal of the policy was to “empower the investor in deciding the commission paid to the distributors and also to ensure transparency in commissions paid for mutual fund products.”7 In practical terms, the regulator envisioned a financial intermediation process where the investor paid the broker directly for advice, instead of mutual fund companies paying brokers commissions to sell their products. The intent of this reform was to reduce the ability of mutual funds to pay broker commissions; funds could no longer use the immediate income earned from an investor’s entry load to pay out a commission to the broker who made the sale.8

Our primary empirical strategy is to compare how the entry load ban affected funds that previously charged high entry loads to how the entry load ban affected funds that previously charged low entry loads. We present a simple conceptual framework that makes predictions on how this kind of reform might affect the relative attractiveness of the high versus low entry load funds. The main idea in the framework is that the effect of the reform is likely to differ for investors based on how much the investor is influenced by brokers (following the literature, we term investors that are heavily influenced by commissions as less sophisticated). The framework describes how less sophisticated investors would be expected to reduce investments in high entry load funds after the reform because brokers no longer have the incentive to encourage these investments. Consistent with this idea, the Indian mutual fund industry has argued strongly that the entry load ban has reduced flows by limiting the ability of fund companies

5 See Levine and Zervos (1998) and Bekaert, Harvey, and Lundblad (2001) for cross-country studies suggesting that stock market development is associated with overall economic growth.
6 An entry load, typically called a “front-end load” in the United States, is a fee that is calculated as a percentage of the total investment made in the mutual fund. Entry loads are immediately deducted from the customer’s investment at the time of investment.
8 For example, suppose an investor invested one hundred rupees in an Indian mutual fund prior to the law change. Typically a mutual fund would take 2.25 rupees out of this as an investment as an entry load and pay it to the broker who sold the product. The entry load ban prevents mutual fund companies from taking any of the investor’s initial investment as revenue; the full amount of the investment must be invested in the fund on the investor’s behalf. Thus, if the mutual fund company wants to pay the broker a commission, they must use other sources of funds to do so.
to pay commissions. The framework also notes, however, that for highly sophisticated investors, the entry load ban may actually induce shifting of investments away from low entry load funds towards high entry load funds because the upfront cost of these funds are now lower.

We analyze a newly assembled monthly panel dataset on Indian mutual funds from April 2006 through June 2012. On average, funds in our high entry load group had their entry loads decreased from 2.22 percent to zero, whereas funds in our low entry load group only had their loads reduced from .42 percent to zero. This policy change, therefore, constitutes a large change in the relative attractiveness of these two groups of funds for both brokers and consumers and could potentially have impacts on both groups of funds. In our main sample of funds we find that funds that charged higher entry loads prior to the policy do not experience relatively lower flows after the entry load ban. Our results persist when we use a smaller group of index funds which are less susceptible to the criticism of the funds being different prior to the policy change.

The main empirical results suggest that the entry load ban did not lead to a major net drop in flows to high entry load funds relative to low entry load funds. We argue there are two, nonexclusive, mechanisms for this result. One possibility, which we find some auxiliary evidence for, is that fund companies increased other types of commissions to at least partially offset the decline in commissions induced by the entry load ban. This result is important because it suggests that indirect efforts at reducing commissions (such as the entry load ban) may be of limited use in practice as financial product companies innovate to find other ways of paying commissions. A second explanation is that the Indian mutual funds market, at least during this time period, did not have a large number of low sophistication investors who were highly influenced by brokers (despite the claims of fund companies). This result is interesting in that it suggests that commissions are not always important drivers of fund flows; understanding under what market conditions commissions are particularly important for driving investment behavior appears to be an interesting area for future research.

We lastly discuss why overall net flows into Indian mutual funds declined in the post-reform period. Using newly available, nationally representative data on household financial decisions in India, we show that there has been a substantial increase in investments in gold and real estate in the period after the entry load ban. We argue that Indian investors, similar to investors around the world, have generally shifted their money away from financial assets, such as mutual funds, towards real asset classes in response to the financial crisis of 2008 and would have likely done so even in the absence of the entry load ban.

Our paper contributes to the literature on understanding the demand for formal financial products in developing countries. Prior work has focused on financial literacy (Cole, Sampson, and Zia 2011; Gaurav, Cole, and Tobacman 2011; Cai and Song 2012; Song 2015), product price (Cole, Sampson, and Zia 2011; Gaurav, Cole, and Tobacman 2011), or other demand factors such as the availability of informal substitutes, wealth, or risk aversion (Mobarak and Rosenzweig 2012; Giné, Townsend, and Vickery 2008) as determinants of formal financial product demand. Our paper is the first in this literature to focus on the role of brokers in the distribution process. This prior work has also focused on a limited set of formal financial products (mainly bank accounts, rainfall insurance, and pensions); our paper expands this set to mutual funds.

This paper is also, to our knowledge, the first to analyze a major policy intervention that attempted to limit the ability of financial product providers to pay commissions to brokers. We believe our results

9 Prior work on the impact of sales loads on fund flows also has generally found that higher sales loads correlate with greater fund flows, although none of this work has looked at natural experiments where loads were exogenously lowered by a government policy. See Christoffersen, Evans, and Musto (2013) for a recent example of this work as well as a review of previous research.

10 Net flows are the percentage growth in the fund after taking out growth due to the appreciation of assets.
will be useful for other policymakers considering regulating mutual fund distribution fees. In particular, a policymaker that only observed the aggregate data on fund flows in India might conclude that the entry load ban did have a large negative impact on flows; we conducted a Lexis-Nexis newspaper search of Indian newspapers mentioning “entry-load ban” and found that sixty out of ninety-seven articles suggested that the entry load ban played an important causal role in the decline in flows in the post entry-load ban period. Our results suggest that the true effects of the policy were more subtle: mutual fund firms responded to the entry load ban by using revenues from other sources to maintain substantial commissions, and these post-entry load ban commissions may have been high enough to undo any major effects from the entry load ban itself. Our paper highlights the importance of carefully thinking through supply-side responses when attempting to regulate commissions, as there appear to be strong incentives for asset management companies to pay commissions to brokers.

I. The Indian Mutual Funds Industry and the Entry Load Ban

Indian mutual fund assets in 2009 amounted to approximately US$90 billion. Assets under management in India have seen a real growth rate more than double that of the growth rate of assets under management in the United States (12 percent average annual real growth in assets under management in the Indian mutual fund industry since 1997, versus 5.3 percent real average annual growth in the United States). There are approximately 10 million mutual fund investors in India (Halan 2010) and about forty asset management companies. Assets in Indian equity-oriented mutual funds constitute approximately seven percent of the market capitalization of the Bombay Stock Exchange. A large fraction of mutual fund sales comes through a network of thousands of mutual fund brokers (Kamiyama 2007). There are approximately 92,000 such brokers in India, and in 2015, they mobilized 91 percent of new assets under management to equity mutual funds (Association of Mutual Funds in India 2015a). In addition to mutual fund brokers, there are approximately 2.5 million insurance agents in India, some of whom also sell mutual fund products.

Mutual funds in India have historically charged three types of fees to investors. The first are entry loads, which is a percentage of the initial investment the investor makes in the fund (prior to the reform we study these entry loads were often set at 2.25 percent of the initial investment). The second are exit loads, which are a percentage fee deducted at the time an investor exits the fund. The third type of fee is called the management expense ratio. The management expense ratio is a percentage removed from the value of the fund on an annual basis, to be used by the fund company for the following purposes: (a) investment fees, (b) advisory fees, and (c) recurring expenses including custodian fees, audit fees, marketing expenses, brokerage (including commissions), and other miscellaneous expenses.

There are two types of commissions that asset management companies in India pay to brokers. The first are “up-front” commissions, which are commissions that are paid by the mutual fund company to the broker at the time of investment. The second type is sales commissions, which are paid by the broker to the investor at the time of investment. In the period before the policy reform we analyze, the sales process typically worked as follows. An individual investor would pay the amount they wanted to invest, say one hundred rupees, to the broker. The broker would then deduct the entry load fee (typically 2.25 percent) and invest the remaining

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11 Twenty-four articles did not make a statement about whether the entry load ban affected flows, and seven articles only discuss positive aspects of the entry load ban like lower fees for investors.
13 Growth rates of assets under management calculated from monthly reports of the Association Mutual Funds in India monthly reports.
14 In the Indian context these brokers are referred to as “Individual Financial Advisors” (IFAs).
15 Throughout the paper we use the term “fees” to refer to payments made by investors to the mutual fund company and “commissions” to indicate payments made from the mutual fund company to brokers who sell funds.
97.75 rupees in the mutual fund. The 2.25 rupee entry load fee would then typically be sent back to the broker as a commission. While most funds paid the broker an amount equal to the entry load, funds were allowed to save revenue from entry loads over time and use those monies to pay commissions in the future.

