The Value of Human Capital Synergies in M&A: Evidence from Global Asset Management

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We use mergers in the global asset management industry to study the value human capital synergies. Following mergers, the average fund rebalances towards new investment areas, creating $18 million in additional value. We relate these synergies to improvements in internal labor markets: synergies are strongest for funds with managerial changes and in mergers that increase the size and complementarity of human capital expertise. This allows for a better matching of human to investment capital and points to a central benefit of mergers: the added flexibility to create value via discretionary increases in the size and quality of internal labor markets.

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A large body of research in finance and economics indicates that mergers, on average, create net positive valuation changes and operating improvements. Synergies are a central ingredient to these benefits, and the literature has identified multiple sources of synergy creation.[1] Recent studies seek to understand the role of human capital as potential source of merger synergies: Tate and Yang (2016) show that the degree of human capital transferability on the industry level is helpful in understanding diversifying acquisitions and subsequent productivity gains; Ouimet and Zarutskie (2016) highlight that some mergers are motivated to obtain the services and expertise of target employees; and Lee, Mauer, and Xu (2017) find that human capital relatedness between bidder and target is related to what appear to be mostly cost synergies (e.g., changes in employment and labor costs) that lead to higher worker productivity.

Yet despite the recognized importance of human capital synergies, our overall understanding of the exact mechanisms and channels through which these synergies are realized is still limited. This is in no small part due to the fact that understanding them requires data at a level of granularity that is very difficult to obtain in most settings. Ideally, the empiricist would like to observe operating decisions and associated performance at the establishment level. When human capital is the subject of interest, this information should be coupled with information on the key decision makers involved in the process: how they are allocated in the combined entity after the merger, how their expertise is matched with the needs of the establishment to which they rotate, and importantly, how these human capital allocations are related to operating changes and outcomes at the establishment level. Adding to the complexity, the empiricist needs an understanding of the main "factors of production" that are impacted by a merger (capital, land, labor, etc.), and a strategy to isolate merger-related effects on each of those.

[1] For overviews of the literature on mergers and acquisitions, see Bradley, Desai, and Kim (1988), Andrade, Mitchell, and Stafford (2001), or Betton, Eckbo, and Thornburn (2008) among others.

In this paper, we exploit consolidation in the global asset management industry to overcome these challenges. We use asset management mergers as a laboratory to perform a micro-level analysis of merger-related operating changes in mutual funds. In doing so, we follow the perspective of Berk, van Binsbergen, and Liu (2017, BBL hereafter), and view an asset management company as a collection of mutual funds that form the "establishments" of the firm.[2] For each establishment, we analyze the "production process" (i.e., portfolio holdings) throughout the merger, and how changes in the production process impact operating performance (i.e., performance of various sub-portfolios that make up the overall fund portfolio).

In doing so, we take advantage of a central feature of the global asset management industry: its reliance on human capital as by far its most important production input. Indeed, as argued in BBL, asset management firms are unique in that they generally do not own the capital they manage. Instead, their key production input is the *human* capital they employ to invest the financial capital entrusted to them by outside investors. BBL argue that this makes the asset management industry an ideal laboratory to study the firm's role in human capital allocation. In our context, it allows us to focus on human capital synergies that may be realized following a merger. Our setting allows us to study not only how human capital is reallocated in the post-merger period and if this creates value, but importantly how corporate reorganization affects human capital productivity in general.

To carry out this agenda, we assemble what is to date, to the best of our knowledge, the most comprehensive sample of asset management mergers world-wide. Our sample spans mergers in the global asset management industry between 2001 and 2013. We identify 176 mergers between

[2] In other words, we think of the asset management company as a collection of establishments. Each establishment produces one "product" (the specific mutual fund). As such, depending on the context, we use the words "establishment" and "product" interchangeably.

asset management firms across 50 different bidder and target countries, affecting a total of 8,524 distinct funds, or 4.6 trillion USD in assets under management (AUM).

We find that mergers have a significant impact on the production processes of affected funds. Following the merger, funds scale down their portfolio holdings in their "core" areas (i.e., investment areas where funds of the firm used to invest heavily prior to the merger) in order to increase holdings in "non-core" areas. While bidder funds start investing in the core areas of the target and vice versa to some extent, we find the quantitatively strongest portfolio reallocations towards investment areas that are completely new to both bidder and target funds. For example, within three years following the completion of the merger, about 18% of the average fund's portfolio is allocated away from core areas, with the lion-share (about 16%) going to completely new investment areas and the rest (about 2%) going to what we label "peripheral" investment areas.[3] Related to this, we find that funds shift their active share (Cremers and Petajisto (2009)) from previously core investment areas (where they become more "passive") to non-core and especially new investment areas (where they become more "active").

Following the merger, funds realize the highest risk-adjusted performance in those non-core areas. In fact, we find that the larger the portfolio reallocation, the higher the risk-adjusted performance in non-core areas, especially in investment areas that are completely new to both bidder and target funds. In other words, our results suggest that mergers act as a catalyst to the ability of fund managers to generate new and profitable investment ideas.

To further clarify if these results can be attributed to the merger and interpreted as evidence in favor of merger-related synergies, we perform a series of tests. First, we investigate if these portfolio changes are unique to funds affected by mergers, or if funds in general (regardless of their involvement in a deal) rebalance their portfolios into specific areas around the times when

[3] We provide precise definitions of these labels shortly.

mergers happen to occur. We compare the funds in our sample to matching funds that are not affected by mergers and find that the rebalancing of affected funds is an order of magnitude more aggressive than for the matching funds. For example, funds affected by mergers reallocate, on average, 3 to 4 times as much AUM to those areas in the post-merger period. Furthermore, conditional on the matching funds rebalancing towards a non-core area, we find that the sub-portfolios of the funds affected by mergers outperform those of matching funds. This suggests that mergers are not only associated with new investment ideas per se, but with increased product differentiation because management of affected funds engages in portfolio rebalancing that is different compared to the rebalancing of comparable funds (i.e., competitors).

Putting these pieces together, given that funds affected by mergers rebalance more aggressively (i.e., allocate more AUM towards specific areas and away from others) and realize higher risk-adjusted performance in those areas, we find that they overall add more value compared to matching funds. For example, the average fund involved in asset management company mergers generates additional value of about $18 million (relative to matching funds) over the 3-year period following the completion of the merger. We attribute the bulk of this extra value added to investments in areas that are completely new to both bidder and target funds and only a very small portion to areas that were "peripheral" to either bidder or target funds in the pre-merger period (i.e., areas where the funds had "small" positions prior to the merger, or areas that used to be core areas of the merger counterparty).

These results point to significant synergies in asset management mergers: following a merger, fund management appears to improve its ability to generate new investment ideas that differentiate the fund's holdings from those of comparable matching funds. Product differentiation of this kind is associated with additional value added. Under the premise that human capital is the primary production factor in this environment (indeed, all the changes that

we document are ultimately implemented by fund management) this suggests that our results reflect human capital synergies which we investigate further in two directions. First, we study if human capital reallocations (i.e., fund manager rotations) contribute to these synergies. Second, we examine if specific deal characteristics (particularly deal characteristics that relate to the size and complementarity of human capital of the merging entities) are associated with higher or lower synergies, and if these deal characteristics relate to the quantity and quality of human capital rotations.

First, following Tate and Yang (2016), we examine the impact of the merger on the internal labor markets, and we investigate human capital reallocation in the post-merger period. We find that fund manager rotation increases by almost 20% in the post-merger period. These rotations come in different forms: managers are reallocated within the combined entity, outside managers join the firm, and some managers leave the combined firm after the deal. However, the increase in managerial rotation intensity is entirely driven by an increase in the reallocation of "internal managers", i.e., managers that used to work for the bidder or target prior to the merger. In contrast, the rate at which outside managers are hired is constant throughout the merger period. Also, we do not find evidence that the total number of managers of the combined firm drops significantly in the post-merger period, suggesting that cost synergies are not behind the value improvements we document.

We also document a positive relationship between managerial rotation and portfolio rebalancing and performance in new investment areas: funds with a new manager allocate substantially more AUM to new investment areas compared to funds that do not experience a managerial rotation in the post-merger period. Even more striking, the outperformance in new investment areas is almost 3 times as large (5.4% versus 1.8% per year in terms of risk-adjusted performance) for funds with a new manager compared to funds with no change in the

management team. This suggests that value creation is strongly associated with human capital reallocation, consistent with the arguments of BBL.

Second, in light of this evidence, we ask which deal characteristics are associated with stronger or weaker synergy effects. We find stronger portfolio rebalancing when there is large distance between the bidder and the target in terms of pre-merger portfolio holdings and managerial expertise, suggesting that a high degree of complementarity in investment expertise is conducive of stronger synergy effects.[4] Next, we find stronger synergy effects in mergers that lead to a larger relative increase of the overall pool of human capital. This suggests that a larger increase in the overall size of the internal labor market supports more human capital synergies simply because a larger labor market affords additional flexibility to put human capital to its best use. Interestingly, we find that deal characteristics in terms of geography (i.e., cross-border mergers) have no individual effect on the rebalancing activities of affected funds, even though distance in managerial expertise or pre-merger portfolio holdings tends to be larger in such mergers. This suggests that geographic distance between the bidder and the target limits the realization of human capital synergies.[5]

To tie these results together, we examine if there are any differences in human capital reallocations across those same deal characteristics. We find no differences in the *quantity* of managerial rotations across different deal characteristics (i.e., managerial rotations tend to increase after all mergers). However, we do find significant differences in their *quality*. The complementarity in human capital expertise between new and old managers for a given fund is larger in mergers with a higher portfolio or human capital expertise distance and in mergers that

[4] We define a measure of "lifetime" human capital expertise for every individual portfolio manager in our sample that takes into account all portfolio holdings an individual manager was ever associated with in our data, potentially stretching back years prior to the actual merger. We discuss this in greater detail in Section III.

[5] In fact, in a joint specification that explicitly controls for complementarities in terms of human capital and investment expertise, we find a negative effect of geographic distance on merger synergies. That effect is not detectable without controlling for these characteristics.

strongly increase the size of the labor market (i.e., the pool of human capital). In other words, in those deals, new managers bring relatively more investment expertise in new investment areas (and less expertise in core areas) to the funds they manage, compared to the old managers to whom they are added (or whom they replace). All this suggests that mergers are associated with improvements in internal labor markets, especially following mergers that grow these markets in terms of size and human capital complementarity. Combining this observation with the result that the synergies are associated with the creation of new investment ideas (rather than improvements in already existing core expertise of bidder and target) suggests that they require the specific match of bidder and target, and are difficult to realize without a merger.

As a final step and in an effort to test for alternative interpretations of our results, we analyze if there are differences between bidder and target funds in the extent to which these synergies are realized. An alternative interpretation would posit that the synergies we document simply reflect "extraction of resources" from one merger party. In our context, one might think of situations in which the bidder extracts investment ideas and talent from the target funds, in order to allocate them to bidder funds. Given that bidders tend to have larger AUM than targets in our sample, such value transfers could explain our results. Prior research on the behavior of mutual fund families has documented performance allocation of this kind (e.g., Gaspar, Massa, and Matos (2003), Bhattacharya, Lee, and Pool, (2013), Gonçalves-Pinto and Schmidt (2014), Chuprinin, Massa, and Schumacher (2015) among others). Our evidence, however, does not support this logic because the additional value added that we document is primarily generated in new investment areas and because we find that our results are symmetric across bidder and target funds. This speaks against an interpretation in which these synergies reflect resource extraction by the bidder. Instead, it appears that they benefit both bidder and target funds.

Our paper makes four contributions to the literature. First, we contribute to the literature on mergers and acquisitions, which has so far struggled to identify the exact channels and mechanisms by which merger-related synergies are realized.[6] A small number of studies try to open up the "black box" of value creation in the post-merger period. Sheen (2014) analyzes how product quality and pricing change in mergers of (largely) consumer-product firms to illuminate how operational efficiencies are achieved in the post-merger period. Hoberg and Phillips (2010) use textual analysis to analyze how merging firms use product development and differentiation to improve operating performance after a merger. Their analysis draws on the theory of Rhodes-Kropf and Robinson (2008) that emphasizes the role of asset complementarities in mergers and acquisitions. Our results connect well with both: We also document product differentiation in the post-merger period, and our data allow us to establish a direct connection between this motive and subsequent quality improvements at the establishment (and the product) level. In additional tests, we also confirm that the "like-buys-like" result of Rhodes-Kropf and Robinson (2008) provides a good description of the matching between bidder and target asset managers. Overall, and in relation to these studies, our empirical setting allows us to directly isolate human capital synergies at the establishment level, to document the micro-level channels and mechanisms that are behind these synergies, and to quantify the improvements in internal labor markets and operational outcomes that these synergies have.

Second, this angle allows us to contribute more broadly to the literature on the value of human capital in mergers (e.g., Tate and Yang (2016), Ouimet and Zarutskie (2016), and Lee, Mauer, and Xu (2017) among others), on internal labor markets (e.g., Jovanovic (1979), Baker, Gibbs, and Holmstrom (1994), Giroud and Mueller (2015), Tate and Yang (2015), Cestone et al.

[6] Indeed, Barraclough et al. (2013) discuss in detail the difficulties in estimating synergies from merger announcements and provide a methodology using option prices to extract information on e.g., synergies from those announcements.

(2016), Silva (2017) among others), and more in general on the optimal allocation of resources internal to the corporation (e.g., Stein (1997)). In the context of asset management, BBL find that at least 30% of the value added by mutual funds is due to the firm's ability to match human capital to investment capital. Our results indicate that this ability is particularly valuable around corporate reorganization, and we identify how these value improvements are accomplished and in which mergers they tend to be particularly valuable.

Third, our results connect to a lingering debate on (dis-) economies of scale in the mutual fund industry. Chen et al. (2004) document both dis-economies of scale at the fund level (i.e., a negative relationship between fund size and performance) and economies of scale at the family level (i.e., a positive relationship between family size and performance). While dis-economies of scale at the fund level are much debated in the literature (e.g., Berk and Green (2004), Elton, Gruber, and Blake (2012), Berk and van Binsbergen (2015), Pastor, Stambaugh, and Taylor (2015), Reuter and Zitzewitz (2015) among others), potential economies of scale at the family level have received less attention. Our results highlight one driver behind such economies of scale at the family level: the benefits of large internal labor markets.

Fourth, we contribute to the growing literature on the consequences of the industrial organization of the global asset management industry for financial markets. The growth and consolidation within the industry have raised concerns on multiple dimensions, such as the impact of large asset managers on product market competition (He and Huang (2017), Azar, Tecu, and Schmalz (2017)), their interaction with other large financial conglomerates in the banking industry (Ferreira, Matos, and Pires (2015)), or their impact on financial stability (Massa, Schumacher, and Wang (2016)). We point to a key benefit of consolidation in this industry: the ability to better allocate valuable human capital in a larger firm.

The remainder of the paper proceeds as follows. Section I presents our data and main variables of interest. Section II presents the results on portfolio reallocation and value added in the context of asset management mergers. Section III examines the role of human capital allocation. Section IV discusses a number of related questions, such as the matching between the bidder and target firms and other potential synergies in asset management mergers. Section V concludes.

