

**Understanding the Impact of CEO Motivations for M&As on
Post-Acquisition Target Performance**

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Abstract

Understanding the Impact of CEO Motivations for M&As on Post-Acquisition Target Performance

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The market for mergers and acquisitions (M&As) is growing steadily, yet scholars claim that acquisitions can destroy a firm's value and reduce operating performance (King, Dalton, Daily, & Covin, 2004). Many researchers argue that top managers have personal motives to undertake M&As that can jeopardize the shareholders' gains (Morck, Shleifer, & Vishny, 1990). However, research has also demonstrated that managerial ownership of the firm tends to restrain managers from acting in their personal best interests (Datta, Iskandar-Datta, & Raman, 2001; Bliss & Rosen, 2001). Higher compensation that CEOs receive after an acquisition and the reduction of the job-related risks by diversification into unrelated businesses are often cited as factors that lead to top managers' decision to undertake M&As (Harford & Li, 2007; Amihud & Lev, 1981). Despite such advances of knowledge in the current literature on M&As, it is still unclear how CEO motivations for an M&A are linked to post-acquisition underperformance of a target. To address this gap in the literature, this study examines the impact of self-serving motivations of top managers to undertake an M&A on the post-merger operating performance of a target firm. This study also investigates how CEO ownership affects the post-merger target performance. The results show that, on average, an increase in the total yearly compensation to CEOs does not have a significant impact on target performance one year after deal completion. Thus, large rewards granted to CEOs after M&As may not motivate them to achieve higher profits one year post-merger. Acquisition of an unrelated target, on the other hand, has a positive effect on target performance following a merger. This result provides evidence that CEO motives to diversify personal risks with an acquisition of unrelated targets do not impede post-acquisition profits. Findings also suggest that CEO stock ownership does not improve the post-merger operating performance of targets, mainly due to the very small equity stakes owned by CEOs (1.75% on average). This study contributes to the existing literature on the role of CEOs in understanding the post-M&A performance.

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Introduction

Over the past few decades, the number of companies undertaking mergers and acquisitions (M&As) has substantially increased. Market analysts report that in 2018 the sum of global deals closed around USD 4.1 trillion, 13.9% up from 2017 (J.P. Morgan, 2018). Despite the growing trend, researchers have observed a decrease in firm value after deal closure (King, Dalton, Daily, & Covin, 2004). In academic studies on what determines post-acquisition underperformance, the role of chief executive officers (CEOs) stands out prominently. CEOs may have personal reasons to favour acquisitions over natural growth (Morck, Shleifer, & Vishny, 1990), yet they are generally confident in the long-term positive prospects of M&As (Roll, 1986; Yang, 2015). Numerous studies have linked CEO motives for acquisitions with M&A outcomes, but findings have been mixed (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). In this thesis, I examine how the motivations of CEOs to acquire a target firm can affect the target firm's operating performance by focusing on the impact of CEO compensation and ownership on a target firm's one year post-acquisition operating performance.

M&A performance is a topic that has heavily examined in the field of strategic management and corporate finance. Most scholars have agreed that acquisitions are value-destroying for companies (Ravenscraft & Scherer, 1989; Datta, Pinches, & Narayanan, 1992; King et al., 2004). However, there is no consensus on the reasons for this phenomenon. The factors that have been examined closely, such as the method of payment (cash/stock), prior acquiring experiences, and a level of target relatedness, have not yielded consistent conclusions (King et al., 2004). Finding little justification for merger activities, Datta et al. (1992) have proposed that “we may need to look at other factors to explain acquisition behaviour,” with the following suggestion: “[t]hese include the incentive compensation of managers, lack of monitoring by board of directors [...] or further examination of why managers apparently continue to make estimation errors in valuing targets” (p. 80).

In the literature on the role of CEOs in mergers and acquisitions, three theories prevail: agency, stewardship and hubris. Agency and hubris theories are often chosen to explain CEO's motivations to undertake M&As, while stewardship perspective is often taken when the research question deals with post-acquisition target integration when managerial leadership, skills and authority are most

important.

Agency theory takes its roots in the organizational economics. It considers managers' as rational individuals acting on their personal goals if not monitored by the boards of directors, representing shareholders (Jensen and Meckling, 1976). Hence, the key to the effective monitoring is a strong board with an independent board chair, who is able to prevent the excessive use of perquisites by managers. According to agency approach, CEOs pursue their personal material and non-material goals when make decisions to acquire (Morck, et al., 1990). Despite the popularity of agency theory, researchers admit that the theory has its flaws. It only looks at rational side of individuals, omitting their psychological and social needs of self-fulfilment and realization (Davis, Schoorman, & Donaldson, 1997).

Stewardship theory, as opposed to agency, represents managerial behaviour as cooperative rather than opportunistic. By serving the interests of shareholders, managers as stewards believe that their own interests are inseparable from the firm's wellbeing. Therefore, managerial motivation towards firm's performance is intrinsic, assuming the basic material needs of managers are satisfied (Davis, Schoorman, & Donaldson, 1997). Thus, stewards do not need monitoring and control to exercise their pro-organizational actions. In the stewardship relations, mutual trust between managers and owners is essential as both parties are serving the collective good (Donaldson & Davis, 1991).

Donaldson and Davis (1991) argue that the firm's return on equity is higher when CEO takes a dual role (the position of CEO and Board chair is hold by one person). Thus, top managers tend to serve their firms as stewards when taking full authority and leadership by occupying the both positions. However, in the context of M&As, Desai, Kroll and Wright (2005) have come to the opposite conclusion regarding the absence of outside board monitoring. They claim that acquisition outcomes, measured by CAR or change in ROA, are positively influenced by the percentage of outside board directors for the manager-controlled firms, in which neither shareholders nor managers have a significant share of ownership.

Given the evidence on the high rates of post-acquisition failures, CEO's decision to undertake M&A is considered to be more opportunistic than pro-organizational. But some scholars disagree with CEO's self-serving motives. They insist that top managers believe in positive outcomes of M&As but are not able to correctly match target's price with its opportunities, as are blinded by

hubris.

Researchers associate hubris with managerial optimism (Yang, 2005) and overconfidence in making investment decisions (Ben-David, Graham, & Harvey, 2007; Malmendier & Tate, 2005). Acting on hubris, upper echelon relies too much on their own judgement and misinterprets market prices. This causes the loss of value by the bidder shareholders due to the limited abilities to derive adequate profits from the overpriced target. Although the theory has been empirically supported (Roll, 1986), there is evidence that CEOs act more on agency than on hubris when making decisions to undertake M&As (Devers, McNamara, Halebian, & Yoder, 2013). Therefore, in this paper, an agency perspective is chosen as a theoretical base.

According to the agency perspective CEOs seek private benefits derived from M&As. Morck et al. (1990) argue that CEOs can seek to acquire fast growing targets and to diversify into unrelated businesses to assure the survival of the firm and “to reduce the risk to their human capital” (p. 32). However, their analysis shows that buying growing and unrelated targets can be value-destroying for shareholders (Morck et al., 1990). Other reasons that can prompt CEOs to acquire a firm include greater compensation for increasing the firm size (Harford & Li, 2007) and the possibility of diversifying personal risks by acquiring unrelated targets (Amihud & Lev, 1981). While self-serving motives of CEOs in pursuing M&As have been identified by previous research (Morck et al., 1990; Harford & Li, 2007), the link between these motives and post-acquisition target performance has not yet been examined thoroughly. To address this gap, this thesis investigates how an increase in CEO compensation after the deal closure can influence a target’s post-acquisition profits.

Prior studies have argued that managerial compensation does not have a direct impact on performance (Gomes-Mejia, Tosi & Hinkin, 1987; Jensen & Murphy, 1990). These studies further noted that “the form rather than the level of compensation is what motivates managers to increase firm value” (Mehran, 1995, p. 163). In light of this, many scholars have reported positive impacts of firm stocks and stock-based initiatives in the CEO’s compensation package on corporate returns (Mehran, 1995; Wright, Kroll, Lado, & Van Ness, 2002; Furfine & Rosen, 2011).

Researchers have noticed that stock-based compensation and firm ownership tend to prevent CEOs from taking non-value-maximizing decisions and help yield better efficiency (Datta et al., 2001;

Lilienfeld-Toal & Ruenzi, 2014). However, the impact of CEO ownership on firm performance is not linear; the impact varies for different levels of ownership (Morck et al., 1988). This raises the question of what level of stock-based compensation could incentivize CEOs to work harder to improve the post-acquisition performance of targets. In this regard, Hubbard and Palia (1995) conclude that neither very small nor very high levels of equity held by top managers are effective in achieving positive after-merger returns. Subsequently, Core and Larcker (2002) demonstrate that a substantial increase of equity held by CEOs can lead to a rise in accounting and market performance. This suggests a positive link between a CEO's level of ownership and post-acquisition target performance. This link is investigated as part of this thesis.

Previous studies reported that CEO ownership also affects decisions regarding purchasing unrelated targets. Firms run by CEOs with small ownership stakes (less than 10%) diversify more often than firms with CEOs who control over 30% of the firm's stock (Amihud & Lev, 1981). Related to this, it has been shown that diversified companies experience lower CEO turnover and have lower pay-for-performance sensitivity (Berry, Bizjak, Lemmon, & Naveen, 2006). Notwithstanding, researchers agree that unrelated M&As perform poorly (Datta et al., 1992; King et al., 2004; Doukas & Kan, 2004). This calls attention to a discrepancy between the value-maximizing strategy expected by shareholders and the private benefits expected by CEOs in pursuing diversification. While addressing this discrepancy, I argue that CEO ownership may mitigate the negative consequences of acquiring unrelated targets.

The methodology of this thesis focuses on target operating performance, a variable examined by only a few studies in the M&A literature (Furfine & Rosen, 2011; Capron & Pistre, 2002). For instance, Furfine and Rosen (2011) investigated merger transactions and concluded that the higher risk of post-merger default was not caused by a target but by the combination of a target's and a bidder's joint risks. Capron and Pistre (2002) explain that corporates benefit when transferring resources from an acquirer to the target but not vice versa. Thus, focusing on the role of a target in realizing the merger outcomes may extend our knowledge on the processes that happen after the deal closure. In this respect, a change in target operating performance one year after the acquisition can be a reasonable indicator of how a top manager's motives for an acquisition affect post-merger profits.

The data sample used by this study was obtained from Thomson Security Data Corporation's

Platinum database (SDC) and Standard & Poor's COMPUSTAT Segments Reporting as well as ExecuComp databases. The first source helped to correctly relate bidders with targets; the last two were used to derive financial reporting items as well as to construct the data on the growth of managerial compensation and the level of ownership stakes for the period of interest. In addition to these databases, corporate annual reports (Form 10-K) downloaded from the U.S. Securities and Exchange Commission resource (EDGAR) were checked to confirm what segment the purchased target was placed in. The data covers M&As of publicly listed U.S. companies for the period of January 1, 2006 to December 31, 2013. Multiple linear regression analyses and tests on mean difference were employed to identify the association between CEO compensation and stock ownership with post-acquisition target operating performance.

Literature Review

Over the last 50 years, the knowledge on M&A processes and consequences has been substantially advanced through extensive research in diverse literatures including economics, sociology, accounting, finance, and management. The finance literature has focused more on the factors that can potentially undermine market and operating returns gained by bidder and target shareholders, whereas the management literature has concentrated on the role of managers in M&As. In this thesis, I combine these two perspectives.

CEO motivations for undertaking an M&A

Compensation motives

CEOs' expectations of greater rewards have been highlighted as one of the reasons for undertaking M&As. This view emerges from the proposition that the CEO compensation depends on the amount of assets under control rather than on the higher profits or productivity (Harford & Li, 2007). An increase in top executives' remuneration following an acquisition is a plausible motivation for many M&As. A number of studies confirm that top managers of large companies earn more (Morck et al., 1990; Bliss & Rosen, 2001). Thus, CEOs might be seeking the ways to increase their firm assets.

Bliss and Rosen (2001) demonstrate that firm size matters in the growth of CEO compensation by analyzing mergers in banking industry. They conclude that CEO compensation (defined by salary, bonus, restricted stock and stock options) rises significantly regardless of how the assets grow (e.g., by capital expenditures or through acquisitions). Harford and Li (2007) extend the inferences of Bliss and Rosen (2001) to the other industries (beyond banks) and investigate how CEO's wealth changes depending on the expansion strategy (capital expenditures vs acquisitions), and they find that in case of a large capital expenditure, CEOs tend to receive smaller compensation compared to the merger. Furthermore, CEO compensation continues to be raised after the merger, regardless of how the firm stocks perform (Harford & Li, 2007). However, the magnitude of its rise depends on the strength of the board of directors. At the presence of the strong boards, bidding CEO compensation becomes more sensitive to post-acquisition results (Harford & Li, 2007).

Opponents of the compensation motive argument suggest that CEOs are more concerned with

investing in their own human capital rather than with the rewards from the asset growth (Shleifer & Vishny, 1989). According to them, M&As can serve as an instrument to raise the CEO's personal status and value. Top managers often select the investments that can make their expertise binding, unique, and difficult to be replaced. In addition, such investments can create favourable conditions for renegotiating a compensation package (Shleifer & Vishny, 1989). Avery, Chevalier and Schaefer (1998) further develop Shleifer and Vishny's (1989) argument by pointing out that CEOs would rather acquire a firm "to increase their prestige and standing in the business community" (p. 42). The CEO's experience in M&As usually extends their professional qualifications and achievements. The market of human capital tends to value an expertise in M&As as "the probability of a CEO adding a board seat between 1985 and 1991 increased by 11% if the CEO undertook an acquisition" (Avery et al., 1998, p.32).

In today's business world, the compensation to a CEO is a multi-component instrument that greatly varies across companies. Many scholars have examined how individual components in the remuneration package influence the quality of managerial decisions. Among various types of components, a stock-based component (SBC) has long been considered the most influential instrument as it brings the goals of top managers and those of owners together. SBC can stimulate top managers to increase the value of their companies (Jensen & Murphy, 1990). Indeed, Mehran (1995) found that the percentage of equity-based compensation and that of equity held by managers correlate positively with firm performance (Tobin's Q and ROA). Similarly, according to Datta, Iskandar-Datta and Raman (2001), top executives who receive large stock-based rewards tend to pay less acquisition premiums and choose targets with higher growth opportunities. However, Bliss and Rosen (2001) found that CEOs compensated with stocks are less likely to pursue mergers.

