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Exploring the Effects of Mergers and Acquisitions on Employee Turnover Rate in High-Tech Firms

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Abstract

In the high-tech industry, mergers and acquisitions (M&As) are widely used as a pathway to execute their strategic plans and maintain competitiveness in rapidly evolving markets. However, the integration of diverse corporate cultures during M&A deals can escalate employee dissatisfaction and contribute to increased turnover rates. There is an abundance of theoretical discourse in the literature concerning the implications of M&As for employee experiences; however, it falls short in providing robust empirical evidence for practitioners. We investigate the impact of M&A activities on employee turnover rates in high-tech firms to address this gap. Utilising longitudinal data from 1999 to 2023, we find that increased M&A activities in high-tech companies are associated with higher employee turnover. Our study also identifies that advertising and R&D expenditures, as well as the size of top management, diminish the contribution of M&A activities to employee turnover. Conversely, enhanced asset efficiency amplifies the contribution of M&A activities to employee turnover.

Index Terms: M&A; Employee Turnover; Firm-related Factors; High-tech

I. INTRODUCTION

Businesses often turn to mergers and acquisitions (M&As) to drive growth and boost profitability [25], [40], [44]. These initiatives can fast-track growth, helping businesses enter fresh markets and empowering firms to deliver their products or services to a broader customer base [21], [66]. Despite their potential, M&A initiatives are not always successful because integration problems and cultural incongruities frequently emerge as major impediments [56], [67]. M&A activities not only influence the firm's performance but also significantly affect other vital human capital metrics, such as the rate of employee turnover [31], [38].

Employee turnover is a major concern for various industries. The recent Bureau of Labour Statistics survey suggests that the employee turnover rate in the United States is 47.2%, where the majority of this rate is voluntary turnover [37]. Each month, an average of 4.2 million people voluntarily leave their positions, contributing to this high turnover rate. The majority of employees cite a toxic corporate culture as a primary factor contributing to high turnover rates [50]. M&A activities result in the amalgamation of two distinct corporate cultures, which can potentially elevate the employee turnover rate in the acquired company [68].

While M&A activities create a complex business environment that is further complicated by the rise of digital technologies [2], [10], [15], [33], [35], [59], this complexity is often more pronounced in high-tech firms. These firms, being at the cutting edge of advanced digital technologies, are more susceptible to M&A activities [58] and, as a result, may face a higher risk of employee turnover. Although previous literature has discussed the significance of human capital in the context of M&A activities, much of this research is conceptual, highlighting the need for further empirical investigation in this area [28], [35], [45]. We investigate the impact of M&A activities on employee turnover in high-tech

companies to bridge this gap. Unlike other studies that focus on theories or broad industry-level analyses, we use longitudinal firm-level data to give concrete insights into how the workforce changes after an M&A. We move beyond the general M&A outcomes and include the role of digital transformation to give a more nuanced understanding of how they affect high-tech employees. By using a sophisticated quantitative method with robustness analysis with alternative methods, we give a broad view of the human capital implications of M&As, giving business leaders and policymakers useful information to help stop talent loss in a world that is becoming more digital. Specifically, our study focuses on the following research questions:

RQ1. What is the impact of M&A activities undertaken by high-tech firms on their employee turnover rates?

RQ2. What firm-specific factors influence how M&A activities contribute to employee turnover rates in high-tech firms?

We merge three publicly available datasets and create a longitudinal dataset of US publicly traded high-tech firms from 1999 to 2023 to empirically validate our hypotheses. Our analysis indicates that an increase in M&A activities in high-tech firms leads to an increase in employee turnover rates. However, we also find that higher advertising expenditures alleviate the impact of M&A activities on the employee turnover rate. Additionally, the expansion of the top management team size appears to diminish the impact of increased M&A activities on the employee turnover rate in high-tech companies. In contrast, our results show that increased asset efficiency in these firms intensifies the effects of M&A activities on employee turnover rate.

This study provides essential theoretical insights on navigating employee turnover in high-tech firms during M&As. This study theoretically advances the understanding of

organizational change by demonstrating how M&As disturb established routines, create cultural misalignment, and trigger psychological stress, thereby increasing employee turnover. This research broadens the concept of absorptive capacity by showing how strategic investments in advertising and R&D can function as internal and external signals of stability and innovation readiness, thereby reducing the negative impact of organizational transitions. The study adds to leadership frameworks by showing how the organization of top management and operational asset efficiency shape employee perceptions of change. The study also provides several managerial implications. Our proposed hypotheses recommend that managers provide clear communication, career development planning, and psychological safety initiatives to reduce employees' stress during the transition stage. They are encouraged to align external marketing strategies with internal communications, sustain R&D as a cultural pillar for future innovation growth, engage employees in efficiency projects, and strengthen leadership capacity to navigate organizational transitions. These combined insights offer a comprehensive method for effectively handling human capital during M&A transitions. In the next section, we discuss the theoretical framework relevant to our research questions.

