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# CEO Narcissism:

# An Upper Echelons Perspective on Financial Advisor Involvement in M&A

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**Abstract**

This research examines the link between CEO narcissism and the engagement of financial advisors in M&A deals. Drawing on the definition and past findings of narcissistic CEOs conducting larger and more frequent M&As, this research expected that narcissistic CEOs would reduce the size of the financial advisor engagement and attempted to explore the moderators of this effect. In total, three hypotheses were tested on a sample of 157 deals. The results indicate that CEO narcissism cannot explain the size of the financial advisor engagement. Nevertheless, for smaller deal sizes and longer process lengths, there seems to be an effect.

**Keywords**

CEO narcissism, Upper Echelons, M&A, Financial Advisors

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# 1. Introduction

"Mergers and Acquisitions (M&As) constitute one of the most important activities in corporate finance, bringing about substantial reallocations of resources within the economy. In 2007 alone, when the most recent merger wave peaked, corporations spent $4.2 trillion on M&A deals worldwide. Investment banks advised on over 85% of these deals by transaction value, generating an estimated $39.7 billion in advisory fees" (Golubov, Petmezas, and Travlos 2012). This quote shows the immense importance of M&A in general and the enormous turnovers financial advisors like investment banks make in these deals. Those figures have also drawn attention from researchers to investigate the factors influencing the circumstances of M&A.

A growing number of studies focus on behavioral aspects of M&A, especially on the impact of the Chief Executive Officer (CEO) of the acquiring firm. In this context, several researchers have shown that personality biases of the acquiring CEO, such as narcissism, can lead to the excessive execution of M&A deals which, on average, are destroying shareholder value rather than creating it, as one would expect (see 2.2 CEO Personality Biases and M&A).

As stated in the opening quote, investment banks advise in most of the M&A deals, and hence, M&A advisory fees constitute a major source of revenue for them (Golubov, Petmezas, and Travlos 2012; Kolasinski and Kothari 2008). Previously, those fees, and hence the size of the financial advisor engagement, were considered to be determined exogenously by the size of the M&A deal, but this can only partially explain the variance in financial advisor fees. That is why this study examines whether narcissistic CEOs influence the size of the financial advisor engagement and how this relationship is moderated. Narcissistic CEOs could favor having fewer advisors around as they seek to be the sole decision-maker, especially on selecting the target firm. Therefore, they would not want external stakeholders like financial advisors to

interfere with the decision. Moreover, as narcissistic people are eager about being in the middle of attention, they would also want fewer advisors to be around, which would draw attention away from the CEO. Thus, this work is guided by the following research question: *Do narcissistic CEOs reduce the size of the financial advisor engagement in their M&A deals, and what are the potential moderators of this effect?*

This report makes important contributions to the M&A and financial advisor literature. First, it sheds light on an aspect of M&A characteristics not linked yet to the emerging behavioral M&A research. Specifically, to the best of my knowledge, this is the first work that tries to explore the relationship between CEO characteristics and the involvement of external financial advisors. Furthermore, it adds new insights on the determinants of the decision to engage a financial advisor and shows that the acquiring CEO might influence financial advisor involvement. Finally, my findings also have important implications for practitioners. For instance, my findings suggest that the bidding firm's corporate governance entities and stakeholders should step in the decision about the financial advisor engagement and ensure an adequate size of the engagement to 'balance' the (mis-) behavior of a narcissistic CEO.

# 2. Literature Review and Hypothesis Development

As stated in the recent literature review by Devers et al. (2020), scholars have shown an increasing interest in examining the behavioral aspects of M&A activities. In the period between 1992 and 2007, investigated by Haleblian et al. (2009), most of the research focused on market or economic factors that might affect acquisition activity. Compared to that, in the period between 2008 and 2018, approximately 40 percent of all M&A studies investigated behavioral characteristics that influence acquisitions and their consequences (Devers et al. 2020).