The second type of commission paid by asset management companies is a “trail” commission, which is paid annually to the broker as compensation for the investor remaining invested in the mutual fund. As an example, consider an investor who invests one hundred rupees in a fund that paid a 1 percent trail commission on January 1, 2008, and suppose the value of this investment had appreciated to two hundred rupees on January 1, 2009. In this case the broker who sold the investor this fund would receive a trail commission of two rupees on January 1, 2009 (the trail commission is based on the value of the investment at year end). Note, however, that if this investor were to exit on December 31, 2008, the broker would not receive any trail commission. Trail commission rates are typically set separately for the first year and then all other years after the first year. Trail commissions are paid out of management expense ratio fees, which are deducted from the net asset value of the fund annually.16

On June 30, 2009, the Securities and Exchange Board of India (SEBI) announced that starting on August 1, 2009, mutual funds would no longer be allowed to charge entry load fees. Specifically, the law had three components:

1. Funds could not deduct any amount of an investor’s initial investment (entry load ban)
2. Funds could charge up to 1 percent of redemptions (“exit loads”) and use these to pay up-front commissions
3. Brokers had to disclose any commissions paid to them

The most important impact of this policy is that it directly reduced the source of funds that mutual fund companies could use to pay up-front commissions (item (1)). Funds were no longer allowed to charge the entry load fee from investors directly, at the time of investment, and use those fees to pay up-front commissions. Instead, funds had to rely on three other funding sources to pay commissions. First, as noted in item (2), funds could use fees collected by investors at the time of exit to meet commission costs. Second, funds could use any monies saved from entry and exit loads charged prior to the ban to meet current commission costs.17 Third, funds could use revenues from the management expense ratio an investor would pay over the course of their investment to pay an up-front commission to the broker. Note that in the case of using this third source of funding, the asset management company would have to finance the up-front commission out of their own balance sheet and be compensated for this cost later as they collected the annual management expense ratio fees from the investor over time.

SEBI had two primary motivations for enacting this policy. First, SEBI argued that investors were generally not aware of entry loads and thus made suboptimal decisions when choosing mutual funds.18 SEBI envisioned a market where the customer would directly pay the broker for advice, instead of the

16 Because trail commissions are taken out of the net asset value of the fund, all investors, even those who invested directly in the fund without a broker, are charged these commissions. The trail commissions deducted from a direct investor’s investment are kept by the mutual fund company. In the case where an investor switches brokers before the full year is completed, neither the old or new broker keeps the trail commission; instead, the trail commission is kept by the mutual fund company.

17 These funds are called the fund’s “unutilized load balance.” Fund companies were allowed to use as much of this unutilized load balance (including unutilized entry and exit loads) to pay commissions as they wished after the policy change. On March 9, 2011, SEBI instituted a rule that funds were not allowed to use more than one third of the unutilized load balance as of July 31, 2009, for commissions in any given year (Securities and Exchange Board of India, 2012b).

18 In essence, SEBI argue that entry loads are a shrouded fee in the sense of Gabaix and Laibson (2006), Heidhues, Köszegi, and Murooka (2012), and Anagol and Kim (2012).
broker being compensated by the mutual fund company via a commission financed by the entry load.\textsuperscript{19} Second, SEBI believed that entry load based commissions gave brokers an incentive to encourage investors to move in and out of different mutual fund investments too frequently; removing entry loads and the associated upfront commissions would remove the incentive for brokers to “churn” investors in this manner.\textsuperscript{20}

It is important to note that, although the policy banned mutual funds from charging entry load fees, which were commonly used to finance upfront commissions, the policy change did not explicitly ban upfront commissions. To our knowledge, there is no publicly available information on the upfront and trail commissions agents would earn for selling specific mutual funds after the entry load ban, and therefore it is difficult to know how exactly the reform changed the commission structure on average. Based on private conversations with one major fund house regarding twenty-five of their popular funds, appendix figure S1.1 presents what a typical agent might earn in upfront, trail, and total commissions based on how long a hypothetical one hundred rupee investor chooses to hold high and low entry load mutual funds before and after the entry load ban.\textsuperscript{21} High entry load funds are defined as those charging 2.25 percent or more in entry loads, and low entry load fees are defined as those charging less than 2.25 percent (typically these charged less than 1 percent). We report these estimates for the period before the reform (June 2009), immediately after the reform (June 2010), and five years after the reform (June 2014).

For high entry load funds, upfront and trail commissions were typically reduced in the year after the reform, with upfront commissions declining by .4 percent and trail commissions declining by approximately .5 percent. Over the longer run, upfront commissions continued to decline to 1 percent, whereas trail commissions were actually increased likely to offset the lower payment of upfront commissions. Although we do not have access to investor level information that would allow us to directly estimate the holding duration of investors, Shah et. al. (2010) find that 44 percent of retail assets under management had been held for longer than two years, and 64 percent longer than one year. This suggests that offsetting increases in trail commissions could have meaningfully dampened the effect of the entry load ban on upfront commissions. We return to this as a potential explanation of our findings after presenting our main results. For low entry load funds (defined as those charging less than 2.25 percent), a key difference is that upfront commissions did not change due to the reform as they were typically zero to begin with. Trail commissions for low entry load funds have also been increased over the last five year period.

While our analysis of the reform primarily focuses on the entry load ban and its associated impacts on commissions, we caveat that theoretically the disclosure regime also changed due to this reform, and our data do not allow us to separately identify entry load ban versus disclosure effects. We choose to focus on the entry load ban portion of this reform for the following reasons. First, anecdotal evidence from our discussions with industry participants and newspaper accounts at the time of the reform almost never mention the disclosure requirement, while there was intense discussion of the entry load ban after the reform was passed. Second, although the reform required distributors to disclose commissions, there was no enforcement mechanism proposed, so it is not clear whether the reform actually changed distributors incentives regarding disclosure.

Nonetheless, it is also worth noting that our empirical strategy of comparing high versus low entry load funds would also likely pick up disclosure effects, as the requirement to disclose commissions at the

\textsuperscript{19} Although no systematic data exist on the prevalence of investors making direct payments to brokers for advice, anecdotal evidence suggests that this has been very uncommon.

\textsuperscript{20} Studying the impact of the entry load ban on “churning” is an interesting avenue for future research. We do not address this question in this paper as we do not have access to investor-level data to measure the amount of churning individuals did before and after the policy change.

\textsuperscript{21} Appendix figure S1.1 is in the supplemental appendix available at http://wber.oxfordjournals.org/.
time of sale would naturally affect high load funds more than low load funds. The fact that we find little relative change in the flows to these types of funds after the reform suggests that the disclosure portion of this reform had little impact.\footnote{We naturally do not interpret this result as suggesting that disclosure does or does not work, however, as it is unclear whether the disclosure portion of the reform was actually enforced.}

There has been an active policy debate surrounding the entry load ban policy since its inception in August 2009.\footnote{For new customers, fund companies could charge up to 150 rupees to pass on to the broker as commission.} The policy was further tweaked in September 2011, allowing fund houses to charge the customer one hundred rupees at the time of investment and pass this on to the broker as a commission.\footnote{For details on the August, 2012, reform see Securities and Exchange Board of India (2012a).} In August 2012, SEBI further changed the mutual fund fee policy with the goal of forcing funds to use income from management expense ratios instead of exit loads to pay commissions. SEBI argued that fund companies had an incentive to encourage investor exit under the current regime.\footnote{AMFI is the main trade organization of the Indian mutual funds industry.}

\section*{II. Describing Indian Mutual Fund Flows}

We begin our empirical analysis of the entry load ban by presenting data on the aggregate evolution of flows into Indian mutual funds. \textbf{Figure 1} plots net-flows to existing equity open-ended mutual funds around the policy change studied here. This data was obtained from monthly reports posted at the Association of Mutual Funds of India (AMFI) website.\footnote{Net flow, inflow, and outflow estimates are adjusted for inflation using the India Wholesale Price Index and also for general economic growth using the Reserve Bank of India’s Quarterly estimates of GDP at market prices (constant price series) to allow for more meaningful comparisons over time.} The vertical dashed line indicates August 2009, the date of the ban on entry loads. Overall, the pattern of net flows in the pre-period follows the level of the Sensex stock index (an index of the thirty largest stocks on the Bombay Stock Exchange) more closely than in the post-reform period, and flows into mutual funds appear to be lower in the post reform period versus the pre-reform period.\footnote{Authors’ analysis based on data described in the text.}
This pattern of net flows is consistent with a variety of underlying patterns in inflows and outflows, so appendix figure S1.2 separately plots inflows and outflows. The plot of inflows shows that there are still substantial inflows into mutual funds in the post-policy reform period. However, the inflows do not seem to follow the market relative to how inflows followed the market in the prereform period. Unlike inflows, outflows continue to follow the market closely in the post-reform period. These figures suggest that the fall in net flows into Indian mutual funds in the post-entry load ban period has primarily been due to a change in the amount of inflows, as opposed to an increase in outflows (relative to the stock market). Another potential measure of investor participation in Indian mutual funds is the number of retail mutual fund accounts. Appendix figure S1.3 presents the number of retail investor accounts. After the 2009 ban, there was an approximately 9.4 percent decline in retail accounts.

Overall, the aggregate data suggest a decline in mutual fund growth after the entry load ban. It is important to note, however, that the results in these plots conflate the impact of the entry load ban with all other time-varying market conditions.

III. Conceptual Framework

In this section we provide a simple framework for thinking about how the entry load ban might affect flows into high and low entry load funds after the reform. The theoretical literature on commissions has typically focused on how brokers and commissions interact with consumers with different levels of sophistication, so we consider the behavior of three stylized types of investors; those with low, medium, and high levels of sophistication. Let \( i \in \{L, M, H\} \) index these three types of investors.

Low sophistication investors are the most strongly influenced by brokers, in the sense that brokers directly determine both how much these investors put into mutual funds overall, as well as which specific funds they invest in. We assume brokers are interested in maximizing their commissions, and therefore they encourage these investors to invest completely in high entry load funds. Let \( c \) be the amount of commissions paid when a broker sells one unit of the high entry load funds, and \( x^L(c) \) be a function that gives the amount of investment in high entry load funds from low sophistication investors. The greater the commissions available, the larger these flows will be, that is, \( \frac{\partial x^L(c)}{\partial c} > 0 \).