I. Data

Our analysis combines information from a range of data sources: the SDC Platinum and Zephyr Mergers and Acquisitions databases, FactSet Ownership 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.

The starting point of our analysis is a sample of mergers between asset managers world-wide, retrieved from the SDC Platinum and Zephyr-Bureau van Dijk Mergers and Acquisitions databases. Both databases cover domestic and cross-border M&A deals, and 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 the FactSet Ownership database (see below), we consider deals completed from 2001 up to and including 2013.

We restrict the attention to completed deals in which both the acquiror and the target belong to the financial industry,[7] and in which the acquiror controls less than 50% of the target's shares before and more than 50% after the deal.

We merge the M&A deals with the FactSet ownership database by manually screening acquiror and target names. FactSet 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) and the organizational structure in which a fund is managed (its portfolio management company, and that firm's ultimate parent company). Wherever possible, we match the acquiror or target in the M&A deals data directly to a management company in FactSet. 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). In addition, we require available holdings data for both acquiror and target prior to the merger. These filters result in a final sample of 176 mergers.

To obtain data on fund characteristics, such as fund investment style, monthly returns, fees, and information on share classes etc., we match FactSet to the Morningstar Direct mutual fund

[7] We classify "financial industry" based on the sector classification by SDC or Zephyr ("Banks, insurance companies, other services"), SIC primary code (60 to 67), NAICS primary code (52 and 53), NACE Rev.2 primary code (63 to 70), or Zephus classification ("Banking, insurance & financial service").

database.[8] From the Global Open-End funds section of Morningstar, we also obtain the information on the fund's individual managers.[9]

In our main analysis, where we examine portfolio holdings and holdings-based performance, we impose additional filters to our sample, which result in a smaller subset of deals (i.e., 135 deals). First, we require that portfolio holdings information is available in the FactSet database for both the merging asset managers at least one year prior to the acquisition completion date. The holdings data are reported at the semi-annual frequency for about 50% of the entities in FactSet, and at the 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 (2015), we focus on semi-annual holdings information throughout the analysis, to maximize coverage. Second, we restrict attention to open-ended, actively managed mutual funds.[10] We further require that the subsample 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.

Finally, to complement the holdings information and to construct benchmark portfolios, we download stock price and accounting information on all global stocks from Thomson Datastream and Worldscope, to which we apply standard screens to detect data errors, as outlined in Ince and Porter (2006) and performed in e.g., Schumacher (2017).

The resulting full data set comprises 8,524 funds that are affiliated with 507 management companies (or their parent companies). Out of 8,524 funds overall, 7,383 are acquiror funds, and

[8] A partial linking table between FactSet 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. Overall, we are able to obtain a match in the Morningstar database for 90% of the FactSet funds in our sample.

[9] We retrieve the individual manager names from Morningstar Direct. In addition, Morningstar provides us with a separate data file that contains unique manager identifiers linked to the manager names which ensures the accuracy of our manager-fund mappings.

[10] We rule out the index funds based on the "Index" flag provided by Morningstar.

1,741 target funds. 600 funds appear as acquiror funds in one deal and target funds in a separate deal. Similarly, out of 507 management companies, 397 are acquirors, and 162 targets, and 52 management companies appear as acquirors in one deal and targets in a separate deal. Throughout the main analysis, we work on a subset of the data restricted to active equity funds, comprising 3,127 funds (2,655 acquiror funds and 747 target funds), affiliated with 390 management companies (301 acquirors and 123 targets). In our analysis in the Internet Appendix, where we investigate other types of synergies such as fund distribution strategy and flows (Table IA.4 and Table IA.5), we analyze the full sample of 176 deals, including non-equity funds as well as passive funds.

Figure 1 documents the evolution of global asset management merger activity over the sample period. It shows that the industry has been undergoing a consolidation wave in recent years. Over the sample period, the M&A deals covered by our analysis are associated with a cumulative $4.6 trillion of AUM. In total, our sample includes bidder and target firms from 50 countries.

Table 1 reports descriptive statistics for our main sample, i.e., the active equity funds from the 135 deals, at the deal level in Panel A, at the fund level in Panel B, and at the manager level in Panel C. The average deal affects 24 funds and 27 individual managers (affiliated to the acquiror or the target, Panel A). Panel B shows that the average fund in our sample has $495 million in AUM, is managed in a family with $15.8 billion AUM and counts 2 managers in its management team. Over the pre-merger period, about 14% of funds experience some form of managerial rotation, and 10% of funds receive a new manager in a given period. The panels contain additional descriptive statistics that we will discuss and refer back to in later section (for example, statistics on core and non-core investment areas in Panel A, measures of trading

behavior and performance in different sub-portfolios in Panel B, or estimates of individual manager lifetime expertise in Panel C).

II. Portfolio rebalancing, performance, and value-added around mergers

A. Time-series evidence

We start our analysis by examining changes in the composition of fund portfolios around mergers. We decompose fund portfolios into several sub-portfolios, depending on the relevance of different country-sectors (e.g. "U.S. Automobiles") in their management companies' investment profile prior to the merger. We denote by $Core$ the set of country-sectors to which funds of a given firm allocate most of their AUM prior to the merger. Specifically, all country-sectors that fall in the top 25 percentiles across all funds managed by the firm are labelled $Core$ areas. For the average firm, these $Core$ areas cover country-sectors that attract about 82% of firm-level AUM in the year prior to the merger (Table 1, Panel A). All other country-sectors are labelled $NonCore$ areas. We further partition these into New and $Peripheral$ areas: New areas include all country-sectors to which no fund in the bidder or target firm had exposure in the one-year period preceding the merger; $Peripheral$ areas include all remaining country-sectors. We then analyze the evolution of portfolio allocations and performance in those different sub-portfolios over the course of the merger.

Table 2 presents the results. Panel A focuses on portfolio rebalancing, and estimates:

$$NP_{fst} = \alpha_t + \alpha_f + \beta PostM\&A_{dt} + \mu' x_{ft} + \varepsilon_{ft}, \quad (1)$$

where f denotes funds, s denotes sub-portfolios, and t denotes semi-annual periods. $PostM\&A_{dt}$ is an indicator equal to 1 for all semi-annual periods after (and including) the completion date of merger deal d, x_{ft} is a vector of fund-level control variables (all defined in detail in Appendix I), and α_t and α_f denote time and fund fixed effects respectively.

The dependent variable is the net purchase (NP) in the $Core$, $NonCore$, New, and $Peripheral$ sub-portfolios. In particular, we first calculate the net purchase NP_{jt} for every stock j at time t and then aggregate over all stocks forming a given sub-portfolio. NP_{jt} is defined as the change in the portfolio weight w_{jt}, net of price appreciation (Kacperczyk, Sialm, and Zheng (2005)):

$$NP_{jt} = w_{jt} - \frac{w_{jt-1}(1+r_{jt})}{\sum_j w_{jt-1}(1+r_{jt})}, \quad (2)$$

Table 2, Panel A presents the results. In Column 1, we find that, on average, funds reduce their $Core$ holdings by 2.2% per half-year over the three-year period following the deal. The average fund has a size of $495 million on the eve of the merger, implying that the average fund reallocates about $65 million away from $Core$ country-sectors over the 3-year period following the merger.

The corresponding increase in the $NonCore$ sub-portfolio (Column 2) is overwhelmingly driven by investments in country-sectors labelled as New. The estimates of Column 3 indicate that funds increase their holdings in New areas by 1.4% of their AUM per half-year over the three-year period following the deal. This implies a reallocation of about $42 million towards these areas for the average fund. The remaining portfolio shares are allocated to $Peripheral$ country-sectors.

In a variation of this test, we investigate further to what extent these portfolio reallocations indicate a shift in the investment focus of the fund. We use as dependent variable the fund's active share in the various sub-portfolios, which we compute following Cremers and Pettajisto (2009) and Cremers et al. (2016). In Table IA.1 in the Internet Appendix, we find that funds lower their active share in $Core$ areas but increase it in especially New areas. To the extent that

the active share indicates investment ability, this suggests an overall shift in the investment expertise of the fund.

In Panel B of Table 1, we modify Eq. (1) and use as dependent variable the semi-annual market-adjusted sub-portfolio return, to analyze the time-series evolution of sub-portfolio performance.[11] We find that performance deteriorates in $Core$ investment areas, but improves substantially in New and $Peripheral$ areas. For the average fund, market-adjusted holding returns in $Core$ areas are 40 bps per half-year lower in the 3-year period following the merger compared to the 3 years preceding the merger, while they are 4.0% (1.2%) higher in New ($Peripheral$) areas.

Finally, in Panel C of Table 2, we investigate how trading intensity contributes to these performance results by adding an interaction between $PostM\&A$ and the net purchases in the different sub-portfolios to the specification. We find positive effects of net purchases on sub-portfolio performance, but only in New and $Peripheral$ areas and only in the post-merger period (Columns 3 and 4), suggesting that trading is more informed in those particular areas following the merger.

B. Sub-portfolio evidence

We complement the performance test, and investigate how the different sub-portfolios perform relative to each other. The estimates of Table 2, Panel B show that performance deteriorates in $Core$ areas but improves in $NonCore$ areas, suggesting that the merger impacts the investment competencies of affected funds. In Table 3, we test if there are differences in performance across these sub-portfolios, before and after the deal. It presents the estimates of:

[11] We use market-adjusted holding returns as our baseline performance measure throughout, and report results using size-value-momentum adjusted holding returns in the Internet Appendix, Table IA.6. We use market-adjusted holding returns as a baseline as it is closest to the fund return definition in BBL when we compute holdings-based value-added in Section II.D.

$$R_{fst+1} = \alpha_t + \alpha_f + \beta NonCore_{fs} + \mu' x_{ft} + \varepsilon_{fst}, \quad (3)$$

where R_{fst+1} measures the market-adjusted excess return of fund f in sub-portfolio s between periods t and $t+1$, $NonCore_{fs}$ is an indicator equal to 1 for the $NonCore$ position and 0 for the $Core$ sub-portfolio of the fund. We estimate Eq. (3) separately for the pre-merger and post-merger period.

Column 1 of Table 3 shows that in the pre-merger period, funds deliver better performance of about 80 bps per half-year in their $Core$ holdings relative to $NonCore$ holdings. However, this result is reversed in the post-merger period (Column 3), when $NonCore$ holdings outperform $Core$ holdings, by about the same amount. Columns 2 and 4 decompose the $NonCore$ sub-portfolio into its two components (New and $Peripheral$), to show that this reversal is largely driven by investments in New areas, which show strong outperformance in the post-merger period.

C. Matching-fund analysis

The results thus far raise the possibility that the merger improves the investment ability of affected funds. Fund management appears to generate new investment ideas in the post-merger period, and at the same time shrinks underperforming $Core$ holdings, suggesting that the merger in itself is not a cause of deteriorating performance in $Core$ areas, but instead helpful in mitigating underperformance in those areas. In fact, the corresponding shift in active share points to the interpretation that the merger acts as a catalyst for fund management to generate new investment ideas. However, an immediate concern with this interpretation is the possibility that mergers happen to coincide with time periods when funds in general enter specific investment areas that are new territory to all funds, not just those affected by mergers. In this case, the results of the previous sub-sections may overestimate the impact of the mergers on fund behavior. In this section, we address this concern via a matching-fund analysis.

For each fund in our sample, we identify a matching fund as follows: out of all active equity funds that are neither involved in a merger nor managed by an affiliated firm of our sample firms throughout the sample period, we select the one that shares the same investment objective, is managed in the same country, and is closest in terms of pre-merger AUM and pre-merger portfolio holdings to the fund in question. Following this algorithm, we are able to identify matching funds for 82% of the funds affected by mergers that are present one year prior to mergers in our sample. We then re-estimate the results of Table 2, now comparing portfolio re-balancing and performance across the different sub-portfolios for funds affected by mergers relative to matching funds in the pre- versus post-merger period.

Table 4 presents the results. In Panel A, we document that matching funds are far less aggressive in re-balancing their portfolios than our sample funds. Sample funds scale down their $Core$ holdings by about 2.0% per half-year in the post- relative to the pre-merger period. This is about three times as much compared to the matching funds ($-2.0\% + 1.3\% = -0.7\%$, Column 1). When decomposing the $NonCore$ holdings (Columns 3 and 4), we find that the corresponding net purchases in both New and $Peripheral$ areas are more than twice as large for sample funds compared to matching funds.

To illustrate the magnitude of these results, we plot the portfolio weights of sample and matching funds in the different sub-portfolios in Figure 2. They show that sample funds allocate about 18% of their AUM away from $Core$ areas over the 3-years following the completion of the merger. For matching funds, the corresponding portfolio re-allocation only amounts to about 3% of AUM. The figure then highlights that the lion-share of this portfolio re-balancing goes towards New areas (about 16% for sample funds). In contrast, matching funds allocate only about 4% of their AUM to those same areas over the same period. Sample funds allocate the

remaining 2% of AUM to $Peripheral$ areas while the allocation of matching funds to those same areas hardly changes.

In Panel B of the same table, we present the corresponding matching fund analysis to Table 2, Panel B and find that relative to matching funds, sample funds still underperform in their $Core$ areas (despite scaling down the worst-performing ones) but generate outperformance in $NonCore$ areas, particularly in New areas. In addition, we highlight that this performance test is conditional on the matching fund actually entering, for example, a specific New area. If the matching fund has no holdings in the New areas (which is the case for about 43% of observations), we are unable to make this comparison. In other words, this test potentially understates the impact of the merger, because it limits the sample to those matching funds that were able to generate an investment idea in the New areas for alternative and unobservable reasons.

D. Value added

Taken together, these results suggest that asset management mergers create value, in the sense of BBL, for the funds that they affect. In fact, the results so far have examined the two components of value added – AUM and excess returns – both of which move in the direction of additional added value.

In Table 5, we put the pieces together and formally document that this is indeed the case. We report the average value added across the different sub-portfolios in the pre- versus post-merger period. In the pre-merger period, we find significant value added only in the $Core$ holdings. In the post-merger period, however, we detect significant new value added in $Peripheral$ and, especially, New areas of nearly $3 million per half-year for the average fund. Taken together, the $NonCore$ areas generate about $18 million in value-added over the entire 3-year period following the merger.

Finally, in keeping with the matching-fund analysis introduced in the previous sub-section, we plot the cumulative added-value difference of our sample funds relative to matching funds for the different sub-portfolios in Figure 3.[12] In the left panel, we show that sample funds mostly distinguish themselves by adding more value in *New* areas relative to matching funds. We find no major differences in value added in *Peripheral* areas, and slightly more value added in *Core* areas.[13] In the right panel, we modify the measure of value added taking into account fund fees (i.e., we now use after-free excess returns). The figures mirror the ones from the left panel, but show that whatever value is added in *Core* or *Peripheral* areas is appropriated by the fund families. In contrast, fund investors still participate in these synergies as the value added in *New* areas stays significantly positive in the post-merger period (i.e., not all of the value added is appropriated by the fund family via fees).