Some authors have looked more closely at different levels of equity held by managers and their impact on firm performance. Many of them claim that the correlation between managerial ownership and performance is not linear. Morck, Shleifer and Vishny (1988) proposed two hypotheses to explain the role of managerial ownership (firm stock held by top corporate officers and by the other members of the board) in examining firm value using Tobin's Q. Their first hypothesis (convergence-of-interest hypothesis) states that the value of a firm grows with the growth of managerial ownership given that the goals of the two parties are aligned. The second

hypothesis (managerial entrenchment hypothesis) stipulates that managers who have higher levels of ownership may have enough voting power to overcome the internal controls and thus exploit perquisites from their position (Morck et al.,1988). By conducting an empirical study on the Fortune 500 companies, Morck et al. (1988) concluded that at a small level of ownership (up to 5%) the convergence-of-interest effect prevails, thereby making the value of a firm to rise, while in the range of 5 to 25%, the goal alignment becomes suppressed by managerial entrenchment, thereby causing an adverse effect on firm value. If managerial ownership surpasses 25%, the first hypothesis prevails again, and the firm's market value starts to rise but at a lower rate. Finally, even when Morck et al. (1988) repeated the analysis using the operating profit measure instead of market value, the results were similar. Furthermore, Hubbard and Palia (1995) changed the Tobin's Q measure (that was used by Morck et al. (1988)) to 9-days abnormal returns around the acquisition date and come to the similar conclusions. At low levels of equity, managers tend to overconsume perquisites while at high levels they apprehend the loss of control and make less risky decisions, which led to the reduction of firm value (Hubbard & Palia, 1995).

Stock-based initiatives offered to managers often include stock-options. Wright, Kroll, Lado, and Van Ness (2002) have differentiated the CEO's equity holdings from CEO's option holdings in their analysis. This differentiation allowed them to conclude that the percentage of options held by CEOs lead to consistent maximization of the acquirers' returns while equity holdings do not have this effect. In contract, Furfine and Rosen (2011) report that mergers completed by CEOs with large option-based compensation have an above average risk of default. These results suggest that the relationship between CEO compensation and post-acquisition performance requires a more nuanced examination.

Risk Diversification Motives

In order to understand why managers would want to buy unrelated businesses, I start by discussing the influence of diversification on the post-merger firm performance. I then proceed to the CEO motivations for choosing unrelated targets. For this study, unrelated and conglomerate M&As are used interchangeably.

Target relatedness has long been considered an important determinant of an acquisition success. Management literature looks at target-acquirer relatedness as a source of synergy that a bidder

expects post-acquisition. Barney (1988) defines an acquirer and target as strategically related when its total net present value (NPV) is higher than the sum of separate NPVs of each company separately. He refers to strategic relatedness in a financial sense, other than the commonly implied business similarity. The scholar claims that “synergic cash-flows stemming from relatedness will lead to abnormal returns for shareholders of bidding firms when those cash flows are private and unique, inimitable and unique, or unexpected” (Barney, 1988. p. 77). Therefore, bidders should expect additional costs in connection with exploring strategic relatedness between themselves and targets (Barney, 1988).

Further, Harrison, Hitt, Hoskisson and Ireland (1991) propose that operating synergy can be reached through resource similarity (target and bidder resources are identical) and resource complementarity (the resources are not identical but rather complementary). The impact of resource similarity on firm’s post-acquisition performance is conveyed by means of the economies of scope and scale. The impact of resource complementarity assumes an acquirer and a target can produce unique, inimitable and private resource combination that should result in a long-term positive effect on performance. By measuring resource similarity and differences by the level of R&D intensity, capital intensity, administrative and debt intensity, Harrison et al. (1991) conclude that resource complementarity is more valuable for the strategic advantage of an acquiring firm than resource similarity.

Pehrsson (2006) emphasizes that business relatedness is multidimensional construct, more complex than commonly practiced binary approach of comparing the industries by Standard Industry Classification (SIC) code. Based on managerial perceptions, Pehrsson (2006) defines six main factors identifying the level of relatedness: Product technology, General management skills, End customers, Brand recognition, Supply chain types and Market knowledge. Further, he groups the factors into 4 clusters (High relatedness, Low relatedness, Customer relatedness and Technology relatedness) and investigates the performance consequences, measured by ROA for each cluster of relatedness. The results demonstrated that Technology relatedness led to the highest profitability compared to the other clusters. Customer relatedness didn’t show any significant effect on performance. However, high level of relatedness had a significant negative effect on firm’s ROA. According to Pehrsson (2006), both high level and low level of relatedness did not allow firms to build a sustainable competitive advantage. In the first case, he explained, the

identical businesses had little possibilities for the economies of scope. In the second, too many differences created additional complexity and pressure on strategy realization.

Finkelstein and Haleblan (2002) emphasize the positive effect of acquirer-to-target knowledge transfer in similar acquisitions, but in the case of a second acquisition, the positive effect diminishes and become negative if the target is unrelated (Finkelstein & Haleblan, 2002).

At the same time, however, scholars are cautious regarding the effect of unrelated deals. Meta-analytical reviews suggest that bidders avoid unrelated acquisitions since diversification contributes to losing value in subsequent years (Datta et al., 1992; King et al., 2004). Given that diversification has long been considered a value-increasing strategy, asserting that diversification brings greater risks is counterintuitive. Expanding to new markets opens up attractive opportunities for bidders. Ravenscraft and Scherer (1989) point out that conglomerate mergers perform much better than their single-industry counterparts. However, in subsequent studies, scholars notice that individual companies could be traded higher if they remained as separate entities (Berger & Ofek, 1995). Thus, a concept of diversification discount has come into play. Doukas and Kan (2004) show that conglomerates tend to be traded at a discount and produce less cash flows compared to the focused peers. Subsequent research provides more evidence for the low potential of unrelated M&As. Freund, Trahan and Vasudevan (2007) examine three year post-merger operating returns of corporations with global and industrial diversification and find them to be underperforming. A meta-analysis of 14 studies on the performance of conglomerates demonstrate a decrease in post-acquisition market returns over a period of one month to five years after the merger (King et al., 2004).

Berger and Ofek (1995) evaluate positive and negative effects of diversification on firm value. Their research reveals that the opportunities for tax reduction combined with the access to larger amounts of debt, commonly mentioned as a positive effect of diversification, have a modest impact on firm value. Negative effects, on the other hand, appeared to be significant. Managers distribute corporate funds to support all business directions regardless of the stage of their life cycle. Resource allocation from more successful to less productive segments occurred in 26% of cases for multi-segment companies (Berger & Ofek, 1995). As a result, the full potential of growing segments cannot be realized in time.

Facing the growing evidence of the performance issues of unrelated acquisitions, many scholars have asked why diversification is still popular among top executives. Several reasons have been suggested: one of them can be the reduction of the personal risks, including the risk of losing a job and good professional standing when the main business line faces losses (Morck et al., 1990). This motivation draws on CEO's financial dependence upon the company he or she represents. Amihud and Lev (1981) contrasted the abilities of shareholders to diversify personal risks and those of top managers. Firm owners have many possibilities to reduce their risk exposure by investing in various industries while managers can only diversify their risks within the boundaries of their position in the company. The empirical results confirm this view by showing that manager-controlled firms do more conglomerate acquisitions than owner-controlled counterparts (Amihud & Lev, 1981).

Lane, Canella and Lubatkin (1998) come with a critique of Amihud and Lev (1981) approach by arguing that there is little justification for managerial self-benefiting objectives in diversifying through acquisition of unrelated targets. They propose that diversification strategy, aimed to reduce unsystematic risk, is important for the company and therefore benefits shareholders and managers alike. However, the empirical evidence contradicts this proposition and appears to be in line with agency perspective, suggesting positive relationship between ownership concentration and firm's unsystematic risk.

In many situations, CEOs are unable to predict or control the decisions of shareholders to keep, transform, or divest the business. Faced with such uncertainty, any employee would take steps to preserve their earnings, status, and competitiveness on the human resources market. There could be a situation where a "CEO with experience in marketing or sales becomes less valuable than a cost-cutter when the firm loses its technological lead and has to sell a less differentiated more competitively priced product" (Shleifer & Vishny, 1989, p. 134). Thus, the risk of being replaced urges managers to choose another unrelated business as a backup.

Apart from job-related risks, managers may favour unrelated acquisitions for the possibility of covering underperformance (Morck et al., 1990). CEOs, facing losses in a core business line, tend to search to compensate the losses with the acquisition of a target from a more attractive, usually unrelated economic sector. In such a case, a lack of experiences in the new industry and previous setbacks only make things worse (Morck et al., 1990). Also, the negative effect on post-acquisition

performance can stem from unrealistic managerial ambitions regarding their capabilities to succeed in the other industries.

Post-Acquisition Performance of Acquirer and Target

Performance of an acquirer has remained a key topic in the business literature for more than four decades. A quick search yields approximately 250 peer reviewed articles, predominantly in the field of strategic management and finance. Almost all works measure post-acquisition results with market returns or losses gained or experienced by the bidder or the target shareholders.

A majority of studies have found that acquisitions have a negative impact on the bidder's returns in a medium and long-term period (Agrawal, Jaffe, & Mandelker, 1992; King et al., 2004; Andre, Kooli, & L'her, 2004; Ma, Whidbee, & Zhang, 2011). Still, some studies do observe positive earnings, at least for the target's shareholders (Datta et al., 1992). For example, the meta-analytical work of Datta et al. (1992) shows that target's shareholders tend to experience more than 20% growth in wealth around the date of M&A announcement (10 days before and 10 days after) while bidder shareholders' returns tend to grow by less than 0.5%. Subsequent research by King et al. (2004) shows that the shareholders of both acquired and acquiring firms earn at the deal announcement (from day 0 to 5), but starting from the 6th day post-announcement, the acquiring firm's abnormal returns become insignificant or negative. Operating results measured by ROA, ROE, and ROS follow the same direction (King et al., 2004). These results suggest that only target shareholders can expect cash gains after the acquisition deal.

Compared to the performance of firm stocks, operating performance after M&As has been much less studied. Ghosh (2001) has found that the operating performance of an acquirer (measured by a change in firm's cash flows) does not increase after a merger. To explain this finding, he also checked for the impact of the method of payment on post-merger profits. Even though cash acquisitions produced greater cash flows than stock ones, the expected positive synergy was not documented (Ghosh, 2001).

A target's operating performance has been even more rarely examined in the literature. Ravenscraft and Scherer (1989) were among the first to evaluate target performance before and after the acquisition. They examined whether acquired companies were underperformers and whether the change of management team has improved their post-merger operating results.

Ravenscraft and Scherer (1989) reported that targets did not underperform prior to the mergers and explained the phenomenon by referring to the specificity of the sample: “On average, US acquisitions of the late 1960s and early 1970s exhibited a selection bias toward extraordinarily profitable companies, the more so, the smaller the target was.” (Ravenscraft & Scherer, 1989, p. 115). Ravenscraft and Scherer (1989) further compared the performance of targets and unacquired firms. Seven to eight years after a merger deal, the performance of targets was lower than the unacquired firms from a similar industry. The decrease of value was aligned with a slower growth rate of acquired firms. The researchers proposed that bidders might be unable or unwilling to invest in a rapidly growing targets, which potentially hindered its profitability. Ravenscraft and Scherer (1989) also highlight another reason—a significant number of the asset divestitures following the mergers, which could signal the potential problems in “managerial competence and/or motivation” (p.115).

After being acquired, targets usually operate either as a separate business line or as a part of the existing segment. Chemmanur, Krishnan and Nandy (2014) examine the sources and conditions of productivity improvement in spun-off segments: firms sell (spin-off) part of its interest in the segment and further consider this segment a subsidiary. The evidence suggests that spun-off plants significantly increase their productivity starting from the first year as a subsidiary. The main source of improvement was the reduction of employees, total wages, and material costs (Chemmanur et al., 2014). One of the scenarios stipulated a sale of the firm’s stake in the subsidiary after the spin-off. Such spin-offs have demonstrated a delayed improvement in productivity rather than immediate (Chemmanur et al., 2014).

In management literature, synergy of target’s and acquirer’s resources becomes the focal point of the research on post-acquisition performance. Brush (1996) investigated post-acquisition competitive performance (market share) of the acquired business units during the second wave of acquisitions (1980s). He found strong support for the hypothesis that predicted sales-weighted market share of the acquired business unit increased one year after the acquisition. Brush (1996) argues that the source of the mentioned increase is operating synergy between target and bidder. He indicates 7 types of operating interrelationships based on resource- and activity-sharing that constitute a source of the operating synergy. Among them are functional interrelationships (R&D, industrial and consumer advertising), operational interrelationships (supplier and customer ties),

forward and backward integration. These relationships, according to Brush (1996), account for 84% of variance in post-acquisition sales of the acquired business units.

Several recent works on target performance have focused on cross-border vs domestic acquisitions (Bebenroth & Hemmert, 2015; Bertrand & Zitouna, 2008). Bertrand and Zitouna (2008) demonstrate positive changes in the target productivity especially for cross-border acquisitions. However, their analysis shows no evidence that M&As affect the profits of domestic and cross-border targets of French manufacturing firms (Bertrand & Zitouna, 2008). On the other hand, Bebenroth and Hemmert (2015) suggest that the targets acquired by firms overseas generally show a slight increase in ROA and asset growth despite managerial and cultural distance, which can negatively affect business operations of those targets. Findings of both studies attest the need for further research on factors that influence post-acquisition target results.

Theoretical Background

Agency Theory

The relationship between owners and managers has traditionally been viewed through the prism of agency theory. Therefore, this study uses agency theory as a conceptual guide. This theory conjectures a conflict of interest between owners as principals and managers as agents. This relationship is based on a contract stipulating that owners delegate their decision-making authority to agents (Jensen & Meckling, 1976). Managers as agents receive compensation for acting in the shareholders' best interests. Both parties make decisions aimed to maximize their personal wealth under given conditions. However, it is unrealistic to propose that agents' and principals' respective maximum wealth can be reached simultaneously for two reasons (Ross, 1973). First, because of the uncertainty—knowledge about the market is limited for the two parties. Second, because it is economically inefficient for a principal to monitor and predict every action a manager should take (Ross, 1973). Thus, a principal bears costs derived from transferring its business operating functions to agents. Part of those costs is managerial compensation, which is largely determined by the market and performance. Another part, the monitoring costs, are difficult to evaluate. Under the agency approach, managers will act based on their personal interests if there is lack of monitoring from the boards that represent shareholders. Therefore, the principals' losses due to monitoring costs and issues can be very high.

