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# The Effect of Overconfidence on Risky Acquisition Behavior

## 124 - Dynamics in Collaborative Partnerships

### Abstract

The global M&A market regularly tops \$2 trillion annually and is constantly surging to new record highs. However, an extraordinarily large amount of deals fails to create any value, but rather destroys wealth. The reasons for this are manifold, with more and more attention shifting to the role of the CEO. The goal of this thesis is to examine the effect of overconfidence on risky acquisition strategies. After a theoretical explanation of overconfidence and M&A in general, the findings from previous publications regarding the impact of overconfidence on acquisitiveness and deal performance are discussed. For the empirical analysis, an extensive data set with a wide range of variables based on German corporations was compiled. Subsequently, a number of analyses examining the impact of overconfidence on the tendency to acquire a company outside the home country or in an unrelated industry were conducted. The results show that overconfidence increases the tendency of a CEO to make an international transaction, yet no clear effect on making unrelated diversifying acquisitions was discovered. In summary it can be said that overconfidence increases the tendency to make risky acquisitions.

### Keywords:

Mergers and Acquisitions, M&A, Overconfidence, Cross-Border Acquisitions, Unrelated Diversification

### 1. Introduction

Mergers and acquisitions (M&A) remain a highly prominent topic in both research and practice. While a multitude of new publications on M&A is being issued every year, the M&A market is also booming. 2014 marked one of the busiest years in history with a total M&A volume of \$3280bn., only 11.8% short of the pre-crisis record year 2007 (Mergermarket 2015). However, evidence and past research suggest that the majority of these deals will not be successful. As a matter of fact, the failure rates in M&A range from 60% up to 90% in all deals (Bijlsma-Frankema 2001; Christensen et al. 2011). King et al. (2004) have conducted an extensive meta-analysis of post-acquisition performance and suggest that researchers should pay more attention to the managers in charge. In the past decade, there was a considerable amount of studies examining the CEO's role in M&A, with a particular focus on character traits such as overconfidence. This paper will attempt to close this gap by investigating the phenomenon of overconfidence in German corporations.

In the psychological literature, there are three distinct approaches to defining overconfidence. The first is the over-estimation of one's ability, performance or chance of success. The second is the excessive certainty of the accuracy of one's beliefs, also referred to as over-precision. The last is the tendency of individuals to view themselves as better than others, most commonly called and published under the

term of better-than-average effect (Hirshleifer et al. 2012; Moore / Healy 2008). The better-than-average effect is predominant when describing overconfidence with regard to executives, as they tend to view themselves as better than average managers (Malmendier / Tate 2005).

The first to describe the phenomenon of overconfidence, back then denoted as *hubris*, in the corporate finance literature was Roll (1986), with his hubris hypothesis of corporate takeovers. Since then, a multitude of publications on the topic have investigated the effects, which an overconfident CEO has on a company's acquisition behavior. One finding that has been confirmed through various studies is that an overconfident CEO is, on average, more acquisitive than a non-overconfident CEO. While the overall conclusions are consistent, the exact amount of increased acquisitiveness differs from study to study (Kolasinski / Li 2013; Malmendier / Tate 2008). Across the majority of studies, it can be found that mergers and acquisitions conducted by overconfident CEOs generate, on average, lower announcement returns than those of non-overconfident and economically rational CEOs. Throughout all studies examining this issue, the results are substantial and significant, sometimes proving to be three times worse than those of other CEOs (Malmendier / Tate 2008). Interestingly, overconfident CEOs' first deals regularly outperform those made by their non-overconfident peers, while their higher-order deals perform significantly worse. These findings support the theory of overconfidence stemming from self-attribution bias (Doukas / Petmezas 2007; Billet / Qian 2008). As for the reasons of these post-acquisition losses, research focuses on the large premiums paid to target firms' shareholders (Firth 1980; Roll 1986). Moreover, overconfidence seems directly related to the size of the premium paid for a target firm (Hayward / Hambrick 1997).

This paper, however, will follow a different approach by investigating whether overconfident CEOs follow riskier acquisition strategies than other executives. The underlying assumption therefore is that overconfidence not only allows CEOs to fail to perceive the risks that come along with an acquisition, but also drives them to deliberately make risky acquisitions. Furthermore, as the previous research on this topic almost entirely focuses on US firms, the aim of this thesis is to investigate overconfidence and its impact on acquisition behavior in continental Europe.