E. Symmetry between bidder and target funds

We perform a final test to clarify if the results we document can indeed be understood as synergies in the conventional sense (that is, value improvements that require the specific combination of bidder and target) as opposed to a simple reallocation of existing resources from e.g., the target to the bidder. To do so, we investigate the extent to which the results we find are symmetric between bidder and target funds. For example, an alternative interpretation of our results might postulate that the bidder "poaches" the resources of the target (e.g., investment ideas and talent) to apply them to bidder funds on a larger scale. Prior literature on performance allocation in mutual fund families has documented such instances (e.g., Gaspar, Massa, and

[12] In the Internet Appendix, Figure IA.1 and IA.2 we plot the cumulative value added separately for sample funds and matching funds.

[13] Since value added is additive (it is the sum of all lines in the graph), the figure also shows that total value added on the overall fund portfolio increases after the merger relative to matching funds. This is driven by different elements: re-balancing towards specific areas, performance differences across investment areas, and potential differences in overall fund flows. We do not explicitly examine differences in flows here but provide additional tests in section IV.B.

Matos (2003), Bhattacharya, Lee, and Pool (2013), Gonçalves-Pinto and Schmidt (2014), Chuprinin, Massa, and Schumacher (2015) among others). If this was the case, one would still associate asset management mergers with an overall improvement in value added for affected funds, but the interpretation of the synergies would have to take this into account.

We reproduce the main results up to this point separately for bidder and target funds. To preserve space, we present these results in the Internet Appendix, Table IA.2. In summary, we find that all our main results are symmetric across bidder and target funds, which speaks in favor of the interpretation that asset management mergers create synergies that are beneficial to all funds (and not just to e.g., bidder funds as one would expect if the merger simple led to a one-sided re-allocation of resources inside the combined entity). For example, Panel A of Table IA.2 shows that target funds re-balance their portfolios away from $Core$ areas and towards New areas at least as much as bidder funds and Panel B shows that performance in New areas improves at least as much for target funds as for bidder funds. In fact, target funds experience stable performance in $Core$ areas in contrast to bidder funds that experience deteriorating performance there. The symmetry continues in that both bidder and target funds register the relatively best performance and add the most value in New areas. Given that all the tests identify New areas to which neither the bidder nor the target funds had exposure to in the year immediately preceding the merger, we argue that extracting resources from the target to transfer them to the bidder for a one-sided gain is unlikely to explain our results. Instead, we conclude that asset management mergers lead to distinct synergies, which we investigate further in the next section.

III. Synergies and human capital reallocation in asset management mergers

In this section, we investigate in greater detail the mechanism by which the previously documented synergies are realized. Following BBL, our main focus is on human capital

(re)allocation in the post-merger period. Indeed, as argued by BBL, the asset management industry offers a unique setting to study the importance of human capital, as it constitutes the primary input in the production function of the firm. Combining this observation with our setting suggests that human capital should play a central role in the realization of the merger synergies we document.

To accomplish this task, we proceed in three steps. First, we investigate if managerial rotations indeed increase following the completion of the merger and if the purported merger synergies are directly related to the reallocation of human capital inside the combined entity. Second, we examine if there are specific deal characteristics that are conducive of larger or smaller merger synergies. Given the focus on human capital, we are primarily interested in deal characteristics that have a direct impact on the size and quality of the human capital pool of the firm. And third, we document how the matching of human capital to investment capital is implemented across the various deals. Taken together, these tests allow us to evaluate the role that human capital allocation plays in the realization of merger synergies.

A. Managerial rotations around mergers

We start by investigating if the intensity of managerial rotations changes around the merger. We estimate:

$$ManagerialRotation_{ft} = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 MatchingFund_{ft} + \beta_3 PostM\&A_{dt} \times MatchingFund_{ft} + \mu' x_{ft} + \varepsilon_{ft}, \quad (4)$$

The dependent variable $ManagerialRotation_{ft}$ includes different indicator variables for a change in the management team: $Rotation_{ft}$ is an indicator equal to 1 if fund f experiences any changes in its management team in a given period t and 0 otherwise, $NewManager_{ft}$ is an indicator equal to 1 if a new manager appears in the management team of the fund in period t and 0 otherwise. We decompose $NewManager_{ft}$ into new managers that are already employees

of the target or bidder ("internal") and new managers that join the firm ("external"). Finally, $ManagerLeave_{ft}$ is an indicator equal to 1 if a manager that we observe in period $t-1$ no longer appears in the management team of the fund in period t, and 0 otherwise. All other specifications are as before.

Panel A of Table 6 presents the results. They show that the intensity of managerial rotations increases significantly in the post-merger period for sample funds, but not for matching funds (Columns 1 and 2). The estimates imply that the probability of a fund experiencing a managerial rotation in any given half-year period following the deal completion date increases by 1.7%. Compared to an unconditional probability of experiencing a change in the management team of about 10% in the pre-merger period, this corresponds to a nearly 20% increase in the intensity of managerial rotation following a merger. Column 3 shows that these increases in managerial rotation are mostly driven by new managers joining the funds, and especially new "internal" managers being rotated within the new entity, i.e., managers that were already employees of the firm prior to the merger (Column 4). In contrast, the rate at which external new managers are hired is constant throughout the merger period (Column 5). In Column 6, we only find economically modest (and statistically insignificant) evidence of an increased chance of dismissal for existing managers. Across the columns, we find no evidence that matching funds change their managerial rotations in the same way; in fact, the matching funds show largely no changes in their managerial rotations around the merger events.[14] In un-tabulated results, we document that the total number of managers in the combined entity, if anything, increases slightly in the post-merger period. That is, we find no evidence that the mergers lead to a significant reduction of the labor force, suggesting that cost savings from eliminating

[14] In Column 5, we find the drop in the rate at which new external managers are hired at matching funds to be due to the crisis years when, in contrast to funds affected by mergers, these matching funds slowed down their hiring.

redundancies in the company's "labor force" are not a major source of synergies. Finally, we find a mild increase in team-managed funds in the post-merger period.

Next, we examine if managerial rotations are directly related to the rebalancing activities and the outperformance in new areas documented in Section II. We re-estimate Eq. (3), where the dependent variables are sub-portfolio net purchases or excess returns. The explanatory variables are indicators for the different sub-portfolios (in the $Core$, $NonCore$, New, $Peripheral$) and interaction terms with new manager indicators.

The results in Panel B of Table 6 show that funds re-balance much more aggressively into $NonCore$ areas after a new fund manager joins the fund in the post-merger period – the coefficients on the interaction terms $NonCore \times NewManager$ in Column 1 or $New \times NewManager$ and $Peripheral \times NewManager$ (Column 2) are positive and statistically significant.

The same result extends to the performance in New areas. While there is no difference in the outperformance in $NonCore$ areas in general relative to $Core$ areas when a new manager joins versus when the management is unchanged (Column 3), the joining of a new manager is associated with significantly better performance in New areas, but not in $Peripheral$ areas (Column 4). In fact, when the management team remains unchanged, New areas perform about 90 bps better per half-year compared to $Core$ areas. However, following the appearance of a new manager, investments in the New areas outperform the $Core$ areas by 2.7% per half-year, or about three times as much. Taken together, these findings indicate that mergers create the conditions for a reallocation for human capital across different funds. Funds that are allocated new managers make the greatest changes to their portfolios, directing investment towards the $NonCore$ and New areas, and experience the best excess returns in those areas.

B. Deal characteristics

If human capital reallocation is important for the realization of merger synergies, we would expect that realized synergies vary with deal characteristics, especially deal characteristics that relate to the size and quality of the human capital pool. We test this conjecture by examining how the rebalancing behavior of affected funds varies across merger deals. The characteristics we are interested in measure the (ex-ante) complementarity and size of the human capital pool that the merger brings together. We gauge complementarity in investment expertise via three measures. First, we look at $PortfolioDistance$, defined as the distance in the aggregated pre-merger portfolios of bidder and target:

$$PortfolioDistance_d = \left[\sum_c \left(w_{ci} - w_{cj} \right)^2 \right]^{1/2}, \quad (5)$$

where w_{ci} and w_{cj} are the value-weighted average portfolio weights of all funds belonging to target i and to acquiror j allocated to the country-sector c. A high $PortfolioDistance$ means that the bidder and target have a different investment focus, hence a greater scope to transfer and exchange expertise.

Second, we define $ManagerDistance$ as the distance in average lifetime investment expertise of all individual fund managers in the bidder and target. For every individual fund manager, we trace all the funds s/he was ever associated with in our data, potentially stretching back years prior to the actual merger date. We then aggregate the holdings of all these manager-fund observations to create the manager's "lifetime portfolio".[15] The expertise of a given manager in a given country-sector is then the portfolio weight of this country-sector in the lifetime portfolio of the manager.[16] We aggregate these measures of individual investment

[15] We exclude the portfolio holdings of the year (in unreported robustness checks, the 3-year period) immediately preceding the merger, to minimize the overlap between the two measures.

[16] A number of mechanisms, rational or otherwise, suggest using past exposure to a given sector or asset class as a proxy for the fund manager's expertise in that sector. We are agnostic regarding the precise mechanism for the

expertise to the deal-level measure of $ManagerDistance$ in the same way as in Eq. (5). As before, we expect a high $ManagerDistance$ to measure the complementarity in investment expertise between fund managers that gain an affiliation via the merger.

Third, we define $RelativeStylePool$ as the number of new investment objectives (i.e., Morningstar "investment styles") that the target brings to the bidder, scaled by the number of distinct investment objectives that are present in the bidder prior to the merger.

Therefore, $PortfolioDistance$, $ManagerDistance$, and $RelativeStylePool$ focus on the scope for complementarities between the investment know-how of bidder and target. In addition to this, the impact of human capital on value creation around the merger will depend on the change in size of the human capital pool. We proxy for this by $RelativeManagerPool$, defined as the number of individual fund managers in the target scaled by the combined number of managers in the bidder and the target prior to the merger. We expect that the ability to optimally allocate human capital grows more in mergers that lead to a relatively larger increase in the pool of fund managers, compared to mergers where the relative change in the labor force is small (this allows us to relate to the results of Chen et al. (2004) as this variable measures the change in the size of the family in terms of fund managers).

Finally, since we work on a global sample, we investigate if there are any differences between domestic and cross-border deals. On the one hand, we can expect a greater degree of complementarity in cross-border mergers simply because the expertise of many asset managers may concentrate on domestic investment areas. On the other hand, geographic distance in itself could limit the realization of synergies, because the transfer and distribution of expertise is more difficult across geographic (and / or cultural) boundaries.

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accumulation of expertise and/or information by fund managers, which is the topic of a growing literature (e.g. Cici, Gehde-Trapp, Goericke, and Kempf (2015), Kacperczyk, van Nieuwerburgh, and Veldkamp (2014), Kempf, Manconi, and Spalt (2016), Schumacher (2017)).

We implement these tests by the revisiting Eq. (1), and adding interaction terms for these deal characteristics to the regression specification. We focus on net purchases in New areas as our main dependent variable. The results in Table 7 show that funds rebalance into New areas much more aggressively in mergers with a high degree of complementarity in the investment expertise of the bidder and the target. For example, the estimates in Column 1 suggest that net purchases in New areas of funds in mergers with above-median $PortfolioDistance$ are almost 20% larger compared to funds in mergers with below-median $PortfolioDistance$ in the post-merger period. Column 2 (3) shows a similar result for funds mergers with above-median $ManagerDistance$ ($RelativeStylePool$). In Column 4, we document that the impact of the merger on the overall number of individual managers has an impact on the rebalancing behavior in itself. Funds rebalance more aggressively into new areas in mergers where the overall pool of managers grows more, consistent with our argument that the size of the internal labor market itself supports the realization of synergies. Columns 5 shows no significant differences in the rebalancing behavior between domestic and cross-border mergers. We speculate that geographic distance limits the extent to which synergies are realized in such deals, as we generally observe higher $PortfolioDistance$ and $ManagerDistance$ in cross-border mergers. Finally, Column 6 shows that all these effects are robust in a joint specification. In fact, now that we explicitly control for differences in portfolio or manager distance, we find a negative effect of $CrossBorder$, confirming the interpretation that distance in itself limits the realization of human capital synergies.

In Internet Appendix Table IA.7, we estimate the same regressions using as dependent variables net purchases in $Core$ or $Peripheral$ areas. The results largely mirror the ones here, consistent with funds allocating their portfolios away from $Core$ areas when there is greater scope for complementarities between bidders and targets.

In unreported tests, we experiment with specifications that use performance in e.g., New areas (rather than net purchases) as the dependent variable. We find no differences in performance across those deal characteristics, suggesting that in those deals, funds create more value by re-allocating AUM more aggressively while realizing similar excess returns compared to other funds in the sample.

C. Matching expertise to capital

As a final series of tests, we analyze the allocation of human capital expertise to new funds in the post-merger period across the different deal characteristics introduced in the previous sub-section. We focus on the intensity of managerial rotations and the matching of human to investment capital.

We begin with a modification of Eq. (5) and test if the intensity to assign a new manager to a fund increases more in the post-merger period along the same deal characteristics introduced in Section III.B. We complement the specification with interaction terms between the indicator $PostM\&A$ and the different deal characteristics and present the results in Table 8, Panel A. We find no significant differences in the quantity of managerial rotations across the different mergers. If anything, we find a slightly lower propensity to assign a new merger to a fund in mergers with high $ManagerDistance$ or $RelativeManagerPool$. However, the estimates generally fall short of conventional levels of statistical significance, or are at best borderline.

Given comparable *quantities* of managerial rotations, we examine if the *quality* of rotations is different across deals. In other words, we ask if the matching of human to investment capital differs along deal characteristics. We use our measures of individual manager expertise, and first document the differences in lifetime managerial expertise between newly-assigned managers and the old management of the funds to which the managers are added. Panel C of Table 1 provides descriptive statistics of what these expertise measures look like. The typical new manager still

has most of her lifetime expertise in $Core$ areas (about 73%), followed by expertise in $Peripheral$ areas (22%), and New areas (6%), as one would expect. Across all the mergers, if we compare the differences in lifetime expertise, we find overall little differences in the expertise profile of new managers relative to old managers (unreported). While new managers tend to have more expertise in New areas and less in $Core$ areas, the differences appear economically small.

Therefore, we test if the distribution of new manager expertise is significantly different across the different deal characteristics. For every new manager that is assigned to a fund in the post-merger, we measure his/her lifetime expertise in $Core$, New, and $Peripheral$ areas and relate the differences in expertise to deal characteristics. Specifically, we estimate:

$$Expertise_{fis} = \alpha_f + \beta_1 New_{fs} + \beta_2 Peripheral_{fs} + \beta_3 Characteristics_d + \beta_4 New_{fs} \times Characteristics_d + \beta_5 Peripheral_{fs} \times Characteristics_d + \mu' x_f + \varepsilon_f, \quad (6)$$

where $Expertise_{fis}$ denotes the lifetime expertise in sub-portfolio s of individual manager i that is assigned to fund f. In other words, the unit of observation is the sub-portfolio expertise of a new fund manager assigned to a fund and the regression compares how much higher or lower the expertise for the new fund manager is in e.g., New areas relative to his/her expertise in $Core$ areas across different deal characteristics.

