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Post-Merger Restructuring of the Labor Force

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Abstract

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Keywords: M&As, Restructuring, Employment, Internal Labor Markets

JEL Classification: G30, G34, J24, J31, M51

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Post-merger Restructuring of the Labor Force*

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April 16, 2025

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1 Introduction

How do M&As affect the human capital of merging firms? An evolving literature emphasizes the role of the target's labor force for realizing synergies in M&As. This literature has focused on pre-merger complementarities between target and acquirer and the post-merger labor outcomes of target employees.[1] However, redrawing the boundaries of the firm is likely to also have significant implications for the acquirer's employees. To date, these implications have received little attention, limiting our understanding of the costs and benefits of post-merger labor restructuring.

This paper fills this gap and provides a detailed analysis of the post-merger restructuring that happens simultaneously at the target and the acquirer. We find that jobs are reallocated from targets to acquirers on a massive scale, driving employee turnover at both firms. Post-merger restructuring creates synergies through consolidation and the transfer of managers with complementary skills. Taking a comprehensive view that includes the acquirer highlights that these synergies come at the cost of high employee turnover.

Our analysis is based on 1,043 acquisitions in Germany between 1997 and 2014, involving over 500,000 employees. We perform matched-sample difference-in-differences analyses and construct counterfactuals by matching each target firm and each acquirer firm to a control firm that is not involved in an acquisition. We conduct analyses at the establishment level and track the flows within and between the merging firms, and between the merging firms and the outside labor market from the beginning of the year of the acquisition to the end of the second year after the acquisition.

We begin by looking at net employment changes. On average, targets lose more than half of their workforce by the end of the second calendar year after the acquisition. The employment decline is concentrated in those targets that are closed completely, which

[1] Complementarities: Neffke and Henning (2013); Lee, Mauer, and Xu (2018); Lagaras (2021); Dobbelaere et al. (2022); Tate and Yang (2022); outcomes for target employees: Lagaras (2023); Ma, Ouimet, and Simintzi (2021); Gardberg, Heyman, and Tag (2023).

account for about one-third of the sample. The employment losses at the target are large and by themselves would reduce the combined workforce of the merged firm by 14%. However, they are partly offset by growth at the acquirer as half of the jobs lost at target establishments move to acquirer establishments. Consequently, the decline in the combined workforce is only 7% when growth at the acquirer is accounted for.

Post-merger restructuring is accompanied by substantial employee turnover, most of which is associated with replacements. The acquirer fills two thirds of the positions moved over from the target with hires from the external labor market, whereas employees whose jobs moved to the acquirer predominantly leave. Moreover, employee turnover is not confined to targets: a sizable number of acquirer employees leave the company, too.

The high turnover after M&As is puzzling as it creates hiring and training costs as well as risks from disrupting operations.[2] These costs and risks have been associated with substantial valuation discounts and risk premiums in stock prices (Edmans, 2011; Donangelo, 2014; Sanati, 2024). Hence, firms have incentives to retain existing employees whenever possible and pay them higher wages if necessary (Jaeger and Heining, 2022). An obvious explanation for turnover would be that firms adjust the skill composition of the workforce to the requirements of their post-merger organization. However, we find no evidence to support this hypothesis: the differences between the educational attainments and qualifications of newly-hired employees and those who leave are negligible and similar for control firms. Instead, we identify three drivers of the high employee turnover, all of which appear to be consequences of organizational changes that we associate with synergies.

First, we study consolidation and show that a disproportionate part of employee turnover is concentrated in mergers that close the target's establishments and absorb its operations into the acquirer's establishments. These consolidation mergers create new jobs at the establishments of the acquirer, whereas target employees leave. The new jobs at the ac-

[2]Muehlemann and Pfeifer (2016) estimate hiring costs alone to be 8 weeks of salary on average. Ghaly, Anh Dang, and Stathopoulos (2017) and Conerly (2018) both estimate the costs for hiring and training new employees to be around one annual salary per employee, increasing in skill levels.

quirer are then filled with hires from the external labor market. Acquirers shut down the target's establishments if they are relatively smaller, geographically closer, if targets have lower management capabilities, and if acquirers themselves have higher management capabilities. Hence, firms seem to minimize frictions from managing separate establishments. We infer that acquirers accept higher turnover to obtain synergies from consolidation and from saving the costs associated with operating additional establishments.

Second, we find that firms transfer management positions between acquirer and target establishments and these transfers are associated with manager turnover, which is about twice as high than that of operational employees. Hence, restructuring happens mostly at the top of the firm, consistent with a large literature in organizational economics, which argues that the quality of management and managerial practices have a significant role in creating productivity improvements (e.g., Bloom and Van Reenen, 2007; Bloom et al., 2013; Atalay, Hortacsu, and Syverson, 2014).

We show that post-merger restructuring combines managers from the target with managers from the acquirer. Specifically, if acquirers close the target, then they retain target managers at a much *higher* rate than their operational employees. These target managers then displace incumbent acquirer managers, who leave. By contrast, if acquirers continue to operate the target's establishments, then the target's managers leave at a much *higher* rate than operational employees and the leaving managers' positions move over to the acquirer. We infer from this observation that acquirer managers and target managers are both needed for their specific and complementary skills such that one group cannot fully substitute the other. In all likelihood, target managers possess operational knowledge that is needed to continue the target's operations, but acquirer managers do not have. However, acquirer managers are trained in the acquirer's management systems and processes, and these skills are probably needed to integrate the target's operations. Hence, acquirers concentrate management positions at their own establishments and complement the managerial skills of acquirer managers with the operational knowledge of target managers,

driving turnover in management.

Differences across merger types support the notion that target managers and acquirer managers provide complementary skills that are critical for integrating the target: acquirers retain more of their own managers and fewer of those of the target in horizontal acquisitions, in which they are most likely familiar with the target's output market and technology, whereas acquirers rely more on the target's employees in diversifying acquisitions, e.g., by promoting target employees to managerial positions; most likely, acquirer managers do not have the requisite skills to operate the target's technology in these unrelated acquisitions. We conclude that our findings on managers are best explained by extant theories of synergies in M&As that focus on asset complementarities (Hart and Moore, 1990; Rhodes-Kropf and Robinson, 2008; Hoberg and Phillips, 2010), only that the assets we identify are intangible and embedded in employees.

Third, we study the labor outcomes of departing employees and observe that three-fifths of the employees who leave move to higher-paid jobs at other firms and are replaced by new hires with similar skills (see Kim, 2020, for a related argument). However, new external hires are about four years younger and earn 11.2% less compared to those who leave the combined firm, consistent with the literature on career ladders in internal labor markets, which suggests that new employees enter predominantly in junior positions (Doeringer and Piore, 1966; Baker, Gibbs, and Holmstrom, 1994). Hence, incumbent employees move to other firms where they are promoted and receive higher wages whereas the incoming employees enter the junior ranks of the acquirer and receive lower wages than the departing employees. Overall, we infer from our results and theoretical work on career paths and wage profiles (cf., Ferreira and Nikolowa 2022a, 2022b) that acquirers face additional turnover because some employees leave voluntarily to pursue more rewarding career paths at other firms.

Finally, we would like to know whether these costly organizational changes pay off for firms. To this end, we analyze data on sales growth, labor productivity, and wage growth.

First, we note that mergers do not drive revenues as post-merger sales growth is on par with the sales growth of control firms. Thus, acquirers grow only through acquisitions, in line with theories that link external growth to the lack of internal growth options (Levine, 2017). Second, all measures of productivity indicate that mergers increase labor productivity by improving operational efficiency, consistent with prior literature (Li, 2013). Hence, rather than spurring additional growth, merging firms in our sample generate the same revenues with fewer employees. Overall, we conclude that the large changes to the workforce and organization of the firm are matched by improvements of the operational efficiency of the firm.

We conclude that taking a comprehensive view that includes changes at the acquirer provides a much more nuanced picture of the costs and benefits of post-merger restructuring. It highlights that net employment effects are smaller than an analysis of the target alone would suggest. Reorganization also entails substantial employee turnover and thus additional hiring as many employees – particularly managers – are displaced or leave voluntarily and require replacement. As M&As create additional hiring needs at the acquirer, we conclude that M&As do not necessarily help acquirers to address labor shortages and instead increase the acquirer's demand for labor. Firms accept the costs of post-merger restructuring of the labor force and we identify two channels through which it creates offsetting benefits: Firms consolidate operations and combine the complementary skills of target and acquirer managers.

Discussion of the literature. This paper contributes to the literature on the impact of M&As on the human capital of the merging firms. In Table A1, we survey a total of 40 studies that analyze labor market outcomes as consequences of mergers and acquisitions. We find that only few papers discuss the post-merger restructuring of the labor force beyond effects on aggregate employment and wages. While the majority of papers documents negative effects of M&As on employment (17 studies, compared to 4 studies with positive

effects), the literature is about evenly divided on the direction of wage effects (24 studies: 7 negative, 7 positive, 10 insignificant or ambiguous). We complement this literature by measuring employee flows instead of net employment changes, which brings to light the full scope of post-merger restructuring and adds to our understanding of how post-merger restructuring creates synergies.

Recent work studies the post-merger changes in the occupational composition and career paths of the target's labor force (cf., Lagaras, 2021, Lagaras, 2023, Ma, Ouimet, and Simintzi, 2021, and Gardberg, Heyman, and Tag, 2023). Lagaras (2023) shows that occupational overlap significantly influences the likelihood of displacement of target employees and highlights the negative consequences of M&As for low-skilled and managerial target employees. We contribute to this literature by highlighting that post-merger restructuring extends to the labor force of the acquirer and involves large-scale job reallocation and employee turnover, pointing towards the costs and risks incurred by the acquirer.

The other recent studies on the post-merger changes in the target's labor force highlight the role of technological change. Lagaras (2021) computes input-based measures of technological change and finds that these measures predict M&A activity and post-merger restructuring. Ma, Ouimet, and Simintzi (2021) analyze a US sample of horizontal mergers, and find that post-merger restructuring displaces workers in routine-based jobs and that wage inequality increases, in line with their hypothesis that mergers implement technological change. Gardberg, Heyman, and Tag (2023) study a sample of foreign acquisitions of Swedish targets, document significant wage declines, and conclude that technology-driven cross-border M&As affect the long-term careers of workers. We complement these papers with our focus on organizational change. As such, we take a cue from Acemoglu et al. (2007) and Bloom et al. (2014) who associate improvements in information and communication technology with changes in the management and organization of firms, thereby showing that technological change and organizational change complement each other.

Finally, many studies develop and test theories of synergies in M&As, and this liter-

ature is too vast to discuss here. Two strands of this literature are closely related to our paper. The first strand discusses the importance of asset complementarities. This notion was developed theoretically by Grossman and Hart (1986), Hart and Moore (1990), and Rhodes-Kropf and Robinson (2008); the last study also provides indirect evidence based on firm valuations. Hoberg and Phillips (2010) emphasize complementarities from output markets, and Bena and Li (2014) and Li and Wang (2023) from inventor collaboration. We contribute to this literature by emphasizing the complementary competences of firms' managers and thus of intangible assets. As such, our results are best interpreted in light of the theory of Levine (2017), who also singles out the complementarity between revenue creation and management efficiency. The second strand of studies hypothesizes that the benefits from mergers depend on either complementarity or overlap between the acquirer's and the target's labor force. Neffke and Henning (2013), Lee, Mauer, and Xu (2018), Lagaras (2021), Dobbelaere et al. (2022), and Tate and Yang (2022) all develop measures of human-capital relatedness and occupational overlap. They all find that they positively predict the likelihood of mergers, and some associate overlaps with post-merger employment declines and employee flows. We add to this literature by showing that M&As also utilize complementarities at the management level.[3]

2 Sample and methodology

2.1 Sample construction

We start with the universe of all mergers and acquisitions in the Bureau van Dijk (BvD) Zephyr database for which the target and the acquirer are headquartered in Germany. After applying the standard filters, we arrive at 3,602 transactions for the period from 1997 to 2014. Table OA1 in the Online Appendix provides the detailed steps of the data

[3]Tate and Yang (2022) also estimate how the transfers of workers and their retention after acquisitions depends on their measure of human capital transferability.

set construction. In the next step, we link these transactions to the Orbis-ADIAB data set provided by the Research Data Center of the Institute of Employment Research (IAB) using the BvD identifier. Details on the record-linkage between BvD and IAB data are described in Antoni et al. (2018). The Orbis-ADIAB data set contains the standard IAB establishment identifier, which we use to match our data to the Establishment History Panel (BHP, see Schmucker et al. 2016). The BHP contains aggregated information on employees and establishment characteristics. After identifying all establishments involved in an acquisition, we aggregate these establishments to the firm (target or acquirer) level. About one-third of the firms covered by our M&A sample can be linked to the establishment data. For each acquisition, we require that both, the target and the corresponding acquirer be successfully linked, otherwise we remove them from the sample. We obtain 1,147 transactions with aggregate employment data for both firms involved in the deal.

2.2 Constructing a matched firm sample

We follow earlier contributions in the literature (e.g., Davis et al., 2014; Antoni, Maug, and Obernberger, 2019) and apply nearest-neighbor matching. The objective of this approach is to make treatment random conditional on the matching variables. Hence, for each target firm and acquirer firm, we identify one control firm using the firm-level aggregated BHP data and the following criteria.[4] First, we remove all target firms from the list of potential controls that have been involved in an acquisition themselves at any time during the sample period. Acquiring firms are not part of the list of potential controls from one year before to one year after the transaction. Second, we build matching cells based on two-digit industry affiliation (88 categories), calendar year, region, and number of establishments. We pick the nearest neighbor in terms of the Euclidean distance based on our numerical matching variables: the firm-level averages of *Wage* and *Age*, the shares of, respectively,

[4]As a basis for the aggregation, we use the record-linkage from the IAB, which links 1,365,323 establishments to 955,784 German firms. The firm-level categorical variables are based on the firms' largest establishment, e.g., a firm's region is determined by the location of its largest establishment.

highly-qualified, medium-qualified, and female employees, as well as *Size*. In the last step, we identify one control firm from the set of nearest neighbors for each target and for each acquirer firm. We match with replacement, i.e., a control firm may be matched to more than one target or acquirer. Of the 1,147 target and acquirer companies, we can match 1,136 (1,069) targets (acquirers). For a deal to be considered in the analysis, we require data on both target and acquirer simultaneously, which leaves us with 1,043 jointly matched firm-pairs.

Table OA2 in the Online Appendix examines whether the matched sample is balanced with respect to key firm characteristics. We use the normalized differences proposed by Imbens and Wooldridge (2009) and used by Imbens and Rubin (2015) to examine whether the differences between two groups of observations are economically significant. Imbens and Wooldridge (2009) recommend that normalized differences be below 0.25 in absolute value. The test statistic is never higher than 0.10 for any of the variables, including our measures for the organization of the firm (i.e., *Management capabilities*, *Hierarchical layers*). We conclude that our control groups match target and acquirer firms very closely on all relevant criteria. Furthermore, we check whether our matched samples exhibit parallel pre-trends with respect to the growth in employment and wages. We corroborate that this is the case in Figures 1 and 2.

2.3 Employee flows

We define *Employment growth* from time t to time $t+k$ as $g_{j,t,t+k} = \frac{E_{j,t+k}-E_{jt}}{0.5\left(E_{j,t+k}+E_{jt}\right)}$, where E_{jt} denotes the level of employment in firm j at time t.[5] We follow Antoni, Maug, and Obernberger (2019) and decompose firm-level employment growth into inflows and outflows. We define the normalized inflow of newly-hired employees (*Inflow*) from time t to

[5]Davis et al. (2014) point out that this growth rate measure has become standard in analyses of establishment and firm dynamics. See Davis, Haltiwanger, and Schuh (1996) and Tornqvist, Vartia, and Vartia (1985) for detailed discussions. This definition of growth rates is less skewed and can take values between -200% and +200%. Further properties are discussed in Appendix A.1.

time $t+k$ as $h_{j,t,t+k} \equiv \frac{\sum_{\tau=1}^{\tau=k} H_{j,t+\tau}}{0.5(E_{jt}+E_{j,t-1})}$, where H_{jt} is the number of employees who enter firm j in period t ("hiring"). Analogously, we define *Outflow* as $s_{j,t,t+k} \equiv \frac{\sum_{\tau=1}^{\tau=k} S_{j,t+\tau}}{0.5(E_{jt}+E_{j,t-1})}$, where S_{jt} is the number of employees who leave firm j in period t ("separations"). It follows that $g_{j,t,t+k} = h_{j,t,t+k} - s_{j,t,t+k}$. (See Appendix A.1 for further details.) We further decompose employee flows into flows within the same firm (*Internal inflow* or *outflow within*), flows between the corresponding target/acquirer firm (*Internal inflow* or *outflow between*), and external flows (*External inflow* or *outflow*), which includes all other flows, in particular those to and from other companies, unemployment, training and education, or foreign establishments.

Descriptive statistics. Table 1 presents descriptive statistics of the numerical variables for the treated firms (Panel A), control firms (Panel B), and the correlations among labor flows (Panel C). Our final firm-level data set covers a cross-section of 1,043 acquirer-target pairs. On average, the merged firm employs 565 domestic employees (*Size*) in the year prior to the announcement, 102 at the target and 463 at the acquirer. Pre-acquisition employment growth (*Growth*) is very similar for targets and acquirers. We observe each target (acquirer) firm from two years before the acquisition to two years after the acquisition.

2.4 Methodology: Regression design

To provide a generic representation of employee flows, let $f_{j,t-1,t+2}$ be a labor flow relating to firm j from $t-1$ to $t+2$, where f can, for example, be an inflow ($f = h$), an outflow ($f = s$), or employment growth ($f = g$). We adapt the approach of Davis et al. (2014) and regress three-year flows on a target (acquirer)-firm indicator, control variables, and a set of fixed effects:

$$f_{j,t-1,t+2} = \alpha + \theta \times Treated_j + \lambda g_{j,t-3,t-1} + \beta X_{j,t-1} + \sum_c D_{cj}\delta_c + \varepsilon_j, \tag{1}$$

where $Treated_j$ is a dummy variable equal to one for target and acquirer firms in all sample years, and zero for matching controls. We control for past employment growth using $g_{j,t-3,t-1}$, the two-year pre-acquisition growth rate. In the baseline regression, the only control variable included in the vector $X_{j,t-1}$ is the driving distance between the headquarter of the target and the acquirer. Like Davis et al. (2014) and Antoni, Maug, and Obernberger (2019), we use non-parametric controls by including a set of dummy variables D_{cj}, which equal one for cell c for firm j, and cells are defined by the full cross product of acquisition year; industry; firm size category, based on the number of establishments; and geographic region; these dummy variables also absorb the intercept.[6] Note that even though events happen at different points in time, (1) is not a staggered difference-in-differences analysis as discussed in Baker, Larcker, and Wang (2022), which would compare treated firms to control firms that might have been treated earlier, whereas we compare treated firms to matched non-treated control firms.