II. THEORETICAL BACKGROUND AND HYPOTHESES

A. M&A Activities and Employee Turnover

The theory of organizational change explores the methods organizations plan, execute, and manage shifts in their structure, strategy, processes, or culture to increase efficiency and adapt to internal and external requirements [1], [61]. The theory fundamentally recognizes that large-scale organizational change brings disruption, uncertainty, and complexity, which need to be managed strategically to avoid negative consequences such as employee pushback, cultural clashes, and diminished performance [12]. One important component of the theory is the psychological influence of change on employees. Organizational changes can create

feelings of uncertainty, anxiety, and fear, particularly when communication is insufficient or when employees feel their roles, or stability are at risk [52]. Cultural integration poses a major challenge, especially in mergers and acquisitions, as the combination of varying organizational cultures can create conflicts, misaligned values, and perceived identity loss [45]. The theory underscores the importance of aligning strategies and the preservation of core capabilities; when integration is overdone or insensitive to context, it may weaken key skills and demotivate employees [23]. Organizational change theory suggests that poorly managed change or change perceived as inconsistent with employee values and expectations frequently leads to resistance, disengagement, and increased turnover [16].

High-tech firms tend to experience more severe effects from organizational change, especially M&As, compared to other industries due to their distinct characteristics and sensitivities. High-tech companies function in swift, innovation-led environments, where agility, creativity, and employee autonomy are the key components to their success [43]. These organizations are engaged in the innovation and deployment of pioneering technologies in sectors such as information technology, biotechnology, artificial intelligence, and advanced manufacturing. These firms are staffed by highly skilled professionals who perform best in flexible, collaborative, and flat organizational settings that promote innovation and quick problem-solving [6]. As a result, any disruption related to structural, cultural, and strategic shifts which are associated with M&A activities, can affect employee morale and performance. M&A brings a range of complexities, including the integration of disparate technological systems, management practices, and corporate cultures. These integrations in high-tech environments typically constrain the freedom and creativity that employees are used to, substituting informal innovation cultures with more rigid and hierarchical processes.

M&A activities drive uncertainty in leadership, job roles, or company vision, resulting in psychological pressure and disengagement among employees. High-tech professionals, who

have excellent external job prospects, are more likely to leave if they see a misalignment between the new organizational structure and their personal values or career goals. The administrative inefficiencies and decision-making postponements after M&A activities hinder continuous innovation initiatives and demotivate employees who are driven by technological advancements. Hence, the consequences of high-tech firms' M&A activities are disruptive and lead to a higher chance of turnover. For all these reasons, we propose the following hypothesis.

H1: An increased level of M&A activities in high-tech firms leads to an increase in employee turnover rate.

B. Factors Influencing the Impact of M&A Activities on Employee Turnover

Several firm-specific factors can impact the link between M&A activities and employee turnover. This discussion explores these factors and their influence on the extent to which M&A activities contribute to the employee turnover rate in high-tech companies.

1) Absorptive Capacity

Absorptive capacity is a firm's ability to recognize, integrate, and utilize external knowledge for commercial advantage [64]. This concept is critical in the high-tech industry, where rapid innovation and adaptability are important for the competitive edge. The absorptive capacity can be divided into two dimensions: potential absorptive capacity and realized absorptive capacity [54]. The potential absorptive capacity is the process of collecting and comprehending external knowledge. The realized absorptive capacity is the process of converting and exploiting the knowledge to create value for the firm. Firms' R&D expenditure comes under the potential absorptive capacity framework as it enhances the firm's ability to collect and integrate external knowledge [41]. It helps firms recognize emerging technological trends, understand intricate information, and integrate new capabilities, particularly during M&As. On the other hand, the advertising expenditure comes under the realized absorptive capacity

framework as it enhances the exploitation dimension and translates the knowledge for the formulation of marketing activities [26]. Together, marketing and R&D investments enhance a firm's absorptive capacity, enabling the development and market delivery of high-tech firms' innovative solutions, especially during M&A activities.

Moderating Role of Advertising Expenditure: While M&A activities usually create internal instability and higher employee turnover, increased advertising expenditure can indicate a firm's realized absorptive capacity- its ability to leverage external knowledge in real-time to shape market-facing actions and strategic identity. Advertising shows the firm's application of insights from the external environment, such as customer expectations and competitive positioning. An increase in advertising expenditures may sustain organizational coherence during periods of turbulence by reinforcing brand value and projecting a forward-looking market strategy demonstrating a commitment to customer engagement and growth [11]. This clarity can alleviate internal anxiety and signal stability, notably during the uncertainty linked with M&A activities. Therefore, employees in companies with high advertising expenditure may perceive a more robust market position and a well-defined organizational purpose, which can lessen the negative impact of M&A on turnover. Therefore, we propose the following hypothesis:

H2: Elevated advertising expenditure diminishes the impact of heightened M&A activities on employee turnover rate in high-technology firms.

Moderating Role of R&D Expenditure: The organizational change theory suggests that M&A activities lead to significant internal disruptions, impacting workflows and corporate culture and increasing employee turnover. However, R&D spending signifies a firm's potential absorptive capacity, demonstrating its ability to acquire, understand, and prepare the knowledge to reduce the impact of M&A activities on employee turnover. High R&D spending

reflects a firm's solid knowledge foundation and a culture of innovation, improving its readiness to adapt to changes brought by M&A activities. This preparedness serves as a safeguard against uncertainty, empowering employees with a forward-thinking mindset and stronger confidence in the firm's ability to adapt and achieve its strategic goals. Therefore, in high-tech companies, increased R&D expenditure mitigates the disruptive psychological effects of M&A activities by cultivating an environment that is both mentally and structurally ready for change, which lowers turnover rates. Hence, we put forward the following hypothesis:

H3: An increased level of R&D expenditure lessens the influence of intensified M&A activities on employee turnover rate in high-tech firms.

