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## The upside-down world of value capture. Do companies in technology sector follow the principles of profitable growth?<sup>1</sup>

**Abstract.** The technology sector has been showing a constant increase in the number of M&A transaction over the last years, setting record in both deal volume and value. For many companies, this is the only way to obtain the unique resources and build capacity necessary to succeed in the fast-paced business environment. The current paper investigates whether the strategic deals, which have been driving the technology sector over the last decade, can be considered value-creating and had a positive impact on the acquirers' long-term financial performance. To analyze the changes in the performance of bidding companies both univariate and multiple-regression analyses were performed. The results show that overall the acquiring companies could not achieve profitable growth and fully capture value and the benefits of M&A. The acquirers showed rather a deterioration in post-acquisition profitability, efficiency, and growth. The focus (international and industrial) was associated with the best results in terms of both profitability and growth, while the largest increase in post-event growth rates was achieved by the companies from the emerging markets and in the first years following the completion of the deal.

**Keywords:** *growth strategy, technology sector, corporate M&A, profitable growth, shareholder value creation, valuation.*

JEL Classification: G14, G32, G34.

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### 1. Introduction

Over the last decade, the technology sector has almost doubled its share within the global M&A market. The sector dominated in M&A also in 2021, setting records in deal value and volume. So, according to Thomson Financial Securities Data, technology M&A increased by 71% from 2020 totaling \$USD1.1 trillion, which represents 20% of global M&A deal value. This trend, which is expected to continue also in the coming years, can be explained by the fact that technology leaders see M&A as a major strategic tool for growth. It is virtually impossible for high-tech industries – which rely heavily on innovation and complex and specialized technologies – to build every capacity they need for growth and innovation on their own in today's fast-paced business climate. M&A allow high-tech firms to obtain resources and capacities, human capital with specific kinds of experience (Ahuja, Katila, 2001) as well as serve as an important means of expanding firms' knowledge horizons through joint development or the exchange of products, technologies, and services (Graebner, Eisenhardt, Roundy, 2010).

Despite these constant and increasing trends, the largest part of research on M&A in the technology sector has been focused mostly on how to transfer and incorporate innovative technologies and knowledge so far. The financial performance of the

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deals and their contribution to the value creation of the firm remained out of scope. The current paper aims to close this gap. As the financial studies in technology sector are extremely rare, and those that exist suggest often contradicting results, the present study strives to advance the existing knowledge from the financial perspective. It investigates whether and to what extent the acquiring companies in the technology industry improve their financial performance in the years following the strategic M&A. Using a range of financial ratios, it analyzes both operating post-acquisition performance and any changes in the efficiency of company. In addition, it outlines additional structural determinants that can have an effect on financial results.

The paper contributes to the existing research from three main perspectives. First, it focuses on the concept of profitable growth and tests it empirically. Taking into consideration that the largest number of deals in the technology sector are strategic and aim at increasing revenues or market share, the question how much value such deals create is of high importance. Second, contrary to the existing studies, it analyzes the success of the transactions from the financial perspective and shows whether the synergies (e.g. acquisition of knowledge, skills and people) could be correctly realized and how they contribute to the financial performance of acquiring companies. To the best of my knowledge, this is the first attempt to study the impact of strategic M&A on the long-term post-acquisition operating performance of technological acquirers. Third, it outlines the determinants with the highest impact on the M&A success, performed by the technology companies, including both financial and non-financial factors and brings in additional insights into success factors of strategic acquisitions for growth.

The paper is structured as follows. Section 2 presents an overview of recent research findings on the long-term performance evaluation in M&A. Section 3 describes the data sample and methodology used in the analysis. Section 4 is devoted to the empirical investigation of changes in long-term performance of acquiring companies and evaluation of the impact of different factors on these changes. Section 5 presents the results and concludes.

## **2. Literature overview and research framework**

### **2.1. Literature review**

The analysis of post-acquisition performance remains one of the most disputable issues in the empirical research. Largely, it happens to the fact that there is a strong disagreement in the academic community which factors must be analyzed. While some of the researchers focus on accounting-based measures (e.g. (Boateng, Bi, Brahma, 2017; Rao-Nicholson, Salaber, Cao, 2016; Bertrand, Betschinger, 2012; Papadakis, Thanos, 2010; Gugler et al., 2003; Heron, Lie, 2002)), others outline the importance of value-based (e.g. (Ma, Whidbee, Zhang, 2011; Guest, Bild, Runsten, 2010; Yook, 2004)) or cash flow-based (e.g. (Huang et al., 2014; Dutta, Saadi, Zhu, 2013; Carline, Linn., Yadav, 2009; Kruse et al., 2007; Gosh, 2001; Healy, Palepu, Ruback, 1992)) measures.

Among the most popular determinants for the analysis of post-event performance of transaction participants remain the accounting-based variables. These variables are considered to represent the changes in the financial performance of the transaction participants in the best way. The most widely-used are EBITDA and ROA determinants (Rao-Nicholson, Salaber, Cao, 2016; Pazarkis et al., 2006) along with operating income (Heron, Lie, 2002). However, this group of factors may be influ-

enced by different accounting policies or even be a subject to managerial manipulations. They are also not always able to evaluate the impact of the deal on company value. One frequently mentioned argument claims that the improvement in acquirer's growth rates does not necessarily mean positive impact of the deal. If acquirer's profitability deteriorates after the transaction, even a significant positive change in growth rates will not generate additional value for acquirer (Vinogradova, 2017).

Value-based models allow to take the changes in operating profitability and acquirer's required return on capital employed into account and thus, overcome the shortcomings of accounting-based performance measures. So, K. Yook (Yook, 2004) uses the EVA approach to evaluate the difference between the pre- and post-acquisition performance. The authors (Guest, Bild, Runsten, 2010) develop a comprehensive framework for analyzing post-acquisition performance which includes both market- and value-based approaches. Ma Q., Whidbee D.A. and Zhang A.W. (Ma, Whidbee, Zhang, 2011) analyze the intrinsic value, which is measured as a function of the firm's market valuation and its accounting metrics. The negative change in acquirers' post-transaction values is explained by negative changes in forecasted earnings and increased cost of capital. Despite its possible benefits, this approach is, however, difficult to implement.

Cash flow-based ratios are unaffected by the method of accounting and independent of deal financing options. One commonly used variable is pre-tax operating cash flow scaled by market or book value of assets or sales. So, Healy P.M., Palepu K.G. and Ruback R.S. (Healy, Palepu, Ruback, 1992) analyze the impact of M&A on acquirers' cash flow returns. The authors employ pre-tax operating cash flow deflated by the market value of assets as performance measure and compare bidders' performance within five years around the merger. Rahman R.A. and Limmack R.J. (Rahman, Limmack, 2004) investigate the impact of acquisitions on cash flow growth rates. The authors use pre-tax operating cash flow adjusted for changes in working capital as a performance measure and show that in the periods following acquisitions, bidders experience significantly higher cash flow growth rates than companies from the control group.

Very often researchers combine different methods to adjust for shortcoming of the single one. So, Cui H. and Leung S.C.M. (Cui, Leung, 2020) analyze the performance of bidding companies from three different perspectives – accounting (ROA), cash-based (CFO) and market-based (MTB). Also, Sharma D.S. and Ho J. (Sharma, Ho, 2002) include all three perspectives into the analysis.

Table 1 presents an overview of recent empirical studies, factors used for analysis and major results.