Theorists identify two levels of control over management: internal and external (Sundaram, 2004). The first level refers to corporate governance practices and the second level refers to the concept of the market for corporate control.

Corporate Governance

The contractual relationship between managers and owners varies depending on corporate governance systems. Sundaram (2004) suggests that “corporate governance practices define the role of the boards and officers of the corporation, and account for a considerable portion of the job description of a CEO” (p. 199). Corporate governance is more of a process than a stable system (Sundaram, 2004) in that it changes and evolves depending on political, cultural, and business environments. The North American corporate governance model has a dispersed ownership

structure. Under this model, many private and institutional shareholders tend to hold a relatively small amount of equity stakes; consequently, these shareholders do not exert enough control power over management. Therefore, shareholders must rely on the board of directors to internally monitor a company's actions. However, in reality, boards often team up with managers and thus fail in their controlling function (Sundaram, 2004; Dalton, Hitt, Certo, & Dalton, 2008; Krug et al., 2015). As Sundaram (2004) points out, "boards of many leading companies (and even governance standard-setting institutions such as the New York Stock Exchange) were ineffective, seemingly lacking the ability, interest, or competence to challenge CEOs" (p. 216). In today's complex business environment, CEOs have more opportunities to pursue non value-maximizing strategies since established internal control methods have become inefficient. Some researchers view M&As as an external mechanism that controls managerial efficiency (Mann, 1965; Sundaram, 2004). This mechanism is often referred to as a market for corporate control.

Market for Corporate Control

Manne (1965) introduced the concept of the "market for corporate control" to explain how the threat of a corporate takeover can discipline top managers. This concept describes an organization as a complex of assets that are correctly priced by the market. If stock prices decline, this signals that the firm has unrealized potential due to inefficient management. Underperforming companies become candidates for takeovers since bidders look for opportunities hidden in undervalued assets.

The concept of the market for corporate control has found its supporters and opponents. Davis and Stout (1992) reported that companies with above average returns receive fewer takeover bids. Zollo and Singh (2004), however, claimed the opposite—that a change of management in low-performing targets does not improve post-acquisition performance. The same conclusion was reached by Ravenscraft and Scherer (1989) who claimed that acquired firms actually outperform their peers prior to a deal. Thus, the assumption that M&As serve as an external method of disciplining CEOs has not provided consistent results across studies.

Managerial Opportunism in M&A

In the absence of the external and internal controls explained above, managers have opportunities to engage in self-benefiting strategies (Morck et al., 1990). These types of actions are often termed 'managerialism' or 'managerial opportunism' (Morck et al., 1990; Kang, 2006). Having

documented a loss of post-merger value, scholars investigate what personal benefits managers might pursue when they choose to acquire another firm (Morck et al., 1990; Bliss & Rosen, 2001). Ineffective monitoring mechanisms and weak boards of directors allow CEOs to make non-value maximizing decisions, causing a decrease of the firm's market returns (Jensen & Meckling, 1976).

One of the first references to the managerial role in initiating an M&A is grounded in the free cash flow theory (Jensen, 1986). Executives of companies with large cash flows on hand would rather spend the cash on an M&A than distributing it to shareholders through dividends. This theory "implies managers of firms with unused borrowing power and large free cash-flows are more likely to undertake low-benefit or even value-destroying mergers" (Jensen, 1986, p. 328). Jensen (1986) further argues that high leverage should prevent companies from spending cash on value-destroying projects. With the rise of debt- and stock-financed deals, it became obvious that acquiring CEOs might pursue other motives for M&As beyond spending excessive cash.

Managerial opportunism in M&As can be realized through the following: the reduction of the personal risks linked to the CEO's employment (Amihud & Lev, 1981; Shleifer & Vishny, 1989), overpaying for the rapidly growing targets and diversifying to cover up the managerial flaws in the main business (Morck et al., 1990), better career perspectives (Avery et al., 1998), and increase in CEO compensation (Bliss & Rosen, 2001; Harford & Li, 2007).

Hypotheses

CEO Compensation and Post-Acquisition Target Performance

As agency theory predicts, CEOs' business decisions can be significantly influenced by their personal interests which do not always align with those of the shareholders. For example, a CEO's decision to conduct M&As can be made based on the knowledge that their compensation will rise with firm's growth (Bliss & Rosen, 2001; Harford & Li, 2007), given that top managers of large corporations tend to earn more (Murphy, 1985; Jensen & Murphy, 1990).

However, not all means of firm growth are equally rewarding CEOs. Indeed, for large capital expenditures, top managers are rewarded with much less incentives than for M&As (Harford & Li, 2007). Mergers are more financially rewarding CEOs than large capital expenditures regardless of the firm-level outcomes gained through the mergers (Kroll et al., 1990; Bliss & Rosen, 2001). Furthermore, a low level of pay-for-performance incentives after mergers (Harford & Li, 2007) and weak boards (Sundaram, 2006) create a context in which top executives can make decisions that maximize their personal benefits at the expense of shareholders (Morck et al., 1990). The fact that M&As tend to have high failure rates (Datta et al., 1992) suggests that the boards that represent shareholders, are not usually effective in controlling managers' self-benefiting decisions and they may even reward managers for their opportunistic behaviour.

Conversely, knowing that M&As have an increased risk of default (Furfine & Rosen, 2011) but potentially can bring strategic advantages (Brush, 1996), the boards may incentivize CEOs with higher compensation so that they can take risks and put more efforts into achieving better post-acquisition results. According to agency theory, the separation of company ownership and control results in a conflict of interests between principals and agents (Jensen & Meckling, 1976). In this respect, managerial compensation (both material and non-material) can serve as incentive for agents to make their decisions to fulfill the principals' goals and interests, rather than their own. According to this theoretical perspective, the remuneration to a CEO should be linked to firm performance (Murphy, 1985).

However, research shows that relationship between CEO compensation and firm performance is

not that strong as agency theory implies (Jensen & Murphy, 1990) especially in the M&A context (Harford & Li, 2007). Indeed, several studies report that managerial compensation incentives are both inadequate and insensitive to firm performance (Jensen & Murphy, 1990; Kroll, Simmons & Wright, 1990). Jensen and Murphy (1990) claim that with each \$1000 of growth in shareholder wealth, CEO remuneration rises by only \$3.25 on average; of which stock awards constitute the largest part. Meanwhile, the average base salary of CEOs changes by only \$0.02. If market returns are substituted with corporate income, the impact on performance is even lower, 17.7¢ on average with each \$1000 change of the annual income. Therefore, CEOs receive only a tiny portion of the wealth earned by firm shareholders. Considering these trivial performance incentives, an increase in managerial compensation after an M&A may not encourage CEOs to work harder in the post-acquisition period. Indeed, researchers point out that an increase of CEO compensation observed after an M&A is detached from the firm performance not only for the period one year after the acquisition (Kroll et al., 1990) but also for the 3 subsequent years (Harford & Li, 2007).

Based on these findings, I argue that the expected growth of CEO compensation after a merger may function as an *a priori* motivating factor for a CEO to move forward toward an M&A, but not as a disciplining factor to avoid post-merger under-performance. More specifically, I propose that the growth of CEO compensation after the acquisition will not make CEOs to achieve better post-merger results.

A common approach in the business literature to assess the merger outcome is to determine average stock market returns for a specific time period. Operating results are considered less informative and more prone to managerial manipulations, whereas stock returns may be affected by various concurrent yet independent events. Assuming the target's profitability is vital for the acquirer, its operating performance is worth examining. Therefore, I examine target ROA and ROS one year after the acquisition as a dependent variable to indicate post-acquisition performance.

Hypothesis 1: The year-to-year growth of the CEO's total compensation will have a negligible impact on post-acquisition target performance one year after the merger.

CEO Ownership and Post-Acquisition Target Performance

Stock-based compensation (SBC) of CEOs has long been considered an effective way of reducing the agency costs, since agents have more reasons to act in the best interest of the principals (Sundaram, 2004). Managers receive stock-based compensation through various types of plans and initiatives such as stocks, stock option rewards, restricted stocks, or specific equity-related plans. This paper does not distinguish between the effects of each compensation type, but rather concentrates on the CEO's total ownership level as an indicator of SBC.

Owner-controlled firms have a history of better management (Mehran, 1995). Researchers observe a direct relationship between the level of CEO ownership and company returns. Indeed, "firm performance is positively related to the percentage of equity held by managers and to the percentage of their compensation that is equity-based" (Mehran, 1995, p. 163). Later, Lilienfeld-Toal and Ruenzi (2014) confirm the results obtained by Mehran (1995) and add that CEO-owners are better at reducing costs and producing higher operating profits.

In the field of M&As, managerial stock-ownership is associated with higher post-acquisition market returns (Wright et al., 2002). For example, Yen and Andre (2007) discovered a positive relationship between the level of CEO ownership and the operating cash-flow of the acquirer. Datta et al. (2001) confirm that top executives compensated with equity do not overpay for targets and therefore achieve positive stock returns over a three-year period after the acquisition. The findings of these studies provide theoretical and empirical grounds for the hypothesis that CEOs with higher stakes in the company are more likely to outperform their peers with smaller stakes.

The positive impact of CEO ownership on post-acquisition performance can be attributed primarily to the strategic decisions made in favour of shareholders. Bliss and Rosen (2001) report that CEOs compensated with stocks are less likely to engage in growth through acquisitions compared to managers compensated with cash. Comparable results were subsequently obtained by Lilienfeld-Toal and Ruenzi (2014), who pointed out that owner-CEOs tend to show better returns in situations of weak corporate governance while receiving smaller compensation compared to non-owners. Given that owner-CEOs are more efficient and less active in M&A, they might invest more of their efforts into target performance. Therefore, I expect the post-acquisition performance of a target to be positively related to the level of CEO ownership of the firm.

Despite the encouraging influence of SBC on managerial efficiency, CEOs can still hold very small percentages of firm equity that may not be enough for the convergence of interests between principals and agents (Jensen and Murphy, 1990). The issue of identifying the optimal level of stock ownership comes into focus. Morck et al. (1988) demonstrate that managerial equity holdings of up to 5% can bring about the convergence of interests, whereas at the higher ownership levels (above 25%) risk-aversion can restrain managers from taking potentially value-increasing actions (Hubbard & Palia, 1995; Wright et al., 2002). These findings suggest that CEO ownership and post-acquisition performance do not have a monotonic linear relationship. Based on the mentioned arguments, I propose the following two hypotheses.

Hypothesis 2a: The percentage of the CEO's total ownership has a positive impact on post-acquisition target performance.

Several studies have shown that CEOs tend to receive a large option-based compensation after acquisition deals (Devers et al., 2013). Furthermore, CEOs and directors exercise their options before acquisition and sell them following acquisition announcement, thereby generating earnings from the short-term increase of stock price (Devers et al., 2013). Similarly, Sanders and Hambrick (2007) argue that a large option-based compensation often motivates CEOs to make extremely risky investments that often lead to sizeable losses for their firms. Therefore, I differentiate between the influence of CEO's total ownership in the firm and CEO's total ownership *excluding* stock options.

Hypothesis 2b: The percentage of the CEO's total ownership *excluding* stock options has a positive impact on post-acquisition target performance and this positive impact will be greater than the impact of CEO's total ownership.

CEO Motivations to Acquire Unrelated Targets and Its Performance Consequences

Operating within a single industry makes a firm vulnerable to various uncontrollable threats. This problem can be mitigated by acquiring a target from a different industry sector. On the downside, conglomerate mergers can cause a decline in post-acquisition performance (Doukas & Kan, 2004; Freund, Trahan, & Vasudevan, 2007). Therefore, while multi-business firms can benefit from diversification, they also reportedly have greater rates of default.

The bidder can encounter greater challenges when deploying unrelated target resources compared

to related ones. The sharing of resources, knowledge, and markets is complicated by industry differences which can cause substantial financial losses for the firm. Moreover, Berger and Ofek (1995) found that unrelated business segments use excessive capital expenditures. This means that unrelated targets can perform worse after M&As. Indeed, studies suggest that unrelated acquisitions can weaken market value and reduce operating results three years after a deal (Doukas & Kan, 2004; Freund et al., 2007). Therefore, if unrelated acquisitions do not improve a bidder's financial standing, then the question remains as to why CEOs would acquire them.

Managerial motives in acquiring unrelated targets can be viewed through the lens of agency theory. Ineffective corporate governance may result in the personal interests of CEOs taking precedence over those of shareholders and can increase the agency costs carried by the principals. Berger and Ofek (1995) argue that “the evidence that diversification represented a suboptimal managerial strategy raises questions about the effectiveness of the corporate control and monitoring mechanisms in place during this (the 1980s) period” (p. 60).

CEO preferences of conglomerate mergers are often linked to managerial position and status. Top managers reduce unsystematic risk associated with a specific company or industry, and in doing so, they secure their employment income and status. This strategy, however, may not be in the best interests of shareholders, who can diversify their own portfolios more efficiently (Amihud & Lev, 1981). Empirical results support employment risk aversion as a motivation for diversification. According to Berry et al. (2006), “CEO turnover in diversified firms is completely insensitive to both accounting and stock-price performance, but CEO turnover in focused firms is sensitive to firm performance” (p. 797). As rationally acting individuals, managers can diversify their risks by expanding into other industries, even if this diversification does not work in the best interest of shareholders.

Hypothesis 3a: Unrelated acquisitions have a negative impact on post-acquisition target performance.

Following the principles of agency theory, managerial ownership can mitigate the negative consequences of acquiring an unrelated target. Stock-based compensation offered to CEOs by numerous corporations is aimed to ensure that shareholder wealth will grow. Amihud and Lev (1981) report that manager-controlled firms acquire unrelated targets more often than their owner-controlled counterparts. Therefore, my next hypothesis proposes that CEO ownership positively

impacts post-merger financial results of unrelated targets.