2) Top Management Structural Attribute

Moderating Role of the Size of Top Management Team (TMT): The size of TMT in high-tech firms is the number of executives in the top management within the firm's upper echelons. While heightened M&A activities can lead to employee dissatisfaction stemming from cultural differences and reduced flexibility, the expansion of the TMT enhances the leadership capacity of high-tech firms. This enlarged leadership team enables a more targeted approach to preserving communication, providing support, and aligning with the firm's objectives [9], [36]. During these leadership activities, employees become more actively involved, gain a better understanding of the changes, and have their concerns promptly dealt with. In spite of the disruptive nature of M&A activities on employee satisfaction, such active engagement and communication serve to maintain and enhance employee satisfaction. Consequently, it contributes to a decrease in employee turnover. Hence, we propose the below hypothesis:

H4: Expanding the size of the top management team reduces the impact of heightened M&A activities on the employee turnover rate in high-technology firms.

3) Operational Efficiency of Assets

Moderating of Asset efficiency: The firm asset efficiency in the context of high-tech firms is the ability of these firms to utilize their assets in a manner that maximizes revenues. When high-tech companies emphasize both asset efficiency and engage in M&A activities simultaneously, employees within these firms often interpret these actions as indicators of instability. This perception stems from the belief that the company is resorting to various measures, such as cost-cutting and consolidating existing resources, in an attempt to stabilize its financial situation [8]. High-tech firms, when they achieve heightened asset efficiency, tend to give greater importance to financial metrics such as revenue during their participation in M&A activities [47]. Consequently, employees experience a further reduction in motivation and flexibility as they encounter conflicts in work cultures and norms. This exacerbates the challenges associated with employee flexibility and ultimately leads to a further increase in employee turnover. Therefore, we propose the following:

H5: Enhanced asset efficiency in firms amplifies the effect of increased M&A activities on employee turnover rate within high-technology firms.

Figure 1 offers insights into the conceptual framework.