The coefficients of interest are the difference-in-differences estimates of θ, which denotes the differences in flows (*Employment growth*, *Inflow*, *Outflow*) between sample firms and matching firms after subtracting the influence of control variable. Throughout the paper, we report t-statistics and significance levels based on standard errors clustered at the firm level. Definitions of all variables can be found in Table A2 in the Appendix.

3 Post-merger restructuring of the labor force

This section provides a comprehensive analysis of post-merger restructuring of the labor force. Section 3.1 analyzes post-merger employee flows. Section 3.2 distinguishes between acquisitions in which all target establishments are closed and those in which at least some establishments are continued. Section 3.3 focuses on how management is reorganized after the acquisition.

[6] We group firms into five size brackets according to their number of establishments. These brackets are: 1, 2, 3-5, 6-10, and larger than 10.

3.1 Employee flows

We begin by analyzing the abnormal flows of employees into, out of, and across the establishments of the merged firm. Table 2 presents our results for all employees of the combined firms (column 1), targets (columns 2 and 3) and acquirers (columns 4 and 5). For targets and acquirers, we report the abnormal flows scaled by the employment of the respective firm (targets: column 2; acquirers: column 4) and the same flows but scaled by the employment of the combined firm (targets: column 3; acquirers: column 5) to provide comparability with column 1. The table reports only the coefficient estimates of θ as in equation (1), which measure the treatment effects after controlling for distance and pre-acquisition growth; we refer to these as abnormal flows, but will mostly omit the labeling as *abnormal* if there is no confusion. Indented flows are breakdowns of the flows shown directly above them.

We find that target employment declines quite dramatically by 55.36% of the target's labor force and by 14.01% of the combined firm's labor force, which is consistent with prior literature. Meanwhile, we observe that post-merger restructuring involves significant employment flows at acquirer establishments. These establishments exhibit strong *Employment growth* of 14.54%, measured relative to their own workforce (column 4 of Table 2).[7] Employment of the combined firm declines by 7.22%, which results from the net balance of acquirer growth (6.97%) and target decline (see columns 1, 3, and 5).[8] Hence, focusing on targets would overestimate the net employment decline associated with M&As by a factor of two.

Remarkably, the growth at the acquirer is driven by hires from the external labor market, whereas internal transfers only play a minor role. We find that internal transfers account for only one-sixth of acquirers' net employment growth. *Internal growth*, defined as

[7]Note that this analysis refers only to the growth of those establishments that belong to acquirers before the acquisition and does not include the employees of the target that may legally belong to the organization of the acquirer after the acquisition.

[8]Note that abnormal flows only add up exactly within columns but not across columns, where control variables vary and give rise to slight differences.

the balance of *Internal inflow between* and *Internal outflow between*, contributes only 2.35 percentage points (pp) to the acquirer's growth, whereas the remaining five-sixths come from *External growth* of 12.20%, defined as the balance of external hiring and external separations.[9] We can infer that merging firms consolidate their operations, reduce their combined workforce, and create jobs at the acquirer by moving operations from target to acquirer establishments. However, the movement of jobs from targets to acquirers is not accompanied by a movement of employees in the same direction. Rather, separations and job destruction in one location are balanced by job creation and new hiring from the external labor market in a different location. Moreover, we observe that employee turnover is surprisingly large at the acquirer: the 14.54% *Employment growth* of acquirers results from a 23.78% abnormal *Inflow* and a 9.24% abnormal *Outflow*. Hence, the second novel observation about post-merger restructuring is that employee turnover appears to be remarkably large and only partly driven by departures of target employees.

Below, we follow up on these insights by examining whether post-merger turnover results from replacement (3.1.1); whether post-merger employee flows involve internal or external labor markets (3.1.2); and whether the post-merger flows change the skill composition of the labor force (3.1.3).

3.1.1 Turnover and replacements

Our descriptive analysis of post-merger employee flows implies a remarkably high degree of employee turnover. In this section, we examine this observation more closely by looking at employee turnover and replacement rates. We follow the literature (e.g., Davis and Haltiwanger, 1999; Cahuc, Carcillo, and Zylberberg, 2014) and define *Turnover* as the average of *Inflow* and *Outflow*, so abnormal $Turnover = 16.51$ for acquirer establishments

[9] The conclusions are qualitatively similar but quantitatively a little less extreme if we weight employee flows by the employment of the combined firm and not by that of the acquirer (column 5). Then calculations analogous to those in the text show that the internal contribution to net employment growth is about one-quarter. In all likelihood, larger targets create larger employee flows to the acquirer, and transactions involving these targets receive a higher weight in column 5 than in column 4.

(see Table 2), which exceeds the baseline *Turnover* at control firms by 32%. (Baseline *Turnover* for combined control firms is 52.32 and can be inferred from Table 1.)

We hypothesize that firms hire new employees to replace those who leave and define *Replacements* as the lower of separations and hires, normalized by total employment (see equation (12) for a formal definition). *Turnover*, net employment growth g, and *Replacements* are related as (Appendix A.1):

$$Turnover = \frac{|g|}{2} + Replacements. \tag{2}$$

From Table 3, the number of abnormal *Replacements* is 7.83 as a percentage of total employment and statistically highly significant. In view of the decomposition in equation (2), it is also economically highly significant, accounting for almost 60% of the combined firm's overall *Turnover* of 13.33 (see Table 2).[10]

To describe firms' hiring strategies further, we define the *Replacement rate* as the ratio of replacements to separations, which measures the fraction of separations that result in new hires.[11] Panel A of Table 3 reports the mean unadjusted *Replacement rate* in column 2, which is 67.69% for combined firms in our sample, i.e., two new employees are hired for three employees who leave. By contrast, the abnormal *Replacement rate* (Panel B) is statistically indistinguishable from zero: M&As do not affect the ratio between hires and separations. Instead, M&As significantly increase *Turnover*, which results in a higher number of replacements, holding the *Replacement rate* constant. Our interpretation is that M&A firms and control firms follow similar templates when they adjust their labor force

[10]Note that equation (2) holds at the firm level and not for averages of the whole sample since the absolute value $|g|$ is a non-linear transformation of the growth rate g with an expectation that increases in the dispersion of g. We perform a back-of-an-envelope calculation based on the values in Tables 1 and 3 and assume that g is distributed normal with mean -0.2694 and standard deviation 0.5366. Then $|g|$ follows a folded normal distribution with mean $E(|g|) = 0.481$, which would result in *Turnover* of 0.6634 from equation (2), not far away from the estimated value of $(0.4789 + 0.7483)/2 = 0.6136$ from Table 1. Note also that equation (2) does not hold for abnormal growth rates and replacements.

[11]See equation (13) in Appendix A.1 for a formal definition. The *Replacement rate* is defined only for transactions with a positive separation rate, which is the case for 99% of the sample.

but quantitatively, M&A firms face much higher turnover.[12]

The high employee turnover is puzzling. Replacing employees is expensive for firms, and the costs for hiring and training new employees have been estimated to be around one annual salary per employee, and increasing in skill levels (Ghaly, Anh Dang, and Stathopoulos, 2017). Prior literature shows that employee turnover and the risks of disrupting operations lead to valuation discounts and higher risk premiums (Edmans, 2011; Donangelo, 2014; Sanati, 2024). Hence we would expect that acquirers try to retain employees to avoid expensive rehiring, especially of the acquirer's own employees, who are steeped in its management systems and culture.

Interestingly, we observe that most of those employees who leave the merging firms find new employment at higher wages at other firms. The *External outflow* of the acquirer amounts to 4.34% of the combined firm's labor force, and of these, 2.49 pp experience a wage increase, whereas the remaining 1.85 pp either accept lower-paid jobs or become unemployed. Hence, about three-fifth (2.49/4.34=0.58) of those who leave the acquirer's establishments experience gains to their human capital; if we scale these flows by acquirers' own employment, then this fraction is almost 70% (see Table 2 column 4: 4.31/6.23=0.69). We assume that these employees leave voluntarily.[13] This observation is noteworthy, since we would expect that those employees who find better-paid jobs after M&As could have left the firm and found these better-paying jobs earlier. One possible explanation is that most employees do not search for jobs because they underestimate their outside options (Jï¿œger et al., 2023). Merger transactions then trigger increased job search among employees

[12]Table OA3 in the Online Appendix shows that these patterns also show little variation across different types of mergers. We classify an acquisition as *horizontal* if acquirer and target operate in the same NACE 2-digit industry; as *vertical* if acquirer and target are vertically related, where vertical relations are inferred from industry-level input-output tables; acquisitions are diversifying if they are neither horizontal nor vertical. See Appendix A.4 for further details.

[13]Layoffs are typically followed by large earnings losses (e.g., Jacobson, LaLonde, and Sullivan, 1993; Flaaen, Shapiro, and Sorkin, 2019; Davis et al., 2011), which justifies our interpretation of separations associated with earnings increases as voluntary. Note that our measure captures earnings losses and thus combines the impact of a drop in hourly wages as well as unemployment spells, which are longer after layoffs.

(Agrawal and Tambe, 2019), which appears to be often successful. Another mutually non-exclusive interpretation of these voluntary departures is that the reorganization of the firm closes the career paths for some employees, who then leave. Ferreira and Nikolowa (2022a, 2022b) develop models in which firms compete for employees by offering them career paths with associated wage profiles; changes to these career paths then affect employees' decisions to leave even if their current wages are not affected. Repeating the same calculations for targets generates virtually identical results: About 60% of the target employees who leave after M&As find better-paid jobs. Some studies (Kim, 2020; Chen, Gao, and Ma, 2021) discuss the difficulties of acquirers to retain the key employees of the target and our results are consistent with the notion that at least some target employees prefer to pursue careers outside of the merged firm.

3.1.2 Internal labor markets

We observe in Table 2 that M&As create internal labor markets, that is, we observe internal transfers inside targets and acquirers as well as between targets and acquirers. In this section, we examine how important those transfers are in the context of post-merger restructuring. We observe a statistically significant but economically moderate increase in the activity of internal labor markets after acquisitions of 2.47% (Table 2, column 1), predominantly transfers from the target (columns 2 and 3, *Internal outflow between*) to the acquirer (columns 4 and 5, *Internal inflow between*). We quantify the relative importance of internal transfers to external recruiting by defining the *Internal hiring rate* as the ratio of the merged firms' internal hiring (*Internal inflow,* which captures all inflows into establishments of the merged firm from other establishments of the merged firm) to its total hiring. (See equation (10) in Appendix A.1.) This ratio would be 100% if all hiring between $t-1$ and $t+2$ would be internal. Column 3 of Table 3 reports the mean unadjusted *Internal hiring rates* (Panel A) and the abnormal rates, estimated from running

regression (1) (Panel B).[14] The average unadjusted (abnormal) *Internal hiring rate* across all combined firms is only 9.23% (4.57%). Hence, while the increase in the internal labor market activity of the combined firm is statistically highly significant, it accounts for only one-tenth of acquirers' hiring activity and we infer that acquisitions do not satisfy acquirers' demand for employees. Rather, M&As are associated with more hiring from the external labor market.

3.1.3 Skill composition

In this section, we ask whether the high turnover and the large number of replacements change the composition of the labor force. If replacements result predominantly from the objective to change the labor force, we would expect that employees who are newly hired are very different from those who leave. By contrast, if acquirers simply wish to replace employees who leave voluntarily, we would expect leavers and new hires to be more similar.

To begin, we compare the composition of the labor force of acquirers and targets in the year before the merger and provide descriptive evidence on the education and job descriptions of employees in Table 4. Acquirer employees are better educated, with 24.9% of them holding a university degree (17.7% for targets), whereas more target employees have only an intermediate school leaving certificate without vocational training (8.1% vs. 6.8% for acquirers) or with vocational training (49.6%, compared to 42.6% for acquirers). Similarly, acquirers have more employees in highly-qualified positions (22.7% vs. 20.7%) and correspondingly fewer in low-qualified positions (21.8% vs. 24.9%). These differences in qualification and education are associated with a large difference in *Wage* of €15.12, or 17% of the average target *Wage* (Table 1, Panel A). Hence, pre-merger acquirers have a better-educated, more qualified and better-paid workforce compared to targets.

Next, we ask how those employees who leave differ from those who are newly hired.

[14] Note that the *Internal hiring rate* for control firms is positive, since there are transfers between the establishments of the same firm.

Accordingly, Table 5 shows the characteristics of inflows and outflows to the combined firm regarding wages, education, qualification, tenure, and age. To analyze qualification and education, we define indices. *Qualification index* is constructed by mapping occupational codes into three categories (low, middle, high), and *Education index* is constructed based on educational attainments grouped into five categories (see Appendix A.2 for details). Panel A of Table 5 reports the averages of these indicators before the merger and for the flows to and from the external labor market after the merger for combined firms. Panel B reports the same information for their synthetic controls. Note that the number of observations differs across panels because the averages can only be calculated for firms for which the respective flows are positive.

We observe that newly-hired employees are, on average, slightly more qualified and better educated than those who leave the firm, but these effects are economically small and amount to 3.18% (*Education index*, 13% of a standard deviation) and 0.69% (*Qualification index*, 4% of a standard deviation) of the pre-merger level. Moreover, these changes are almost identical for control firms (see Panel B). The similarity of the changes in merging firms and control firms suggests that both follow a similar blueprint for the skill composition of new hires, only that merging firms turn over their workforce at a higher rate, in line with the related observation on the *Replacement rate* in Section 3.1.1 above.

By contrast, newly-hired employees are, on average, 3.95 years younger than leaving employees, which is 9.94% of the pre-merger age, and they receive €10.99 or 11.15% less of daily *Wage*. These effects are economically large and statistically highly significant. Moreover, the corresponding changes at control firms are one order of magnitude smaller. Hence, regarding these characteristics, merging firms and their non-merging controls follow very different strategies:[15] Merging firms hire younger and cheaper employees compared to those who leave, whereas control firms hire new employees who a largely similar to those

[15]The relative changes in the skill indices, *Wage*, and *Age* are very similar across merger types. However, it is noteworthy that horizontal acquisitions have a less educated, qualified, and lower-paid workforce compared to vertical and diversifying acquisitions.

who leave.

Our findings can be interpreted in the context of two theoretical frameworks, both of which depart from the observation that larger firms organize their workforce into more hierarchical layers. The theory of career ladders in internal labor markets argues that firms recruit new employees predominantly into junior positions, which serve as a port of entry into the organization (Doeringer and Piore, 1966; Baker, Gibbs, and Holmstrom, 1994; Baker and Holmstrom, 1995). Our observation that merging firms hire younger employees is consistent with such career ladders. Similarly, the theory of knowledge-based hierarchies argues that firms choose the composition and organization of their workforce to optimally use the skill and knowledge required in production and predicts that firms achieve economies of scale by adding additional hierarchical layers as they grow (see Garicano, 2000, and the survey of Garicano and Rossi-Hansberg, 2015). The additional managers then shift the skill and training requirements to the top of the firm and cast a "shadow of the superstars" on those in the middle, thereby reducing costs (Garicano and Rossi-Hansberg, 2015). Our observation that merging firms hire cheaper employees is consistent with the economics of knowledge-based hierarchies.

It is instructive to compare the characteristics of employees who leave also to those who stay with the firm, which allows us to follow up on our earlier discussion of voluntary departures in Section 3.1.1. Table 5 shows that the leaving employees (*External outflow* in Panel A) are somewhat more qualified and educated than those who stay; they earn a lower wage in their original jobs (€94.48, 4.2% less than the average $t-1$ wage) and have a significantly lower tenure (almost one year or 15% of the $t-1$ average).[16] Hence, these employees have more general human capital and are more junior than those who stay, and both factors are likely to indicate better outside options relative to their original jobs and thus contribute to their higher mobility.

Internal flows between acquirer and target involve more highly-paid employees: The

[16]Table OA4 shows that all these patterns apply almost equally to all merger types.

average *Wage* is higher for internal outflows relative to external outflows (+22% = €114.99/ €94.48), as well as relative to the entire workforce (+17% = €114.99/€98.36). The higher compensation reflects a higher *Education index* (+17% / +22%) and *Qualification index* (+10% / + 14%) compared to both benchmarks. On average, transferred employees receive a 7% pay increase (€122.82/€114.99). Hence, retentions are biased toward highly-skilled and highly-paid employees. We interpret these pay rises as premiums firms are willing to pay to retain critical employees in the merged firm.

Overall, we can conclude that firms' desire to change the composition of the labor force does not appear to be a major driver of the large turnover after mergers, clearly not the composition in terms of formal skill requirements. More likely, firms replace employees who opt to pursue outside options.

3.2 Consolidation

Synergies in M&As are often realized through consolidating the merging firms' operations. We expect acquirers to consolidate operations after the acquisition by closing target establishments and moving the target's operations to their own establishments (see also Maksimovic, Phillips, and Prabhala, 2011). Consolidation is thus likely to have first-order implications for the employees of both merging firms and may explain the large number of replacements that we observe during post-merger restructuring: moving the operations would result in high turnover if target employees do not move along. This may happen for reasons on the employee's side, e.g., if working at the acquirer's establishment may require relocation, or on the firm's side, e.g., if the design of jobs in the new location is different and requires different skills. In this section, we examine the drivers and consequences of post-merger consolidation of the labor force.

3.2.1 The decision to close targets

We consider a target to be *closed* if all target establishments have zero employees at the end of year two after the acquisition, which is the case in 373 transactions, or 36% of the sample; we refer to the complement as *continued* targets. The magnitude of establishment closures appears broadly consistent with Maksimovic, Phillips, and Prabhala (2011), who find that acquirers close or divest 46% of acquired plants within three years of the acquisition; however, note that these analyses are not directly comparable as divestitures do not necessarily result in closures. We define an indicator variable *Target closure*, which equals one if the target has zero employees in the second calendar year following the acquisition, and zero otherwise.[17] Similarly, we assign the label *closed* to control firms that lose all their employees by the end of the second year after the acquisition, which happens in 8% of all cases.