Hypothesis 3b: The CEO's total ownership has a positive impact on post-acquisition performance of unrelated targets.

Empirical Study

Sample Development

This study examines the US and Canadian firms that are publicly listed and undertook M&As between January 1, 2006 and December 31, 2013. The sample includes only completed deals; it does not contain financial sector companies. Only targets with a majority stake of 50% or more of the acquired ownership were considered.

The initial reception of the M&A deal type (e.g., hostile, neutral, friendly, etc.) was not considered. Deal types such as spinoffs, recapitalizations, self-tenders, repurchases and privatizations were also excluded from the sample. No distinction was made among different forms of M&As: leverage buyouts, tender offers, exchange offers or acquisitions of minority interests.

The sample was obtained in two stages. In the first stage, I identified companies that presumably made acquisitions between 2006 and 2013. An interim sample was obtained by matching Standard & Poors' COMPUSTAT Segments Reporting database (Compustat) and Thomson Security Data Corporation's Platinum database (SDC) for the period in question. The two databases were matched on the acquirers' CUSIP codes (Committee on Uniform Security Identification Procedures), SIC codes (Standard Industry Classification) of the target and segment and on the year of acquisition matched with the year of reporting the segment(s) by the acquirer. The resulting sample contained a list of matched target-segments combinations (346 targets and 2948 target-segment combinations) that the acquirer reported a year after the acquisition (Table 1).

A manual check of the annual reports (form 10-K) downloaded from EDGAR (U.S. Securities and Exchange Commission) showed that acquirers placed their targets into the existing segments or reorganized their reported segments following the M&A rather than creating new segments out of the purchased companies. Therefore, the sample required a confirmation regarding the segment(s) to which the target(s) was added.

The confirmation was done manually by searching the annual reports of each acquirer. Firms often describe the completed M&As and mention the segment(s) into which they placed the newly acquired targets in the Management Discussion section of the annual report. Thus, the name of the target(s) and the name of the segment(s) were confirmed. If the targets' or segments' names were

not specifically mentioned in the annual report, such observations were deleted. Annual reports of some acquirers were not present in EDGAR, which further reduced the initial data sample.

The internal deals, when acquirer and target belong to the same group of companies were removed from the data set. The sample size was further reduced by the 27 acquisitions that implied purchase of the equity stake below the 50% threshold. Next, 13 companies chose not to disclose the percentage of ownership in their acquisitions. For them, the decision was made based on the information provided by the management in the companies' annual reports.

After cleaning the data, only 344 segments (280 targets) were left from the initial sample of 2,948. These observations constitute a list of targets and segments to which these targets were placed. Table 1 below shows the main steps taken to obtain a sample, and also it shows how the size of a sample decreases along the way.

Further, this list of confirmed segments is supplemented with target performance variables (net income, total assets, and sales) and acquirer's CEO ownership and compensation variables. All financial reporting data that was used in the calculation of dependent and independent variables was obtained from the COMPUSTAT Segment Reporting and ExecuComp databases.

The final sample is comprised of 113 observations (Table 1), which accounts for situations where an acquirer allocated a target among several segments or purchased several targets in one year and placed them into one segment. Such cases are described in the section on measures of the dependent variables.

Table 1: Sample development

N of Observations	N of Acquirers-targets	Description of the steps in sample development
485 050	n/a	Sample size obtained from COMPUSTAT Segments reporting for 2007-2013
4 690	n/a	Sample size obtained from SDC Mergers and Acquisitions for 2006-2013
2 948	346	Number of observations after matching COMPUSTAT Segments Reporting sample with SDC sample
344	280	Sample size after manual check with annual reports to confirm the segment(s) into which the target was allocated after the acquisition
288	197	Sample size after deleting missing variables for segment Net Income and removing duplicates
195	195	Sample size after matching with COMPUSTAT Companies database to find target performance (Sales, Net Income, Total Assets) one year before deal
113	113	Sample size after adding CEO Compensation and Ownership variables from COMPUSTAT ExecuComp. Final number of observations

Initially, I expected that purchased targets would become new segments after the acquisition. However, this did not happen in the majority of cases; only five acquirers matched this initial prediction. Although this low number of matches does not provide a scope for analysis, some conclusions can still be drawn. For example, none of the acquirers reported segment net income one year post- acquisition (Appendix B, Table 1). In three cases out of five, segment sales dropped one year post- acquisition, but CEO remuneration growth did not reflect this change (Appendix B, Table 1).

Analysis of Outliers

The cases described below were removed not only due to their influence on the results but mainly due to their erroneous look. In the case of Boston Scientific Corporation that acquired CryoCor Inc. in 2008, the target's ROS before the deal was -26.66 due to high losses (-\$15.76 million) and low sales (\$0.59 million). This target was underperforming before being acquired, which is not extraordinary. There are other factors that make this observation troubling. A year after the deal, the acquirer's (Boston Scientific Corporation) segment also reported losses of \$1,025 million.

Considering that the target's assets accounts for only 0.06% of the acquirer's ones, the merger could not be the key reason of the performance drop. This case is outstanding and disturbing for the results and therefore it was deleted.

CuraGen Corporation, the target for Celldex Therapeutics Inc., had a pre-merger ROS that equalled 21.11, enormously high. The target reported net income of \$24.78 million when sales were only \$1.17 million. This observation does not look correct and therefore it was removed.

The third outlier includes an underperforming target and a significantly larger acquirer which absorbed the poor operating results of the first. Omthera Pharmaceuticals Inc. was clearly underperforming with assets of \$3 million and a reported loss of -\$27.56 million. It merged with a larger corporation, Astrazeneca Plc., with total identifiable segment assets of \$58,595 million and net income of \$1,23 million. The growth of ROA occurred due to the segment's large size relative to the target. Whether the target's operations improved is debatable. With the target's pre-deal ROA of -9.16 the average sample statistics is substantially affected. The observation does not provide much information but distort the analysis results.

Apart from these cases, there were other troublesome observations. Some corporations claimed an extraordinarily high percentage increase in CEO's total compensation for the acquisition year. Four companies claimed 907.05%, 661.84%, 634.67%, and 554.9% growth of CEO' total compensation for the year of the M&A deal completion. When the extreme cases are excluded, the average CEO compensation growth drops from 44.42% (median 12.15%) to 23.95% (median 11.09%).

The removed cases may well represent tendencies that need further investigation. A larger sample would have provided better insight to this matter. For our sample, however, these four observations stand apart from the others and have a great influence on the statistical results. The next maximum compensation, after its removal becomes 225%.

After removing disturbing and erroneous data, we are left with 104 observations for target ROA development and 102 for target ROS.

Measures

Dependent variables

Post-acquisition target performance is assessed through a change in the acquirer's segment ROA and ROS after the acquisition compared to the target's ROA and ROS before the acquisition (Figure 1). ROA and ROS ratios are calculated using target and segment net income instead of operating income (EBIT) or operating income before depreciation and interest payments (EBITDA). However, EBIT and EBITDA would be a better choice for ROA and ROS estimation, the deficiency of segment reporting for these items does not provide an adequate sample for the analysis. For example, a shift to EBIT instead of net income, yielded 33 observations in total.

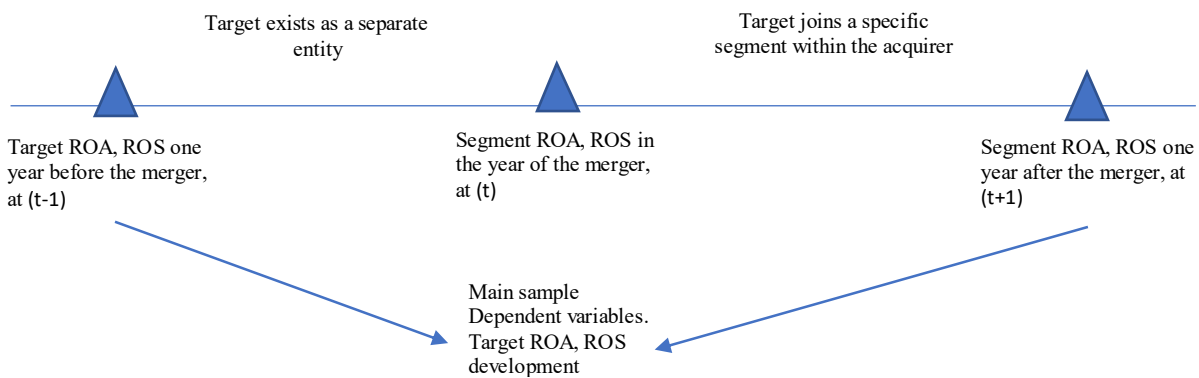


Figure 1: **Target performance before and after the acquisition date**

1. Target ROA development (TPROA)—a change of the target's ROA after the acquisition.

$TPROA = ROA_{s, t+1} - ROA_{T, t-1}$; where

$ROA_{s, t+1}$ —return on assets of a specific segment one year after the acquisition, calculated as

$ROA_{s, t+1} = \text{Segment Net Income, } t+1 / \text{Segment Identifiable Assets, } t+1$.

$ROA_{T, t-1}$ —return on assets of a target one year before the acquisition, calculated as

$ROA_{T, t-1} = \text{Target Net Income, } t-1 / \text{Target Total Assets, } t-1$.

2. Target ROS development (TPROS)—a change of target ROS after the acquisition.

$TPROS = ROS_{s, t+1} - ROS_{T, t-1}$; where

$ROS_{s, t+1}$ —return on sales of a specific segment one year after the acquisition, calculated as

$ROS_{s, t+1} = \text{Segment Net Income}_{t+1} / \text{Segment Sales}_{t+1}$.

$ROS_{T, t-1}$ —return on sales of a target one year before the acquisition, calculated as

$ROS_{T, t-1} = \text{Target Net Income}_{t-1} / \text{Target Sales}_{t-1}$.

Prior to the calculation of target ROA and ROS development (TPROA and TPROS), some segments' and targets' individual net income, assets, and sales had to be joined to avoid double entries of data. Where a bidder acquired several targets in one year and placed them into one segment, these targets' net income, sales, or assets were combined as if one company was acquired instead of two. There were five such cases with two targets placed into one segment. The opposite situation also occurred, where the assets of one target were spread among several segments. The individual financials of such segments were also added up as if one target was placed in one segment. There were four of such cases.

Independent Variables

The data for the acquirer's CEO compensation variables was obtained from COMPUSTAT Executive Compensation Data (Wharton Research Data Services, the Wharton School, University of Pennsylvania).

1. Acquirer CEO compensation has several measures:

Percentage change of the base salary (cash and non-cash) earned by the acquirer's CEO during the fiscal year in which the acquisition took place, compared to the previous year salary.

Percentage change of the total compensation for the fiscal year in which the deal was completed. Total compensation comprises the following: salary, bonus, total value of restricted stock granted, total value of stock options granted, long-term incentive payouts, and all other material benefits

that can be classified as compensation.

Following the research of Devers et al. (2013) and Malmendier and Tate (2005), I distinguish between *CEO' total compensation* and *CEO's total compensation, including exercised options*. Devers et al. (2013) argue that CEOs may not expect post-acquisition performance improvement as they exercise their options before merger and sell them around the acquisition announcement date. Conversely, Malmendier and Tate (2005) insist that top managers holding large portions of unexercised options are overconfident in the future profits of their firms. Therefore, I add the following measure of CEO compensation.

Percentage change of the total compensation, including exercised options for the fiscal year in which the deal was completed. Total compensation comprises the following: salary, bonus, total value of restricted stock granted, net value of stock options exercised, long-term incentive payouts, and all other material benefits. In this measure, the total value of stock options granted from the previous variable was replaced by the net value of stock options exercised.

Stock awards is a dummy variable, where 1 represents the situation where an acquirer's CEO was granted stock awards for the fiscal year in which the deal was completed and 0 where a CEO was not awarded company stocks.

2. *CEO ownership* is assessed by the percentage of shares held by the chief executive at the year end in which the acquisition was completed. The variable has two variations: *CEO's total ownership* and *CEO's total ownership excluding stock options*.

Missing values for the CEO ownership were substantial (n=27) due to the reporting constraints. If CEOs hold below 1% of the corporate equity, companies are allowed not to report their share.

CEO's total ownership is turned to categorical for some types of analysis. Thus, the supplementary variable takes two levels of ownership: less than 1% and more than 1% of the total corporate equity.

3. *Target size* has two measures. One is the target's total assets divided by the segment's total identifiable assets. The other is the target's sales relative to the segment's sales, calculated in the same manner.

4. Level of *relatedness* between a target and acquirer is measured by comparing the 4-digit SIC codes. Servaes (1996) argues that industry differentiation by 4-digit SIC codes may be too broad and misleading. He suggests measuring relatedness by the equal first two digits of a SIC code, which indicates the major industry group. Although Servaes' (1996) approach would be a better option, our samples do not have a significant degree of diversification between target and acquirer (Table 2). All target-acquirer industries share the same first two digits of a SIC code. Therefore, target unrelatedness means that target and acquirer businesses differ at the industry group level but in general belong to the same major industry. This type of unrelatedness can be denoted as a moderate diversification.

Business relatedness is a dummy variable, corresponding to 1 if a target and acquirer share similar SIC codes (all four digits). All other combinations, including those where the first two digits are identical, correspond to 0 (Table 2).

Table 2: **Business relatedness between target and acquirer**

Relatedness by All 4 digits of SIC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Unrelated, code 0	58	51.33	58	51.33
Related, code 1	55	48.67	113	100.00

Control variables

To control for industry-specific effects the following two variables are created: *Year mean industry difference in ROA* and *Year mean industry difference in ROS*.

Year mean industry difference in ROA(ROS) represents the difference between segment mean industry profitability (ROA or ROS) and target mean industry profitability one year post-acquisition. First, the data is sorted by year then by segment(target) industries. The mean segment(target) ROA(ROS) difference is calculated for each industry for the same year, omitting the observation of interest.

These variables are meant to control for industry-specific operating returns in a particular year without having to include numerous dummies into the regression.