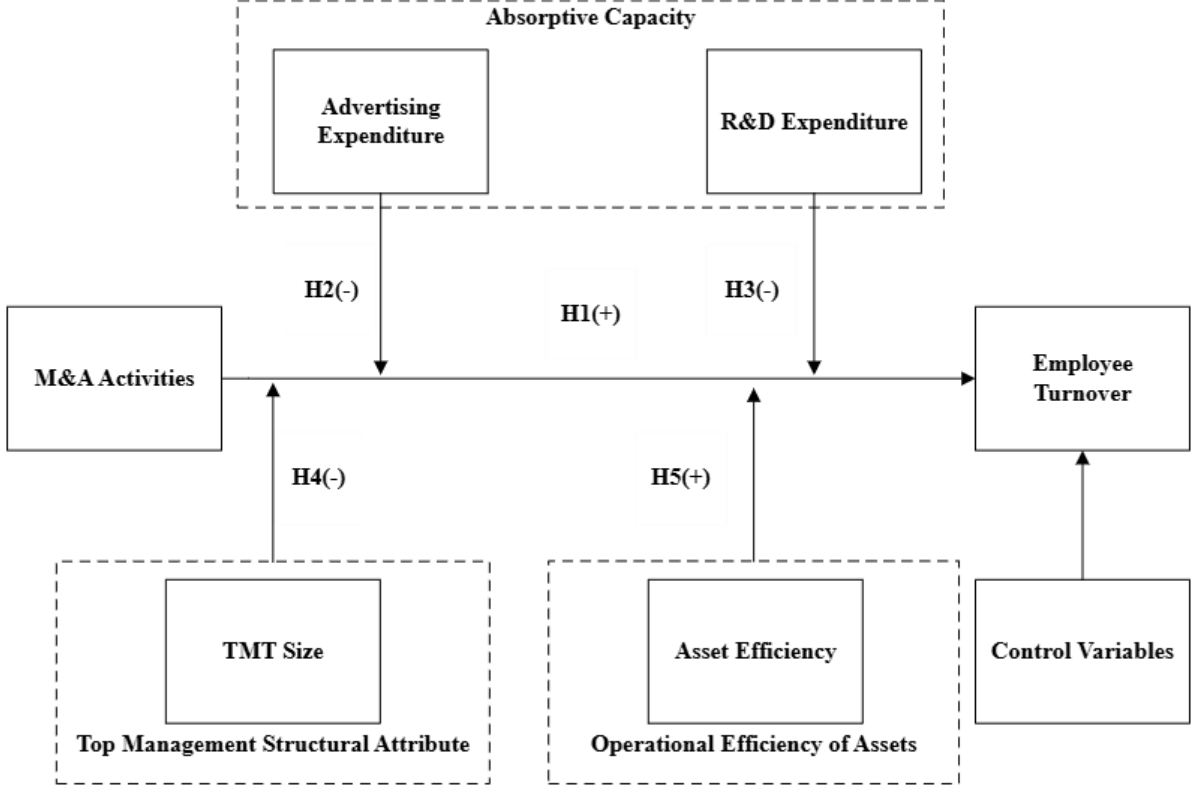


Fig. 1. Conceptual framework

III. DATA AND MEASUREMENT

A. Data

We employ the SDC Platinum database, a well-known and highly regarded resource known for its extensive coverage of diverse financial activities, including initial public offerings and M&A [29]. We have chosen to utilize the SDC Platinum dataset due to its extensive coverage, providing detailed information and enabling the tracking of historical data over time, which is instrumental in empirically supporting our research hypotheses. We also use the Compustat database to analyze variables related to high-technology firms. Compustat is a highly utilized database that offers extensive financial and market data for publicly traded companies operating in the United States [20], [49]. It stands as a valuable data resource, delivering comprehensive historical information across various industries, including those associated with high-technology firms. We also utilize the ExecuComp database to gather information regarding the attributes of upper-echelon members. ExecuComp is a frequently employed

database for accessing executive-level data pertaining to publicly traded companies within the United States [13], [55]. We chose this database due to its comprehensive scope and reliable data concerning executive-level profiles. We combine these three datasets to construct a longitudinal dataset encompassing all publicly traded high-technology companies in the United States from 1999 to 2023. This dataset comprises a total of 44,371 year-by-year observations, representing U.S. publicly traded high-technology firms engaged in M&A activities.

B. Dependent Variable

The dependent variable of our study is the employee turnover rate. We measure it using the Compustat database, where information about the number of employees for all high-tech firms is given. We calculate the year-wise percentage change in employees for all firms as a proxy for the employee turnover rate. The percentage change in employees is frequently used as an approximation for the employee turnover rate, as a significant reduction in the workforce can be indicative of employee dissatisfaction stemming from organizational challenges [63]. Previous literature also refers to this metric as the separation or attrition rate, which is employed as a proxy for the employee turnover rate [14], [34]. Another concern related to this data pertains to *strategic layoffs* carried out by companies as a cost-cutting measure [5]. These layoffs often involve a significant number of employees, leading to extreme values in the dataset. We take into consideration the possibility of data skewing due to extreme values in order to more accurately depict the effect of strategic layoffs on employee turnover rates, especially in high-tech companies. We apply a 5% winsorization to the uppermost observations to eliminate outliers, as suggested by previous research [7], [30]. This is the methodology employed to establish our proxy variable for assessing employee turnover rates within high-tech firms.

C. Independent Variable

Our key independent variable is the annual tally of M&A transactions conducted by high-tech firms. The frequency of multiple M&A activities within a single year among high-tech firms is often driven by the pursuit of technological advancement [24]. This data is sourced from the SDC Platinum database, which provides information on the M&A activities of high-tech firms. This quantitative measure assesses a high-tech firm's involvement in M&A activities, enabling straightforward comparisons and analysis across different high-tech industries over various years. Previous researchers have also utilized the SDC Platinum database to gather information regarding M&A activities involving U.S. firms [18].

D. Moderating Variables

Advertising Expenditure. We utilize the ratio of advertising expenditure to sales from Compustat database as an indicator of advertising spending for high-tech firms. This ratio plays a role in data standardization, facilitating meaningful comparisons of advertising expenditure across various high-tech firms and timeframes. This approach aligns with previous studies in the literature [22].

Research Expenditure. We employ the R&D expenditure to sales ratio from the Compustat database as a measure of research spending for high-tech firms. This ratio offers a numerical measure for assessing research expenditure, rendering it appropriate for thorough analysis and data-informed conclusions. By associating research spending with sales revenue, it provides a financial standpoint on how high-tech firms distribute resources for research and development in relation to their total income. This method is consistent with previous research in the field [39] [53].

Size of TMT. We determine the size of the top management team by tallying the count of executives in the upper management echelon, utilizing data from the ExecuComp database for high-tech firms. As the measure directly quantifies the size of the top management team, it is

easily comprehensible and accessible to both researchers and practitioners. The approach maintains consistency and compatibility with the existing literature, following accepted research procedures within the field [19].

Firm Asset Efficiency. We determine asset efficiency by calculating the sales-to-assets ratio using data from the Compustat database for high-tech firms. This method provides a quantitative and objective measure for evaluating asset efficiency, allowing for rigorous analysis and data-driven insights into how efficiently assets are being utilized. This approach to calculating asset efficiency aligns with established research practices in the field, ensuring consistency and reliability in the measurement [62].

E. Control Variables

We incorporate several control variables that have the potential to influence our research outcomes. One of these variables is the gross profit margin, which represents the ratio of gross profit to total assets in high-tech firms. This financial metric serves as an indicator of how efficiently a high-tech firm generates profits from its overall assets. A high gross profit margin is indicative of effective profit generation and can enhance the attractiveness of the firm to potential acquirers [42].

