How do CEOs matter? The Effect of Industry Expertise on Acquisition Returns.*

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Abstract: Analyzing diversifying mergers and acquisitions from 1990 to 2007, we show that CEO characteristics matter for the bidders' performance in takeovers. When the bidding CEO has experience in the target's industry, we find that the abnormal announcement returns are between two and three times higher than those generated by a CEO who is new to that industry. In dollar terms, this corresponds to a difference of more than $100 million on average. We provide evidence that this performance is mainly driven by an experienced CEO's ability to capture a larger fraction of the surplus. Industry experts redistribute surplus in favor of their shareholders by negotiating better deals and by paying a lower premium. We also find that industry expert CEOs select low surplus deals on average. We argue that this evidence is consistent with industry experts having superior negotiation ability.

Keywords: CEO ability, bargaining ability, mergers and acquisitions.

JEL-Classification: G34, J24, M59.

1   Introduction

Many studies show that chief executive officers (CEOs) have an impact on corporate policies and corporate value.[1] However, we still know very little about *how* CEOs create value. This paper provides new evidence of how CEOs influence firm performance. Our evidence comes from corporate takeovers. Employing a novel dataset on the career paths of CEOs, we first establish that, in takeovers, CEOs with previous work experience in the industry of the target outperform CEOs who are new to the target industry. We find that the bidders' abnormal announcement returns are between two to three times larger if the CEOs come from the industry of the target. Second, analyzing the mechanism, we differentiate between the CEOs' ability to create higher surplus and their ability to capture a larger fraction of the surplus for their shareholders in the bargaining and price setting process. We provide evidence that CEOs with experience in the target industry perform better mainly because they negotiate better acquisition prices. We also show that industry experts engage in low surplus acquisitions on average. This finding is consistent with CEOs rationally anticipating that they will secure a larger fraction of the surplus during negotiations with the target company.

Scholars in the business strategy literature have attached great importance distinguishing between *value creation* and *value capture* (see for instance, Porter 1980 and Brandenburger 2002). We borrow this terminology and apply it to CEO activity. CEOs can create value by fostering innovation, providing training to employees or optimizing processes. They can also capture value through negotiation. For example, CEOs could negotiate with suppliers for better prices on input goods[2], with labor[3] for lower wages or with the (local)

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[1] For instance, Bertrand and Schoar (2003) show that CEOs have different styles regarding corporate policies. Graham, Li, and Qiu (2009) use manager-specific heterogeneity for explaining variation in executive pay. Adams, Almeida, and Ferreira (2005) as well as Bennedsen, Perez-Gonzalez, and Wolfenzon (2007) show that CEOs matter for corporate performance. Malmendier and Tate (2008), Kaplan, Klebanov, and Sorensen (2009) as well as Malmendier, Tate, and Yan (2010) show that CEO characteristics and experience are related to corporate decisions and performance.

[2] Hennessy and Livdan (2009) examine optimal leverage in a customer-supplier setting.

[3] Simintzi, Vig, and Volpin (2010) analyze labor bargaining power on firms' choice of debt.

government for subsidies.[4] Such actions do not necessarily create value overall but change its distribution in favor of the shareholders. Hence, both sets of activities might increase *shareholder value.* We provide evidence that value capture is an important component of shareholder value. Theoretical research has stressed the importance of bargaining and negotiation for economic outcomes (Williamson 1971, Myerson and Satterthwaite 1983). However, we have little evidence on the extent to which top decision makers such as CEOs can affect the bargaining outcomes. Our contribution is to show that experience in the target industry increases the CEO's ability to capture value when bargaining with the target firm. Other things being equal, having a higher bargaining ability allows a CEO to secure a larger fraction of the surplus. Here, we measure bargaining ability directly by analyzing how surplus is split and what price is paid.

Mergers and acquisitions (M&As) provide a suitable setting for our study. First, takeovers typically represent the largest investments that companies will undertake. The market for corporate control is also significant from an economic point of view: U.S. firms spent more than $3.4 trillion on over 12,000 transactions over the last two decades[5], which is about 6.6 percent of US stock market capitalization.[6] Second, many empirical studies document that mergers create surplus. Most of this surplus seems to be captured by the target shareholders. Indeed, the announcement returns to the bidding shareholders are usually around zero on average or even slightly negative.[7] We find a significant amount of CEO-specific variation in merger outcomes.[8] This finding suggests that the bargaining abilities of CEOs vary and that they have an effect on M&A outcomes.

Our analysis proceeds in four steps. First, we establish that industry-specific experi-

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[4]Spiegel and Spulber (1994) analyze the price, investment strategy, and capital structure of regulated firms where firms use debt and equity strategically.

[5]See Malmendier and Tate (2008).

[6]According to Wilshire Associates, the total U.S. market cap is approximately $15.35 trillion (May 23, 2007).

[7]Betton, Eckbo, and Thorburn (2008) as well as Andrade, Mitchell, and Stafford (2001) provide excellent summaries of the empirical findings.

[8]This is consistent with Ahern (2010) who shows that there is variation in merger outcomes which is related to customer-supplier relationships.

ence allows CEOs to perform better in diversifying mergers and acquisitions. Second, we develop a theoretical model of two mechanisms - value creation and value capture - that could explain our findings. Third, we show that our findings are consistent with the value capture mechanism by testing the model's predictions directly, using offer premium data and proxies for the value that is created by the acquisition. Fourth, we show that CEO experience is particularly valuable in situations of high informational asymmetries. For identification, we exploit variation in the industry-specific experience of the bidding CEOs. Over their lifetime, most CEOs work in different industries. This industry-specific experience may have an impact on how well they perform in M&As. For instance, industry experts might be better at running the combined companies, or at negotiating with the target. The variation in industry-specific experience helps us in three ways. First, industry experience might affect both value creation and value capture. Second, since we observe the complete past experience profile of CEOs, we can differentiate between general cross-industry and industry-specific effects. Third, industry experience also varies within CEOs. This variation allows us to control for unobserved CEO heterogeneity, ruling out many alternative explanations.

First, we start by establishing a novel empirical finding: CEOs with prior work experience in the industry of the target perform significantly better in diversifying M&As. Using U.S. data on 4,844 announcements of acquisitions from 1990 to 2007, we find that the stock market reacts more favorably to diversifying mergers when the bidding CEO has prior work experience in the target industry. After controlling for firm and deal characteristics, as well as for time and industry fixed effects, we find that three-day abnormal announcement returns to the bidder are 1.3 percentage points higher for CEOs with top management experience in the target industry. Given an average abnormal return of 0.5 percentage points for diversifying acquisitions and an average market value of about $8,000M, this effect is large in both relative and absolute dollar terms. A key concern might be that the measure of industry experience is correlated with omitted CEO heterogeneity that biases our findings. To address this concern we exploit the fact that a

fraction of the CEOs in our sample engage in multiple acquisitions with (at least) one acquisition in an industry in which they have prior work experience and (at least) one in an industry that is unknown to them. This allows us to include CEO fixed effects that help us identify the causal effect of industry experience on acquisition performance. We are also concerned about endogenous CEO-firm matching as CEOs and firms are not randomly assigned to each other. Exploiting merger waves and analyzing the timing of the acquisitions, we provide evidence that endogenous matching is not driving our results.

Second, we develop a simple theoretical model of takeovers. The purpose of the model is to derive testable predictions that allow us to get insights into the mechanism through which industry-experience operates. We model a simple two-stage game where, in the first stage, a company gets a random draw of potential targets and decides to whom to make an offer. The surplus is split in the second stage. This framework allows us to model the effect of CEOs' industry experience on company value through two different channels. On the one hand, industry experience might increase the value that is created in a merger. CEOs with experience may be better at integrating assets or at running the merged company. They may also be better at identifying high-surplus targets in the pre-merger stage. On the other hand, industry experience might be advantageous in the bargaining process. For instance, industry insiders might possess information that allows them to estimate the true value of the target more accurately. Moreover, coming from the same industry might also be helpful for assessing the targets' outside options and hence strengthening the bidding CEOs' bargaining positions. Additionally, corporate culture is likely to be different in different industries (for example, in mining vs. in advertising) and that is why industry-specific experience may also affect negotiating styles. The model's predictions on outcome variables for the two competing mechanisms allow us to distinguish them empirically. Moreover, the model illustrates that the two mechanisms have different implications for the welfare. Beyond the direct effect of industry experience on value creation or capture, there is also an indirect effect that has an impact on the com-

position of acquisitions observed in the economy.[9] We refer to this as the "selection effect".

Third, using the model's predictions, we show that industry experience helps CEOs negotiating better terms. Specifically, industry insiders pay a lower price for the target and get a larger fraction of the surplus. We directly show that industry experts pay a significantly lower premium for the target shareholders' shares - both when measured as offer price premiums as well as final price premiums. We also find that the relative dollar gains of the target are lower if the bidding CEO comes from the target industry. When we look at the value created by the acquisition, we do not find evidence that industry experts perform better. Instead, we find a weak negative effect. We use combined abnormal announcement returns to bidders and targets as a proxy for synergies. As abnormal returns reflect the expectations of the market, we also look at an ex-post measure of profitability: return-on-assets (ROA). In line with results on the combined announcement returns, we do not find that experienced CEOs perform better in terms of profitability as we find a negative effect. These findings suggest that industry experts do better when negotiating with the target, allowing them to secure a greater fraction of the surplus or to pay less. Moreover, bargaining also explains the – at first sight – counter-intuitive finding of a negative effect of industry experience on surplus creation. Having a stronger position in the bargaining stage directly affects the sharing rule of the surplus between bidder and target. In addition, it indirectly affects the composition of deals that are announced, and are therefore in our sample. In other words, the negative effect is likely not causal but due to selection. CEOs who anticipate securing a larger fraction of the surplus are willing to engage in acquisitions with a lower total surplus at first. Indeed, the returns to bidding shareholders increase -other things being equal- both in the surplus and in the fraction they can secure. CEOs therefore substitute higher surplus with higher bargaining power. The selection effect also shows that bargaining ability impacts the allocation of resources, like corporate control, within the economy.

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[9]Note that the ability of creating a higher surplus would change the composition of mergers as well. However, it does not necessarily change the realized surplus of an average deal.

Fourth, in the last part of our analysis, we aim to provide further evidence for the bargaining channel by identifying situations or environments in which industry experience is likely to affect the bargaining power of CEOs. As suggested, one potential explanation for industry experience increasing bargaining ability is information based. Being an industry insider might help to better estimate the true value of the takeover which might strengthen the bargaining position of the bidder. Following this intuition, we expect the value of being an industry insider to be higher in scenarios with greater informational asymmetries. We, first compare public and private targets. Private companies face less obligations to disclose information and consequently, information asymmetries are arguably higher between such companies and potential buyers. Exploiting the variation of interaction between CEO industry experience and the public status of the target, we find that experienced CEOs are able to generate about 2.9 percentage point higher abnormal returns if the target is a private company. This evidence supports our interpretation of experienced CEOs being better at bargaining. Moreover, we exploit heterogeneity across target industries. Using different proxies for informational asymmetries at the industry level such as R&D intensive industries and industries with a high level of intangibles, we confirm our prior findings. Experience is particularly valuable in settings of high information asymmetries (1.7 percentage points to 1.9 percentage points higher).