Panel B of Table 8 documents a number of results. First, new managers in mergers with high human capital complementarity (Columns 1 to 3) or in mergers that grow the overall pool human capital (Column 4) have relatively more expertise in New and $Peripheral$ relative to $Core$ areas, compared to new managers in other mergers. The differences here are economically substantial. The estimates in Columns 1 to 3 suggest that such managers have more than twice as much lifetime expertise in New areas compared to new managers in deals with low

complementarity in investment expertise between bidder and target.[17] This suggests that the reallocation of human capital in mergers with a higher complementarity in investment expertise accomplishes a match between human and investment capital that creates more value compared to the matches that are realized in other mergers.

Second, in Column 4, we find that new managers in mergers that increase the overall pool of human capital the most also have relatively more expertise in New and $Peripheral$ areas compared to new managers that are assigned in other deals, supporting the view that a larger internal labor market allows for a better matching of human to investment capital.

Third, Columns 5 shows no differences in cross-border mergers in general, supporting the conjecture that human capital synergies are more difficult to harvest in such deals. Column 6 shows robustness of these effects in a joint specification.

In summary, we find that managerial rotations increase in the post-merger period and that portfolio rebalancing and performance in $NonCore$ areas is stronger in periods following the assignment of a new manager to a fund and in mergers with a high degree of complementarity in investment expertise between the bidder and target. In those deals, while we find similar increases in the quantity of managerial rotations compared to other deals, newly assigned managers bring much more complementary investment expertise to their funds, which suggests human capital synergies are particularly high in such mergers. Taken together, these findings show that the added value that we attribute to the mergers in Section II is in no small part due to improvements in internal labor markets that seem hard to accomplish without the merger and that create value not necessarily by improving existing expertise, but via the creation of new ideas, hence by acting as a catalyst to improved labor productivity. At the same time, we still find

[17] For example, the estimates in Columns 1 to 3 suggest that these new managers have an additional 7 to 8 percentage points lifetime investment expertise in New areas relative to new managers in deals with below-median human capital complementarity.

positive (but smaller) synergies even when there are no explicit managerial rotations. This could point to beneficial spill-overs or "organizational learning" more broadly.

IV. Discussion

A. Bidder and target matching

Mergers between asset management companies – just like any other merger – are unlikely to happen by chance. Our results that human capital synergies vary across specific deal characteristics (in particular characteristics that measure the complementarity in human capital expertise between bidder and target) would suggest that bidders select targets that show the greatest potential to complement the quality of human capital of the combined firm. After all, the property rights theory of the firm (e.g., Grossman and Hart (1986), Hart and Moore (1990), Hart (1995)) indicates that complementary assets should be managed under common ownership to minimize incomplete contracting problems. And complementarities in terms of human capital seem like a good example that would justify common ownership. If this is the case, we would expect larger complementarity between bidders and selected targets compared to bidders and alternative target candidates in order to maximize human capital synergies.

In contrast, as pointed out in Rhodes-Kropf and Robinson (2008), mergers require a negotiation process in which the bargaining power increases in the scarcity of the resources or complementarities that would lead to synergies if the merger succeeded. If particular human capital is in high demand by potential bidders, a lot of bargaining power may end up in the hands of the target candidates. This could prevent an actual paring of bidders with highly complementary targets, and lead to mergers between "similar" firms.

We argue that neither effect would impact the validity of our conclusions (after all, we include fund and deal fixed effects to study the realization of synergies conditional on the merger

between the actual bidder and target happening). However, an investigation of determinants that increase the chance of an actual target being chosen over plausible alternatives is helpful to put the magnitudes of our synergy estimates into perspective.

We carry out this test by comparing the actual bidder-target matches along specific deal characteristics against counterfactual matches between the bidders and pseudo-targets in the Internet Appendix, Table IA.3. For every actual bidder-target pair, we select alternative pseudo-targets,[18] and we estimate linear probability regressions to understand how the specific characteristics that we associate with human capital synergies impact the choice of target. We find that actual targets are generally "closer" in terms of characteristics that we identify with human capital synergies. For example, high values of $ManagerDistance$, $RelativeStylePool$, or $RelativeManagerPool$ are associated with a lower probability that the firm is selected as a target. Also, geographic distance or barrier in languages decrease the probability of being selected as a target. These results suggest that matching based on these specific characteristics is unlikely behind our results. In fact, these results indicate that the "like buys like" argument of Rhodes-Kropf and Robinson (2008) provides a better description of these asset management mergers, suggesting that differences in bargaining power may limit the extent of human capital synergies in our sample.

B. Additional merger synergies

The focus of our paper is on human capital synergies, but asset management mergers can generate value via alternative channels too. A prominent one is distribution: Acquiring an asset management company based in, say, the U.K. provides access to British investors because the

[18] We select pseudo targets based on the following criteria: out of all asset management firms that are neither involved in mergers nor affiliated with our real targets under the same parent firms, we choose the firm that is closest in the pre-merger AUM and shares the same conglomerate status as the given real target, i.e., if the given target is a parent firm (or an affiliate under a parent firm), then we select a pseudo target which is also a parent firm (or an affiliate).

bidder can access the target's existing distribution channels and brand name. We examine this argument in tests reported in the Internet Appendix, Tables IA.4 and IA.5. In Table IA.4, we find that the intensity of new fund launches shifts towards new markets (i.e., countries part of the distribution network of the target that were previously inaccessible to the bidder and vice versa) in the post-merger period and Table IA.5 shows that new funds that are launched in these new markets generate higher flows compared to funds launched in "old markets".

A second alternative, often emphasized in related papers that examine post-merger synergies, are cost synergies. As indicated above, the human capital synergies we document appear different from cost synergies (e.g., we do not find strong evidence of large-scale dismissals to reduce duplication of human capital expertise). An alternative source of cost synergies could be the streamlining of the overall fund menu (e.g., the closing of funds with the same investment objective in order to avoid duplication of fund administration costs). In unreported results, we do find some evidence of individual fund mergers (i.e., a target fund is merged into an equivalent bidder fund or vice versa) in the post-merger period; but we also find the extent of these fund mergers to be overall small. While the average merger affects 48 funds, we only find 2 fund mergers on average in the post-merger period.

C. Additional robustness tests

We present a number of additional robustness tests in the Internet Appendix. In Table IA.6, we present the main performance tests using characteristics-adjusted holding returns instead of market-adjusted ones. The results are very similar. In Table IA.7, we complement the results of Table 7 but use net purchases in $Core$ or $Peripheral$ areas as dependent variables instead of net purchases is New areas. The results are consistent (with opposite sign of course). In Table IA.8, we re-estimate the results in Table 8, Panels B and C, but use measures of human capital expertise that exclude the full 3-year pre-merger period in the construction of the measures (as

opposed to just the 1-year period immediately preceding the merger) to better capture the out-of-sample historical expertise of the manager. In unreported tests, we exclude the BlackRock-BGI merger that took place in late-2009 as this merger is by far the largest in the sample, to make sure our results are not confounded by this transaction. We find our results robust across all these tests.

V. Concluding remarks

Exploiting the central features of the global asset management industry (its reliance on human capital as the foremost input in the production function of the firm, and an unmatched level of data granularity), we implement a micro-level approach to examine the channels and mechanisms by which human capital synergies are realized following mergers between two asset managers.

We find heavy portfolio rebalancing away from core investment areas and towards new areas that are associated with significant performance improvements. In combination, this leads to additional value added of about $18 million in the 3-year post-merger period for the average fund.

These synergies are closely related to improvements in internal labor markets: managerial rotations increase substantially following the merger and funds that experience managerial changes show the strongest synergy effects. The matching of human to investment capital also improves, especially in mergers that strongly grow the size and the complementarity of expertise of the internal labor market.

We conclude that the added flexibility to create value via discretionary increases in the size and quality of internal labor markets is a central benefit of these mergers. Interestingly, the synergies we document are realized primarily via the creation of new investment ideas (rather

than improvements of already existing expertise) which suggests that the improved ability to match human to investment capital acts as a catalyst to improved labor productivity. Moreover, we find synergy effects even for funds that do not experience a managerial rotation, suggesting that organizational learning and knowledge spillovers are a second (albeit weaker) benefit in addition to the improvements in internal labor markets.

VI. 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, 2017, Anti-Competitive Effects of Common Ownership, *Journal of Finance*, forthcoming.

Baker, G., M. Gibbs, and B. Holmstrom, 1994, The Internal Economics of the Firm: Evidence from Personnel Data, *Quarterly Journal of Economics* 109(4), 881-919.

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.

Berk, J. B. and R. C. Green, 2004, Mutual Fund Flows and Performance in Rational Markets, *Journal of Political Economy* 112, 1269-1295.

Berk, J. B. and J. H. Van Binsbergen, 2015, Measuring Skill in the Mutual Fund Industry, *Journal of Financial Economics* 108, 1-20.

Berk, J. B., J. H. Van Binsbergen, and B. Liu, 2017, Matching Capital and Labor, *Journal of Finance*, forthcoming.

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.

Bhattacharya, U, J. H. Lee, and V. Pool, 2013, Conflicting Values in Mutual Fund Families, *Journal of Finance* 68, 173-200.

Bradley, M, A. Desai, and E. H. Kim, 1988, Synergistic Gains From Corporate Acquisitions and Their Division Between the Stockholders of Target and Acquiring Firms, *Journal of Financial Economics* 21, 3-40.

Cestone, G., C. Fumagalli, F. Kramarz, and G. Pica, 2016, Insurance Between Firms: The Role of Internal Labor Markets, Working paper.

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.

Chuprinin, O., M. Massa, and D. Schumacher, 2015, Outsourcing in the International Mutual Fund Industry: An Equilibrium View, *Journal of Finance* 70, 2275-2308.

Cici, G., M. Gehde-Trapp, M.-A. Goericke, and A. Kempf, 2015, What They Did in Their Previous Lives: The Investment Value of Mutual Fund Managers' Experience Outside the Financial Sector, Working paper, University of Cologne.

Cremers, M., M. A. Ferreira, P. Matos, and L. T. Starks, 2016, Indexing and Active Fund Management: International Evidence, *Journal of Financial Economics* 120, 539–560.

Cremers, K. M., and A. Petajisto, 2009, How Active is Your Fund Manager? A New Measure that Predicts Performance, *Review of Financial Studies* 22(9), 3329-3365.

Elton, J. E., M. J. Gruber, and C. R. Blake, 2012, Does Mutual Fund Size Matter? The Relationship Between Size and Performance, *Review of Asset Pricing Studies* 2, 31-55.

Ferreira, M. A., P. P. Matos, and P. Pires, 2016, Asset Management within Commercial Banking Groups: International Evidence, Working paper, Darden Business School.

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.

Giroud, X., and H. Mueller, 2015, Capital and Labor Reallocation within Firms, *Journal of Finance* 70, 1767-1804.

Gonçalves-Pinto, L., and B. Schmidt, 2014, Co-Insurance of Mutual Fund Families, Working paper, NUS Business School.

Grossman, S. J., and O. D. Hart, 1986, the Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration, *Journal of Political Economy* 94, 691-719.

Hart, O., and J. Moore, 1990, Property Rights and the Nature of the Firm, *Journal of Political Economy* 98, 1119-1158.

Hart, O., 1995, Corporate Governance: Some Theory and Implications, *Economic Journal* 105, 678-689.

He, J. and J. Huang, 2017, Product Market Competition in a World of Cross Ownership: Evidence from Institutional Blockholdings, *Review of Financial Studies* 30, 2674-2718.

Hoberg, G., and G. Phillips, 2010, Product Market Synergies and Competition in Mergers and Acquisitions: A Text-Based Analysis, *Review of Financial Studies* 23, 3773-3811.

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.

Jovanovic, B, 1979, Job Matching and the Theory of Turnover. *Journal of Political Economy*, 87(5, Part 1), 972-990.

Kacperczyk, M., C. Sialm, and L. Zheng. 2005. On the Industry Concentration of Actively Managed Equity Mutual Funds, *Journal of Finance* 60, 1983–2011.

Kacperczyk, M., S. van Nieuwerburgh, and L. Veldkamp, 2014, Time-Varying Fund Manager Skill, *Journal of Finance* 69, 1455-1484.

Kempf, E., A. Manconi, and O. G. Spalt, 2017, Learning by Doing: The Value of Experience and the Origins of Skill for Mutual Fund Managers, Working paper, Tilburg University.

Lee, K. H., Mauer, D. C., and Xu, Q., 2017, Human Capital Relatedness and Mergers and Acquisitions, *Journal of Financial Economics*, forthcoming.

Massa, M., D. Schumacher, and Y. Wang, 2016, Who is Afraid of BlackRock?, Working paper, CEPR.

Ouimet, P., and R. Zarutskie, 2016, Acquiring Labor, Working paper.

Pastor, L., R. F. Stambaugh, and L. A. Taylor, 2015, Scale and Skill in Active Management, *Journal of Financial Economics* 116, 23-45.

Reuter, J. and E. Zitzewitz, 2015, How Much Does Size Erode Mutual Fund Performance? A Regression Discontinuity Approach, Working Paper.

Rhodes-Kropf, M., and D. T. Robinson, 2008, The Market for Mergers and the Boundaries of the Firm, *Journal of Finance* 63, 1169-1211.

Schumacher, D., 2017, Home Bias Abroad: Domestic Industries and Foreign Portfolio Choice, *Review of Financial Studies* accepted for publication.

Sheen, A., 2014, The Real Product Market Impact of Mergers, *Journal of Finance* 69, 2651-2688.

Silva, R., 2017, Internal Labor Markets, Wage Convergence and Investment, Working paper.

Stein, J. C., 1997, Internal Capital Markets and the Competition for Corporate Resources, *Journal of Finance* 52, 111-133.

Tate, G., and L. Yang, 2015, The Bright Side of Corporate Diversification: Evidence from Internal Labor Markets, *Review of Financial Studies*, 28(8), 2203-2249.

Tate, G. A., and L. Yang, 2016, The Human Factor in Acquisitions: Cross-Industry Labor Mobility and Corporate Diversification, Working paper.