It has been argued that top executives in firms have a strong influence on the M&A activity of their firm. This can be theoretically backed up by the upper echelons theory (UET)

of Hambrick and Mason (1984). It states that strategic decisions and consequently organizational results - such as the decision about M&A – are influenced by individual characteristics of so-called "upper echelons" (Hambrick and Mason 1984, 196), which are managers at the highest organizational level: the top management team (TMT) including the CEO (Hambrick and Mason 1984, 196-197). They make decisions affecting their company based on their cognitive values and observable characteristics, such as their age or socioeconomic status (Hambrick and Mason 1984, 197-203). The decision about M&A related activities is such a decision, which can be influenced by the CEO's individual characteristics.

## 2.1 CEO Narcissism and Other Personality Biases

In the context of M&A, several CEO personality biases have been investigated. Predominantly, hubris and narcissism are viewed by upper echelons researchers as among the most important psychological biases of CEOs in general (Hiller and Hambrick 2005; Tang, Mack, and Chen 2018). Strategic firm choices and outcomes are influenced by CEO narcissism and CEO hubris in similar ways. Therefore, the distinction between these two similar concepts is essential. Narcissism, as a complex multidimensional concept, can be traced back to Freud (1914). The American Psychiatric Association (APA) describes the narcissistic personality disorder as “a pervasive pattern of grandiosity […], need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts” (APA 1994). The upper echelons research mostly focused on the personality variable of narcissism (also referred to as “normal narcissism”), compared to the far less common clinical personality disorder (Campbell, Goodie, and Foster 2004). Narcissism is an unstable sense of self-esteem, leading to excessive self-love to compensate for that. This excess gives narcissism its “derogatory connotation” (Kets de Vries 1994, 84) and allows it to become a psychopathological condition. Pathological narcissists “have a grandiose sense of self-importance, take advantage of and devalue others” (Hiller and Hambrick 2005, 302).

Compared to narcissism, Hayward and Hambrick (1997) as well as Tang, Mack, and Chen (2018) describe hubris as the exaggerated self-confidence or pride of an individual resulting from dispositional traits and contextual stimuli. Hubristic CEOs tend to overestimate their problem-solving abilities, the chance of success, or the control they have and are likely to fail to acknowledge and support the initiatives of other people (Campbell, Goodie, and Foster 2004; Moore and Healy 2008; Tang, Mack, and Chen 2018). Tang, Mack, and Chen (2018) distinguish between narcissism and hubris by saying that narcissistic CEOs differ from hubristic CEOs by continually needing attention and applause from others to affirm their inflated positive self-view (Campbell 1999; Raskin and Terry 1988), which is unique to narcissism. This need for attention is called "narcissistic supply" by Kernberg (1975, 273) and makes "narcissists seek to be the center of attention" (Tang, Mack, and Chen 2018, 1372). See Appendix A for a further distinction between narcissism, hubris, and overconfidence as another personality bias.

## 2.2 CEO Personality Biases and M&A

As mentioned above, several CEO personality biases have been investigated in the context of M&A. As stated by Hambrick and Mason (1984, 196), the CEO is the most powerful individual in the majority of organizations, thus allowing CEOs to influence M&A decisions. Building on that argument, Roll (1986) first introduced the "hubris hypothesis", invoking the idea that hubristic respectively overconfident CEOs make acquisitions because they mistakenly believe they can make better deals and are more competent in managing acquisitions. Similarly, they consider themselves better at running the acquired company than the incumbent management (Chatterjee and Hambrick 2007, 2011; Roll 1986). Chatterjee and Hambrick (2007) build on the portrayal of hubris from Hayward and Hambrick (1997) by interpreting that hubris is a psychological state stemming from combining external factors and intrinsic narcissistic tendencies. Thus, narcissistic personalities stir hubris, and the "hubris hypothesis" should be supplemented with the more fundamental "narcissism hypothesis" (Chatterjee and Hambrick 2007).

