

# Are Investors for Sale? Evidence from Financial Mergers

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## **Abstract**

We study consolidation in the global asset management industry. The performance and flows of acquiror-affiliated funds deteriorate during the merger process because of declining performance in the acquiror's areas of investment expertise. Acquirors take a number of steps to counteract these trends: First, they shift the relative intensity of new fund launches towards the target's distribution markets generating higher flows in new funds there. Second, in their own distribution markets, they price new funds more aggressively and consolidate their menu via fund mergers, leading to lower fees on existing funds. Third, both acquiror- and target-affiliated funds converge in their portfolio compositions after gaining a common affiliation via a merger. Specifically, acquiror (target) funds begin investing in areas where the target (acquiror) used to invest prior to the merger and generate outperformance in those newly-entered investments. Our results indicate that mergers allow acquirors to capture new flows both directly (via target distribution channels) and indirectly (via learning about new investment areas).

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## I. Introduction

While the numbers mutual funds and fund families worldwide have increased over the last 10 years (by 140% and 120% respectively), the industry concentration of global asset management firms has increased by about 400% over the same period.<sup>1</sup> Further, recent years have seen a number of high profile mergers between asset managers, the acquisition of Barclay's Global Investors by BlackRock Inc. being perhaps the most visible one. Mutual funds are thus increasingly managed in large investment conglomerates, and the industry is dominated by a small number of very large management companies.

The consolidation wave in the global asset management industry raises a series of questions. What are the motives for global asset managers to merge? What benefits do acquirors hope to generate when undertaking a merger (and at what costs)? Do funds in these conglomerates follow independent investment strategies or are their actions coordinated? In general, will investors be impacted by such mergers, and how?

In this paper, we analyze mergers between global asset managers to answer but a few of these questions. Combining a worldwide sample of 100 merger deals in the asset management industry over the period 2000 to 2013 with the FactSet/LionShares international institutional ownership data, and the Morningstar database of international mutual funds, we analyze their impact on firm and investment policies of both acquirors and targets. Specifically, we study the investment performance of funds impacted by mergers, various firm responses to this performance, and changes in individual funds' investment policies, to understand and quantify the possible rationales and drivers associated with the mergers.

Our testing environment allows us to overcome a number of empirical challenges. First, due to our detailed data on international funds, their portfolio and ownership structures, we can directly analyze the impact of mergers on the "production processes" (i.e., portfolio choices, fund launches and liquidations, product pricing via fees) of the individual "business units" (i.e., individual funds) of both acquiror and target firms. This allows us to carry out a detailed

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<sup>1</sup> The ratio of the assets under management of the top 1% largest mutual fund families to the bottom 50% rose from 8.3 to 33.4 according to our data.

decomposition of how corporate reorganization affects firm behavior. Second, the richness of our data allows us to directly identify and quantify synergies without relying on either stock returns or valuation multiples. The latter are a noisy measure of value creation as they combine the effects of (over-)payments, synergies, and likelihood of success of the merger (e.g., Barraclough et al. (2013)). Also, they are associated with the entire acquiror-plus-target combination, as opposed to the individual divisions or business units directly affected by the acquisition. Instead, we gauge merger gains directly via changes in firm and investment behavior around the event.

To structure the analysis, we contrast two opposing views of why mergers between asset managers may take place. We first conjecture that mergers take place because the acquiror is seeking to extract economic gains from the target. These gains could come in two principal forms: 1) access to new distribution channels and markets, and 2) access to new investment expertise. For example, in March 2010, Aviva Investors Global Services Ltd (a U.K. firm) acquires River Road Asset Management LLC (a U.S. firm), with the stated objectives to create “new opportunities to grow third party institutional business in North America” and to provide “Aviva Investors with a strategically important US equity investment capability.”<sup>2</sup> Under this view, a merger is a form of buying access to investors and ultimately flows – either directly via new distribution channels, or indirectly because of better investment expertise that improves performance.

The alternative, less benign, view states that mergers between asset managers are a manifestation of agency problems in which the management of acquiring firms is seeking to build empires that do not create tangible benefits in the post-integration period. This alternative view reflects the tenor of the literature that mergers, on average, do not create value for the acquirors (e.g. Andrade, Mitchell, and Stafford (2001); Betton, Eckbo, and Thorburn (2008); Moeller, Schlingemann, and Stulz (2005)).

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<sup>2</sup> From Aviva’s press release (URL: [http://www.avivainvestors.co.uk/consultants/media-centre/2010-archive/xml\\_022340.html](http://www.avivainvestors.co.uk/consultants/media-centre/2010-archive/xml_022340.html)).

Our first observation is that fund performance deteriorates for acquiror-affiliated funds during the merger process, while the performance of target-affiliated funds stays constant. The average acquiror fund underperforms by 74 bps to 78 bps per year, depending on the risk-adjustment, in the post-merger period. Deteriorating performance is concentrated in “old” investments, i.e., in country-industrial sectors held prior to the merger, where it reaches up to 96 bps per year. Consequently, we observe that flows to acquiror funds are significantly lower in the post-merger period. Indeed, acquiror funds suffer on average annualized net outflows of 7% of their total net assets (TNA) per year in the post-merger period.

These initial observations are consistent with both views outlined above. If mergers are a manifestation of agency problems, it is perhaps not surprising to observe deteriorating performance following the event because internal resources are being misallocated in the process. Alternatively, if acquirors anticipate deteriorating performance, then undertaking a merger could be a response to counter the trend. Therefore, to separate the two, we analyze how various firm and investment policies change around the merger completion date as well.

We first examine the propensity to launch new funds. Overall, the combined acquiror-target entity launches fewer funds in the post-merger period, consistent with internal consolidation. However, the propensity to launch new funds is re-allocated towards funds that are sold in the target’s distribution markets. In those markets, the family effectively does not reduce its intensity to offer new products. This hints at a direct benefit from acquiring the target – access to new distribution markets.

Indeed, when we analyze fund flows in the post-merger period, we find that newly-created funds have higher flows than existing funds (even when ignoring that some old funds receive discretionary inflows from fund mergers, see below). On average, flows to newly-created funds exceed flows to old funds by 37% of their TNA (or 40 million USD on average) per year in the post-merger period. This implies net positive flows to newly created funds. For funds that are available for sale in the target’s core distribution market, the effect is over one third stronger, and the difference of flows reaches up to 50% of fund TNA per year.

Interestingly, we find a similar pattern for new funds launched under the target's structure. New target funds also attract more flows than old target funds. This is again concentrated for funds launched in the target's distribution markets. These results suggest that acquirors select targets based on attractive growth prospects, especially when the acquirors markets are already saturated.

To test this idea systematically, we analyze fund consolidation and pricing. Acquirors streamline the product offering by carrying out fund mergers. The average deal impacts 33 distinct funds (across acquiror and target) and 2.5 fund mergers take place around it. About 70% of fund mergers in our sample occur after the deal.

Streamlining the product menu is then associated with more aggressive pricing. On average, we find that the liquidated fund has a 14% higher expense ratio compared to the receiving fund. We also find evidence that the share class structures of existing funds are streamlined. For the average deal, we observe 2.5 share class merger cases, i.e. existing share classes are merged within one fund. Consistent with aggressive pricing, we find that the liquidated share class has 24% higher fees compared to the receiving share class. Finally, when we analyze the fees of newly created funds, we find that these new funds are launched with lower expense ratios compared to existing funds. Interestingly, this difference is purely driven by new fund launches in the acquiror distribution markets. Such funds have 10-15% lower expense ratios compared to both existing funds and new funds launched in the targets distribution market. Funds launched in the targets distribution market are not offered at a discount relative to existing funds. All these results suggest that acquirors actively address deteriorating performance and outflows in their existing product menu and distribution market in the context of the merger, which is inconsistent with the view that mergers are a pure manifestation of agency problems that do not yield tangible gains.

While the merger provides access to new markets, a second possible benefit could come in the form of complementary investment expertise between the acquiror and the target. If so, then funds can incorporate these insights in their portfolio decisions. Consistent with this idea, we find that acquiror funds on average reallocate their portfolios closer to the pre-merger portfolios

of the target funds. Target funds also turn to an asset allocation closer to that of the pre-merger acquiror funds. These effects are indicative of synergies due to information exchanges between acquiror and target funds, or simply “learning”.

How does “learning” take place, and for what investments do newly affiliated funds exchange information? Building on a growing literature on learning on the job and experience as a first-order driver of fund performance (e.g., Cici, Gehde-Trapp, Goericke, and Kempf (2014), Kempf, Manconi, and Spalt (2014), and Schumacher (2014)), we decompose portfolio convergence and analyze country-industrial sector sub-portfolios of the different funds. Continuing with the Aviva-River Road example, prior to the acquisition, funds in Aviva have no holdings of stocks in U.S. Automobiles, while River Road funds have a 2% average exposure to them in their portfolios. Following the acquisition, we ask if Aviva funds begin establishing an exposure to U.S. Automobiles. We find that this is the case.