The main contributions of this paper are threefold. First, analyzing M&As, we investigate what CEOs do and how they add to shareholder value. We show that CEOs, and in particular CEO industry experience, matter for M&As. Moreover, we show that the industry experience helps bidding CEOs to capture value in the bargaining and price setting process. Our findings suggest that value capture is an important dimension of CEO activity. This finding has wider implications as the existing literature on CEOs either explicitly or implicitly assumes that CEOs create value (e.g. Gabaix and Landier 2008, Edmans and Gabaix 2010). We also contribute to the literature on CEO characteristics (e.g. Malmendier and Tate 2008, Kaplan, Klebanov, and Sorensen 2009, and Malmendier,

Tate, and Yan 2010) by showing that CEOs differ in their ability to bargain and that this ability might depend on the CEO's history. Second, we add to the literature on mergers and acquisitions by highlighting the importance of the bargaining process in general and CEOs' bargaining ability in particular. Third, our results are complementary to results in empirical industrial organization literature on bargaining (e.g. Ho 2009 and Grennan 2010). Using a different and non-structural approach, we confirm the finding that parties differ in their bargaining abilities.

The paper proceeds as follows. The next section reviews the related literature. Section 3 describes the data and presents summary statistics. Section 4 establishes the importance of CEO industry experience for the success of acquisitions. Section 5 theoretically examines the mechanism that allows experienced CEOs to perform better. Section 6 analyzes the mechanism empirically. Section 7 identifies environments in which industry experience is particularly important. Section 8 concludes.

2 Related Literature

Our study is related to three strands of literature. First, we contribute to the literature on what CEOs do and how they generate shareholder value. Second, our findings are closely related to empirical research on the performance of M&As. Third, we contribute to the empirical literature that analyzes bargaining power.

First, it is now well established that CEOs matter and that they affect corporate performance (for example, Bertrand and Schoar 2003, Adams, Almeida, and Ferreira 2005, Bennedsen, Perez-Gonzalez, and Wolfenzon 2007, Malmendier and Tate 2008, and Graham et al. 2009). However, we still do not know much about how CEOs generate shareholder value. There are two strands of literature that attempt to shed some light on this: (i) Bandiera, Guiso, Prat, and Sadun (2010), analyzing the time diaries of Italian top executives, measure how much time CEOs devote to internal and external activities and

how these activities are related to firm and CEO characteristics. While we do not analyze individual tasks of CEOs, we look at the activities of CEOs on an aggregate level. We differentiate between value capture and value creation, and show that capturing value when bargaining with different parties is an important dimension of CEO activity. This finding has also implications for the theoretical work that usually explicitly (or implicitly) assumes that CEOs generate value. (ii) We relate to a rising field that analyzes CEO characteristics and corporate performance. Bertrand and Schoar (2003) as well as Graham, Li, and Qiu (2009) show that CEOs have different styles. Malmendier and Tate relate overconfidence of CEOs to corporate performance in a series of papers (2005, 2008). Kaplan, Klebanov, and Sorensen (2009) analyze more than 30 different characteristics of CEO candidates in LBO and VC transactions. Ang, de Jong, and Van der Poel (2008) as well as Huang (2010) show that CEOs are more likely to divest divisions they are less familiar with. Xuan (2009) analyzing the career paths across companies' divisions and Malmendier, Tate, and Yan (2010) looking at Depression experience or military experience, show that past experience affects corporate decisions. Our findings are complementary. We show that industry-specific experience in general, and bargaining power in particular are important determinants for corporate performance and corporate decision making. Our findings also speak to the current debate on general vs. specialist CEOs. Lazear (2002, 2004), Murphy and Zabojnik (2006), and Frydman (2007) document an increased importance of general skills. Cremers and Grinstein (2009), however, show that managerial talent pools are industry-specific, suggesting that industry-specific experience is important to firms. Industry-specific bargaining ability can be interpreted as one dimension of industry-specific skills. Our results are consistent with both views. We show that industry experience affects corporate performance. However, we do not find evidence that industry experience creates higher value in acquisitions; it directly affects how the surplus is split between the bidder and the target.

A broader implication of our analysis is that CEO skills and characteristics affect the way resources like corporate control, are allocated in the economy. We show that CEO bargaining power affects the set of acquisitions that are implemented in the economy. Our

findings suggest that selection itself is of interest, and that the way in which selection affects outcomes is important, even beyond interpreting correlations. This interpretation is consistent with results in related studies that document similar effects for other CEO characteristics - though not explicitly stated. For instance, Bertrand and Schoar (2003) show that CEOs differ in their taste for diversifying acquisitions, and Malmendier and Tate (2008) show that overconfident CEOs engage in more acquisitions.

Second, we contribute to the empirical research on M&As. Our findings provide new insights into the determinants of acquisition success.[10] (i) We show that CEOs in general, and their bargaining abilities in particular, are key drivers of the success of M&As. This is consistent with Malmendier and Tate (2008) who provide evidence that overconfident CEOs do worse acquisitions. Aktas, de Bodt, Bollaert, and Roll (2010) also show that narcissism has an impact on many dimensions of the takeover process, such as performance, or who is initiating an acquisition. Yim (2009) shows that young CEOs are more likely to announce acquisitions and perform worse. This might be due to lower quality of the acquisitions, also reflected in a lower likelihood of closing the deals. Our results might also provide a different explanation for Yim's findings as on average young CEOs are less experienced than older ones. Our paper is also complementary to Ishii and Xuan (2010) who look at social ties between acquirers and targets. They find that if the boards of the bidder and the target are connected, decision making is poorer and lower shareholder value is created. In contrast, we find a positive effect of industry-specific experience. This suggests that we do not proxy for board connections with our measure. However, we are generally sympathetic to the idea that being connected or knowing the right people is an important dimension of a CEOs' human capital. (ii) We show that the stage at which prices are determined and negotiation is carried out, is important for the performance of an acquisition. This is consistent with recent research on merger bidding by Betton, Eckbo, Thorburn (2009) as well as Aktas, de Bodt, and Roll (2010) who highlight the

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[10]See Andrade, Mitchell, and Stafford (2001) as well as Betton, Eckbo, and Thorburn (2010) for summaries of the literature.

importance of the negotiation process. Pan, Baker, and Wurgler (2009) stress the existence of anchor points (a 52-week high) for the valuation of the target, emphasizing the importance of the price setting mechanism. Moreover, Ahern (2010) shows that there is significant variation in the division of takeover gains and that customer-supplier relations partly explain this division in vertical mergers. Our findings are consistent and complementary as first, we also find variation in the division of the gains and second, we show that this division is related to the bargaining ability of the bidding CEO.

Third, our study is related to a body of research mainly in empirical industrial organization that uses structural models in order to analyze how surplus is split and how prices are negotiated. Our question is most similar to Ho (2009) who shows that some types of hospitals are able to capture higher mark-ups when bargaining with health insurers. Grennan (2010) estimates bargaining abilities in the context of the medical devices industry. Our results are consistent with their findings in the sense that they also document that parties differ in their bargaining abilities. Our study is complementary from a methodological point of view. Ho and Grennan both use structural models for first estimating the surplus to share and then the bargaining abilities. We use a direct measure for the surplus created in the process of bargaining.

3   Data and Key Variables

We are interested in identifying the effect of CEOs' industry experience on different outcome measures of M&As. Our key explanatory variable is therefore the industry experience profile of the bidding CEOs in relation to the industry of the target. Our dependent variables are either market measures for merger performance (abnormal announcement returns), real measures for the profitability, or the premium paid to the target.

3.1 CEO Data

We construct a manager-firm matched panel that allows us to observe a CEOs' employment history. Our initial sample is the Executive Compensation database (COMPUSTAT ExecuComp) with over 2500 companies. The universe of firms covers the S&P 1500 from 1992 onwards, including companies that were once part of that index. For each firm-year, ExecuComp reports the identity of up to 9 executives and their positions, allowing us to identify the current CEO. We are interested in the employment history of this CEO. As ExecuComp keeps track of S&P 1500 companies and the highest paid executives only, we supplement the data with information from the BoardEx database. This database collects information on job history (including company roles and positions), age, and other activities (for instance social activities) of top executives and non-executives in the US and Europe, which allows us to track the complete work history of CEOs.

We merge the two datasets by CEO name, company, position/role and year, and construct a CEO-firm-year panel. Due to different spellings and abbreviations, we manually validate the entire panel. To construct measures of experience, we are interested in characteristics of the previous positions of the CEOs. These characteristics include the firms' industries, the role, and the exact period of each position. To identify the firms' industries, we match the list of CEOs' past companies with different data sources that file information on their lines of business. We obtain information on quoted firms from COMPUSTAT and information on private firms from ICARUS.[11]

We construct our key explanatory variable of interest, the industry experience of a CEO, as follows: for a given deal, we identify the industries of the bidder and the target, as well as the identity of the CEO. In our analysis, we want to ensure that we separate the experience of the CEO and the business expertise of his company; that is, we want to make sure that an acquisition is really diversifying. Therefore, we use a very

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[11]Sometimes company names are spelled differently in the datasets or the company in the BoardEx database refers to a subsidiary or a financial shell of the company. A simple example is 'Microsoft Corp' and 'Microsoft Inc'. Therefore, we 1) use a string matching algorithm, and 2) manually verify every single match afterwards. Companies that we could not match by this routine are manually researched using COMPUSTAT, ICARUS, and online data resources (such as www.manta.com and www.alacra.com). Overall, we verified more than 100k potential matches.

broad classification (Fama-French 12) in order to define a diversifying acquisition. We then compare the CEO's previous industry experience with the industry of the target. We set a dummy variable $ExpTA$ ("experience in the target industry") equal to 1 if the CEO has worked in at least one company in that industry. As the provision of segment level data varies across data sources, we restrict our analysis of the past positions to the primary industry of the company.[12] Note that this approach is conservative as, by using this broad classification, we might only add noise to our measure when classifying unrelated experience as relevant. We refine this broad measure of experience by taking the previous roles of the CEO into account. We define a measure of top management experience that is equal to 1 if the CEO worked in at least one company in the target's industry as a top manager. Top management positions/roles include CEO, CFO, COO, Chairman, President, Division CEO, Division CFO, Division Chairman, Division COO, Division President, Head of Division, Regional CEO, Regional CFO, and Regional President. We expect top experience to matter more, as non-top level experience might also include positions that are unrelated to a firm's line of business (for example, being a web programmer in the automotive industry), or positions that do not allow the worker to obtain industry-specific skills or knowledge.

3.2 M&A Data

The M&A data come from the Thomson Financial SDC Platinum database. The initial sample contains all completed M&As in the US stock market over 1990 - 2008. A deal has to meet the following criteria to be included in our final sample:

- (Shares Acquired) We only include transactions in which the control is transferred. Specifically, the share of the acquirer in the target firm has to be below 50 percent before the transaction and above 50 percent after it. Alternatively, the acquirer has to buy 50 percent of the shares outstanding during the merger process.

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[12]For roles that were in consulting, we do not assign a particular industry as industry experience is likely to vary across projects. As a robustness check we drop these CEOs from our sample as well as define a "consultant" dummy as a control.

- (Absolute Transactions Size) Following Harford (2005) the transaction value of the merger has to be at least US$50M.

- (Region) Both the acquirer and the target firm are US corporations. Moreover, the acquirer is listed on the US stock exchanges. We exclude international (Item MATYPE IMA) and overseas mergers.