Results

Descriptive Statistics

The sample includes 113 target-segment combinations. In this dataset, the target after being acquired was placed in the existing segment(s) of the acquirer. I start by presenting some distinct features and descriptive statistics about the sample and measures of the data

Industries of acquirers and targets

The industries of both targets and acquirers are not evenly represented across the sample, as we can see in Table 1 and Table 2 (Appendix A). Acquirers operate in 25 industry sectors, while targets are spread over 24 industries. Such industries as *Drugs* and *Electronic and Electrical Equipment* are represented by 14 targets each. Among the acquirers, 15 companies operate in the Drugs industry and 17 in the Electronic and Electrical Equipment industry.

Target size

Acquirers from our data chose relatively small targets. Most of the targets constituted less than a third of the bidders' segment sales or assets (Table 3a and Table 3b). The small relative size of the targets may reduce the proposed performance effect. Conversely, targets could be bought for reasons beyond their physical assets or market share, like technology, marketing capabilities, or unique expertise. In this case the size of a target may not be the key factor affecting target post-acquisition performance.

Table 3a: **Target sales compared to the acquirer segment(s) sales**

Target Sales to Acquirer Sales	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0.33 or less	82	72.57	82	72.57
0.33 to 0.66]	22	19.47	104	92.04
more than 0.66	9	7.96	113	100

Table 3b: Target assets compared to the acquirer segment(s) assets

Target Assets to Acquirer Assets	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0.33 or less	92	81.42	92	81.42
0.33 to 0.66]	14	12.39	106	93.81
more than 0.66	7	6.19	113	100

Year of acquisition

During the sample period there was no substantial difference in the number of acquisitions made in a specific year (Table 4). However, in 2007-2008 companies were more active in M&A, which is in line with the recorded boom of takeovers in that period. These two years account for 39 acquisitions out of 113 in our sample. It corresponds to 34.51% of all observations.

Table 4: Number of mergers and acquisitions by year (2006-2013)

Deal Year	Number of Deals	Percent	Cumulative Frequency	Cumulative Percent
2006	13	11.50	13	11.50
2007	18	15.93	31	27.43
2008	21	18.58	52	46.02
2009	14	12.39	66	58.41
2010	14	12.39	80	70.80
2011	8	7.08	88	77.88
2012	12	10.62	100	88.50
2013	13	11.50	113	100.00

Frequency of acquisitions

Some companies are *frequent buyers* who often make more than one acquisition per year. Laamanen and Keil (2008) point out that the greater the number of acquisitions made per year, the greater the chances the company will show a decrease in ROA and market returns. The work of Aktas, Bodt, and Roll (2009) also argues that cumulative abnormal returns decline with each

subsequent acquisition. In our sample, most companies made only one acquisition during 2006-2013 (Table 5) and thus frequent buyer issues were not observed.

Table 5: Number of acquisitions made by each acquirer during 2006-2013 (n=113)

Number of Acquisitions	Acquirers	Percent	Cumulative Frequency	Cumulative Percent
1	76	84.44	76	84.44
2	9	10.00	85	94.44
3	2	2.22	87	96.67
4	2	2.22	89	98.89
5	1	1.11	90	100.00

CEO ownership

The sample does not have high levels of CEO ownership in the firm. The maximum CEO's stake is 9.741 % while the minimum is hardly 0.001% (Table 6). The mean *CEO's total ownership* of the firm is 1.756% (median 1.021%), while for *CEO's total ownership excluding stock options*, the mean is lower and equals 1.011% (median 0.36%). The two groups: less and more than 1% of CEO ownership of the firm, were created out of the *CEO total ownership* variable. The 1% cut-off point is arbitrary and based on the sample characteristic. The two groups are equally distributed with 38 observations in each. As pointed out above, many corporations have chosen not to report the exact ownership level if it is less than 1%, which accounts for 28 missing values in the final sample.

Table 6: CEO total ownership levels in the acquiring firm

Ownership Level	N	Mean, %	Median, %	Min, %	Max, %
Under 1%	38	0.2651	0.1860	0.001	1
More than 1%	38	3.2463	2.19	1.043	9.741

Mean target ROA/ROS development

To analyze post acquisition operating performance, ROA and ROS of segment(s) were compared to targets' pre-merger ROA and ROS. Mean target ROA and ROS development showed an increase in values. Segment(s) that merged with targets after the deal reported an average ROA of 0.02 (median 0.03) and ROS of 0.03 (median 0.04). Compared with pre-merger ROA and ROS, target profitability inside an acquirer's segment improved substantially by 0.16 points on average in ROA (median 0.02) and 0.39 points in ROS (median 0.03). A large difference between mean and median values suggests the presence of outlying observations.

After removing erroneous and extreme observations (described further), average target ROA has increased by 0.08 points (median 0.02), while ROS by 0.18 points (median 0.03). From the rise in post-acquisition mean performance indicators, it can be concluded that targets' operations have improved. However, the cause of improvement may lie in a tendency of some targets in the sample to underperform. On average, targets reported ROA of -0.06 (median 0.02) and ROS of -0.14 (median 0.01) one year prior to the acquisition deals.

Analysis of Variance

Tests of the difference in means among two or several groups were run to identify whether target performance ROA(ROS) varied for related targets, for higher levels of CEO ownership, or for stock-based compensated CEOs. Further paired comparison tests identified whether target (segment) performance actually changed after the M&A deal.

According to the normality test, post-acquisition target performance (TPROA and TPROS) and percentage change in CEO compensation (*base salary, total compensation and total compensation including exercised options*) are not normally distributed. Therefore, the Wilcoxon rank sum test is a reference test rather than t-test.

The results presented in Table 7 below show that there is no significant difference in post-acquisition target performance (either ROA or ROS development) between related and unrelated targets. In other words, Hypothesis 3a, which proposed that unrelated targets do worse after being purchased than their related peers, is not supported by the test.

Table 7: Target relatedness and post-acquisition performance

	Target ROA Development	Target ROS Development
Target Relatedness:		
<i>Unrelated</i>	0.0946	0.2145
<i>Related</i>	0.0707	0.1510
Difference in means (t-test)	0.48	0.47
Wilcoxon rank sum test (z-statistic)	0.6205	1.1398
Number of companies	102	100

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

In addition, acquisition of unrelated business does not lead to higher CEO remuneration according to our data. The year-to-year change in CEO's *base salary, total compensation and total compensation including exercised options* is almost the same for diversifying and non-diversifying CEOs (Table 8).

Table 8: Target relatedness and CEO compensation

	Base Salary, year-to-year percentage change	CEO's Total compensation, year-to-year percentage change	CEO's Total compensation including exercised options, year- to-year percentage change
Target Relatedness:			
<i>Unrelated</i>	4.9105	21.0665	47.1629
<i>Related</i>	9.8098	26.3948	61.5602
Difference in means (t-test)	-0.90	-0.41	-0.35
Wilcoxon rank sum test (z-statistic)	-1.4014	-0.489	0.8023
Number of companies	97	96	95

I anticipate that *CEO ownership and stock-based compensation* have a positive impact on post-acquisition target performance. According to the Wilcoxon rank sum test, the presence of stock-based rewards impacts only TPROS. With a p-value <0.093 for a two-sided z-test, we can be 90% confident that CEOs receiving stock awards do better in terms of return on target sales development (Table 9).

Table 9: **Difference in target performance depending on the presence of stock-based compensation**

	Target ROA development (TPROA)	Target ROS development (TPROS)
Stock-based compensation:		
<i>Not present</i>	0.0494	0.0711
<i>Present</i>	0.0908	0.2120
Difference in means (t-test)	-0.7	-0.85
Wilcoxon rank sum test (z-statistic)	-1.5775	-1.6791***
Number of companies	102	100

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

There is also a difference in post-acquisition target operating returns depending on the two groups of CEO ownership. The difference in the Wilcoxon rank sums between the CEOs holding more 1% and less than 1% of firms' stock is significant at 99% confidence (Table 10).

Table 10: **Difference in target performance depending on CEO ownership level**

	Target ROA development (TPROA)	Target ROS development (TPROS)
CEO ownership:		
<i>More than 1%, n=38</i>	0.0198	0.0361
<i>Under 1%, n=38(37)</i>	0.1227	0.3509
Difference in means (t-test)	-1.81***	-1.8***
Wilcoxon rank sum test (z-statistic)	-2.8517*	3.222*
Number of companies	76	75

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

The larger the target size compared to the acquirer, the greater influence it should have on the financial result of a segment. To differentiate the effect of target size, the following groups were formed: less than 0.33% of an acquirer's sales (assets), greater than 0.33% but below 0.66%, greater than 0.66%.

Table 11: Differences in target performance depending on target size by sales and assets

	Target ROA development (TPROA)	Target ROS development (TPROS)
Target Size by Sales:		
<i>less than 0.33], n=70</i>	0.1109	0.2268
<i>0.33-0.66], n=22</i>	-0.0042	0.0736
<i>more than 0.66, n=8</i>	0.0526	0.0576
Difference in means (F-test)	1.9295	0.5313
Kruskal-Wallis test, Chi-Square	5.4886***	8.3698**
Target Size by Assets:		
<i>less than 0.33], n=79</i>	0.0949	0.1925
<i>0.33-0.66], n=14</i>	0.0049	0.1277
<i>more than 0.66, n=4</i>	0.0742	0.11508
Difference in means (F-test)	0.7861	0.0727
Kruskal-Wallis test, chi-square	5.2577***	4.6208***
Number of companies	102	100

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

A change in post-acquisition ROA and ROS development varies depending on the size of target assets or sales compared to the acquirer. With corresponding p-values ranging from < 0.0152 to < 0.0992 , we have enough evidence to reject the null hypotheses that target performance medians are identical for all Target Size by Assets and Target Size by Sales groups (Table 11).

As the analysis shows, target size impacts post-acquisition returns, but does not affect executive remuneration. According to the Kruskal-Wallis test, there is no significant difference in acquirer's CEO *base salary*, *total compensation* and *total compensation including exercised options* depending on the size of a purchased company either by sales or assets (Table 12).

Table 12: Differences in CEO compensation depending on target's size by sales and assets

	Base Salary, year-to-year percentage change	CEO's Total compensation, year-to-year percentage change	CEO's Total compensation including exercised options, year-to-year percentage change
Target Size by Sales:			
<i>less than 0.33</i> , n=70	5.0419	20.9176	69.497
<i>0.33-0.66</i> , n=22	15.6227	44.3488	23.26
<i>more than 0.66</i> , n=8	6.9071	-1.2391	11.655
Difference in means (F-test)	1.2544	1.7989	0.6183
Kruskal-Wallis test, Chi-Square	0.109	3.9996	0.2524
Target Size by Assets:			
<i>less than 0.33</i> , n=79	4.8877	21.2931	61.8171
<i>0.33-0.66</i> , n=14	20.6498	40.3701	31.3023
<i>more than 0.66</i> , n=4	11.1694	22.758	9.578
Difference in means (F-test)	2.1447	0.5072	0.264
Kruskal-Wallis test, chi-square	2.022	0.5433	0.5361
Number of companies	97	96	95

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

Paired comparisons of target ROA (ROS) one year before the acquisition and segment ROA (ROS) one year after

As mentioned in the literature review, many scholars have inquired as to whether post-acquisition performance of acquirers improves after a merger. Very few among them have analysed target operating results. Unfortunately, our type of data does not allow us to compare target income directly before and after the acquisition, but it is possible to compare ROA and ROS of a target and segment. Paired comparisons of ROA and ROS demonstrate that there is a significant difference between the ROA and ROS of a target and segment with a 95-99% confidence level (Table 13).

Table 13: Paired comparisons of mean target performance before and after the acquisition

	Mean ROA	Mean ROS
Performance:		
<i>Target (Before)</i>	-0.0557	-0.1438
<i>Target with Segment (After)</i>	0.0257	0.0345
Paired mean difference	0.0815	0.1796
Paired Comparisons (t-test)	3.32*	2.57**
Sign (M)	10**	18*
Wilcoxon signed rank test (S)	803.5*	1018*
Number of companies	102	100

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

Multiple Linear Regressions

According to the cross-correlation matrix (Appendix 1, Table 3), there is no unexpectedly strong relationships among the independent variables. The two dependent variables (target performance ROA and ROS development) are positively correlated ($r=0.51$) and the relationship is significant. Mean industry performance variables for ROA and ROS are moderately correlated with each of the performance variables and with each other. The two control variables for the size of a target compared to the acquirer by assets and by sales are also strongly related ($r = 0.83$). The variables mentioned are not supposed to enter the same regression model. So, high correlations among some of the effects do not cause concerns.

Top executives' compensation variables, namely *CEO's base salary percentage change*, *CEO's total compensation percentage change* and *CEO's total compensation including exercised options percentage change* also have small to medium correlations among them. Except for the base salary, total remuneration often implies stock-related awards that can interfere with the effects of CEO ownership. Therefore, each of the three executive compensation variables and each of two ownership measures were associated with either target ROA or ROS development (TPROA and TPROS) using multiple linear regression models.

The variance inflation factor is not higher than two, indicating that multi-collinearity does not cause problems in the equation. The regressions' results are summarized in Table 14 below.

Table 14: Multiple linear regression results

Dependent Variables Independent Variables	TPROA (Target ROA development)			TPROS (Target ROS development)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.0213	-0.0182	0.0185	-0.3369	-0.3492	-0.2742
<i>Controls</i>						
Target size by assets (ln)	-0.0232	-0.0239	-0.0202	-	-	-
Mean industry ROA by year ¹	0.3392**	0.3606**	0.3072**	-	-	-
Target size by sales(log)	-	-	-	0.2192***	-0.211***	-0.2138
Mean industry ROS by year ²	-	-	-	0.8911**	0.9289**	0.8487**
<i>Main Effects</i>						
Target Relatedness dummy	0.0093	0.0225	0.0096	0.0424	-0.0072	0.0475
CEO total Compensation, % change	-	-0.0005	-	-	0.002	-
CEO total ownership, %	-	-	-0.019***	-	-	-0.0326***
R-Square	0.1337	0.1475	0.1638	0.2958	0.3175	0.3037
Adj R-Sq	0.0937	0.0942	0.1115	0.2628	0.2741	0.2594
F-value	3.34**	2.77**	3.13**	8.96*	7.33*	6.87*
N	104	98	69	99	93	69

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level; n=69

First, only the effect of control variables and *business relatedness* on the TPROA and TPROS development were estimated (Model 1 and Model 4 in Table 14). Industry per year controls appeared to affect both target performance estimators. Target size by the amount of sales can be seen to have a significant negative effect on the post-acquisition ROS development. With 90% confidence TPROS would decrease by -0.21 with each 1-point increase in target's size (Model 4 and model 5 in Table 14). This effect probably occurred due to the fact that in our sample larger targets were underperforming prior to the acquisition (Table 11) and therefore jeopardized their segments' operations.