Additionally, we consider the return on equity (ROE), which measures the ratio of net income to shareholders' equity. ROE is included to account for the efficient utilization of shareholders' equity in generating profits. A higher ROE may lead to improved compensation opportunities for employees, potentially contributing to a reduction in turnover rates [57]. Furthermore, we incorporate the log of firms' sales as a proxy for firm size. Larger firms are often more inclined to engage in M&A activities compared to smaller firms [32], [46]. Therefore, we include this variable in our study. CEO experience, denoted by the number of years a CEO has held their position in the high-tech firm, is also considered. CEOs with greater

experience may be better equipped to manage employee frustration and demotivation stemming from M&A activities [27], [60]. We also use the lag term of our dependent variable as a control because last year's departure of employees may lead current year employees to leave due to fears of instability or demotivation. The inclusion of these variables is motivated by their potential impact on our analysis, and their incorporation enhances the robustness of our research findings. The variable descriptions, along with descriptive statistics and correlations, are presented in Tables I and II.

TABLE I
DETAILS OF THE MEASURES

Conceptual Variables	Measure	Data Source
Employee Turnover Rate	Year-wise percentage change in number of Employees	COMPUSTAT
M&A Activities	Number of M&A activities performed by high-tech firms in a year	SDC Platinum
Advertising Expenditure	Ratio of Advertising expenditure to sales	COMPUSTAT
Research Expenditure	Ratio of R&D expenditure to sales	COMPUSTAT
Size of TMT	Count of executives in the upper management echelon	ExecuComp
Firm Asset Efficiency	Ratio of sales-to-assets	COMPUSTAT
Gross Profit Margin	Ratio of gross profit to total assets	COMPUSTAT
Return on Equity (ROE)	Ratio of net income to shareholders' equity	COMPUSTAT
Firm Size	Log of firms' sales	COMPUSTAT
CEO Experience	Number of Years spent by the CEO in the firm	ExecuComp

TABLE II
CORRELATION AND DESCRIPTIVE STATISTICS

Variables	1	2	3	4	5	6	7	8	9	10
1 Employee Turnover Rate	1									
2 M&A Activities	0.03*	1								
3 Advertising Expenditure	0.01	-0.01	1							
4 Research Expenditure	0.02*	-0.00	0.04*	1						
5 Size of TMT	-0.02*	-0.01	-0.00	-0.00	1					
6 Firm Asset Efficiency	0.03*	0.11*	0.00	-0.02*	-0.01	1				
7 Gross Profit Margin	0.00	0.01	-0.00	-0.01*	0.03*	0.01	1			
8 ROE	-0.02*	-0.01	0.00	0.00	0.00	-0.01*	-0.00	1		
9 Firm Size	0.01	-0.00	0.08*	0.06*	-0.00	-0.01	-0.00	-0.00	1	
10 CEO Experience	0.06*	0.10*	-0.00	-0.02*	-0.00	0.04*	0.01	-0.01	-0.01	1
Mean	2.51	1.01	0.13	0.71	3.45	0.17	0.25	0.29	3.85	2.23
SD	15.29	1.15	0.02	0.11	1.11	0.05	0.37	0.31	2.35	4.63

F. Analytical Approach

Endogeneity Correction (Gaussian Copula): Our primary independent variable is the total number of M&A activities performed by high-tech firms. Many factors can affect a firm's decision to move into M&A activities. We address this endogeneity using the Gaussian Copula method. The Gaussian Copula technique corrects for endogeneity by employing a copula function to model the dependence structure between the endogenous variable and the error term, avoiding the need for rigid distributional assumptions [4]. We first regress the M&A activities variable on all the control variables reported in Table I and obtain the residuals in this first stage. We apply the transformation of these residuals and use this transformed function as an additional control variable in our original regression model.

Primary Regression Model: We use a longitudinal dataset of those high-tech firms involved in M&A activities for the duration of 24 years. It is more likely that each high-tech firm's decision to engage in M&A activities is influenced by some unique factors which may possess idiosyncratic characteristics. For example, Apple Inc., a top player in the high-tech field, frequently acquires companies famous for their technological innovations [51]. The acquired technologies are often integrated into Apple's existing range of products or harnessed to create innovative new offerings. In a similar manner, other technology-driven companies may have particular attributes that impact their participation in M&A processes. These evolving random effects play a role in the decision-making of firms. By employing a random effects model, we can capture these fluctuating influences. This approach recognizes that while certain aspects of M&A activities are shared among companies, other elements differ randomly from one firm to another. Hence, we use the random effects model to support our hypotheses empirically.

To test the hypotheses, we utilized the model specified in equation (1), where all variables related to the firm i at time period t are included. However, it is important to note that the dependent variable in the model is measured for the subsequent year, specifically at time period $t + 1$.

$$\begin{aligned}
& \text{Employee Turnover Rate}_{i(t+1)} \\
&= \beta_0 + \beta_1 * M\&A \text{ Activities}_{it} + \beta_2 \\
&\quad * M\&A \text{ Activities}_{it} * Advertising \text{ Expenditure}_{it} + \beta_3 * M\&A \text{ Activities}_{it} \\
&\quad * Research \text{ Expenditure}_{it} + \beta_4 * M\&A \text{ Activities}_{it} * Size \text{ of TMT}_{it} + \beta_5 \\
&\quad * M\&A \text{ Activities}_{it} * Firm \text{ Asset Efficiency}_{it} \\
&\quad + \beta_6 * Advertising \text{ Expenditure}_{it} + \beta_7 * Research \text{ Expenditure}_{it} + \beta_8 \\
&\quad * Size \text{ of TMT}_{it} + \beta_9 * Firm \text{ Asset Efficiency}_{it} + \beta_{10} \\
&\quad * Gross \text{ Profit Margin}_{it} + \beta_{11} * ROE_{it} + \beta_{12} * Firm \text{ Size}_{it} + \beta_{13} \\
&\quad * CEO \text{ Experience}_{it} + \beta_{14} * Employee \text{ Turnover Rate}_{it} + \beta_{15} * \hat{C}_{it} \\
&\quad + \varepsilon \dots \dots \dots (1)
\end{aligned}$$

All the variables present in equation (1) are reported in Table 1, and \hat{C}_{it} is the transformed Gaussian Copula function used for endogeneity correction in our original model.