## 2.2. Research framework & hypotheses

To analyze the changes in the long-term acquirers' performance I focus on the financial ratios describing the operating performance of the company, its efficiency, capital investment policy and its ability to grow. To address the academic dispute about the right measure for the operating performance, I evaluate both the profitability of the firm, expressed through EBITDA/SALES, which is the measure that best approximates the true cash flow of the company (Kukalis, 2012; Vinogradova, 2017), and a "pure" cash flow measure (Powell, Stark, 2005), expressed as operating cash flow divided by sales (OCF/SALES). This measure is employed to ensure a degree of comparability

**Table 1**  
Literature review

Paper	Sample description	Time period analyzed	Performance measure	Benchmark model	Methods	Observation window	Findings
Developed Markets							
Cui/Leung (2020)	7.907 deals, US	2000–2012	ROA, CFO, MTBV	Industry	Intercept model	(+1; +3)	Bidders with higher managerial ability outperform peers
Jallow et al. (2017)	40 deals, UK	2011	ROA, ROE, EPS, Net Profit Margin	Industry	Change model	(-5; +5)	M&A have significant impact on ROA, ROE and EPS
Giudici/Boneventura (2017)	245 deals, EU	1998–2008	CF/ASSETS, CF/SALES, pre-tax	Industry, size, performance	Change & Intercept	(-3; +3)	No significant change
Dutta et al. (2013)	1.300 deals, Canada	1993–2002	CF/ASSETS	Industry	Intercept	(-3; +3)	No improvement
Ma et al. (2011)	1.077 deals, US	1978–2002	Intrinsic value of the firm	Industry	RI model	(-1; +3)	Deterioration of acquirers' intrinsic value
Guest et al. (2010)	303 deals, UK	1985–1996	ROE	Industry, size, performance	Change, RI model	(-3; +3)	Improvement in profitability of bidders, but insignificant decline in their fundamental value
Papadakis/Thanos (2010)	50 deals, Greece	1997–2003	ROE	Industry	Change model	(-2; +2)	No significant change
Carline et al. (2009)	81 deals, UK	1985–1994	CFO/MV	Industry	Change & Intercept	(-5; +5)	Improvement in cash-flow performance
Kruse et al. (2007)	69 deals, Japan	1969–1999	CFO/MV, CFO/SALES	Industry, size, performance	Intercept	(-5; +5)	Improved control firm-adjusted performance, Diversifying acquisitions yield better performance
Martynova et al. (2007)	155 deals, EU	1997–2001	(EBITDA-WC)/ASSETS, (EBITDA-	Industry, size, performance	Change & Intercept	(-3; +3)	No improvement
Pazariskis et al. (2006)	50 deals, Greece	1998–2002	Profitability, liquidity, solvency ratios	None	Change model	(-3; +3)	Deterioration of acquirers' profitability

Ending of table 1

Paper	Sample description	Time period analyzed	Performance measure	Benchmark model	Methods	Observation window	Findings
Developed Markets							
Powell/Stark (2005)	191 deals, UK	1985–1993	CFO/MV, CFO/SALES, CFO/BV	Industry, size, performance	Change & Intercept	(-1; +3)	Post-acquisition performance improves, but at different scale depending on methodology used (change/intercept model)
Gugler et al. (2003)	44.600 deals, world	1981–1998	EBIT/ASSETS, EBIT/SALES	Industry	Change model	(-1; +5)	Mergers improve profitability but result in decline in sales
Sharma/Ho (2002)	36 deals, Australia	1986–1991	ROA, ROE, EPS, CFO/Sales, CFO/A	Industry, size, performance	Change & Intercept	(-3; +3)	No improvement
Ghosh (2001)	315 deals, US	1981–1995	CFO/MV, CFO/Sales	Industry, size, performance	Change & Intercept	(-3; +3)	No improvement overall, but cash flows significantly increase in cash deals
Emerging Markets							
Boateng et al. (2017)	340 deals, China	2004–2011	ROA	Industry, size, performance	Change model	(+1; +3)	Deteriorated post-acquisition performance
Rao-Nicholson et al. (2016)	57 deals, ASEAN	2001–2012	ROA, EBITDA margin	Industry, size, performance	Change model	(-3; +3)	Industry-adjusted operating performance deteriorates after the deal
Huang et al. (2014)	91 deals, Taiwan	1998–2007	CFO/MV	Industry	Change model	(-3; +3)	Deteriorated industry-adjusted performance
Bertrand/Betschinger (2012)	609 deals, Russia	1999–2008	EBIT/ASSETS	Non-acquiring firms	GMM estimator	(-2; +2)	Deteriorated post-acquisition performance
Kumar/Bansal (2008)	74 deals, India	2003	WC, Operating profit, EBIT, ROE, EP	None	Change model	(-3; +3)	Enhancement in acquirers' performance
Mantravadi/Reddy (2008)	118 deals, India	1991–2003	6 financial & operating ratios	None	Change model	(-3; +3)	Deteriorated post-acquisition performance
Rahman/Limmack (2004)	113 deals, Malaysia	1988–1992	CF/ASSETS, CF/SALES	Industry, size	Change & Intercept	(-4; +5)	Higher post-acquisition control-adjusted cash flow growth rates

with empirical corporate finance studies (Baker et al., 2012; Giudici, Boneventura, 2018; Kruse et al., 2007; Rahman, Limmack, 2004).

In addition to the financial variables, I include a set of control, non-financial or deal structure variables, such as method of payment, international or industrial diversification, market structure, and pre-event cash reserves of the acquiring companies. This approach is similar to (Ghosch, 2001; Martynova Oosting, Renneboog, 2007; Vinogradova, 2017) and allows considering additional factors. The description of major variables is provided below.

**Method of payment.** Empirical findings on the impact of method of payment on post-acquisition financial performance are mixed, but most of the researchers document no material impact of the method of payment on bidders' long-term operating performance (Martynova, Oosting, Renneboog, 2007; Powell, Stark, 2005; Heron, Lie, 2002). The majority of the academic studies suggest that firms finance acquisitions with stock when their shares are overvalued and use cash otherwise (Boone, Lie, Liu, 2014; Myers, Majluf, 1984). Stock deals are therefore usually accompanied by negative abnormal returns for the acquirer both in the short run (Moeller, Schlingemann, 2005; Moeller, Schlingemann, Stulz, 2004; Fuller, Netter, Stegemoller, 2002) and in the long run (Dutta, Saadi, Zhu, 2013). Martynova M. and Renneboog L. (Martynova, Renneboog, 2006) further argue that method of payment provides information about the quality of the target and the expected synergies. The acquirers use stock when they are less certain about the deal outcome and want targets' shareholders to share the risks of the merged firm. Cash deals, at the same time, often result in change of corporate control and more frequently lead to management turnaround. Moreover, cash deals are often financed with debt which imposes discipline on the merged firm's spending and restricts opportunities for spending free cash flows (Martynova, Oosting, Renneboog, 2007). On the other hand, stock offers allow target's shareholders to monitor performance of the merged firm and are associated with lower degree of management turnaround, making integration process easier (Dutta, Saadi, Zhu, 2013).