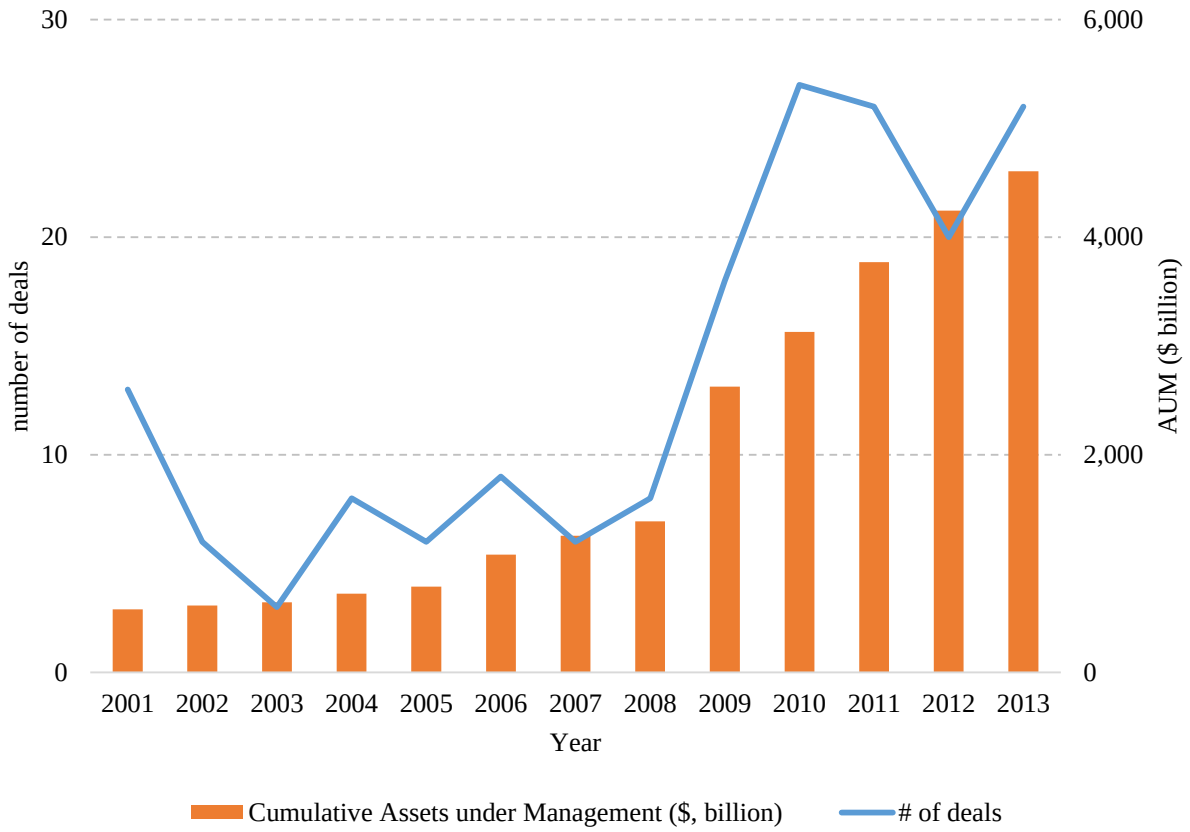

Figure 1: Deal volume over time
The figure reports the number of merger deals in our sample, as well as the cumulative total net assets (in USD billion) by deal year from 2001 to 2013.

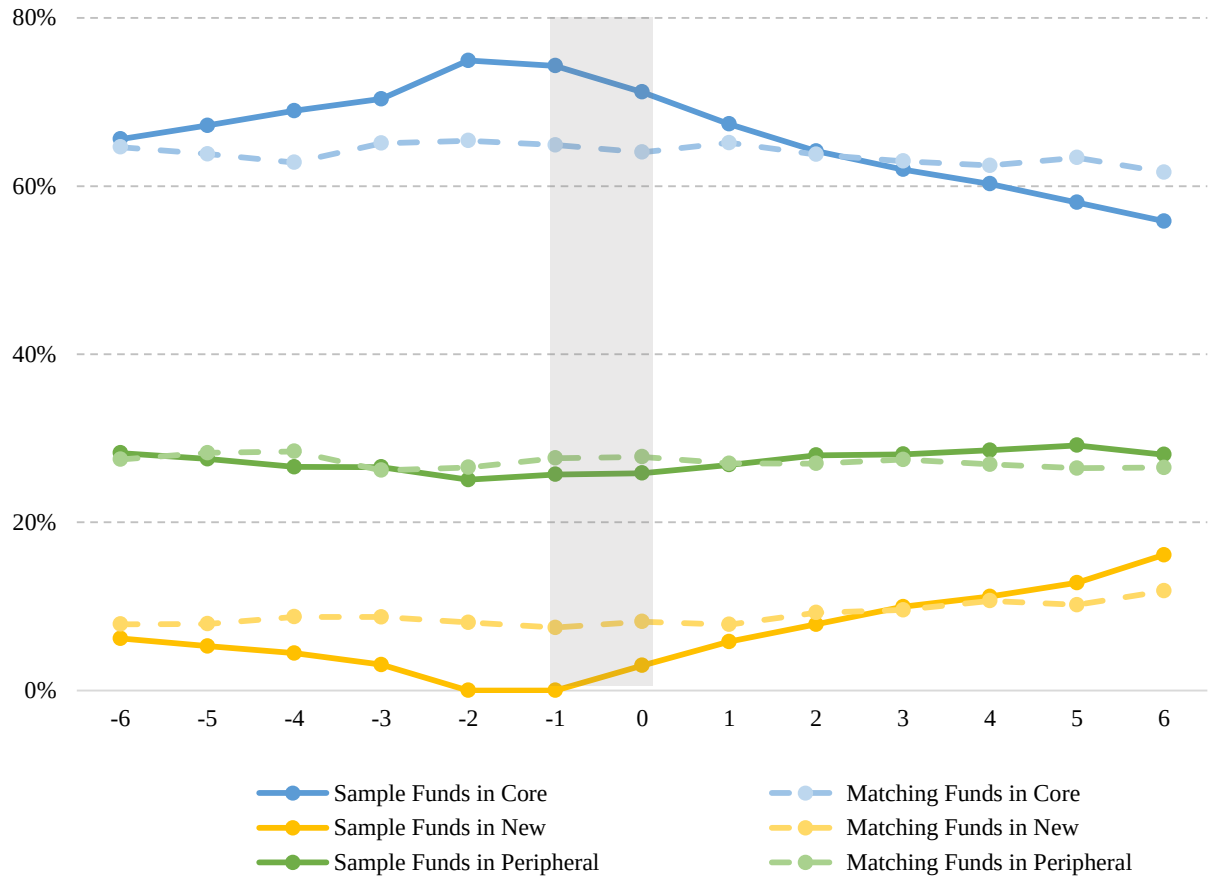

Figure 2: Portfolio weights for sample funds and matching funds in sub-portfolios over time
The figure reports the portfolio weights of sample funds (involved in an asset management company merger) and matching funds in *Core*, *New* and *Peripheral* country-sectors, at half-year intervals relative to the deal completion date, over the period from 3 years before to 3 years after the deal completion date. The shaded area denotes the half-year period during which the deal is completed.

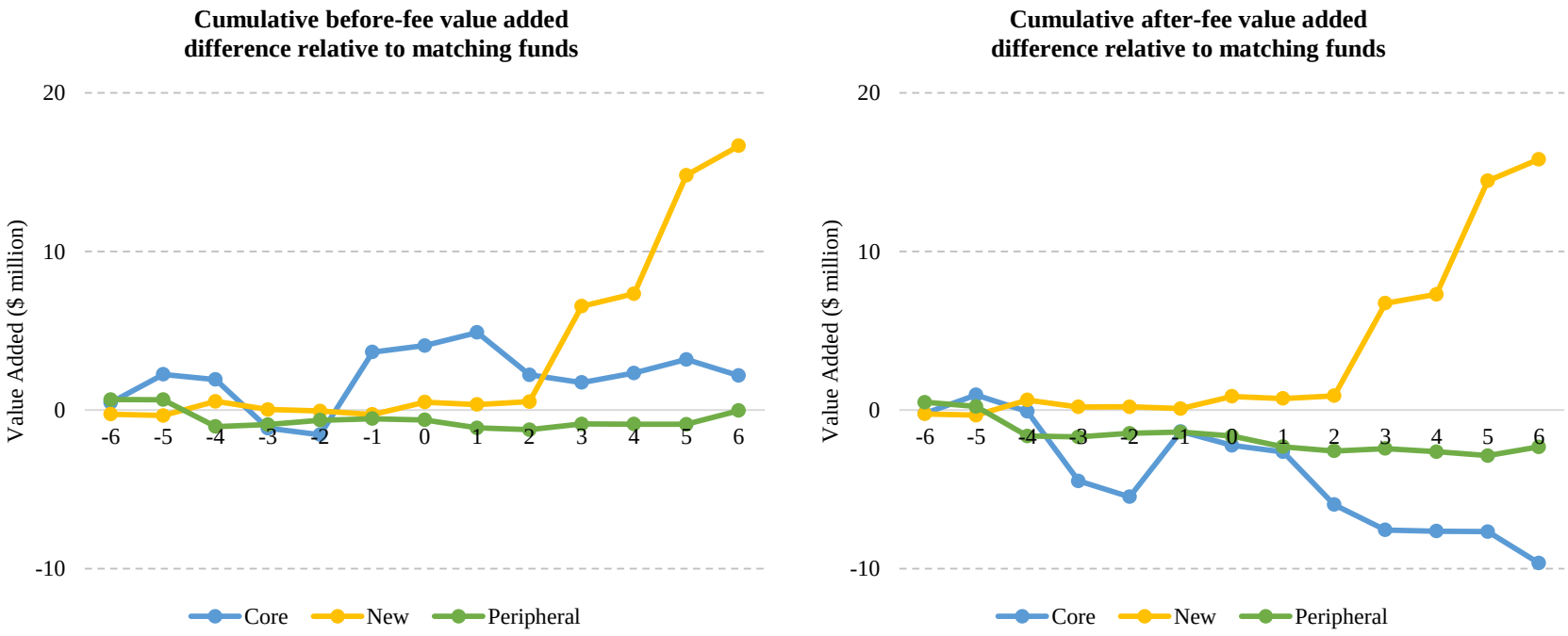

Figure 3: Cumulative value added difference in sub-portfolios over time

The graph on the left reports the average fund level cumulative before-fee value added of sample funds (funds involved in an asset management company merger) relative to matching funds in the *Core*, *New*, and *Peripheral* country-sectors, at half-year intervals relative to the deal completion date. The figure on the right reports the respective average fund level cumulative after-fee value added difference. In both graphs, value added is expressed in USD million per fund.

Table 1: Sample characteristics

In Panel A, the table reports descriptive statistics of our main sample funds at the deal level. Panel B reports descriptive statistics for fund level variables. Panel C reports descriptive statistics for manager level variables. The sample consists of active equity funds involved in 135 merger deals between asset management companies world-wide. Fund equity portfolio holdings are obtained from FactSet, and stock returns from Datastream. Fund manager information is retrieved from Morningstar. All variables are defined in detail in the Appendix.

Panel A: Deal level characteristics

	Mean	**Std. Dev.**	**Min**	**25 Pct.**	**Median**	**75 Pct.**	**Max**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Deal level characteristics one year prior to merger							
Number of funds	24.32	28.85	1.00	6.00	14.00	29.00	138.00
Number of team-managed funds	13.17	17.43	1.00	2.00	6.00	17.00	79.00
Number of investment styles	8.47	6.51	1.00	4.00	7.00	11.00	30.00
Number of managers	27.35	29.70	1.00	6.00	15.00	46.00	128.00
Total net assets ($ billion)	10.69	17.66	0.00	0.56	2.54	14.62	83.02
Deal level portfolio characteristics one year prior to merger							
Portfolio weight w_C (%)	81.57	14.40	28.92	73.40	85.88	92.56	99.61
Portfolio weight w_N (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Portfolio weight w_P (%)	18.43	14.40	0.39	7.44	14.12	26.60	71.08

Table 1: Sample characteristics – continued

Panel B: Fund level characteristics

	Mean	Std. Dev.	Min	25 Pct.	Median	75 Pct.	Max
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fund level characteristics							
Fund family size ($ billion)	15.76	19.74	0.00	1.83	7.89	21.57	107.92
Fund size ($ million)	494.82	1,345.02	0.00	36.21	119.27	393.30	31,430.29
Expenses (annualized, %)	1.54	0.49	0.36	1.24	1.50	1.79	3.21
Volatility (annualized, %)	19.39	9.13	5.76	12.41	17.99	24.40	49.80
Age (years)	13.05	10.69	0.00	6.00	10.67	16.58	89.42
Past return (annualized, %)	9.13	26.55	-55.02	-6.76	13.39	27.35	74.51
Number of managers	2.06	1.75	1.00	1.00	2.00	2.00	31.00
Managerial rotation intensity over the pre-merger period							
$Rotation$ (%)	14.32	35.03	0.00	0.00	0.00	0.00	100.00
$NewManager$ (%)	10.36	30.47	0.00	0.00	0.00	0.00	100.00
$ManagerLeave$ (%)	9.25	28.97	0.00	0.00	0.00	0.00	100.00
Fund level portfolio characteristics over the pre-merger period							
Net purchase NP_C (half-year, %)	0.83	6.89	-94.09	-1.03	0.05	2.27	95.94
Net purchase NP_N (half-year, %)	-0.52	4.12	-94.07	-0.02	0.00	0.00	91.92
Net purchase NP_P (half-year, %)	-0.31	6.72	-95.19	-1.82	0.00	1.28	94.09
Market-adj. return R_C (half-year, %)	0.76	8.43	-45.30	-3.24	0.26	4.05	65.02
Market-adj. return R_N (half-year, %)	-1.31	20.58	-45.30	-13.65	-2.09	9.45	65.02
Market-adj. return R_P (half-year, %)	0.15	13.63	-45.30	-6.53	-0.22	6.23	65.02

Panel C: Manager level characteristics

	Mean	Std. Dev.	Min	25 Pct.	Median	75 Pct.	Max
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
New manager expertise distribution							
Expertise in $Core$	0.73	0.30	0.00	0.52	0.86	0.98	1.00
Expertise in New	0.06	0.14	0.00	0.00	0.01	0.03	1.00
Expertise in $Peripheral$	0.22	0.24	0.00	0.02	0.11	0.37	0.98

Table 2: Portfolio choice and performance changes around the merger

Panel A reports the estimates of:

$$NP_{fst} = \alpha_t + \alpha_f + \beta PostM\&A_{dt} + \mu' x_{ft} + \varepsilon_{ft}.$$

The dependent variable measures the net purchases (NP) of sub-portfolio s for fund f in period t that is involved in merger d, in $Core$, $NonCore$, New, and $Peripheral$ sub-portfolios of country-sectors for fund f in period t. $PostM\&A_{dt}$ is an indicator equal to 1 for the post-merger period and 0 otherwise. In Panel B, we replace NP with sub-portfolio market-adjusted holdings return between periods t and $t+1$ in the corresponding country-sectors. In Panel C, we modify the specification of Panel B and include an interaction term between $PostM\&A_{dt}$ and NP_{fst}. In all specifications, x is a vector of fund characteristics ($Fund\ size$, $Firm\ size$, $Expenses$, $Volatility$, and $Past\ return$). α_t and α_f denote time and fund fixed effects respectively. The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

Panel A: Sub-portfolio net purchase change around mergers

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.022***	0.022***	0.014***	0.008***
	(-18.33)	(18.27)	(16.33)	(7.57)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.084	0.086	0.110	0.059
N	32,431	32,431	32,431	32,431