Highly sophisticated investors are not influenced by brokers at all. They choose the amount to invest in mutual funds, as well as the allocation across high and low load funds. Assume these highly sophisticated investors have heterogenous beliefs about the expected returns on high and low entry load funds, and any given investor completely invests in either high or low entry load funds. Let \( r_h - r_l \) be the true future return difference between high and low entry load funds. Sophisticated investors are distributed uniformly on \([-0.5, 0.5]\) based on their expectations of \( r_h - r_l \), that is, half the investors think that high entry load funds will perform worse than low entry load funds, and half think they will perform better. After fees, a sophisticated investor will invest in the high entry load fund if \( E[r_h - r_l] > f \), and the low entry load fund otherwise (where \( f \in [0, 0.5] \) is the level of fees). Total investment in high and low entry load funds is given by \( 0.5 - f \) and \( 0.5 + f \), respectively.

Medium sophisticated investors are not influenced by brokers on the extensive margin, that is, they choose how much to invest in mutual funds overall by themselves. However, brokers influence their perceptions of returns on high versus low entry load funds; in particular, the higher commissions are, the higher these investors believe \( r_h - r_l \) to be. We implement this idea by assuming their return expectations are distributed uniformly on \([-0.5 + c, 0.5 + c]\). When commissions \( c \) are zero, half these investors invest in high and low entry load funds, respectively. When \( c > 0 \) we have \( 0.5 + c \) of these investors investing in high entry load funds and \( 0.5 - c \) investing in low entry load funds.

Let \( v_h \) indicate post-reform values of variables and \( v_l \) and \( v_i \) indicate flows into high and low entry funds, respectively. We have then that the change in flows to high versus low entry load funds in the post-minus pre-period is:

\[
\frac{(v'_h - v_h) - (v'_l - v_l)}{v_h} = x^h(c) - x^l(c') + 2[c' - c + f - f']
\]

\( x^h(c) - x^l(c') < 0 \) is the decrease in flows to the high entry load funds because low sophistication investors are less likely to be brought to the mutual funds market because commissions are lower. \( 2[c' - c] < 0 \) is the decrease in flows to high entry load funds from medium sophisticated investors; this is multiplied by two because the decrease in flows to high entry loads leads to an equal sized increase in flows into low entry load funds (i.e., the entry load ban has a spillover effect on the low entry load funds). \( 2|f' - f| > 0 \) is the increase in flows to high entry load funds above the decrease in flows to the low entry load group from highly sophisticated investors who believe the postfee returns on high entry load funds are better after the entry loads are reduced.

The model suggests that the effect of the entry load ban on the change in flows to high entry load funds after the reform relative to low entry load funds will depend on the sophistication levels of investors. Suppose the market is completely made up of low sophistication investors. In this case equation 1 simplifies to \( x^h(c) - x^l(c') < 0 \), and the entry load ban will have the effect of reducing flows to high versus low entry load funds. Adding medium sophistication investors, equation 1 simplifies to \( x^h(c) - x^l(c') + 2[c' - c] < 0 \). In addition to the decline induced by the low sophistication investors, marginal medium sophistication investors divert their investments from high to low entry load funds as brokers have less strong incentives to encourage them into the high entry load funds. In this case the entry load ban is changing the market both by reducing inflows overall, as well as inducing a spillover effect from the high entry load group to the low entry load group. Most of the popular press coverage of this reform has focused on the case in our model with just low and medium sophistication investors.

Adding highly sophisticated investors, however, can somewhat offset the decline in flows to high entry load funds \( (2|f' - f| > 0) \). On the margin, some of these investors are now attracted to high entry load funds after the reform because the lower fees induce them to believe that the postfee returns are higher on high versus low entry load funds.

We now turn to our empirical approach which provides estimates of \( (v'_h - v_h) - (v'_l - v_l) \) and then later discuss how our estimates can be interpreted in light of our conceptual framework.

IV. Empirical Analysis of Fund Level Data

We manually construct a new monthly data set of fund level net flows, assets under management, fees, and other fund characteristics for the Indian mutual funds sector. For the period April 2006 through September 2010, the AMFI website lists the average assets under management for each Indian mutual fund in that month. From October 2010 through June 2012, average assets under management are reported on a quarterly basis. We downloaded each of these listings and merged them over time to create a panel data set of average assets under management for each fund in each month. This constitutes our base sample of fund-month observations. In appendix section A.1 in the supplemental appendix (available at http://wber.oxfordjournals.org), we detail the data sources used to construct all of the variables in our analysis.

---

28 Appendix table S1.1 illustrates this calculation.
29 For the period when only quarterly data on assets under management are available, we linearly impute values for the months where data was not reported.
We study two primary outcome variables to measure the impact of the entry load ban on fund growth. We first present results on the standard measure of fund growth used in the literature, NetFlow_{i,t}, as defined in Sirri and Tufano (1998):

\[ \text{NetFlow}_{i,t} = \frac{AUM_{i,t+1} - (1 + R_{i,t})AUM_{i,t}}{AUM_{i,t}} \]

\( R_{i,t} \) is the return earned on the securities held by the fund. \( AUM_{i,t} \) is fund \( i \)’s assets under management at time \( t \).

This net flow measure displays a significant amount of noise over time, even when we average across a large number of funds. The main issue appears to be that our assets-under-management measure is an average of the assets under management in the fund within a month. However, our returns measure is based on the return in the fund from the first day of the month to the first day of the next month. This mismatch can lead to systematically over-estimated net flows in one month and underestimated net flows in the next. Unfortunately, without daily data on assets under management, we are unable to determine to what extent the noise in this measure is due to this measurement issue.

Another important issue with this definition of net flows is that, in cases where a fund has very small total net assets in the prior period and large growth, it can produce very large net flow measures that are not necessarily indicative of fund growth. We therefore choose a trimmed sample as our baseline sample, where we remove the top and bottom one percent of observations in terms of net flows. In practice, this means that funds with net flow growth rates of less than \(-88\) percent or greater than \(350\) percent are excluded from the sample. Appendix figure S1.4 shows the histogram of net flows after the top and bottom one percent of observations have been trimmed.

To explore the robustness of our results, we also look at how assets under management have evolved after the entry load ban. Assets under management within a fund change for two reasons. First, the value of the existing assets in the fund changes based on the return earned on the securities within the fund. Second, investors purchase and sell units of the fund. We show that the trends in returns earned on high and low entry load funds were very similar throughout our whole period, and thus any comparison of assets under management across these two groups essentially already controls for changes in returns over time. The main advantage of the assets under management variable is that it is consistently and cleanly measured for all of the funds in our sample and does not appear as noisy as the net flow measure.

**Methodology**

Our primary empirical methodology is to compare the impact of the entry load ban on funds that charged high entry loads prior to the ban versus funds that charged low entry loads prior to the ban.

Figure 2 presents the distribution of month*fund observations across the levels of entry loads observed in the data in the pre-reform period. The figure shows two important mass points, one at the zero entry load point, and one at the 2.25 entry load point. For simplicity, we thus define two types of funds prior to the reform. High entry load funds are defined as those funds that charged an average entry load of 2.25 percent or higher prior to the reform. Low entry load funds are those funds that charged an average entry load of less than 2.25 percent prior to the reform. We test whether high entry load funds have attracted differentially more or less net flows after the imposition of the entry load ban.

Our results include all funds in existence prior to the reform. Funds that appear in our data but then exit prior to the reform are categorized as high or low entry load based on the level of entry load they charged prior to the ban. We also categorize funds that charged an entry load of 2.25 percent for the majority of the periods prior to the reform as being in the high entry load group. Thirty-two out of the 650 funds in the high entry load group fall into this category; these funds charged an average of 2.1 percent entry loads so they are more similar to the high entry load group than the low entry load group.
charged prior to the reform. We believe these funds are useful observations on how entry loads impacted flows prior to the law change. However, it is not possible to categorize funds that were started after the entry load ban as high or low entry load funds, as they were mandated by law to have zero entry loads. 5,372 fund*month observations are dropped for funds that were started after the entry load ban was introduced in August of 2009.

The Impact of the Entry Load Ban on All Fund Flows

Table 1 presents summary statistics on high and low entry load funds from the beginning of our data (April 2006) through the implementation of the reform in August 2009. The average entry load charged by high entry load funds is 2.23 percent, whereas low entry load funds charged .48 percent. The difference in entry loads charged by high versus low entry load funds is statistically significant at the one percent level; this is consistent with the idea that the entry load ban should have a stronger effect on high versus low entry load funds. Appendix figure S1.5 plots the average entry load charged by funds in our high entry load group and our low entry load group. The figure shows that average entry loads in the high entry load group were essentially flat at approximately two percent prior to the reform and then experienced a discrete and large drop to zero after the reform. In the low entry load group, the average entry load was slightly declining over time prior to the reform.

The mean size of funds in the high entry load group was 46.5 million dollars, whereas the mean size of funds in the low entry load group was 25.2 million dollars (significantly different at the one percent level). Net flows into low entry load funds were approximately twenty-one basis points higher than high entry load funds, but this difference is not statistically significant.