This episode reflects a general pattern. We decompose acquiror and target funds’ holdings depending on whether a given industrial sector-country combination was exclusively represented in the target funds’ portfolios (like U.S. Automobiles in the River Road portfolios), in the acquiror funds’, or in neither, prior to the acquisition. We find that acquiror funds scale down their exposure to acquiror country-sectors, and increase their exposure to country-sectors held by the target or not held before. In particular, over the 3-year period following the acquisition, acquiror funds decrease their exposure (net of price appreciation) to acquiror country-sectors by 8% and increase their exposure to target country-sectors by 10% (country-sectors held by neither acquiror nor target funds before also receive a portfolio allocation). This is consistent with the acquiror exploiting the target’s expertise. Among the target funds, we see similar effects. Target funds reduce their exposure to target country-sectors (by 12.7%) and increase their exposure to acquiror country-sectors (by 14.5%), and to completely new country-sectors). In sum, we find strong evidence of portfolio convergence that is broadly indicative of “learning”.

However, portfolio convergence in itself is not conclusive evidence of “learning”. For example, the merger could lead to increased in-house competition between newly affiliated

funds, as it can create redundancies in the overall fund menu the combined entity offers to investors. This can make career concerns loom large for mutual fund managers and lead to herding, giving rise to the observed convergence in portfolio holdings, and possibly increased risk taking (e.g., Chevalier and Ellison (1999), Kempf and Ruenzi (2008)).

To clarify if the observed changes in investment policies around mergers are indeed indicative of “learning”, we decompose fund performance. If portfolio changes are due to “learning”, they should lead to better investment performance. If instead they are just the result of increased competition or risk-taking, they should lead either to no performance changes or to lower risk-adjusted performance.

While we have indicated above deteriorating performance of acquiror-affiliated funds on average, we find that portfolio convergence is associated with performance improvements. Specifically, we find that acquiror funds realize the highest sub-portfolio (out-)performance after the merger in those country-sectors that they entered following the merger. Acquiror funds outperform in newly entered country-sectors (that were held by the target funds before the merger) relative to country-sectors held by themselves prior to the merger by about 2% to 2.5% per year, depending on the risk-correction. This result is almost symmetrical for target funds, which also register the strongest sub-portfolio performance in newly-entered investments in the acquiror’s areas of expertise.

The effects we discuss are derived from regressions that control for unobserved heterogeneity at the deal level, or even fund level, via fixed effects. This is an important aspect of our empirical strategy because it allows us to rule out a number of alternatives. For example, the non-random matching between acquiror and target could lead to overall changes in the investment process that is applied in every portfolio choice, which could lead to portfolio convergence and changes in performance. Or it could lead to organizational deficiencies due to post-merger integration problems that affect all funds in the combined entity. A deal fixed effect controls for any such issue and allows us to paint a differential picture of what specific investments drive portfolio convergence and performance changes. Likewise, a given fund could benefit because its manager is particularly capable of applying the investment philosophy

of the counterparty firm and apply it to all its investments. A fund fixed effect directly controls for such alternatives at the fund-level, and again allows us to identify in which area of the portfolio a particular fund implements changes that result in a performance effect. In that sense, while our fixed effect strategy prevents us from estimating the cumulative synergies that result from a given merger, it allows us to precisely identify specific synergies unique to the “production processes” of the different “business units” involved.

Overall, our results indicate that acquirors engage in mergers to compensate for deteriorating performance in their old areas of investment expertise and to meet market saturation in their old distribution markets. We speculate that market access and “learning” via information extraction are the primary drivers of mergers in the global asset management industry. They constitute hitherto unexplored but measurable sources of synergies.

In a future draft, we will attempt clarify this conjecture further by answering the following questions: First, is there direct evidence of “learning” via information extraction, e.g., on part of the acquiror from the target? We are in the process of collecting individual fund manager data to explore if individual managers from the target begin managing acquiror funds, and if so, which managers “change sides”.

Second, we wonder if gaining market access or investment expertise via mergers is efficient. For example using a matching-sample analysis, we will explore if these benefits persist when comparing against other active funds that entered the same markets or were launched in the same markets but were not part of a merger. Doing so will allow us to conclude if market access and information extraction via mergers is a viable (i.e., cost-efficient) strategy for acquiror funds. Also, we will analyze the matching between acquiror and target in more detail to understand if the choice of target is consistent with the acquiror’s ex-ante weaknesses in terms of distribution and investment capabilities.

We make two main contributions to the literature. First, we contribute to the literature on conglomeration in asset management and coordination among funds belonging to the same family. While the literature largely agrees on the presence of “favoritism” and coordination in fund families and financial conglomerates in general (e.g. Massa (2003), Gaspar, Massa, and



Matos (2006), Massa and Rehman (2008), Chuprinin, Massa, and Schumacher (2014)), the extant evidence is at best circumstantial, and indirect. In contrast, by looking within fund portfolios we can directly examine the “production process” of asset managers, and show that the changes in performance occur precisely in the sub-portfolios consistent with information extraction—namely, in target-exclusive sectors.

Second, we contribute to the literature on mergers and acquisitions. Our main contribution here is to open up the “black box” of reorganizations around the merger, highlighting, identifying and measuring an important source of value creation: customer access and the transfer to knowledge and expertise from the target to the acquiror. This is important not least because the literature on mergers and acquisitions has often found that merger gains predominantly accumulate to target shareholders. In contrast, Andrade, Mitchell, and Stafford (2001) point out that identifying what benefits accrue to acquirors in return has been a thorny issue in the literature. Our set up using mergers between international asset managers directly speaks to this question and our empirical strategy allows us to identify such benefits to acquiror firms.

The paper proceeds as follows. Section II describes our main data sources and sample characteristics. Section III presents preliminary evidence on fund performance around the merger event. Section IV analyzes firm responses in terms of product launches, fund mergers, flows and pricing. Section V analyzes portfolio changes around asset manager mergers and the performance impact associated with these changes. A brief conclusion follows.

## **II. Data**

Our analysis combines information from a range of data sources: SDC Platinum and Zephyr Mergers and Acquisitions databases, FactSet/LionShares institutional holdings, the Morningstar Global database, section Global open-end funds, as well as international stock return data from Thomson Datastream and balance sheet information from WorldScope.

## *A. Sample Selection*

The starting point of our analysis is a sample of mergers between asset managers around the world, retrieved from the SDC Platinum and Zephyr-Bureau van Dijk Mergers and Acquisitions databases. Both databases claim to offer comprehensive coverage on M&A deals around the world. Both databases provide information on acquiror and target identity, deal announcement date and structure, and source of the information. SDC and Zephyr are complementary: SDC has a longer history and broader coverage for U.S. deals, Zephyr for non-U.S. deals. Due to constraints on the availability of institutional investors stock holdings data from FactSet/LionShares (see below), we consider deals completed after 2000 and up to 2013.

Following Kacperczyk and Hong (2010), we restrict the attention to deals in which both the acquiror and the target belong to the financial industry (SIC code 6211, “Investment commodity firms, dealers, and exchanges”), and in which the acquiror controls more than 50% of the target’s shares after the transaction.

Next, we require that portfolio holdings information is available in the FactSet/LionShares database for both the merging asset managers at least one year prior to the acquisition completion date. This database reports security-level holdings for mutual funds (as well as a variety of other entities, e.g. insurance, closed-end, and pension funds, excluded from our analysis). Ferreira and Matos (2008) describe the database in detail. The holdings data are reported at the semi-annual frequency for about 50% of the entities in FactSet/LionShares and at quarterly frequency for about 40%. The remaining 10% report mostly at a higher frequency, e.g., monthly, with a few entities only reporting annually. Following Chuprinin, Massa, and Schumacher (2014), we focus on semi-annual holdings information throughout the analysis, to maximize coverage.

We merge the M&A deals with FactSet/LionShares by manually screening acquiror and target names. For each mutual fund, FactSet/LionShares identifies its management company, as well as the management company’s ultimate parent. Wherever possible, we match the acquiror or target in the M&A deals data directly to a management company in FactSet/LionShares. In a number of deals, ultimate parents are directly involved in the merger: for example, in July 2001,

Bank of America Corp. (parent company) takes over Marsico Capital Management LLC (management company). In all such cases, all management companies associated with Bank of America Corp. are treated as acquirors, and their funds as acquiror funds (and likewise, reversing roles, when the target is in turn a parent company). These filters result in a final sample of 100 deals.<sup>3</sup>

To obtain data on fund performance, we match FactSet/LionShares to the Global Open-End funds section of the Morningstar Direct mutual fund database. From Morningstar, we obtain monthly fund returns, fees, information on share classes and other fund characteristics such as the investment style of the fund.<sup>4</sup>

We restrict the attention to open-ended, actively managed mutual funds.<sup>5</sup> We further require that our sample funds are classified as “Equity” by Morningstar (or have at least 80% of their total net assets (TNA) in equity if the Morningstar identifier is missing), and that their TNA is at least \$5 million, to attenuate concerns about incubation bias (Fama and French (2010)). Finally, to complement the holdings information and to construct benchmark portfolios, we download stock price and accounting information on all stocks in our dataset from Thomson Datastream and Worldscope. To this information, we apply standard screens to detect data errors, as outlined in Ince and Porter (2006) and performed in e.g., Schumacher (2014).