Panel B: Sub-portfolio market-adjusted holdings return change around mergers

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.004***	0.013***	0.040***	0.012***
	(-3.83)	(6.39)	(5.78)	(5.73)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.170	0.215	0.290	0.213
N	31,024	28,190	12,226	27,922

Table 2: Portfolio choice and performance changes around the merger – continued

Panel C: Sub-portfolio market-adjusted holdings return and net purchase around mergers

	$Core$	$NonCore$	New	$Peripheral$
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.004***	0.012***	0.040***	0.011***
	(-3.22)	(6.14)	(5.66)	(5.54)
NP	0.029	-0.011	-0.037	-0.029*
	(1.43)	(-0.71)	(-0.83)	(-1.70)
$NP \times PostM\&A$	-0.018	0.033	0.088*	0.065***
	(-0.68)	(1.57)	(1.67)	(2.82)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.171	0.216	0.291	0.213
N	30,868	28,032	12,129	27,770

Table 3: Fund sub-portfolio performance following mergers

The table reports the estimates of:

$$R_{fst+1} = \alpha_t + \alpha_f + \beta NonCore_{fs} + \mu' x_{ft} + \varepsilon_{fst}$$

separately for pre- (Columns 1 and 2) and post-merger (Columns 3 and 4) periods. R_{fst+1} is the market-adjusted return in sub-portfolio s of fund f between periods t and $t+1$. $NonCore$ is an indicator for "non-core" country-sectors. In Columns 2 and 4, we split the "non-core" sub-portfolio into two sub-portfolios: "peripheral" and "new", and use $Peripheral$ and New as the indicators for the corresponding positions. x is the vector of control variables used throughout, and α_t and α_f denote time and fund fixed effects respectively. The number of observations in each regression is reported in the bottom row. In Columns 1 and 2 (3 and 4), these correspond to 15,805 (15,648) deal-fund-time observations (i.e., prior to the decomposition into fund sub-portfolios). The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

	Pre-merger period		**Post-merger period**	
	(1)	(2)	(3)	(4)
$NonCore$	-0.008***		0.008***	
	(-5.55)		(6.41)	
New		-0.021***		0.011***
		(-5.75)		(5.17)
$Peripheral$		-0.007***		0.007***
		(-4.84)		(5.67)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.188	0.162	0.169	0.146
N	29,350	33,168	29,864	38,004

Table 4: Matching fund portfolio changes and sub-portfolio performance

The table compares funds affected by mergers with matching funds. The table reports the estimates of:

$$NP_{fst}(\text{or } R_{fst+1}) = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 MatchingFund_{ft} + \beta_3 PostM\&A_{dt} \times MatchingFund_{ft} + \mu' x_{ft} + \varepsilon_{ft}$$

The dependent variable is the net purchase NP of the sub-portfolio s of fund f at time t in Panel A, or the market-adjusted holdings return of the sub-portfolio s of fund f between periods t and $t+1$ in Panel B. $MatchingFund$ is an indicator equal to 1 if the fund is a matching fund, and 0 otherwise. x is the vector of control variables used throughout, and α_t and α_f denote time and fund fixed effects respectively. The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

Panel A: Sub-portfolio net purchase change around mergers

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.020***	0.022***	0.014***	0.008***
	(-18.26)	(19.73)	(18.55)	(8.40)
$PostM\&A \times MatchingFund$	0.013***	-0.014***	-0.008***	-0.006***
	(8.80)	(-8.81)	(-8.76)	(-4.60)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.184	0.262	0.177	0.171
N	58,443	58,443	58,443	58,443

Panel B: Sub-portfolio market-adjusted holdings return change around mergers

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.004***	0.013***	0.034***	0.011***
	(-3.99)	(6.74)	(5.42)	(5.88)
$PostM\&A \times MatchingFund$	0.003*	-0.005*	-0.021***	-0.006**
	(1.77)	(-1.88)	(-2.98)	(-2.31)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.161	0.201	0.262	0.195
N	56,203	51,426	26,359	50,943

Table 5: Fund sub-portfolio value added

This table reports the average sub-portfolio value added in the pre-merger periods (in Columns 1 and 2) and post-merger periods (in Columns 3 and 4) in $Core$, $NonCore$, New, and $Peripheral$ country-sector sub-portfolios. It also reports t-statistics for differences between the sub-portfolio value added. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

	Pre-merger period		**Post-merger period**	
	(1)	(2)	(3)	(4)
$Core$	3.702***	3.702***	3.613***	3.613***
	(3.21)	(3.21)	(3.09)	(3.09)
$NonCore$	1.334		2.977**	
	(1.52)		(2.00)	
New		0.036		2.487*
		(0.45)		(1.77)
$Peripheral$		1.298		0.491**
		(1.51)		(2.51)
t-stat ($NonCore - Core$)	(-3.16)		(-0.41)	
t-stat ($New - Core$)		(-3.25)		(-0.76)
t-stat ($Peripheral - Core$)		(-3.12)		(-2.70)

Table 6: Managerial rotation changes around mergers

Panel A reports the estimates of:

$$ManagerialRotation_{ft} = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 MatchingFund_{ft} + \beta_3 PostM\&A_{dt} \times MatchingFund_{ft} + \mu' x_{ft} + \varepsilon_{ft}.$$

The dependent variables include measures for managerial rotation for fund f in period t. In Columns 1 and 2, $Rotation$ is an indicator equal to 1 if the fund experiences any managerial rotation over the period and 0 otherwise. In Columns 3 to 6, we decompose this variable: $NewManager$ is an indicator equal to 1 if a new manager appears in the management of the fund and 0 otherwise, $InternalNewManager$ indicates new managers that are already affiliated with the bidder or target, $ExternalNewManager$ indicates new manager that join the combined firm from outside, and $ManagerLeave$ is an indicator equal to 1 if a manager leaves the fund and 0 otherwise. $MatchingFund$ is an indicator equal to 1 if the fund is a matching fund and 0 otherwise. Panel B reports the estimates of:

$$NP_{fst}(R_{fst+1}) = \alpha_t + \alpha_f + \beta_1 NonCore_{fs} + \beta_2 HasNewManager_{ft} + \beta_3 NonCore_{fs} \times HasNewManager_{ft} + \mu' x_{ft} + \varepsilon_{fst}$$

for the post-merger period. The dependent variable is the net purchase NP of the sub-portfolio s of fund f at time t in Columns 1 and 2, or the market-adjusted holdings return of the sub-portfolio s of fund f at time t to $t+1$ in Columns 3 and 4. $NonCore$ is an indicator for "non-core" sub-portfolios. In Columns 2 and 4, we split the "non-core" sub-portfolio into two sub-portfolios: "peripheral" and "new", and use $Peripheral$ and New as the indicators for the corresponding positions. x is the vector of control variables used throughout, and α_t and α_f denote time and fund fixed effects respectively. The number of observations in each regression is reported in the bottom row. In Columns 1 and 2 (3 and 4), these correspond to 14,208 (13,687) deal-fund-time observations (i.e., prior to the decomposition into fund sub-portfolios). The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

Panel A: Managerial rotation around mergers

			NewManager			
	Rotation		**All new managers**	**Internal new managers**	**External new managers**	***ManagerLeave***
	(1)	(2)	(3)	(4)	(5)	(6)
$PostM\&A$	0.017***	0.017***	0.017***	0.012***	0.005	0.006
	(3.20)	(3.26)	(3.89)	(3.85)	(1.54)	(1.46)
$PostM\&A \times MatchingFund$		-0.017**	-0.022***	-0.008	-0.014***	-0.010
		(-2.13)	(-3.19)	(-1.59)	(-2.76)	(-1.62)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.200	0.194	0.158	0.139	0.169	0.157
N	28,898	48,246	48,246	48,246	48,246	48,246

Table 6: Managerial rotation changes around mergers – continued

Panel B: Net purchase and fund sub-portfolio performance with managerial rotation

	Net purchase		Market-adjusted return	
	(1)	(2)	(3)	(4)
$NewManager$	-0.005**	-0.005**	0.001	0.001
	(-2.15)	(-2.17)	(0.33)	(0.32)
$NonCore$	0.020***		0.007***	
	(17.78)		(4.68)	
New		0.017***		0.009***
		(18.66)		(3.43)
$Peripheral$		0.014***		0.006***
		(15.17)		(4.17)
$NonCore \times NewManager$	0.009**		-0.000	
	(2.14)		(-0.00)	
$New \times NewManager$		0.007**		0.018**
		(2.32)		(2.51)
$Peripheral \times NewManager$		0.007*		-0.001
		(1.81)		(-0.38)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.030	0.020	0.177	0.156
N	28,416	42,624	25,839	32,610

Table 7: Fund net purchase in "new" areas and deal-level characteristics

The table reports the estimates of:

$$NP_{fNt} = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 Characteristics_d + \beta_3 PostM\&A_{dt} \times Characteristics_d + \mu' x_{ft} + \varepsilon_{ft}$$

The dependent variable is the net purchase in country-sectors in the New sub-portfolio for fund f in period t. $Characteristics_d$ includes indicator variables for various deal-level characteristics including $HighPortfolioDistance$ in Column 1, $HighManagerDistance$ in Column 2, $HighRelativeStylePool$ in Column 3, $HighRelativeManagerPool$ in Column 4, and $CrossBorder$ in Column 5, all of which are defined in the Appendix. x is the vector of control variables used throughout, and α_t and α_f denote time and fund fixed effects respectively. The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

Table 7: Fund net purchase in "new" areas and deal-level characteristics – continued

	Fund net purchase NP in country-sectors in the New sub-portfolio					
	(1)	(2)	(3)	(4)	(5)	(6)
$PostM\&A$	0.011***	0.013***	0.013***	0.012***	0.014***	0.010***
	(11.22)	(14.17)	(13.98)	(13.66)	(13.06)	(9.18)
$HighPortfolioDistance$	-0.007***					-0.006***
	(-5.42)					(-2.68)
$HighManagerDistance$		-0.005***				-0.000
		(-4.32)				(-0.16)
$HighRelativeStylePool$			-0.004***			-0.004*
			(-2.79)			(-1.85)
$HighRelativeManagerPool$				-0.001		0.001
				(-1.50)		(0.55)
$CrossBorder$					-0.001	0.001
					(-1.31)	(0.82)
$PostM\&A \times HighPortfolioDistance$	0.009***					0.011***
	(5.83)					(4.60)
$PostM\&A \times HighManagerDistance$		0.006***				-0.002
		(3.71)				(-0.68)
$PostM\&A \times HighRelativeStylePool$			0.004**			0.002
			(2.33)			(1.01)
$PostM\&A \times HighRelativeManagerPool$				0.005***		0.004***
				(3.66)		(2.84)
$PostM\&A \times CrossBorder$					0.000	-0.004***
					(0.16)	(-2.92)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.112	0.111	0.105	0.106	0.110	0.108
N	30,373	31,754	29,536	27,362	32,431	25,867

Table 8: New managers' expertise distribution following the mergers

Panel A reports the estimates of:

$$NewManager_{ft} = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 Characteristics_d + \beta_3 PostM\&A_{dt} \times Characteristics_d + \mu' x_{ft} + \varepsilon_{ft}.$$

The dependent variable is the $NewManager$ indicator, equal to 1 if a new manager appears in the management of the fund and 0 otherwise. Panel B reports the estimates of:

$$Expertise_{fis} = \alpha_f + \beta_1 New_{fs} + \beta_2 Peripheral_{fs} + \beta_3 Characteristics_d + \beta_4 New_{fs} \times Characteristics_d + \beta_5 Peripheral_{fs} \times Characteristics_d + \mu' x_f + \varepsilon_f.$$

The dependent variable is the lifetime expertise of new manager i of fund f in sub-portfolio area s (i.e., $Core$, New, or $Peripheral$) in the post-merger period. Manager lifetime expertise takes into account all portfolio holdings the new manager was ever associated throughout her career, excluding the holdings in the 1-year period immediately preceding the merger, and is defined in greater detail in the Appendix. $Characteristics_d$ contains the same deal-level characteristics as in Table 7. x is the vector of control variables used throughout, and α_t and α_f denote time and fund fixed effects respectively. The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

Table 8: New managers' expertise distribution following the mergers – continued

Panel A: Managerial rotation around mergers and deal characteristics

	NewManager					
	(1)	(2)	(3)	(4)	(5)	(6)
$PostM\&A$	0.020***	0.017***	0.013**	0.014***	0.017***	0.019**
	(3.33)	(3.24)	(2.46)	(2.64)	(2.90)	(2.38)
$HighPortfolioDistance$	0.001					-0.025**
	(0.15)					(-1.98)
$HighManagerDistance$		0.009				0.026**
		(1.12)				(2.24)
$HighRelativeStylePool$			0.005			0.016
			(0.52)			(1.24)
$HighRelativeManagerPool$				-0.008		-0.017
				(-1.07)		(-1.61)
$CrossBorder$					0.004	0.012
					(0.48)	(1.40)
$PostM\&A \times HighPortfolioDistance$	-0.015					-0.019
	(-1.57)					(-1.34)
$PostM\&A \times HighManagerDistance$		-0.017*				-0.013
		(-1.79)				(-0.92)
$PostM\&A \times HighRelativeStylePool$			-0.001			0.016
			(-0.10)			(1.26)
$PostM\&A \times HighRelativeManagerPool$				-0.010		-0.020*
				(-1.04)		(-1.91)
$PostM\&A \times CrossBorder$					-0.003	0.003
					(-0.33)	(0.33)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.167	0.167	0.165	0.165	0.166	0.165
N	26,964	28,465	26,383	24,949	28,898	23,572

Table 8: New managers' expertise distribution following the mergers – continued

Panel B: Manager expertise distribution following mergers and deal characteristics

	New manager's expertise (excluding holdings 1-year prior to the merger)					
	(1)	(2)	(3)	(4)	(5)	(6)
New	-0.715***	-0.735***	-0.764***	-0.764***	-0.667***	-0.720***
	(-37.54)	(-45.57)	(-48.40)	(-45.72)	(-31.45)	(-27.14)
$Peripheral$	-0.542***	-0.581***	-0.634***	-0.634***	-0.471***	-0.552***
	(-17.88)	(-23.77)	(-26.84)	(-25.13)	(-14.32)	(-14.50)
$HighPortfolioDistance$	-0.106***					-0.057**
	(-2.88)					(-1.98)
$HighManagerDistance$		-0.149***				0.029
		(-4.05)				(1.03)
$HighRelativeStylePool$			-0.246***			-0.112***
			(-7.06)			(-4.05)
$HighRelativeManagerPool$				-0.142***		-0.060**
				(-5.55)		(-2.20)
$CrossBorder$					0.034	0.110***
					(0.98)	(4.98)
$New \times HighPortfolioDistance$	0.174***					0.104***
	(3.19)					(2.73)
$New \times HighManagerDistance$		0.215***				-0.043
		(3.87)				(-1.18)
$New \times HighRelativeStylePool$			0.325***			0.128***
			(5.93)			(3.95)
$New \times HighRelativeManagerPool$				0.169***		0.074**
				(5.25)		(2.20)
$New \times CrossBorder$					-0.005	-0.127***
					(-0.09)	(-4.43)
$Peripheral \times HighPortfolioDistance$	0.145**					0.066
	(2.42)					(1.31)
$Peripheral \times HighManagerDistance$		0.232***				-0.043
		(3.93)				(-0.88)
$Peripheral \times HighRelativeStylePool$			0.413***			0.207***
			(7.48)			(3.99)
$Peripheral \times HighRelativeManagerPool$				0.256***		0.108**
				(5.54)		(2.12)
$Peripheral \times CrossBorder$					-0.097*	-0.204***
					(-1.80)	(-5.07)
Fund controls, and fund f.e.	Y	Y	Y	Y	Y	Y
R^2	0.585	0.615	0.646	0.695	0.602	0.692
N	4,995	5,430	5,094	4,689	5,460	4,254