**Geographical diversification.** Previous research has found mostly negative correlation between geographical diversification and bidders' long-term operating performance (Hamza, 2011; Moeller, Schlingemann, 2005), but a few studies document positive or insignificant effect of cross-border deals (Zaheer, Hernandez, Banerjee, 2010; Gugler et al., 2003). So, M. Martynova and L. Renneboog, (Martynova, Renneboog, 2008) claim that takeover value in cross-border M&A can be induced by improvements in the governance of the bidding and target firms, and Chakrabarti R. and coauthors (Chakrabarti, Gupta-Mukherjee, Jayaraman, 2009) find that cross-border acquisitions yield better long-term operating performance if the cultural distance between the acquirer and target is high. Bris A. and Cabolis C. (Bris, Cabolis, 2008) state that the effect of a cross-border merger on the target firm is positively correlated with the shareholder protection and the accounting standards which exist in the acquirer's country of origin. Often, firms from stronger-performing economies (i.e., with high stock market valuations and appreciating currency) seek targets in weaker-performing economies (Erel, Liao, Weisbach, 2012). Moreover, targets in cross-border deals are more likely to come from countries with worse corporate governance and investor protection practices compared to acquirers (Rossi, Volpin, 2004), so that an improvement in shareholder protection resulting from the acquisition is valued by investors

Table 2

List of the variables used in the analyses

Financial variables	Name	Description	Anticipated sign
Profitability	EBITDA/SALES	Acquirer's earnings before interest depreciation and amortization divided by sales three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	+
	EBITDA/ASSETS	Acquirer's earnings before interest depreciation and amortization divided by total assets three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	+/-
Cash flow	OCF/SALES	Acquirer's operating cash flow divided by sales three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	+/-
	OCF/ASSETS	Acquirer's operating cash flow divided by total assets three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	-
Efficiency	SALES/ASSETS	Acquirer's total sales divided by total assets three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	-
	SALES/NOA	Acquirer's total sales divided by net operating assets three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	-
Investment polity	CAPEX/SALES	Acquirer's capital expenditures divided by sales three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	-
Growth	SALES GROWTH	Acquirer's sales growth rate three years before and after the deal. Median values were used for the analysis. The change in performance was calculated both as raw and industry-adjusted.	+
Deal-structure variables			
Method of payment	CASH	1 – if M&A is paid in cash; 0 otherwise	+/-
Geographical diversification	INT	1 – if M&A is a cross-border deal; 0 otherwise	+
Industry relatedness	INDREL	1 – if M&A is from the same industry; 0 otherwise	+
Home market of acquirer	EMER	1 – if acquirer comes from emerging country; 0 otherwise	+
Acquirer's cash reserves	CASHRES	Acquirer's cash and cash equivalents to total assets one year prior to the deal	+/-

(Martynova, Renneboog, 2008; Bris, Cabolis, 2008). By engaging in cross-border M&A, acquirers can gain access to a wide range of novel investment opportunities and realize synergistic gains (Moeller, Schlingemann, 2005). Such acquisitions are likely to enhance growth prospects of bidders that have exhausted such opportunities on the domestic market and acquire resources and skills that are not available domestically (Bertrand, Betschinger, 2012). Nevertheless, international acquisitions mean also challenges associated with doing business in a different economic, legal, and cultural environment. Acquirers entering foreign markets need to deal with a more complicated

organizational structure and may find it difficult to coordinate operations between the countries (Dutta, Saadi, Zhu, 2013).

**Industry relatedness.** Several empirical studies (Rajan, Servaes, Zingales, 2000; Scharfstein, Stein, 2000) state that acquisitions in the unrelated industries help to secure lower-cost financing, improve stability of profits and reduce financial risk through diversification. However, this type of transactions can also lead to rent-seeking behavior by divisional managers, bargaining problems within the firm, and bureaucratic rigidity. By contrast, deals within the same industry often promise benefits from economies of scale and scope and lead to greater market power. Overall, empirical evidence suggests that related acquisitions either outperform (Hamza, 2011; Moeller, Schlingemann, 2005) or show similar performance to unrelated deals (Powell, Stark, 2005; Linn, Switzer, 2001).

**Target public status.** The academic literature on post-acquisition financial performance provides evidence on mostly positive relation between targets' private status and bidders' operating returns (Fang et al., 2015). Private targets are usually less able to negotiate a better price than their public peers, allowing the bidders to perform acquisition with a discount (liquidity effect), which is valued by the market. Moreover, the empirical studies could find the benefits of acquiring the private targets in the stock-paid transactions. Often, the shareholders of private targets are more likely to receive block holder control over the bidder in a stock acquisition. Moreover, acquirers do not face immediate tax implications in stock deals compared to cash deals. These reasons justify acquirers' higher returns in stock-financed deals with private targets, which strengthen with the increase in the target's size relative to the acquirer (Fuller, Netter, Stegemoller, 2002).

**Acquirer's cash reserves.** Following the results of empirical studies, acquirers with excessive cash reserves are more prone to make poor acquisitions than acquirers with limited cash holdings. This happens because they usually show less sensible attitude to the choice and thorough due-diligence of targets. This hypothesis finds empirical support in the studies of Martynova M. and coauthors (Martynova, Oosting, Renneboog, 2007), Schlingemann F.P. and Moeller S.B. (Schlingemann, Moeller, 2004) and Jensen M.C. (Jensen, 1986).

The summary of performance measures used in the analyses is presented in table 2.

### 3. Data sample and methodology

#### 3.1. Description of data sample

The sample analyzed in the study includes 150 takeovers made by international technology firms over the period from January 2010 to December 2016, which was gathered using Capital IQ database. The choice of this time period allows to investigate the post-event performance of acquiring companies till 2019, which is not affected by the COVID-19 crisis and the following unstable worldwide economic and political situation. Each acquisition included in the sample satisfies the following requirements:

- 1) the acquirer is a public company at least at the moment of deal announcement and completion;
- 2) the acquirer owns over 85% of the target after the completion of the deal and is not a serial acquirer;



**Table 3**

## Descriptive statistics of data sample

Descriptive properties	All	Diversification		Industry relatedness		Method of payment	
		National	Cross-border	Related	Unrelated	Cash	Non-cash
No. of transactions	150	102	48	75	75	84	66
Share	100%	68%	32%	50%	50%	56%	44%
Total value (\$ mln)	115,902	39,838	76,064	86,383	11,816	46,75	69,152
Share	100%	34%	66%	90%	10%	40%	60%
Mean value (\$ mln)	773	830	746	1,152	394	557	1,048
Median value (\$ mln)	176	136	186	248	115	142	191

3) the financial data for both acquirer and target is available for at least two year before and three years after the completion of the deal in Capital IQ database, so that the various measures of operating performance and the change in performance thanks to the takeovers can be estimated;

4) the deal value exceeds US\$50 million;

5) the deal is friendly and has a strategic intent (verified by press releases and MergerStat).

The final data sample includes six different sub-industries – Aerospace and Defence, Data Processing and Outsourced Services, Electrical Equipment and Instruments, Interactive Home Entertainment, Semiconductor Equipment, and Semiconductors. The descriptive statistics of data sample are presented in table 3.

### 3.2. Description of methodology

Following Martynova M. and coauthors (Martynova, Oosting, Renneboog, 2007), Powell R.G. and Stark A.W. (Powell, Stark, 2005) and Ghosh A. (Ghosh, 2001) in order to make results comparable with previous studies, I analyze the changes in performance applying both change model and intercept model. Even though I use the median performance values for the largest part of the analysis, I cross-check the results also for mean values and show them if the differences are of particular interest. Similarly, in addition to the industry-adjusted performance, I analyze the row performance of acquirers as well and provide the results in case of significant difference.