The resulting data set comprises 2,441 funds, affiliated with 307 management companies (or their parents). The holdings data coverage is broader for acquirors than for targets: out of 2,441 funds overall, 2,050 are acquiror funds, and 540 target funds (149 funds are acquiror funds in one deal and target funds in another deal); similarly, out of 307 management companies, 233 are acquirors, and 93 targets (19 management companies are acquirors in one deal and targets in another deal).

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<sup>3</sup> The process of identifying the acquiror and target entities by hand in FactSet/LionShares is still ongoing. At this point, we are working with a preliminary (but unbiased) sample of deals that we obtained using direct string comparisons. In a future draft, we expect to expand our sample to comprise a broader set of deals.

<sup>4</sup> A partial linking table between Factset/LionShares and Morningstar is provided by Factset directly. We complement this list using a fuzzy string matching computer program, and manually screen the code output to obtain a complete matching table between the two databases.

<sup>5</sup> We rule out the index funds based on an “Index” flag provided by Morningstar.

## *B. Sample Characteristics*

The set of M&A deals covered by our analysis spans a broad range of 32 countries, and the average deal in our sample involves 33 funds (affiliated to the acquiror or the target). Table 1 reports their average characteristics, in the overall sample (column (1)), as well as separately for acquiror (column (2)) and target (column (3)) funds. The average fund in our sample has TNA equal to \$519 million. Compared to the target funds, acquiror funds are on average larger (\$553 m compared to \$371 m, t-stat: 4.11), less volatile (19% annualized compared to 20%, t-stat: -2.35), older (13.3 years compared to 11.7 years, t-stat: 3.57), have lower expenses (1.51% per year compared to 1.58%, t-stat: -2.91), and marginally better pre-merger market-adjusted performance (140 bps annualized, compared to 90 bps, t-stat: 1.89).

## **III. Preliminary Evidence on Fund Performance**

In this section we briefly describe our empirical approach and present initial evidence on fund performance around the merger events.

### *A. Empirical Approach*

Our empirical approach relies on estimating multivariate regressions in event time. Our baseline specification is:

$$Outcome_{f dt} = \alpha + \beta PostM\&A_t + \gamma' x_{f dt} + \varepsilon_{f dt}. \quad (1)$$

The dependent variable is an outcome measure (e.g., fund performance, flows, fees, portfolio changes) for fund  $f$  involved in merger  $d$  in period  $t$ .  $PostM\&A_t$  is an indicator variable equal to one if period  $t$  occurs after the merger, and zero otherwise.  $x_{f dt}$  is a vector of control variables including fund (and sometimes counterparty fund) characteristics.

As in any study of mergers and acquisitions, estimating equation (1) faces the challenge that the matching between acquiror and target is not random. In particular, it could be driven by management company-wide strategic considerations. For example, the non-random matching between acquiror and target means that the acquiror buys the target to implement the

target's overall "investment philosophy" across all funds. This could lead to overall changes in the investment process that is applied in every position in every fund which could lead to portfolio convergence and changes in performance. Alternatively, the merger could lead to organizational deficiencies due to post-merger integration problems that affect all funds in the combined entity. Likewise, a given fund could benefit because its manager is particularly capable of applying the investment philosophy of the counterparty firm and apply it to all its investments. Or even more simply, different fund managers may be differentially skilled leading to changes in investment policies across all positions.

We exploit the richness of our dataset to overcome these difficulties. Since each deal involves a large number of funds on both the acquiror and the target side, we can include deal fixed effects in equation (1). The deal fixed effects subsume any unobservable factor affecting the match between a given acquiror and target. This includes issues related to the overall implementation of investment process, deficiencies resulting from post-merger integration, and indeed, any factor that does not vary within a given acquiror-target pair. Furthermore, in separate specifications we include fund fixed effects, effectively controlling for any fund characteristic, observable or otherwise, which does not vary around the merger. This will include the fund specific skill of the manager as discussed above.

In our sample, we observe only fourteen "serial" acquirors,<sup>6</sup> i.e., the vast majority of funds (73%) are only affected once by a merger. Therefore, for our baseline specification, we chose to include fund fixed effects as they are most granular. To confirm robustness, we also estimate the specification with deal fixed effects and fund  $\times$  deal fixed effects. To conserve space, we do not report from the last specification, but the results are available upon request. Once we control for deal or fund fixed effects, any residual variation in the data must be due to factors that vary across different funds involved in a given deal, or around the merger date within a given fund.

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<sup>6</sup> In our sample, Affiliated Managers Group Inc. is the largest serial acquiror in terms of the number of undertaking acquisitions, which conducted 5 mergers.

In the estimation, we allow the standard errors to be correlated across different observations associated with a given fund. That is to say, we assume the standard errors to be of general form:

$$\varepsilon_{f dt} = \nu_d + \nu_f + \xi_{f dt} \quad (2)$$

where  $d$  denotes a given deal,  $f$  a fund, and  $t$  time periods.  $\xi_{f dt}$  is an idiosyncratic error term. In a baseline specification, we absorb  $\nu_d$  via deal fixed effects and control for  $\nu_f$  by clustering the standard errors around funds. In a separate specification, we include fund fixed effects, thus subsuming both  $\nu_d$  and  $\nu_f$ .<sup>7</sup>

### *B. Fund Performance Around Mergers*

We begin and analyze fund performance. We estimate equation (1), including fund fixed effects, with measures of fund performance as the dependent variable to focus on the time-series of performance for every fund.

Table 2 presents the results. We directly report risk-adjusted performance for all fund holdings. We adjust the raw holdings returns for risk using either standard size-value-momentum sorted benchmark portfolios in the spirit of Daniel, Grinblatt, Titman and Wermers (1997), or industry benchmark portfolios. In unreported results, we use market adjusted holdings returns or the alpha from a standard Fama-French-Carhart model, which delivers similar results (available on request). Table 2 shows that acquiror funds experience deteriorating performance in the post-merger period while the performance of target funds is not significantly affected. For acquirors, risk-adjusted returns are between 74 bps and 78 bps per year lower, depending on the risk-adjustment, and highly significant at the 1% level.

In table 3, we dig deeper to understand the causes and consequences of declining acquiror performance. Column (1) shows that, in line with declining performance, flows to acquiror funds are significantly lower in the post-merger period. The estimates are economically large –

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<sup>7</sup> As discussed, this is true only approximately, since about 27% of our sample funds appear in more than one deal. In a robustness check, available upon request, we use fund  $\times$  deal fixed effects, obtaining essentially identical results.

annualized flows to acquiror funds drop by almost 3.6%<sup>8</sup> of TNA in the average semi-annual period following the merger completion date.

In columns (2) and (3) of the same table, we decompose the holdings returns and focus on the performance in “old” investments. That is, for every fund, we construct a series of holdings returns that includes only those country-sectors that were already present before the merger. We focus on this part of the holdings in order to assess if the value of the acquiror’s expertise is declining, i.e., if the acquiror appears to be “losing the edge”. More precisely, we decompose each fund into three sub-portfolios comprising different industrial sector-country groups of stocks: “Acquiror” sub-portfolio *A*, “Target” sub-portfolio *T*, and “Rest” subportfolio *R*. The *A* sub-portfolio comprises all sector-countries that acquiror funds hold prior to the merger; the *T* sub-portfolio the ones held by the target funds; and the *R* sub-portfolio any sector-country that neither the acquiror nor the target funds hold prior to the merger.<sup>9</sup> We aggregate the *A* and *T* country-sectors respectively into one return series each, and re-estimate equation (1) with this series as dependent variable.

Columns (2) and (3) show that deteriorating performance of acquiror funds is concentrated in “old” investments. In these sub-portfolios, the decline of performance in the post-merger period is over 20%<sup>10</sup> stronger, reaching up 96 bps per year. In contrast, target funds neither experience changes in flows nor changes in performance in their “old” investments.

These results set the stage for our subsequent analysis. On the one hand, they are consistent with the view that mergers are undertaken for no good reason but to build empires and to divert resources. Consequently, performance, or “output”, of the business units suffers in

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<sup>8</sup> The economic effect is calculated as: 0.06 (Column (1) in Table 3)  $\times$  6 (six-month periods following the deal) = 3.6%.

<sup>9</sup> There can be a partial overlap between the *A* and *T* sets of sector-countries. In the remainder of the paper, whenever this occurs the “overlapping” sector-countries are assigned to the set of “acquiror” sector-countries in the tests involving acquiror funds, and to the set of “target” sector-countries in the tests involving target funds. Additional tests, omitted for brevity and available upon request, show that all the conclusions of these tests are unchanged if we single out the “overlapping” sector-countries as a separate sub-portfolio.