- (Price and Accounting Data) The stock price and accounting data must be available in the Center for Research in Security Prices (CRSP) and in COMPUSTAT in the year before the merger.

We classify a merger to be diversifying using a dummy variable if the acquirer and target differ in their Fama-French 12-Industries (FF12) classification. Using this broad classification ensures that industries of the two companies in diversifying mergers are unrelated.

3.3 Outcome Data

Our main measure of performance is the abnormal announcement returns to the bidders' shareholders. We use the Fama-French 3-factor model as the return-generating process to estimate cumulative abnormal returns (CAR). We estimate the model over a 255-day estimation window ending twenty-one days prior to the announcement date, using the CRSP value-weighted index as our market proxy. In most specifications we report the CARs to the acquiring firm's stock over a symmetric three-day window around the announcements. Moreover, we also analyze a longer event window (eleven days) considering potential information leakage. We obtain data on the offer price premium as well as on the final agreed price premium from SDC. The offer price premium is defined as the ratio of the price that is initially offered to the stock price of the target one day (or one week) before the announcement. We define the final price premiums accordingly. Note that the premiums are only available for publicly listed targets. Officer (2007) estimates premiums for unlisted targets by building portfolios of comparable acquisitions of publicly traded targets. As we are interested in the idiosyncratic component of the premium (the effect of the bidding CEO's experience), we cannot apply this method here.

The ratio of earnings before interest and taxes to total assets (EBIT/assets) is used as a measure of operating performance (ROA). Since the ROA may be affected by industry-wide factors, it is industry-adjusted by subtracting the median value of the same measure for all firms in the same primary Fama-French 12 industry as the bidding firm. We then estimate an AR(1) model using the post-merger industry-adjusted three-year average ROA as the left-hand-side variable, with the pre-merger corresponding measure as the right-hand-side variable. The AR(1) model takes the possibility into account that pre-merger operating performance may predict post-merger operating performance. The residual from the above regression is our measure of the abnormal change in ROA (ΔROA).

3.4   Control Variables

We supplement the data with various financial items from the COMPUSTAT database.[13] Following Masulis, Wang, and Xie (2007), a transaction is defined to be a "stock deal" with a dummy variable if the acquirer pays a positive fraction of the transaction value with its stocks. If the transaction is fully paid in cash we set the "all cash" dummy equal to 1. Public target, private target and subsidiary target are dummies that classify the public status of the target company. In order to include an intercept we choose subsidiary targets as our base category in the regression analysis. We measure the relative size of acquirer and the target as the ratio of the deal value to the market capitalization of the acquirer.[14] Finally, we measure the age (in years) of CEOs at the announcement of the merger as well as their tenure in the current company (in years).

3.5   Summary Statistics

After combining the CEO-company panel with the deal sample, we obtain a final data sample of 4,844 M&As between 1990 and 2007. The takeovers are conducted by 1,854 different CEOs. Table 1 shows summary statistics. Panel A summarizes CEO statistics. We observe that most CEOs undertake multiple acquisitions. The average number of

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[13]See data appendix for the definition of all variables.
[14]A large fraction of the targets is private and data on market value are not available.

deals per CEO is 2.61, with a median of 2. We will later exploit this fact in order to exclude some alternative explanations by estimating CEO fixed effecs. The key variable in our analysis is industry experience. In our sample, the average CEO has worked for 2.61 different companies in a top management position before joining his current company (the bidder), on average. Analyzing the industry experience of CEOs, we find that a CEO worked in 1.67 different industries (using the Fama-French 12 classification) on average. The very large majority of CEOs in our sample is male (more than 99 percent) - that is why we take the liberty of using "he" when referring to a CEO. The average age is 62 years (as of 2008) and the average tenure 13.8 years within the company.

Panel B presents descriptive statistics for implemented deals. The fraction of diversifying mergers remains quite stable over the years (about 75 percent non-diversifying and 25 percent diversifying). Panel C shows that out of all diversifying acquisitions, about 16.5 percent are conducted by CEOs who have previously worked in the industry of the target.[15] We observe most of the companies buying other companies multiple times (panel D).

Panel E presents summary statistics on deal specific characteristics. In most cases the relative size of the target is less than 9 percent of the acquirer's size measured as market capitalization (on average about 24 percent). The fraction of the target's public status (public, private, and subsidiary) is about even for these categories. About 40 percent of the bids are considered to be stock deals, that is, payments where some equity was used to pay off the target. About one third (30 percent) of the deals were exclusively paid in cash.

More detailed information on financial information on the buyer is provided in table 17 in the appendix.

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[15]Considering all positions (not only top-management positions), about 35 percent of the CEOs have worked in the industry of the target before joining the acquiring company.

4 CEO Industry Experience and Merger Performance

4.1 Identification Strategy

In our analysis, we compare diversifying acquisitions where the CEO has prior experience in the industry of the target with diversifying acquisitions where a CEO is new to the industry of the target. We exploit variations in the industry-specific experience of bidding CEOs. Most CEOs in our sample work in more than one industry over their careers. A CEO's industry-specific experience may impact his performance in M&As. For instance, industry experts might be better at running the combined companies, or negotiating with the target. We will discuss potential channels in detail in Section 5. The variation in industry-specific experience helps us in three ways. First, industry experience might affect both value creation and value capture in the merger process. Second, as we observe the full past experience profile of the CEOs, we can differentiate between general cross-industry effects and industry-specific effects. Third, industry experience also varies within CEOs. This allows us to control for unobserved CEO heterogeneity and to rule out many alternative explanations.

As we only observe mergers that are announced, the estimated effect of CEO industry experience on merger performance could be due to selection. This means, that CEOs with experience might choose only "good" targets for instance. Indeed, industry experience not only has a direct but also an indirect effect on the outcome of the acquisitions. These two effects are part of our analysis and explicitly integrated in our framework. In our analysis, we show that industry experience affects the composition of deals that are implemented.

Research studying the effect of CEOs on corporate decisions suffers from selection concerns. Rather than matched randomly with companies, CEOs are chosen by the board of directors. Industry experience might be a criterion for the appointment of a particular CEO. In the case of acquisitions, one concern is that a firm with acquisition opportunities in a particular industry might hire a CEO with expertise in that industry. In that case, endogenous matching could potentially explain our results or at least bias the findings. However, we provide several pieces of evidence supporting the view that endogenous

matching is not driving our results.

As we are using the announcement return as a performance measure for most specifications, our estimation strategy makes some implicit assumptions. On the one hand, an underlying assumption of an event study is that the market processes information about the event in an efficient and unbiased manner. This means that the market is able to form correct expectations over the value of the merger. However, we only rely on weaker assumptions. The market does not have to get the prices right in absolute terms. Instead, it must correctly differentiate between acquisitions by CEOs with and without experience. On the other hand, relevant information (here, the CEOs' biographies) must be available to the market. This assumption is trivially satisfied. BoardEx collects its data from publicly available annual reports. Moreover, large investors (for example, institutional investors) usually have access to data bases (like BoardEx, for instance) that collect this kind of information and present it in an aggregated way.

4.2 Univariate Analysis

Analyzing diversifying acquisitions by CEOs with and without top-level experience shows that experienced CEOs perform better on average (0.012 vs. 0.004) though the CARs are only weakly statistically different from each other (at the 10% level). Most of the control variables are not statistically distinguishable for the two groups. Exceptions are the performance measure, stock payment, the relative deal size, and the tenure of the CEO. Bidders with CEOs that are experienced in the target's industry tend to have a lower profitability (0.291 vs. 0.359). They tend to use more stock payment (36.9% vs. 29.2%) and the targets are relatively larger (33.1% vs. 19.0%). In addition, the CEOs' tenures in their current positions are shorter (5.85 years vs. 14.84 years).

4.3 Do Industry Experts Perform Better? Baseline Results.

We start our multivariate analysis by investigating whether industry experience helps CEOs perform better when diversifying. Specifically, we compare the average abnormal returns of diversifying acquisitions for CEOs with prior work experience in the industry of the target with the average abnormal returns of otherwise similar acquisitions where the CEO has no experience in the target industry. In order to assess the effect of CEOs' industry experience, we estimate the following regression equation:

$$CAR_{ijk} = \alpha_1 + \alpha_2 ExpTA_{ik} * div_{jk} + \alpha_3 div_{jk} + \alpha_4 X_{jk} + \alpha_5 Y_{jk} + \alpha_6 Z_{ijk} + \varepsilon_{ijk}, \qquad (1)$$

CAR_{ijk} stands for the three-day cumulative abnormal returns[16] of the merger between bidder j and target k conducted by CEO i. The dummy div is equal to 1 if the transaction is diversifying and $ExpTA$ is the measure of experience in the target's industry defined above. Note that by construction $ExpTa$ is only defined for diversifying mergers. Therefore, we only include $ExpTa$ for diversifying mergers in our regression equation by interacting it with the dummy for diversifying acquisitions. This also means that we cannot include the main effect of experience in our regression as it is perfectly collinear to the constant, the diversification dummy, and $ExpTA$.

The coefficient of interest is the interaction term α_2 between diversifying mergers and experience. If industry-specific experience in the target's industry is beneficial for diversifying mergers, we expect the coefficient to be positive.

We retain non-diversifying acquisitions in our analysis as they help us estimate the coefficients of the control variables.[17] The variables X_{jk}, Y_{jk}, Z_{ijk} used in cross sectional merger analyses are deal, company, and CEO-related controls respectively. The set of controls X_{jk} includes the relative size of the acquirer and the target, method of payment, as well as the public status of the target. Firm specific characteristics Y_{jk} control for the

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[16]In table 16 we conduct a robustness check by using a larger event window of eleven days.

[17]In table 15, we conduct a robustness check by using a sub-sample of only diversifying acquisitions. In section C.5, we also estimate the models for specialized firms and conglomerates separately in order to address misclassification concerns.

size of the acquirer, Tobin's Q, free cash flow, leverage, and profitability. Since experience is correlated with age, we control for age, age squared, tenure, and tenure squared in the set of variables Z_{ijk} as in the empirical literature on wages. Harford (2005) shows that mergers occur in waves and they are clustered within industries. Therefore, we include year, industry, and year-industry dummies in all of our specifications. Finally, we account for cross-sectional correlation of stock returns by allowing for clustering at the level of the announcement date.

In column (1) of table 2, we estimate the model without any controls. The difference between acquisitions with and without top-management experience in the target industry is 0.7 percentage points.[18] In column (2) we include only year-industry dummies but no further controls. Having a CEO with top management experience in the target's industry is associated with 1.2 percentage points higher abnormal returns on average compared to a CEO without experience in the target's industry. The coefficient on the experience-diversifying interacted term is significant at a 10% level. The coefficient on diversifying is small and not different from zero. In column (3) we repeat this exercise by including bidder, deal, and CEO controls. The effect of experience is slightly higher (1.3 percentage points) and significant at a 5% level. Given an average abnormal return of 0.5 percentage points for diversifying acquisitions and an average market value of about $8,000M, this effect is large both in relative and in absolute terms. The controls in the cross-sectional analysis have expected signs but most of them are not significantly different from zero (confirming earlier studies). The three consistently significant controls are the type of payment, size, leverage, and having a publicly listed target. Paying with equity and being large are, on average, viewed less favorably by the market. These results are consistent with previous empirical studies.[19]

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[18]The coefficient is of similar size as an unreported univariate comparison of only diversifying acquisitions with a difference of 0.8 percentage points.