These hypotheses can also be supported by the findings of Meyer-Doyle, Lee, and Helfat (2019), which derive from their variance decompensation analysis that the CEO effect on acquisition behavior and performance is notably larger than firm effects.

This study groups the effects of personality biases according to Devers et al. (2020, 2-3), which clustered the behavioral acquisition literature into a three-section framework consisting of "behavioral antecedents of acquisition behavior, […] behavioral factors that influence the performance of acquisitions, [and] nonperformance behavioral acquisition outcomes".

***Behavioral antecedents of acquisition behavior***

Several studies found that bidding CEOs' psychological attributes, such as overconfidence, narcissism, extraversion, and promotion, positively influence the number of acquisitions (Devers et al. 2020, 16). First, overconfident respectively hubristic CEOs seem to make M&A offers more often, thus having a higher merger frequency, especially in diversifying and international acquisitions (Ferris, Jayaraman, and Sabherwal 2013; Malmendier and Tate 2005b, 2008). Overconfident CEOs seem to undervalue their company as a stand-alone and overvalue their ability to generate future returns from acquisitions by outperforming the incumbent management, making them more eager to conduct M&A deals (Malmendier and Tate 2008).

Additionally, CEO narcissism is also positively related to the size and frequency of M&A deals. This can be explained by the need for narcissistic individuals to reinforce their ego by undertaking large-stakes initiatives to get attention. Moreover, narcissistic CEOs negotiate faster, leading to a shorter process length, which increases the likelihood of not completing the deal (Aktas et al. 2016; APA 1994; Chatterjee and Hambrick 2007, 2011; Zhu and Chen 2015).

***Behavioral factors that influence the performance of acquisitions***

Researchers also investigated whether overconfident, hubristic, or narcissistic CEOs outperform their peers regarding the performance of their M&As. However, the opposite seems

to be the case. On average, overconfident CEOs seem to undertake value-destroying acquisitions (Billett and Qian 2008; Kolasinski and Li 2013; Malmendier and Tate 2005b, 2008; Zollo 2009). According to Malmendier and Tate (2005b, 651), overconfident CEOs underestimate the likelihood of failure. Their position of "ultimate say" about strategic decisions might induce them to believe they can also control their outcome. Roll (1986) points out that overconfidence is not an agency problem: CEOs do not overinvest in M&A to reap personal benefits such as building an empire representing a misalignment of managerial and shareholder interests (Jensen and Meckling 1976; Jensen 1986; Malmendier and Tate 2005a). Instead, they honestly believe that they are creating shareholder value while they are destroying it. Similarly, narcissism also motivates CEOs to undertake value-destroying acquisitions; however, only when controlling for the target CEO's narcissism (Aktas et al. 2016; Chatterjee and Hambrick 2007, 2011).

#### *Nonperformance behavioral acquisition outcomes*

Even though most of the research on behavioral acquisition factors still focuses on either the likelihood of occurrence or the performance of M&A, nonperformance-related outcomes, like deal completion, have become more popular among scholars, too (Devers et al. 2020).

## 2.3 CEO Narcissism and Financial Advisors

Whether CEO personality biases like narcissism also influence decisions about the engagement of financial advisors is not yet explored, to the best of my knowledge. This question can be sorted into two sections of the framework of Devers et al. (2020): into behavioral antecedents of acquisition behavior and into nonperformance behavioral acquisition outcomes.

#### *Financial advisors*

During the M&A process, several different types of advisor firms support both the bidding and the target firm. A typical M&A deal involves financial advisors as well as legal advisors and audit & accounting firms. This work focuses on financial advisors, mostly represented

by investment banks, who can advise during the entire M&A process, from the negotiation stage until the closing of the deal. They typically provide market intelligence and prepare lists of prospective target firms (Bajpai 2019; Golubov, Petmezas, and Travlos 2012). At the same time, M&A advisory fees constitute a major source of revenue for investment banks and are at least as important as equity underwriting fees to them. In some years, M&A advisory fees even far exceed them (Golubov, Petmezas, and Travlos 2012; Kolasinski and Kothari 2008).