IV. EMPIRICAL RESULTS

A. Hypothesis Tests

Following the application of a random effects model to the data, we present the outcomes in Table III (Model 3). It contains the coefficients along with their respective significance levels in relation to each hypothesis.

Results for H1. The positive and statistically significant coefficient of the main independent variable, M&A activities, with a value of 1.33 ($p < 0.01$), provides empirical support for our

first hypothesis (H1). Therefore, an elevated level of M&A activities in high-tech firms leads to a corresponding rise in the employee turnover rate.

Results for H2. The coefficient of interaction of M&A activities and advertising expenditure is negative and statistically significant ($\beta = -0.41$, $p < 0.05$), providing empirical support for our second hypothesis (H2). Therefore, an increase in advertising expenditure mitigates the effect of increased M&A activities on the employee turnover rate in high-tech firms.

Results for H3. The coefficient of interaction of M&A activities and research expenditure is negative but not statistically significant ($\beta = -0.01$, $p > 0.05$). Hence, our third hypothesis (H3) is not empirically supported.

Results for H4. The coefficient, which is both negative and statistically significant, characterizing the interaction between M&A activities and top management team, with a value of -0.19 ($p < 0.01$), provides empirical support for our fifth hypothesis (H4). As a result, increasing the size of the top management team lessens the influence of increased M&A activities on the employee turnover rate within high technology firms.

Results for H5. The positive and statistically significant coefficient for the interaction between M&A activities and firm asset efficiency, represented by the value of 0.91 ($p < 0.01$), offers empirical validation for our fourth hypothesis (H5). Hence, heightened asset efficiency within firms magnifies the impact of increased M&A activities on the employee turnover rate in high-tech companies.

Through our analysis, we discover empirical confirmation for all hypotheses except for H3, as detailed in Table III. Heteroskedasticity is not present in our model, as confirmed through the use of robust standard errors. Additionally, our model remains unaffected by multicollinearity, with the average Variance Inflation Factor (VIF) standing at 2.65. In the subsequent section, we also conduct additional robustness checks.

TABLE III
MAIN MODEL RESULTS, DV-EMPLOYEE TURNOVER RATE

Variables	Model 1: Main Effect	Model 2: Main Effect with Control Variables	Model 3: Primary Analysis
M&A Activities	0.78*** (0.12)	0.59*** (0.09)	1.33*** (0.24)
M&A Activities * Advertising Expenditure			-0.41** (0.18)
M&A Activities * Research Expenditure			-0.01 (0.01)
M&A Activities * Size of TMT			-0.19*** (0.05)
M&A Activities * Firm Asset Efficiency			0.91*** (0.31)
Advertising Expenditure		0.02 (0.01)	0.02 (0.01)
Research Expenditure		-0.01 (0.00)	0.01 (0.01)
Size of TMT		-0.69** (0.10)	-0.51*** (0.11)
Firm Asset Efficiency		0.01* (0.01)	0.02* (0.01)
Gross Profit Margin		-0.02 (0.01)	-0.02 (0.01)
ROE		0.03 (0.02)	0.02 (0.01)
Firm Size		-0.94* (0.20)	-0.03 (0.03)
CEO Experience		0.14*** (0.02)	0.13*** (0.02)
Employee Turnover (Lagged)		0.04*** (0.01)	0.05*** (0.02)
Copula Function	-0.11 (0.12)	3.57*** (0.72)	3.63*** (0.72)
R-Square	0.01	0.17	0.18

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

B. Robustness Checks

1) Alternative Dependent Variable

To achieve a more accurate measurement of voluntary employee turnover in the high-tech industry, we advance our methods beyond the year-over-year percentage change in the number of employees of high-tech firms. While the percentage change in number of employees offers some insights, these changes may combine involuntary departures, such as layoffs, restructurings or divestitures, along with voluntary turnovers. To mitigate this issue, we refer to data from the U.S. Bureau of Labour Statistics (BLS), which includes the number of “quits”-

a metric that specifically records voluntary separations initiated by employees. This strategy is more in line with our objective of recognizing voluntary turnover, especially considering the complexities that M&As bring to the organization. To determine voluntary quits specific to the high-tech sector, we year-wise multiply the total quits by the proportion of firms that are publicly traded high-tech companies. This approach delivers a more accurate and representative measure of voluntary turnover in the high-tech labour market. We use this voluntary turnover measure as our dependent variable and use the same model for estimation given in equation (1). The results are reported in Table IV (Model 1). All the hypotheses are empirically supported except H5.