Table 6 reports linear probability regressions of the indicator *Target closure* against explanatory variables. Column 1 shows a coefficient of 0.2717 on the *Treated* indicator, which suggests that the probability of closing all establishments of a firm is 27.2 pp higher for an M&A target than for a matching control firm. Next, we interact the *Treated* indicator with a range of variables that describe the size and pre-merger growth of the merging firms, and by the type of merger. Here, subscripts A and T indicate, respectively, acquirer and target, and the subscript A-T indicates the difference of the respective magnitude between them (acquirer minus target). *Distance* is the driving distance in minutes, and *HCR* is an indicator of human capital relatedness in the spirit of Lee, Mauer, and Xu (2018) (see Appendix A.3 for details). We define *Managerial capabilities* as a measure of how much of the firm's labor force is concentrated in the top layers of the organization. For this, we follow prior literature (Caliendo, Monte, and Rossi-Hansberg, 2015; Gumpert, Steimer, and Antoni, 2022) and use occupational codes to assign employees to four hierarchical

[17] Of the 1,043 targets in the sample, 894 (86%) have one establishment and 149 (14%) have multiple establishments. We do not separately consider cases in which only one of multiple establishments is closed and thus ignore the possibility of partial closure.

layers and define *Managerial capabilities* as an employment-weighted average of the layer index, which is highest for the top layer. (See equation (15) in Appendix A.2 for a formal definition.)

We interpret the closure of the target as a transfer of its operations to the acquirer's establishments and subordination to the direct control of the acquirer's management. This decision involves a trade-off between the one-off costs of disrupting operations by moving them to acquirer establishments with the associated employee turnover, and the continuing costs of managing and maintaining a separate establishment in a different location. Hence, we expect that acquirers are more likely to close targets if this choice reduces the frictions in managing target operations, and are less likely to close targets if the latter is better able to sustain independent operations. The results are broadly consistent with this hypothesis. Relatively smaller targets (lower $Relative\ size_T$) and those with lower managerial capabilities (lower values of *Managerial capabilities*) are more likely to be closed, as are targets in closer geographic proximity, which require less on-site middle management to control their operations (Gumpert, Steimer, and Antoni, 2022). The negative coefficients on the acquirer's size indicate that larger acquirers find it comparatively easier to operate multiple establishments in different locations.

In column 3 we add several variables that describe the workforce of acquirer and target in terms of education, qualification, and compensation. While none of these variables is by themselves statistically significant, including them substantially increases the economic and statistical significance of acquirers' *Managerial capabilities*: controlling for the characteristics of the workforce, acquirers with stronger managerial capabilities are more likely to close targets. Interestingly, including contemporaneous acquirer growth as a right-hand side variable (column 4) shows that acquirers that grow faster after acquisitions do not close the target, controlling for other characteristics of the merger. Based on the observations above, we expect that closing targets requires managerial capabilities, and faster-growing acquirers may dedicate their managerial capabilities to growth rather than target closure.

Overall, we infer from our findings that acquirers' minimize transaction costs: they close targets if they find it easier to manage target operations directly and if targets are less capable of sustaining separate operations.

The decision to close targets is highly correlated with net employment growth and employee turnover. The abnormal *Turnover* (net employment growth) of combined firms that close their targets is 27.02% (-27.56%), compared to 5.66% (+3.75%) for transactions with continued targets. Hence, transactions with target closure account for about one-third of the sample but two-thirds of the overall employee turnover. This observation confirms that the consolidation of operations is associated with the closure of target establishments. In addition, Table OA5 in the Online Appendix shows that wage losses are concentrated in transactions with closed targets. Hence, employment losses in these transactions are probably attributable to layoffs. We conclude that M&A-related losses of human capital are concentrated in transactions in which acquirers exercise direct managerial control and consolidate operations by transferring them to their own establishments.

3.2.2 Employee flows and target closure

Table 7 reports selected abnormal employee flows for closed and for continued targets for all employees. We can infer from Table 7 that, independently of whether targets are closed or continued, on average acquirer establishments grow whereas target employment declines, and acquirer employee turnover exceeds that of targets. Hence, employment growth is always concentrated in acquirer establishments and associated with more turnover. However, the magnitude of the job flow is much higher when targets are closed, in which case the *Inflow* to acquirers is three times larger (22.02% vs. 7.33%) and the outflow from targets ten times larger (27.88% vs. 2.33%). From this observation we infer that operational employees are largely tied to the establishment and that their skills can be substituted. If acquirers retain the target's establishments as separate operations, then they also retain the target's operational employees, whereas they mostly substitute them with those of the

acquirer if the target is closed. Accordingly, the consolidation of operations is associated with the closure of targets and a large portion of the employee turnover that we observe in the overall sample.

Table 7 also reveals that internal transfers are important only when targets are closed, in which case 5.40 pp, or three-fifth of the acquirer's growth of 9.20% (measured relative to the workforce of the combined firm) is accounted for by inflows from the target. When the target is continued, internal transfers from the target to the acquirer amount to only 0.41%, which is negligible relative to the acquirer's net employment growth of 5.95% in this subsample. This observation suggests that most of the internal labor market activity after mergers results from the need to retain key target employees and transfer them to the acquirer establishments. We also analyze internal labor markets for different merger types (Table OA6) and at the industry level (results not tabulated) and find no clear patterns. Hence, the only salient association of internal labor market activity is with the decision to close the target.

In contrast to the moderate activity in internal labor markets, *External turnover* at acquirers is very large when the target is closed, resulting from a simultaneous abnormal *External inflow* of 14.68 and *External outflow* of 10.88. The next section shows that the same conclusion is even more pertinent for managers.

3.3 Management restructuring

In this section, we analyze how firms restructure their management after acquisitions. A strand of the literature in organizational economics highlights the importance of management and managerial practices for improvements in productivity, which argues that changes in management may be as important as changes in technology and are embedded in the managers themselves (e.g., Bloom and Van Reenen, 2007; Bloom et al., 2013; Atalay, Hortacsu, and Syverson, 2014). In addition, prior research shows that managing operations in separate and more remote locations involves frictions that may require additional layers

of middle management (Gumpert, Steimer, and Antoni, 2022).[18] Hence, we expect that post-merger restructuring, in terms of employee turnover, will be most pronounced at the top of the organization.

Naturally, the restructuring of management will be related to the decision to close the target. If the target is closed, all management capabilities will be concentrated at the acquirer, whereas this will not be the case if the target continues its operations. Hence, we analyze the manager flows separately for transactions with closed and with continued targets.[19]

We present the results in Table 8, for which we use the same layout as in Table 7.[20] To start, we note that management *Turnover* is significantly higher compared to that of operational employees for both subsamples (managers / all employees with closed targets: 36.01% / 27.02%; with continued targets: 11.32% / 5.66%).[21] Hence, we can safely conclude that restructuring is disproportionately happening at the top of the organization, consistent with the notion that a major part of restructuring involves changing the organization of the firm and its management processes. Subsequently, we analyze transactions with closed and continued targets separately.

[18]Our data provider classifies "managers" from the occupational codes using the Blossfeld (1987) classification (see Appendix A.2.1). About 4.4% (7.1%) of target (acquirer) employees are classified as managers according to this classification, hence this category can be interpreted as middle management.

[19]Table OA5 in the Online Appendix reports the full set of abnormal labor flows for closed and continued targets, using the same format as Table 2. Table OA7 in the Online Appendix shows the same flows in the same format for managers. Table OA8 in the Online Appendix repeats the same analysis for highly-qualified employees. Highly-qualified employees are also defined from the occupational codes using the Blossfeld (1987) classification and include managers. We do not discuss the results for highly-qualified employees in detail, since they lie usually somewhere between those for managers and those for the general workforce; thus, analyzing them does not provide additional insights.

[20]In addition, the table includes the transitions between managerial and non-managerial positions, which we refer to as *Net promotions* and calculate as transitions from non-managerial to managerial positions minus transitions in the opposite direction. These flows are statistically mostly insignificant, but form an economically relevant component of *Employment growth* in Table 8.

[21]Note that we refer to the results for the sample of all employees in Tables 2 and 7 interchangeably as "all employees" and as "operational employees," since the fraction of managers of the whole workforce is sufficiently small. Table OA9 in the Online Appendix shows that abnormal *Replacements* are about twice as high for managers (15.80%, Panel B) compared to the general workforce (7.83%, Table 3, Panel B).

3.3.1 Closed targets

For closed targets we observe that *Turnover* for managers of the combined firm equals 36.01% and exceeds that for transactions with continued targets (11.32%) by a factor of more than three. The most remarkable observation is the large abnormal loss of acquirer managers, which is 24.32% (Table 8*, External outflow*), compared to only 10.88% for the corresponding flow for the general workforce of the acquirer (Table 7). Hence, when targets are closed, acquirers lose 24% more managers than controls, more than twice as much as the abnormal loss of operational employees. By contrast, the loss of target managers (*External outflow*) is only 12.91% (Table 8, column 2), which is unusually small in comparison to the same numbers for all employees (22.66%, see Table 7). Hence, when acquirers close target establishments, they retain the target's managers at a much *higher* rate than they retain its operational employees, whereas they retain their own managers at a *lower* rate than they retain operational employees. Our interpretation is that the specific human capital required to continue target operations is concentrated in their managers whereas operational employees can be substituted. Hence, acquirers retain the managers of the target, more than the target's operational employees. The second observation, that acquirer managers are retained at a lower rate is more puzzling. The *External outflow* of acquirer managers is matched by an almost identical *External inflow* of 26.23%. Hence, on average, all acquirer managers who leave are replaced by new managers recruited from the external labor market, resulting in very large abnormal *Turnover* but statistically and economically insignificant net employment growth of acquirer managers.

Our interpretation of both observations is that the new organizational structure is more top-heavy, as operational employees leave at a higher rate than managers, and that the new structure requires different skills and offers different career prospects, which results in a large number of separations at the acquirer. In the process, retained target managers,whose skills seem to be critical, displace some of the incumbent acquirer managers. At the

same time some acquirer managers leave because of closed career paths and better outside opportunities.

Merger types and closed targets. We replicate Tables 7 and 8 separately for diversifying mergers, horizontal mergers, and vertical mergers in Tables OA6 and OA10 in the Online Appendix. A comparison of these tables shows that the qualitative patterns described above prevail for all merger types, but quantitative differences are pronounced: The abnormal *External outflow* of acquirer managers is much larger for diversifying (vertical) mergers, for which it is almost five (three) times that of the general workforce, whereas the same ratio is barely above one for horizontal mergers. The same observation applies to the abnormal *Turnover* of managers, which is about 50.7%, 17.6%, and 36.3% for diversifying, horizontal, and vertical transactions, respectively (see column 3 in the bottom rows of Panels A - C of Table OA10). These observations suggest that acquirer managers posses the required skills in horizontal mergers, but not as much in diversifying and vertical deals. In those transactions, a larger fraction of the target's management is retained (42% and 29%) compared to that of operational employees, presumably because acquirers lack the requisite operational knowledge to continue these operations. Hence, the breakdown of transactions by merger type supports the interpretation that firms' skill requirements drive employee flows.

3.3.2 Continued targets

When acquirers continue target establishments, they build management capabilities at their own establishments through external recruiting. *External growth* increases by 10.73% (Table 8, column 6), mostly through higher external recruiting (+8.81% *External inflow*), whereas *External growth* is only 5.98% for the general workforce - mostly operational employees - in the same subsample (column 6 of Table 7).

However, there are two countervailing effects, which reduce the overall *Employment*

growth of managers in the combined firm to only 4.73%, and which mitigate the effect from large external recruiting of acquirer managers. The first is a reduction in *Net promotions*, which decline by 3.37% for the combined firm (column 4). The replacement of internal promotions with new hires supports the conjecture that the internal career paths of some employees were closed. The second countervailing effect is a negative *External growth* of target managers of −2.86%, which indicates a significant transfer of managerial jobs from targets to acquirers (Table 8, column 5). Some of the growth of management at acquirer establishments therefore results from a migration of managerial jobs as acquirers consolidate managerial jobs in their own establishments. Hence, while operational employees and their jobs are tied to the continuing establishments, managerial jobs are not.

The literature on managerial practices cited above argues that these practices can often not be transferred like technological blueprints and are embedded in the managers who are familiar with these practices. Hence, we hypothesize that acquirers transfer their management practices to targets by moving their managers there. Consistent with this prediction, we find that the transfer of managers from the acquirer to the target is statistically highly significant *(Internal inflow between* from the acquirer to the target is 0.83%, see column 5), which is twice as much as the corresponding number for all employees (0.41%; see Table 7, column 6). However, the economic magnitude of these transfers is low compared to external recruiting and overall employment growth, which suggests that only some key managers are transferred. Table OA9 in the Online Appendix shows that the *Internal hiring rate* for managers at targets exceeds the same rate at acquirers by a factor of two (8.31% instead of 3.84% of all managerial employees). Hence, the flow of key talent from acquirers to targets seems to be important, consistent with the embedded–managerial–practices argument. There is also a larger flow in the opposite direction from targets to acquirers (*Internal inflow between* = 0.61%, see column 6 of Table 8), compared to the corresponding flow for all employees (0.41% , column 6 of Table 7) but economically still

small. This suggests that in some cases, target managers are retained but their jobs moved to acquirers.

Hence, acquirers that continue the target establishments retain the operational employees of these targets and exercise control through consolidating managerial jobs at the acquirer establishments. They rely more on external hiring, less on internal promotions, and transfer a small number of managers in both directions.

Merger types and continued targets. Table OA10 in the Online Appendix shows that the strong growth of management through external recruiting prevails across all three merger types. However, whereas the two countervailing effects are strong in horizontal and vertical acquisitions, they differ for diversifying acquisitions. The *External growth* of target managers is weaker in diversifying acquisitions. Moreover, in these transactions, the effect on internal promotions from non-managerial to managerial jobs changes signs such that *more* target employees are promoted after acquisitions, whereas the same effect for horizontal and vertical deals is negative.[22] As in the case of closed targets, in diversifying acquisitions acquirers can probably not supply the requisite managerial skills and therefore rely more strongly on the existing experts of the target.

Conclusion: Restructuring management. We have established two observations that apply to transactions with closed and those with continued targets alike: There is more turnover at the management level than for operational employees; and managerial jobs move to the acquirer establishments, hence, acquirers centralize managerial processes there. The key difference between the two groups of transaction is that if targets are continued, they retain their operational employees, but replace much of their management. By contrast, if targets are closed, they lose most of their operational employees whereas a

[22]Table OA10 does not report the breakdown of *Employment growth.* It can be inferred by calculating *External growth* (*Internal growth*) from the difference of external (internal) inflows and outflows, and *Net promotions* from the difference between *Employment growth* and the sum of *External growth* and *Internal growth.*

significant fraction of their managers is retained.

Hence, the flows of managers and those of operational employees appear to be very different.[23] Our interpretation is that operational employees are substitutable and tied to the establishment, whereas managers are not substitutable because they possess two types of knowledge: operational knowledge and managerial knowledge. The operational knowledge of the target managers is required to continue the target's operations. Hence, some target managers need to be retained if the target establishments are closed, even if the operational employees leave at the same time. Moreover, more target employees - either managers or employees who are promoted to managerial ranks - are required if the target's industry is less familiar to the acquirer. At the same time, acquirers always require managers who are steeped in their management systems and practices. If acquirers continue the target and have the relevant industry knowledge, as in vertical and horizontal mergers, they reduce promotions and also transfer some of their own managers. By contrast, if they lack the relevant industry knowledge, as in diversifying acquisitions, they increase promotions of target employees from non-managerial ranks instead of transferring their own managers. Hence, the flows of operational employees and managers differ, and also differ across merger types and by the status of target closure.

All these patterns can be parsimoniously explained as resulting from the combination of complementary skills embedded in managers: the managerial processes of the acquirer and the operational knowledge of the target. This interpretation is consistent with two overlapping theories of how M&As create synergies: First, the notion that M&As combine complementary assets (Hart and Moore, 1990; Rhodes-Kropf and Robinson, 2008; Hoberg and Phillips, 2010), only that the assets we identify are intangible and embedded in employees. Second, together with the findings on consolidation, it is also consistent with the theory that acquirers purchase growth opportunities and contribute efficient operational

[23]See Table OA8 and the discussion in footnote 19 above, which indicates that many of these observations apply also to other highly-qualified employees, although to a lesser extent.

management (Levine, 2017).

4 Productivity and growth

The previous sections show that acquirers undertake significant changes after mergers, which affect the size, location, retention rate, and management of the workforce. In this section, we are interested in whether these changes pay off in the sense that the changes lead to stronger growth or higher productivity, two of the main determinants of synergies.

We employ two strategies to assess post-merger firm performance.[24] First, we calculate *Sales growth* from one year prior to two years after the transaction, using the same definition of growth rates as for employment (see equation (3)), i.e., we compare the sales of the merged firm in $t + 2$ to those of acquirer and target combined in $t - 1$. Similarly, we construct a variable *Labor productivity*, which is defined as the ratio of *Sales* to the number of employees; we calculate the growth in *Labor productivity* accordingly. We then perform the standard regressions on the *Treated* indicator, with *Sales growth* and *Labor productivity* as the dependent variables. Table 9 reports the results for all observations for which we can calculate *Sales growth* (columns 1, 2), and for those observations for which we can calculate *Sales growth* for the treated firms as well as for the matching control firms (columns 3, 4). The even-numbered columns include non-parametric cell indicators, whereas the odd-numbered columns do not. There is at most weak evidence that *Sales growth* is higher for combined firms compared to matching control firms, as the estimates are insignificant except in column 1. However, there is consistent evidence that *Labor productivity* increases after mergers if we measure the change in *Labor productivity* in euros (Panel B); significance is somewhat lower if we use the percentage growth in *Labor productivity* as the dependent variable (Panel C), in which case statistical significance drops

[24] Our analysis is limited by the availability of data, since our data provider does not have access to firm-level data, and financial statements are often missing, in particular for non-listed firms, which form the majority of our sample.

to the 10% level with fixed effects. Hence, benefits from M&As appear to come from productivity gains and consolidation, not from additional growth, consistent with the theory of Levine (2017).

Our second approach uses the high-quality wage data we have access to more directly, and builds on the notion that wages per employee measure labor productivity in a competitive equilibrium (see Huneeus et al., 2021, for a similar argument and analysis). Since the turnover of the labor force increases dramatically after M&As, our focus is on those employees who were employed with either the acquirer or the target in the year before the acquisition, and who remain with the combined firm until two years after the acquisition. We report the changes in wages of these "stayers" in Panel D of Table 9. All measures show that wages of employees who stay go up consistently by 0.7% to 0.8%. These increases are statistically significant, and significance increases when we add fixed effects. Hence, the wage-based analysis corroborates the results from Panels A to C that labor productivity increases after mergers (see Li, 2013, for a related finding).

5 Conclusion

We take a comprehensive view of post-merger restructuring that includes changes at the acquiring firm. We observe and analyze two major organizational changes to create synergies—consolidation and management restructuring—and find that these organizational changes are associated with high employee turnover. Turnover is costly, appears to result to a larger extent from voluntary separations rather than layoffs, and overall, firms experience increases in their labor productivity.