The role of financial advisors in acquisitions has received a fair amount of attention from scholars. Golubov, Petmezas, and Travlos (2012), for instance, provide evidence that top-tier financial advisors deliver higher returns for the bidding firm than their non-top-tier counterparts. This stems from their ability to identify deals with higher synergies, rather than from their ability to provide a negotiating advantage to capture a larger part of those synergies (Bowers and Miller 1990). Furthermore, Chang et al. (2016) show that the advisor's industry expertise, especially in complex deals and when there are information asymmetries, positively affects the choice for an advisor. At the same time, acquiring firms are not willing to share the same advisor with their industry rivals to prevent information leakage (Chang et al. 2016). Lee (2013) shows that acquiring firms that repeatedly hire the same financial advisor tend to overpay for their targets. Finally, Yu and Zeng (2017) investigate in their unpublished work why acquirers switch advisors in consecutive M&As. They find little evidence that acquiring firms change advisors because of poor performance in the first deal. However, differences in deal or target firm characteristics make acquirers consider switching to another financial advisor.

***Financial advisor engagement size***

Financial advisors also serve as a signaling role to shareholders, which leads to their engagement in most M&A deals (Angwin et al. 2012; Golubov, Petmezas, and Travlos 2012). Besides, it is commonly agreed that the size of the financial advisor engagement is linked to deal complexity and deal size (Servaes and Zenner 1996; Cao and Madura 2013), thus being

exogenous. In general, this means that a larger M&A deal goes along with a larger size of the engagement, represented by the fees paid to the financial advisor. However, one can also think about the size of the engagement being endogenous, as it could be influenced by other factors than deal size, which only partially explains the variance in advisor fees (see 4.2 Correlations).

For instance, it can be argued that CEOs, as the most powerful individuals inside most organizations according to Hambrick and Mason (1984, 196), can also influence M&A related decisions such as the selection of a specific advisor firm, the size of the financial advisor engagement, or even the timing of the engagement. In that regard, Custódio and Metzger (2013) find that CEOs with experience in the target industry are 6.3% less likely to hire a financial advisor. They contend that CEOs base a judgment on their own experience rather than relying on advice from outside, thus having a real effect on the outcome of an acquisition.

I argue similarly that narcissistic CEOs want to engage fewer financial advisors, meaning that they want to reduce the size of the financial advisor's engagement for a given deal size. Several characteristics of CEO narcissism can explain this: First, narcissistic CEOs seek to be the sole decision-maker, especially during the selection of the target, and therefore would not want stakeholders like financial advisors to interfere with the decision, even though financial advisors usually only possess a supporting role. Next, as narcissistic CEOs are eager about being in the middle of attention, they would also want fewer advisors to be around, which draws attention away from them. Moreover, the impulsive behavior of narcissists affects the way they make decisions (Campbell et al. 2011) and makes them more likely to negotiate quickly (Aktas et al. 2016), which could be hampered if more advisors interfere with the negotiation process.

For an additional argumentation, why narcissistic CEOs want to reduce the size of the financial advisor engagement, see Appendix B. It shows a comparison between 9 narcissism statements of the commonly accepted “Assessment of DSM-IV Personality Disorders”

questionnaire (ADP-IV) and the reasoning of a narcissistic CEO for reducing the financial advisor engagement size. To summarize Appendix B, multiple narcissism statements in the ADP-IV can be adapted for the situation in which a narcissistic CEO influences the size of the advisor engagement. Thus, CEO narcissism could lead to smaller financial advisor engagement. I expect that the greater the narcissistic tendencies of the CEO, the smaller is the size of the financial advisor engagement, which can be measured by the fees paid to the financial advisor:

**Hypothesis 1:** *The greater a CEO's narcissistic tendencies, the smaller the financial advisor engagement, represented by the fees paid to the financial advisor.*

As this is, to the best of my knowledge, partly exploratory research in an area of M&A not studied yet, I expect the effects to be small. Additionally, it is commonly accepted that the size of the financial advisor engagement is determined by deal size to a high degree. Expecting these potentially insignificant results, I also investigate whether the deal size is a moderator for the relationship between a CEO's narcissistic tendencies and the financial advisor engagement size. Following this logic, narcissistic CEOs should have more freedom to decide about financial advisors at smaller M&A deals, as these acquisitions are relatively less important than larger deals. On the other hand, if the deal size is large, the acquisition is even more critical to the firm, and more stakeholders would be involved. This would reduce the CEO's power, so he or she cannot strongly influence the decision about the financial advisor:

**Hypothesis 2:** *The deal size moderates the relationship between a CEO's narcissistic tendencies and the size of the financial advisor engagement in such a way that the negative relationship between a CEO's narcissistic tendencies and the size of the financial advisor engagement is stronger when the deal size is small than when the deal size is large.*

Furthermore, the length of the M&A process might also influence the relationship between CEO narcissism and financial advisors. After announcing an M&A deal, the general goal

is to complete the deal as soon as possible. An overly long M&A process can be a bad signal to shareholders and is potentially embarrassing for the acquiring CEO. Narcissistic CEOs would find it exceedingly uncomfortable, as this would contradict their self-view of being superior. That is why they could blame the financial advisor by trying to renegotiate and to reduce the size of the engagement ex post to signal that it is not their fault, but the one of the advisor:

**Hypothesis 3:** *The process length moderates the relationship between a CEO's narcissistic tendencies and the size of the financial advisor engagement in such a way that the negative relationship between a CEO's narcissistic tendencies and the size of the financial advisor engagement is stronger when the process length is long than when the process length is short.*

# 3. Data and Methodology

This part outlines the methods used by means of short explanations of the sample characteristics, measures, and statistical analysis.

## 3.1 Sample and Data

My acquisitions sample covers completed deals from 2015 to 2018 and is extracted from the Thomson Reuter EIKON database. Several filters were applied to find a feasible sample set. First, I limited the sample to completed deals since comparing financial advisor fees would be limited for incomplete deals. Next, following Aktas et al. (2016), only those deals were added, in which the acquiring firm increased its share in the target firm from less than or equal to 50% (6 months prior to the announcement of the deal) to 100%. Also, both the acquiring and the target company needed to be listed publicly and needed to be headquartered in the US since I use information available only for public firms. This yielded a total of 659 deals. 165 of them included valid information about financial advisor engagement.

For the narcissism variable, I obtained general and compensation data about the CEO (and the next three highest-paid executives) of the acquiring firm from the Execucomp database.

Additionally, the missing values for almost half of the deals were obtained by manually collecting the SEC filing "DEF 14A" which comprises executive compensation data. The original date of the deal announcement was the decisive year for obtaining the executive information. For instance, the data from 2017 was used for the acquisition of Community Bank of Bergen by Sussex Bancorp, which was announced on the 10th of April 2017 and completed on the 3rd of January 2018. Eight deals did not have valid and disclosed information about the CEO's compensation and were removed from the sample, resulting in a sample size of 157 deals.

## 3.2 Measures

This section describes all of the variables. Summary statistics are provided in Table 1. All variables are defined in Appendix C.