For the first part of the analysis, I apply the change model to evaluate changes in acquirers' performance measures after the deal, where improvements are measured as the difference between post-takeover performance and the combined target and acquirer pre-takeover performance. The change for each company in the data sample is calculated as a mean or median performance of three years prior to the transaction and compared to the median profitability over three years subsequent to the transaction. To make the analysis more reliable, I calculate changes in operating performance of acquiring companies using both averages and median values (over the three years before and after the acquisition). To test whether the difference in the operating performance is statistically significant, both parametric and non-parametric tests were applied. As a parametric approach, the paired t-test was applied for the analysis of changes in mean value. The non-parametric Wilcoxon-test was used for the comparison

of mean values. The null-hypothesis tested is that there is no difference between the pre-event and post-event performance of acquiring companies.

In addition to this, I apply the intercept model. P.M. Healy, K.G. Palepu and R.S. Ruback (Healy, Palepu, Ruback, 1992) estimated acquisition-induced improvements in cash flow performance as the intercept of the regression of post-acquisition industry-adjusted cash flow of merging firms' on the corresponding pre-acquisition number. The *intercept model* estimates changes in median, industry-adjusted operating performance with the intercept  $\alpha_0$ . Adding the factors from table 2, the following regression model can be built:

$$\begin{aligned} medianOP^{post} = & \alpha_0 + \alpha_1 medianOP^{pre} + \alpha_2 Leverage^{pre} + \alpha_3 CashReserves^{pre} + \alpha_4 MethodPayment + \\ & + \alpha_5 InterDiv + \alpha_6 IndDiv + \alpha_7 MarketStructure + \alpha_8 DealPurpose + \varepsilon. \end{aligned}$$

Factor  $\alpha_1$  reflects a relation between pre- and post-acquisition operating performance, whereas changes in performance are captured by the intercept  $\alpha_0$ . The impact of additional variables is measured by  $\alpha_2$  through  $\alpha_8$ . Therefore, it is interpreted as an estimate of the average improvements in performance for the sample of takeovers employed. By controlling for pre-takeover performance, the mean amount of post-takeover performance left unexplained (i.e., the intercept) must be, by definition, attributable to takeover. I report the results of a basic and an extended model, which includes only changes in operating performance versus the non-financial variables to test the joint impact of financial and deal structure factors on the change in the performance of acquiring companies.

## 4. Results of empirical analysis

### 4.1. Strategic acquirers' post-acquisition performance

The changes in the operating pre- and post-event performance for acquiring companies are presented in table 4 based on a raw and in table 5 based on the industry adjusted performance.

Overall, I observe a significant deterioration of post-acquisition performance of bidders in terms of cash-based ratios, investment policy and efficiency and (in)significant decline in profitability based on (raw) industry-adjusted performance and growth rates. So, the median profitability of acquirers decreased by 1.3% based on industry-adjusted performance, while operating cash flow declined by 2.9%, which is significant at 1% level. The efficiency, expressed through SALES/NOA fell by 14.5%, which is significant at 5% level. This means that strategic bidders in the technology sector were unable to leverage operating performance improvements. A deeper look into the post-event performance of acquirers makes obvious that improvements which the acquiring companies could achieve happened mostly in the first year following the deal and declined afterwards. This allows a conclusion that the transactions either did not create for bidders any long-term synergies associated with knowledge or technology transfer, which require often usually a longer period of time to be captured, or the acquiring companies could not realize those synergies. Similar trend is observed in terms of efficiency. The only performance improvement based on the median values comes from increased growth rates (+3%), meaning that the merged firm succeeded in their strategic intent and achieved higher level of sales subsequent to acquisitions. However, this performance is also mostly driven by the increase in growth rates in the first year after the completion of the deal and is not statistically significant.

**Table 4**  
Changes in raw operating pre- vs. post-event performance of acquiring companies

ALL RAW	EBITDA/ SALES	EBITDA/ ASSETS	OCF/ SALES	OCF/ ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/ NOA	GROWTH
-3	0,16998	0,10264	0,15946	0,095836	-0,10539	0,74182	1,42599	
-2	0,17955	0,11718	0,15217	0,101184	-0,09240	0,75446	1,46885	0,182992
-1	0,17733	0,12015	0,14039	0,104406	-0,09524	0,75337	1,52120	0,227714
Mean (-3; -1)	0,17902	0,11332	0,15067	0,100476	-0,09768	0,74988	1,47201	0,205353
Median (-3; -1)	0,17930	0,11213	0,14083	0,101184	-0,08784	0,75337	1,46885	0,205353
+1	0,18475	0,10721	0,14068	0,080347	-0,08047	0,67218	1,15177	
+2	0,17693	0,10992	0,13221	0,080916	-0,06861	0,69035	1,26240	0,105771
+3	0,16729	0,10350	0,11510	0,080326	-0,07211	0,69092	1,30203	0,081387
Mean (+1; +3)	0,18364	0,10688	0,12933	0,080529	-0,07373	0,68448	1,23873	0,093579
Median (+1; +3)	0,18383	0,10795	0,13487	0,080347	-0,06879	0,69035	1,26240	0,093579
Mean difference	0,00462	-0,00644	-0,02134*	-0,019947***	0,02395***	-0,06540***	-0,23328***	-0,111774***
t-test	-0,60500	1,14800	1,75	3,126	-3,187	3,70100	4,11100	2,759
(p-value, 2-sided)	0,546	0,25300	0,082	0,002	0,002	0,00000	0,000	0,007
Wilcoxon test (standardized)	0,69700	-1,47400	-1,748	-3,096	3,166	-3,905	-4,102	-3,498
(Asymptotic Sig, 2-sided)	0,48600	0,14100	0,08	0,002	0,002	0,000	0,000	0,000
Median difference	0,00453	-0,00418	-0,00596**	-0,020837***	0,01905**	-0,06302***	-0,20645***	-0,111774***
t-test	-0,517	0,67100	1,334	2,976	-2,818	3,232	3,803	2,759
(p-value, 2-sided)	0,606	0,50300	0,184	0,003	0,005	0,002	0	0,007
Wilcoxon test (standardized)	0,834	-0,69600	-2,027	-2,988	2,451	-3,134	-3,91	-3,498
(Asymptotic Sig, 2-sided)	0,404	0,48600	0,043	0,003	0,014	0,002	0,000	0,000
Number	150	150	142	142	142	150	146	150

The table shows the raw mean and median performance of acquiring companies over the period of 3 years before and after the completion of the transaction. The firms' performance is measured using eight financial ratios reflecting the operating performance. \*\*\*, \*\*, \* indicates a significant difference using a t-test or Wilcoxon signed ranks test at the 1%, 5% and 10% levels, respectively.