Our results suggest two major insights for future M&A research. First, many aspects of M&As are missed if the analysis focuses solely on targets. Thus, it is essential to adopt a comprehensive perspective that includes acquirers: Net employment changes of targets overstate the degree of job destruction and consolidation, as many jobs move from

targets to acquirers. Much of the large employee turnover we observe happens at the acquirer, as many employees - especially managers - leave and are replaced. Second, it is important to distinguish operational employees from middle managers, as both play different roles in post-merger restructuring: Operational employees are substitutable and tied to establishments, whereas target and acquirer managers possess complementary skills that are, at most, partially substitutable.

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A Appendix

This appendix provides more detailed information about the computation of growth rates, hiring rates, and separation rates (Section A.1).

A.1 Growth rates, separation rates, and hiring rates

We use the following definitions:

Symbol	Definition
E_{jt}	Number of all employees employed in firm j at the end of year t.
H_{jt}	Number of employees who enter firm j in period t, i.e. between the end of year $t-1$ and the end of year t.
S_{jt}	Number of employees who are separated from firm j in period t, i.e. between the end of year $t-1$ and the end of year t.

We then define employment growth between period $t-1$ and period t as

$$g_{j,t-1,t} \equiv \frac{E_{jt} - E_{j,t-1}}{0.5\left(E_{jt} + E_{j,t-1}\right)} \tag{3}$$

and observe that

$$E_{jt} - E_{j,t-1} = H_{jt} - S_{jt}. \tag{4}$$

We define one-year hiring rates and separation rates as

$$h_{jt} = \frac{H_{jt}}{0.5\left(E_{jt} + E_{j,t-1}\right)},\ s_{jt} = \frac{S_{jt}}{0.5\left(E_{jt} + E_{j,t-1}\right)}. \tag{5}$$

From (3), (4), and ((5)), we have

$$g_{j,t-1,t} = h_{jt} - s_{jt}. \tag{6}$$

We also compute multi-period employment flows as

$$E_{j,t+k} - E_{j,t-1} = \sum_{\tau=0}^{\tau=k}\left(E_{j,t+\tau} - E_{j,t+\tau-1}\right) = \sum_{\tau=0}^{\tau=k}\left(H_{j,t+\tau} - S_{j,t+\tau}\right) = H_{j,t-1,t+\tau} - S_{j,t-1,t+\tau}. \tag{7}$$

Multi-period rates. Multi-period growth rates between periods $t-1$ and $t+k$ are defined as

$$g_{j,t,t+k} \equiv \frac{E_{j,t+k} - E_{j,t-1}}{0.5\left(E_{j,t+k} + E_{j,t-1}\right)}. \tag{8}$$

Multi-period hiring rates and separation rates are defined analogously to (8). Note that, generally, $g_{j,t-1,t+k} \neq \sum_{\tau=0}^{\tau=k} g_{j,t+\tau-1,t+\tau}$ and analogously for separation and hiring rates.

Percentage growth rates. We use γ to refer to conventional one-year percentage growth rates, which can be defined as

$$\gamma_{j,t-1,t} \equiv \frac{E_{jt} - E_{j,t-1}}{E_{j,t-1}}. \tag{9}$$

It is easy to show that

$$g_{j,t-1,t} = \frac{2\gamma_{j,t-1,t}}{2 + \gamma_{j,t-1,t}} \Leftrightarrow \gamma_{j,t-1,t} = \frac{2g_{j,t-1,t}}{2 - g_{j,t-1,t}}$$

and that $g_{j,t-1,t}$ and $\gamma_{j,t-1,t}$ are monotonically increasing functions of each other. However, their ranges are different, $\gamma_{j,t-1,t} \in [-1, \infty)$ whereas $g_{j,t-1,t} \in [-2, 2]$.

Growth rates and employment fractions. For this discussion, suppress the firm index j and the time indices $t-1$ and t, and index employees in group h by the superscript h. Let $\phi_t^h \equiv \frac{E_t^h}{E_t}$ be the fraction of employees in group h, given by E_t^h, relative to the total number of employees $E_t \equiv \sum_h E_t^h$. Define the percentage growth rate of group h as $\gamma^h \equiv \frac{E_t^h - E_{t-1}^h}{E_{t-1}^h}$. The growth of the whole workforce, $\gamma \equiv E_t/E_{t-1} - 1$, is a weighted average of the percentage growth rates of the different groups, i.e.

$$\gamma = \frac{\sum_h E_{t-1}^h \left(1 + \gamma^h\right)}{E_{t-1}} - E_{t-1} = \sum_h f_{t-1}^h \gamma^h.$$

Note that the growth rates g defined in (3) and (8) do not have this property. Observe also that

$$\phi_t^h = \frac{E_{t-1}^h \left(1 + \gamma^h\right)}{E_{t-1}\left(1 + \gamma\right)} = \phi_{t-1}^h \frac{\gamma^h - \gamma}{1 + \gamma}.$$

Hence, $\phi_t^h > \phi_{t-1}^h \Longleftrightarrow \gamma^h > \gamma$. Since the previous observation implies that $\gamma^h > \gamma \Longleftrightarrow g^h > g$, we have that fractions ϕ^h increase exactly for those groups whose employment growth is higher than the overall growth rate, independently of whether the growth rate is defined as in (3), or as a percentage growth rate, as in (9).

Internal flows. We calculate the contribution of internal hiring to the overall hiring of firm j over the period from $t-1$ to $t+2$ as

$$Internal\ hiring \equiv \frac{\sum_{\tau=t}^{\tau=t+2} H_{jt}^{ILM}}{\sum_{\tau=t}^{\tau=t+2} H_{jt}}. \tag{10}$$

Here, H_{jt}^{ILM} indicates all internal transfers (ILM stands for "internal labor market"), i.e., between the establishments of the combined firm, whereas H_{jt} indicates total hiring (internal plus external) of firm j, as before. Similarly internal separations of firm j for the same period are defined as

$$Internal\ separations \equiv \frac{\sum_{\tau=t}^{\tau=t+2} S_{jt}^{ILM}}{\sum_{\tau=t}^{\tau=t+2} S_{jt}}, \tag{11}$$

where S_{jt}^{ILM} is defined analogously to H_{jt}^{ILM}.

Replacements and replacement rate. We define replacements at firm j between periods $t-1$ and $t+2$ as

$$Replacements_{j,t,t+k} \equiv \frac{Min\left(H_{j,t-1,t+2}, S_{j,t-1,t+2}\right)}{\frac{1}{2}\left(E_{j,t+2}+E_{j,t-1}\right)} = Min\left(h_{j,t-1,t+2}, s_{j,t-1,t+2}\right). \tag{12}$$

Moreover, the *Replacement rate* is defined as

$$Replacement\ rate_{j,t,t+k} \equiv \frac{Min\left(H_{j,t-,t+2}, S_{j,t-1,t+2}\right)}{S_{j,t-1,t+2}^{+}}. \tag{13}$$

Turnover. We define *Turnover* as follows:

$$Turnover_{j,t-1,t+2} = \frac{s_{j,t-1,t+2}+h_{j,t-1,t+2}}{2}. \tag{14}$$

This definition is in line with prior literature (e.g., Davis and Haltiwanger, 1999; Cahuc, Carcillo, and Zylberberg, 2014). We observe the following relationship between *Turnover*,

Replacements, and the growth rate. We obtain (suppress subscripts for simplicity):

$$\begin{aligned} Replacements &= Min\left(s,h\right) \\ &= \frac{s+h}{2} + \frac{1}{2}Min\left(h-s, s-h\right) \\ &= \frac{s+h}{2} - \frac{1}{2}Max\left(h-s, s-h\right) \\ &= Turnover - \frac{1}{2}\left|g\right|, \end{aligned}$$

where the last line uses ((6)). Rearranging gives (2), so defining turnover as above also captures net employment growth.

A.2 Variables derived from the Integrated Employment Biographies

Most variables in our analyses are derived from the Integrated Employment Biographies (IEB) database. The IEB contains every dependent employee in Germany, i.e. all regular employees since 1975 in West Germany and since 1992 in East Germany as well as all marginally employed workers since 1999.[25] The data are structured in terms of spells, i.e. employment relationships, and the data source reports starting and ending dates of these spells on a daily basis. If employment relationships continue into the following calendar year, a notification is given by the employer at the end of each year. The continued employment relationship is represented by a new spell in the following calendar year. For categorical variables such as education, qualification, and establishment affiliation, we use the information from the latest spell in a calendar year. An employee's daily wage is based on the individual's earnings in the firm over the calendar year divided by the number of days in employment. The employee's earnings are top-coded, because earnings above a threshold ranging from 51,000 in 1998 to 70,000 in 2013 Euros are exempt from certain social-security contributions. *Age* is determined on the last day of the calendar year.

A.2.1 Occupation-related variables based on Blossfeld (1987)

All occupation-related variables are derived from Blossfeld (1987), who classifies jobs into 12 distinct major occupations based on the German Classification of Occupations 1970

[25] The IEB does not cover civil servants and the self-employed. These groups are irrelevant for the companies in our sample. For more details on the sources and structure of IAB's administrative data, see Antoni, Ganzer, and Vom Berge (2016).

("Klassifikation der Berufe 1970"). Table 1 on page 99 in Blossfeld (1987) provides a detailed overview on those 12 occupations and related ISCO codes. We sort the occupational groups presented in Blossfeld (1987) into three groups according to the level of their qualification. Low qualification: Simple manual occupations, simple services, simple commercial and administrative occupations. Medium qualification: Skilled manual occupations, qualified services, semi-professions, qualified commercial and administrative occupations. High qualification: technicians, engineers, professions, managers. The *Qualification index* reports the average employee qualification level of an entity at the end of the calendar year. We assign a value of one for each low qualification, two for each medium qualification, and three for each high qualification employee.

A.2.2 Management capabilities

The five-digit occupational codes from the German (IAB) allow us furthermore to group the labor force into four hierarchical layers. We use this classification to measure a firm's management capabilities by computing an index that simultaneously captures (1) the size of the workforce that is dedicated to managerial tasks and (2) the degree to which these managerial tasks are organized through the use of hierarchical layers.

We assign each employee (at the end of the calendar year) to one of four hierarchical layers, the lowest layer being layer 1 (production workers) and the highest layer being layer 4 (executives and managing directors). Layers 2 and 3 include different ranks of supervisors, middle managers, and experts. Not all companies have four hierarchical layers—Table 1 provides descriptive statistics on the number of layers for the average firm. We use the same layer assignment from occupational codes as Gumpert, Steimer, and Antoni (2022), who adapt the layer definitions used by Caliendo, Monte, and Rossi-Hansberg for France to German (IAB) data. See their Online Appendix A.3 ("Assignment of occupations to layers") for further details. Table OA11 provides an overview of these hierarchical layers and which occupations they represent.

We define the index $ManagementCapabilities$ for firm j as the employment-weighted average of the layer index as

$$ManagementCapabilities_j \equiv \frac{\sum_{l=1}^{l=4} l \times E_{j,t-1}^{l}}{\sum_{l=1}^{l=4} E_{j,t-1}^{l}}, \tag{15}$$

where $E_{j,t-1}^{l}$ denotes the employment in layer l of firm j at time $t-1$ and $\sum_{l=1}^{l=4} E_{j,t-1}^{l} = E_{j,t-1}$ by definition.

A.2.3 Education index

Education index is based on a categorical variable in the IEB database, which records the following education milestones: no school leaving certificate or intermediate school leaving certificate (ISLC), ISLC with vocational training, upper secondary school leaving certificate (USSLC) with or without vocational training, college, university degree. The *Education index* reports the average employee education level of an entity at the end of the calendar year. We assign a value of one for each employee with only ISLC, two for each employee with ISLC and vocational training, three for each employee with USSLC with or without vocational training, four for each employee with college degree, and five for each employee with university degree at the end of the calendar year.

A.3 Human capital relatedness (*HCR*): Lee, Mauer, and Xu, 2018

Lee, Mauer, and Xu, 2018 propose HCR as a measure of the relatedness between the workforce of two companies. Their original measure is based on 4-digit NAICS Occupation profiles from Occupational Employment Statistics (OES) and 3-digit SIC codes from the Compustat Industry Segment Database (CIS). The measure therefore does not compute the human capital relatedness of two firms, but of the two industries in which these firms operate. We deviate from this approach because our data allows us to compute the human capital relatedness of two firms. We start by computing firm-specific occupation shares based on a three-digit job classifier (142 values, according to the German Classification of Occupations 2010, KldB 2010). For each firm we compute the share of each occupation of those 142 occupations and compute HCR as $HCR = (H_A H_T') \,/\, \left(\sqrt{(H_A H_A')}\sqrt{(H_T H_T')}\right)$. H_A and H_T denote the human capital profile of the acquirer and the target firm (vector of occupations shares). HCR is thus a normalized measure between zero and one.

A.4 Industry relatedness (*Related*)

Related indicates whether the acquirer and the target operate in related industries. *Related* is equal to 1 if both target and acquirer operate in the same industry according to the 2-digit NACE-code or if target and acquirer operate in vertically integrated industries. To determine vertical integration, we use industry-level data on the input and output of goods provided by the OECD for Germany (in 2010). We expand the 36 industries in the OECD data to the 88 2-digit NACE industries in our sample and compute the relatedness of output and input between two industries. We define two industries to be vertically integrated, if

the input-output relatedness is above the median input-output relatedness of all industries in our sample. We use the 2018 edition of the OECD input-output tables, which can be found here: `https://stats.oecd.org/Index.aspx?DataSetCode=IOTSI4_2018`.

A.5 Overview of the literature on M&As and labor

Table A1: Literature overview. This table provides a condensed overview of the Labor and M&A literature. The columns provide the following information. *Country*: ISO code of the country for domestic studies and INT for international (cross-country) samples. *Period*: Sample period. *#Obs*: Number of transactions investigated in the study. *Transaction*: Type of corporate control transaction investigated in the study. *Empl.*: Reports how employment is affected by corporate control transactions. *Wages*: Reports how employee wages are affected by corporate control transactions. Codes: A - ambiguous, P - significantly positive, N significantly negative, I - insignificant. *Topic*: Reports the direction of causality investigated in the study: M&A => Labor - the effect of M&As on labor outcome variables, Labor => M&A - the effect of labor variables on M&As.

Paper	Sample			Transaction	Labor outcome		Topic
	Country	Period	# Obs		Empl.	Wages	
Agrawal and Tambe (2019)	USA	n.a.	29,648	M&As			M&A => Labor
Ahmad and Lambert (2019)	INT	1992-2010	32,912	M&As			Labor => M&A
Almeida (2007)	PRT	1991-1998	1,381	M&As	I	I	M&A => Labor, Labor => M&A
Amess, Girma, and Wright (2014)	GBR	1996-2006	527	Takeovers, LBOs	N	I	M&A => Labor
Arnold (2019)	USA	1999-2009	7,100	M&As, OC of plants		A	M&A => Labor
Bandick and Görg (2010)	SWE	1993-2002	207	M&As	P		M&A => Labor
Bhagat, Shleifer, and Vishny (1990)	USA	1984-1986	62	Hostile takeovers	N		M&A => Labor
Brown and Medoff (1988)	USA	1978-1984	6,884	M&As	A	A	M&A => Labor
Carriquiry (2018)	DNK	2001-2010	3,489	M&As	N		M&A => Labor
Chen, Gao, and Ma (2021)	USA	1980-2013	10,911	M&As			Labor => M&A
Conyon et al. (2001)	GBR	1983-1996	240	Takeovers	N		M&A => Labor
Conyon et al. (2002)	GBR	1967-1996	442	M&As	N		M&A => Labor
Dessaint, Golubov, and Volpin (2017)	INT	1985-2007	45,696	M&As			Labor => M&A
Furlan (2015)	INT	2003-2010	ca. 1200	M&As	P		M&A => Labor
Gardberg, Heyman, and Tag (2023)	SWE	1996-2015	467	Foreign M&As		N	M&A => Labor
Geurts and Van Biesebroeck (2019)	BEL	2005-2012	2,601	M&As, Takeovers	N		M&A => Labor
Girma and Görg (2017)	GBR	1981-1994	303		A	A	M&A => Labor
Gokhale, Groshen, and Neumark (1995)	USA	1980-1991	133	Takeovers		P	M&A => Labor
Gugler and Yurtoglu (2004)	INT	1981-1998	646	M&As	A		M&A => Labor
He and le Maire (2022)	DNK	1995-2011	ca. 3700	M&As		N	M&A => Labor
Huttunen (2007)	FIN	1988-2001	284	Foreign M&As	N	P	M&A => Labor

Table A1: Literature overview (continued).

Paper	Sample			Transaction	Labor outcome		Topic
	Country	Period	# Obs		Empl.	Wages	
Kim (2020)	USA	1990-2011	3,700	M&As of startups	N		M&A => Labor
Krishnan, Hitt, and Park (2007)	USA	1992-1998	174	M&As	N		M&A => Labor
Lagaras (2021)	BRA	2004-2012	2,096	M&As	N	P	M&A => Labor
Lagaras (2023)	BRA	2004-2012	2,096	M&As		N	M&A => Labor
Lee, Mauer, and Xu (2018)	USA	1997-2012	1,322		N		M&A => Labor, Labor => M&A
Lehto and Böckerman (2008)	FIN	1989-2003	7,923	M&As	N		M&A => Labor
Levine, Lin, and Shen (2015)	INT	1991-2012	11,485	M&As			Labor => M&A
Li and Wang (2023)	USA	1981-2012	942	M&As			M&A => Labor
Li (2013)	USA	1981-2002	1,430	M&As	N	N	M&A => Labor
Lichtenberg and Siegel (1990)	USA	1972-1981	2,027	OC of plants	N	I	M&A => Labor
Lie and Que (2019)	USA	1987-2009	10,835	Asset sales, takeovers		I	M&A => Labor
Ma, Ouimet, and Simintzi (2021)	USA	1980-2010	396	M&As		P	M&A => Labor
McGuckin and Nguyen (1995)	USA	1977-1987	4,495	M&As	A	A	M&A => Labor
McGuckin and Nguyen (2001)	USA	1977-1987	20,383	OC of plants	P	P	M&A => Labor
McGuckin, Nguyen, and Reznek (1998)	USA	1977-1987	2,111	OC of plants	P	P	M&A => Labor
Neffke and Henning (2013)	SWE	2004-2007	17,504	Organic growth			Labor => M&A
Oldford and Otchere (2016)	CAN	1980-2008	804	M&As	N	N	M&A => Labor
Ouimet and Zarutskie (2020)	USA	1995-2005	1,800	M&As		P	M&A => Labor
Prager and Schmitt (2021)	USA	2000-2010	85	M&As		A	M&A => Labor
Ranft and Lord (2000)	USA	1994-1995	89	M&As	N		M&A => Labor
Rosett (1990)	USA	1976-1987	258	Takeovers		I	M&A => Labor
Shleifer and Summers (1988)	USA	1970-1985	4	Takeovers	N	N	M&A => Labor
Siegel and Simons (2010)	SWE	1985-1998	ca. 11000	M&As		N	M&A => Labor
Tate and Yang (2022)	USA	1995-2007	3,900	M&As			M&A => Labor, Labor => M&A
Tian and Wang (2021)	USA	1978-2008	1,814	Union elections			Labor => M&A
Younge, Tong, and Fleming (2015)	USA	1979-1998	ca. 500	M&As			Labor => M&A

A.6 Variable definitions

Table A2: Description of variables. The table defines the main numerical variables used in the paper. All other variables are defined in the respective captions of the tables using them. The subscript k refers to the acquirer (A), the target (T), or the combined firm (C).