The mean return in the high entry load group is ten basis points higher per month than in the low entry load group although this difference is not statistically significant.31 We also test for whether the high entry load funds had higher risk-adjusted returns by regressing the average difference in returns

31 The returns we report in this paper are net of annual operating expenses but do not include entry or exit loads. It is difficult to incorporate the affect of entry and exit loads on returns, as these loads will vary based on the investor’s duration of investment.
across the high and low entry load group on a four factor model for India described here (Agarwalla, Jacob, and Varma 2013). We find the $z$ term is small and insignificant in these tests, suggesting that the high entry load funds did not have higher risk-adjusted returns. Figure 3 plots Carhart four factor risk-adjusted returns of these two groups of funds separately. 32 The figure shows that, at least in terms of risk-adjusted returns (arguably the most important product characteristic of a fund), there does not

<table>
<thead>
<tr>
<th>Table 1. Summary Statistics: All Funds in the Pre-reform Period</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low entry load fund</strong></td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Entry load (%)</td>
</tr>
<tr>
<td>(0.68)</td>
</tr>
<tr>
<td>Net flow (1% Trim)</td>
</tr>
<tr>
<td>(9.67)</td>
</tr>
<tr>
<td>Assets under management (rupees millions)</td>
</tr>
<tr>
<td>(5230.14)</td>
</tr>
<tr>
<td>Assets under management (US dollars millions)</td>
</tr>
<tr>
<td>(104.60)</td>
</tr>
<tr>
<td>Log(AUM(t))</td>
</tr>
<tr>
<td>(2.41)</td>
</tr>
<tr>
<td>Return(t) (%)</td>
</tr>
<tr>
<td>(5.29)</td>
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<tr>
<td>Sector adjusted return</td>
</tr>
<tr>
<td>(3.78)</td>
</tr>
<tr>
<td>Management expense ratio</td>
</tr>
<tr>
<td>(0.61)</td>
</tr>
<tr>
<td>Exit load first 30 days</td>
</tr>
<tr>
<td>(0.45)</td>
</tr>
<tr>
<td>Exit load 31 to 180 days</td>
</tr>
<tr>
<td>(0.44)</td>
</tr>
<tr>
<td>Exit load 181 to 365 days</td>
</tr>
<tr>
<td>(0.45)</td>
</tr>
<tr>
<td>Minimum investment (rupees)</td>
</tr>
<tr>
<td>(6698.30)</td>
</tr>
<tr>
<td>Minimum investment (US dollars)</td>
</tr>
<tr>
<td>(133.97)</td>
</tr>
<tr>
<td>#Funds</td>
</tr>
<tr>
<td>#Funds*month observations</td>
</tr>
</tbody>
</table>

Authors' analysis based on data described in the text. This table presents summary statistics on low entry load funds and high entry load funds prior to the reform. The high entry load group is defined as any fund that charged an entry load of 2.25 percent or higher prior to the reform; the low entry load group is the set of funds that charged entry loads less than 2.25 percent prior to the reform. The Difference column presents the difference in the mean of the variable across the two groups. Conversions from Indian Rupees to US Dollars are done at fifty rupees per dollar. Standard deviations of the variable are presented in parentheses below the mean. The significance stars in the Difference column indicate whether the mean value of the variable is significantly different across the high and low entry load groups. ***, **, * indicate significance at 1%, 5%, 10%, respectively.

32 We estimate risk-adjusted returns in the high and low entry load groups as follows. We first take the average return within each group for all months we have data and subtract the monthly risk-free rate provided for the Indian market from Agarwalla, Jacob, and Varma (2013). Within each group, we then regress this excess return on the market return, a small market capitalization versus big market capitalization factor, a high book-to-market minus low book-to-market factor, and a momentum factor. For details on the construction of these factors see Agarwalla, Jacob, and Varma (2013). These factors can be downloaded at http://www.iimahd.ernet.in/jrvarma/Indian-Fama-French-Momentum/. Our risk-adjusted return is the $z$ term from this regression within each group plus the estimated residuals (i.e., the excess return minus the expected excess return). In both the high and low entry load groups, the $z$ terms are small and insignificant.
seem to be important trend differences across high and low entry load funds prior to the entry load ban. Thus, any difference we might see in fund growth across these two types of funds after the policy reform are not driven by a major change in return performance after the policy change.

Table 1 also shows that high entry load funds are funds that generally charged higher fees overall; average annual management fees were approximately 1 percent higher in the high entry load group. Exit loads were also higher in the high entry load group, although the size of the difference in exit loads is small. High entry load funds also had lower minimum investment requirements on average.

Table 2 shows the proportion of pre-reform observations that are in ten major categories of Indian funds. In both groups, the most common type of fund are general equity funds that invest in a variety of equity instruments. Sector funds are those that focus on specific sectors such as infrastructure, banking, agriculture, etc. Balance funds are funds that invest a substantial portion of assets in debt and equities. It is important to note that the allocation of the low entry load funds across these fund categories is substantially different from the fund categories in the high entry load group. There are two major differences between the distribution of low entry load and high entry load funds across these categories. First, approximately 16 percent of the low entry load observations are index funds, while only 1.5 percent of the high entry load funds are index funds. Second, 31 percent of the low entry load group are “Income” funds. These are funds that primarily invest in debt securities but allocate a small (unobserved) proportion to equities. We suspect that these funds have lower entry loads because they catered to more

Figure 3. Risk-Adjusted Returns on High Vs. Low Fee Funds.

This figure shows the average monthly returns earned in the high and low entry load groups over time. The high entry load group is defined as any fund that charged an entry load of 2.25 percent or higher prior to the reform; the low entry load group is the set of funds that charged entry loads less than 2.25 percent prior to the reform. The dashed vertical line indicates the date the policy went into force (August 2009). We estimate risk-adjusted returns in the high and low entry load groups as follows. We first take the average return within each group for all months we have data and subtract the monthly risk-free rate provided for the Indian market from Agarwalla, Jacob, and Varma (2013). Within each group, we then regress this excess return on the market return, a small market capitalization versus big market capitalization factor, a high book-to-market minus low book-to-market factor, and a momentum factor. For details on the construction of these factors see Agarwalla, Jacob, and Varma (2013). Our risk-adjusted return is the \( \hat{\alpha} \) term from this regression within each group plus the estimated residuals (i.e., the excess return minus the expected excess return). Authors’ analysis based on data described in text.

Appendix figure S1.6 plots the mean monthly raw return for the high entry load and low entry load groups separately. The results are similar.
sophisticated investors who were interested in avoiding fees, although we do not have data on investor characteristics to test this.

Before presenting regression-based results on the impact of the entry load ban on fund growth in our two groups of funds, we first present simple graphical evidence on how fund growth has evolved in these two types of funds over time. The left panel of figure 4 plots the mean logarithm of assets under management for our high entry load and low entry load groups over the period of our sample. As these two types of funds have essentially the same trends in returns (figure 3), we can use changes in assets under management as a signal of how fund growth has varied for the two types of funds. The trends in log assets under management in both groups prior to the reform are very similar. Both series are highest in early 2008, hit a bottom in mid 2009, and show a large increase in the few months before the policy ban. Despite the fact that funds in the low entry load group were statistically and economically different from the high entry load group along a number of observable characteristics in the pre-reform period, these differences did not cause these two types of funds to have substantially different patterns of asset growth prior to the reform. Given the similarity in trends prior the reform, we argue that it is unlikely that any patterns we observe after the reform would be due to differential trends in the attractiveness of these funds before the reform.

Figure 4 also shows the main result of our paper. After the policy reform in August 2009, there does not seem to be a major decline in assets under management in the high entry load group versus the low entry load group. Both groups appear to experience a small decline in assets under management in the post-reform period. Note that, as shown in figure 3, monthly returns in the post reform period were generally positive, so the fall in assets under management for both types of funds implies substantial negative flows out of mutual funds during the post-reform period. What is interesting, however, is the fact that both high and low entry load funds experienced drops in asset growth. This result is inconsistent with the hypothesis that the entry load ban had an important impact on fund growth (we formally test whether the trends in flows in these two groups differ post-reform in section IV). If anything, the figure shows that high entry load funds have grown more in the post-reform period versus low entry load funds; this result is consistent with the behavior of the highly sophisticated investors described in section 4.

The right panel of figure 4 shows the average monthly net flows as calculated in Sirri and Tufano (1998). The series is much noisier than the assets under management series, perhaps because of the mismatch between our assets under management data and the returns data described earlier. As was shown in the summary statistics, the mean net flow for both groups is close to zero, although there is substantial

---

Table 2. Fund Categories by Entry Load Levels Prior to the Reform

<table>
<thead>
<tr>
<th>Category</th>
<th>Low entry load fund</th>
<th>High entry load fund</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index fund</td>
<td>0.16</td>
<td>0.01</td>
<td>0.15***</td>
</tr>
<tr>
<td>Tax fund</td>
<td>0.02</td>
<td>0.09</td>
<td>-0.07***</td>
</tr>
<tr>
<td>General equity fund</td>
<td>0.31</td>
<td>0.50</td>
<td>-0.19***</td>
</tr>
<tr>
<td>Large cap fund</td>
<td>0.01</td>
<td>0.03</td>
<td>-0.03***</td>
</tr>
<tr>
<td>Sector fund</td>
<td>0.02</td>
<td>0.18</td>
<td>-0.16***</td>
</tr>
<tr>
<td>Income fund</td>
<td>0.31</td>
<td>0.00</td>
<td>0.31***</td>
</tr>
<tr>
<td>International fund</td>
<td>0.00</td>
<td>0.04</td>
<td>-0.04***</td>
</tr>
<tr>
<td>Small and mid cap fund</td>
<td>0.00</td>
<td>0.08</td>
<td>-0.08***</td>
</tr>
<tr>
<td>Balance fund</td>
<td>0.15</td>
<td>0.06</td>
<td>0.09***</td>
</tr>
<tr>
<td>Gold fund</td>
<td>0.02</td>
<td>0.00</td>
<td>0.01***</td>
</tr>
</tbody>
</table>

#Funds 237 588
#Funds*month observations 5998 16723

Authors’ analysis based on data described in the text. This table presents the proportion of funds in broadly defined categories in the low and high entry load groups. See table 1 for further description.
variation in net flow rates over time. Given the noisiness of this measure over time, it is difficult to visually compare the pre-trends using this outcome measure. One discernable pattern is that starting in early 2008, both groups see a decline in net flows (on average), and then both groups display an increase in net flows starting in early 2009. After the reform, the figure suggests that high entry load funds have received higher net flows than low entry load funds, although it is difficult to conclude anything based on visual inspection of these averages.
All Funds: Empirical Results
While the figures suggest that the entry load ban was not a major cause of the Indian mutual fund industry’s negative net flows in the post reform period, tables 1 and 2 did show a number of differences across the high and low entry load groups that would be useful to control for when comparing post-reform asset growth. We now turn to a regression approach where we explicitly control for all time invariant fund characteristic differences across these two groups (using fund fixed effects), as well as time varying characteristics such as return performance, which should be important in explaining asset growth at the fund level. These tests allow us to determine whether the negative impact of the entry load ban on mutual funds might be obfuscated by other important changes occurring across these two groups during our study period.