<sup>10</sup> The economic effect is calculated as: (0.0048 (Column (3) in Table 3) – 0.0039 (Column (2) in Table 2)) / 0.0039 (Column (2) in Table 2) = 23%.

the post-merger integration period. On the other hand, the fact that declining performance is concentrated in “old” investments could indicate foresight on part of the acquirors. Indeed, the asymmetry between the acquiror and the target is consistent with declining performance driving the acquiror to seek new opportunities with an acquisition. However, a more detailed analysis of changes in firm policies is needed to separate the two. If mergers are driven by foresight, then we should observe the acquiror taking active measures to address the deteriorating performance and outflows. If not, there is little reason to believe that other firm policies are actively managed to counteract the negative impact of the merger.

#### **IV. Fund Launches, Fund Mergers, and Product Pricing**

In this section, we analyze a number of firm responses to declining performance of acquiror funds. We focus on new fund launches, fund mergers, and changes in product pricing via fees.

##### *A. New Fund Launches*

One of the stated objectives of the Aviva-RiverRoad case was Aviva’s search for “new opportunities to grow third party institutional business in North America.” In other words, the search for new markets. We begin by testing whether there is systematic evidence for such a motive. We analyze especially the acquiror’s propensity to launch new funds after the merger completion date when he allegedly access to the distribution network of the target. Subsequently, we ask whether new funds attract more inflows, especially given that existing acquiror funds suffer outflows following the merger.

To carry out the test, we modify equation (1) and estimate:

$$y_{mct} = \alpha + \beta Post\ M\&A_{mct} + \gamma Target\ Country_{mc} + \delta Post\ M\&A_{mct} \times Target\ Country_{mc} + \mu' x_{mct} + \varepsilon_{mct} \quad (3)$$

where the dependent variable is the number of newly-created funds, or a new fund creation indicator, *Post M&A* is an indicator variable equal to one following the merger, and *Target Country* is an indicator for the countries where the target already has an established



presence prior to the deal. We infer these countries from Morningstar that reports the countries in which a given fund is “available for sale.” A given country is declared a “target country” if, prior to the merger, a target fund is available for sale in the country and if the country does not fall under the 10 most penetrated countries by the acquiror in terms of fund TNA. The goal is to identify countries to which the acquiror likely had no distribution access prior to the merger. The top 10 percentile acquiror distribution countries capture on average 77% of the acquiror’s pre-merger TNA.

Table 4 presents the results. In sum, they indicate two facts: 1) following the merger, there is restructuring of the fund offer, with a general drop in the likelihood of offering new funds; 2) however, this effect is mitigated in the target countries, where the rate of new fund creation is essentially as high as prior to the merger.

Column (1) presents these basic results. We collapse all countries in each deal down to two sets for *Target Country* equal to 0 and 1, and count the number of funds created in each country group by the acquiror and the target in each six-month period  $t$  around the merger date. Following the merger ( $Post\ M\&A = 1$ ), the rate of new fund creation drops by about 0.18 funds per six-month period (relative to a baseline pre-merger rate of 0.25, or about 1 new fund every other year across all countries). The effect is twice as strong for the acquiror (column (2)), and still evident at the level of the combined acquiror-target entity (column (3)). Since these estimates could be confounded by unobserved factors related to the economic conditions in country  $c$  at a given point in time, such as e.g. GDP growth, stock market development, capital controls, etc., in column (4) we estimate the model on data disaggregated to the deal-individual country level, and include a full set of country  $\times$  date fixed effects among the control variables. In this specification, the dependent variable is an indicator equal to 1 if any new funds are created in a given country, 0 otherwise, so that the estimates can be interpreted in terms of propensity to create new funds. They indicate that the likelihood of new fund launches drops by 2.5% following the merger, compared to a pre-merger baseline of 6%; however, this drop is restricted to acquiror countries, while no comparable decline is observed in the target countries.

Next, we ask if those newly created funds attract more flows, i.e., if they can at least partially mitigate the outflows suffered by existing acquiror funds. In table 5, we re-estimate equation (1), now at the fund level, with flows as the dependent variable. We restrict the sample to the post-merger period and replace the explanatory variable *PostM&A* with a new fund indicator *NewFund* that equals 1 if the fund was launched during the post-merger period and zero otherwise.

Columns (1) and (3) of table 5 show that newly created funds, both under the acquiror and target structure, attract more flows than funds that existed prior to the merger. These results ignore that some existing funds actually receive discretionary increases in fund TNA because the benefit from fund mergers. Annualized flows to newly-created acquiror funds are around 37% higher per than flows to “old” funds that existed prior to the merger. This corresponds to about 40 million USD<sup>11</sup> in increased inflows per year on average.

In columns (2) and (4), we investigate which new funds are primarily responsible for the increased flows by splitting the *NewFund* indicator in two parts – one for funds available for sale in the *TargetMarket*, one for funds available for sale in the residual *AcquirorMarket*. The results show that the higher flows predominantly originate for funds that are sold in the *TargetMarket* and this is true for funds launched both in the old acquiror and target management companies. For those funds, the flow difference is about one third stronger and amounts to over 50% of TNA per year.

These results indeed suggest that acquirors on the one hand consolidate their product offering but on the other hand re-focus their distribution efforts after the merger to capture additional flows from the distribution markets of the target that are better accessible after the merger.

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<sup>11</sup> The number 40 million is calculated as: 0.0311 (Column (1) in Table 5) × 12 months × 105.40 million USD (the average TNA of newly-created funds) = 40 million USD.

## *B. Fund Mergers and Changes in Pricing*

The previous subsection has shown how acquirors refocus their new product development. However, the results also indicate an overall effort to streamline the product menu. We find that this effort goes beyond new fund launches. Specifically, we also find evidence that acquirors consolidate and merge existing funds. The average deal impacts 33 distinct funds (across acquiror and target) and 2.5 fund mergers take place around it.<sup>12</sup> About 70% of fund mergers in our sample occur after the deal.

Increased levels of fund merging activity are perhaps to be expected in the context of asset management mergers. After all, the pre-merger product menu of acquiror and target is unlikely to be perfectly complementary in all aspects. If the combined entity is undertaking an effort to streamline the product menu, we should expect at least some fund mergers in the process to eliminate product overlap.

What is perhaps more interesting is the result on fees, i.e., product pricing. Here, it is less clear what to expect. On the one hand, the acquiror may choose to eliminate low fee funds and merge them into higher fee funds with a similar mandate in order to increase fee income (holding TNA constant). By doing so, however, the acquiror might alienate existing investors who may then choose to leave the family. On the other hand, the acquiror, in order to slow outflows in existing funds, may find it optimal to liquidate high fee funds to merge them into low fee funds to increase the competitiveness of the funds in the market.

In table 6, we investigate both possibilities. In panel A, we first analyze if the merged funds have higher or lower fees than the funds they are merged into (the “receiving fund”). We regress fund fees in the post-merger period on the indicator variable *ReceivingFund* that equals one if a fund is merged into this particular fund and zero if the fund is being merged in another fund. The results show that receiving funds have uniformly lower fees than merged funds. On average, the fee difference between the two groups is about 20 bps, or 13% of the average

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<sup>12</sup> The rate of fund mergers remains similar if we include mergers between different share classes of a given fund.

annual expense ratio. The effect is concentrated in acquiror funds that are predominantly on the receiving end of fund mergers.

In panel B of table 6, we investigate how the newly-launched funds are priced in comparison to funds that existed prior to the merger. While we observe that funds launched within the target management company are not sold at a fee discount, funds launched in the acquiror management company have on average 12 bps lower annual expense ratios. Column (2) illustrates that this effect is driven by new acquiror funds that are available for sale in the acquiror's old distribution market, not the new funds that are sold in the target's distribution market.

Overall, the results in this section are consistent with acquirors anticipating the declining performance and outflows documented in the previous section and are difficult to reconcile with the less benign view that mergers are a pure manifestation of agency problems. In contrast, we find that acquirors enact a number of changes in the post-merger period that try to address their deteriorating performance.

## **IV. Portfolio Changes and Performance in New Investments**

The second stated objective in the Aviva-RiverRoad merger was Aviva's desire to provide "Aviva Investors with a strategically important US equity investment capability" when purchasing RiverRoad. As before, we now test if for systematic evidence of such a merger objective by analyzing portfolio changes and performance of such new investments. Any such evidence would indicate that mergers not only provide access to new distribution markets but also give rise to information exchanges, or simply "learning".

### *A. Portfolio Changes Around the Merger*

We first analyze portfolio changes around mergers between asset management companies. How do acquiror and target funds rebalance their portfolios in the aftermath of the merger?

The "learning hypothesis" posits that one of the merger's sources of value is "learning" via information exchanges between acquiror and target funds. In the example discussed in the

introduction, Aviva Investors Global Services Ltd might expect to use River Road Asset Management LLC’s greater experience as a privileged channel to obtain information on U.S. Automobiles. If this happens, we should expect their portfolios to tilt closer to each other. This effect should be driven by an increased investment in sectors where the learning opportunities are greater: thus, Aviva funds will increase their holdings in “River Road-exclusive” sectors, e.g. U.S. Automobiles. In sum, the learning hypothesis predicts portfolio convergence, especially in the portions of the portfolio where we can expect expertise complementarities or greater learning opportunities.