Variable name	Definition	Values
$\text{Age}_{\text{A-T}}$	Age_{A} - Age_{T}	[0:∞]
Age_{k}	Average age (in years) of all full-time employees in entity k	[0:∞]
Distance	Driving distance between target HQ and acquirer HQ in minutes	[0:∞]
$\text{Education}_{\text{A-T}}$	$\text{Education}_{\text{A}}$ - $\text{Education}_{\text{T}}$	[-100:100]
$\text{Education}_{\text{k}}$	Share of employees with college or university degree in entity k	[0:100]
Emp. Growth_{k}	Employment growth rate g of entity k from event year t=-1 to t=2 as defined in Section 3.3 and Appendix A.1	[-2:2]
External inflow_{k}	Inflow_{k} from the external labor market, i.e., inflow from an establishment which is not part of the merged firm	[0:∞]
External $\text{outflow}_{\text{k}}$	$\text{Outflow}_{\text{k}}$ into the external labor market, i.e., outflow to an establishment which is not part of the merged firm	[0:∞]
HCR	Human capital relatedness index based on Lee et al. (2018), details see Appendix A.3	[0:100]
Managerial $\text{capabilities}_{\text{k}}$	Employee-weighted average of the number of hierarchical layers in entity k	[1:4]
Inflow_{k}	Employment inflow h into an establishment of entity k between event year t=-1 and t=2 as defined in Section 3.3 and Appendix A.1	[0:∞]
Internal inflow_{k}	Inflow_{k} from the internal labor market, i.e., inflow from another establishment of the merged firm	[0:∞]
Internal $\text{outflow}_{\text{k}}$	$\text{Outflow}_{\text{k}}$ into the internal labor market, i.e., outflow to another establishment of the merged firm	[0:∞]
Manager	One if occupation is equal to "manager" (cf. Appendix A.2.1)	[0,1]
$\text{Outflow}_{\text{k}}$	Employment outflow s from an establishment of entity k between event year t=-1 and t=2 as defined in Section 3.3 and Appendix A.1	[0:∞]
$\text{PreGrowth}_{\text{k}}$	Employment growth rate g from t=-3 to t=-1 as defined in Section 3.3 and Appendix A.1	[-2:2]
$\text{Qualification}_{\text{A-T}}$	$\text{Qualification}_{\text{A}}$ - $\text{Qualification}_{\text{T}}$	[-100:100]
$\text{Qualification}_{\text{k}}$	Share of employees identified as Technicians, Engineers, Profession-Members, or Managers in entity k	[0:100]
Related	One if target and acquirer are in the same industry or display above median relatedness, details see Appendix A.2	[0,1]
Size_{k}	Number of employees employed in entity k	[0:∞]
Target closure	One if employment in target is zero at the end of t=2	[0,1]
$\text{Wage}_{\text{A-T}}$	Wage_{A} - Wage_{T}	[0:∞]
Wage_{k}	Average daily wage (in euros) of all full-time employees in entity k	[0:∞]

B Figures

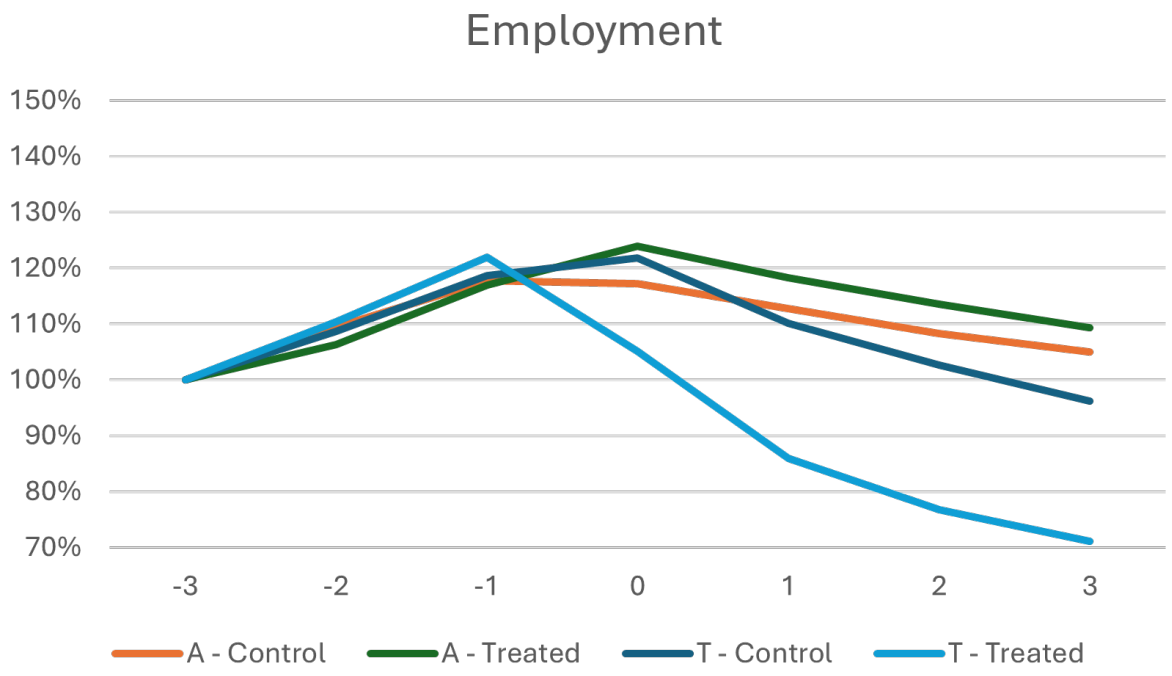

Figure 1: Firm-level employment. The figure shows the average total employment for both the target and the acquirer and the corresponding control samples from $t-3$ to $t+3$.

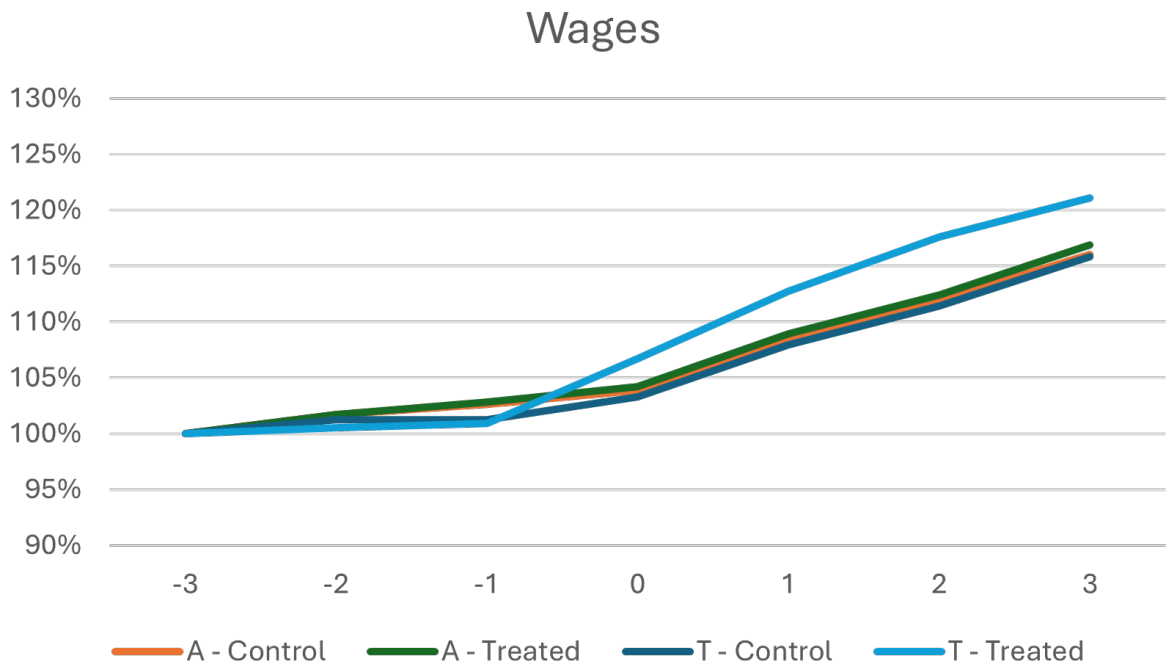

Figure 2: Firm-level wages. The figure shows the average of the mean wage paid at the target and the acquirer and the corresponding control samples from $t-3$ to $t+3$. *Wage* is defined in Table A2.

C Tables

Table 1: Summary statistics. This table provides descriptive statistics for all numerical variables. The firm level data set consists of 1,043 target, acquirer, and combined firms. Each acquirer-target pair has exactly one matched control firm pair. Panels A and B provide summary statistics for M&A firms and control firms, respectively. Panel C provides correlations for some of our key flow variables and reports the correlations for targets (acquirers) below (above) the diagonal. All growth variables are measured over the period $t = -1$ to $t = +2$, all other variables are measured at $t = -1$. All variables are defined in Table A2 in the Appendix.

Panel A: Treated firms

	N	Mean	SD	Min	P25	P50	P75	Max
$\text{Age}_{\text{A-T}}$ (years)	1,043	-0.16	6.38	-27.42	-3.71	-0.03	3.67	26.43
Age_{T} (years)	1,043	40.02	5.98	20.00	36.19	40.27	43.56	66.50
Distance (minutes)	1,043	173.23	150.17	0.00	37.97	140.15	284.77	642.68
$\text{Education}_{\text{A-T}}$ (%)	1,030	7.95	25.65	-82.22	-4.07	5.02	20.45	100.00
$\text{Education}_{\text{T}}$ (%)	1,035	23.75	23.95	0.00	4.88	15.38	34.38	100.00
Emp. growth_{A} (%)	1,043	-10.21	61.98	-200.00	-19.83	-4.30	11.97	200.00
Emp. growth_{C} (%)	1,043	-26.94	53.66	-200.00	-41.38	-13.00	2.02	152.54
Emp. growth_{T} (%)	1,037	-84.57	95.37	-200.00	-200.00	-44.44	-7.23	200.00
Growth_{A} (%)	1,043	23.62	73.87	-200.00	-8.54	10.53	52.33	200.00
HCR	1,027	49.49	32.11	0.00	18.97	49.24	80.34	99.99
Managerial capab._{A}	1,037	1.74	0.58	1.00	1.28	1.60	2.07	4.00
Managerial capab._{T}	1,034	1.65	0.59	1.00	1.20	1.47	2.00	4.00
Inflow_{A} (%)	1,043	64.95	140.47	0.00	24.82	41.44	70.82	2,880.00
Inflow_{C} (%)	1,043	47.89	41.23	0.00	23.71	37.93	57.01	531.25
Inflow_{T} (%)	1,037	37.51	60.87	0.00	0.00	22.50	47.06	1,000.00
$\text{Outflow}_{\text{A}}$ (%)	1,043	75.16	153.13	0.00	30.07	45.83	72.34	2,920.00
$\text{Outflow}_{\text{C}}$ (%)	1,043	74.83	61.45	10.38	36.89	54.97	90.59	664.58
$\text{Outflow}_{\text{T}}$ (%)	1,037	122.08	98.02	0.00	40.00	93.62	200.00	1,200.00
$\text{PreGrowth}_{\text{A}}$ (%)	1,039	27.58	56.59	-200.00	3.03	14.67	34.41	200.00
$\text{PreGrowth}_{\text{C}}$ (%)	1,043	22.93	35.71	-170.52	5.97	15.20	29.63	200.00
$\text{PreGrowth}_{\text{T}}$ (%)	1,041	30.01	54.55	-200.00	5.65	17.54	37.66	200.00
$\text{Qualification}_{\text{A-T}}$	1,030	2.05	26.20	-100.00	-8.33	1.82	13.17	100.00
$\text{Qualification}_{\text{T}}$	1,035	20.70	22.61	0.00	3.70	13.64	31.12	100.00
Related	1,043	0.72	0.45	0.00	0.00	1.00	1.00	1.00
Size_{A}	1,043	463.03	1,343.45	0.00	31.00	117.00	375.00	18,177
Size_{A} (ln)	1,043	4.66	1.80	0.00	3.47	4.77	5.93	9.81
Size_{C}	1,043	564.84	1,401.79	2.00	79.00	203.00	495.00	18,439
Size_{T}	1,043	101.81	273.33	0.00	14.00	40.00	103.00	6,242
Size_{T} (ln)	1,043	3.68	1.39	0.00	2.71	3.71	4.64	8.74
Target closure	1,043	0.36	0.48	0.00	0.00	0.00	1.00	1.00
$\text{Tenure}_{\text{A-T}}$ (years)	1,030	0.03	4.70	-16.04	-2.40	0.23	2.62	14.16
Tenure_{T} (years)	1,035	5.87	4.06	0.01	2.68	4.89	8.41	20.87
$\text{Wage}_{\text{A-T}}$ (euros)	1,030	15.12	33.54	-143.29	-5.15	12.54	34.01	123.73
Wage_{T} (euros)	1,035	89.33	29.12	2.67	69.06	88.19	107.55	190.68

Table 1: Summary statistics (continued).

Panel B: Control firms	N	Mean	SD	Min	P25	P50	P75	Max
$\text{Age}_{\text{A-T}}$ (years)	1,043	0.02	6.25	-26.19	-3.40	0.04	3.72	31.86
Age_{T} (years)	1,043	40.06	5.57	20.00	36.71	40.13	43.37	67.50
Distance (minutes)	1,043	206.31	136.80	0.00	96.63	180.62	295.45	622.23
$\text{Education}_{\text{A-T}}$ (%)	1,024	6.23	26.80	-96.77	-5.89	3.42	18.44	100.00
$\text{Education}_{\text{T}}$ (%)	1,035	22.72	23.95	0.00	4.55	13.46	33.33	100.00
Emp. growth_{A} (%)	1,034	-26.34	59.15	-200.00	-30.12	-10.81	0.00	200.00
Emp. growth_{C} (%)	1,043	-20.59	41.02	-200.00	-27.34	-11.35	0.00	111.89
Emp. growth_{T} (%)	1,036	-29.51	61.35	-200.00	-34.31	-12.58	0.00	200.00
Growth_{A} (%)	1,034	-26.34	59.15	-200.00	-30.12	-10.81	0.00	200.00
HCR	1,021	34.71	30.58	0.00	7.85	25.53	57.28	100.00
Managerial capab._{A}	1,030	1.67	0.58	1.00	1.22	1.53	2.00	4.00
Managerial capab._{T}	1,035	1.59	0.55	1.00	1.14	1.41	1.91	4.00
Inflow_{A} (%)	1,034	39.15	42.49	0.00	17.15	28.57	47.41	600.00
Inflow_{C} (%)	1,043	37.86	29.64	0.00	20.66	30.63	44.64	320.00
Inflow_{T} (%)	1,036	39.80	40.70	0.00	16.75	29.28	50.00	633.33
$\text{Outflow}_{\text{A}}$ (%)	1,034	65.49	64.85	0.00	27.08	41.28	76.58	800.00
$\text{Outflow}_{\text{C}}$ (%)	1,043	58.45	45.50	9.09	30.10	43.19	68.42	400.00
$\text{Outflow}_{\text{T}}$ (%)	1,036	69.31	67.00	0.00	28.57	45.19	83.05	588.89
$\text{PreGrowth}_{\text{A}}$ (%)	1,039	27.58	56.59	-200.00	3.03	14.67	34.41	200.00
$\text{PreGrowth}_{\text{C}}$ (%)	1,043	22.93	35.71	-170.52	5.97	15.20	29.63	200.00
$\text{PreGrowth}_{\text{T}}$ (%)	1,041	30.01	54.55	-200.00	5.65	17.54	37.66	200.00
$\text{Qualification}_{\text{A-T}}$	1,024	2.11	28.45	-100.00	-10.36	1.11	13.37	100.00
$\text{Qualification}_{\text{T}}$	1,035	19.79	23.69	0.00	2.18	10.62	29.38	100.00
Related	1,043	0.72	0.45	0.00	0.00	1.00	1.00	1.00
Size_{A}	1,043	423.98	1,256.14	0.00	29.00	109.00	340.00	15,814
Size_{A} (ln)	1,043	4.56	1.81	0.00	3.40	4.70	5.83	9.67
Size_{C}	1,043	522.91	1,309.91	3.00	73.00	192.00	437.00	16,018
Size_{T}	1,043	98.93	262.52	0.00	14.00	39.00	100.00	5,266
Size_{T} (ln)	1,043	3.64	1.40	0.00	2.71	3.69	4.62	8.57
Target closure	1,043	0.08	0.28	0.00	0.00	0.00	0.00	1.00
$\text{Tenure}_{\text{A-T}}$ (years)	1,024	0.22	4.84	-16.39	-2.82	0.14	3.42	15.81
Tenure_{T} (years)	1,035	6.07	3.77	0.08	3.02	5.36	8.44	21.12
$\text{Wage}_{\text{A-T}}$ (euros)	1,024	13.28	36.71	-124.56	-8.11	10.97	35.13	139.76
Wage_{T} (euros)	1,035	86.11	31.10	0.00	65.52	85.11	106.48	190.04

Panel C: Correlations	External inflow	External outflow	Internal inflow	Internal outflow
External inflow		0.661***	0.219***	0.765***
External outflow	0.379***		0.692***	0.324***
Internal inflow	0.031	0.011		0.031
Internal outflow	0.006	-0.045	0.183***	

Table 2: Post-merger employee flows. The table reports the differences in establishment-level employee flows between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$. The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer establishments, respectively, their matched pairs. All rates are either scaled by the combined employment of target and acquirer (i.e., the merged firm denoted as *Combined*; columns 1, 3, 5) or the employment of the respective entity (columns 2 and 4). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 2: Post-merger employee flows (continued).