Our primary statistical results are produced using the following estimating equation where we separately estimate the impact of the entry load ban on high versus low entry load funds:

$$Y_{it} = \beta_0 + \beta_1 \text{Post Reform} \ast \text{High Entry Load Fund}_i + \beta_2 \text{Post Reform}_t$$

$$+ \beta_3 \text{High Entry Load Fund}_i + \beta_4 P_{it} + \gamma_i + \epsilon_{it} \quad (2)$$

$Y_{it}$ is our outcome variable (either net flows or log assets under management) for fund $i$ in month $t$. The variable Post Reform$_t$ is an indicator for observations in months after the reform was implemented (August 2009 and afterwards). The variable High Entry Load Fund$_i$ is an indicator for those funds that charged an entry load of 2.25 percent or greater before the policy’s implementation. We are interested in estimating $\beta_1$, which is the difference in our outcome variable across high versus low entry load funds in the period after the policy change.

$P_{it}$ is a vector of covariates that allow us to control for the effect of prior performance (potentially convex) on fund growth (Sirri and Tufano 1998). $\gamma_i$ is a fund level fixed effect which controls for the fund type, fund’s asset management company, and any other time invariant fund features. Note that, if we had a balanced panel, then introducing fund fixed effects would not change our estimated program effect, as the program effect is only estimated off differences across groups and over time, as opposed to differences within each fund. Our panel is not balanced, however, because we have funds entering and exiting the data at different times (limiting our sample to a balanced panel would introduce survivorship bias), so it is possible that introducing fund fixed effects could change our estimates. Introducing fund fixed effects could also potentially reduce the standard errors in our estimates, as the fund fixed effects absorb variation within funds over time. Introducing fund fixed effects does not change our estimated program coefficient meaningfully, nor does it cause our estimated program impact to be statistically significant. Standard errors are heteroskedasticity robust and are clustered at the fund level.

Table 3 presents our estimation results where we use net flows into the fund as a measure of fund growth. Column (1) includes only the variables necessary to assess the differential impact of the policy change on the high and low entry load groups. Column (2) introduces fund fixed effects to the specification.\(^{34}\) Column (3) adds the logarithm of the fund’s assets under management in the prior period as a control variable. In general, we find that larger funds tended to have lower net flows over the period of our sample.\(^{35}\)

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\(^{34}\) In a balanced panel, the introduction of fixed effects would not change our main coefficient of interest ($\beta_2$). Our data, as mentioned above, is an unbalanced panel in that we include all funds that had at least one observation before the imposition of the entry load ban. If there is some correlation between the types of funds that exited the data and the timing of the policy change, then our estimate of $\beta_2$ can differ when we include fund fixed effects. We find, however, that the differences in our estimates with and without fund fixed effects to generally be economically insignificant, suggesting that there is not an important correlation between the types of funds that entered and exited and the policy change.

\(^{35}\) Using US data on mutual fund flows, Christoffersen, Evans, and Musto (2013) also finds a negative relationship between the logarithm of fund size and inflows.
Column (4) introduces Month*Year fixed effects (i.e., a fixed effect for January 2007, February 2007, etc.) to control for aggregate time effects.

Column (5) introduces a measure of fund performance as an explanatory variable defined similarly to the past performance controls used in Christoffersen, Evans, and Musto (2013). This measure is defined as follows. For each month $t$, we calculate the fund’s total return over the period $t-7$ through $t-1$ (i.e., the total return in the six months prior to the current month). We then define the variable Rank as the fund’s percentile rank within its category for that month. For example, a fund that was in the 10th percentile in its fund category based on its past six month returns would have a value of 10 for this variable. The inclusion of both these variables allows us to estimate a different slope on the performance variable below and above median performance.

In column (5) we control for the past performance of the fund using the Lag Ranked Returns Low and Lag Ranked Returns High variables. The sample size is lower in this column because we require six months of lagged return to form the fund ranking variables. Similar to previous studies, we find evidence

Table 3. Net Flows to High vs. Low Entry Load Funds

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post*high entry load fund</td>
<td>0.466</td>
<td>0.653*</td>
<td>0.534</td>
<td>0.499</td>
<td>0.0976</td>
<td>0.658</td>
</tr>
<tr>
<td></td>
<td>(0.346)</td>
<td>(0.370)</td>
<td>(0.391)</td>
<td>(0.392)</td>
<td>(0.387)</td>
<td>(0.409)</td>
</tr>
<tr>
<td>Post reform</td>
<td>-1.022***</td>
<td>-1.476***</td>
<td>-1.033***</td>
<td>-1.199***</td>
<td>-1.520***</td>
<td>-1.199***</td>
</tr>
<tr>
<td></td>
<td>(0.313)</td>
<td>(0.339)</td>
<td>(0.360)</td>
<td>(0.360)</td>
<td>(0.360)</td>
<td>(0.360)</td>
</tr>
<tr>
<td>High entry load fund</td>
<td>-0.167</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(0.255)</td>
<td></td>
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<tr>
<td>Log(AUM(t-1))</td>
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<td>-1.346***</td>
<td>-1.497***</td>
<td>-1.199***</td>
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<tr>
<td></td>
<td></td>
<td>(0.153)</td>
<td>(0.169)</td>
<td>(0.168)</td>
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<td>(0.181)</td>
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<td>Lag ranked returns low</td>
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<td></td>
<td>(0.00380)</td>
<td>(0.00391)</td>
</tr>
<tr>
<td>Lag ranked returns high</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>(0.00465)</td>
<td>(0.00490)</td>
</tr>
<tr>
<td>Observations</td>
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<td>46498</td>
<td>46498</td>
<td>46498</td>
<td>41511</td>
<td>41511</td>
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<tr>
<td>Mean net flow</td>
<td>0.0360</td>
<td>0.0360</td>
<td>0.0360</td>
<td>0.0360</td>
<td>-0.02200</td>
<td>-0.02200</td>
</tr>
<tr>
<td></td>
<td>(0.00380)</td>
<td>(0.00391)</td>
<td>(0.00465)</td>
<td>(0.00490)</td>
<td>(0.00500)</td>
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<tr>
<td>St. dev. net flow</td>
<td>7.471</td>
<td>7.471</td>
<td>7.471</td>
<td>7.471</td>
<td>7.160</td>
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<tr>
<td>Fund FE</td>
<td>No</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Month*year FE</td>
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<td>Yes</td>
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<tr>
<td>Month<em>year</em>family FE</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
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</table>

Authors’ analysis based on data described in the text. This table presents regression results on the impact of the entry load ban on net flows into high entry load funds versus low entry load funds. The dependent variable is the monthly net flow into the fund. The High Entry Load Fund variable takes a value of one for funds that charged an entry load of 2.25 percent or higher in the pre-reform period. Post*High Entry Load Fund is an interaction of the Post Reform variable and the High Entry Load Fund variable. The Log(AUM(t-1)) variable is the one-month lagged value of the logarithm of assets under management. The variable Lag Ranked Returns Low is defined as $\min(0.5, \text{Rank})$, where Rank is defined as the percentile ranking (0–100) of the fund’s past six month returns within its category. The variable Lag Ranked Returns High is defined as $\text{Rank} – \text{Lag Ranked Returns Low}$. Month*Year*Family FE are a set of fixed effects for each fund family separately for each month in the data.

Column (4) introduces Month*Year fixed effects (i.e., a fixed effect for January 2007, February 2007, etc.) to control for aggregate time effects.

Column (5) introduces a measure of fund performance as an explanatory variable defined similarly to the past performance controls used in Christoffersen, Evans, and Musto (2013). This measure is defined as follows. For each month $t$, we calculate the fund’s total return over the period $t-7$ through $t-1$ (i.e., the total return in the six months prior to the current month). We then define the variable Rank as the fund’s percentile rank within its category for that month. For example, a fund that was in the 10th percentile in its fund category based on its past six month returns would have a value of 10 for this variable. A fund in the 90th percentile would have a value of 90. To allow for a potentially nonlinear relationship between past fund performance, as shown in Sirri and Tufano (1998), we include two variables to measure this relationship as is done in Christoffersen, Evans, and Musto (2013). The variable Lag Ranked Returns Low is defined as $\min(0.5, \text{Rank})$. The variable Lag Ranked Returns High is defined as $\text{Rank} – \text{Lag Ranked Returns Low}$ (i.e., it takes a value of zero for ranks below .5 and the difference between the rank and .5 for ranks above .5). The inclusion of both these variables allows us to estimate a different slope on the performance variable below and above median performance.

In column (5) we control for the past performance of the fund using the Lag Ranked Returns Low and Lag Ranked Returns High variables. The sample size is lower in this column because we require six months of lagged return to form the fund ranking variables. Similar to previous studies, we find evidence
for a convex performance-flow relationship. The slope in the low performance range (i.e., the coefficient on the Lag Ranked Returns Low variable) is estimated to be negative and statistically insignificant. The coefficient on the Lag Ranked Returns High variable is estimated to be positive and significant. Given the noisiness observed in our net flow measure, it is reassuring to know that we observe the standard convex relationship between past performance and fund flows found in other contexts (Sirri and Tufano 1998). In terms of economic magnitude, a 10 percentage point increase in a fund’s ranking above the median ranking is associated with a 46 basis point increase in net flows in the current month.