**Table 5**  
Changes in industry-adjusted operating pre- vs. post-event performance of acquiring companies

ALL, IND-ADJ.	EBITDA/ SALES	EBITDA/ ASSETS	OCF/SALES	OCF/ ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/NOA	GROWTH
-3	-0,04363	-0,02359	-0,01123	-0,01494	0,03809	0,05390	0,23381	0,01556
-2	-0,03852	-0,01967	-0,02273	-0,01305	0,01973	0,06707	0,25665	0,00793
-1	-0,04117	-0,02018	-0,02431	-0,01106	0,017885	0,06837	0,28242	0,015914
Mean (-3;-1)	-0,04111	-0,02115	-0,01943	-0,01302	0,025234	0,06311	0,25762	0,013136
Median (-3;-1)	-0,03913	-0,02303	-0,02572	-0,01575	0,01667	0,05197	0,21518	-0,0193
+1	-0,04356	-0,02860	-0,04181	-0,03137	0,00358	0,01994	-0,02572	0,14690
+2	-0,05163	-0,02932	-0,05678	-0,03401	-0,0079	0,0434	0,09233	-0,01284
+3	-0,06533	-0,03596	-0,05492	-0,035840	-0,00553	0,05686	0,16708	-0,02884
Mean (+1;+3)	-0,05350	-0,03130	-0,05117	-0,03374	-0,00328	0,04038	0,07790	0,03507
Median (+1;+3)	-0,05232	-0,03194	-0,05454	-0,03577	-0,00807	0,04073	0,06971	0,01119
Mean difference	-0,01239	-0,01015**	-0,03174***	-0,02072***	-0,021954***	-0,02273	-0,17973**	0,021934
t-test	1,49000	1,79100	2,736	3,446	3,751	1,32900	3,11700	-0,632
(p-value, 2-sided)	0,138	0,075	0,007	0,000	0,000	0,186	0,002	0,528
Wilcoxon test (standardized)	-2,41200	-2,10600	-3,172	-3,346	-4,339	-1,087	-2,566	0,721
(Asymptotic Sig. 2-sided)	0,160	0,035	0,002	0,000	0,000	0,277	0,01	0,471
Median difference	-0,01319**	-0,00891	-0,02882**	-0,02002***	-0,02474***	-0,01125	-0,14547**	0,03049
t-test	1,419	1,41600	2,836	3,389	3,569	0,66	2,461	-0,795
(p-value, 2-sided)	0,158	0,159	0,005	0,000	0,000	0,510	0,015	0,428
Wilcoxon test (standardized)	-2,119	-1,51300	-3,75	-3,352	-3,74	-0,239	-2,084	0,607
(Asymptotic Sig. 2-sided)	0,034	0,130	0,000	0,000	0,000	0,811	0,037	0,544
Number	150	150	142	150	142	150	150	149

The table shows the raw mean and median performance of acquiring companies over the period of 3 years before and after the completion of the transaction. The firms' performance is measured using eight financial ratios reflecting the operating performance. \*\*\*, \*\*, \* indicates a significant difference using a t-test or Wilcoxon signed ranks test at the 1%, 5% and 10% levels, respectively.

An additional split of changes in profitability and growth rates is presented in table 6. In terms of profitability, I observe that the post-event results strongly coincide with the pre-event median performance. Over a half of those companies which performed well in the pre-event years are able to sustain positive numbers also after the transaction despite the small decline in performance. Around 15% of acquirers show strongly negative development over the three post-event years. The majority of companies (79%) which experienced low pre-event performance were not able to recover it in the years following the acquisitions. Nevertheless, around 20% of acquirers managed to improve their results in the first and second years after the completion of the deal experiencing a sharp decline in profitability in the third year. In terms of growth rate, the trend is more positive. The companies with high pre-event rate could either sustain it after the completion of the deal (23%) or experienced a decrease in the following years (44%), especially in the second and third year. More than a half (56%) of those bidders whose pre-event growth rates were low managed to increase their results significantly. Nevertheless, 64% of them experienced a strong increase in growth during the first post-event year and only around 10% were able to sustain this positive development over three years. These results are in line with Vinogradova V. (Vinogradova, 2017) and confirm the statement that companies with negative pre-event operating performance, especially in terms of profitability, are not able to improve their performance after the deal. This means that the operational or financial synergies that are usually promised by the executives before the transaction announcement and seen as a means for a possible improvement of existing financial results are, in fact, rather difficult to achieve and seldom justify the decision in favor of the acquisition.

In order to get more insights into changes in performance of acquiring companies, and identify additional structural factors that influence them I divide the data sample into subgroups, based on the method of payment, international and industrial diversification, origin country of the bidder and pre-event cash reserves of the bidders. The results of analyses are presented in table 7.

It is obvious that in line with the results of the existing studies (e.g. (Martynova, Oosting, Renneboog, 2007; Powell, Stark, 2005)), the method of payment has no significant impact on the post-event performance of acquiring companies. The results for both sub-groups do not differ significantly for all financial ratios analyzed, except for CAPEX/SALES, where the difference is statistically significant at 5% level. The decision in favor of international diversification is associated with lower growth rates after the transaction. Here, the difference in the post-event performance of two subgroups accounts for -4.53% and +6.65%, respectively, which are significant at 5% level. These results contradict the statement that acquirers engaged in cross-border deals outperform domestic acquirers in the long term (Wagner, 2016; Cloudt, Hagedoorn, Van Kranenburg, 2006). An interesting finding is however, that the acquirers in the emerging markets could achieve higher post-event growth rates than acquirers in the developed markets. The difference is equal to 3.54%, even though it is not statistically significant. At the same time, the higher growth was associated with the higher investments, expressed through CAPEX/SALES. Here, the difference in pre-event and post-event performance of bidder in the emerging markets is -7.43%, compared to -0.79% for the bidders in the developed markets. The difference in the performance of two sub-groups is statistically significant at 1% level. The industrial focus seems to affect beneficially

**Table 6**  
Impact of deal-structure factors on changes in the acquirers' performance

Variables		EBITDA/ SALES	EBITDA/ ASSETS	OCF/SALES	OCF/ ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/ NOA	GROWTH
Panel A: Method of Payment									
CASH	Pre	-0,01112	0,00084	0,01264	0,00560	-0,00193	0,08668	0,28693	-0,00887
	Post	-0,03093	-0,00888	-0,01691	-0,01488	-0,00976	0,08538	0,11425	-0,02163
	Difference	-0,01982***	-0,00972	-0,02955***	-0,02048***	-0,00784*	-0,00130	-0,17268**	-0,01276
	N	84	84	77	84	77	84	84	83
NON-CASH	Pre	-0,07479	-0,05341	-0,07009	-0,04294	0,03812	0,00780	0,12387	-0,03242
	Post	-0,07953	-0,06129	-0,09762	-0,06236	-0,00597	-0,01610	0,01303	0,05246
	Difference	-0,00475	-0,00788	-0,02753**	-0,01942**	-0,04409***	-0,02390	-0,11084	0,08487
	N	66	66	66	66	66	66	66	66
(1)-(2)	M-Whitney	-0,01507	-0,00183	-0,00202	-0,00106	0,03626**	0,02261	-0,06184	-0,09763
	(p-value)	1,522	0,027	0,225	0,269	2,486	1	-0,746	-1,208
		(0,128)	(0,979)	(0,822)	(0,788)	(0,013)	(0,318)	(0,456)	(0,227)
Panel B: Geographical Diversification									
INTER	Pre	-0,00077	0,00974	0,01766	0,01248	-0,01763	0,05006	0,23081	-0,00015
	Post	-0,01870	-0,00381	-0,00109	-0,00777	-0,01759	0,04765	0,05938	-0,04541
	Difference	-0,01793	-0,01354**	-0,01875	-0,02025***	0,00003	-0,00241	-0,17144*	-0,04525
	N	48	48	43	43	43	48	48	48
NATIONAL	Pre	-0,05718	-0,03845	-0,04457	-0,02904	0,03157	0,05287	0,20783	-0,02840
	Post	-0,06814	-0,04518	-0,07776	-0,04894	-0,00393	0,03747	0,07458	0,03808
	Difference	-0,01095 *	-0,00673	-0,03319*	-0,01990	-0,03550***	-0,01540	-0,13325***	0,06648***
	N	101	101	99	99	99	101	101	101
(1)-(2)	M-Whitney	-0,00698	-0,00682	0,01444	-0,00035	0,03553**	0,01299	-0,03819	-0,11173**
	(p-value)	0,947	0,326	0,421	0,222	2,096	0,496	-0,371	-2,208
		(0,344)	(0,744)	(0,674)	(0,825)	(0,039)	(0,620)	(0,711)	(0,027)