Entity:	All establ.	Target establ.		Acquirer establ.	
Scaled by employment of establishments of...	Combined firm (1)	Target (2)	Combined firm (3)	Acquirer (4)	Combined firm (5)
Employment growth	-7.22***	-55.36***	-14.01***	14.54***	6.97***
	(-3.50)	(-15.75)	(-10.07)	(5.55)	(4.61)
External growth	-7.22***	-38.54***	-12.09***	12.20***	5.04***
	(-3.50)	(-12.73)	(-8.90)	(4.32)	(3.39)
Internal growth	0.00	-16.62***	-1.92***	2.35***	1.92***
		(-10.21)	(-7.51)	(1.22)	(7.44)
Inflow	9.72***	-2.22	-2.90***	23.78***	12.52***
	(6.66)	(-0.95)	(-3.71)	(5.45)	(9.41)
External inflow	6.21***	-4.04*	-3.27***	18.19***	9.39***
	(4.95)	(-1.79)	(-4.39)	(4.75)	(8.46)
Inflow other firms	5.81***	-0.81	-1.40**	14.45***	7.17***
	(5.91)	(-0.56)	(-2.51)	(4.71)	(8.44)
with wage increase	5.09***	0.06	-0.85**	12.43***	5.90***
	(6.97)	(0.06)	(-2.49)	(4.86)	(8.79)
with wage decrease	0.72	-0.87	-0.55*	2.03***	1.27***
	(1.61)	(-1.30)	(-1.68)	(2.93)	(4.11)
Inflow new entrant	0.40	-3.26***	-1.86***	3.72***	2.20***
	(0.80)	(-2.67)	(-5.64)	(3.53)	(5.23)
Internal inflow	3.50***	1.83***	0.37**	5.59***	3.14***
	(7.36)	(3.63)	(2.05)	(3.56)	(7.09)
Inflow within	1.04***	0.54	0.10	1.09**	0.93**
	(2.58)	(1.22)	(0.59)	(2.58)	(2.57)
Inflow between	2.47***	1.29***	0.27***	4.50***	2.20***
	(9.57)	(5.27)	(4.12)	(2.96)	(8.82)
Outflow	16.93***	53.14***	11.11***	9.24*	5.56***
	(7.37)	(14.09)	(8.22)	(1.84)	(3.06)
External outflow	13.43***	34.50***	8.82***	5.99	4.34***
	(6.26)	(9.76)	(6.67)	(1.48)	(2.62)
Outflow other firms	11.71***	30.68***	8.28***	6.23**	3.26**
	(6.69)	(11.23)	(7.64)	(1.97)	(2.44)
with wage increase	7.85***	20.80***	5.26***	4.31*	2.49**
	(6.00)	(9.86)	(7.01)	(1.78)	(2.39)
with wage decrease	3.86***	9.88***	3.03***	1.92*	0.77*
	(5.94)	(8.46)	(5.95)	(1.79)	(1.92)
Outflow unemployment	1.73**	3.81**	0.54	-0.24	1.08*
	(2.30)	(2.24)	(1.21)	(-0.17)	(1.89)
Internal outflow	3.50***	18.65***	2.29***	3.25*	1.21***
	(7.36)	(12.39)	(7.66)	(1.82)	(3.28)
Outflow within	1.04***	0.54	0.10	1.09**	0.93**
	(2.58)	(1.22)	(0.59)	(2.58)	(2.57)
Outflow between	2.47***	18.11***	2.19***	2.15	0.28***
	(9.57)	(12.50)	(8.82)	(1.24)	(3.99)
Turnover	13.33	25.46	4.11	16.51	9.04
N	2,086	2,071	2,086	2,072	2,086

Table 3: Replacement rates and internal labor market activity. This table examines the extent of restructuring through internal and external labor markets. *Replacements* is defined as the lower of the numbers of *Inflow* and *Outflow*, and *Replacement rate* is defined as the ratio of *Inflow* to *Outflow*; see, respectively, equations (12) and (13) in Appendix *A.1. Internal hiring (separation) rate* is the defined as the ratio of *Internal inflow (Internal outflow)* to *Inflow (Outflow)*; see equations (10) and (11) in Appendix A.1. All variables are measured over the period $t = -1$ to $t = +2$. Panel A describes the mean values for these variables for the treated firms. Panel B reports estimates of θ from equation (1)—the difference-in-differences between treated firms and their control firms. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Replacements (1)	Replacement rate (%) (2)	Internal hiring rate (%) (3)	Internal sep. rate (%) (4)
Panel A: Unadjusted rates				
Combined firms	42.29	67.69	9.23	6.85
Targets	32.12	43.38	7.99	11.25
Acquirers	51.47	76.88	8.38	4.40
Panel B: Abnormal rates				
Combined firms	7.83***	-1.74	4.57***	3.49***
Targets	-2.33***	-20.88***	5.96***	9.27***
Acquirers	8.16***	10.09***	3.93***	1.27***

Table 4: Composition of acquirer and target workforce. This table shows the education and qualification of acquirer and target employees. It also reports the percentage of managers and operating employees. *Education index* and *Qualification index* are defined in Appendix A.2. All statistics are based on the year prior to the transaction ($t = -1$).

	Target	Acquirer	Difference
Education index			
Intermediate school leaving certificate [ISLC] (low)	8.1	6.8	1.3
ISLC with vocational training (medium)	49.6	42.6	7.1
Upper secondary school leaving certificate [USSLC] (medium)	18.3	18.6	-0.3
University of applied sciences degree (high)	6.2	7.1	-0.9
University degree (high)	17.7	24.9	-7.2
Total	100.0	100.0	
Qualification index			
Low qualification	24.9	21.8	3.1
Medium qualification	51.1	52.4	-1.3
High qualification	20.7	22.7	-2.0
Total	96.7	97.0	
Managerial capabilities			
Managers	7.9	10.7	-2.8
Operating employees	92.1	89.3	2.8
Total	100.0	100.0	

Table 5: Characteristics of inflows and outflows. This table reports the mean and standard deviations of average employee education and qualification levels as well as the average employee age, daily wage, and tenure (at $t = -1$) for merged firms. It also reports the average of these variables for the inflows (outflows) from (to) the external labor market for treated (Panel A) and control firms (Panel B) during the three year period from $t = 0$ to $t = +2$ together with its difference (absolute and in %). *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively, for the paired t-test of the difference. *Education index* and *Qualification index* are defined in Appendix A.2, *Age* and *Wage* are defined in Table A2. *Tenure* is the number of years an employee has worked for the firm and we only report it for outflows.

		Education index (1)	Qualification index (2)	Age (3)	Wage (4)	Tenure (years) (5)
Panel A:	Mean at t = -1	2.824	1.900	39.70	98.60	6.35
External flows	SD at t = -1	0.693	0.357	4.10	25.82	3.44
Treated firms	External inflow	3.040	1.979	35.08	83.48	
N = 1034	External outflow	2.950	1.966	39.02	94.48	5.39
	Difference	0.090***	0.013**	-3.95***	-10.99***	
	in % of t = -1	3.18	0.69	-9.94	-11.15	
Panel B:	Mean at t = -1	2.724	1.865	39.95	94.85	6.65
External flows	SD at t = -1	0.687	0.394	3.84	27.48	3.36
Control firms	External inflow	2.826	1.823	35.93	73.99	
N = 1043	External outflow	2.752	1.803	36.29	74.43	3.32
	Difference	0.073***	0.021***	-0.36***	-0.44***	
	in % of t = -1	2.69	1.11	-0.90	-0.46	

Table 6: Predicting target closure. The table reports linear probability regression models of *Target closure*, which is 1 if the target has zero employees in *t=2*. All variables are defined in Table A2. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Treated	0.2717***	0.7274***	0.9204***	0.8665***
	(15.98)	(5.99)	(3.72)	(3.61)
× Size_{A}		-0.0536***	-0.0489***	-0.0551***
		(-4.26)	(-3.78)	(-4.35)
× $\text{Relative size}_{\text{T}}$		-0.0826***	-0.0685***	0.0041
		(-3.40)	(-2.73)	(0.16)
× Growth_{A}		-0.0002	-0.0010	-0.0013
		(-0.27)	(-1.24)	(-1.61)
× Growth_{T}		-0.0006	-0.0007	0.0006
		(-0.59)	(-0.62)	(0.56)
× Horizontal		-0.0272	-0.0419	-0.0255
		(-0.65)	(-1.02)	(-0.65)
× Diversifying		-0.0691	-0.0623	-0.0301
		(-1.53)	(-1.37)	(-0.68)
× HCR		0.0556	0.0522	0.0524
		(1.55)	(1.45)	(1.50)
× Distance		-0.0004***	-0.0004***	-0.0004***
		(-3.16)	(-3.08)	(-3.41)
× $\text{Managerial capabilities}_{\text{T}}$		-0.0853**	-0.0562	-0.0983
		(-2.03)	(-0.91)	(-1.57)
× $\text{Managerial capabilities}_{\text{A}}$		0.0611	0.1328**	0.1275**
		(1.55)	(2.39)	(2.39)
× Age_{T}			-0.0047	-0.0043
			(-0.93)	(-0.87)
× $\text{Age}_{\text{A-T}}$			-0.0111***	-0.0095**
			(-2.61)	(-2.33)
× Wage_{T}			-0.0016	-0.0007
			(-1.43)	(-0.62)
× $\text{Wage}_{\text{A-T}}$			-0.0009	-0.0006
			(-0.89)	(-0.66)
× $\text{Qualification}_{\text{T}}$			-0.0005	-0.0002
			(-0.40)	(-0.14)
× $\text{Qualification}_{\text{A-T}}$			0.0001	0.0003
			(0.10)	(0.25)
× $\text{Education}_{\text{T}}$			-0.0009	-0.0005
			(-0.57)	(-0.35)
× $\text{Education}_{\text{A-T}}$			-0.0016	-0.0010
			(-1.25)	(-0.88)
× Growth_{A}				-0.0025***
				(-7.15)
N	2054	2034	2034	2034
adj. R^2	0.1347	0.1788	0.1899	0.2516

Table 7: Post-merger employee flows by status of target closure. The table reports the differences in establishment-level employee flows between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$. In this table, we distinguish between transactions for which *Target closure* is equal to one (columns 1 to 3) and transactions for which *Target closure* is equal to zero (columns 4 to 6). The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are scaled by the combined employment of target and acquirer (i.e., the merged firm). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Employment growth	-27.56***	-36.73***	9.20***	3.75*	-2.10*	5.95***
	(-6.84)	(-12.83)	(3.49)	(1.69)	(-1.76)	(3.24)
External growth	-27.56***	-31.35***	3.80	3.75*	-2.10*	5.98***
	(-6.84)	(-10.91)	(1.50)	(1.69)	(-1.76)	(3.26)
Internal growth	0.00	-5.38***	5.40***	0.00	0.00	-0.03
		(-8.54)	(8.52)			(-0.25)
Inflow	13.23***	-8.85***	22.02***	7.53***	0.23	7.33***
	(4.87)	(-7.00)	(8.70)	(5.03)	(0.25)	(5.74)
External inflow	6.07***	-8.69***	14.68***	6.05***	-0.44	6.51***
	(2.72)	(-7.17)	(7.37)	(4.35)	(-0.50)	(5.50)
Internal inflow within	1.79**	-0.16	1.94**	0.63	0.25	0.40
	(2.14)	(-0.52)	(2.52)	(1.61)	(1.40)	(1.17)
Internal inflow between	5.38***	0.00	5.40***	0.84***	0.41***	0.41***
	(8.53)	(1.06)	(8.52)	(6.23)	(4.35)	(6.27)
Outflow	40.80***	27.88***	12.81***	3.78*	2.33**	1.38
	(8.97)	(10.09)	(3.75)	(1.70)	(1.96)	(0.73)
External outflow	33.63***	22.66***	10.88***	2.31	1.67	0.53
	(7.96)	(8.12)	(3.65)	(1.07)	(1.44)	(0.29)
Internal outflow within	1.79**	-0.16	1.94**	0.63	0.25	0.40
	(2.14)	(-0.52)	(2.52)	(1.61)	(1.40)	(1.17)
Internal outflow between	5.38***	5.38***	0.00	0.84***	0.41***	0.44***
	(8.53)	(8.54)	(1.06)	(6.23)	(6.26)	(4.20)
Turnover	27.02	9.52	17.42	5.66	1.28	4.36
N	746	746	746	1,340	1,340	1,340

Table 8: Post-merger manager flows by status of target closure. The table reports the differences in establishment-level manager flows between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$. We distinguish between transactions for which *Target closure* is equal to one (columns 1 to 3) and transactions for which *Target closure* is equal to zero (columns 4 to 6). The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are scaled by the combined employment of target and acquirer (i.e., the merged firm). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Online Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Management growth	-21.17***	-29.95***	8.71	4.73	-3.44	8.11**
	(-3.03)	(-7.54)	(1.49)	(1.08)	(-1.25)	(2.35)
External growth	-17.83***	-19.84***	1.91	8.01**	-2.86	10.73***
	(-2.92)	(-5.66)	(0.39)	(2.11)	(-1.22)	(3.63)
Internal growth	0.06	-5.50***	5.63***	0.17	0.15	-0.05
	(0.07)	(-5.44)	(4.87)	(0.64)	(0.47)	(-0.18)
Net Promotions	-3.32	-4.61**	1.16	-3.37	-0.73	-2.57
	(-0.68)	(-2.42)	(0.24)	(-1.42)	(-0.48)	(-1.34)
Inflow managers	27.09***	-7.27***	33.89***	15.37***	4.60***	10.71***
	(3.92)	(-3.60)	(5.17)	(5.40)	(2.67)	(4.25)
External inflow	19.82***	-6.94***	26.23***	12.49***	3.65**	8.81***
	(3.02)	(-3.52)	(4.23)	(4.52)	(2.19)	(3.60)
Internal inflow within	1.69	-0.33	2.01*	1.40***	0.12	1.30***
	(1.53)	(-0.88)	(1.96)	(2.64)	(0.40)	(2.82)
Internal inflow between	5.59***	0.00	5.65***	1.47***	0.83***	0.61***
	(4.88)		(4.91)	(5.49)	(3.77)	(4.47)
Outflow managers	44.93***	18.07***	26.35***	7.26*	7.31***	0.03
	(5.59)	(4.56)	(3.73)	(1.86)	(2.95)	(0.01)
External outflow	37.65***	12.91***	24.32***	4.48	6.51***	-1.93
	(4.81)	(3.38)	(3.53)	(1.17)	(2.71)	(-0.63)
Internal outflow within	1.61	-0.42	2.03**	1.33***	0.09	1.26***
	(1.47)	(-1.03)	(1.99)	(2.60)	(0.32)	(2.80)
Internal outflow between	5.60***	5.59***	0.00	1.38***	0.71***	0.70***
	(5.56)	(5.56)		(5.58)	(4.82)	(3.21)
Turnover managers	36.01	5.40	30.12	11.32	5.96	5.37
N	667	667	667	1,301	1,301	1,301

Table 9: Sales growth and labor productivity. The table reports difference-in-differences in sales and labor productivity between M&A firms and their control firms. We regress sales growth (Panel A), changes in labor productivity (Panel B), labor productivity growth (Panel C), and growth of average daily wage of employees who stay with the combined firm (Panel D) on a treated-indicator and a fixed effect structure, which is discussed in more detail below. We compute changes and growth of our dependent variables over the period $t = -1$ to $t = 2$. In columns 1 and 2, the sample includes all available observations and in columns 3 and 4 the sample is balanced, that is, it includes all observations for which all dependent and independent variables are available for the treated and for the control firm. Sales is the sum of target and acquirer sales reported by Bureau van Dijk. Labor productivity is the ratio of sales to the total number of employees ($Size_C$). Change in labor productivity is the difference between labor productivity in $t = 2$ and $t = -1$. Sales growth and labor productivity growth are defined following the definition of growth rates described in Section 3.3 and equation (3) for employment growth. Fixed effects are the full product of calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	All Observations		Matched Observations	
	(1)	(2)	(3)	(4)
Panel A: Sales growth from t=-1 to t=+2				
Treated	6.95**	2.22	1.17	1.17
	(2.22)	(0.54)	(0.30)	(0.31)
Fixed effects	No	Yes	No	Yes
Observations	1201	1201	750	750
adj. R^2	0.003	0.075	-0.001	0.069
Panel B: Change in labor productivity from t=-1 to t=+2				
Treated	525.27***	491.25***	451.59***	451.59***
	(7.98)	(5.50)	(5.22)	(5.55)
Fixed effects	No	Yes	No	Yes
Observations	1199	1199	746	746
adj. R^2	0.044	0.172	0.034	0.147
Panel C: Labor productivity growth from t=-1 to t=+2				
Treated	11.92***	8.18*	7.73*	7.73*
	(3.50)	(1.80)	(1.79)	(1.84)
Fixed effects	No	Yes	No	Yes
Observations	1199	1199	746	746
adj. R^2	0.009	0.098	0.003	0.060
Panel D: Average stayer wage growth from t=-1 to t=+2				
Treated	0.74**	0.79***	0.76**	0.76**
	(2.20)	(2.61)	(2.26)	(2.53)
Fixed effects	No	Yes	No	Yes
Observations	2032	2032	1994	1994
adj. R^2	0.002	0.205	0.002	0.201

D Online Appendix

Table OA1: Sample construction. This table presents an overview of the sample construction. For each step the number of remaining observations and the percentage of lost observations is reported.

Description	N	Type	Loss in %
(1) All M&A deals where the target is headquartered in Germany from 1996 until 2014	11,415	Transactions	
(2) Delete all non-majority acquisitions (ownership <50% before and >=75% after)	8,152	Transactions	28.6
(3) Delete all deals with multiple acquirers or targets	7,532	Transactions	5.4
(4) Delete all deals defined as asset sale, build up, exit, LBO, nationalisation, privatisiation, restructuring, secondary buy-out, sovereign wealth fund, unsuccessful public takeover or start up	6,852	Transactions	6.0
(5) Delete all target-year duplicates and deals where target equals acquirer (targets and acquirers obtained after step 5 are removed from the list of potential controls)	6,792	Transactions	0.5
(6) Delete deals if acquirer is not headquartered in Germany	3,602	Transactions	27.9
(7) Delete all deals where the record linkage did not work for either target or acquirer	1,147	Transactions	21.5
(8) Delete all deals where either the target or the acquirer has no adequate control firm	1,043	Transactions	0.9

Table OA2: Firm matching success. Panel A presents descriptive statistics on target firms and control firms. Panel B presents descriptive statistics on acquirer firms and control firms. All variables are measured in the year prior to the acquisition announcement (t=-1). *Diff. mean* reports the difference between the means of treated and control firms. The Imbens-Wooldridge statistic (I-W test; Imbens and Wooldridge, 2009) measures the normalized difference between two variables. The test divides the difference between two variables by the square root of the sum of their variances. As a rule of thumb, a test statistic exceeding 0.25 indicates that the analysis tends to be sensitive to the specification.