[19]Shleifer and Vishny (2003) build a model where overvalued bidders lock in real assets which is empirically tested by Ang and Chen (2006). Moeller, Schlingemann, and Stulz (2005) find that small companies outperform large ones in mergers.

4.4 CEO Unobserved Heterogeneity

In our analysis, we are interested in the causal effect of industry experience on merger performance. Ideally, we would like to compare outcomes for the same CEO, once with and once without experience in the target industry. Our closest counterfactual is to observe the same CEO undertaking two acquisitions: one acquisition without experience in the target industry, and one with experience. This allows us to include CEO fixed effects controlling for some unobserved CEO heterogeneity and hence, to rule out many alternatives. A key concern might be that the measure of industry experience is correlated with omitted CEO characteristics that bias our findings. For instance, only CEOs who are less talented might buy companies in industries in which they never worked before. Moreover, having industry experience in the target industry when diversifying means that the CEO has worked in at least one other sector before. Hence, we might capture the effect of general skills. By this we understand skills that are transferable across different industries, but not specific to the industry of the target. Both alternative hypotheses would imply that we might just capture a spurious effect in our analysis or estimate a biased effect.

4.4.1 CEO Fixed Effects

An advantage of our setting is that we are able to observe within-CEO variation. This means, we observe CEOs acquiring multiple firms, some in industries in which they have prior work experience in, and others from industries that are unknown to them. This allows us to include manager fixed effects that help identify the causal effect of industry experience on acquisition performance. Indeed, the fixed effects control for unobserved but fixed heterogeneity across CEOs such as general ability, generic managerial skills or the talent for diversifying acquisitions. In order to absorb unobserved CEO characteristics that might be correlated with experience we estimate a model where CEO-specific effects fe_i measure unobserved CEO heterogeneity:

$$CAR_{ijk} = \alpha_1 + \alpha_2 ExpTA_{ik} * div_{jk} + \alpha_3 div_{jk} + \alpha_4 X_{jk} + \alpha_5 Y_{jk} + \alpha_6 Z_{ijk} + fe_i + \varepsilon_{ijk}, \quad (2)$$

Note that the CEO related variables in Z_{ijk}, namely, age at the day of the announcement and tenure in the current firm, are time-varying and therefore not dropped in this estimation. We restrict our sample to CEOs who conducted at least two diversifying acquisitions. Further, we require that the CEOs have experience in the target industry in one of the acquisitions, but not in the other. Applying these filters narrows the sample to 470 acquisitions conducted by 213 different CEOs. Table 3 column(1) presents the results of our regression analysis.

The effect of having top-level experience is positive (3.1 percentage points) and significant at a 5% level. These results are not driven by unobserved CEO characteristics correlated with industry-experience itself, and provide further confidence for a causal interpretation of our findings. Absorbing unobserved CEO heterogeneity helps exclude various competing explanations that might bias our estimated effect of industry experience. These alternative explanations include CEO ability, general management skills, and the ability to run diversifying companies as discussed in the motivation for this fixed effect specification. Moreover, it also addresses the concern that CEOs with experience in the industry of the target have a higher general talent for diversifying acquisitions or better financial experience that allows them to perform better. Running the fixed effects regression is the closest substitute for an experimental setting and therefore, it is the test that gives us the highest confidence. A drawback of this test is that it restricts the sample size as it allows us to run the test only on a subsample.

However, in the following paragraphs we aim to exclude some of the competing explanations exploiting the complete sample. We test for general management skills (across industries and firms).

4.4.2 General Cross-Industry Skills

The positive effect of experience in the target industry may merely be capturing the effect of having work experience in multiple industries. Being experienced in the target industry in a diversifying merger necessarily means that the CEO has worked in at least two different industries including the current one. Skills beneficial for successfully diver-

sifying might be therefore related to general cross-industry skills and not necessarily to the industry of the target. In order to discriminate between the benefits of experience related to the target industry and general experience in different industries, we estimate two alternative models. First, we analyze whether experience in any other industry has a similar positive impact on abnormal returns for acquiring shareholders. Second, we include experience in any other industry to our original regression as a further control (equation 2) and check whether the effects of experience in the target's industry persist. Table 3 presents the results.

Column (2) shows the sole effect of having top-level experience in multiple industries when undergoing a diversifying merger. The effect is small in absolute terms and it is statistically not distinguishable from zero. This means that work experience in industries unrelated to the target industry does not explain our results. In column (3) we add the variable top experience in the target industry as a further control. The effect of having experience in the target industry on the acquisition performance is still large and consistent with the previous results. The average abnormal return of a CEO with experience in the target's industry compared to a CEO who is generally experienced in different industries is 1.6 percentage points. The effect is significant at a 5% level. Overall, these results suggest that it is experience in the particular industry of the target that matters for the performance and not more general cross-industry experience.

We repeat this analysis by considering experience in other companies instead of other industries. Column (4) presents the results of the model using experience in any other company, irrespective of the industry. We find no evidence that working for other companies in the past generates abnormal returns for the acquirer. Column (5) shows the results for top experience in the target's industry as a further control. Similarly to our main specification, industry experience increases cumulative abnormal returns around the merger announcement by approximately 1.3 percentage points. The coefficients are precisely estimated (at a 5% level) and are similar to the effects when controlling for general industry experience.

4.5 Endogenous CEO-company Matching

CEOs and companies are not matched randomly. Instead, CEOs are chosen by the board of directors. Industry experience might be a criterion for the appointment of a particular CEO. A concern is that endogenous matching could potentially explain our results or at least bias the findings. In section C.1 in the appendix, we provide several pieces of evidence supporting the view that endogenous matching is *not* driving our findings. The main arguments can be summarized as follows: First, we exploit the fact that mergers occur in waves clustered by industry. We use merger waves as quasi-exogenous events triggering acquisitions (see table 8). Second, under the selection hypothesis one would expect the transaction to occur shortly following the CEO's appointment. We do not find that the likelihood of a CEO with experience in the target industry doing an acquisition is higher for more recently hired CEOs (see table 9). We also find no evidence that recently hired CEOs outperform CEOs who have been in a company for longer (see table 10).

4.6 Alternative Specifications

We also test alternative specifications of industry experience. The detailed findings are provided in sections C.2 in the appendix. The main findings can be summarized as follows. First, the effect of industry experience on merger performance is larger for experience that is more closely related to the industry of the target (in terms of industry classification, see table 11). Second, top-management experience is more important than low-ranked experience (see table 12). Third, experience that was acquired more recently is more beneficial (see table 13). Fourth, the effect CEOs' experience is higher in firms that are more specialized, suggesting that the CEO experience is more valuable if it is more "exclusive" (see table 14).

5 Mechanism - Analytical Framework

When buying a company, relevant industry experience of a CEO may add value in different ways.

1. Target selection: In the selection process of a potential target, an experienced CEO might have a superior overview of the market environment including competitors, customers, and suppliers. Moreover, industry-specific knowledge of financial statements, being important inputs to the decision making process, might be important.

2. Negotiation: The access to information, the processing of those, or other advantages of being an industry expert might be valuable when negotiating with the target. Since one party has an informational advantage in an acquisition, the informed party (the target) has an incentive to cheat the uninformed party (the acquirer) into believing that the available surplus is smaller than it really is. Here, the level of experience might affect the bargaining power of both parties.

3. Integration: Experience might be beneficial in the post-deal stage when integrating and running the two companies. This is particularly true if the organizational design and the operations are specific to each of the industries. Knowledge of both industries could facilitate coordination of the two organizational designs. Moreover, experience in the target's industry might be beneficial for running the company in case management is partly industry-specific.

We formalize these mechanisms through which industry-specific experience potentially operates. We differentiate between two main channels: value creation and value capture. We aim to derive testable hypotheses that allow us to discriminate between the different mechanisms of how industry experts add value for their shareholders. We employ a simple two-stage game theoretic framework that captures the main steps of the acquisition process: the choice of the target and the bargaining between bidder and target. We nest the two channels through which experience might operate within our model. We show that these channels lead to different predictions for the effect of industry experience on

announcement returns to different shareholders (bidder and bidder-target combined), and the size of the premium paid.

5.1 Setup

For a given CEO we split the economy into two sets according to his industry experience. We define set "E" as the group consisting of all companies in industries where the CEO has worked in. Group "N" is the complement to group "E", i.e. it consists of all companies in industries that are new to the CEO.

The game is modeled as a simple two-stage game. In the first stage, the acquirer (AC) gets a random draw of two potential targets (TA), of which is one from group E and one from the other group N. The draws represent the net synergies that are generated by an acquisition. We assume that the draws are identical independently distributed (iid) from a uniform distribution with support $[0, 1]$. This means that all acquisitions create value and the CEO only decides among the two targets. We assume that the bidding CEO maximizes shareholder value of his company.[20] Once he has decided which target to buy, he negotiates the price in the second stage. We model the price agreement process as a generalized Nash bargaining procedure where the walk-away option of both companies is the value of the stand-alones.

Impact of Industry Experience We allow industry-experience to affect this process in two ways. First, industry experience might allow CEOs to add value V to the deal. The magnitude of this value creation potentially depends on whether the CEO has experience in the industry of the target or not. Second, having experience in the industry of the target might help to capture a larger fraction of the surplus. In other words, other things being equal, a CEO who worked in the industry of the target before, is able to extract more of the surplus. We model this by the bargaining power, denoted by β.

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[20]The results also hold when we assume that the bidding CEO is maximizing his own payoff which consists of the returns to his equity share plus private benefits of control of running a larger company.

Key Parameters   The key parameters are as follows:

- Synergies $S \in \{S_E, S_N\}$: The synergy levels of the deal, i.e. the value that is created in the acquisitions that is independent of the CEO.

- Value creation abilities $V \in \{V_E, V_N\}$ with $V_E \geq V_N$: The ability to create value in the acquisition. For simplicity, we normalize $V_N = 0$.

- Value capture abilities $\tilde{\beta} \in \{\beta_E, \beta_N\}$ with $\beta_E \geq \beta_N$: The ability to capture value in the acquisition. We define $\beta \equiv \frac{\beta_E}{\beta_N} \geq 1$.

5.2   Analysis

In the following, we solve the game by backwards induction before calculating the expected payoffs to different shareholders for deals in each of the two groups, conditional on their implementation. In the last step, we calculate the expected difference of the payoffs for the two groups, mimicking the structure of our regression analysis.

Second Stage: Bargaining Outcome   Let V_{AC}, V_{TA} denote the stand-alone values of acquirer and target respectively. If the takeover goes through, the value of of the combined entity is $V_{AC} + V_{TA} + S + V$. Bidder and target bargain over the price X in a generalized Nash bargaining setting. The payoffs, conditional on completion of the deal, are given as follows:

- Bidder: $[V_{AC} + V_{TA} + S + V] - X$

- Target: X

The walk-away payoffs are the stand-alone values, i.e. V_{AC} for the bidder and V_{TA} for the target. The two parties maximize the joint surplus by setting X accordingly to the Nash bargaining solution.

$$X = argmax \{[(V_{AC} + V_{TA} + S + V) - X] - V_{AC}\}^{\beta} \{X - V_{TA}\}^{(1-\beta)}$$

The solution to this maximization problem is the well-known Nash solution where the surplus $S + V$ is split accordingly to the bargaining power of the two parties. This means that the price for the target is given by

$$X = V_{TA} + (1 - \beta)(S + V)$$

First Stage: Choice between the two groups We assume that the bidding CEOs get one draw each of potential merger targets from the two groups. We further assume that the synergy levels $S_E, S_N \overset{iid}{\sim} U[0, 1]$. Given the sharing rule in the second stage, the CEOs compare the payoffs of the two potential acquisitions. They prefer to buy from group E if $\beta_E(S_E + V_E) > \beta_N(S_N + V_N)$ and from group N otherwise. This means that they prefer group E if $\beta(S_E + V) > S_N$.