TABLE 1
**Summary Statistics**

| Variables | Mean | Standard Deviation | Minimum | Maximum | *N* |
|---|---|---|---|---|---|
| ***Dependent Variable*** | | | | | |
| Total financial advisor fees | 12.8711 | 17.6179 | 0.0451 | 116.0000 | 157 |
| ***Independent Variables*** | | | | | |
| CEO narcissism | 0.0000 | 0.7272 | -1.1301 | 5.6956 | 157 |
| CEO relative cash pay | 2.1210 | 2.9322 | 0.1833 | 35.4543 | 157 |
| CEO relative non-cash pay | 2.1704 | 1.3570 | 0.0000 | 10.8896 | 157 |
| ***Other Variables*** | | | | | |
| Year announced | 2016.4013 | 1.1595 | 2015.0000 | 2018.0000 | 157 |
| CEO age | 56.5541 | 6.5568 | 34.0000 | 73.0000 | 157 |
| CEO gender (dummy) | 0.9682 | 0.1762 | 0.0000 | 1.0000 | 157 |
| CEO tenure | 373.8462 | 325.1214 | 1.0000 | 1702.0000 | 156 |
| CEO salary | 749.1443 | 408.9242 | 0.0000 | 2500.0000 | 156 |
| CEO bonus | 646.1920 | 1685.4076 | 0.0000 | 15200.0000 | 156 |
| CEO cash pay | 1399.5107 | 1906.7048 | 45.9360 | 17700.0000 | 157 |
| CEO non-cash pay | 4395.2702 | 6565.4780 | 0.0000 | 64660.0020 | |
| CEO total compensation | 5794.7810 | 7352.8740 | 45.9360 | 66538.2070 | 157 |
| Second-highest cash pay | 774.7214 | 923.7090 | 42.3080 | 9000.0000 | 157 |
| Second-highest non-cash pay | 2467.2730 | 4109.0871 | 0.0000 | 34540.7180 | |
| Second-highest total compensation | 3241.9944 | 4360.6573 | 201.1450 | 35649.3720 | 157 |
| Top-3 total compensation | 7584.1317 | 8949.0761 | 565.3335 | 77278.2470 | 152 |
| Process length | 211.4204 | 144.2005 | 85.0000 | 1075.0000 | 157 |
| Deal size | 4587.0079 | 11607.1762 | 10.0520 | 84197.0320 | 156 |
| Days until financial advisor added | 27.5669 | 103.6366 | 0.0000 | 903.0000 | 157 |
| Number of financial advisor firms | 1.6051 | 1.0546 | 1.0000 | 8.0000 | 157 |

***Dependent variable***

The primary dependent variable is the size of the financial advisor engagement, being measured by the total fees (in million USD) paid to the acquiring firm's financial advisor. The more fees are paid to the advisor, the larger the size of the financial advisor engagement. Statistically, this is also preferable because using a continuous dependent variable allows for computing multiple linear regression without reshaping the model. I do not consider the fees paid to the financial advisor of the target firm, as I only focus on the acquiring CEO and his or her narcissistic tendencies. See Appendix D for an explanation of why I focus on financial advisor fees rather than on the number of financial advisor '*firms'*.

***Independent variable***

I follow the argumentation of Chatterjee and Hambrick (2007), which state that the prevailing instrument for measuring narcissism, the Narcissistic Personality Inventory (NPI), is not feasible for this kind of study because CEOs are reluctant to participate in survey research. That is why questions about personality traits as sensitive as narcissism would yield especially low response rates (Cycyota and Harrison 2006), and answers would be considerably influenced by social desirability bias. That is why I choose instead to use unobtrusive indicators of narcissistic tendencies in CEOs following the measures developed by Chatterjee and Hambrick (2007). They have built a 5-item narcissism index consisting of the following proxies: "(1) the prominence of the CEO's photograph in the company's annual report; (2) the CEO's prominence in the company's press releases; (3) the CEO's use of first-person singular pronouns in interviews; (4) the CEO's cash compensation divided by that of the second-highest paid executive in the firm; and (5) the CEO's non-cash compensation divided by that of the second-highest-paid executive in the firm" (Chatterjee and Hambrick 2007, 363).