Column (6) includes separate month * year fixed effects for each different asset management company in the data. These company-by-time fixed effects allow us to control for differential trends across different companies that might have been correlated with the timing of the entry load policy, in the way suggested by Gormley and Matsa (2014). 37

The difference between the high and low entry load funds after the entry load ban, as measured by the coefficient on the Post * High Entry Load Fund variable, is estimated as positive across all of these specifications (although not statistically significant except in column (2)). While the coefficient of .66 percentage points in the full specification (column (6)) is not statistically significant at the 5 percent level, the lower bound on the 95 percent confidence interval around this estimate (−.19 percentage points) effectively rules out the possibility of a large negative impact of the reform on net flows. For example, this lower bound on the confidence interval is small in absolute value terms relative to the standard deviation in monthly net flows of 7.19 percentage points in this sample. 38, 39, 40, 41

**Index Fund Results**

In this section we look at a specific set of funds, index funds, where it is unlikely that there were important differences across high and low entry load versions prior to the reform. We compare the asset growth of index funds that charged high entry loads versus those that charged low entry loads, then see if high entry load funds have experienced lower asset growth in the period after the reform. We point out two major differences in our analysis of index funds versus all funds. First, index funds were substantially more likely to charge zero entry loads prior to the reform and less likely to charge an entry load of

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37 We have also estimated this equation including fund category by month fixed effects. In this case the results are very similar to those when we exclude the income type funds (presented later), as including these fixed effects causes us to estimate the effect mainly within General Equity funds; General Equity funds are the only set of funds where there is substantial variation within category in pre–entry load ban entry loads (1).

38 Given that one important difference between our high and low entry load groups is the preponderance of income type funds in the low entry load group, we redo the analysis, dropping income funds from both groups. Appendix table S1.2 presents summary statistics on the high and low entry load funds dropping income funds and appendix table S1.3 presents the regression analysis. The removal of the income type funds leads to an even larger, positive, and significant estimated difference between the high and low entry load funds in the period after the policy.

39 Given the noisiness in the net flow measure, appendix table S1.4 presents the same results as table 3 but with the logarithm of assets under management as the dependent variable (results discussed in appendix section S1). The results are similar.

40 As an additional robustness check, we also estimated results where we define our low entry load group as funds that charged zero entry loads prior to the reform. This comparison group of funds experienced no change in the entry loads they could charge so should not be directly affected by the entry load ban (although spillover effects could naturally affect this group as well). Under this redefined control group, we again find no evidence to suggest that the entry load ban has caused a decline in flows into mutual funds.

41 Appendix table S1.5 conducts a robustness test where we do the analysis at the fund family level, where there is no entry and exit. We define fund families as high entry load if they had greater than the median proportion of their assets in high entry load funds. We find little evidence that the policy reduced flows to these high entry load fund companies relative to low entry load companies.
Thus, we define our low entry load group for index funds as the group of funds that charged zero percent entry loads prior to the reform, and our high entry load group as the set of funds that charge an entry load greater than zero percent prior to the entry load ban. Second, the sample of index funds in both the high and low entry load groups is relatively small, and thus the statistical results are less precise than the full sample.

Table 4 presents summary statistics on the high and low entry load index funds prior to the reform. High entry load index funds charged 1.39 percent in entry loads on average, while (by definition) the low entry load index funds charged zero percent. Appendix figure S1.7 shows that the entry load ban led to a large and discrete drop in the level of entry loads charged by the high entry load index funds. Net flows into the low and high load groups were 2.9 percent per month and 2.46 percent per month, respectively. Net flows were not statistically different at the 10 percent level. However, the low entry load funds are significantly larger, with the average assets under management in low entry load funds equal to 55.3 million dollars versus only 4.73 million dollars in high entry load funds. On average, the high entry load index funds earned approximately 80 basis points less per month (before fees). 42 However, the difference in return is not statistically significant at the 10 percent level.

Table 4. Summary Statistics on Index Funds Sample in the Pre-reform Period

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low entry load fund</th>
<th>High entry load fund</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry load (%)</td>
<td>0.00</td>
<td>1.39</td>
<td>−1.39***</td>
</tr>
<tr>
<td>Net flow (1% trim)</td>
<td>2.90</td>
<td>2.46</td>
<td>0.43</td>
</tr>
<tr>
<td>Assets under management (rupees millions)</td>
<td>2765.50</td>
<td>236.53</td>
<td>2528.96***</td>
</tr>
<tr>
<td>Assets under management (US dollars millions)</td>
<td>(10205.82)</td>
<td>(811.63)</td>
<td></td>
</tr>
<tr>
<td>Log(AUM(t))</td>
<td>5.77</td>
<td>3.84</td>
<td>1.93***</td>
</tr>
<tr>
<td>Management expense ratio</td>
<td>0.87</td>
<td>1.11</td>
<td>−0.24***</td>
</tr>
<tr>
<td>Exit load first 30 days</td>
<td>0.73</td>
<td>0.11</td>
<td>0.62***</td>
</tr>
<tr>
<td>Exit load 31 to 180 days</td>
<td>0.10</td>
<td>0.04</td>
<td>0.06**</td>
</tr>
<tr>
<td>Exit load 181 to 365 days</td>
<td>0.10</td>
<td>0.03</td>
<td>0.07***</td>
</tr>
<tr>
<td>Minimum investment (rupees)</td>
<td>6645.70</td>
<td>3901.53</td>
<td>2744.18***</td>
</tr>
<tr>
<td>Minimum investment (US dollars)</td>
<td>(2351.97)</td>
<td>(1558.58)</td>
<td>54.88***</td>
</tr>
<tr>
<td>#Funds</td>
<td>19</td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

Authors’ analysis based on data described in the text. This table presents summary statistics on low entry load index funds and high entry load index funds. The high entry load group is defined as funds that charged an entry load greater than zero percent prior to the entry load ban. The Difference column presents the difference in the mean value of the variable across the low and high entry load groups. Conversions from Indian Rupees to US Dollars are done at fifty rupees per dollar. Standard deviations of the variable are presented in parentheses below the mean. The significance stars in the Difference column indicate whether the mean value of the variable is significantly different across the high and low entry load groups. ***, **, * indicate significance at 1%, 5%, 10%, respectively.

2.25%. Thus, we define our low entry load group for index funds as the group of funds that charged zero percent entry loads prior to the reform, and our high entry load group as the set of funds that charge an entry load greater than zero percent prior to the entry load ban. Second, the sample of index funds in both the high and low entry load groups is relatively small, and thus the statistical results are less precise than the full sample.

Table 4 presents summary statistics on the high and low entry load index funds prior to the reform. High entry load index funds charged 1.39 percent in entry loads on average, while (by definition) the low entry load index funds charged zero percent. Appendix figure S1.7 shows that the entry load ban led to a large and discrete drop in the level of entry loads charged by the high entry load index funds. Net flows into the low and high load groups were 2.9 percent per month and 2.46 percent per month, respectively. Net flows were not statistically different at the 10 percent level. However, the low entry load funds are significantly larger, with the average assets under management in low entry load funds equal to 55.3 million dollars versus only 4.73 million dollars in high entry load funds. On average, the high entry load index funds earned approximately 80 basis points less per month (before fees). However,

42 We have checked whether this is due to a small number of funds in either group that earned different returns, but we found no evidence that this difference is due to outliers.
this difference does not appear to have changed much over time and the trends in returns in these two
groups of funds are very similar as shown in appendix figure S1.8. High entry load funds also charge
higher management expense ratios, although they charge lower exit loads within the first thirty days
after investment. Low entry load funds have a higher minimum investment level.

Figure 5 presents the average net flows into high and low fee index funds. From this figure, it does
appear that high entry load funds have experienced perhaps slightly lower net flows in the period after
the entry load ban relative to low entry load funds. In particular, net flows into the low entry load funds
were visibly higher than net flows into the high entry load funds in the six months after the reform.
Given the noisiness of these series it is difficult to determine from the figure alone whether these differen-
tces are statistically significant. Table 5 conducts an empirical test to determine whether the difference in
net flows into high versus low entry load funds in the post-reform period is significant. The empirical
results suggest that these two types of funds did not have significantly different net flows after the policy
change, either in a raw comparison (column (1)) or a specification that includes fund fixed effects, lagged
performance, month and year fixed effects, and family fixed effects (column (4)).

We have also tried this specification excluding the six months after the reform to determine whether
the negative point estimates are due mainly to this short period after the policy change. We do find that
the coefficients are less negative (but not positive) in this restricted sample. However, the standard errors
are too large to determine whether the estimates from this restricted sample are different from the full
sample. It is also worth noting that all of the negative estimates we find on the Post*High Entry Load
Fund interaction in table 5 are equal to less than .2 standard deviations in net flows. Thus, if there was a
negative policy impact, it has a very small effect relative to the regular monthly variation in net flows in
our sample period.

The left panel of figure 5 presents the average log assets under management for the high and low entry
load groups. The trends in assets under management across the two groups here are less similar than the
Corresponding pictures in the sample of all funds; in particular the low entry load group experienced a
much larger decline in assets under management during 2008 and early 2009. After the policy change,
the high entry load group has experienced a small decline, while the low entry load group has experi-
enced a small increase in assets under management. At the time of the policy change there were eighteen
index funds in each of the high and low entry load index fund groups. This figure alone suggests that
high entry load funds might have fared slightly worse in the period after the entry load ban versus funds
in the low entry load group. However, given the differences in trends prior to the reform, it is perhaps
harder to argue that these groups of index funds would have been similar in the absence of the policy
change.\textsuperscript{43}

Overall, when we focus on index funds, which are funds with perhaps the lowest level of heterogene-
ity prior the reform, we find little evidence to suggest that the entry load ban has caused a reduction in
the growth of Indian mutual funds. One important caveat to these results is that the standard errors on
the regression coefficients are large; we cannot decisively rule out large negative coefficients associated
with the reform. For example, the point estimates on the net flow regression are negative, so it is possible
that with a larger sample size, we would have been able to reject the null hypothesis of no difference
between the high and low entry load groups. Nonetheless, we argue that the combination of the graphi-
cal evidence, which shows little difference in the two types of funds, as well as the generally small size of
the point estimates from the regressions, suggests that the policy did not have an important differential
impact on asset growth in high versus low entry load index funds.