Adding one of the effect variables, *CEO's total compensation*, reveals that its effect on post acquisition target ROA/ROS development is not significant (Model 2 and Model 3). The repetition of the same model but with CEO's *base salary* or *total compensation including exercised options* produces identical results— we do not have enough evidence to assert that the effect of CEO compensation on target ROA/ROS development is different from zero. Therefore, Hypothesis 1 claiming no relationship between CEO's compensation growth and post-acquisition target

¹ Mean ROA change by industry is calculated for the year that follows the acquisition year.

² Mean ROS change by industry is calculated for the year that follows the acquisition year.

performance is supported. Since Hypothesis 1 involves null hypothesis, I followed a procedure suggested by Cohen (1992). To test the no-significant impact of CEO's total compensation growth on target post-acquisition performance I used a multiple linear regression with 3 independent variables: target size by assets/sales, mean industry ROA/ROS by year and CEO total compensation change (the regressions are run separately and not presented in Table 14). To find a minimum sample size to test a null, I found that the assumed effect size will be large for both TPROA and TPROS regressions (R^2 for TPROA=0.2443; R^2 for TPROS=0.3028), further the desired power of the test is 0.95 ($\alpha=0.05$ and $\beta=0.05$) then with 3 independent variables for each regression, the minimum sample size to be able to conclude that no significant effect exists is $n=34$ for each of the regressions (Cohen, 1992, p.157,158). Since, our sample size for both regressions ($n=98$ for TPROA and $n=93$ for TPROS) exceeds the required minimum size, the null hypothesis 1 can be supported at $\beta =0.05$.

The presence of stock-based awards in the executive compensation did not improve post-acquisition target ROA and ROS development. The regression models with stock awards dummy are not shown in the presented tables.

CEO's total ownership, on the other hand, demonstrated a significant relation with target ROA and ROS development one year post-acquisition with 90% confidence for both (Model 3 and Model 6 in Table 14). However, the relation is in an unexpected, negative direction. The replication of the same regression models but with *CEO's total ownership excluding stock options* produces the same negative sign but in this case the estimates become insignificant for either TPROA or TPROS (the results are not shown). CEO ownership is shown to affect post-acquisition target performance, but the effect is opposite to the proposed one. With each 1% increase in CEO's stock ownership, target operating performance decreases by 0.02 points for TPROA and 0.03 for TPROS, holding the other variables constant.

The CEOs' preferences for prior underperforming targets may explain the observed trend. CEOs with higher stakes might have seen unrealized opportunities in the underperforming targets which have pulled down the profitability ratios in a short term. However, the Wilcoxon rank sums test proves the contrary (Table 15). Top managers with more than 1% in equity holdings preferred less unprofitable targets.

Table 15: **Difference in target ROA and ROS prior to merger for two levels of acquirer's CEO ownership**

	Mean target ROA before the deal	Mean target ROS before the deal
CEO total ownership:		
<i>More than 1%, n=38</i>	-0.015	-0.0433
<i>Under 1%, n=38(37)</i>	-0.089	-0.2891
Difference in means (t-test)	1.28	1.47
Wilcoxon rank sum test (z-statistic)	1.8024***	-2.289**
Number of companies	76	75

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level;

In addition, I account for prior target underperformance for the regression models, presented in Table 14. Controlling for target losses one year before the deal closure (a dummy variable indicating 1 if target has had a negative Net Income one year prior the acquisition) has a significant positive effect on target post-acquisition ROA/ROS development, however the negative sign for the CEO ownership measures remain unchanged. Further, to test if target performance changes with different levels of stocks hold, CEO ownership is turned into a categorical variable (Model 1 and Model 2 in Table 16). The variable is divided into two groups: more than 1% and less than 1% of the total equity hold by the firm CEOs. The results show that target ROA and ROS development do not change if CEO controlling power exceeds 1%.

Table 16: **Multiple linear regression results for CEOs holding more than 1% of ownership**

Dependent Variables	TPROA (Target ROA development)	TPROS (Target ROS development)
	Model 1	Model 2
Independent Variables		
Intercept	-0.0135	-0.2196
<i>Controls</i>		
Target size by assets (ln)	-0.027	-
Mean industry ROA by year	-0.4193*	-
Target size by sales(log)	-	-0.1973*
Mean Industry ROS by year	-	0.8284**
<i>Main Effects</i>		
Target Relatedness	0.0389	0.0439
CEO ownership, more than 1 %	-0.0616	-0.1449
Adj R-Sq	0.2114	0.2863
F-value	4.76*	7.02*

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.
n(TPROA)=103; n(TPROS)=98

In Table 16, the effect of higher (in terms of our sample) ownership level is not significant for TPROA and TPROS, meaning that in the post-acquisition period, CEO ownership of 1% and above is not a plausible reason for target performance improvement.

Another explanation for the negative effect of CEO ownership on target performance can be borrowed from the results obtained by Morck et al. (1988). Later Hubbard & Palia (1995) came to the same conclusions but in the context of mergers and acquisitions. Morck et al. (1988) proved empirically that at lower levels of managerial ownership (0%-5%) firm value rises. Starting from 5% of the equity holding, managers become more confident in their employment and less value-maximizing, which causes market returns (and operating profits) to decline.

To test this argument, I created two dummies from the CEO *total ownership* variable similar to the specifications of Morck et al., (1988). However, the ownership ranges of 0-5%, 5-25%, and over 25% used in the aforementioned two studies were not possible to follow due to small ownership stakes in our sample, where only seven cases of equity holdings were over 5%. In our sample, the maximum CEO ownership is 9.741%, which is far lower than 25%. Therefore, I defined ownership ranges of below 1% and above 1%.

The new variables would be the following:

OWN0to1 = CEO *total ownership* if CEO *total ownership* < 1%;
= 1% if CEO *total ownership* >= 1%;

OWN1to10 = 0 if CEO *total ownership* < 1%;
= CEO *total ownership* - 1% if CEO *total ownership* >= 1%;

The piecewise (segmented) regressions for TPROA and TPROS would be the following:

TPROA=Intercept - 0.1465**OWN0to1+0.0163 OWN1to10 +0.42** Mean industry ROA by year+ 0.0446 Relatedness - 0.0259 Size by assets(log);

F=4.41*, R squared=0.2397, R squared adj. =0.1854;

TPROS=Intercept - 0.2637***OWN0to1+0.0154 OWN1to10 +0.8612**Mean industry ROS by year+ 0.0545 Relatedness - 0.1938 Size by sales(log);

F=5.72*, R squared=0.2929, R squared adj. =0.2417;

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

We observe that managerial holdings below 1% have a negative impact on post-acquisition target performance. Where CEO ownership level rises by 0.1%, target ROA development declines by 0.015 points and target ROS by 0.026 with 95% and 90% confidence intervals.

The same analysis was repeated for CEO *ownership excluding stock options*. The new piecewise regressions keep the same signs, negative for 0-1% ownership and positive for over 1%, however both effects become insignificant.

Target relatedness

Widely discussed in research, *target relatedness* does not have any association with either target performance measures, TPROA or TPROS (Tables 14 and 16).

To test whether performance of dissimilar targets improved with the growth of CEO ownership, the dummy variable was reversed to indicate 1 if the target was unrelated. Also, an interaction term of *unrelated target* and *CEO ownership excluding stock options* enters the model. The term is significant at 90% confidence only for the change in ROA, but with unexpected negative effects. Post-acquisition ROA development of unrelated targets drops 0.01 points with a 1% increase in CEO ownership (Table 17, Model 2). Repeating the same regression but with CEO *total ownership* instead of *CEO ownership excluding stock options* yields a very similar result (Table 17, Model 3).

For the progress in TPROS for unrelated targets, the evidence suggests a somewhat different situation. Holding the other effects constant, we can be 99% confident that post-acquisition change in ROS would be higher for unrelated targets (Table 17, Models 4-6). Therefore, hypothesis 3a claiming that dissimilar targets do worse is not supported across the presented models. Unrelated targets could be in worse financial situation preceding the merger, making room for gradual improvement inside the acquirer's segment. However, the analysis does not allow us to conclude that there was any difference in TPROA or TPROS for unrelated targets compared to related ones prior to the acquisition (the results are not shown).

In Model 6 (Table 17), a combination of CEO's *total ownership* and target unrelatedness provides a significant negative effect ($\beta = -0.0776^{**}$). The identical model but with CEO's *total ownership excluding stock options* (Model 5 in Table 17) does not have the effect of the equal strength ($\beta = -0.0902$). In TPROS models, the negative influence described is offset by a positive and significant impact of the fact that the target is unrelated ($\beta = 0.2378^*$ and $\beta = 0.2826^*$ in Table 17, Models 5 and 6). The regressions with CEO total ownership (includes stock options) are not shown.

Table 17: Multiple linear regression results for the CEO ownership effect on performance of unrelated targets

Dependent Variables Independent Variables	TPROA (Target ROA development)			TPROS (Target ROS development)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.0350	-0.0314	-0.0203	0.0647	0.0367	0.0291
<i>Controls</i>						
Target size by assets(log)	-0.0321***	-0.0258	-0.0212	-	-	-
Mean industry ROA by year	0.4409**	0.4218**	0.423**	-	-	-
Target size by sales(log)	-	-	-	-0.1030	-0.0806	-0.0715
Mean industry ROS by year	-	-	-	0.5765	0.6119	0.6093
<i>Main Effects</i>						
Target Unrelatedness dummy	-0.0352	0.0221	0.0543	0.1541***	0.2378*	0.2826*
CEO ownership excl. Stock options, %	0.0136	0.0249	-	-0.0039	0.0158	-
Interaction of CEO ownership and target unrelatedness ³	-	-0.0581***	-	-	-0.0902	-
CEO total ownership, %	-	-	0.0153	-	-	0.0124
Interaction of CEO total ownership and target unrelatedness ⁴	-	-	-0.0523***	-	-	-0.0776**
R-Square	0.2061	0.2327	0.2451	0.1261	0.1517	0.1725
Adj R-Sq	0.1614	0.1779	0.1912	0.0754	0.0893	0.1116
F-value	4.61*	4.25*	4.55*	2.49**	2.43**	2.83**

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level; n=75

In summary, Hypothesis 3b, which proposes an increase in target ROA/ROS development for

³ An interaction term of target unrelatedness and CEO *ownership excluding stock options*

⁴ An interaction term of target unrelatedness and CEO *total ownership*

unrelated targets with the rise of an acquirer’s CEO ownership, can not be confirmed with the available data.

The findings discussed up to here are based on the development of *target* operating performance after the acquisition. Since the bidders allocate the targets into existing segments, it might be worthwhile to also track the performance of these segments. The analysis of segment performance in the year of acquisition and one year after can add to the validity of the main study as a robustness check.

Post-Acquisition Segment Performance. A Robustness Check.

Segment performance data was derived from the same manually confirmed sample. Only those segments to which targets were allocated were considered. In robustness sample the response variables were changed to compare segments’ performance one year post-acquisition with the performance of the same segments one year before (Figure 2). The robustness sample comprises only 59 observations, mainly because of the missing data for the segments reporting items: net income, sales, and total identifiable assets.

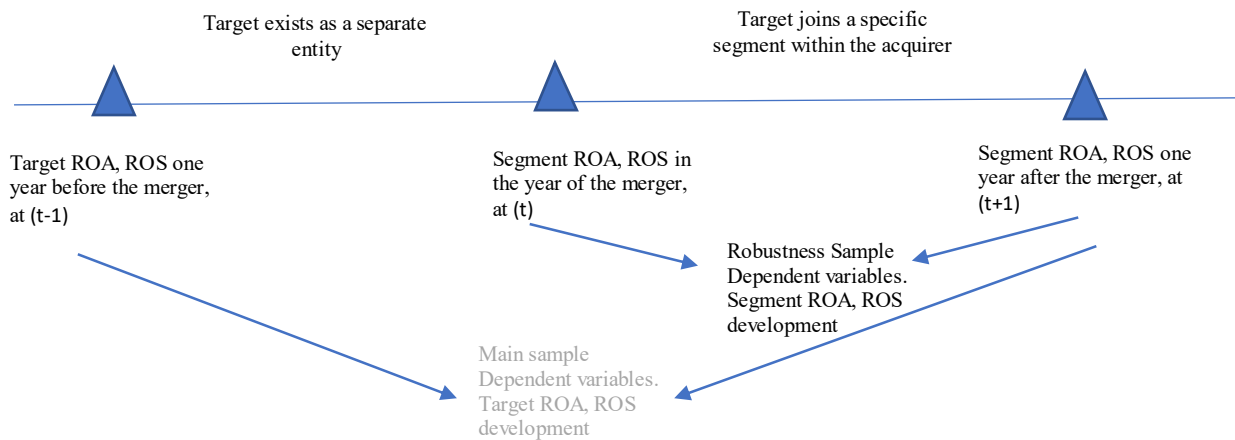


Figure 2: Segment performance before and after the acquisition date

All of the targets that were added to the segments were related based on a 4-digit SIC code. This sample also has the extreme CEO compensation values (n=6) that are influential for the results.

For the outliers, either *CEO's total compensation* or *CEO's total compensation including exercised options* grew on a year-to-year basis from 333.52% to 1564.97%. In addition, two entries of extreme CEO ownership levels, representing 25.65% and 58.1% of total equity were also removed as they were too critical for this sample.

The *dependent variables* are calculated in the same way as in the main sample. Segment performance development is a difference between segment ROA/ROS one year after the acquisition and segment ROA/ROS for the year of acquisition.

1. Segment ROA development (SPROA) is a change of segment ROA after the acquisition.

$SPROA = ROA_{s, t+1} - ROA_{s, t}$; where

t—is the year of acquisition;

t+1—is the year following the year of acquisition.

2. Segment ROS development (SPROS) is a change of segment ROS after the acquisition.

$SPROS = ROS_{s, t+1} - ROS_{s, t}$;

Independent variables are calculated in the same way as for the main sample.