Ending of table 6

Variables		EBITDA/ SALES	EBITDA/ ASSETS	OCF / SALES	OCF / ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/ NOA	GROWTH
Panel C: Industrial Diversification									
HORIZ	Pre	-0,03955	-0,01976	-0,01921	-0,00897	0,01107	0,08189	0,25647	-0,04789
(1)	Post	-0,03744	-0,00210	-0,05174	-0,03061	-0,00606	0,03550	0,00870	0,01640
	Difference	0,00211	0,01766**	-0,03253	-0,02164	-0,01713	-0,04639**	-0,24777	0,06429***
	N	75	75	72	72	72	75	75	75
CONGLOM	Pre	-0,03871	-0,02629	-0,03242	-0,02235	0,02244	0,02206	0,17390	0,00968
(2)	Post	-0,06719	-0,04284	-0,05743	-0,04093	-0,01014	0,04596	0,13073	0,00590
	Difference	-0,02848***	-0,01655**	-0,02501	-0,01858	-0,03258***	0,02390*	-0,04317	-0,00377
	N	75	75	72	72	72	75	75	75
(1)-(2)	M-Whitney	0,03059*	0,03421	-0,00752	-0,00306	0,01545	-0,07029*	-0,20460	0,06806
	(p-value)	1,799	0,630	-0,237	-0,705	1,267	-1,829	-1,329	0,705
		(0,072)	(0,529)	(0,813)	(0,481)	(0,205)	(0,067)	(0,184)	(0,481)
Panel D: Markets									
DEVEL	Pre	-0,03224	-0,01104	-0,00707	-0,00165	-0,00987	0,11023	0,36352	-0,04184
(1)	Post	-0,04946	-0,02148	-0,03845	-0,02502	-0,01778	0,09361	0,18430	-0,01991
	Difference	-0,01722*	-0,01044	-0,03138***	-0,02337**	-0,00791	-0,01663	-0,17922***	0,02193
	N	114	114	111	111	111	114	114	114
EMER	Pre	-0,06097	-0,06100	-0,08065	-0,06041	0,09482	-0,13251	-0,25456	0,05144
(2)	Post	-0,06136	-0,06504	-0,10193	-0,06982	0,02052	-0,12673	-0,29315	0,10878
	Difference	-0,00039	-0,00404	-0,02128*	-0,00941	-0,07430**	0,00578	-0,03860	0,05734***
	N	36	36	32	32	32	36	36	36
(1)-(2)	M-Whitney	-0,01683	-0,00640	-0,01010	-0,01396	0,06638***	-0,02241	-0,14062	-0,03541
	(p-value)	1,039	0,607	0,317	0,836	-3,749	0,990	0,884	0,995
		(0,299)	(0,544)	(0,751)	(0,403)	(0,000)	(0,322)	(0,376)	(0,320)

The table presents the results of pre-event and post-event performance of acquiring companies based on median industry-adjusted values and outlines the impact of dealstructure factors on the results. The pre-event and post-event performance was calculated as a median performance over three years before the acquisition announcement and three years after the completion of the deal. The difference in the pre- and post-transaction performance was tested using Wilcoxon sign test, the differences in the performance between the sub-groups were tested using Mann-Whitney test. \*, \*\*, \*\*\* denotes the significance at 1%, 5%, and 10% level, respectively.

**Table 7**  
Impact of deal-structure factors on changes in the acquirers' performance

Variables		EBITDA/ SALES	EBITDA/ ASSETS	OCF/SALES	OCF/ ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/NOA	GROWTH
Panel A: Method of Payment									
CASH	Pre	-0,01112	0,00084	0,01264	0,00560	-0,00193	0,08668	0,28693	-0,00887
	Post	-0,03093	-0,00888	-0,01691	-0,01488	-0,00976	0,08538	0,11425	-0,02163
	Difference	-0,01982***	-0,00972	-0,02955***	-0,02048***	-0,00784*	-0,00130	-0,17268**	-0,01276
NON-CASH	N	84	84	77	84	77	84	84	83
	Pre	-0,07479	-0,05341	-0,07009	-0,04294	0,03812	0,00780	0,12387	-0,03242
	Post	-0,07953	-0,06129	-0,09762	-0,06236	-0,00597	-0,01610	0,01303	0,05246
(1)-(2)	Difference	-0,00475	-0,00788	-0,02753**	-0,01942**	-0,04409***	-0,02390	-0,11084	0,08487
	N	66	66	66	66	66	66	66	66
	M-Whitney (p-value)	-0,01507 (0,128)	-0,00183 (0,979)	-0,00202 (0,822)	-0,00106 (0,788)	0,03626** (0,013)	0,02261 (0,318)	-0,06184 (0,456)	-0,09763 (0,227)
Panel B: Geographical Diversification									
INTER	Pre	-0,00077	0,00974	0,01766	0,01248	-0,01763	0,05006	0,23081	-0,00015
	Post	-0,01870	-0,00381	-0,00109	-0,00777	-0,01759	0,04765	0,05938	-0,04541
	Difference	-0,01793	-0,01354**	-0,01875	-0,02025***	0,00003	-0,00241	-0,17144*	-0,04525
NATIONAL	N	48	48	43	43	43	48	48	48
	Pre	-0,05718	-0,03845	-0,04457	-0,02904	0,03157	0,05287	0,20783	-0,02840
	Post	-0,06814	-0,04518	-0,07776	-0,04894	-0,00393	0,03747	0,07458	0,03808
(1)-(2)	Difference	-0,01095*	-0,00673	-0,03319*	-0,01990	-0,03550**	-0,01540	-0,13325***	0,06648***
	N	101	101	99	99	99	101	101	101
	M-Whitney (p-value)	-0,00698 (0,344)	-0,00682 (0,744)	0,01444 (0,674)	-0,00035 (0,825)	0,03553** (0,039)	0,01299 (0,620)	-0,03819 (0,711)	-0,11173** (0,027)
(1)-(2)	Difference	-0,947	-0,326	0,421	0,222	2,096	0,496	-0,371	-2,208
	N	101	101	99	99	99	101	101	101
	M-Whitney (p-value)	-0,00698 (0,344)	-0,00682 (0,744)	0,01444 (0,674)	-0,00035 (0,825)	0,03553** (0,039)	0,01299 (0,620)	-0,03819 (0,711)	-0,11173** (0,027)