2) *Inclusion of Fixed Effects*

In order to assess the robustness of our model, we have incorporated firm and year-specific fixed effects into our analysis. These fixed effects serve the purpose of mitigating the impact of unobservable variations that could potentially influence our study [65]. Furthermore, they contribute to enhance the precision of our forecasts by accounting for systematic distinctions inherent to firms and years within the model. The outcomes are presented in the first column of Table IV (Model 2). All hypotheses are supported except H3.

3) *OLS*

We use the ordinary least squares method as an alternative method to analyze our data and support our hypotheses empirically. OLS serves as the foundational regression method for our statistical analyses. We employ OLS as our primary estimation approach to empirically validate our hypotheses and reinforce the robustness of our study. The results are presented in Model 3 of Table IV. All of our hypotheses receive support, with the exception of H3.

TABLE IV
ROBUSTNESS ANALYSIS

Variables	Model 1 Alternative DV	Model 2 FE	Model 3 OLS	Model 4 Top 1%
M&A Activities	0.06*** (0.02)	1.06*** (0.22)	0.91*** (0.18)	0.83*** (0.17)
M&A Activities * Advertising Expenditure	-0.02** (0.01)	-0.30* (0.18)	-0.36** (0.18)	-0.32* (0.18)
M&A Activities * Research Expenditure	-0.03* (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)
M&A Activities * Size of TMT	-0.01*** (0.01)	-0.17*** (0.05)	-0.16*** (0.04)	-0.15*** (0.04)
M&A Activities * Firm Asset Efficiency	-0.02 (0.03)	0.79*** (0.30)	0.94*** (0.31)	0.97*** (0.30)
Advertising Expenditure	0.13 (0.11)	0.02 (0.01)	0.02 (0.01)	0.03 (0.02)
Research Expenditure	0.22* (0.01)	0.03 (0.01)	0.01 (0.00)	0.01 (0.00)
Size of TMT	0.02 (0.01)	-0.50*** (0.12)	-0.44** (0.09)	-0.33*** (0.09)
Firm Asset Efficiency	-0.26 (0.15)	0.02* (0.01)	0.01*** (0.01)	0.01* (0.01)
Gross Profit Margin	0.51** (0.25)	-0.03 (0.01)	-0.01 (0.01)	-0.01 (0.01)
ROE	0.26 (0.18)	0.03 (0.01)	0.03 (0.01)	0.03 (0.02)
Firm Size	0.28** (0.09)	-1.13 (0.19)	-0.93 (0.18)	-0.81 (0.17)
CEO Experience	0.07*** (0.05)	0.12*** (0.02)	0.11*** (0.02)	0.09*** (0.01)
Lagged Response	0.64** (0.14)	0.04*** (0.02)	0.07*** (0.01)	0.25*** (0.04)
Copula Function	0.07* (0.01)	4.47*** (0.69)	4.25*** (0.64)	3.33*** (0.63)
R-Square	0.11	0.27	0.03	0.46

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4) Winsorizing the Employee Turnover Rate by 1%

In our primary model analysis, we apply winsorization to the top 5% of observations of the employee turnover rate, aiming to eliminate strategic layoffs by high-tech firms. To provide robustness, we winsorize the top 1% of the employee turnover rate and employ it as a proxy for our dependent variable in the analysis [48]. The results are documented in Model 4 of Table IV. All of our hypotheses find support, except for H3. As a result, enhanced levels of M&A activities in high-tech companies are linked to an increased employee turnover rate. Nevertheless, an increase in advertising spending helps mitigate the impact of heightened M&A activities on employee turnover. Increased asset efficiency within firms intensifies the effect of increased M&A activities on the employee turnover rate in high-tech companies. Conversely,

expanding the size of the top management team diminishes the influence of increased M&A activities on employee turnover within high-tech organizations. All these robustness checks yield results that align consistently with those obtained in our primary model analysis. This indicates the robustness of our model across various settings, with empirical support for all hypotheses except H3.

V. DISCUSSION

Our research has various theoretical and managerial implications, which we explore in this section.

A. Theoretical Implications

This research significantly enhances the theoretical comprehension of employee turnover in the context of M&A activities, with a focus on high-tech firms. This study contributes to organizational change theory by illustrating those substantial transformations, such as M&As, that disrupt established routines and social structures, leading to greater employee uncertainty and psychological stress [45], [52]. The M&A activities bring cultural misalignment and the introduction of rigid hierarchies, which conflict with the established work environment of the high-tech industry, where autonomy, innovation, and agility are paramount [6], [43]. This misalignment magnifies the psychological costs of change, leading to greater turnover intentions, particularly as employees feel their skills may no longer be optimally applied. This supports the premise that mismatches in human capital and poorly executed integration processes negatively impact morale and employee retention, confirming our H1.

Following the absorptive capacity framework, H2 and H3 show the impact of advertising and R&D expenditures on the contribution of the M&A activities on employee turnover. Advertising investment reflects a firm's realized absorptive capacity, emphasizing its capability to transform external knowledge into effective market strategies [26]. A high advertising

expenditure suggests a sustainable competitive advantage in future, which is supported by external stakeholder engagement, reduces employee anxiety and promotes internal cohesion. Additionally, it may promote a psychological sense of reciprocal obligation in employees, consistent with social exchange, thus reducing turnover risk. Conversely, R&D funding, representing a firm's potential absorptive capacity [54], develops the firm's ability to understand and assimilate external knowledge. High R&D expenditure indicates organizational readiness and cultivates a culture of innovation, which can mitigate the effects of structural change on employees, thereby reducing turnover.