## 2. Model Development

This paper examines the tendency of overconfident CEOs in making risky transactions. In order to identify what a risky acquisition is, two distinctive approaches will be applied. The first are unrelated diversifying transactions, which have been shown to be more value-destroying in previous publications. The second type of risky acquisitions lies in cross-border transactions. There are several factors that make cross-border transactions riskier and more difficult than domestic transactions. The hypotheses for my empirical evaluation therefore are as follows:

**Hypothesis 1:** An overconfident CEO is more likely to make unrelated diversifying acquisitions.

**Hypothesis 2:** An overconfident CEO is more likely to make cross-border acquisitions.

The sample consists of 130 German companies that completed a total of 305 acquisitions. The time period for the analysis was set to five years, from January 2007 to December 2011, and only included transactions where the acquirer owned 100% of the target after deal completion. For those deals that met the criteria, the search via the Bureau van Dijk (BvD) Zephyr database was extended to 80 items, which included information on the deals, as well as specific target and acquirer information. After completing this first search with the Zephyr database, a number of missing variables necessary for measuring overconfidence were identified. The procedure of gathering the aforementioned information was as follows: as a first step, the date of deal completion of each deal was assessed. These deal dates were then used to find out who the CEO of the respective acquiring company was at that time, as well as information regarding their age and tenure. In a second search in the Zephyr database, information on the number of prior deals conducted by the CEO during his tenure in the sample company was collected. Furthermore, the annual report for every acquiring company for the year of deal completion was searched for photographs of the CEO or the executive board, as well as for the CEOs' CVs, resumes, or short texts introducing them. As a last step, the official press releases of the fourth quarter of the year of deal completion were compiled from the companies' homepages and gathered in separate Word documents. These variables were then added to the data set using the following procedure: *Age\_CEO* and *Tenure\_CEO* were computed for the year of each transaction to account for the effect of learning and changes in the acquisitions behavior. The variable *Prior\_deals* was computed using the same method as for age and tenure, in order to properly capture multiple acquirers. The prominence of the CEOs' photograph in the annual report was quantified in accordance with the method introduced by Chatterjee and Hambrick (2007). *Photo\_CEO* was awarded four points if the photograph was of the CEO alone and covered more than half a page, three points if it covered less than half a page. If the CEO was photographed with one or more fellow executives, the photograph was awarded two points. The absence of a photograph was equal to one point. The length of the CEOs' resumes was included in the data set with the total number of words as *Who\_CEO*. Finally, the bundled press releases for each company and deal-year were searched for the number of mentions of the chief executive. This number was then divided by the total sum of words (in thousands) in the press releases and added to the data set as *Prominence\_CEO*.

Subsequently, a variable for measuring overconfidence was calculated. By using an adjusted version of Chatterjee and Hambrick's (2007) method, the variables *Prior\_deals*, *Photo\_CEO*, *Who\_CEO* and *Prominence\_CEO* were added to generate the variable *Sum\_OC*. Instead of including variables related to the CEOs' compensation or portrayal in interviews, a variable depicting their prior acquisitiveness was added. In order to take the considerable disparity of means of *Who\_CEO* and the other three variables for the overconfidence measure into account, the overconfidence proxy was adjusted by computing the standard scores of the four overconfidence variables. From these z-scores, the new variable *Z\_Sum\_OC* was generated and used for all further analyses in this paper. Rather than dividing the CEOs into the two groups *high overconfidence* and *low overconfidence*, the whole sample of

CEOs is used under the assumption that the higher the variable  $Z\_Sum\_OC$ , the more overconfident the CEO is.

In order to be able to analyze the effect of overconfident CEOs on unrelated diversifying and cross-border acquisitions, two additional variables needed to be calculated.  $Sum\_unrelated$  is the total number of unrelated diversifying acquisitions made by the sample companies. A transaction is defined as an unrelated diversifying one, if the target company's four-digit primary SIC code deviated from the acquirer's SIC code. If this was the case, the dummy variable  $Amt\_unrelated$  takes the value 1, if not it takes the value 0. The values from this dummy variable of all deals in the sample were then added to generate the variable  $Sum\_unrelated$ . The procedure to calculate the variable for cross-border acquisitions was similar. First the dummy variable  $Amt\_cross\_border$  for all deals in the sample was assessed. The variable takes a value of 1 if the acquirer purchased a target outside of his home country and a value of 0 if it was a domestic acquisition. These were then summed up to generate the variable  $Sum\_cross\_border$ . Due to the large size of the sample, several adjustments were made before starting the analysis. In order to shrink and make the sample more lucid, the first acquisition of each company was defined as the reference transaction and included with all variables in the data set. In the case of missing variables and other unexpected difficulties with these reference transactions, the whole set of variables for each company's subsequent transaction was also included. For all higher-order deals, however, only the crucial variables for my further analyses were included. These variables were both the acquirers' and targets' primary four-digit SIC codes as well as the country codes. Additionally, the dummy-variables  $Amt\_cross\_border$  and  $Amt\_unrelated$  were also included for all deals.