To capture fund portfolio allocation decisions around the merger, we develop a measure of “portfolio distance” between a given fund and a representative counterparty fund. For an acquiror (target) fund, the representative counterparty fund is defined as the aggregate portfolio of all target (acquiror) funds prior to the merger. We construct this aggregate portfolio by adding the positions of all target (acquiror) funds. To manage the high dimensionality of the data and because prior literature suggests that learning takes place at the industry level (e.g., Kempf, Manconi, and Spalt (2014) and Schumacher (2014)), we compute all our measures for country-industry sub-portfolios. For instance, prior to the merger River Road holds 2% of its aggregate portfolio in U.S. Automobiles, and thus Aviva’s representative counterparty fund has 2% U.S. Automobiles holdings.

We can then define the “distance” between a given fund and the representative counterparty fund as:

$$D_t = [\sum_s (w_{st} - \bar{w}_s)^2]^{1/2} \quad (4)$$

where  $w_s$  denotes the percentage of fund’s portfolio invested in country-sector  $s$ , and  $\bar{w}_s$  is the corresponding percentage for the representative counterparty fund. For each fund, the weight in a given sector-country  $s$  (e.g., U.S. Automobiles) is obtained as the total market value of all the positions in stocks belonging to  $s$ , divided by the fund’s TNA. The counterparty fund weights are averaged over the one-year period prior to the merger date and are held constant, while the fund weights  $w_{st}$  vary on a semi-annual basis.

We estimate a version of equation (1), with  $D$  as the dependent variable. Table 6 reports the estimates, including different sets of control variables and fixed effects. Each observation corresponds to one fund, at a given holdings filing date over a window covering 13  $(-6,+6)$  semi-annual periods around the merger date.<sup>13</sup>The model is estimated separately for acquiror (columns (1) and (2)) and target (columns (3) and (4)) funds.

As we clarified above, fixed effects matter in our framework, as they allow us to control for any potential confounding factors affecting the match between acquiror and target manager companies. The result is robust to the inclusion of either deal fixed effects, or fund fixed effects and we observe a clear pattern in the data: following the merger, the portfolio distance  $D$  between acquiror and target funds is reduced.

The effect is more pronounced for acquiror funds, where the distance drops by 0.0204 (column (2)), or 6% relative to the average pre-merger distance. Intuitively,  $D$  has the same “units” as portfolio weights, thus this estimate implies a 2.04% portfolio turnover, or an 11.3 million USD turnover for the typical acquiror fund in our sample. Among the target funds (column (4)), the implied turnover is 5 million USD.

Taken together, these estimates are consistent with an information exchange between the acquiror and the target around the merger. Since the acquiror (target) funds now follow information obtained from the target (acquiror), their portfolios are closer to the target’s (acquiror’s) pre-merger representative portfolio. In sum, this evidence broadly fits the predictions of the learning hypothesis.

The second prediction of the learning hypothesis is that the convergence between acquiror and target funds’ portfolios should take place predominantly in sectors where they have complementary expertise, i.e. where the acquiror can “learn” from the target (or vice-versa). In terms of our recurrent example, Aviva funds should invest more closely to River Road funds in U.S. Automobiles, where Aviva funds have no prior experience. To take this hypothesis to the data, we turn to the portfolio decomposition into “acquiror”, “target”, and “rest” sub-portfolios.

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<sup>13</sup> Similar results, available upon request, obtain using  $(-4,+4)$  windows.

We estimate a similar regression specification, replacing the dependent variable  $D$  by the sub-portfolio net purchase  $NP_A$ ,  $NP_T$ , or  $NP_R$ .

Table 8 reports the results. Columns (1) to (3) focus on acquiror funds and show that they reduce their exposure to country-sectors held prior to the merger, and increase their exposure to “target” country-sectors or completely new (“rest”) country-sectors. In particular, acquiror funds reduce their portfolio weight net of price appreciation in acquiror country-sectors by 8% (compared to their average pre-merger portfolio weight in those country-sectors, column (1)) in order to increase it by 10% in target-exclusive country-sectors (compared to the target representative fund’s average pre-merger portfolio weight in those country-sectors, column (2)) over the 3-year period following the merger. In all deals, acquiror funds venture into new territory as well, they significantly increase their portfolio weight in completely new country-sectors (by 600%, though from a very small base weight in the target’s average pre-merger portfolio which makes this effect appear large, column (4)).

Columns (4) to (6) present the same analysis for target funds, and we find similar effects. In all deals, target funds reduce their portfolio weights in those country-sector funds that they were exposed to prior to the merger (by 13% in target column (5)). The portfolio weights are re-allocated towards (previously) acquiror (by 15%, column (4)) and new country-sectors (over 400%, again from a very small initial base weight, column (6)).

These changes in portfolio policy appear consistent with the learning hypothesis as funds re-allocate their portfolio towards the counter-parties investment specialty area. A priori, these seem to be the areas with more “learning opportunities”. Overall, we find that acquiror and target portfolios robustly converge in composition following the merger.

As a final note, the preliminary performance analysis in section III has shown declining performance in “old” investments for acquiror funds. We now find that the same funds actively reduce their exposure to those sectors following the merger consistent again with funds anticipating deteriorating performance.

## *B. Performance in Newly-Entered Investments*

Portfolio convergence need not be conclusive proof of an exchange of information between the acquiror and the target. An alternative explanation could be based on increased “in-house” competition following the merger, which could induce fund managers to herd (Chevalier and Ellison (1999)). We thus analyze sub-portfolio performance around the mergers to clarify if the changes in portfolio policies documented above are driven by “learning” or by other drivers such as herding or internal competition. “Learning” should lead to improved (risk-adjusted) performance while herding or risk-taking should not.

We thus examine the performance of acquiror and target funds in areas newly entered as a result of the merger, and compare it to the performance in country-sectors already held prior to the merger. While all our previous results focused on the evolution of portfolio choice or performance throughout the merger process, in this section, we simply ask: which sub-portfolios deliver the highest performance following the merger?

We present the results in Table 9, where we simply measure the average performance in the post-merger period for the different sub-portfolios. We again split the analysis by acquiror and target funds. We find mirror-image evidence across acquiror (columns (1) and (2)) and target funds (columns (3) and (4)). The acquiror funds perform best in the “target” country-sectors, i.e. sectors that used to be mainly held by the target funds prior to the merger; likewise, the target funds perform best in their “acquiror” country-sector investments. In economic terms, these effects are substantial: they imply a performance of about 3% annualized, in risk-adjusted terms, for the acquiror funds in the “target” country-sectors; in comparison, their performance in the “acquiror” country-sectors is a much more modest 40-60 bps per year. Similarly, the target funds generate 2% to 2.6% annualized, risk-adjusted performance in their “acquiror” country-sector investments.

The target funds do not perform particularly well in the “target” country-sector sub-portfolio, nor do the acquiror funds in the “acquiror” sub-portfolio. One possible reason is that these sub-portfolios really consist of two parts: legacy holdings and “new ideas”. While the acquiror funds can trade exclusively on “new ideas” in the “target” sub-portfolio, the target



funds will also be burdened by their legacy holdings. We find evidence consistent with this argument in the last two rows of Table 9. Here, we isolate the “new ideas” component as follows. Out of the “target” sub-portfolio country-sectors managed by a given target fund, we form a weighted average return with weights proportional to the acquiror net purchases (and do likewise for the acquiror funds’ case). Consistent with the idea that the information flows between acquiror and target are profitable, the “new ideas” country-sectors perform in line with the “target” sub-portfolio for the acquiror funds, and with the “acquiror” sub-portfolio for the target funds.

Interestingly, we find some evidence of positive performance in the “rest” country-sectors, particularly for the acquiror funds. This could still be the product of learning, e.g. to the extent that the “rest” set comprises sectors related to the “target” ones – for instance, after acquiring from the target information about the German auto industry, the acquiror might start investing in French auto as well, using similar information common to European auto in general. We plan to investigate this mechanism in a future draft of the paper.

Overall, the evidence in this section supports the learning hypothesis. In particular, while the acquiror funds’ overall performance deteriorates following the merger, the effect is in part compensated by the positive results in the new investments in “target” country-sectors.

## **V. Discussion and Concluding Remarks**

We study mergers between asset managers worldwide and changes in the investment strategies of affiliated mutual funds around those events. Our evidence suggests that market access is an important driver of the decision to acquire another asset manager. Acquirors tend to operate in declining markets (lower net investment flows and lower returns), and after the acquisition they shift the focus of their fund marketing efforts towards the markets where the target has an established presence.

The evidence we present also strongly suggests learning effects within the acquiror-target combined firm. Both acquiror- and target-affiliated funds converge in their portfolio compositions after gaining a common affiliation via the merger. The investments newly entered

or increased following the merger generate positive risk-adjusted performance compensating the deteriorating performance in their investments held prior (and throughout) the merger. Thus “learning” via information extraction appears to be a synergy captured by acquiror funds in mergers between asset management firms.