Comparative Statics In our regression analysis, we look at the impact of CEO industry experience on the performance of acquisitions. We compare the returns (that go to different shareholders) of acquisitions where the CEOs has experience in the target industry with those of acquisitions where the CEO is new to the target industry. In other words, we look at the difference between the averages of acquisitions with and without CEO experience in the target industry. In the analysis, using the analytical framework, we aim to reproduce the regression setting. Therefore, we define the differences in the returns between industry expert CEOs and CEOs that are new to the target industry to the acquiring (AC) shareholders, to the target shareholders (TA), and to both acquiring plus target shareholders (AC+TA).

$$\Delta_{AC} = \beta_E E[S_E|\text{target E} \succ \text{target N}] - \beta_N E[S_N|\text{target N} \succ \text{target E}]$$

$$\Delta_{TA} = (1 - \beta_E)E[S_E|\text{target E} \succ \text{target N}] - (1 - \beta_N)E[S_N|\text{target N} \succ \text{target E}]$$

$$\Delta_{AC+TA} = E[S_E|\text{target E} \succ \text{target N}] - E[S_N|\text{target N} \succ \text{target E}]$$

Prediction. *Consider that industry experience is operating through V and β, i.e. V and*

β *are increasing functions of ExpTA.*

1. Δ_{AC} *is positive and* increasing *in the value creation ability V and in the value capturing ability β of an industry expert CEO.*

2. Δ_{TA} *is* increasing *(*decreasing*) in the value creation ability V (value capturing ability β) of an industry expert CEO.*

3. Δ_{AC+TA} *is* increasing *(*decreasing*) in the value creation ability (value capturing ability β) of an industry expert CEO.*

Proof. The derivations are provided in the appendix. □

Intuition First, both value creation and value capture ability are beneficial for the bidding company. However, depending on the draws from the two groups, it might be still beneficial to go for a company that does not come from the set of expertise of the CEO. This means that we observe both, acquisitions with and without CEO experience in the target industry.

Second, both value capture and value creation have non-negative effects for the acquiring shareholders. This is trivially given as in both cases the bidding CEO is maximizing shareholder value of the acquirer.

Third, the negative effect of experience on the average surplus is non-causal but due to the selection of a different set of deals. Having a stronger position in the bargaining stage directly affects the sharing rule of the surplus between bidder and target, but it also indirectly affects the composition of deals that are announced, and which are therefore in our sample. CEOs who anticipate securing a higher fraction of the surplus are willing to engage in acquisitions with a lower total surplus. Indeed, the returns to bidding shareholders increase -other things equal- both in the surplus and in the fraction they can secure. The CEOs therefore substitute higher surplus with higher bargaining power. Value creation also leads to a different set of implemented acquisitions. However, as the CEO adds value, there is no negative net-effect. Rational CEOs decide between acquisition by selecting the one where total surplus is the highest.

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6 Value Capture or Value Creation?

6.1 Premiums Paid to the Target and Relative Gains

About one third of the targets in our sample are publicly listed companies, allowing us to analyze the mechanism by looking directly at the premium paid. The offer premium is defined as the premium of the offer price over the share price of the target one day or one week before the announcement. In most cases the final price corresponds to the offer price but in some cases the price has to be adjusted. We therefore also look at the final price premium which is the premium of the final paid price.[21]

Table 4 shows the results. The effect of experience on the premiums is negative. In all of our four specifications we observe a significant negative effect of experience on the premium between 7.4 percent and 9.7 percent. This effect is large as the average premiums are between 34 percent and 39 percent. This means that a CEO with industry experience is paying a lower premium compared to a CEO who is new to the industry. This finding is consistent with allowing industry experts to extract a larger fraction of the surplus. Part of this effect might be also attributed to experienced CEOs undergoing lower value acquisitions on average.

Last, we analyze directly the relative gain of the target versus the acquirer for each dollar of the market value. We would like to compare the percentages of the total dollar returns of an experienced CEO with a CEO who is new to the industry. As announcement returns can be negative, we follow Ahern (2010) and construct the measure as follows. We calculate the difference in dollar gains between the target and the bidder, normalized by the sum of the acquirer's and target's market cap 50 trading days before the announcement date. Column (3) shows that the target's relative gains relative to the acquirer decrease with the industry experience of the bidding CEO. This finding is consistent with the hypothesis that experienced CEOs bargain better and secure a larger fraction of the surplus for their shareholders than CEOs who are new to the target industry.

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[21]Note that Officer (2007) proxies for the premium/discount for unlisted targets by approximating it with the premium of otherwise similar public transactions. However, we cannot use his method as we are interested in the idiosyncratic part of the return or premium.

6.2 Combined Announcement Returns

For publicly listed targets, we can analyze the effect of experience on the returns of both the acquirer and the target. We collect prices and data on the market capitalization of the target from CRSP. We obtain the announcement return (CAR) on the combined companies by calculating the market-cap weighted average of the individual announcement returns of acquirer and target. The combined CAR can be interpreted as a measure for the surplus created by the acquisition - or in other words, for the perceived synergies by the market. As before, we regress the CARs of the combined company on the experience of the CEO with further controls. Table 5 presents the results. The dummy on whether an acquisition is diversifying for the combined company in column (1) is large and negative (-2.2 percentage points). This supports the view that diversifying mergers and acquisitions create fewer surpluses on average. Interestingly, we do not find evidence that experienced CEOs are better at creating surplus. The effect of industry experience on the combined return is large and negative but not precisely estimated. In line with the model, our interpretation of this coefficient is as follows. Being stronger in the bargaining stage has not only a direct but also an indirect effect on merger performance. While it directly affects the sharing rule of the surplus between bidder and target, it also affects the composition of deals that are announced, and which are therefore in our sample. A CEO who anticipates securing a higher fraction of the surplus is willing to engage in acquisitions with a lower total surplus. Indeed, the returns to bidding shareholders increase both in the surplus and in the fraction they can secure. The CEOs therefore substitute higher surplus with higher bargaining power. As we are restricting our sample to public targets only, we want to ensure first that our sample is comparable to the full sample. Column (2) shows that the returns to the acquirer are very similar if the CEO has top-management experience (2.0 percentage points).

6.3 Accounting Performance

As announcement returns only reflect expectations of the market we also look at an ex-post measure of performance. The ratio of earnings before interest and taxes to total assets (EBIT/assets) is used as a measure of operating performance (ROA). Since the ROA may be affected by industry-wide factors, it is industry-adjusted by subtracting the median value of the same measure for all firms in the same primary Fama-French F12 industry as the bidding firm. We then estimate an AR(1) model using the post-merger industry-adjusted three-year average ROA as the left-hand-side variable, with the pre-merger corresponding measure as the right-hand-side variable. The AR(1) model takes into account the possibility that pre-merger operating performance may predict post-merger operating performance. The residual from the above regression is our measure of the abnormal change in ROA (ΔROA). As reported in table 5 in column (3) we find the effect of experience on the profitability to be (weakly) negative. The negative coefficient is of a similar magnitude as the coefficient on the combined returns though not significant again.

6.4 Interpretation

The analytical framework shows that returns to both bidder and bidder plus target are increasing in the value creation ability. However, this is no longer true for the value capturing ability. While the returns to the bidder are increasing in β, the combined returns are decreasing in the bargaining power. We conclude that the existence of value capturing is necessary for explaining our findings.

In general, the effects of value capture and value creation are not mutually exclusive. It is possible that experienced CEOs increase surplus and, at the same time, negotiate better terms. However, by analyzing the combined return to bidder and target, as well as accounting performance, we do not find evidence that experienced CEOs are better at creating surplus. Instead, the average effects are negative. Moreover, we find that experienced CEOs pay a smaller premium.

Bargaining also provides a rationale for the - at first sight - counter-intuitive finding of the negative effect of industry experience on the proxies for the surplus creation. Anticipating securing a higher fraction of the surplus makes an experienced CEO to engage in acquisitions with a lower total surplus at first.

Overall, our results suggest that experienced CEOs bargain better, as they secure a higher fraction of the surplus for their shareholders. We cannot exclude that experienced CEOs do also create more value. However, we find that there must be a bargaining effect and that this effect is relatively large compared to the value creation effect.

7 Heterogenous Effects

In this section, we would like to provide further supportive evidence for the bargaining channel. We do so by identifying situations or environments where industry experience is more likely to affect the bargaining power of CEOs but less their ability to create value. Exploiting heterogeneity along that dimension we then analyze whether industry experience is indeed more valuable in these situations. As already suggested, one potential reason why industry experience increases bargaining ability is based on information. Being an industry insider helps to better estimate the true value of the takeover. Following this intuition, we expect the value of being an industry insider to be higher in scenarios where informational asymmetries would be high otherwise. First, we compare public and private targets. Private companies have to disclose less information, and information asymmetries are arguably higher between these companies and potential buyers. We exploit the variation of the interaction between CEO industry experience and target public status. Second, we exploit heterogeneity across targets' industries. We use different proxies for informational asymmetries at the industry level (R&D intense industries and industries with a high level of intangibles).

7.1 Public Status

One source of information asymmetries is the public status of the target. We differentiate between three different types of targets: publicly listed companies, private companies, and subsidiaries. Private companies have to disclose less, and information asymmetries are arguably higher between these companies and potential buyers. If industry-specific experience is valuable for bargaining, we expect experience to be relatively more important in environments with high informational asymmetries. This is supported by our findings in table 6. Column (1) shows that experienced CEOs are able to generate 2.9 percentage points higher abnormal returns compared to non-experienced managers if the target is a private company. The effect of experience is positive but smaller and less precisely estimated for public and subsidiary targets, suggesting that the advantage of experience is smaller (or even nonexistent) when information is easily accessible and available.

7.2 R&D Intensive Industries and Intangibles

We employ additional proxies for information asymmetries between the target and potential buyers. In the columns (2) and (3) of table 6 we split the industries of the target along high vs. low R&D and high vs. low intangibles industries. These dimensions have been frequently used in the literature to proxy for informational asymmetries.[22] We calculate average R&D expenditures and intangibles across industries over the full horizon (1990-2007) of our sample and split the industries along the median in high and low R&D / intangible industries. Confirming the results from our previous analysis (public status of the target), experienced CEOs are able to generate large and positive CARs if the target is from an industry with arguably higher informational asymmetries. The effect is about 1.9 percentage points and 1.7 percentage points for high R&D and high intangibles industry targets.

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[22]See Abody and Lev 2000 for instance.