Our fourth hypothesis enhances the upper echelons framework [17] by showing that larger TMTs increase cognitive diversity and decision-making quality during M&A transitions. From a leadership perspective, a larger TMT can more effectively coordinate communication and support efforts, enhancing change management results and preserving employee engagement [36]. These leadership attributes are key during M&As, where effective guidance can alleviate employee dissatisfaction and reduce turnover. Our fifth hypothesis is associated with the resource-based framework by indicating that although high asset efficiency typically signals effective resource deployment, it may signal to employees a tightening of operational flexibility during M&As. An efficiency-focused orientation may be seen as moving away from employee-centric practices, risking job security and flexibility. Likewise, transaction cost economics suggests that although asset efficiency optimizes processes, it may heighten the internal costs of sustaining employee satisfaction and trust. These actions may signal cost-reduction activities by employees rather than long-term investments in human capital, increasing their tendency to exit.

B. Managerial Implications

Our study has multiple practical insights for practitioners. Managers need to prioritize human capital strategies during M&A processes. They should use transparent communication strategies and proactive career path planning to alleviate the uncertainty among employees. The initiatives related to emotional security, retraining, and flexible work arrangements may give trust to employees who perceive instability and misalignment with the new organizational culture. We find that the advertising activities reduce the impact of M&A activities on the employee turnover rate. Hence, firms' advertising strategies are crucial during M&As because they signal stability, continuity, and strategic vision to stakeholders. High-tech firm managers can formulate promotional campaigns that signal the firm's future vision and enhance a sense of optimism among employees. By positioning the advertising as a reflection of a stable organization, managers may boost the morale of employees and support retention during unstable transitions.

Ongoing R&D investment enhances a firm's innovation capabilities and promotes a resilient organizational culture. It is important for managers to communicate the firm's dedication to long-term innovation, framing R&D as a stabilizing force that secures the firm's future. Framing it this way fosters trust and mitigates resistance, emphasizing the firm's readiness for continuous adaptation. While operational efficiency is important, it should not come at the cost of employee satisfaction. Engaging employees in efficiency-enhancing activities ensures alignment between the company's objectives and personal goals. An increase in more internally transparent decision-making strategies may counteract the belief that efficiency is a cover for reducing staff or cutting costs. Board members should strategically increase the diversity of their top management teams, incorporating varied perspectives and skills to enhance decision-making during M&As. Leadership development programs are recommended to help leaders with the emotional intelligence and communication skills to

facilitate employee guidance during change. Trustworthy and capable leaders are fundamental to ensuring employee confidence and decreasing turnover following M&As.

Hypotheses H2 and H3 collectively underscore the importance of absorptive capacity to reduce employee turnover and ensure smooth transitions during M&As. The managers of high-tech firms should invest in both realized and potential absorptive capacity for managing employee turnover. Advertising spending, as an indicator of realized absorptive capacity, shows how well a firm can translate external market knowledge into actionable strategies. Managers need to acknowledge that advertising serves a dual purpose- an external branding mechanism and a strategic internal signal during M&As. At the same time, potential absorptive capacity, developed through R&D investment, enhances a firm's ability to integrate and prepare external knowledge for future innovation. From a managerial perspective, R&D expenditure is not only related to innovation of existing or new products but also to creating a long-term culture of innovation during M&A transitions. By investing in absorptive capacity, high-tech firms establish stabilizing forces that help maintain employee retention, engagement, and adaptability during M&A transitions.

VI. CONCLUSION

A. Concluding Remarks

We examine the influence of M&A activities on the employee turnover rate within high-tech firms and explore various factors that can moderate the relationship between M&A activities and employee turnover. Our empirical analysis relies on longitudinal data from publicly traded high-tech companies in the United States. We find that an increase in M&A activities is positively associated with the employee turnover rate. However, an increase in advertising and R&D expenditures reduces the influence of M&A activities on employee turnover. We also find that expanding the size of the top management reduces the influence of

heightened M&A activities on employee turnover within high-tech organizations. Moreover, elevated asset efficiency within firms amplifies the effect of increased M&A activities on the employee turnover rate in high-tech companies.

B. Limitations and Future Research Directions

Our study presents several limitations. Firstly, it relies on secondary data for analysis. Researchers can perform qualitative in-depth interviews with the internal stakeholders to uncover further impacts of M&A activities on employee turnover rates. Secondly, we conduct our analysis using the dataset of US publicly traded firms. To make our findings more widely applicable, privately held high-tech companies should be incorporated. Thirdly, our focus is on developed economies, supported empirically by data from these regions. Researchers are encouraged to explore data from emerging economies to test the applicability of our findings in those contexts. Fourthly, we used longitudinal data to empirically validate our hypotheses. Exploring unique time-series and cross-sectional datasets could offer new insights into the relationship between M&A activities and employee turnover rates. Fifth, researchers can also explore different type of M&A deals and their diverse impact on employee retention as an extension of the study. Sixth, investigation of employee compensation and its effect on employee turnover, along with M&A transitions, could be another potential area for future research. We acknowledge these limitations and suggest that future researchers address these areas to uncover new research questions relevant to this field.

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