Our initial results raise a number of interesting follow-up questions that we will address in a future draft. For example, we are not yet able to fully rule out that mergers lead to herding among target funds. A more detailed analysis of risk-taking will clarify this conjecture. Likewise, an analysis centered on individual fund managers will help clarify how learning is transferred within the acquiror-target combination.

All in all, our findings underline the importance of specialized distribution channels and investment skills in international asset management. Our current estimates indicate that acquisitions can be more efficient an alternative “passive” market-entry, because the performance in new investments remains significant compared to various passive benchmark portfolios. To investigate further, in a future draft we will resort to a matching sample analysis comparing acquiror funds to matching funds that entered the same country-sectors but were not impacted by a merger. This will clarify if acquiror funds enter those investments more aggressively and with better outcomes.

## References

- Andrade, G., M. Mitchell, and E. Stafford, 2001, New Evidence and Perspectives on Mergers, *Journal of Economics Perspectives* 15, 103-120.
- Azar, J., M. C. Schmalz, and I. Tecu, 2014, Anti-Competitive Effects of Common Ownership, Working paper, University of Michigan.
- Barraclough, K., D. T. Robinson, T. Smith, and R. E. Whaley, 2013, Using Option Prices to Infer Overpayments and Synergies in M&A Transactions, *Review of Financial Studies* 26, 695-722.
- Becht, M., P. Bolton, and A. Roell, 2003, Corporate Governance and Control, in *Handbook of the Economics of Finance* (eds. G. M. Constantinides, M. Harris, and R. Stulz), Elsevier.
- Betton, S., B. E. Eckbo, and K. Thorburn, 2008, Corporate Takeovers, in *Handbook of Corporate Finance: Empirical Corporate Finance*, Volume 2 (ed. B. E. Eckbo), Elsevier.
- Chen, J., H. Hong, M. Huang, and J. D. Kubik, 2004, Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization, *American Economic Review* 94, 1276-1302.
- Chen, J., H. Hong, W. Jiang, and J. D. Kubik, 2013, Outsourcing Mutual Fund Management: Firm Boundaries, Incentives, and Performance, *Journal of Finance* 68, 523-558.
- Chevalier, J., and G. Ellison, 1999, Career Concerns of Mutual Fund Managers, *Quarterly Journal of Economics* 114, 389-432.
- Chuprinin, O., M. Massa, and D. Schumacher, 2014, Outsourcing in the International Mutual Fund Industry: An Equilibrium View, *Journal of Finance* forthcoming.
- Cici, G., M. Gehde-Trapp, M.-A. Goericke, and A. Kempf, 2014, What They Did in Their Previous Lives: The Investment Value of Mutual Fund Managers' Experience Outside the Financial Sector, Working paper, University of Cologne.
- Cohen, R. B., C. Polk, and B. Silli, 2010, Best Ideas, Working paper, Harvard Business School.
- Daniel, K., M. Grinblatt, S. Titman, and R. Wermers, 1997, Measuring Mutual Fund Performance with Characteristic-Based Benchmarks, *Journal of Finance* 52, 1035-1058.
- Fama, E. F., and K. R. French, 2010, Luck Versus Skill in the Cross-Section of Mutual Funds, *Journal of Finance* 65, 1915-1947.
- Ferreira, M. A., and P. Matos, 2008. The colors of investors' money: The role of institutional investors around the world, *Journal of Financial Economics*, 88(3), 499-533.
- Gaspar, J.-M., M. Massa, and P. Matos, 2005, Shareholder Investment Horizon and the Market for Corporate Control, *Journal of Financial Economics* 76, 135-165.
- Gaspar, J.-M., M. Massa, and P. Matos, 2006, Favoritism in Mutual Fund Families? Evidence on Strategic Cross-Fund Subsidization, *Journal of Finance* 61, 73-104.
- Gonçalves-Pinto, L., and B. Schmidt, 2014, Co-Insurance of Mutual Fund Families, Working paper, NUS Business School.

- Ince, O. S. and R. B. Porter, 2006, Individual Equity Return Data from Thomson Datastream: Handle with Care, *Journal of Financial Research* 29, 463-479.
- Kacperczyk, M., and H. Hong, 2010, Competition and Bias, *Quarterly Journal of Economics* 125, 1683-1725.
- Kempf, A., and S. Ruenzi, 2008, Tournaments in Mutual-Fund Families, *Review of Financial Studies* 21, 1013-1036.
- Kempf, E., A. Manconi, and O. G. Spalt, 2014, Learning by Doing: The Value of Experience and the Origins of Skill for Mutual Fund Managers, Working paper, Tilburg University.
- Malmendier, U., and G. Tate, 2008, Who Makes Acquisitions? CEO Overconfidence and the Market's Reaction, *Journal of Financial Economics* 89, 20-43.
- Massa, M., 2003, How Do Fund Family Strategies Affect Fund Performance? When Performance Maximization is Not the Only Game in Town, *Journal of Financial Economics* 67, 249-304.
- Massa, M., and Z. Rehman, 2008, Information Flows within Financial Conglomerates: Evidence from the Banks-Mutual Funds Relation, *Journal of Financial Economics* 89, 288-306.
- Moeller, S. B., F. P. Schlingemann, and R. M. Stulz, 2005, Wealth Destruction on a Massive Scale? A Study of Acquiring-Firm Returns in the Recent Merger Wave, *Journal of Finance* 60, 757-782.
- Pastor, L., R. F. Stambaugh, and L. Taylor, 2014, Scale and Skill in Active Management, *Journal of Financial Economics* forthcoming.
- Phillips, B., K. Pukthuanthong, and P. R. Rau, 2014, Size Doesn't Matter: Diseconomies of Scale in the Mutual Fund Industry, Working paper, Judge Business School, Cambridge University.
- Schoar, A., 2002, Effects of Corporate Diversification on Productivity, *Journal of Finance* 57, 2379-2403.
- Schumacher, D., 2014, Home Bias Abroad: Domestic Industries and Foreign Portfolio Choice, Working paper, McGill University.

**Table 1: Sample characteristics**

The table reports descriptive characteristics of our sample. Panel A reports the number of deals and the total net assets (TNA, in USD billions) by deal completion year. Panel B reports the top-5 asset manager locations involved in M&A deals by number of deals (columns (1) – (2)) as well as by the dollar total net assets (in USD billions) prior to the mergers (columns (3) – (4)). Panel C reports descriptive statistics on the fund level for all funds (column (1)), acquiror funds (column (2)), and target funds (column (3)) as well as a t-test of the differences in the characteristics between the two groups of funds (column (4)). The definitions of all variables are given in the Appendix, and  $w_A$ ,  $w_T$ , and  $w_R$  denote portfolio weights associated with “acquiror”, “target”, and “rest” country-sectors in a given fund’s portfolio.

**A. Deals over time**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Nr. deals</b>	1	8	5	1	2	5	6	8	3	13	16	14	12	6
<b>TNA (\$ bn)</b>	0.97	245.80	32.15	21.16	23.41	26.94	172.22	277.93	7.30	310.25	274.86	77.23	218.81	42.97

**B. Deals across countries**

Rank	By number of deals		By assets under management (\$ billions)	
	Acquiror Country	Target Country	Acquiror Country	Target Country
	(1)	(2)	(3)	(4)
1	U.S. (58)	U.S. (47)	U.S. (1,047.16)	U.S. (94.74)
2	U.K. (37)	U.K. (12)	U.K. (254.53)	U.K. (41.48)
3	Japan (21)	Italy (8)	Bahamas (62.50)	Italy (20.40)
4	Canada (20)	Canada (4)	Germany (39.06)	China (12.59)
5	Singapore (16)	Taiwan (4)	Hong Kong (31.18)	France (5.90)
	Other(111)	Other (30)	Other (149.08)	Other (7.45)

Table 1: Sample characteristics – cont'd

C. Sample funds characteristics

	Overall	Acquiror	Target	t-stat
	(1)	(2)	(3)	(4)
<i>Fund characteristics</i>				
Firm size (\$bn)	15.94	17.43	9.33	10.98
Fund size (\$m)	519.40	552.80	371.22	4.11
Expenses (%)	1.52	1.51	1.58	-2.91
Volatility	0.20	0.19	0.20	-2.35
Age (in years)	13.03	13.32	11.71	3.57
Turnover	0.59	0.58	0.63	-2.65
Flow (%)	0.07	0.07	0.06	0.03
<i>Pre-merger portfolio characteristics</i>				
Number of sector-countries in portfolio	35.91	36.12	34.89	1.73
Portfolio weight $w_A$ (%)	37.86	46.45	3.17	43.11
Portfolio weight $w_T$ (%)	2.94	0.36	11.93	-10.58
Portfolio weight $w_R$ (%)	0.93	0.88	1.15	-1.62
Overlap between acquiror and target portfolios (%)	58.74	52.40	84.27	-22.50
Portfolio "distance" $D$	0.33	0.34	0.29	5.85
<i>Pre-merger performance</i>				
DGTW-adjusted return (%)	0.93	1.06	0.43	3.91
Market-adjusted return (%)	0.88	1.03	0.27	4.16