8   Conclusion and Outlook

Analyzing mergers and acquisitions, we show that value capture is an important dimension of CEO activity and that the ability to bargain differ amongst CEOs and situations. We find that this ability is correlated to the specific experience profile of the bidding CEO. In particular, we show that CEOs who previously worked in the industry of the target generate two to three times higher abnormal announcement returns for their shareholders compared to CEOs who are new to the target industry. Moreover, we provide evidence that capturing a bigger fraction of the surplus (rather than creating more surplus) is an important determinant for explaining our findings. Experienced CEOs pay a lower premium and they engage in low value acquisitions on average. This is optimal for them as they rationally expect to capture a larger fraction of the surplus when bargaining with the target. Moreover, the value of being an industry insider is particularly high in environments of high information asymmetries.

Though there is evidence that bargaining is important for other corporate decisions[23], there is not yet further evidence that the CEO dimension matters in other situations as well. Hence, it might be interesting to analyze related scenarios. For instance, using the experience profiles of CEOs (as we do in this study) in combination with input-output tables, one could analyze how CEO experience affects the rent-sharing with customers and suppliers.

Another interesting route might be the analysis of the interaction between bidder CEO and target CEO industry experience. If information asymmetries play an important role of how the surplus of acquisitions is split, as our findings suggest, the experience profile of the target CEO is likely to be important. We see this as a promising agenda for future work.

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[23](See Simintzi, Vig, and Volpin 2010) and Hennessy and Livdan (2009) for instance.

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A Tables

Table 1: Descriptive Statistics

Panel A shows the experience and characteristics of CEOs. Age is measured in Dec. 2008. The variable work experience counts the number of different companies and industries for which CEOs worked in a top management position (CEO, CFO, COO, Chairman, President, Division CEO, Division CFO, Division Chairman, Division COO, Division President, Head of Division, Regional CEO, Regional CFO, Regional President). Merger experience is the number of mergers that are conducted by a CEO within our sample.

Panel B displays the distribution of all acquisitions and diversifying ones over time. We define an acquisition to be diversifying if acquirer and targer are from different Fama-French 12 industries.

Panel C shows the fraction of diversifying acquisitions where the bidding CEO has prior work experience in the industry of the target. *Panel D* presents the number of acquisitions that are undertaken by an average company in the sample.

Panel E illustrates deal characteristics. The transaction value (TV) is the total value of consideration excluding fees and expenses. The public status of the target can take values (private, public, subsidiary). The relative size is the ratio of deal value and the market cap of the bidder. Stock deal is a dummy equal to 1 if there are stocks in the consideration package, and all-cash deal is equal to 1 if the whole acquisition is paid in cash. Percentage Cash/Stocks/Others denote the respective fraction on the consideration. Contested bid is a dummy equal to 1 if there is at least one company challenging the bidder.

Panel A: CEOs

	mean	median	N
Age	61.89	62	1854
Male	96.61%		1854
# Industries	1.67	1	1854
# Companies	2.61	2	1854
# Mergers	2.61	2	1854

Panel B: Mergers

Years	All	div.	Frac.
1990-1994	618	151	24.43%
1995-1999	1722	427	24.80%
2000-2004	1622	382	23.55%
2005-2007	882	233	26.42%
1990-2007	4844	1193	24.63%

Panel C: Mergers and Industry Experience

	mean	N
Mergers with exp.	16.51%	1193

Panel D: Company Experience

	mean	median	N
# Mergers	3.37	2	1438

Panel E: Deal Characteristics

	mean	median
Transaction value	970.08	200.00
Relative Size	23.75%	8.83%
TV/Assets	13.76%	4.75%
TV/Equity	23.75%	8.82%
Private Target	32.11%	
Public Target	35.59%	
Subsidiary T.	31.68%	
Stock Deal	40.95%	
All-Cash Deal	30.07%	
Percentage Cash	39.31%	
Percentage Stocks	32.56%	
Percentage Other	28.42%	

Table 2: Experience in Target's Industry - Effects on Diversification

This table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from one day before the announcement until one day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable		
	CAR		
	(1)	**(2)**	**(3)**
TOP-experience x diversifying	0.007	0.012*	0.013**
	[1.235]	[1.906]	[2.220]
Diversifying	0.004	-0.000	-0.003
	[1.587]	[-0.040]	[-1.109]
Acquiror's size			-0.003***
			[-3.694]
Tobin's q			-0.000
			[-0.887]
Free cash flow			-0.002
			[-0.079]
Cash flow measure			-0.004
			[-0.584]
Leverage			0.030***
			[2.973]
Relative deal size			-0.007
			[-1.529]
Stock deal			-0.007**
			[-2.402]
All-cash deal			0.005**
			[2.011]
Public target			-0.020***
			[-7.192]
Private target			0.001
			[0.264]
Age			-0.002
			[-1.258]
Age square			0.000
			[1.321]
Tenure			-0.000
			[-0.837]
Tenure square			0.000
			[0.860]
Observations	4,844	4,844	4,844
Year x Industry dummies (AC)	No	Yes	Yes
R^2	0.001	0.064	0.097

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 3: CEO Fixed Effects and General Cross-Industry Experience

The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from one day before the announcement until one day afterwards. The analysis on column (1) is only based on a subsample of acquisitions of CEOs who made at least two diversifying acquisitions whereas he is experienced in one industry and inexperienced in the other. This allows us to include CEO fixed effects. In columns (2) and (3) two different measures of experience are presented: TOP experience (TA) is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. TOP experience (other industry) are dummy variables equal to 1 if the CEO has experience in any other industry but the current one (industry of the acquirer). TOP experience (other companies) are dummy variables equal to 1 if the CEO has experience in any other company but the current one. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable				
	CAR				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
TOP-exp. (TARGET) x div.	0.031**		0.016**		
	[2.327]		[2.461]		
TOP-exp. (other Ind.) x div.		0.002	-0.004		
		[0.593]	[-0.993]		
TOP-exp. (TARGET) x div.					0.013**
					[2.188]
TOP-exp. (other comp.) x div.				0.003	-0.001
				[0.734]	[-0.217]
Diversifying		-0.001	-0.001	-0.002	-0.002
		[-0.490]	[-0.535]	[-0.642]	[-0.671]
Observations	470	4844	4844	4844	4844
CEO fixed effects	213	No	No	No	No
Year and Industry dummies (AC)	Yes	Yes	Yes	Yes	Yes
Deal and Firm Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.367	0.096	0.097	0.096	0.097

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 4: Mechanism Results I: Premium

This regression analyzes only public targets. This conseqently decreases the sample size to 1,644 observations. The table shows the regression of the offer price premiums and final price premiums on different manager, deal, and company characteristics. The offer (final) price premium is defined as the ratio of the initially offered price per share (finale agreed price per share) over the price per share of the target 1 day or 1 week before the announcement. The relative gains by the target are calculated as the difference in dollar gains between the target and the bidder, normalized by the sum of the acquirer's and target's market cap 50 trading days before the announcement date. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position within the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable				
	Offer premium 1d	Offer premium 1w	Final premium 1d	Final Premium 1w	Rel. gains
	(1)	(2)	(3)	(4)	(5)
TOP-experience x diversifying	-0.075*	-0.091**	-0.082**	-0.098**	-0.028**
	[-1.862]	[-2.101]	[-1.966]	[-2.175]	[-2.151]
Diversifying	0.019	0.032	0.018	0.032	-0.001
	[0.687]	[1.129]	[0.684]	[1.126]	[-0.097]
Observations	1,644	1,644	1,644	1,644	1,644
Year and Industry dummies (AC)	Yes	Yes	Yes	Yes	Yes
Deal and Firm Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.149	0.185	0.148	0.184	0.218

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 5: Mechanism Results II: Synergies

This regression analyzes only public targets. This decreases the sample size to 1,644 observations. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (AC), of the combined firm (AC+TA: weighted by market cap), and of profitability changes (ROA) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable		
	CAR (AC+TA)	CAR (AC)	ΔROA (AC+TA)
	(1)	(2)	(3)
TOP-experience x diversifying	-0.023	0.020*	-0.024
	[-0.643]	[1.866]	[-0.668]
Diversifying	-0.022**	-0.004	0.011
	[-2.033]	[-0.742]	[0.812]
Observations	1644	1644	1239
Year and Industry dummies (AC)	Yes	Yes	Yes
Deal and Firm Controls	Yes	Yes	Yes
R^2	0.531	0.233	0.190

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 6: Informational Asymmetries

In specification (1) the public status (public, private, subsidiary) is analyzed. In specification (2) we split industries along the median value of the average R&D spending in high and low R&D industries. In specification (3) we split industries along the median value of the average intangibles in high and low intangibles industries. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable		
	CAR		
	(1)	**(2)**	**(3)**
Public - TOP-experience x diversifying	0.006		
	[0.711]		
Private - TOP-experience x diversifying	0.029***		
	[2.649]		
Subsidiary - TOP-experience x diversifying	0.005		
	[0.534]		
R&D high - TOP-experience x diversifying		0.019***	
		[2.723]	
R&D low - TOP-experience x diversifying		0.002	
		[0.236]	
Intangibles high - TOP-experience x diversifying			0.017**
			[1.987]
Intangibles low - TOP-experience x diversifying			0.010
			[1.433]
Observations	4844	4844	4844
Year and Industry dummies (AC)	Yes	Yes	Yes
Deal and Firm Controls	Yes	Yes	Yes
R^2	0.096	0.097	0.096

*** p< 0.01, ** p< 0.05, * p< 0.1

B Data

The following table describes the variables that are used in the analysis.

Table 7: Definition of variables

Variable	Definition
Panel A: CEO Characteristics	
Age	Age (in years) of the CEOs is measured at the announcement of the merger.
Tenure	The tenure of the CEOs in the current company (in years).
Industry experience	A dummy variable that is equal to 1 if the bidding CEO has worked in the industry of the target in a top-management position. (Main specification).
Panel B: Bidder Characteristics	
Leverage	Book value of debts over market value of total assets.
Tobin's Q	Ratio of market value of assets to book value of assets. The marketvalue of total assets is defined as the book value of total assets plus market capitalization minus book value of equity. The market capitalization is computed as common shares outstanding times the fiscal year closing price. The book value of equity is defined as stockholders' equity minus preferred stock liquidating value plus balance sheet deferred taxes and investment credit minus post-retirement assets.
Size	Logarithm of the book value of total assets.
Free Cash Flow	Operating income before depreciation minus interest expense minus income taxes minus capital expenditures, scaled by book value of total assets.
Cash Flow / TA	Operating cash flows (sales minus costs of good sold minus selling and administrative expenses plus depreciation and goodwill expenses) over total assets.
Panel C: Deal Characteristics	
Stock Deal	A dummy that is equal to 1 if the bidder pays a positive fraction of the transaction value with its stocks.
All-cash Deal	A dummy that is equal to 1 if the transaction is 100% paid with cash.
Relative Deal Size	Ratio of the deal value and the market capitalization of the bidder.
Public Target	Status of the target is "public company".
Private Target	Status of the target is "private company".
Subsidiary Target	Company is a subsidiary of a company.
Diversifying	A merger is classified to be diversifying if bidder and target differ in their Fama-French 12-Industries (FF12) classification.
Panel D: Performance Measures	
CARs	Three-day (eleven-day) cumulative abnormal return (in percentage points) calculated using the Fama-French 3-factor model. The market model parameters are estimated using the return data for the period (-270,-21).
Premium	The offer (final) price per share that is paid to the target shareholders over the price per share of the target stock 1 day and 1 week before the announcement.
ΔROA	Change in the three-year average industry-adjusted ROA before and after the acquisition. We allow for predictability by estimating a AR(1) model.