Appendix I: Variable Description

Variable	Definition
Fund Characteristics	
$Fund\ size$	Natural logarithm of fund AUM (in US $ million).
$Firm\ size$	For a given fund f, it is computed as the natural logarithm of the total AUM (USD $ million) of all funds managed by the fund's management company, excluding fund f itself.
$Expenses$	Annual expense ratio, as a percentage of AUM.
$Volatility$	Annualized standard deviation of fund returns, computed over a trailing 12 months window.
$Past\ return$	The cumulative fund return, computed over a trailing 12 months window.
Managerial Rotation Variables	
$Rotation$	Indicator variable equal to 1 if there is any managerial rotation, i.e., the number of managers that are rotated is positive for a given fund at a given time relative to the previous period, and 0 otherwise.
$NewManager$	Indicator variable equal to 1 if there are managers joining in the given fund, and 0 otherwise.
$ManagerLeave$	Indicator variable equal to 1 if there are managers leaving the given fund, and 0 otherwise.
Performance Variables	
$Mkt\text{-}adj.return$	Market-adjusted return. It is defined as the raw holdings return minus the benchmark return. The benchmark portfolio comprises all the stocks in the fund's investment objective.
$Value\ added$	It is calculated as the before-fee (or after-fee) market-adjusted holdings return multiplied by the sample funds' AUM (USD $million) invested in a given sub-portfolio.
$DGTW\text{-}adj.return$	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.
Sub-portfolio Indicators	
$Core$	Indicator variable equal to 1 if the sub-portfolio comprises a given fund's "core" areas, and 0 otherwise. The "core" areas are defined as follows: First, we sort all country-sectors in the portfolio of a given fund's family by their average weight over the one-year prior to the merger. Second, we select the country-sectors that fall in the top 25 percentile, and label them as "core".
$NonCore$	Indicator variable equal to 1 if the sub-portfolio is not a given fund's "core", and 0 otherwise, i.e., $NonCore + Core = 100\%$.
New	Indicator variable equal to 1 if the sub-portfolio is defined as a given fund's "new" areas, and 0 otherwise. "New" areas include country-sectors that neither fund's family nor the counterparty family have held over the one-year period prior to the merger.
$Peripheral$	Indicator variable equal to 1 if the sub-portfolio is a given fund's "peripheral" areas, and 0 otherwise. The "peripheral" areas are all remaining country-sectors that are neither $Core$ nor New, i.e., $New + Peripheral = NonCore$.
Other Indicators	
$PostM\&A$	Indicator variable equal to 1 for the post-merger period, and 0 otherwise.
$MatchingFund$	Indicator variable equal to 1 if the fund is a matching fund, and 0 otherwise.
$RealTarget$	Indicator variable equal to 1 if the given firm is a real target involved in mergers, and 0 if it is a matching firm.

$NewMarket$ An indicator equal to 1 for countries where the counterparty family has sold funds to prior to the merger, excluding the countries which fall in the top decile of its own market in terms of fund TNA.

$OldMarket$ An indicator for the countries where the own family has sold funds to prior to mergers. It is calculated as $1 - NewMarket$.

$FundCreation$ An indicator that is equal to 1 if the number of funds of a given firm (either acquiror or target) launched in the given time t is larger than zero, and 0 otherwise.

Deal Characteristics

$PortfolioDistance$ A measure of portfolio "distance" between a target firm (or a matching target) and the corresponding acquiror firm. It is calculated as: $\left[\sum_c \left(w_{ict} - w_{jct}\right)^2\right]^{1/2}$, where w_{ict} and w_{jct} is the value-weighted average portfolio weight of all active equity funds in the country-sector c of firm i and firm j at date t.

$ManagerDistance$ A measure of manager expertise "distance" between a target firm (or a matching target) and the corresponding acquiror firm. It is calculated as $\left[\sum_c \left(w_{ict} - w_{jct}\right)^2\right]^{1/2}$, where w_{ict} and w_{jct} are the average portfolio weight of all managers in their expertise country-sector c of the given firm i and the acquiror firm j respectively.

$RelativeStylePool$ A measure of the number of new styles added to the combined entity. It is calculated as the number of exclusive investment styles of the target firm (or a matching target) over the sum of the number of investment styles of the acquiror firm.

$RelativeManagerPool$ A measure of the number of managers added to the combined entity. It is calculated as the number of managers of the target firm (or a matching target) over the sum of the number of managers of the acquiror firm and the number of managers of the target (or a matching target).

$GeographicalDistance$ The natural logarithm of the bilateral geographical distance between a target firm (or a matching target) and the corresponding acquiror firm in kilometers.

$CrossBorder$ Indicator variable equal to 1 if the acquiror and the target are headquartered in different countries, and 0 otherwise.

$DifferentLanguage$ Indicator variable equal to 1 if the countries where the acquirer and the target are headquartered use different languages, and 0 otherwise.

Other Variables

NP (net purchase) Change in portfolio weight net of price changes as in Kacperczyk, Sialm and Zheng (2005). Formally:

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

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 from time $t-1$ to time t. Portfolio net purchase NP_C, NP_{NC}, NP_N and NP_P are the aggregate net purchase of stocks forming in "core", "noncore", "new" and "peripheral" country-sectors.

$ActiveShare$ Calculated following Cremers and Petajisto (2009) and especially Cremers et al. (2016) using benchmark holdings information from all (physical replication) ETFs in FactSet that track a particular fund benchmark. For every sub-portfolio, the active share is constructed as:

$$ActiveShare = \frac{1}{2}\sum_{i=1}^{N} |w_{ct} - \overline{w}_{ct}|$$

where w_{ct} is the portfolio weight of a given fund in country-sector c at time t, and $\overline{w}_{ct}$ is the corresponding average portfolio weight of the benchmark index. The sum is taken over the universe of all country-sectors in a given sub-portfolio.

Expertise	We measure the lifetime investment expertise for a given manager as the average portfolio weight in a given country-sector the manager overlooked across all portfolio snapshots we have in our data (excluding the holdings in the 1-year or alternatively 3-year period prior to the merger the manager is affected by). Per manager, the portfolio weights are equally-weighted across time. If a manager manages more than one fund in a given time period, we aggregate the holdings of all his/her funds. If a fund is team-managed, we assign equal expertise to all its managers.

Internet Appendix

This internet appendix presents additional tables to accompany the paper "The Value of Human Capital Synergies in M&A: Evidence from Global Asset Management". The contents are as follows:

Figure IA.1 presents figures of the before-fee cumulative value added for our sample funds and matching funds separately.

Figure IA.2 presents figures of the after-fee cumulative value added for our sample funds and matching funds separately.

Table IA.1 presents the results of the sub-portfolio active share changes around mergers.

Table IA.2 presents additional robustness tests across acquiror and target funds for our main results.

Table IA.3 examines the likelihood of being selected as a target.

Table IA.4 examines the likelihood of fund launching.

Table IA.5 presents the results on fund flows following mergers.

Table IA.6 presents our performance results with alternative performance measure, i.e., characteristic-adjusted holding returns.

Table IA.7 presents the results in Table 7 with the net purchase in "core" and "peripheral" areas as dependent variables.

Table IA.8 presents the results in Table 8 with the manager expertise defined excluding three years preceding the mergers (instead of one year).

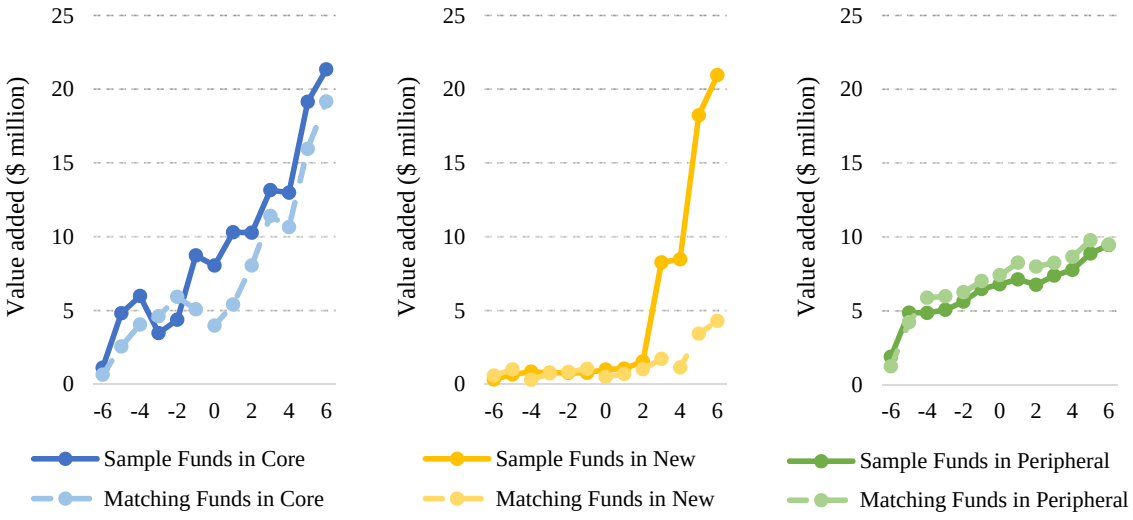

Figure IA.1: Cumulative before-fee value added in sub-portfolios over time

The figure reports the average cumulative before-fee value added (in USD million) of sample funds and matching funds in *Core*, *New*, and *Peripheral* country-sectors at half-year relative to deal year.

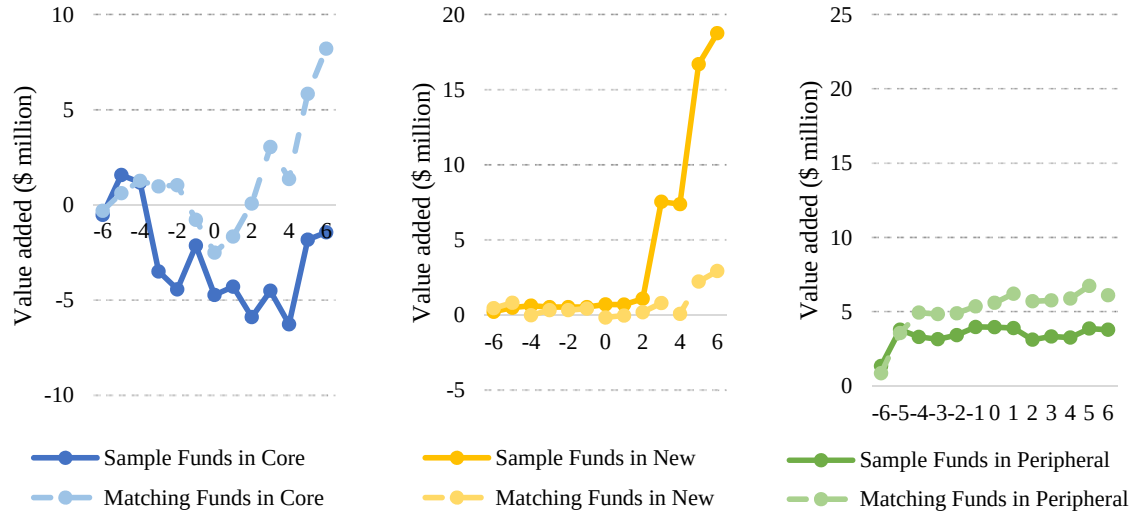

Figure IA.2: Cumulative after-fee value added in sub-portfolios over time

The figure reports the average cumulative after-fee value added (in USD million) of sample funds and matching funds in *Core*, *New*, and *Peripheral* country-sectors at half-year relative to deal year.

Table IA.1: Fund sub-portfolio active share changes around mergers

The table reports the estimates of:

$$ActiveShare_{fst} = \alpha_t + \alpha_f + \beta PostM\&A_{dt} + \mu' x_{ft} + \varepsilon_{ft}$$

The dependent variable is the active share of sub-portfolio s for fund f in period t. In all specifications, x is a vector of fund characteristics ($Fund\ size$, $Firm\ size$, $Expenses$, $Volatility$, and $Past\ return$). α_t and α_f denote time and fund fixed effects respectively. The t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
$PostM\&A$	-0.033***	0.031***	0.025***	0.007***
	(-10.90)	(10.48)	(7.62)	(2.97)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.859	0.899	0.801	0.874
N	31,758	31,870	30,661	31,812

Table IA.2: Robustness across former bidder and target funds

The table reports our main estimates in Table 2, 3 and 5 for acquiror and targets funds separately. In particular, Panel A reports the sub-portfolio net purchase (Panel A.1) and market-adjusted holdings return (Panel A.2) changes around mergers for acquiror funds (in Columns 1 to 3) and target funds (in Columns 4 to 6). Panel B reports the cross-sectional comparison of sub-portfolio market-adjusted holdings return following mergers. Panel C reports the average sub-portfolio value added following the merger for acquiror funds (in Columns 1 to 2) and for target funds (in Columns 3 to 4).