Ending of table 7

Variables		EBITDA/ SALES	EBITDA/ ASSETS	OCF/SALES	OCF/ ASSETS	CAPEX/ SALES	SALES/ ASSETS	SALES/NOA	GROWTH
Panel C: Industrial Diversification									
HORIZ	Pre	-0,03955	-0,01976	-0,01921	-0,00897	0,01107	0,08189	0,25647	-0,04789
	Post	-0,03744	-0,00210	-0,05174	-0,03061	-0,00606	0,03550	0,00870	0,01640
	Difference	0,00211	0,01766**	-0,03253	-0,02164	-0,01713	-0,04639**	-0,24777	0,06429***
	N	75	75	72	72	72	75	75	75
CONGLOM	Pre	-0,03871	-0,02629	-0,03242	-0,02235	0,02244	0,02206	0,17390	0,00968
	Post	-0,06719	-0,04284	-0,05743	-0,04093	-0,01014	0,04596	0,13073	0,00590
	Difference	-0,02848 ***	-0,01655 **	-0,02501	-0,01858	-0,03258 ***	0,02390 *	-0,04317	-0,00377
	N	75	75	72	72	72	75	75	75
(1)-(2)	M-Whitney	1,799	0,630	-0,237	-0,705	1,267	-1,829	-1,329	0,705
	(p-value)	(0,072)	(0,529)	(0,813)	(0,481)	(0,205)	(0,067)	(0,184)	(0,481)
Panel D: Markets									
DEVEL	Pre	-0,03224	-0,01104	-0,00707	-0,00165	-0,00987	0,11023	0,36352	-0,04184
	Post	-0,04946	-0,02148	-0,03845	-0,02502	-0,01778	0,09361	0,18430	-0,01991
	Difference	-0,01722 *	-0,01044	-0,03138 ***	-0,02337 **	-0,00791	-0,01663	-0,17922 ***	0,02193
	N	114	114	111	111	111	114	114	114
EMER	Pre	-0,06097	-0,06100	-0,08065	-0,06041	0,09482	-0,13251	-0,25456	0,05144
	Post	-0,06136	-0,06504	-0,10193	-0,06982	0,02052	-0,12673	-0,29315	0,10878
	Difference	-0,00039	-0,00404	-0,02128 *	-0,00941	-0,07430 **	0,00578	-0,03860	0,05734 ***
	N	36	36	32	32	32	36	36	36
(1)-(2)	M-Whitney	1,039	0,607	0,317	0,836	-3,749	0,990	0,884	0,995
	(p-value)	(0,299)	(0,544)	(0,751)	(0,403)	(0,000)	(0,322)	(0,376)	(0,320)

The table presents the results of pre-event and post-event performance of acquiring companies based on median, industry-adjusted values and outlines the impact of deal-structure factors on the results. The pre-event and post-event performance was calculated as a median performance over three years before the acquisition announcement and three years after the completion of the deal. The difference in the pre- and post-transaction performance was tested using Wilcoxon sign test, the differences in the performance between the sub-groups were tested using Mann-Whitney test. \*, \*\*, \*\*\* denotes the significance at 1%, 5% and 10% level, respectively.

the long-term performance of bidding companies. The acquirers participating in the horizontal acquisitions show better long-term results in terms of profitability, expressed through EBITDA/SALES, but poorer results in terms of efficiency, expressed through SALES/ASSETS. While profitability of focused bidders remains almost the same (the change equals to +0.2%), the non-focused bidders experience a decrease of –2.85%. The difference in the performance of two sub-groups is 3.06% and is statistically significant at 10% level. These results confirm that strategic acquirers in the technology sector face difficulties in integrating targets from unrelated industries and the deterioration in the efficiency of industry-focused bidder is much higher compared to the acquirers of non-related targets. So, the industry-focused acquirers experience a –4.6% decline in the performance in the years following the transaction, while the non-focused bidders show an improvement of +2.39%. The difference between both sub-groups is equal to –7.029% and is significant at 10% level.

#### 4.2. Results of multivariate analysis

The results of intercept analysis based on the equation (1) and multivariate analyses are summarized in table 8. Additionally to the basic model that provides results in which the constant term estimates the size of the average operating gains from our sample of takeovers, additional regressions include the deal-structure factors and pre-event cash balances and leverage of the acquiring companies and investigate whether any performance improvements can be specifically attributed to such factors as method of payment, industrial or international diversification, market origin of the acquirers, and pre-event performance of the bidders.

Panel A reports results based on the mean pre- and post-event performance. Panel B presents the change in the financial results of acquiring companies based on the median performance. The numbers in both panels are industry-adjusted. One of the most striking findings is that the basic intercept models for all financial ratios except for the growth rate show statistically strong results at 1% level, with adjusted R-square being between 25 and 60%. The intercepts for most models are negative and statistically significant as well, suggesting that the post-operating performance has declined after the completion of the merger and the expected operating gains are negative. The results of the analysis based on the mean and median values do not differ largely. In line with previous research (e.g. (Martynova et al., 2007; Powel, Stark, 2005)), the intercept model suggests a decline in the performance in almost all financial ratios of the acquiring companies over three years following the acquisitions.

The additional multivariate models outline some deal-structure factors influencing the post-merger results. In line with the results achieved in the change model, the acquisition of targets from the related industries led to the improvement in profitability in the years following the transaction. The impact of this factor on the change in EBITDA/SALES ratio is significant for both mean and median values at the level of 5%. Based on the mean model, another factor that significantly affects the profitability is the pre-event leverage. Those companies that had higher level of debt before the transaction experience poorer performance in the post-event period. This result is however insignificant for the median values. At the same time, the industrial focus is also associated with the decrease in the efficiency of the acquiring companies. So, the SALES/ASSETS and SALES/NOA values deteriorate for the focused acquirers. Also here, the pre-event leverage turns to have a significant effect on the mean val-

**Table 8**  
Changes in the post – vs. pre-event performance of acquirers, intercept model

Variables	EBITDA/ SALES	EBITDA/ SALES	OCF/ SALES	OCF/ SALES	CAPEX/ SALES	CAPEX/ SALES	CAPEX/ SALES	SALES/ ASSETS	SALES/ ASSETS	SALES/ NOA	SALES/ NOA	GROWTH	GROWTH
Panel A: Mean pre- and post-transaction performance of acquiring companies													
Intercept	-0,027*** (-3,525)	-0,062*** (-3,115)	-0,042*** (-4,275)	-0,063** (-2,422)	-0,016*** (-2,656)	-0,029* (-1,963)	-0,005 (-0,299)	0,042 (0,977)	-0,086 (-1,687)	0,098 (0,673)	0,035* (1,924)	-0,011 (-0,221)	
Pre-event perform	0,64*** (11,564)	0,64*** (10,568)	0,469*** (6,843)	0,412*** (5,318)	0,489*** (9,878)	0,515*** (9,072)	0,714*** (15,124)	0,698*** 12,527	0,635*** (13,099)	0,711*** (10,473)	0,002 (0,028)	-0,103 (-1,054)	
METHODPAY		0,012 (0,652)		0,02 (0,808)		0,011 (0,840)		0,032 (0,828)		-0,021 (-0,161)		-0,018 (-0,400)	
CROSSB		0,003 (0,138)		0,04 (1,608)		0 (0,033)		-0,021 (-0,533)		-0,073 (-0,554)		-0,049 (-1,073)	
HORIZ		0,032** (2,005)		-0,006 (-0,297)		0,01 (0,799)		-0,069** (-1,990)		-0,224* (-1,907)		0,05 (1,232)	
EMERG		0,016 (0,814)		-0,01 (-0,391)		-0,011 (-0,650)		-0,072 (-1,589)		-0,131 (-0,850)		0,135 (2,579)	
CASH RESERVES		0,01 (0,806)		-0,008 (-0,501)		0,011 (1,179)		-0,003 (-0,106)		0,082 (0,938)		0,031 (1,013)	
PRELEVERAGE		-0,085* (-1,792)		-0,06 (-0,881)				0,183* (1,770)		0,541 (1,558)		-0,078 (-0,642)	
F-statistic	133,716***	19,919***	46,833***	7,578***	97,566***	16,286***	228,736***	29,464***	171,581***	26,075***	0,001	2,307	
p-value	0	0	0	0	0	0	0	0	0	0	(0,978)	(0,030)	
Adjusted R <sup>2</sup>	0,471	0,497	0,245	0,266	0,406	0,398	0,604	0,598	0,534	0,536	-0,007	0,064	
Panel B: Median pre- and post-transaction performance of acquiring companies													
Intercept	-0,03*** (-3,675)	-0,0745*** (-2,885)	-0,04*** (-4,327)	-0,058*** (-2,351)	-0,016*** (-3,005)	-0,027*** (-1,876)	0,003 (0,170)	0,05 (1,158)	-0,065 (-1,239)	0,104 (0,727)	0,009 (0,433)	-0,065 (-1,091)	
Pre-event perform	0,57*** (10,264)	0,581*** (9,666)	0,574*** (8,384)	0,514*** (6,538)	0,48*** (9,378)	0,5*** (8,005)	0,732*** (15,032)	0,722*** (11,961)	0,627 (11,829)	0,698*** (10,424)	-0,089 (-0,750)	-0,293* (-1,689)	
METHODPAY		0,01 (0,507)		0,02 (0,863)		0,014 (1,171)		0,027 (0,675)		-0,051 (-0,398)		-0,01 (-0,189)	