C   Robustness

C.1   Firm-CEO Matching

Although our results are consistent with the hypothesis that industry experience is beneficial when diversifying via acquisition, a key concern is that selection or endogeneity is driving our results. Selection emerges from the fact that CEOs and companies are not matched randomly but CEOs are chosen by the board of directors. Industry experience of CEOs might be a selection criterion of the board for the appointment of a particular CEO. In the present case, one may be concerned about the following scenario: Given a company has, to the econometrician, unobserved opportunities in a certain industry and therefore intends to buy a company in that particular industry, the board might hire an industry expert to do so. Hence, endogenous matching could potentially explain our results or, at least, bias the findings. In what follows we provide several pieces of evidence suggesting that it is not selection that is driving our results and supporting the view that the positive impact of industry experience on acquisition performance is causal.

C.1.1   A First Answer

The results of the previous section are first evidence for allowing a causal interpretation of the positive effect of industry-specific experience on announcement returns. When analyzing the combined abnormal returns and the profitability for public targets, we do not find evidence that experienced CEOs are better at creating synergies. As the effect of experience on abnormal returns of the acquiring company is positive, our results suggest that experienced CEOs are better at negotiating terms that are favorable to the shareholders of the acquiring company. Moreover, when analyzing heterogeneous effects across industries or the public status of the target we provide further evidence that observed effects are generated by CEOs rather than by selection. Overall, our findings suggest that experience matters more where it is more valuable. In particular, we show that environments of (high vs. low discretion, public vs. non-public target) which is in line with the CEO hypothesis but cannot easily supported by selection.

C.1.2 Merger Waves as Exogenous Shocks

Previous research by Mitchell and Mulherin (1996) and Harford (2005) shows that mergers and acquisitions occur in waves, and within a wave they cluster strongly by industry. These waves might be triggered for instance, by technological innovation or supply shocks. Assuming that these shocks and the need to acquire are less likely to be foreseen by the board of directors when appointing a new CEO, we build a subsample of mergers where the bidder comes from an industry that is hit by a merger wave at the date of the announcement. We define an acquisition being part of a merger wave if the announcement date of the merger is between 6 months before and 6 months after the date of a merger wave and the industry of the bidder corresponds to the affected industry (as identified by Harford (2005)). We further exclude waves that are due to deregulation as these waves are likely to be expected by the firms. By applying this definition we identify 677 mergers that are involved in a merger wave. Table 8 presents the results. Experience of the CEOs is positive and significant (at a 10% level) for top-level experience within and outside merger waves supporting the view that it is not selection that is driving our results. Moreover, the effect s is stronger within a wave (2.4 vs. 1.1 percentage points) suggesting that experience is more valuable in unexpected situations.

C.1.3 Timing and Acquisitions with Experience

If a company hires an experienced CEO to conduct an acquisition, we would expect an announcement about the intent to acquire shortly after the appointment. We therefore estimate the probability of making a diversified acquisition and having an experienced CEO as a function of CEO tenure. The dependent variable is a dummy that is equal to 1 if the CEO has previous experience in the target's industry. Our covariates consist of a set of dummy variables for different years of the CEO's tenure. If companies appoint experienced CEOs in order to execute an acquisition for them we would expect to observe higher coefficients on the dummies for recent hires. We use OLS as well as probit estimation. Column (1) and (2) of table 9 present the results using OLS and probit respectively.

There is no monotonic relationship between the probability of observing an experienced acquisition and the appointment of the experienced CEO. These findings support the view that industry-experience in connection with acquisitions considerations play a minor role when appointing a CEO.

C.1.4 Timing and Returns

As a further robustness check we analyze returns directly. If selection is driving the results we would expect the positive abnormal returns to be generated by recently appointed CEOs. We therefore interact the experience measure with dummies reflecting the relative year of the appointment. Table 10 shows that there is no monotonic relationship between the appointment of experienced CEOs and abnormal returns. When precisely estimated, the returns are positive and at similar levels (between 2.7 and 3.9 percentage points for CEOs appointed 3, 6, or 8 years before the acquisition). The coefficients on other years are not statistically different from zero. Overall, the findings suggest that selection cannot explain the positive returns of experienced CEOs, reinforcing the view that industry experience is generating them.

C.2 Relatedness of the Industry

In our baseline setting, we use the same level of industry classification (Fama French 12) to define diversifying acquisitions and industry experience of the bidding CEOs. While we would like to have a very broad measure to classify a diversifying takeover, we actually want to have a precise measure for experience. However, using the broad classification on experience delivers a fraction about 16 percent of the deals where the CEOs are experienced. The narrower we are when defining experience, the smaller the number of observations of acquisitions conducted by industry expert CEOs. Consequently, we do not observe enough variation anymore. We therefore define a weighted measure of expe-

rience as follows:

$$
ExpTA(weigthed) = \begin{cases} 4, & \text{for CEO has experience in the same FF48 industry} \\ 3, & \text{for CEO has experience in the same FF30 industry} \\ 2, & \text{for CEO has experience in the same FF17 industry} \\ 1, & \text{for CEO has experience in the same FF12 industry} \\ 0, & \text{for CEO has no experience in the target industry} \end{cases} \quad (3)
$$

The results of the corresponding regression are reported in table 11. In line with our previous results, the coefficient is positive (0.8%) and significant. The magnitudes are similar to our previous findings and suggest an effect of 0.8-3.2 percentage points depending on the narrowness of experience.

C.3 Relevance of the Position

Managers might have better opportunities to accumulate industry-specific skills and knowledge in high level positions compared to low-ranked positions. A possible explanation is better access to information and involvement in strategic tasks. In table 12 we analyze broader measures of experience. In specification (1) we consider all previous positions in the target industry, irrespective of the level. As expected, in that specification, the effect is smaller (1.0 percentage points), though still significant. Moreover, we run a placebo test where we analyze the impact of experience that is likely to be unrelated with the industry in the firm. Examples are low-ranked jobs like office workers or interns as well as non-business positions (for example, web programmer working for a car maker). Experience that is unrelated to the business, or carries a lower level of decision-making power or less information access does not help to perform better when acquiring a new segment. The effect is 0.4 percentage points and not distinguishable from zero. However, we might also capture only a time effect as most of the low-ranked experience probably comes from the early stage of the career (see our alternative measure of experience that accounts for the recentness of the experience). In this setting we are notable to differentiate these two

effects.

C.4 Recent Experience and Tenure

As industries adapt to technology or changes in the market, it is interesting to analyze how the value of experience changes with the recentness of experience. Therefore, we look at two alternative measures of experience that incorporate a time component. We consider an experience to be 'recent' if it was gained in the last 10 years before the merger was announced, and to be 'old' otherwise. Second, we refine this measure by sub-classifying the recent experience into experience gained within the last 5 years and experience gained between 6 and 10 years before the announcement of the acquisition. Table 13 reports the results. Columns (1) and (2) show the effect of top-level experience for the two alternative measures. The results suggest that experience diminishes over time and only rather recently gained experience helps to perform better when diversifying. The first specification shows very strong and statistically significant effects of having experience (2.0 percentage points) in the 10 years before the acquisition. The coefficient of old experience is small and not distinguishable from zero. The finer measure of recentness in specification (2) yields similar results. Recent experience matters more; the impact peaks for experience gained between 5 and 10 years before the acquisition. However, the two coefficients on recent experience are not statistically distinguishable from each other. In column (3) we are interested in whether having more experience (in terms of tenure) matters. We split the experience dummy by tenure, distinguishing between tenure of less than 5 years and more than 5 years. The estimated coefficient are exactly of the same magnitude (1.3 percentage points) suggesting that there is no linear effect in tenure.

C.5 Exclusion of Conglomerates

Some companies are multi-segment firms, operating in different industries.[24] In our previous specifications we only consider the biggest segment of the acquiring firm when defining

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[24]Maksimovic and Phillips (2002) show that conglomerates might also differ from single-segment firms when responding to industry shocks for instance.

its industry. A concern might be that our results are purely driven by companies with large secondary segments in the industry of the target. For instance there may be a concern that mergers are not really diversifying and the positive effect of CEO experience is driven by potential synergies. We therefore restrict our sample to firms that report either only one business segment (according to COMPUSTAT segments) or where the largest business segment is accountable for at least 90 percent of the sales. In column (1) of table 14 only single segment firms are considered. The effect of experience is still positive and even higher than compared to our baseline specification (3.7 percentage points). The results for companies with the largest segment accounting for at least 90 percent of sales (column (2)) are similar, though a bit smaller (3.2 percentage points) and not distinguishable from zero when considering all levels of experience. Overall, the results seem to suggest that experience is more valuable when specialized firms diversify.

C.6   Diversifying Acquisitions only

By looking only at diversifying acquisitions we allow the covariates to have different slope coefficients for diversifying and non-diversifying acquisitions. The restriction limits the sample to 1,189 acquisitions. We then replicate our analysis by regressing abnormal returns on the CEO industry experience and firm and deal characteristics as well as year and industry fixed effects. The results in table 15 support our previous findings: CEOs who have experience in the industry of the target perform better on average. Experienced CEOs are able to generate 1.0 percentage points abnormal return if they worked in the industry of the target. This effect is significant at a 5% level. The finding shows that results also hold for the smaller sample. However, the bigger sample helps to estimate the other coefficients leading to more precise estimates.

C.7   Alternative Event Window

In our previous specifications we compute cumulative abnormal returns for three consecutive days, starting 1 day before the announcement and ending 1 day after. We test for the robustness of previous results bu using an alternative window of time (from 5 days

before the announcement to 5 days after). This approach allows us to account for possible leaks in information about the acquisition before the public announcement. If this is the case, some of the abnormal returns driven by the event would be realized before the announcement. The result is shown in table 16. The effect of top management experience, confirming our previous results, is large (1.3 percentage points) and significant. Overall, the result is consistent with our previous results though they are a bit weaker. However, by increasing the length of the event window we also increase the likelihood that unrelated events to the merger are affecting abnormal returns.

Table 8: Merger Waves

This subsample consists only of mergers that were announced during a merger wave. Harford (2005) provides a measure of clustered merger activity that specifies year, month and industry of a merger wave. We define a merger being part of a merger wave if the acquirer belongs to the affected industry and the merger was announced any time in between 6 months before and 6 months after the date that is identified by Harford. We exclude waves that are due to deregulation. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable
	CAR
	(1)
Within Wave: TOP-experience x diversifying	0.024*
	[1.704]
Outside Wave: TOP-experience x diversifying	0.011*
	[1.836]
Observations	4844
Year and Industry dummies (AC)	Yes
Deal and Firm Controls	Yes
R^2	0.097

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 9: Probability of Experienced Merger by Appointment Date

The table shows the regression of the a dummy that is equal to 1 if the merger is by a CEO that is experienced on the appointment of the CEO, different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable	
	P[experience]	
	(1) (LPM)	**(2) (Probit)**
Appointment in t = 0	0.241***	0.896***
	[2.805]	[2.859]
Appointment in t = -1	0.108**	0.486***
	[2.377]	[2.629]
Appointment in t = -2	0.151***	0.630***
	[3.323]	[3.533]
Appointment in t = -3	0.211***	0.812***
	[5.181]	[5.201]
Appointment in t = -4	0.202***	0.786***
	[4.396]	[4.487]
Appointment in t = -5	0.141***	0.599***
	[2.903]	[3.125]
Appointment in t = -6	0.090*	0.419**
	[1.924]	[2.168]
Appointment in t = -7	0.046	0.237
	[0.926]	[1.093]
Appointment in t = -8	0.152***	0.633***
	[2.616]	[2.813]
Appointment in t = -9	0.074	0.360
	[1.208]	[1.392]
Appointment in t = -10	0.060	0.300
	[1.091]	[1.273]
Observations	1240	1240
Year and Industry dummies (AC)	Yes	Yes
Deal and Firm Controls	Yes	Yes
R^2	0.046	.