After all the necessary data was gathered and properly arranged, the data set was fed into IBM's SPSS Statistics. The methods used for the evaluation were primarily linear regression analyses.

### 3. Results

In order to check for the validity and robustness of the overconfidence measure used in this paper, the first regression analysis examines the effect of overconfidence on acquisitiveness.

Results of Regression Analysis

Performance	Model 1	Model 2
Age_CEO	0.088	0.069
Tenure_CEO	-0.300	-0.001
Z_Sum_OC		0.159*
R <sup>2</sup>	0.007	0.032
Adjusted R <sup>2</sup>	-0.010	0.006

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 1: Overconfidence and Acquisitiveness

In this analysis, the total amount of acquisitions per CEO is used as the dependent variable. *Age\_CEO* and *Tenure\_CEO* serve as control variables in the first model. The overconfidence variable *Z\_Sum\_OC* is the third independent variable, used in the second model. A look at the results makes it apparent that overconfidence increases the overall chances for making an acquisition by a considerable amount. The finding is significant at the 5%-level and therefore in line with results in previous research.

The following regression analysis examines the impact overconfidence has on the tendency to make unrelated diversifying acquisitions.

Results of Regression Analysis		
Performance	Model 1	Model 2
Age_CEO	.057	.055
Tenure_CEO	-.116	-.117
Z_Sum_OC		.017
R <sup>2</sup>	.014	.014
Adjusted R <sup>2</sup>	-.003	-.012

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

*Table 2: Overconfidence and Diversifying Acquisitions*

The findings from this evaluation are quite surprising, as there is no influence of overconfidence on diversifying acquisitions. Neither the first evaluation nor a second one using an alternative measure for overconfidence generate any viable results indicating an effect on the tendency to make unrelated diversifying acquisitions. Furthermore, the results are not significant at all. The findings here obviously contradict my prediction and also previous research findings on overconfidence and unrelated diversifying acquisitions. One reason for this might be the disproportionately high share of unrelated diversifying deals in the sample. Of the 305 acquisitions, almost two thirds have been identified as unrelated diversifying ones, using the four-digit SIC codes. Even after changing the measure to the two-digit SIC codes, the amount of diversifying transactions decreased only marginally, with no significant changes in the following examination. As there is no evidence indicating an especially strong tendency on the part of German companies to engage in diversifying acquisitions, this large number of unrelated diversifying deals in the sample is assumed to be purely coincidental.

The next regression analysis examines if overconfidence impacts the number of cross-border transactions made. The prediction was that the presence of an overconfident CEO increases the number of cross-border transactions.

### Results of Regression Analysis

Performance	Model 1	Model 2
Age_CEO	.203**	.182**
Tenure_CEO	-.164*	-.176*
Z_Sum_OC		.177*
R <sup>2</sup>	.053	.084
Adjusted R <sup>2</sup>	.037	.060

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

*Table 3: Overconfidence and Cross-Border Acquisitions*

The results from this analysis, as presented in the table above, confirm my prediction. While the age of the CEO seems to positively correlate with the number of cross-border transactions, the duration of the CEOs' tenure decreases this effect. Overconfidence, on the other hand, strongly and significantly impacts the number of cross-border transactions completed by a CEO. According to my findings, overconfidence increases the odds of conducting a cross-border acquisition by a factor of 1.17. All the results are significant either at or slightly above the 5%-level. The results and also the significance levels stay the same when applying the alternative measure for overconfidence. The change in adjusted R<sup>2</sup> is also considerable, as it almost doubles after including the overconfidence measure in the evaluation. This result confirms my hypothesis that overconfidence positively influences the tendency to engage in risky acquisitions.

#### 4. Conclusion

There is broad consensus on the increased acquisitiveness of overconfident CEOs in the professional literature. The findings of this paper confirm this and also show that overconfident CEOs are more likely to purchase target firms outside their home country. However, the results on the increased tendency of overconfident CEOs to make unrelated diversifying acquisitions are unexpected, as no significant effect could be found, and therefore likewise contradict previous findings. The overall prediction that overconfident CEOs are more likely to follow riskier acquisition strategies can therefore only be partially confirmed. Apart from that, the results from this study based on German corporations are largely in line with the existing literature, which are primarily based on US companies. This shows not only that overconfidence and its typical consequences exists across cultures, but also that it exists regardless of company size. While the previous publications primarily used large S&P 500 companies, this sample mainly consisted of small- and micro-cap firms, with only a few larger exceptions. Further research is encouraged to investigate the effects of overconfidence on an acquiring company's post-deal financial performance. Additionally, it would be worthwhile to examine the effects of overconfidence on unrelated diversifying acquisitions by using a different sample of acquiring firms or a different time frame.

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