Descriptive statistics and multiple linear regression results for the robustness sample

On average, segments' ROA slightly decreased from 0.0075 (median 0.039) at the end of the deal year to 0.0065 (median 0.043) one year later. Since median return-on-assets shows the opposite, we may conclude that only several segments' financials deteriorated and moved the mean to the left. On the return-on-sales side, there was an improvement in average ratios from ROS equalling -0.0009 (median 0.0441) for the year of the deal to 0.0128 (median 0.0651) one year later. Nevertheless, paired test on mean differences has shown no significant shifts in performance during a one-year period for segments, enlarged with the purchased targets (Table 18).

Table 18: Panel B Sample. Paired comparisons of mean segment ROA and ROS

	Mean Segment ROA	Mean Segment ROS
Segment performance:		
<i>Before</i> ⁵	0.0075	-0.0009
<i>After</i> ⁶	0.0065	0.0128
Paired mean difference	-0.0009	0.0137
Paired Comparisons (t-test)	-0.4	0.25
Sign (M)	3.5	7.5**
Wilcoxon signed rank test (S)	108	254**
Number of companies	58	58

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

Several propositions mentioned in the first part of the paper discussed the role of *CEO ownership* and *ownership-related compensation* relative to post-acquisition target performance. Wilcoxon rank-sum test shows that presence of stock awards does not cause a change in segment ROA/ROS development. The same is true for the two levels of CEO ownership in the bidding firm (Table 19 and Table 20). Both conclusions are in line with the results obtained from the main sample.

Table 19: Difference in segment performance depending on the presence of stock-based compensation

Panel B Sample	Segment ROA development	Segment ROS development
Stock-based compensation:		
<i>Present</i>	0.0195	0.0563
<i>Not present</i>	-0.0085	-0.0021
Difference in means (t-test)	0.54	0.48
<i>Wilcoxon rank sum test (z-statistic)</i>	-0.4177	-0.5712
Number of companies	58	59

* Statistically significant at 1% level. ** Statistically significant at the 5% level. *** Statistically significant at the 10% level.

⁵ *Before* means at the end of the year of acquisition.

⁶ *After* means one year after the year of acquisition.

Table 20: **Difference in segment performance depending on CEO ownership level**

Panel B Sample	Segment ROA development	Segment ROS development
CEO ownership:		
<i>More than 1%</i>	-0.0545	-0.0219
<i>Under 1%]</i>	0.0165	0.0259
Difference in means (t-test)	-1.28	-0.37
Wilcoxon rank sum test (z-statistic)	0.3615	0.38
Number of companies	57	57

* Statistically significant at 1% level. ** Statistically significant at the 5% level. *** Statistically significant at the 10% level.

Multiple linear regression was used to assess the association between upper echelon compensation and segment performance improvements (Table 21). Close to the outcomes received with the main sample, CEO compensation does not affect segment ROA/ROS development. In addition, the negative sign of the relation persists with the robustness sample as well.

Table 21: **Multiple linear regression results for segment performance**

Dependent Variables	SPROA (Segment ROA development)	SPROS (Segment ROS development)
Independent Variables	Model 1	Model 4
Intercept	0.0256	0.1033**
<i>Controls</i>		
Mean industry ROA by year ⁷	0.078	-
Mean industry ROS by year ⁸	-	-0.0406
<i>Main Effects</i>		
CEO Base salary, % change	-0.0008	-0.0048
R-Square	0.0959	0.3239
Adj R-Sq	0.0597	0.2968
F-value	2.65**	11.98*

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level; n=53.

Unfortunately, missing values for *CEO total ownership* in this data did not allow us to run multiple

⁷ Mean ROA change by industry is calculated for the year that follows the acquisition year.

⁸ Mean ROS change by industry is calculated for the year that follows the acquisition year.

linear regressions to confirm the previous findings.

Relying on the robustness analysis, the remuneration of top executives demonstrated no influence on the progress of segment financials. Concurrent with the previous results, the presence of stock-based compensation (Table 19) and the level of CEO ownership (Table 20) did not make noticeable changes in segment ROA/ROS development. However, unlike the targets from the main sample, segments were not underperforming in the year of acquisition, nor could a significant shift in average operating performance be viewed a year later.

Discussion

This study seeks to identify how the CEO's motivations behind undertaking an acquisition impact post-merger target performance. I proposed motivations such as the growth of CEO compensation and the acquisition of unrelated target to secure a managerial job, would negligibly and negatively affect target operating performance. I also hypothesized that the level of CEO ownership would have a positive impact on target performance. To test these propositions, I analyzed a sample of 113 public targets acquired between 2006–2013. The descriptive analysis of this sample has highlighted several noteworthy characteristics.

The results show that almost half (approximately 46 %) of the targets underperformed compared to prior to the merger. The average of the target firm's ROA one year before the deal was -0.06 whilst ROS was even lower, at -0.14. In addition, the bidders preferred relatively small targets: over 70% of the purchased firms were three times smaller than their segments, with target size being determined by amount of sales or assets. According to the data, all targets share the first 2-digits of the 4-digit SIC code with acquirers, meaning that conglomerate mergers are not present in our sample.

CEO Motivations for Greater Compensation and Post-Acquisition Target Performance

Based on prior research, several propositions were made regarding the impact of CEO compensation year-to-year percentage growth on target operating performance. I expected that the compensation that the CEO of the acquiring company receives after the deal's completion does not motivate them to attain higher post-merger profits.

On average, *CEO's base salary* increased by 7.48% in the year of acquisition. Likewise, *CEO's total compensation* increased by 23.95%, while *CEO's total compensation including exercised options* increased by 54.89%. Nevertheless, a multiple linear regression analysis showed that an increase in CEO wealth (defined by their total compensation) was not associated with the target ROA and ROS development. Thus, the proposition that acquiring CEO compensation has no relation to post-acquisition target performance can be supported based on the two samples (the main sample and the robustness sample).

According to the Wilcoxon rank sum test, the presence of stock-based rewards impacts only a change in target ROS. We can be 90% confident that CEOs receiving stock awards do better in terms of return on target sales development. However, no change was observed regarding the return-on-assets ratio. Also, no significant relationship between SBC and target post-acquisition development was observed in the regression models. However, stock-based compensation leads to a higher level of CEO ownership, which may theoretically have a positive effect on target operating results.

CEO Ownership and Post-Acquisition Target Performance

In contradiction with hypothesis 2a, I did not observe a positive effect of CEO total ownership on target ROA (TPROA) and ROS (TPROS) development that was anticipated. For each 1% increase in *CEO total ownership* in the firm, there was, on average, a 0.02-point decrease in target TPROA and a 0.03-point decrease in target TPROS. This negative trend seems not to result from the risky behaviour on the part of the managers acquiring underperforming targets. Rather, CEOs with stakes higher than 1% were acquiring relatively profitable firms. Interestingly, when *CEO total ownership* is replaced with *CEO's total ownership excluding stock options* (another measure of ownership) the relationship becomes insignificant, though the negative trend persists.

Several studies have mentioned that the impact of CEO equity holdings on firm performance is not monotonic (Morck et al., 1988; Hubbard & Palia 1995). For example, Morck et al. (1988) showed that at low levels of managerial ownership (0–5%) a firm's market value (Tobin's Q) rises. However, starting from 5%, it declines before slowly rising again as CEOs accumulate over 25% of stock. Initially, firm stocks motivate executives to perform (goal alignment effect), but once reaching a certain point (over 5%) managers gain voting power to overcome the internal controls and make less value-optimizing decisions (managerial entrenchment effect).

To test the above rationale, I followed Morck et al.'s (1988) approach and ran a piecewise (segmented) linear regression. A significant negative impact was observed at low levels of CEO ownership (below 1%) on post-acquisition target ROA and ROS development with β - coefficients equal to -0.1465** and -0.2637***, respectively. For ownership levels above 1%, the impact was insignificant but positive. This discrepancy of results can be explained by the different ownership ranges and dependent variables used in this study compared to others. For example, Morck et al.

(1988) used different ownership ranges (0-5%, 5-25% and over 25%) and Tobin's Q as a dependant variable. In addition, their data was based on one-year (1980) of stock returns and had no connection to M&A. Although the study of Hubbard and Palia (1995) focused on an M&A context, their dependent variables were different from the variables used in this study. For example, they measured post-acquisition performance with a nine-day cumulative abnormal returns from before compared to after the deal announcement, while the dependent variable of this study was a change in target ROA and ROS following the acquisition.

One possible explanation for the observed negative effect of CEO ownership is related to the percentage of stock options in the *CEO total ownership* measure (Sanders & Hambrick, 2007). When the piecewise regressions were repeated on the *CEO ownership excluding stock options* the relationships became insignificant but remained negative. Since CEOs are generously awarded with stock-options following M&A completion, it is likely that this type of remuneration does not motivate management to achieve higher performance, at least in the first year after the acquisition.

The observed negative effect of CEO ownership on target performance could happen due to the other factors affecting the decisions of CEOs. For example, acknowledging that voting power alone does not cause managerial entrenchment, Morck et al. (1988) extended their analysis to include the board composition and firm-age effects. For example, researchers reported that controlling power of a founder was good for younger firms but bad for older ones (Morck et al. 1988, p. 311). As can be applied to our data, managerial entrenchment described by Morck et al. (1988) can dominate when managerial ownership is below 1%, especially in conjunction with other accompanying factors like weak internal control of boards.

Also, in our sample the equity stakes held by CEOs are very small compared to the samples of Morck et al. (1988) and Hubbard and Palia (1995). On average, the level of CEO ownership in our sample is only 1.75%, that may not be enough for the positive effect to be noticed. This is consistent with what has been mentioned by Jensen & Murphy (1990) who argue that CEO ownership stakes have been in constant decline over the last 50 years, reducing goal alignment between agents and principals (p. 261). Therefore—in combination with other factors—CEO ownership below 1% could be too low for a goal alignment effect.

Beside sample selection bias, the observed result may be interpreted in line with the suggestions

of Lane et al. (1998) contending with the agency inspired claim that owners are better managers. The authors found no positive impact of high concentration of shares (owner control) on firm's market-to-book ratio. They insist that depending on the context, managers may be more efficient than owners. Thus, the positive effect of ownership concentration on performance may be exaggerated. Therefore, the observed effect of CEO ownership above 1% was not significant.

Motivations of CEOs to Diversify and Performance of Unrelated Targets

Much of the management literature looks at M&A as an opportunity to diversify existing businesses. Still, scholars warn that bidders with unrelated targets do worse, post-merger (Servaes, 1996). The term for this phenomenon is diversification discount (Doukas & Kan, 2004). Yet the risk of default does not come with the acquisition of an unrelated target (Furfine & Rosen, 2011). It is the issue of managing unrelated target's resources that impedes future returns (Berger & Ofek, 1995). Drawing on existing findings, it was proposed that the performance of unrelated targets would be lower.

Based on our data, *target relatedness* does not affect post-acquisition performance. The coefficient is insignificant across all multiple linear regression models. Therefore, the obtained result should be considered with precaution as the level of target similarity was assessed using all four digits of a SIC code. There were no conglomerate mergers in our data. Moreover, there was no evidence that managers were more generously compensated for diversifying business through acquisition of unrelated targets.

To test if CEO ownership increases post-acquisition performance of unrelated targets, a relatedness dummy was reversed to take 1 if the target was unrelated and 0 if the target was related. Also, an interaction term was introduced for CEO ownership and unrelatedness. This change yielded a somewhat different conclusion from the one that was reached for related targets. Moderately unrelated targets (based on 4-digit SIC codes) have a significant positive impact on post-acquisition target return-on-sales. In 90% of cases, if a target is unrelated its ROS development is on average 0.15 points higher than that of a related one. The effect of a target's dissimilarity on target post-acquisition change of ROA is insignificant.

The positive effect of acquisition of moderately unrelated targets can be explained from the point of view of resource complementarity presented by Harrison et al. (1991). Obviously, the resources

of acquirer and target can not be identical if their businesses vary. Therefore, we can assume that some differences in industries can complement each other and help to develop a unique combination of resources, valuable for the strategic advantage as suggested by Harrison et al. (1991). However, this explanation needs further detailed investigation on what resource differences were involved.

However, the presence of an interaction term of CEO ownership and target unrelatedness intensifies the positive effect that business unrelatedness has on target ROS development. In the models including an interaction term of target unrelatedness and CEO ownership, the change in ROS for unrelated targets becomes even greater, growing by almost 0.21 points with 99% confidence, holding the other factors constant.

Theoretical Implication

Adding to the literature that describes CEO input in M&A outcomes, I investigated how managerial motivations to acquire affect the operations of an acquired firm. Unlike the most studies, where the explanatory variable(s) are based on stock market returns, this study uses target operating performance as a measure of post-acquisition result, that allows us to link managerial decisions regarding the target acquisition with post-acquisition performance of the same target. The findings of this study complement the existing knowledge on the role of top managers in post-acquisition results.

The most challenging outcome of this study is that CEO ownership has a negative relationship to post-acquisition target performance. When the multiple linear regressions are repeated with *CEO ownership excluding stock options*, the effect remains negative but becomes insignificant. This finding contradicts earlier research, that found a positive effect of equity-related compensation on post-merger performance (Datta et al., 2001; Wright et al., 2002).

More recent studies like Devers et al. (2013) and Sanders and Hambrick (2007) emphasize the controversial role of stock-option grants awarded post-merger. Devers et al. (2013) urge managers to exercise options preceding the acquisition and to sell their stocks during the announcement period. Sanders and Hambrick (2007) note that executives awarded with stock-options are more likely to take extreme risks and to experience greater losses. The results also confirm that stock-option managerial awards impact target performance negatively rather than positively. Given that

CEO's total compensation including stock options grew on average by almost 55% for the year following the acquisition, these concerns can be justified.

All three measures of CEO compensation have shown no significant role in target ROA/ROS development after acquisition. Such results support previous research reporting a disconnect between the remuneration packages of top managers compared with firm profits (Jensen & Murphy, 1990; Gomez-Mejia, Tosi, & Hinkin, 1987).