Panel A: Target firms

	Treated firms			Control firms				
	Mean	P50	SD	Mean	P50	SD	Diff. mean	I-W test
Average daily wage	89.33	88.19	29.12	86.11	85.11	31.10	3.22	0.08
Average employee age	40.02	40.27	5.98	40.06	40.13	5.57	-0.04	0.00
Managerial capabilities	1.65	1.47	0.59	1.59	1.41	0.55	0.06	0.07
Hierarchical layers	3.06	3.00	1.00	2.94	3.00	1.03	0.12	0.09
PreGrowth (%)	9.00	3.20	24.64	8.27	3.39	20.25	0.73	0.02
Share medium-qualified (%)	63.29	69.23	24.04	64.42	70.21	23.64	-1.12	0.03
Share highly-qualified (%)	23.81	15.38	24.10	22.93	14.00	23.87	0.88	0.03
Share female (%)	35.88	30.77	23.66	35.59	30.43	22.92	0.29	0.01
Size	101.81	40.00	273.33	98.93	39.00	263.43	2.88	0.01

Panel B: Acquirer firms

	Treated firms			Control firms				
	Mean	P50	SD	Mean	P50	SD	Diff. mean	I-W test
Average daily wage	104.45	100.73	33.54	99.39	96.08	36.71	5.06	0.10
Average employee age	39.86	40.13	4.86	40.08	40.34	4.58	-0.22	0.03
Managerial capabilities	1.74	1.60	0.76	1.67	1.53	0.76	0.07	0.06
Hierarchical layers	3.49	4.00	0.93	3.38	4.00	0.97	0.11	0.08
PreGrowth (%)	16.15	9.64	29.08	14.67	7.95	29.83	1.49	0.04
Share medium-qualified (%)	57.91	62.71	23.27	59.54	65.33	22.94	-1.62	0.05
Share highly-qualified (%)	31.21	24.73	25.29	28.75	21.37	25.05	2.46	0.07
Share female (%)	37.72	34.05	21.50	37.53	33.33	21.82	0.18	0.01
Size	463.03	117.00	1,343	423.98	109.00	1,256	39.05	0.02

Table OA3: Replacement rates and internal labor market activity - by merger type. This table examines the extent of restructuring through internal and external labor markets. The analysis is performed for each merger type separately*:* diversifying mergers in Panel A and Panel B, horizontal mergers in Panel C and Panel D, and vertical mergers in Panel E and Panel F. *Replacements* is defined as the lower of the numbers of *Inflow* and *Outflow*, and *Replacement rate* is defined as the ratio of *Inflow* to *Outflow*; see, respectively, equations (12) and (13) in Appendix *A.1. Internal hiring (separation) rate* is the defined as the ratio of *Internal inflow (Internal outflow)* to *Inflow (Outflow)*; see equations (10) and (11) in Appendix A.1. All variables are measured over the period $t = -1$ to $t = +2$. Panels A, C, and E describe the mean values for these variables for the treated firms. Panels B, D, and F report estimates of θ from equation (1)—the difference-in-differences between treated firms and their control firms. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Replacements (1)	Replacement rate (%) (2)	Internal hiring rate (%) (3)	Internal sep. rate (%) (4)
Panel A: Diversifying - Unadjusted rates				
Combined firms	43.02	68.72	8.34	6.27
Targets	35.08	46.88	6.37	10.01
Acquirers	57.41	76.15	7.77	3.97
Panel B: Diversifying - Abnormal rates				
Combined firms	6.38***	-0.50	2.74***	2.52***
Targets	-1.81	-15.45***	3.74***	6.41***
Acquirers	6.24***	12.35***	1.88*	0.72
Panel C: Horizontal - Unadjusted rates				
Combined firms	41.33	66.34	10.38	7.61
Targets	28.26	38.79	10.33	12.89
Acquirers	43.70	77.83	9.17	4.96
Panel D: Horizontal - Abnormal rates				
Combined firms	7.45***	-2.22	4.62***	3.20***
Targets	-2.78***	-22.97***	7.27***	10.27***
Acquirers	8.25***	9.96***	4.09***	0.97*
Panel E: Vertical - Unadjusted rates				
Combined firms	47.21	67.78	10.16	7.37
Targets	38.03	41.93	7.78	12.51
Acquirers	69.89	75.55	9.50	4.39
Panel F: Vertical - Abnormal rates				
Combined firms	10.46***	-1.66	6.04***	4.83***
Targets	-1.95	-23.71***	5.51***	10.73***
Acquirers	9.87***	9.44***	5.34***	2.13***

Table OA4: Characteristics of inflows and outflows by merger type. This table reports the mean and standard deviations of average employee education and qualification levels as well as the average employee age, daily wage, and tenure (at $t = -1$) for merged firms for different merger types (diversifying in Panels A , horizontal in Panels B, vertical in Panels C). It also reports the average of these variables for the inflows (outflows) from (to) the external labor market during the three year period from $t = 0$ to $t = +2$ together with its difference (absolute and in %). *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively, for the paired t-test of the difference. *Education index* and *Qualification index* are defined in Appendix A.2, *Age* and *Wage* are defined in Table A2. *Tenure* is the number of years an employee has worked for the firm and we only report it for outflows.

		Education index (1)	Qualification index (2)	Age (3)	Wage (4)	Tenure (years) (5)
Panel A:	Mean at t = -1	2.824	1.932	39.93	103.19	6.66
Diversifying	SD at t = -1	0.638	0.346	4.10	25.77	3.65
External flows	External inflow	3.094	2.045	35.46	90.65	
Treated firms	External outflow	2.998	2.027	39.33	100.31	5.63
N = 294	Difference	0.096***	0.019*	-3.86***	-9.65***	
	in % of t = -1	3.39	0.96	-9.68	-9.35	
Panel B:	Mean at t = -1	2.738	1.853	39.78	94.18	6.60
Horizontal	SD at t = -1	0.683	0.367	4.02	25.50	3.42
External flows	External inflow	2.923	1.909	34.79	77.63	
Treated firms	External outflow	2.842	1.905	39.08	89.32	5.57
N = 449	Difference	0.081***	0.004	-4.30***	-11.69***	
	in % of t = -1	2.97	0.23	-10.80	-12.41	
Panel C:	Mean at t = -1	2.959	1.942	39.34	100.78	5.66
Vertical	SD at t = -1	0.740	0.345	4.21	25.34	3.17
External flows	External inflow	3.166	2.019	35.13	85.28	
Treated firms	External outflow	3.069	1.997	38.62	96.55	4.86
N = 291	Difference	0.097***	0.022**	-3.49***	-11.27***	
	in % of t = -1	3.28	1.12	-8.88	-11.18	

Table OA5: Post-merger employee flows: target closure vs. target continuation. The table reports the differences in establishment-level employee flows between M&A firms (All, Target, Acquirer) and their control firms over the period from $t = -1$ to $t = +2$ for transactions where *Target closure* is equal to one (Panel A) and transactions where *Target closure* is equal to zero (Panel B).The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are either scaled by the combined employment of target and acquirer (i.e., the merged firm denoted as *Combined*; columns 1, 3, 5) or the employment of the respective entity (columns 2 and 4). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table OA5: Post-merger employee flows: target closure vs. continuation (continued).

Panel A - Closed targets					
Entity:	All establ.	Target establ.		Acquirer establ.	
Scaled by employment of establishments of...	Combined firm (1)	Target (2)	Combined firm (3)	Acquirer (4)	Combined firm (5)
Employment growth	-27.56***	-163.19***	-36.73***	18.75***	9.20***
	(-6.84)	(-44.92)	(-12.83)	(4.06)	(3.49)
Inflow	13.23***	-14.13***	-8.85***	30.73***	22.02***
	(4.87)	(-3.43)	(-7.00)	(5.11)	-8.7
External inflow	6.07***	-14.47***	-8.69***	19.38***	14.68***
	(2.72)	(-3.61)	(-7.17)	(4.47)	(7.37)
Inflow other firms	5.57***	-6.98**	-4.78***	14.89***	10.30***
	(3.16)	(-2.43)	(-4.99)	(4.40)	(6.96)
with wage increase	5.15***	-4.52**	-3.15***	12.25***	8.22***
	(3.92)	(-2.34)	(-7.29)	(4.24)	(6.61)
with wage decrease	0.42	-2.46*	-1.63**	2.64***	2.08***
	(0.51)	(-1.92)	(-2.30)	(2.74)	(5.67)
Inflow new entrant	0.47	-7.57***	-3.91***	4.45***	4.35***
	(0.56)	(-4.43)	(-7.62)	(2.81)	(5.66)
Internal inflow	7.17***	0.34	-0.16	11.35***	7.34***
	(6.88)	(0.34)	(-0.52)	(3.77)	(7.39)
Inflow within	1.79**	0.34	-0.16	2.27**	1.94**
	(2.14)	(0.34)	(-0.52)	(2.58)	(2.52)
Inflow between	5.38***	0.00	0.00	9.08***	5.40***
	(8.53)	(1.05)	(1.06)	(3.12)	(8.52)
Outflow	40.80***	149.06***	27.88***	11.98	12.81***
	(8.97)	(30.10)	(10.09)	(1.61)	(3.75)
External outflow	33.63***	104.50***	22.66***	9.71	10.88***
	(7.96)	(17.52)	(8.12)	(1.34)	(3.65)
Outflow other firms	28.36***	91.30***	21.84***	6.38	6.51***
	(8.27)	(18.55)	(9.53)	(1.15)	(2.69)
with wage increase	18.54***	63.27***	13.79***	5.12	4.71**
	(7.50)	(16.14)	(9.08)	(1.19)	(2.54)
with wage decrease	9.82***	28.03***	8.05***	1.26	1.80**
	(6.58)	(10.44)	(6.53)	(0.67)	(2.28)
Outflow unemployment	5.27***	13.20***	0.83	3.33	4.37***
	(3.70)	(3.71)	(0.86)	(1.31)	(4.54)
Internal outflow	7.17***	44.56***	5.22***	2.27**	1.94**
	(6.88)	(12.11)	(7.38)	(2.58)	(2.52)
Outflow within	1.79**	0.34	-0.16	2.27**	1.94**
	(2.14)	(0.34)	(-0.52)	(2.58)	(2.52)
Outflow between	5.38***	44.22***	5.38***	0.00	0.00
	(8.53)	(12.38)	(8.54)	(1.06)	(1.06)
N	746	738	746	740	746

Table OA5: Post-merger employee flows: target closure vs. continuation (continued).

Panel B - Continued targets					
Entity:	All establ.	Target establ.		Acquirer establ.	
Scaled by employment of establishments of...	Combined firm	Target	Combined firm	Acquirer	Combined firm
	(1)	(2)	(3)	(4)	(5)
Employment growth	3.75*	2.89	-2.10*	12.31***	5.95***
	(1.69)	(0.94)	(-1.76)	(3.91)	(3.24)
Inflow	7.53***	3.05	0.23	17.99***	7.33***
	(5.03)	(1.43)	(0.25)	(3.50)	(5.74)
External inflow	6.05***	0.49	-0.44	16.77***	6.51***
	(4.35)	(0.24)	(-0.50)	(3.28)	(5.50)
Inflow other firms	5.79***	2.09	0.42	13.75***	5.46***
	(5.49)	(1.53)	(0.68)	(3.35)	(5.98)
with wage increase	4.92***	2.29**	0.33	12.23***	4.64***
	(6.41)	(2.24)	(0.72)	(3.61)	(6.99)
with wage decrease	0.87*	-0.20	0.09	1.51*	0.82**
	(1.90)	(-0.31)	(0.42)	(1.71)	(2.01)
Inflow new entrant	0.26	-1.60	-0.85**	3.02**	1.05**
	(0.43)	(-1.24)	(-2.05)	(2.29)	(2.15)
Internal inflow	1.47***	2.56***	0.66***	1.22***	0.82**
	(3.57)	(4.61)	(3.30)	(2.72)	(2.32)
Inflow within	0.63	0.60	0.25	0.51	0.40
	(1.61)	(1.40)	(1.40)	(1.18)	(1.17)
Inflow between	0.84***	1.96***	0.41***	0.71***	0.41***
	(6.23)	(5.57)	(4.35)	(5.77)	(6.27)
Outflow	3.78*	0.17	2.33**	5.68	1.38
	(1.70)	(0.05)	(1.96)	(0.98)	(0.73)
External outflow	2.31	-4.17	1.67	1.85	0.53
	(1.07)	(-1.39)	(1.44)	(0.47)	(0.29)
Outflow other firms	2.60	-2.01	1.34	4.19	1.24
	(1.50)	(-0.88)	(1.49)	(1.39)	(0.85)
with wage increase	1.93	-1.90	0.86	2.49	1.07
	(1.48)	(-1.08)	(1.30)	(1.08)	(0.97)
with wage decrease	0.67	-0.12	0.49	1.71	0.17
	(1.15)	(-0.11)	(1.30)	(1.58)	(0.39)
Outflow unemployment	-0.30	-2.16	0.32	-2.34	-0.71
	(-0.34)	(-1.49)	(0.68)	(-1.56)	(-1.03)
Internal outflow	1.47***	4.34***	0.66***	3.82	0.84**
	(3.57)	(5.80)	(3.48)	(1.47)	(2.35)
Outflow within	0.63	0.60	0.25	0.51	0.40
	(1.61)	(1.40)	(1.40)	(1.18)	(1.17)
Outflow between	0.84***	3.73***	0.41***	3.32	0.44***
	(6.23)	(6.05)	(6.26)	(1.29)	(4.20)
N	1,340	1,333	1,340	1,332	1,340

Table OA6: Post-merger employee flows by status of target closure and merger type. The table reports the differences in establishment-level employee flows between M&A firms (All, Target, Acquirer) and their control firms over the period from $t = -1$ to $t = +2$ for transactions where *Target closure* is equal to one (columns 1 to 3) and transactions where *Target closure* is equal to zero (columns 4 to 6). The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). The table reports the results for diversifying mergers in Panel A, horizontal mergers in Panel B, and vertical mergers in Panel C. *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are either scaled by the combined employment of target and acquirer (i.e., the merged firm). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A - Diversifying

	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Employment growth	-27.77***	-41.58***	13.81**	7.28**	2.30	5.41*
	(-3.00)	(-5.95)	(2.59)	(2.08)	(1.08)	(1.81)
External growth	-27.77***	-36.22***	8.37	7.28**	2.24	5.47*
	(-3.00)	(-5.23)	(1.63)	(2.08)	(1.05)	(1.82)
Internal growth	0.00	-5.36***	5.44***	0.00	0.06	-0.07
		(-3.87)	(3.87)		(0.38)	(-0.41)
Inflow	11.71***	-12.91***	24.52***	7.68***	2.44	5.16**
	(2.62)	(-4.35)	(6.20)	(2.72)	(1.59)	(2.21)
External inflow	5.49	-12.75***	18.13***	6.79**	1.85	4.86**
	(1.23)	(-4.29)	(5.08)	(2.56)	(1.30)	(2.21)
Internal inflow within	0.80	-0.16	0.96	0.36	0.30	0.07
	(0.97)	(-1.42)	(1.18)	(0.65)	(1.24)	(0.13)
Internal inflow between	5.42***	0.00	5.44***	0.53**	0.29*	0.23***
	(3.88)		(3.87)	(2.56)	(1.83)	(2.66)
Outflow	39.49***	28.67***	10.72**	0.40	0.14	-0.25
	(5.07)	(4.79)	(2.51)	(0.11)	(0.07)	(-0.08)
External outflow	33.26***	23.47***	9.76**	-0.49	-0.39	-0.61
	(4.32)	(3.84)	(2.33)	(-0.14)	(-0.20)	(-0.21)
Internal outflow within	0.80	-0.16	0.96	0.36	0.30	0.07
	(0.97)	(-1.42)	(1.18)	(0.65)	(1.24)	(0.13)
Internal outflow between	5.42***	5.36***	0.00	0.53**	0.23***	0.30*
	(3.88)	(3.87)		(2.56)	(2.63)	(1.84)
Turnover	25.6	7.88	17.62	4.04	1.29	2.455
N	174	174	174	416	416	416

Table OA6: Post-merger employee flows by status of target closure and merger type (continued).

Panel B - Horizontal						
	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Employment growth	-21.70***	-31.83***	10.17***	0.91	-4.16**	5.31*
	(-3.97)	(-8.50)	(2.84)	(0.26)	(-2.35)	(1.72)
External growth	-21.70***	-27.06***	5.42	0.91	-4.10**	5.27*
	(-3.97)	(-7.17)	(1.56)	(0.26)	(-2.35)	(1.71)
Internal growth	0.00	-4.77***	4.75***	0.00	-0.05	0.04
		(-5.68)	(5.71)		(-0.36)	(0.30)
Inflow	15.10***	-6.99***	22.18***	4.81**	-1.58	6.34***
	(3.21)	(-4.87)	(4.92)	(2.07)	(-1.28)	(3.08)
External inflow	8.46**	-6.70***	15.27***	3.79*	-2.23*	5.98***
	(2.24)	(-5.30)	(4.26)	(1.81)	(-1.90)	(3.25)
Internal inflow within	1.86	-0.29	2.15*	0.10	0.22	-0.13
	(1.42)	(-0.49)	(1.85)	(0.13)	(0.58)	(-0.18)
Internal inflow between	4.78***	0.00	4.75***	0.92***	0.43***	0.48***
	(5.60)		(5.71)	(5.37)	(3.35)	(5.20)
Outflow	36.79***	24.84***	12.00**	3.90	2.58	1.03
	(4.95)	(6.55)	(1.99)	(1.07)	(1.54)	(0.32)
External outflow	30.16***	20.36***	9.85*	2.88	1.87	0.71
	(4.44)	(5.33)	(1.90)	(0.80)	(1.16)	(0.22)
Internal outflow within	1.86	-0.29	2.15*	0.10	0.22	-0.13
	(1.42)	(-0.49)	(1.85)	(0.13)	(0.58)	(-0.18)
Internal outflow between	4.78***	4.77***	0.00	0.92***	0.48***	0.44***
	(5.60)	(5.68)		(5.37)	(5.24)	(3.34)
Turnover	25.945	8.925	17.09	4.355	0.5	3.685
N	340	340	340	564	564	564

Table OA6: Post-merger employee flows by status of target closure and merger type (continued).