Ending of table 8

Variables	EBITDA/ SALES	EBITDA/ SALES	OCF/ SALES	OCF/ SALES	CAPEX/ SALES	CAPEX/ SALES	SALES/ ASSETS	SALES/ ASSETS	SALES/ NOA	SALES/ NOA	GROWTH	GROWTH
Panel B: Median pre- and post-transaction performance of acquiring companies												
CROSSB	0,006 (0,326)		0,026 (1,126)		0,006 (0,426)		-0,017 (-0,424)		-0,057 (-0,439)		-0,046 (-0,837)	
HORIZ	0,046 (2,765)***		-0,005 (-0,269)		0,008 (0,651)		-0,071** (-2,007)		-0,215* (-1,863)		0,06 (1,225)	
EMERG	0,026 (1,236)		-0,002 (-0,082)		-0,011 (-0,670)		-0,058 (-1,233)		-0,187 (-1,232)		0,136** (2,149)	
CASH RESERVES	0,009 (0,750)		-0,011 (-0,749)		0,009 (0,992)		-0,009 (-0,325)		0,098 (1,216)		0,065* (1,789)	
PRELEVERAGE	-0,075 (-1,517)		-0,068 (-1,079)		-0,06 (-1,570)		0,139 (1,311)		0,417 (1,216)		-0,172 (-1,193)	
F-statistic	105,344 ***		70,287 ***		87,94***		225,964 ***		139,926 ***		19,208***	
p-value	0		0		0		0		0		0,562 (0,455)	
Adjusted R <sup>2</sup>	0,412		0,329		0,381		0,602		0,483		0,487	
			0,333		0,384		0,582		0,483		-0,003	
												61

The table shows the results of the intercept model analysis and extended multifactor regression analysis of changes in the pre- and post-transaction performance of acquiring companies from technology sector, participating in strategic acquisitions in the period from 2010 to 2016. The performance ratios are industry-adjusted and are calculated based on the median values three years before the transaction announcement and three years after the completion of the deal.

\*\*\*, \*\* denote the significance at 10%, 5%, 1% level, respectively

ues. Acquirers with higher pre-event leverage show better results in terms of SALES/ASSETS, which is significant at 10% level. This finding is however not supported for the median performance. Moreover, the improvements in the post-event growth rates of acquirers could be mostly achieved by the bidders in the emerging markets. These results are significant for both median and mean performance at 5% level. Based on the median value analysis, an additional factor influencing the growth rate is the cash reserves before the deal. Those bidders that have larger amount of cash available seem to achieve better results and higher levels of growth. This can be intuitively explained by the fact that the availability of additional funds, especially in the emerging markets, helps companies to react more quickly to the fast-changing environment and seize the growth opportunities.

### 5. Conclusions

The vast majority of existing studies on M&A in the technology sector focus on how to transfer and incorporate innovative technologies and knowledge but do not consider the financial performance of the deals and their contribution to the value creation of the firm. The aim of this paper was to close this gap and to investigate the impact of strategic M&A in the high-technology sector on the acquirers' long-term financial performance. To offer a systematic analysis, I applied both change model and intercept model and analyzed the change in the financial performance of acquirers three years before and three years after the transaction. In addition to the analysis of financial ratios, I also evaluate the impact of such deal structure variables, as method of payment, international and industrial diversification, home market characteristics of acquirers.

The results of the analysis reveal that overall, the acquirers in the technology sector did not follow the principles of profitable growth and their post-event performance declined in almost all financial ratios, especially in profitability (EBITDA/SALES) and efficiency (SALES/ASSETS, SALES/NOA). These results remain stable for both raw and industry-adjusted performance. A small, but statistically insignificant improvement was observed only in post-acquisition industry-adjusted growth rates. These findings confirm that the companies in the technology sector preferred a strong focused on growth, but could not achieve a profitable growth, which is in line with previous academic studies (e.g. (Pazarskis et al., 2006; Huang et al., 2014; Boateng, Bi, Brahma, 2017)).

Additional analyses of the determinants of the post-acquisition operating performance show that national, industry-related transactions led to the best financial performance of the acquiring companies. So, the bidders purchasing companies in the related sub-industry could slightly improve their profitability, while bidders of national targets could achieve positive industry-adjusted results in terms of growth rates and increased their capital investments after the completion of the deal. However, the industrial focus led at the same time to the deterioration of efficiency. The method of payment did not have any significant impact on the post-event profitability, cash flow or efficiency of the acquiring companies. Nevertheless, acquirers using non-cash method of payments were able to increase their capital investments in the years following the transactions. The multivariate analysis shows also that the largest growth was achieved by the companies from the emerging markets, and by bidders having large cash reserves before the deal. This can be intuitively explained by the fact that companies with high cash slacks could more quickly react to the changing market conditions and acquire attractive targets, especially in the fast-moving emerging markets.

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## Перевернутый мир создания ценности. Следуют ли компании в отрасли технологий принципам прибыльного роста?<sup>2</sup>

Аннотация. Число сделок M&A в отрасли технологий неизменно увеличивалось в последние годы, достигая рекордных значений в абсолютном и денежном выражении. Это объясняется тем, что для многих компаний неорганический рост является единственным способом приобретения уникальных ресурсов и создания конкурентного преимущества в стремительно быстро меняющейся деловой среде. Цель данной статьи – исследовать, создавали ли стратегические сделки M&A, которые были драйвером развития в секторе технологий в последнее десятилетие, ценность и имели ли они положительный эффект на долгосрочные финансовые результаты компаний-покупателей. Для анализа изменений финансовых результатов компаний-покупателей были проведены одномерный и множественный регрессионные анализы. Результаты показывают, что в целом рост компаний-покупателей не являлся прибыльным, и они не смогли реализовать все ожидаемые преимущества сделки. Их показатели прибыльности, эффективности и роста ухудшались в период после заключения сделки. Фокус (отраслевой и национальный) ассоциировался с большим успехом – как в выражении прибыльности, так и роста. Наибольшее увеличение в ставках роста было достигнуто компаниями на развивающихся рынках и в первые годы после заключения сделки.

**Ключевые слова:** стратегия роста, отрасль технологий, сделки M&A, прибыльный рост, создание дополнительной ценности, стоимость компании.

Классификация JEL: G14, G32, G34.

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