**Table 2: Fund performance around the merger**

The table reports the estimates of:

$$R_{fmt} = \alpha + \beta PostM\&A_{fmt} + \mu' x_{fmt} + \varepsilon_{fmt}$$

The dependent variable is the characteristic-adjusted holdings return (columns (1) and (3)) and market-adjusted holdings return (columns (2) and (4)) for all equity positions of fund  $f$ , belonging to management company  $m$ , in period  $t$  relative to the merger date, and  $x$  is a vector of fund characteristics (*Fund size, Firm size, Expenses, Volatility, Turnover and Past return*), including fund fixed effects. The sample is restricted to acquiror funds in columns (1) – (2) and to target funds in columns (3) – (4). In all specifications, the t-statistics are based on standard errors clustered by fund. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds		Target Funds	
	DGTW-adj. return	Mkt-adj. return	DGTW-adj. return	Mkt-adj. return
	(1)	(2)	(3)	(4)
<i>PostM&amp;A</i>	-0.0037*** (-2.93)	-0.0038*** (-2.94)	0.0006 (0.22)	0.0004 (0.14)
Fund controls	Y	Y	Y	Y
Fund f.e.	Y	Y	Y	Y
R <sup>2</sup>	0.170	0.162	0.178	0.190
N	17,814	18,096	4,023	4,146

**Table 3: Fund flows and performance in “old” country-sectors around the merger**

The table reports the estimates of:

$$y_{fmt} = \alpha + \beta PostM\&A_{fmt} + \mu'x_{fmt} + \varepsilon_{fmt}$$

In columns (1) and (4), the dependent variable is the investment flow into a given fund. In columns (2) – (3) and (5) – (6), it is the characteristic- or market-adjusted holdings return of the sub-portfolios associated with “old” country-sectors, i.e., the holdings of country-sectors that the acquiror or target funds held prior to the merger.  $x$  is a vector of fund characteristics (*Fund size*, *Firm size*, *Expenses*, *Volatility*, *Turnover* and *Past return*), including fund fixed effects. The sample is restricted to acquiror funds in columns (1) – (3) and to target funds in columns (4) – (6). In all specifications, the t-statistics are based on standard errors clustered by funds. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds			Target Funds		
	Flow	DGTW-adj. return	Mkt-adj. return	Flow	DGTW-adj. return	Mkt-adj. return
	(1)	(2)	(3)	(4)	(5)	(6)
<i>PostM&amp;A</i>	-0.0059*** (-6.37)	-0.0042*** (-3.48)	-0.0048*** (-3.30)	-0.0030 (-1.23)	-0.0017 (-0.63)	-0.0018 (-0.61)
Fund controls	Y	Y	Y	Y	Y	Y
Fund f.e.	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.302	0.169	0.160	0.356	0.151	0.182
N	14,242	17,790	18,078	3,306	3,985	4,105



**Table 4: Likelihood of launching new funds in target markets**

The table reports the estimates of:

$$y_{mct} = \alpha + \beta Post\ M\&A_{mct} + \gamma TargetCountry_{mct} + \delta Post\ M\&A_{mct} \times TargetCountry_{mct} + \mu' x_{mct} + \varepsilon_{mct}$$

*TargetCountry* is an indicator equal to 1 for countries where the target has sold funds to prior to the merger, excluding the countries which fall in the top 10 percentile of acquiror-family market in terms of fund TNA. In columns (1) – (2), all countries where the indicator *TargetCountry* is equal to 1 (resp. 0) are collapsed to one observation, and the dependent variable is the aggregate number of newly-created funds within either country group, for a given acquiror or target, at a given time *t* relative to the merger date. Column (1) runs the regression on all acquirors and targets, column (2) restricts the sample to acquirors only. In column (3), the data are further collapsed such that each observation is one acquiror-target pair and one country group (*TargetCountry* equal 1 or 0), and the dependent variable is the total number of newly-created funds by the combined entity. In column (4), the data are disaggregated, and each observation is a given country *m*, for either the acquiror or the target, and the dependent variable is a new fund creation indicator. *x* is a vector of acquiror- (target-) family characteristics (*Firm Size, Expenses, Volatility, Turnover, Past return*). In column (4), the controls include country  $\times$  date fixed effects. In all specifications, the t-statistics are based on standard errors clustered by deal. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)
<i>PostM&amp;A</i>	-0.1763*** (-4.50)	-0.2947*** (-4.11)	-0.3292*** (-4.41)	-0.0246*** (-4.55)
<i>TargetCountry</i>	-0.1336** (-2.19)	-0.2730** (-2.48)	-0.2464** (-2.18)	-0.0151 (-1.23)
<i>PostM&amp;A</i> $\times$ <i>TargetCountry</i>	0.1143** (2.58)	0.2035** (2.44)	0.2144** (2.56)	0.0227* (1.90)
Family Controls	Y	Y	Y	Y
Country $\times$ date f.e.	N	N	N	Y
R <sup>2</sup>	0.066	0.091	0.070	0.211
N	2,922	1,566	1,690	9,758

**Table 5: Fund flows following the merger**

The table reports the estimates of:

$$Flow_{fmt} = \alpha + \beta NewFund_{fmt} + \mu' x_{fmt} + \varepsilon_{fmt}$$

The dependent variable is the investment flow into fund  $f$  and  $x$  is a vector of fund characteristics (*Fund size, Firm size, Expenses, Volatility, Turnover and Past return*) including deal and investment style fixed effects. The sample is restricted to the post-merger completion period (when *Post M&A* is equal to one). The newly-created fund indicator *NewFund* is equal to one if the inception date of a given fund is later than the deal's completion date, and zero otherwise. In columns (2) and (4), we replace the indicator *NewFund* by its interaction with the target market indicator *TargetMarket*, and with *AcquirorMarket* (equal to  $1 - TargetMarket$ ). The sample is restricted to acquiror funds in columns (1) – (2) and to target funds in columns (3) – (4). In all specifications, the t-statistics are based on standard errors clustered by fund. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds		Target Funds	
	(1)	(2)	(3)	(4)
<i>NewFund</i>	0.0311*** (6.60)		0.0283*** (3.26)	
<i>NewFund</i> × <i>TargetMarket</i>		0.0413*** (5.53)		0.0348*** (3.65)
<i>NewFund</i> × <i>AcquirorMarket</i>		0.0236*** (3.99)		0.0075 (0.54)
Fund controls	Y	Y	Y	Y
Deal and style f.e.	Y	Y	Y	Y
R <sup>2</sup>	0.072	0.073	0.188	0.190
N	8,687	8,687	1,897	1,897

**Table 6: Fund fees**

In Panel A, we present a cross-sectional regression on funds involved in fund mergers around our sample deals. The dependent variable is a given fund's (or share class) annual expense ratio, regressed on a *ReceivingFund* indicator, equal to 1 for funds surviving the merger, as well as the vector of fund characteristics used throughout. The sample is restricted to acquiror funds in column (3) and to target funds in column (4). In all specifications, the t-statistics are based on standard errors clustered by deal. In Panel B, different share classes of the same fund are collapsed down to one observation, and we regress expense ratios on the *NewFund* indicator. The sample is restricted to post-merger completion period (when the *Post M&A* indicator used above is equal to 1). In columns (2) and (4), we replace the indicator *NewFund* by its interaction with the target market indicator *TargetMarket*, and with *AcquirorMarket* (equal to  $1 - TargetMarket$ ). The sample is restricted to acquiror funds in columns (1) – (2) and to target funds in columns (3) – (4). In all specifications, the t-statistics are based on standard errors clustered by fund. In both panels, \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

**Panel A: Fees of funds involved in fund mergers**

	(1)	(2)	(3)	(4)
<i>ReceivingFund</i>	-0.1987*** (-5.82)	-0.1339*** (-3.24)	-0.1505*** (-3.38)	-0.0677 (-1.16)
Fund controls	N	Y	Y	Y
R <sup>2</sup>	0.033	0.093	0.101	0.136
N	1,934	1,934	1,683	251

**Panel B: Fund fees following the merger**

	Acquiror Funds		Target Funds	
	(1)	(2)	(3)	(4)
<i>NewFund</i>	-0.1173*** (-2.83)		-0.0500 (-0.71)	
<i>NewFund</i> × <i>TargetMarket</i>		-0.1023 (-1.17)		-0.0322 (-0.49)
<i>NewFund</i> × <i>AcquirorMarket</i>		-0.1264*** (-3.47)		-0.1038 (-0.56)
Fund controls	Y	Y	Y	Y
Deal and style f.e.	Y	Y	Y	Y
R <sup>2</sup>	0.287	0.287	0.564	0.564
N	10,869	10,869	2,268	2,268