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 10: Merger Performance by Appointment Date

The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on the appointment of the CEO, different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable
	CAR
	(1)
Appointment in t=-1 & Top exp. x div.	0.025
	[0.918]
Appointment in t=-2 & Top exp. x div.	0.022
	[1.488]
Appointment in t=-3 & Top exp. x div.	0.032
	[1.578]
Appointment in t=-4 & Top exp. x div.	0.007
	[0.551]
Appointment in t=-5 & Top exp. x div.	-0.010
	[-0.731]
Appointment in t=-6 & Top exp. x div.	0.020
	[1.136]
Appointment in t=-7 & Top exp. x div.	0.011
	[0.529]
Appointment in t=-8 & Top exp. x div.	0.045**
	[2.128]
Appointment in t=-9 & Top exp. x div.	0.014
	[0.372]
Appointment in t=-10 & Top exp. x div.	0.009
	[0.344]
Diversifying	-0.003
	[-1.065]
Observations	4711
Year and Industry dummies (AC)	Yes
Deal and Firm Controls	Yes
R^2	0.102

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 11: Relatedness of the Industry

This table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a discrete variable that is equal to 4 if the CEO worked in a TOP position in the same Fama-French 48 target's industry, equal to 3 if the CEO worked in a TOP position in the same Fama-French 30 target's industry, equal to 2 if the CEO worked in a TOP position in the same Fama-French 17 target's industry, equal to 1 if the CEO worked in a TOP position in the same Fama-French 12 target's industry, and zero otherwise. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable
	CAR
	(1)
TOP-experience (weighted) x diversifying	0.008**
	[2.138]
Diversifying	-0.003
	[-1.186]
Observations	4,844
Year x Industry dummies (AC)	Yes
Industry dummies (TA)	No
Controls available	Yes
R^2	0.097

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 12: Relevance of the Position

In this sample we analyze experience of low hierarchy levels or experience that is unrelated to the actual business of an company. Examples are internships in a particular industry or working as a web programmer in the automotive industry. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. Experience in target's industry is a dummy that is 1 if the CEO has experience in the target's industry. Unrelated experience is a dummy that is equal to 1 if the CEO worked in a position that is likely to be unrelated with the industry in the firm. Examples are low-ranked jobs like office workers or interns as well as non-business positions in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	*Dependent Variable*	
	CAR	
	(1)	**(2)**
Any experience x diversifying	0.010**	
	[2.369]	
Unrelated experience x diversifying		0.004
		[0.684]
Diversifying	-0.004	-0.001
	[-1.532]	[-0.513]
Observations	4844	4844
Year and Industry dummies (AC)	Yes	Yes
Deal and Firm Controls	Yes	Yes
R^2	0.091	0.086

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 13: Recency and Tenure

This table analyzes the different effect of the recency of the experience on the performance. We make two different splits of the experience by recency. The experience was obtained i) less than 10 years ago vs. more than 10 years ago and ii) less then 5 years ago vs. between 5 and 10 years ago vs. more than 10 years ago. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable		
	CAR		
	(1)	**(2)**	**(3)**
TOP-exp. (less than 10 years ago) x div.	0.020***		
	[2.624]		
TOP-exp. (more than 10 years ago) x div.	-0.003		
	[-0.259]		
TOP-exp. (less than 5 years ago) x div.		0.009	
		[0.892]	
TOP-exp. (between 5 and 10 years ago) x div.		0.032***	
		[2.921]	
TOP-exp. (more than 10 years ago) x div.		-0.003	
		[-0.253]	
TOP-exp. (tenure of less than 5 years) x div.			0.013*
			[1.654]
TOP-exp. (tenure of more than 5 years) x div.			0.013*
			[1.729]
Diversifying	-0.002	-0.002	-0.003
	[-0.915]	[-0.922]	[-1.096]
Observations	4711	4711	4711
Year and Industry dummies (AC)	Yes	Yes	Yes
Deal and Firm Controls	Yes	Yes	Yes
R^2	0.101	0.102	0.097

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 14: Conglomerates

In this sample we exclude conglomerates from our analysis. Column (1) reports regression results of firms that have business in only one segment according to the COMPUSTAT segment data. In column (2) we consider only firms where the biggest segment is accountable for at least 90% of the total sales. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience (TA) is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	*Dependent Variable*	
	CAR	
	(1)	**(2)**
Conglomerate - TOP-experience x diversifying	0.012	0.010
	[1.591]	[1.319]
Focussed firm - TOP-experience x diversifying	0.038**	0.034***
	[2.485]	[2.625]
Diversifying	-0.005	-0.005
	[-1.512]	[-1.523]
Observations	1336	1549
Year and Industry dummies (AC)	Yes	Yes
Deal and Firm Controls	Yes	Yes
R^2	0.210	0.186

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 15: Diversifying Acquisitions

This subsample consists only of diversifying acquisitions. The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 1 day before the announcement until 1 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	*Dependent Variable*
	CAR
	(1)
TOP-experience	0.010**
	[2.004]
Observations	1189
Year and Industry dummies (AC)	Yes
Deal and Firm Controls	Yes
R^2	0.236

*** p< 0.01, ** p< 0.05, * p< 0.1

Table 16: 11 Days Event Window

The table shows the regression of the mergers' cumulative abnormal stock price returns of the bidder (CAR) on different manager, deal, and company characteristics. The cumulative abnormal returns come from an event study using the Fama-French three-factor model and an event window from 5 day before the announcement until 5 day afterwards. TOP experience is a dummy that is equal to 1 if the CEO worked in a TOP position in the target's industry. Bidder and deal characteristics are in the appendix. All regressions include age, age squared, tenure, and tenure squared of the CEO at the date of the announcement of the merger. All standard errors are clustered by event date to account for cross-sectional correlation of stock returns. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Independent Variables	Dependent Variable
	CAR
	(1)
TOP-experience	0.013**
	[2.220]
Diversifying	-0.003
	[-1.109]
Observations	4844
Year and Industry dummies (AC)	Yes
Deal and Firm Controls	Yes
R^2	0.097

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

Table 17: Descriptive Statistics: Companies

Panel A shows data on corporate size, profitability and growth opportunities of the acquirer. The market value of equity (market capitalization in millions of US-$) is computed as common shares outstanding times the fiscal year closing price. Cash and debt are normalized by the book value of total assets. Tobin's Q is the market value of total assets divided by the book value of total assets and book-to-market (BM) is defined as the ratio of book value of equity and market cap. Profitability is measured as the ratio of operating cash flows divided by the market value of total assets.

Panel A: Financial Data

	Acquirer		COMPUSTAT	
	Mean	Median	Mean	Median
Assets (book)	12,560.25	1,634.30	1,303.15	74.31
Market capitalization	7,146.63	1,816.75	1,376.95	64.87
Cashassets (book)	0.146	0.068	0.167	0.082
Debtassets (book)	0.189	0.161	0.176	0.112
Debtassets (market)	0.129	0.095	0.132	0.071
Tobin's q	2.48	1.68	2.106	1.41
BM (equity)	0.483	0.439	0.684	0.517
OCF/assets (book)	0.349	0.327	0.264	0.275

D Derivations

D.1 Comparative Statics

In the following, we aim to replicate our regression equations, i.e. we would like to compare the average (expected) payoff to different shareholders for acquisitions in each of the two sectors, conditional that they are implemented.

D.1.1 Expected value of deals from sector E:

We first calculated the conditional density of a deal value S_E conditional on its implementation.

$$
\begin{aligned}
P(S_E \wedge \text{target E} \succ \text{target N}) &= P(S_E \wedge \beta(S_E + V) > S_N) \\
&= \begin{cases} \beta(S_E + V), & \text{for } S_E \leq \frac{1}{\beta} - V \\ 1, & \text{for } S_E > \frac{1}{\beta} - V \end{cases}
\end{aligned}
$$

The total probability that the bidding CEO prefers a target of sector E over a target of sector N is therefore given by:

$$
\begin{aligned}
\mathbf{P} &\equiv P[\text{target E} \succ \text{target N}] = P[\beta(S_E + V) > S_N] \\
&= \int_{S_E=0}^{1/\beta-V} \int_{S_N=0}^{\beta(S_E+V)} 1 dS_N dS_E + \int_{S_E=1/\beta-V}^{1} \int_{S_N=0}^{1} 1 dS_N dS_E \\
&= 1 + V - \frac{1}{2b} + \frac{bV^2}{2}
\end{aligned}
$$

The conditional density $P(S_E|\text{target E} \succ \text{target N})$ is given by $P(S_E|\text{target E} \succ \text{target N}) = \frac{P(S_E \wedge \text{target E} \succ \text{target N})}{P(\text{target E} \succ \text{target N})}$. In the last step, we calculate the expected synergy level of an implemented acquisition from sector A.

$$E[S_E + V | \text{target E} \succ \text{target N}] = \frac{1 - 3\,\beta^2\,V^2 + 2\,\beta^3\,V^3 - 6\,V\,\beta^2 - 3\,\beta^2}{3\,\beta\,(1 - 2\,\beta\,V + \beta^2\,V^2 - 2\,\beta)}$$

D.1.2 Expected value of deals from sector N:

We first calculated the conditional density of a deal value V_N conditional on its implementation.

$$
\begin{aligned}
P(S_N \wedge \text{target N} \succ \text{target E}) \ &= \ P(S_N \wedge \beta(S_E + V) < S_N) \\
&= \ \begin{cases} 0, & \text{for } S_N < \beta V \\ \frac{S_N}{\beta} - V, & \text{for } S_N > \beta V \end{cases}
\end{aligned}
$$

The total probability that the bidding CEO prefers a target of sector N over a target of sector E is therefore given by:

$$\mathbf{P} \ \equiv \ P[\text{target E} \succ \text{target N}] = \frac{1 - 2\,\beta\,V + \beta^2\,V^2}{2\,\beta}$$

The expected synergy level of an implemented acquisition from sector N:

$$E[S_N | \text{target N} \succ \text{target E}] = \frac{\beta\,V}{3} + \frac{2}{3}$$

D.1.3 Relative performance of the two sectors

In our analysis we are interested in the relative performance of acquisitions with and without experience. Moreover, we differentiate between the return to the bidding shareholders and to the bidding plus target shareholders as a proxy for the surplus creation:

$$\Delta_{AC} = \beta_E E[S_E|\text{target E} \succ \text{target N}] - \beta_N E[S_N|\text{target N} \succ \text{target E}]$$

$$\Delta_{AC+TA} = E[S_E|\text{target E} \succ \text{target N}] - E[S_N|\text{target N} \succ \text{target E}]$$

We are interested in the comparative statics result. As illustration we plot the partial derivatives of Δ_{AC} and Δ_{AC+TA} with respect to V and β.