Panel A.1: Sub-portfolio net purchase around the merger

	Acquiror Funds			**Target Funds**		
	Core	***New***	***Peripheral***	***Core***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)	(5)	(6)
PostM&A	-0.020***	0.013***	0.007***	-0.035***	0.023***	0.012***
	(-15.73)	(15.02)	(7.14)	(-9.14)	(8.48)	(2.91)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.085	0.122	0.062	0.121	0.141	0.087
N	26,386	26,386	26,386	6,045	6,045	6,045

Panel A.2: Sub-portfolio market-adjusted holdings return around the merger

	Acquiror Funds			**Target Funds**		
	Core	***New***	***Peripheral***	***Core***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)	(5)	(6)
PostM&A	-0.004***	0.037***	0.009***	0.002	0.071***	0.012**
	(-3.66)	(4.80)	(3.92)	(0.55)	(2.70)	(2.41)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.175	0.306	0.211	0.187	0.321	0.269
N	25,133	9,759	22,362	5,891	2,467	5,560

Table IA.2: **Robustness across former bidder and target funds – continued**

Panel B: Sub-portfolio market-adjusted holdings return following the merger

	Acquiror Funds		**Target Funds**	
	(1)	(2)	(3)	(4)
$NonCore$	0.008***		0.010***	
	(5.18)		(4.78)	
New		0.013***		0.009**
		(5.88)		(1.97)
$Peripheral$		0.008***		0.010***
		(5.87)		(4.70)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.167	0.052	0.226	0.070
N	24,699	31,416	5,165	6,588

Panel C: Average sub-portfolio value added following the merger

	Acquiror Funds		**Target Funds**	
	(1)	(2)	(3)	(4)
$Core$	3.854***	3.854***	2.404**	2.404**
	(2.79)	(2.79)	(2.05)	(2.05)
$NonCore$	3.136*		2.185*	
	(1.86)		(1.88)	
New		2.748*		1.181
		(1.73)		(1.16)
$Peripheral$		0.388*		1.004***
		(1.73)		(3.44)
t-stat ($NonCore - Core$)	(0.39)		(0.31)	
t-stat ($New - Core$)		(0.63)		(1.48)
t-stat ($Peripheral - Core$)		(2.52)		(1.43)

Table IA.3: Likelihood of being selected as a target

The table reports the estimates of:

$$RealTarget_{dj} = \alpha_t + \alpha_d + \beta Characteristics_d + \mu' x_{ft} + \varepsilon_{dt}$$

The dependent variable $RealTarget_{dj}$ is an indicator equal to 1 if the given asset management firm j is a real target involved in merger d, and 0 if it is a corresponding matching target. We include the closest 10, 15, 20 and 25 matching targets in each column. $Characteristic_d$ is a set of pair-wise variables between the given firm j and the acquiror firm in the given deal d calculated at one year prior to mergers. All variables are defined in the Appendix. x is a vector of target firm characteristics, i.e., the average value of $Fund\ size$, $Firm\ size$, $Expenses$, $Volatility$, and $Past\ return$. α_t and α_d denote time and deal fixed effects respectively. In all specifications, the t-statistics are based on standard errors clustered by deal. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

Closest X matching targets	$X = 10$	$X = 15$	$X = 20$	$X = 25$
	(1)	(2)	(3)	(4)
$PortfolioDistance$	-0.149	-0.108	-0.129	-0.112*
	(-0.84)	(-0.89)	(-1.45)	(-1.69)
$ManagerDistance$	-0.059	-0.092	-0.025	-0.020
	(-0.33)	(-0.72)	(-0.28)	(-0.28)
$RelativeStylePool$	-0.041**	-0.028**	-0.024***	-0.020***
	(-2.28)	(-2.38)	(-2.80)	(-2.82)
$RelativeManagerPool$	-0.179*	-0.150**	-0.126**	-0.099**
	(-1.79)	(-2.08)	(-2.31)	(-2.33)
$GeographicalDistance$	-0.027***	-0.022***	-0.018***	-0.015***
	(-4.82)	(-5.16)	(-5.45)	(-5.48)
$DifferentLanguage$	-0.165***	-0.112***	-0.085***	-0.071***
	(-5.03)	(-5.27)	(-5.24)	(-5.63)
Target controls, deal and time f.e.	Y	Y	Y	Y
R^2	0.271	0.209	0.169	0.140
N	816	1,179	1,567	1,934

Table IA.4: Likelihood of launching new funds

The table reports the estimates of:

$$FundCreation_{mt} = \alpha_d + \alpha_{ct} + \beta PostM\&A_{dt} + \gamma NewMarket_{mt} + \delta PostM\&A_{dt} \times NewMarket_{mt} + \mu' x_{ft} + \varepsilon_{ct}$$

The dependent variable is a new fund creation indicator, equal to 1 if the number of funds of a given firm (acquiror or target) launched at a given time t is larger than 0, and 0 otherwise. $NewMarket$ is an indicator equal to 1 for countries where the counterparty family has sold funds to prior to the merger, excluding the countries which fall in the top decile of its own market in terms of fund TNA. In all specifications, each observation is a given country c, for either the acquiror or the target at a given time. x is a vector of the average acquiror- (target-) family characteristics ($Fund\ size$, $Firm\ size$, $Volatility$, $Expenses$ and $Past\ return$). α_d and α_{ct} denote deal and country × date fixed effects respectively. 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)
$PostM\&A$	-0.083***	-0.085***	-0.102***	-0.031**
	(-4.82)	(-4.83)	(-5.97)	(-2.20)
$NewMarket$	-0.126***	-0.119***	-0.118***	-0.118***
	(-7.28)	(-7.07)	(-6.14)	(-5.82)
$PostM\&A \times NewMarket$	0.070***	0.068***	0.069***	0.071***
	(4.24)	(4.05)	(4.09)	(4.11)
Family controls	N	Y	Y	Y
Deal f.e.	N	N	Y	Y
Country × date f.e.	N	N	N	Y
R^2	0.040	0.047	0.112	0.221
N	20,221	20,221	20,221	20,136

Table IA.5: Fund flows following the mergers

The table reports the estimates of:

$$Flow_{ft} = \alpha_d + \alpha_s + \beta NewFund_{ft} + \mu' x_{ft} + \varepsilon_{ft}$$

The dependent variable is the semi-annual investment flow into fund f at time t. x is a vector of fund characteristics ($Fund\ size$, $Firm\ size$, $Volatility$, $Expenses$ and $Past\ return$), α_d and α_s denote deal and investment style fixed effects respectively. The sample is restricted to the post-merger completion period (when $PostM\&A$ 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 3 and 4, we split the indicator $NewFund$ in two parts by the new market indicator $NewMarket$, and the $OldMarket$ indicator (equal to $1 - NewMarket$), suggesting new funds that are launched in the new market and in the old market. In all specifications, the t-statistics are based on standard errors clustered by fund. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)
$NewFund$	0.265***	0.193***		
	(8.95)	(6.75)		
$NewMarket \times NewFund$			0.304***	0.200***
			(6.33)	(4.11)
$OldMarket \times NewFund$			0.243***	0.189***
			(6.81)	(5.66)
Fund controls	Y	Y	Y	Y
Deal and style f.e.	N	Y	N	Y
R^2	0.028	0.060	0.028	0.060
N	33,223	33,220	33,218	33,215

Table IA.6: Fund performance with characteristics-adjusted holdings return

The table reports our main estimates concerning performance by replacing market-adjusted returns with characteristics-adjusted returns. All the specifications remain the same. Panel A reports the sub-portfolio performance changes around mergers (as in Panel B, Table 2). Panel B compares the sub-portfolio performance in pre- vs post-merger periods (as in Table 3). Panel C reports the estimates of comparing between sample funds and matching funds (as in Panel B, Table 4), and Panel D reports the relationship between sub-portfolio performance and net purchase with managerial rotation (as in Panel B, Table 6).

Panel A: Sub-portfolio performance change around mergers

	Core	***NonCore***	***New***	***Peripheral***
	(1)	(2)	(3)	(4)
PostM&A	-0.004***	0.009***	0.036***	0.008***
	(-4.10)	(4.40)	(5.11)	(3.66)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.163	0.195	0.297	0.194
N	30,688	27,070	10,450	26,823

Panel B: Sub-portfolio performance before and after mergers

	Pre-merger period		**Post-merger period**	
	(1)	(2)	(3)	(4)
NonCore	-0.006***		0.008***	
	(-4.13)		(6.24)	
New		-0.012***		0.010***
		(-3.24)		(4.22)
Peripheral		-0.005***		0.007***
		(-3.79)		(5.97)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.155	0.137	0.148	0.133
N	28,553	31,923	29,205	36,038

Table IA.6: **Fund performance with characteristics-adjusted holdings return – continued**

Panel C: Sub-portfolio performance change of sample funds and matching funds around mergers

	Core	*NonCore*	*New*	*Peripheral*
	(1)	(2)	(3)	(4)
PostM&A	-0.004***	0.009***	0.029***	0.008***
	(-4.23)	(5.03)	(4.62)	(4.27)
PostM&A × *MatchingFund*	0.002	-0.002	-0.019***	-0.002
	(1.58)	(-0.95)	(-2.66)	(-1.00)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.154	0.185	0.253	0.182
N	55,584	49,498	22,982	49,055

Panel D: Net purchase and fund sub-portfolio performance with managerial rotation

	Net purchase		**Characteristics-adj. return**	
	(1)	(2)	(3)	(4)
HasNewManager	-0.005**	-0.005**	-0.000	-0.000
	(-2.15)	(-2.17)	(-0.02)	(-0.15)
NonCore	0.020***		0.008***	
	(17.78)		(5.25)	
New		0.017***		0.009***
		(18.66)		(3.52)
Peripheral		0.014***		0.007***
		(15.17)		(5.13)
NonCore × *NewManager*	0.009**		-0.003	
	(2.14)		(-0.70)	
New × *NewManager*		0.007**		0.012*
		(2.32)		(1.66)
Peripheral × *NewManager*		0.007*		-0.006
		(1.81)		(-1.48)
Fund controls, fund and time f.e.	Y	Y	Y	Y
R^2	0.030	0.020	0.149	0.137
N	28,416	42,624	25,437	31,177

Table IA.7: Fund net purchase in "core" and "peripheral" areas and deal-level characteristics

The table reports the estimates of:

$$NP_{fCt}(NP_{fPt}) = \alpha_t + \alpha_f + \beta_1 PostM\&A_{dt} + \beta_2 Characteristics_d + \beta_3 PostM\&A_{dt} \times Characteristics_d + \mu' x_{ft} + \varepsilon_{ft}$$

The dependent variable is the net purchase in "core" areas (in Panel A) or the net purchase in "peripheral" areas (in Panel B) for fund f in period t. All other specifications are as in Table 7.

Panel A: Net purchase in "core" areas and deal-level characteristics

	Fund net purchase NP in $Core$ areas					
	(1)	(2)	(3)	(4)	(5)	(6)
$PostM\&A$	-0.020***	-0.022***	-0.022***	-0.018***	-0.022***	-0.019***
	(-14.07)	(-15.92)	(-16.46)	(-15.28)	(-14.51)	(-11.33)
$HighPortfolioDistance$	0.003*					0.002
	(1.68)					(0.55)
$HighManagerDistance$		0.000				-0.001
		(0.03)				(-0.41)
$HighRelativeStylePool$			0.003*			0.004
			(1.87)			(1.61)
$HighRelativeManagerPool$				0.004**		0.002
				(2.47)		(0.80)
$CrossBorder$					-0.001	-0.003
					(-0.74)	(-1.52)
$PostM\&A \times HighPortfolioDistance$	-0.005**					-0.008***
	(-2.33)					(-2.65)
$PostM\&A \times HighManagerDistance$		0.001				0.004
		(0.45)				(1.39)
$PostM\&A \times HighRelativeStylePool$			-0.001			0.001
			(-0.40)			(0.37)
$PostM\&A \times HighRelativeManagerPool$				-0.006***		-0.006***
				(-3.20)		(-2.80)
$PostM\&A \times CrossBorder$					0.001	0.005***
					(0.42)	(2.61)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.083	0.085	0.087	0.090	0.084	0.090
N	30,373	31,754	29,536	27,362	32,431	25,867

Table IA.7: Fund net purchase in "core" and "peripheral" areas and deal-level characteristics – continued

Panel B: Net purchase in "peripheral" areas and deal-level characteristics

	Fund net purchase NP in $Peripheral$ areas					
	(1)	(2)	(3)	(4)	(5)	(6)
$PostM\&A$	0.009***	0.009***	0.008***	0.007***	0.008***	0.009***
	(7.37)	(7.97)	(7.25)	(6.20)	(5.97)	(5.83)
$HighPortfolioDistance$	0.005***					0.004
	(3.02)					(1.20)
$HighManagerDistance$		0.005***				0.001
		(3.13)				(0.51)
$HighRelativeStylePool$			0.001			-0.000
			(0.33)			(-0.15)
$HighRelativeManagerPool$				-0.003*		-0.003
				(-1.77)		(-1.45)
$CrossBorder$					0.002	0.002
					(1.37)	(0.96)
$PostM\&A \times HighPortfolioDistance$	-0.005**					-0.003
	(-2.53)					(-1.27)
$PostM\&A \times HighManagerDistance$		-0.006***				-0.003
		(-3.33)				(-0.90)
$PostM\&A \times HighRelativeStylePool$			-0.003			-0.003
			(-1.39)			(-1.07)
$PostM\&A \times HighRelativeManagerPool$				0.001		0.002
				(0.66)		(1.06)
$PostM\&A \times CrossBorder$					-0.001	-0.001
					(-0.55)	(-0.51)
Fund controls, fund and time f.e.	Y	Y	Y	Y	Y	Y
R^2	0.059	0.061	0.060	0.064	0.059	0.064
N	30,373	31,754	29,536	27,362	32,431	32,431

Table IA.8: New managers' expertise distribution following the mergers – based on expertise defined excluding three years prior to mergers

The table re-estimates the results in Panel C, Table 8 with the difference that the estimates of managers' lifetime expertise exclude portfolio holdings 3-years prior to the merger, not just 1-year. All other specifications are unchanged.

Table IA.8: New managers' expertise distribution following the mergers – based on expertise defined excluding three years prior to mergers – continued

	New manager's expertise (excluding holdings 3-year prior to the merger)					
	(1)	(2)	(3)	(4)	(5)	(6)
New	-0.721***	-0.743***	-0.752***	-0.750***	-0.664***	-0.681***
	(-33.50)	(-41.27)	(-41.95)	(-38.73)	(-27.06)	(-22.90)
$Peripheral$	-0.554***	-0.599***	-0.620***	-0.613***	-0.472***	-0.504***
	(-16.20)	(-22.47)	(-24.00)	(-21.15)	(-12.52)	(-11.70)
$HighPortfolioDistance$	-0.136***					-0.104***
	(-3.52)					(-3.00)
$HighManagerDistance$		-0.182***				0.037
		(-4.84)				(1.13)
$HighRelativeStylePool$			-0.262***			-0.123***
			(-6.72)			(-3.65)
$HighRelativeManagerPool$				-0.105***		-0.028
				(-3.66)		(-0.90)
$CrossBorder$					0.023	0.158***
					(0.62)	(5.95)
$New \times HighPortfolioDistance$	0.215***					0.177***
	(3.81)					(3.80)
$New \times HighManagerDistance$		0.256***				-0.065
		(4.53)				(-1.48)
$New \times HighRelativeStylePool$			0.358***			0.144***
			(5.81)			(3.56)
$New \times HighRelativeManagerPool$				0.135***		0.039
				(3.75)		(1.04)
$New \times CrossBorder$					0.010	-0.194***
					(0.19)	(-5.92)
$Peripheral \times HighPortfolioDistance$	0.193***					0.135**
	(3.02)					(2.20)
$Peripheral \times HighManagerDistance$		0.290***				-0.045
		(4.73)				(-0.79)
$Peripheral \times HighRelativeStylePool$			0.428***			0.224***
			(6.81)			(3.54)
$Peripheral \times HighRelativeManagerPool$				0.181***		0.045
				(3.44)		(0.77)
$Peripheral \times CrossBorder$					-0.078	-0.281***
					(-1.35)	(-5.57)
Fund controls, and fund f.e.	Y	Y	Y	Y	Y	Y
R^2	0.567	0.607	0.627	0.683	0.584	0.684
N	3,606	3,981	3,699	3,360	4,005	2,985