**Table 7: Portfolio changes around the merger**

The table reports the estimates of:

$$D_{fmt} = \alpha + \beta PostM\&A_{fmt} + \mu' x_{fmt} + \varepsilon_{fmt}$$

The dependent variable  $D$  is the “distance” between the portfolio holdings of fund  $f$  and the portfolio holdings of a representative counterparty fund. When fund  $f$  is an acquiror (target) fund, the representative counterparty fund is the average target (acquiror) fund.  $D$  is the square-root of the sum of squared difference in portfolio holdings at the country-industry sub-portfolio level and  $x$  is a vector of fund and counterparty fund characteristics (*Fund size, Firm size, Expenses, Volatility, Turnover, and Past return*), including deal (columns (1) and (3)) or fund fixed effects (columns (2) and (4)). The sample is restricted to acquiror funds in columns (1) – (2) and to target funds in columns (3) – (4). In all specifications, the t-statistics are based on standard errors clustered by fund. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds		Target Funds	
	(1)	(2)	(3)	(4)
<i>PostM&amp;A</i>	-0.0190*** (-7.06)	-0.0204*** (-8.59)	-0.0101** (-2.12)	-0.0139*** (-4.27)
Fund and counterparty controls	Y	Y	Y	Y
Deal f.e.	Y	N	Y	N
Fund f.e.	N	Y	N	Y
R <sup>2</sup>	0.415	0.865	0.415	0.858
N	18,876	18,876	4,255	4,255

**Table 8: Portfolio changes around the merger**

The table reports the estimates of:

$$NP_{fmt} = \alpha + \beta PostM\&A_{fmt} + \mu' x_{fmt} + \varepsilon_{fmt}$$

The dependent variable is  $NP_A$ ,  $NP_T$ , or  $NP_R$ , the portfolio net purchases ( $NP$ ) in “acquiror”, “target”, and “rest” country-sectors for fund  $f$  in period  $t$ , and  $x$  is a vector of fund and counterparty fund characteristics (*Fund size*, *Firm size*, *Expenses*, *Volatility*, *Turnover*, and *Past return*), including fund fixed effects. The sample is restricted to acquiror funds in columns (1) – (3) and to target funds in columns (4) – (6). In all specifications, the t-statistics are based on standard errors clustered by fund. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds			Target Funds		
	$NP_A$	$NP_T$	$NP_R$	$NP_A$	$NP_T$	$NP_R$
	(1)	(2)	(3)	(4)	(5)	(6)
<i>PostM&amp;A</i>	-0.0125*** (-11.40)	0.0020*** (5.18)	0.0091*** (12.49)	0.0112*** (7.34)	-0.0206*** (-6.51)	0.0094*** (5.19)
Fund and counterparty controls	Y	Y	Y	Y	Y	Y
Fund f.e.	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.226	0.171	0.254	0.203	0.178	0.190
N	18,876	15,956	18,876	4,146	4,023	4,146

**Table 9: Fund sub-portfolio performance following the merger**

The table reports the post-merger sub-portfolio performance in “acquiror”, “target”, and remaining (“rest”) country-sectors (when *Post M&A* is equal to one). Holdings return are characteristics-adjusted return (columns (1) and (3)), or market-adjusted return (columns (2) and (4)). The sample is restricted to acquiror funds in columns (1) – (2) and to target funds in columns (3) – (4). In addition, we report the t-statistics for differences between the sub-portfolio performances. In all specifications, the t-statistics are based on standard errors clustered by fund. \*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% level.

	Acquiror Funds		Target Funds	
	DGTW-adj. return	Mkt-adj. return	DGTW-adj. return	Mkt-adj. return
	(1)	(2)	(3)	(4)
<i>Acquiror</i>	0.0038*** (5.62)	0.0052*** (6.37)	0.0134*** (3.79)	0.0193*** (5.07)
<i>Target</i>	0.0154*** (3.49)	0.0182*** (3.89)	0.0004 (0.38)	0.0011 (0.77)
<i>Rest</i>	0.0107*** (3.68)	0.0148*** (5.36)	0.0004 (0.07)	0.0091 (1.58)
<i>“New ideas” (Acquiror)</i>	0.0081*** (3.67)	0.0140*** (6.28)	-	-
<i>“New ideas” (Target)</i>	-	-	0.0163*** (2.68)	0.0183*** (3.01)
t-stat (Target – Acquiror)	(2.61)	(2.77)	(-3.60)	(-4.77)
t-stat (Target – Rest)	(0.89)	(0.63)	(0.00)	(-1.41)
t-stat (Rest – Acquiror)	(2.39)	(3.55)	(-1.88)	(-1.51)
t-stat (“New ideas” – Acquiror)	(1.93)	(4.01)	(0.40)	(-0.14)
t-stat (“New ideas” – Target)	(-1.49)	(-0.81)	(2.64)	(2.90)
N	15,443	16,833	4,247	4,591

## Appendix: Variable Descriptions

Variable	Definition
<b>Acquiror-Target Pair Characteristics</b>	
$D_t$	A measure of “distance” between portfolios. It is calculated as $D_t = [\sum_s (w_{st} - \bar{w}_s)^2]^{1/2}$ , where $w_s$ denotes the percentage of fund’s portfolio invested in country-sector $s$ , and $\bar{w}_s$ is the corresponding percentage for the representative counterparty fund (representative target fund for acquiror funds, representative acquiror fund for target funds).
<b>Fund Controls</b>	
<i>Fund size</i>	Natural logarithm of fund TNA (in US \$m).
<i>Firm size</i>	For a given fund $f$ , it is computed as the natural logarithm of the total TNA (US \$m) of all funds managed by the same management company, excluding fund $f$ itself. In Table 4, <i>Firm Size</i> is computed as the natural logarithm of the total TNA (US \$m) of all funds managed by the acquiror family (the target family) in a given deal.
<i>Expenses</i>	The percentage annual expense ratio.
<i>Volatility</i>	The annualized standard deviation of fund returns, computed over a trailing 12 months window.
<i>Turnover</i>	Fund turnover ratio. Following Gaspar et al. (2005), it is calculated as: $\frac{\sum  N_{it}P_{it} - N_{it-1}P_{it-1} - \Delta P_{it}N_{it-1} }{\sum \left( \frac{N_{it}P_{it} + N_{it-1}P_{it-1}}{2} \right)}$ <p>where <math>N_{it}</math> is the number of shares of firm <math>i</math> held by the fund at time <math>t</math>, and <math>P_{it}</math> represents the stock price.</p>
<i>Past return</i>	The cumulative fund return, computed over a trailing 12-month window.
<b>Performance Variables</b>	
<i>DGTW-adj. return</i>	Characteristic-adjusted return in the spirit of Daniel, Grinblatt, Titman, and Wermers (1997). It is a value-weighted average of the characteristic-adjusted return on each stock in the fund’s portfolio. For a given stock, the characteristic-adjusted return is defined as the raw return minus the benchmark return. The benchmark portfolio is a value-weighted average of all stocks in the same size/book-to-market/momentum portfolio, and belonging to the fund’s investment objective. Investment objectives are retrieved from Morningstar; the top-10 investment objectives by TNA comprise: Global equity large cap, US equity large cap blend, US equity large cap growth, US equity large cap value, US equity mid cap, Global equity, Emerging markets equity, US equity small cap, UK equity large cap growth and Europe equity large cap.
<i>Mkt-adj. return</i>	Market-adjusted return. For a given stock, the market-adjusted return is defined as the raw return minus the local market benchmark return. Stock-level market-adjusted returns are then aggregated to form a portfolio market-adjusted return.

*Flow*

On a given month  $t$ , the fund's investment flow is calculated as:

$$\frac{TNA_t - TNA_{t-1} \times (1 + R_t)}{TNA_{t-1}}$$

where  $TNA$  denotes the fund's total net assets, and  $R$  is the fund's return. We compute the average investment flow over a 6-month period to obtain the *Flow* variable.

### **Other Variables**

*Net purchase*

Portfolio weight net of price changes in the spirit of Kacperczyk, Sialm and Zheng (2005). The weight is adjusted for the price changes and is calculated as:

$$Net\ purchase_j = w_{jt} - \frac{w_{jt-1}(1 + r_{jt})}{\sum_j w_{jt-1}(1 + r_{jt})}$$

where  $w_{jt}$  is the percentage of fund's portfolio invested in stock  $j$  at time  $t$ , and  $r_{jt}$  denotes the return of stock  $j$  at time  $t$ . Portfolio net purchase  $NP_A$ ,  $NP_T$ , and  $NP_R$  are the aggregate net purchase of stocks invested in "acquiror", "target", and "rest" countries and sectors.

*PostM&A*

Indicator variable equal to 1 over the post-merger period, 0 otherwise.

*ReceivingFund*

Indicator variable equal to 1 if the fund has funds (or fund share class) merged into, 0 otherwise.

*NewFund*

Indicator variable equal to 1 if the fund's inception date is later than the completion date of the deal, 0 otherwise.

*TargetMarket*

Indicator variable equal to 1 if a fund is available for sale in at least one country where the target has sold funds to prior to the merger, excluding the countries that fall in the top 10 percentile of acquiror's market in terms of fund TNA, 0 otherwise.

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