Panel C - Vertical						
	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Employment growth	-33.53***	-39.50***	5.88	3.84	-4.90**	7.33**
	(-4.67)	(-8.25)	(1.15)	(0.85)	(-1.99)	(2.12)
External growth	-33.53***	-33.29***	-0.14	3.84	-4.83*	7.46**
	(-4.67)	(-6.94)	(-0.03)	(0.85)	(-1.95)	(2.16)
Internal growth	0.00	-6.21***	6.02***	0.00	-0.07	-0.13
		(-4.79)	(4.84)		(-0.37)	(-0.51)
Inflow	14.13***	-7.72***	21.16***	11.70***	-0.75	11.42***
	(3.00)	(-3.87)	(4.39)	(4.07)	(-0.40)	(4.85)
External inflow	5.07	-7.88***	12.45***	9.16***	-1.23	9.60***
	(1.52)	(-4.09)	(3.72)	(3.43)	(-0.67)	(4.38)
Internal inflow within	2.93	0.16	2.68	1.51**	0.11	1.37*
	(1.54)	(0.42)	(1.43)	(2.01)	(0.49)	(1.85)
Internal inflow between	6.13***	0.00	6.02***	1.03***	0.37*	0.46***
	(4.71)	(1.00)	(4.84)	(2.98)	(1.80)	(2.92)
Outflow	47.66***	31.78***	15.27**	7.87*	4.15*	4.10
	(5.56)	(6.85)	(2.27)	(1.86)	(1.73)	(1.19)
External outflow	38.60***	25.41***	12.59**	5.33	3.59	2.14
	(4.99)	(5.31)	(2.22)	(1.34)	(1.51)	(0.70)
Internal outflow within	2.93	0.16	2.68	1.51**	0.11	1.37*
	(1.54)	(0.42)	(1.43)	(2.01)	(0.49)	(1.85)
Internal outflow between	6.13***	6.21***	0.00	1.03***	0.45***	0.59**
	(4.71)	(4.79)	(1.00)	(2.98)	(2.89)	(2.33)
Turnover	30.895	12.03	18.215	9.785	1.7	7.76
N	232	232	232	360	360	360

Table OA7: Post-merger manager flows. The table reports the differences in establishment-level manager flows between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$. The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are either scaled by the combined employment of target and acquirer (i.e., the merged firm denoted as *Combined*; columns 1, 3, 5) or the employment of the respective entity (columns 2 and 4). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Online Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table OA7: Firm-level aggregate employee flows for managers (continued).

Entity:	All establ.	Target establ.		Acquirer establ.	
Scaled by employment of establishments of...	Combined firm	Target	Combined firm	Acquirer	Combined firm
	(1)	(2)	(3)	(4)	(5)
Employment growth	-3.92	-48.93***	-12.04***	14.19***	8.06***
	(-1.04)	(-6.74)	(-5.24)	(3.19)	(2.69)
Inflow	19.57***	9.70**	0.89	25.00***	18.50***
	(6.36)	(2.09)	(0.66)	(6.79)	(6.44)
External inflow	15.32***	5.30	0.37	18.91***	14.76***
	(5.14)	(1.18)	(0.28)	(5.64)	(5.32)
Inflow other firms	11.38***	-1.06	-1.12	15.30***	12.42***
	(5.06)	(-0.32)	(-1.16)	(5.87)	(6.00)
with wage increase	8.59***	-1.54	-1.23	12.32***	9.76***
	(4.55)	(-0.52)	(-1.43)	(5.58)	(5.74)
with wage decrease	2.79***	0.48	0.11	2.98***	2.66***
	(3.37)	(0.37)	(0.33)	(3.15)	(3.50)
Inflow new entrant	3.98***	6.36**	1.49*	3.65**	2.37**
	(2.93)	(2.33)	(1.82)	(2.55)	(2.02)
Internal inflow	4.25***	4.40***	0.52*	6.09***	3.75***
	(6.54)	(3.49)	(1.86)	(5.14)	(6.27)
Inflow within	1.45***	0.19	-0.04	1.71***	1.50***
	(3.01)	(0.28)	(-0.18)	(3.15)	(3.48)
Inflow between	2.80***	4.21***	0.56***	4.38***	2.25***
	(6.39)	(3.96)	(3.61)	(4.15)	(5.40)
Outflow	20.36***	60.25***	10.94***	6.63	9.24***
	(5.13)	(7.82)	(5.05)	(1.55)	(2.75)
External outflow	16.14***	42.96***	8.74***	3.90	7.30**
	(4.15)	(7.38)	(4.17)	(0.93)	(2.22)
Outflow other firms	12.76***	37.04***	7.41***	3.40	5.17**
	(4.28)	(7.92)	(4.63)	(1.04)	(2.13)
with wage increase	10.59***	27.10***	5.93***	3.59	4.53**
	(4.25)	(6.90)	(4.38)	(1.33)	(2.23)
with wage decrease	2.17*	9.93***	1.48**	-0.18	0.64
	(1.75)	(4.34)	(2.11)	(-0.13)	(0.67)
Outflow unemployment	3.45*	5.93*	1.33	0.50	2.13
	(1.73)	(1.76)	(1.17)	(0.22)	(1.32)
Internal outflow	4.14***	17.29***	2.20***	2.73***	1.94***
	(6.97)	(3.92)	(5.42)	(4.30)	(4.34)
Outflow within	1.38***	0.21	-0.09	1.71***	1.47***
	(2.91)	(0.34)	(-0.41)	(3.21)	(3.50)
Outflow between	2.77***	17.07***	2.29***	1.02***	0.47***
	(7.57)	(3.76)	(-0.18)	(2.90)	(3.05)
N	1,968	1,457	1,968	1,808	1,968

Table OA8: Post-merger flows for highly-qualified employees. The table reports the differences in establishment-level flows for highly-qualified employees between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$. The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are either scaled by the combined employment of target and acquirer (i.e., the merged firm denoted as *Combined*; columns 1, 3, 5) or the employment of the respective entity (columns 2 and 4). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Online Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table OA8: Post-merger flows for highly-qualified employees (continued).

Entity:	All establ.	Target establ.		Acquirer establ.	
Scaled by employment of establishments of...	Combined firm	Target	Combined firm	Acquirer	Combined firm
	(1)	(2)	(3)	(4)	(5)
Employment growth	-6.13**	-52.19***	-12.45***	14.34***	6.34***
	(-2.05)	(-9.65)	(3.94)	(3.94)	(2.74)
Inflow	14.77***	2.37	-0.58	22.03***	0.46
	(5.47)	(0.71)	(-0.52)	(7.19)	(0.34)
External inflow	10.46***	-0.07	-1.26	16.98***	15.22***
	(4.54)	(-0.02)	(-1.18)	(6.50)	(6.18)
Inflow other firms	7.99***	-2.11	-1.05	13.35***	11.57***
	(4.61)	(-0.89)	(-1.21)	(6.22)	(5.68)
with wage increase	6.89***	-0.06	-0.58	11.53***	8.99***
	(4.90)	(-0.03)	(-0.77)	(6.58)	(5.88)
with wage decrease	1.10	-2.05**	-0.47	1.81**	7.42***
	(1.52)	(-2.01)	(-1.63)	(1.97)	(6.25)
Inflow new entrant	2.45**	2.04	-0.21	3.60***	1.57**
	(2.46)	(1.04)	(-0.42)	(3.20)	(2.32)
Internal inflow	4.31***	2.44***	0.67***	5.06***	2.56***
	(5.10)	(3.48)	(3.26)	(4.83)	(2.87)
Inflow within	1.77**	0.58	0.38*	1.69**	3.66***
	(2.36)	(1.11)	(1.94)	(2.06)	(4.44)
Inflow between	2.54***	1.85***	0.30***	3.36***	2.26***
	(6.57)	(3.95)	(4.25)	(5.25)	(5.85)
Outflow	20.04***	57.83***	11.06***	6.16	8.73***
	(5.69)	(11.15)	(6.00)	(1.54)	(2.99)
External outflow	15.73***	40.99***	8.74***	3.31	6.60***
	(4.95)	(9.32)	(4.90)	(0.91)	(2.63)
Outflow other firms	13.17***	36.48***	7.81***	4.78*	5.17***
	(5.53)	(9.64)	(5.59)	(1.69)	(2.70)
with wage increase	10.66***	26.34***	6.17***	2.91	4.33***
	(5.32)	(8.01)	(5.23)	(1.28)	(2.73)
with wage decrease	2.51***	10.15***	1.64***	1.87	0.84
	(2.91)	(6.39)	(3.01)	(1.63)	(1.27)
Outflow unemployment	2.40	4.51**	0.93	-1.47	1.43
	(1.58)	(2.01)	(1.08)	(-0.83)	(1.28)
Internal outflow	4.47***	16.84***	2.32***	2.85***	2.13***
	(5.32)	(6.57)	(6.51)	(3.28)	(2.80)
Outflow within	1.93**	0.55	0.34*	1.91**	1.60**
	(2.57)	(1.06)	(1.66)	(2.33)	(2.21)
Outflow between	2.53***	16.29***	1.98***	0.94***	0.53**
	(6.61)	(6.20)	(1.94)	(3.21)	(2.25)
N	2,050	1,752	2,050	1,932	2,050

Table OA9: Replacement rates and internal labor market activity of managers. This table examines the extent of restructuring through internal and external labor markets. *Replacements* is defined as the lower of the numbers of *Inflow* and *Outflow*, and *Replacement rate* is defined as the ratio of *Inflow* to *Outflow*; see, respectively, equations (12) and (13) in Appendix *A.1. Internal hiring (separation) rate* is the defined as the ratio of *Internal inflow (Internal outflow)* to *Inflow (Outflow)*; see equations (10) and (11) in Appendix A.1. All variables are measured over the period $t = -1$ to $t = +2$. Panel A, C, and E describe the mean values for these variables for the treated firms. Panel B, D, and F report estimates of θ from equation (1)—the difference-in-differences between treated firms and their control firms. Panel A and Panel B include all transactions (N= 2086), Panel C and Panel D (N=667) include transactions in which the target is closed, and Panel E and Panel F (N=1,301) include transactions in which the target is continued. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Replacements (1)	Replacement rate (%) (2)	Internal hiring rate (%) (3)	Internal sep. rate (%) (4)
Panel A: All transactions - Unadjusted rates				
Combined firms	42.57	63.42	10.77	8.06
Targets	30.77	38.78	10.06	12.77
Acquirers	39.54	68.93	10.75	5.88
Panel B: All transactions - Abnormal rates				
Combined firms	15.80***	5.91***	4.62***	4.94***
Targets	0.66	-11.59***	8.31***	9.98***
Acquirers	12.56***	14.14***	3.84***	2.43***
Panel C: Closed targets - Unadjusted rates				
Combined firms	52.26	56.17	13.12	10.60
Targets	21.09	9.55	9.75	21.22
Acquirers	50.02	72.85	13.87	4.09
Panel D: Closed targets - Abnormal rates				
Combined firms	26.97***	-0.32	6.86***	7.55***
Targets	-3.77**	-32.20***	7.06	13.58***
Acquirers	25.55***	16.18***	5.36**	0.67
Panel E: Continued targets - Unadjusted rates				
Combined firms	37.48	67.15	9.65	6.75
Targets	34.41	54.34	10.10	8.27
Acquirers	33.99	66.93	9.09	6.80
Panel F: Continued targets - Abnormal rates				
Combined firms	9.85***	8.39***	3.51***	3.63***
Targets	2.69**	-1.92	8.83***	7.61***
Acquirers	5.79***	11.85***	2.02	3.18***

Table OA10: Post-merger manager flows by status of target closure and merger type. The table reports the differences in establishment-level manager flows between M&A firms (All, Target, Acquirer) and their control firms over the period $t = -1$ to $t = +2$ for transactions for which *Target closure* is equal to one (columns 1 to 3) and for transactions for which *Target closure* is equal to zero (columns 4 to 6). The dependent variables are presented in the first column and the differences are obtained as estimates of θ from equation (1). The table reports the results for diversifying mergers in Panel A, horizontal mergers in Panel B, and vertical mergers in Panel C. *All establ.* refers to the combined flows of target and acquirer, respectively, their matched pairs. All rates are scaled by the combined employment of target and acquirer (i.e., the merged firm denoted as *Combined*). In all regressions, we control for driving distance, the pre-acquisition growth rate, and fixed effects for cells from the full product of the calendar year, region, and firm size category, where size categories are defined based on the number of establishments: 1, 2, 3-5, 6-10, and more than 10. All variables are defined in Table A2 in the Online Appendix. Standard errors are clustered at the firm-level and t-statistics are presented in parentheses below the coefficients. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A - Diversifying

	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Management growth	-9.38	-31.99***	22.62*	13.49*	5.18	8.40
	(-0.62)	(-3.96)	(1.69)	(1.80)	(1.03)	(1.45)
Inflow managers	39.79**	-14.02**	53.89***	11.68**	3.57	8.01*
	(2.21)	(-2.24)	(3.11)	(2.17)	(1.01)	(1.70)
External inflow	35.08*	-14.02**	49.18***	10.33*	3.42	6.81
	(1.97)	(-2.24)	(2.90)	(1.96)	(0.98)	(1.48)
Internal inflow within	-0.31	0.00	-0.31	0.55	-0.23	0.78
	(-0.78)		(-0.78)	(0.81)	(-0.53)	(1.42)
Internal inflow between	5.02**	0.00	5.02**	0.80***	0.38***	0.42**
	(2.03)		(2.03)	(3.72)	(3.21)	(2.30)
Outflow managers	60.23***	12.65*	47.56**	4.05	5.55	-1.69
	(2.91)	(1.69)	(2.39)	(0.51)	(1.20)	(-0.29)
External outflow	56.92***	9.03	47.63**	2.93	5.03	-2.52
	(2.75)	(1.24)	(2.40)	(0.37)	(1.09)	(-0.43)
Internal outflow within	-0.07	0.00	-0.07	0.80*	0.17	0.61
	(-0.21)		(-0.22)	(1.77)	(0.83)	(1.43)
Internal outflow between	3.62***	3.62***	0.00	0.57***	0.35**	0.22***
	(3.41)	(3.41)		(3.68)	(2.59)	(2.75)
Turnover	50.01	-0.685	50.725	7.865	4.56	3.16
N	161	161	161	397	397	397

Table OA10: Post-merger manager flows by status of target closure and merger type (continued).

Panel B - Horizontal

	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Management growth	-22.57**	-26.28***	3.30	-0.33	-5.63	6.10
	(-2.26)	(-5.47)	(0.38)	(-0.05)	(-1.43)	(1.04)
Inflow managers	19.35**	-4.01*	22.73***	14.85***	2.88	12.03***
	(2.25)	(-1.77)	(2.77)	(3.49)	(1.25)	(3.02)
External inflow	14.79*	-3.66*	17.76**	12.76***	1.78	11.03***
	(1.73)	(-1.74)	(2.17)	(3.08)	(0.81)	(2.86)
Internal inflow within	0.76	-0.35	1.13	0.53	0.17	0.35
	(0.63)	(-0.48)	(1.19)	(0.64)	(0.28)	(0.60)
Internal inflow between	3.80***	0.00	3.84***	1.56***	0.94***	0.65***
	(3.07)		(3.04)	(4.50)	(3.10)	(3.49)
Outflow managers	29.99***	17.35***	12.38	6.33	5.46	0.45
	(2.76)	(2.98)	(1.31)	(1.01)	(1.41)	(0.08)
External outflow	25.13**	13.52**	11.24	4.42	4.92	-0.66
	(2.35)	(2.42)	(1.20)	(0.72)	(1.31)	(-0.12)
Internal outflow within	0.78	-0.35	1.14	0.26	-0.25	0.51
	(0.65)	(-0.48)	(1.20)	(0.34)	(-0.47)	(0.83)
Internal outflow between	4.10***	4.18***	0.00	1.38***	0.79***	0.59**
	(3.34)	(3.30)		(4.57)	(4.05)	(2.51)
Turnover	24.67	6.67	17.555	10.59	4.17	6.24
N	310	310	310	550	550	550

Table OA10: Post-merger manager flows by status of target closure and merger type (continued).

Panel C - Vertical						
	Closed targets			Continued targets		
Entity:	All establ. (1)	Target establ. (2)	Acquirer establ. (3)	All establ. (4)	Target establ. (5)	Acquirer establ. (6)
Management growth	-28.51**	-33.33***	5.46	0.36	-10.13*	9.05
	(-2.20)	(-3.67)	(0.54)	(0.04)	(-1.75)	(1.37)
Inflow managers	33.42**	-6.59**	38.09***	17.80***	5.54*	9.70**
	(2.41)	(-2.13)	(3.10)	(3.53)	(1.72)	(2.30)
External inflow	19.69*	-6.17**	23.53**	12.30**	4.48	5.95
	(1.70)	(-1.99)	(2.43)	(2.54)	(1.40)	(1.48)
Internal inflow within	5.53	-0.42	5.87	3.49**	0.37	3.03**
	(1.52)	(-1.42)	(1.65)	(2.46)	(0.99)	(2.19)
Internal inflow between	8.20***	0.00	8.69***	2.02***	0.69	0.72*
	(2.66)		(2.91)	(2.59)	(1.17)	(1.89)
Outflow managers	59.14***	21.63**	34.55***	11.52**	11.23***	0.41
	(3.86)	(2.51)	(3.25)	(1.99)	(2.65)	(0.08)
External outflow	44.41***	13.22	28.87***	5.84	9.96**	-3.76
	(3.16)	(1.60)	(3.22)	(1.11)	(2.43)	(-0.90)
Internal outflow within	5.02	-0.74	5.68	3.26**	0.35	2.81**
	(1.37)	(-1.13)	(1.61)	(2.26)	(0.70)	(2.06)
Internal outflow between	9.20***	9.15***	0.00	2.19***	0.91**	1.35*
	(2.95)	(3.05)		(2.88)	(2.16)	(1.96)
Turnover	46.28	7.52	36.32	14.66	8.385	5.055
N	196	196	196	354	354	354

Table OA11: Hierarchical layers. This table shows the percentage of employees working in each layer of the hierarchy. *Hierarchical Layers* are defined in Appendix A.2. All statistics are based on the year prior to the transaction ($t = -1$).

	Target	Acquirer	Difference
Layer 1: Clerks, operators, production workers	59.5	56.4	3.1
Layer 2: Supervisors, engineers, technicians, professionals	21.1	20.0	1.0
Layer 3: Senior experts, middle managers	14.1	16.5	-2.4
Layer 4: CEOs, managing directors	5.3	7.0	-1.7
Total	100.0	100.0	

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