\textsuperscript{43}We also estimated our main equation using the index funds sample and log assets under management as the dependent
variable; we did not find evidence of a robust drop in high entry load assets under management relative to low entry
load funds.
V. Interpretation of Results

Overall, our results suggest that the period after the policy change was a time when previously high entry load funds experienced similar growth rates as funds that charged low entry loads prior to the ban. If anything, we find that as we tighten the comparison between the high and low entry load groups (i.e., add more controls in tables 3), the coefficient on the Post*High Entry Load Group variable tends to increase.

Figure 5. Asset Growth in High Vs. Low Fee Index Funds.

This figure presents the average log assets under management (left panel) and net flows (right panel) in the high entry load index fund group (solid line) and the low entry load index fund group (dashed line). The high entry load group is defined as any fund that charged an entry load greater than zero prior to the reform; the low entry load group is the set of funds that charged zero entry loads prior to the reform. The dashed vertical line indicates the date the policy went into force (August 2009). Authors’ analysis based on data described in text.
While it is beyond the scope of our paper to definitively determine the causes of this result, we believe our conceptual framework provides two useful possible nonexclusive explanations for why the entry load ban may not have led to a relative decline in the high versus low entry load funds. First, it is possible that the fund companies used other sources of fees besides entry loads to continue to pay substantial commissions (i.e., in terms of equation 1, \( c_0/C_0 \) was small). A second possible explanation is that the number of less sophisticated investors, whose behavior is influenced by brokers, is not substantially larger than the number of more sophisticated investors, who might have been attracted to high entry load funds by the reform.

Evidence on Commissions

Ideally, we would have data on the commission rates offered by mutual fund companies to brokers for all Indian mutual funds before and after the entry load ban. Unfortunately, there are no comprehensive sources of data on commissions paid to brokers prior to the ban. Shah et al. (2010) estimate using data on approximately 70 percent of fund flows in the postban period that the average upfront commissions paid to brokers equaled 1.78 percent of the initial investment in 2008, 1.39 percent in 2009, and .94 percent in the first quarter of 2010. Interestingly, this data suggests that even in the first quarter of 2010, after the entry load ban had been passed, funds were still able to pay approximately 1 percent in upfront commissions to brokers.

The data from Shah et al. (2010) are corroborated by anecdotal evidence. Shah and Kant (2011) note that according to mutual fund industry executives, commissions have come down from approximately 1.2 to 1.5 percent to approximately .75 percent after the entry load ban. Price Waterhouse Coopers India (2012) states: “Prior to the no-load regime, the distributor could earn commission between three to four percent on NFOs [new fund offers] and two to 2.5 percent on existing schemes. Post the restriction on entry loads, this has been reduced to a range of .75 percent to one percent.” This evidence suggests that the regulator’s goal of eliminating commissions paid from asset management companies to broker was not fully achieved by the entry load ban policy and that perhaps these commissions were high enough to undo any major effects of the entry load ban on net flows.

We also obtained proprietary data on upfront and trail commissions paid to brokers in the south Indian states of Tamil Nadu and Pondicherry that sell the funds of the Unit Trust of India (UTI) mutual

| Table 5. Net Flows in High vs. Low Entry Load Index Funds |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|                                | (1)                             | (2)                             | (3)                             |
| Post*high entry load fund      | -0.805                          | -0.0492                         | -0.260                          | -1.275                          |
|                                | (0.921)                         | (1.387)                         | (1.444)                         | (1.319)                         |
| Post reform                    | -2.054**                        | -2.527**                        |                                 |                                 |
|                                | (0.811)                         | (1.187)                         |                                 |                                 |
| High entry load fund           | -0.620                          |                                 |                                 |                                 |
|                                | (0.945)                         |                                 |                                 |                                 |
| Lag ranked returns low         |                                 |                                 | 0.0495***                       |                                 |
|                                |                                 |                                 | (0.0179)                        |                                 |
| Lag ranked returns high        |                                 |                                 | -0.00259                        |                                 |
|                                |                                 |                                 | (0.0311)                        |                                 |
| Observations                   | 2240                            | 2240                            | 2240                            | 2016                            |
| Mean net flow                  | 1.374                           | 1.374                           | 1.374                           | 1.352                           |
| St. dev. net flow              | 10.46                           | 10.46                           | 10.46                           | 10.27                           |
| Fund FE                        | No                              | Yes                             | Yes                             | Yes                             |
| Month*year FE                  | No                              | Yes                             | Yes                             | Yes                             |

Authors’ analysis based on data described in the text. This table presents regression results on the impact of the entry load ban on net flows in high entry load index funds versus low entry load index funds. See table 3 for further description.
fund. A fund only appears in this data if there was at least one transaction where the commission was earned or there was a change in the commission rates offered on this fund. Thus, we have a selected sample, and in particular, it is likely that the commission rates in this sample will be higher, as having a high commission may make it more likely for the fund to experience a transaction. The UTI data covers on average 6.6 funds per month (depending on the month) and includes the minimum and maximum upfront, first year trail, and second year trail commissions. The data covers the months August 2008 through January 2009 and then March 2010 through March 2013; unfortunately there is a gap in our data series between February 2009 and February 2010.

Appendix figure S1.9 plots the average maximum upfront commission offered on this particular set of UTI funds; average upfront commissions were 2.06 percent prior to the ban. Interestingly, average upfront commissions on this set of funds, even after the ban, have been equal to 1.82 percent. Appendix figure S1.10 plots the average first and second year trail commissions offered for this set of funds. The average first year trail commission for this set of funds has increased slightly from .75 percent per year to .90 percent per year, and the average second year trail commissions has increased from .39 percent per year to .55 percent per year. These results suggest, that, if anything, trail commissions have been increased in the period after the entry load ban. A broker who sold the average fund in this sample of UTI funds prior to the reform and expected the investor to stay invested for two years could expect approximately 3.2 percent in commissions earnings, whereas after the reform this broker would expect 3.22 percent in commissions earnings. The results from this small sample of funds suggest that the entry load ban might not have had as strong an effect on broker’s incentives as the regulator’s intended impact of eliminating all commissions paid from mutual fund companies to brokers.

One possibility is that the maintenance of relatively high commissions immediately after the entry load ban was primarily to maintain short-term market share but that, in the longer run, fund companies were forced to reduce commissions as revenues from entry loads were no longer available to pay them. Appendix figure S1.1 showed estimated commissions from twenty-five UTI funds for investors with holding durations of six, twelve, thirty-six, and seventy-two months. Total commissions in June 2014 are lower than those in June 2010 at the six month duration, which is consistent with the idea that over time the entry load ban may have reduced commissions more substantially. However, at the longer durations, total commissions have not changed much between June 2010 and June 2014, suggesting that the maintenance of relatively high commissions has persisted past just the period immediately after the reform.

Adjustment of Fees After the Entry Load Ban to Maintain Commissions

Given the evidence that fund companies appear to have maintained substantial commissions despite the entry load ban, it is interesting to test to what extent they raised other fees to offset the policy-induced decline in entry loads. Indian mutual funds had three methods of raising money to pay commissions after the entry load ban. First, they could charge up to 1 percent in exit loads and use those revenues to pay commissions. Second, they could use any loads saved up prior to the entry load ban to pay commissions. And third, they could use a portion of the management expense ratio charged to the fund as a whole to

44 Minimum and maximum commissions are included because different individual broker’s within this broker’s network receive different commissions; the minimum level is almost always zero, so all the statistics we report refer to the maximum commission.

45 In appendix section S1 we discuss the related fact that Systematic Investment Plans (SIPs) became substantially more popular after entry load ban (see appendix figure S1.11); this is consistent with the idea that brokers were now more focused on trail commissions, as SIP investments are typically of longer duration.
pay for commissions. In this section we discuss to what extent funds adjusted along these various margins to maintain commissions after the entry load ban.

Table 6 presents an analysis of how funds changed their fees after the entry load ban and also how these fee changes translated into different costs for investors of different holding horizons.\(^{46}\) One important feature of this table is that the sample is limited to fund-month observations in the time period August 2008 through August 2010, where we have data on entry loads, exit loads, and management expense ratios.\(^{47}\) While funds almost always report their entry and exit loads in monthly fact sheets, it is much less common for funds to report their management expense ratios. Of the 17,057 fund-month observations in our main sample in this time frame, we were only able to locate the management expense ratio charged in that month for 5,329 observations. Therefore, an important caveat to this analysis is that it pertains only to a relatively small set of funds where all fee data was available.\(^{48}\)

The main independent variable of interest is the Post\(^{*}\)High Entry Load Group interaction between a dummy for the post-reform period and whether the fund had a high entry load prior to the reform. All regressions include fund fixed effects and month\(^{*}\)year fixed effects. In column (1) the dependent variable is the entry load charged by the fund in a given month. As expected, the entry load ban is associated with a large and significant drop (1.7 percentage points) in the level of entry loads in this sample. In column (2) the fund’s management expense ratio is the dependent variable. We find little difference in the level of management expense ratios charged by high entry load funds after the ban. In columns (3)–(5), the dependent variable is the exit load (measured in percentage points). In this sample, we find that high entry load funds charged approximately .26, .28, or .30 percentage points more for exiting the fund in between 0 and 30 days, 30 and 180 days, or beyond 180 days, respectively. Interestingly, these results suggest that high entry load funds did somewhat offset the mandatory reduction in their entry loads by charging higher exit loads.