Moreover, related diversification has a positive effect on post-acquisition target ROS development. This coincides with the suggestions of Palich, Cardinal, and Miller (2000), who found evidence that “diversification is positively related to performance across the low to moderate range of diversification” (p.161). However, their study did not focus on an M&A context. In the field of M&A research, we can add that targets from similar but not identical businesses perform better following a merger.

More than 30 years later, we have observed a different sample characteristic from what Ravenscraft and Scherer (1989) reported. Ravenscraft and Scherer's (1989) sample consisted of very profitable targets, whilst our sample is mostly comprised of firms that were underperforming prior to acquisition. There are many possible reasons that can explain CEO's preference for underperforming targets. One of them is that top managers see unrealized opportunities within a target's capabilities, which is in line with the concept of market for corporate control. Another possibility is that financially healthy public targets are too expensive compared to private firms of comparable size and financial standing. Both reasons need further investigation.

Practical Implications

The primary point of practical concern is that at low levels, below 1%, CEO ownership seems to have a significant negative effect on post-acquisition target performance. Also, in this study CEO ownership that includes stock options demonstrated a significant negative effect on both target ROA and ROS development, while the ownership measure excluding stock options did not have as strong of an effect but kept the negative direction. Based on our data, CEO rewards comprising stock-options grew significantly on the year-to-year basis (by approximately 55%) when almost half of the targets were underperforming prior to their acquisition. These findings could be related to the corporate governance issues that shareholder could pay attention for. This finding does not

follow the logic that agency theory would propose. Nevertheless, the results call for increased attention to existing corporate governance practices.

Another implication from our findings is that the growth in target performance occurred mainly due to the bidding for unprofitable targets. This trend requires further research to identify the underlying reasoning. From a practical viewpoint, it may be a sign for investors about falsely positive post-acquisition returns. The question as to why so many companies selected underperformers and how those targets fit within the strategic goals is information that shareholders should be interested in.

Finally, this paper confirms previous findings on the positive effect of moderate diversification. Choosing a target from a moderately unrelated business seems to improve an acquirer's operations and brings about better post-acquisition outcomes.

Limitations

As with any research, this study has its limitations that constrain the generalizability and reliability of the findings. The most important weakness of the study is the relatively small number of target-segment combinations. For some reason, companies restructure and reorganize their segments around M&A. Therefore, it was complicated to obtain segment reporting data and to analyze it over time. As a result, many accounting items were missing due to the constant change of segments, causing a three-fold decrease in the sample size.

In the case of missing segment reporting items, I relied on net income in the calculation of ROA and ROS instead of EBIT/EBITDA. Operating earnings might have been a much more accurate measure of target profitability. The missing data on segment reporting for EBIT/EBITDA did not allow me to obtain an adequate sample for the analysis.

The geographic region of this research is limited to US publicly traded companies, which also constrains the applicability of the findings across other regions. Moreover, the inclusion of only public companies makes its applicability for privately owned targets unclear.

In our sample, the maximum share of CEO ownership in the firm does not exceed 9.75%. This brings us a very short range of equity stakes for making the reliable conclusions. This limitation might influence the obtained results regarding the impact of CEO ownership on target

performance. Therefore, the hypotheses should be checked on a larger sample with more variability in the range of managerial stock holdings.

Another issue with the measures was a short amplitude of diversification. According to our sample characteristics, I identified target relatedness on the basis of all 4-digits of the SIC codes, as there are no representatives of conglomerate mergers. This set some restrictions on the findings regarding unrelated acquisitions. The observed positive effect of moderate diversification on post-acquisition target performance might be erroneous and so, future replications of this study are necessary.

Future research

In this study, I analyzed managerial initiatives to undertake acquisitions as compared with target operation results during the first year following the acquisition. However, there is much more research to be done to investigate CEO motivations and perspectives in choosing and integrating newly bought firms.

Future studies might assess the ways in which managerial initiatives encompass the performance of private targets. Also, the role of CEO initiatives in a target's operating performance has many directions that can be pursued for further investigation, such as CEO's career horizon(age) or a tenure in the firm.

The motivational role of managerial compensation in post-acquisition performance is also a broad topic with many areas for further research (e.g. bonuses, various types stock-based compensation, non-material benefits, and initiative plans). Since only a few forms of compensation like *base salary*, *CEO total compensation*, and *total compensation including exercised options* were analyzed in this paper, future studies may include a more complete analysis of compensation forms and their potential impacts on the CEO decisions-making regarding acquiring and acquired targets.

It is also important to acknowledge that the forms of CEO remuneration described previously can be further disaggregated. For example, restricted stocks can have a different effect on target performance than stock options. Many acquirers also have long-term incentive plans, the motivating role of which may have a postponed impact on target operating performance.

Academic views on the role of CEO ownership in M&A evolve and transform as time and context

change. Recently, much academic discussion has been devoted to the large option-based awards granted to the bidding CEOs (Haleblian et al., 2009). Devers et al. (2013) argue that CEOs can exploit their stock-option grants to earn profits during the announcement period. This finding confirms that the origin of managerial behaviour in M&A is in agency rather than hubris (Devers et al., 2013).

This study also demonstrates the problematic role of option-related compensation in post-merger target performance. *CEO total ownership* (including stock options) has a negative impact on target ROA/ROS development. Comparatively, without the options' component, the effect of ownership is statistically insignificant. Consequently, the option-based method of CEO remuneration in the context of M&A requires further attention in the managerial literature.

Another direction for future research is to analyze the financial aspects of target performance inside the bidding company. Most of the acquisition literature concentrates on gains and losses for shareholders, but the role of the target is omitted. Nevertheless, target profitability is an important decision-making factor for acquirers. From the scarce works on targets' input, we know that companies profit when transferring resources to targets but not the other way around (Capron & Pistre, 2002). Understanding how targets react to various managerial decisions would benefit research and practice.

Conclusion

In summary, this paper examines how personal motives of CEOs to undertake M&As impact post-acquisition target performance. The first finding of this study refers to the influence of the growth of CEO compensation on the post-acquisition target performance. All three measures of CEO compensation increased post-merger: *average base salary* grew by 7.48%, *CEO total compensation* by 23.95%, and *CEO total compensation including exercised options* by 54.89%. However, no significant relationship was found between CEO compensation growth and post-acquisition target performance.

Another finding is that CEO stock ownership has a significantly negative effect on post-acquisition target performance. Nevertheless, this result should be considered with caution as our sample did not have high levels of CEO ownership. The maximum ownership stake held by a CEO is 9.741% while the minimum is just barely 0.001%. Furthermore, I observed that CEO holdings of less than 1% have a significant negative effect on target ROA and ROS development. For ownership level above 1%, the effect on target performance is positive but insignificant. These findings add to our knowledge on the impact of CEO equity holdings on post-acquisition performance by demonstrating that a firm ownership of less than 1% is not enough to encourage CEOs to increase shareholder's value.

Contrary to the previous studies suggesting unrelated targets perform poorly post-acquisition (e.g. Ravenscraft & Scherer, 1989), I found no evidence to confirm this. This lack of evidence, though, may be due to the fact that our sample did not contain acquisitions from completely dissimilar industries. By contrast, our evidence suggests the positive impact of moderately unrelated targets on operating results post merger.

The findings of this study contribute to the literature on the M&A performance by examining target post-acquisition operating profits, which are rarely studied. Also, understanding the ways in which CEOs can be motivated to improve target operations post-merger is an important contribution to the literature on CEO compensation in the M&A context, as it extends our knowledge on the reasons underling acquisition failures.

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Appendices

Appendix A

Table 1: Acquirers by industry sector (n=113)

Industry Sectors of Acquirers	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Agriculture, Forestry, and Fishing	1	0.88	1	0.88
Air Transportation and Shipping	3	2.65	4	3.54
Business Services	6	5.31	10	8.85
Chemicals and Allied Products	1	0.88	11	9.73
Communications Equipment	2	1.77	13	11.50
Computer and Office Equipment	7	6.19	20	17.70
Construction Firms	1	0.88	21	18.58
Drugs	15	13.27	36	31.86
Electric, Gas, and Water Distribution	4	3.54	40	35.40
Electronic and Electrical Equipment	17	15.04	57	50.44
Food and Kindred Products	1	0.88	58	51.33
Health Services	6	5.31	64	56.64
Machinery	1	0.88	65	57.52
Measuring, Medical, Photo Equipment; Clocks	10	8.85	75	66.37
Metal and Metal Products	1	0.88	76	67.26
Miscellaneous Retail Trade	5	4.42	81	71.68
Motion Picture Production and Distribution	1	0.88	82	72.57
Oil and Gas; Petroleum Refining	8	7.08	90	79.65
Prepackaged Software	9	7.96	99	87.61
Retail Trade-Eating and Drinking Places	1	0.88	100	88.50
Retail Trade-Food Stores	2	1.77	102	90.27
Retail Trade-Home Furnishings	1	0.88	103	91.15
Sanitary Services	1	0.88	104	92.04
Telecommunications	5	4.42	109	96.46
Wholesale Trade-Durable Goods	4	3.54	113	100.00

Table 2: Targets by industry sector (n=113)

Industry sectors of targets	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Agriculture, Forestry, and Fishing	1	0.88	1	0.88
Air Transportation and Shipping	3	2.65	4	3.54
Business Services	12	10.62	16	14.16
Communications Equipment	5	4.42	21	18.58
Computer and Office Equipment	2	1.77	23	20.35
Construction Firms	2	1.77	25	22.12
Drugs	14	12.39	39	34.51
Electric, Gas, and Water Distribution	4	3.54	43	38.05
Electronic and Electrical Equipment	14	12.39	57	50.44
Health Services	6	5.31	63	55.75
Machinery	2	1.77	65	57.52
Measuring, Medical, Photo Equipment; Clocks	8	7.08	73	64.60
Metal and Metal Products	2	1.77	75	66.37
Miscellaneous Retail Trade	2	1.77	77	68.14
Oil and Gas; Petroleum Refining	8	7.08	85	75.22
Prepackaged Software	11	9.73	96	84.96
Retail Trade-Eating and Drinking Places	1	0.88	97	85.84
Retail Trade-Food Stores	2	1.77	99	87.61
Retail Trade-Home Furnishings	1	0.88	100	88.50
Rubber and Miscellaneous Plastic Products	1	0.88	101	89.38
Sanitary Services	1	0.88	102	90.27
Telecommunications	6	5.31	108	95.58
Textile and Apparel Products	1	0.88	109	96.46
Wholesale Trade-Durable Goods	4	3.54	113	100.00

Table 3: Pearson correlation coefficients for target performance

N	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Target ROA development	1												
2	Target ROS development	0.5143*	1											
3	Base Salary, % change	-0.0535	-0.0809	1										
4	CEO total compensation, % change	0.0195	0.1676	0.2176**	1									
5	CEO total compensation incl. exercised options, % change	0.0928	0.0699	0.0233	0.1702***	1								
6	Business relatedness	-0.0403	-0.051	0.0536	0.0135	0.0341	1							
7	CEO ownership excl. stock options, %	0.0492	-0.0947	0.0575	0.0835	0.2111***	-0.0443	1						
8	CEO ownership total, %	-0.0565	-0.1317	-0.0207	0.0866	0.3205*	-0.01	0.8502*	1					
9	Stock awards dummy	0.0701	0.0853	0.1397	0.2955*	-0.0868	0.0234	-0.3169*	-0.4173*	1				
10	Mean Industry ROA by year	0.3822*	0.2807*	-0.0926	0.1378	0.0471	-0.1255	-0.0652	-0.0827	0.0459	1			
11	Mean Industry ROS by year	0.0498	0.2543*	-0.2108**	-0.0359	0.0801	-0.0827	-0.1887	-0.1455	0.0115	0.2513*	1		
12	Target size by sales	-0.1440	-0.1436	0.0841	0.0233	-0.1289	0.0129	0.0452	0.0113	0.0116	-0.0692	-0.1131	1	
13	Target size by assets	-0.1408	-0.1074	0.1714***	0.0423	-0.1275	0.0362	0.0661	0.0515	-0.037	-0.0757	-0.1567	0.8347*	1
	Mean	0.0815	0.1796	7.4865	23.9527	54.8920	0.5000	1.0114	1.7557	0.7745	0.0569	0.0240	0.2460	0.1907
	Standard deviation	0.2481	0.6979	26.8507	62.9557	198.7780	0.5025	1.7931	2.3475	0.4200	0.1960	0.1839	0.2817	0.2187
	Number of observations	102	100	97	96	95	102	77	76	102	102	101	100	102

* Statistically significant at 1% level. ** Statistically significant at 5% level. *** Statistically significant at 10% level.

Appendix B

Table 1: Targets that became new segments after being acquired⁹

N	Deal Year	Acquirer Name	Target Name	Industry Sector	One year before the deal	Target Total Assets, \$ mln.	Target Sales, \$ mln.	Target NI, \$ mln.	One year after the deal	Segment Identifiable Assets, \$ mln.	Segment Sales, \$ mln.	Segment NI, \$ mln.	Change in targets' sales, \$ mln.	Change in target's assets, \$ mln.	CEO Base salary, year-to-year, %	CEO Shares owned, exc. options, %	Total compensation, year-to-year, %
1	2009	Systems Inc.	Omniure Inc	Prepackaged Software	2008	842.2	309.01	-44.77	2010	.	360.56	.	51.557	.	0	0.04	-68.38
2	2007	Great Atlantic & Pac Tea CO	Pathmark Stores Inc	Retail Trade-Food Stores	2006	1254.6	3977	-40.1	2008	.	1077.29	.	-2899.71	.	7.44	.	46.66
3	2012	Ingram Micro Inc	Brightpoint Inc	Wholesale Trade-Durable Goods	2011	1506.91	5244.4	48.832	2013	1929.14	4526.39	.	-717.98	422.23	658.78	0.01	113.19
4	2009	Republic Airways HLDGS INC	Frontier Airlines Holdings Inc	Air Transportation and Shipping	2008	1249.97	1399	-60.25	2010	1082.2	1333.8	.	-65.18	-167.77	0	0.58	-72.44
5	2013	Tempur Sealy INTLINC	Sealy Corp	Wood Products, Furniture, and Fixtures	2012	1005.34	1347.9	0.01	2014	2000.6	1524.6	.	176.73	995.25	5.99	0.11	55.07

⁹ All targets are in the same industry with their acquirers and 100% owned after the acquisition