In columns (6)–(8), the dependent variables are the total rupees paid in fees on a one hundred rupee investment that is sold after six months, one year, and six years, respectively. Overall, the entry load ban causes an approximate 1.4 percentage point reduction in fees across these horizons; note that this effect

Table 6. Changes in Fees

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Entry load</th>
<th>MER</th>
<th>Exit load</th>
<th>Total fees on 100 rs. investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holding period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;1 Month</td>
<td>1–6 Months</td>
<td>&gt;6 Months</td>
<td>6 Months</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Post(^{*})high entry load fund</td>
<td>$-1.71^{***}$</td>
<td>$-0.00184$</td>
<td>$0.256^{***}$</td>
<td>$0.282^{***}$</td>
</tr>
<tr>
<td>Observations</td>
<td>5329</td>
<td>5329</td>
<td>5329</td>
<td>5329</td>
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<tr>
<td>Mean dep. var</td>
<td>.755</td>
<td>2.064</td>
<td>.802</td>
<td>.751</td>
</tr>
<tr>
<td>St. dev. dep. var.</td>
<td>1.063</td>
<td>.555</td>
<td>.451</td>
<td>.478</td>
</tr>
<tr>
<td>Fund FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Month(^{*})year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Authors’ analysis based on data described in the text. This table presents regression results on the impact of the entry load ban on the level of entry loads, management expense ratios (MER), and exit loads charged by funds, as well as the total costs for a six-month, one-year, and six-year horizon investor. Post\(^{*}\)High Entry Load Fund is an interaction of the Post Reform variable and the High Entry Load Fund variable.

\(^{46}\) For a general discussion of the economic rationale for different types of mutual fund fees, see Chordia (1996).

\(^{47}\) We focused on this period to reduce the cost of data collection as management expense ratios were manually collected.

\(^{48}\) We found similar results to the main sample when we tested whether the entry load ban caused a reduction in fund growth in this more limited sample.
does not vary over time because changes in entry and exit loads charged do not depend on the investor’s holding period (and we estimate no change in management expense ratios). Overall, the data suggests there may have been some adjustment in exit loads but that these higher exit loads were most likely swamped by the major decrease in entry loads caused by the policy change.

Relative Importance of Different Types of Investors
Our conceptual framework also highlights the possibility that for some high-sophistication investors, the entry load ban might increase the flows to high entry load funds relative to low entry load funds. If these types of investors are quantitatively important, then it is possible that the positive effects on flows induced in this group offset the negative flow effects in the less sophisticated groups, yielding our findings of little overall difference across the two groups. Assessing the importance of this explanation would require proxy data on investor sophistication as well as investor-level investment information, which is currently not available. However, we believe our results are very useful in ruling out the idea that, at least in this particular context, the mutual funds market was made up primarily of low sophistication investors whose behavior is strongly determined by commissions-motivated brokers.

Did the Entry Load Ban Cause an Aggregate Decline in Fund Flows?
The results so far are inconsistent with the entry load ban being the main reason for the massive outflows out of mutual funds after the entry load ban. One possible impact of the ban that our conceptual framework and empirical strategy cannot address, however, is that both high and low entry load funds experienced lower net flows after the reform. Our empirical strategy exploits differences in flows to high and low entry load groups, with the assumption that high entry load funds should have been more affected by the entry load ban than low entry load funds. It is possible that an additional effect of the ban is that both high and low entry load groups experienced lower flows due to the ban (perhaps because some brokers chose to exit and stop selling all funds). Our strategy only picks up impacts of the ban that cause differential flow changes across high and low funds.

While it is possible that the entry load ban caused reduced flows into both groups (i.e., the industry as a whole) to fall after the reform, we believe it is unlikely that the entry load ban was the main cause of the fall in net flows into mutual funds overall. The main reason is that low rates of investment during this period were observed in other financial assets as well, including bank accounts, equities, and bonds. We would expect that if the entry load ban, which only applied to mutual funds, was an important cause of the generally low flows into mutual funds, that only mutual funds would show low flows in the post entry load ban period. What we observe, however, is that essentially all financial assets, including equities, bank deposits, and bonds, had low investments in the post entry load ban period.

The period between 2009 and 2012 followed the 2008 financial crisis. Anecdotal evidence suggests this made households wary of investing in financial assets, and led them towards real assets such as real estate and gold. Aggregate data from the Reserve Bank of India suggests that the period after the entry load ban was in general a time when households were moving out of financial assets and into real assets such as real estate and gold. Net financial saving (i.e., savings in financial instruments such as stocks, mutual funds, bonds, and bank accounts) fell from 12.2 percent of GDP in financial year 2009–2010 to 9.3 percent in 2010–2011, and to 7.8 percent in 2011–2012 (Reserve Bank of India 2012). The 2011–2012 Annual Report of the Reserve Bank of India highlights this issue specifically:

49 We have conducted the analysis on the much larger set of funds that have entry and exit load data but are missing expense ratio data. In that set of funds we find no evidence that funds raised exit loads after the entry load ban (see appendix section S1 and appendix figures S1.12, S1.13, and S1.14.

50 We note that this may be a very context-specific result; in times when markets are rising, the number of unsophisticated investors could increase substantially and brokers may be more influential.
With real interest rates on bank deposits and instruments such as small savings remaining relatively low on account of the persistent high inflation, and the stock market adversely impacted by global developments, households seemed to have favored investment in valuables, such as gold. In the post-global crisis period, valuables have increased from 1.3 percent of GDP at current market prices in 2008–09 to 2.8 per cent in 2011–12; the share of valuables in investment (gross capital formation) has also increased from 3.7 per cent to 7.9 per cent, over this period. The apparent proclivity of households towards investment in valuables such as gold could have also impacted the pace of their investment in physical assets such as housing in 2011–12.

To confirm that the above aggregate patterns are also likely to be true for household investments into mutual funds, we use data from Consumer Pyramids, a newly available representative household survey of all households in India conducted by the Centre for Monitoring Indian Economy (CMIE) on a quarterly basis. This is a panel data set where each survey household is contacted quarterly to answer questions on income, consumption, saving, and borrowing. This survey began in March 2009 with 120,000 households. In March 2011, new households were added to the panel, and the sample size was increased to 150,000 households. In appendix figure S1.15, we present the proportion of households with outstanding investments in various asset classes. This includes financial instruments, such as mutual funds, life insurance, and fixed deposits, as well as real assets, such as gold and real estate. The figure shows a substantial increase in the proportion of total households with outstanding investments in gold and real estate.

VI. Conclusion

Expanding formal financial markets is a key policy goal in many developing countries. Policymakers face an important trade-off in regulating the role that brokers play in the expansion of these markets. On the one hand, brokers have historically played a very important role in the development of formal financial markets throughout the world, and so regulating firms’ ability to pay commissions to brokers may slow the growth of formal financial markets. On the other hand, recent anecdotal and empirical evidence suggests that commissions-motivated brokers may provide unsuitable advice.

Our paper provides some first evidence on the impact of a regulation that attempted to reduce the importance of brokers in the intermediation process. We study the impact of a ban on entry loads whose purpose was to reduce the amount of commissions that fund companies would pay to brokers. A first order concern with this type of policy is the possibility that reducing commissions would slow the growth of the mutual funds market. Consistent with this, aggregate data shows that net flows into mutual funds declined dramatically in the three years after the entry load ban was introduced. However, our comparison of funds that were heavily affected by the policy (high entry load funds) versus funds that were less affected (low and zero entry load funds) reveals that previously high entry load funds have not attracted lower flows after the entry load ban. We conclude from this analysis that this particular commissions reform did not have a major impact on the relative attractiveness of funds and that the entry load ban is unlikely to have played an important causal role in the aggregate decline in flows into mutual funds.

The entry load ban’s stated goal was to discourage mutual fund companies from paying commissions directly to brokers; instead, the regulator envisioned a market where investors paid brokers directly for advice. The available, albeit limited, data on commission levels paid to brokers in the period after the reform suggest that the entry load ban was not successful in eliminating commissions paid from fund companies to brokers. We suspect that the entry load ban ultimately did not have an important impact on fund flows because fund companies were able to maintain substantial commissions even after the ban. Although upfront commissions were approximately 1 percent lower in the period after the entry load ban, our results suggest that the marginal flows lost from this decline in upfront commissions was small. Another complementary explanation for our results is that the number of investors who are
strongly influenced by commissions is actually relatively small (at least during this time period); understanding what types of market conditions are associated with commissions influencing behavior most is an interesting area for future research.

Our paper, while not a complete welfare evaluation of the Indian entry load ban, does suggest that the entry load ban did not have major negative consequences for the growth of the Indian mutual fund industry. Fees and commissions paid by investors appear to have declined modestly while our estimates suggest that flows were not substantially affected. Given that higher fees typically did not earn investors higher returns prior to the reform, investors are likely to experience higher net of fee returns in the future due to the reform. The reform may also have had other benefits that are outside the scope of our analysis. It is possible that brokers are less likely to encourage investors to quickly buy and sell investments to maximize commissions as the reform reduced upfront commissions. The reform also appears to have caused the industry to innovate towards using trail commissions (i.e., commissions paid based on how long an investor holds a mutual fund, as opposed to at the time of entry), which at least in theory should better align the incentives of brokers and investors (Barbora 2015). We leave the evaluation of these benefits to future work, perhaps in other contexts, where better data and additional reforms allow for a more holistic evaluation.

References