Since the first three items are not feasible to capture within the timeframe and extent of this study, I focus on the last two items, namely the CEO's relative cash (*and non-cash*)

compensation, to measure narcissistic tendencies. The CEO's relative cash pay was computed by dividing the CEO's cash compensation (salary + bonus) by that of the firm's second-highest paid executive. Similarly, the CEO's relative non-cash pay is the CEO's non-cash compensation (other annual + restricted stock grants + LTIP payouts + all other + value of option grants) divided by that of the second highest-paid executive. Using only two of these measures can be backed by comparing the correlations between the five items of Chatterjee and Hambrick (2007), which are all positive and significant at $p < .05$ at least. The correlation coefficients for cash (*and non-cash*) compensation compared with the other three items in the sample of Chatterjee and Hambrick (2007, 365) range from .24 (*.29*) to .49 (*.36*) (see Appendix E).

Relative pay is a good proxy for narcissism as CEOs are known to significantly influence the setting of their pay (Tosi and Gomez-Mejia 1989; Bebchuk and Fried 2004). At the same time, they have nearly total control over the pay of their fellow executives (Chatterjee and Hambrick 2007). Furthermore, the proxies are aligned with two of the four facets of narcissism: *superiority*/*arrogance*, *exploitativeness*/*entitlement*, *self-absorption*/*self-admiration*, and *leadership*/*authority* (Emmons 1987). S*uperiority*/*arrogance* is reflected in the CEO's relative pay by arguing that narcissistic CEOs might think that they are the most valuable person in the firm. *Exploitativeness/entitlement* is reflected by saying that they might believe they deserve far more compensation than anyone else in the firm (Chatterjee and Hambrick 2007). Theissen and Theissen (2020), with their comment on the study of Zhang et al. (2020), who investigate the relationship between CEO hubris and firm pollution using relative pay as a proxy for hubris, also argue that relative pay is a measure for narcissism rather than for hubris or overconfidence.

Moreover, relative pay being a continuous proxy for narcissism is consistent with the prevailing view in psychology, which disputes the dichotomous nature of narcissism and highlights that it is continuous (Campbell and Foster 2007). Following Aktas et al. (2016), continuity in narcissistic tendencies is also important for this study, as CEOs are successful people, and

it is unlikely that their narcissism ever becomes dysfunctional. Hence, continuity of the measure emphasizes that even low levels of narcissism can be critical.

To develop my narcissism index, I first standardized the values (mean = 0, s.d. = 1) of the two variables – cash and non-cash relative pay. The Cronbach's alpha accounts for .0841, which is lower than the acceptable level for forming an index (Nunnally 1978). On the other hand, the index only consists of two items, which lowers the alpha by definition. Keeping in mind the high Cronbach's alpha of 0.75 from the five-item index of Chatterjee and Hambrick (2007), as well as the high correlation within these five measures, I argue that it is still a useful index that can be applied in this study. Next, I calculated the simple mean of the two standardized measures for each CEO again following Chatterjee and Hambrick (2007), with the result that a CEO who averaged one standard deviation above (or below) the mean on both independent variables would receive a narcissism score of 1 (or –1). To conclude, the mean of my index is 0, and the standard deviation is .7272, very similar to the results of Chatterjee and Hambrick (2007) (mean = .02; s.d. = .71). Additionally, the results of the analysis shown in Appendix F seem to support that the index is approximately normally distributed.

## 3.3 Statistical Analysis

Before the hypotheses are tested in the next part, a mean comparison is conducted to check for differences of CEOs with high versus those with low narcissistic tendencies. Thus, the CEO narcissism variable is categorized into two bins, segregated by those above and those below the mean, which is a reasonable categorization considering the relatively normal distribution of CEO narcissism. First, there seems to be no significant difference in the number of financial advisor firms for narcissistic CEOs (mean = 1.587) than non-narcissistic CEOs (mean = 1.617). Contrary to expectation, CEOs with high narcissism pay higher financial advisor fees (mean = 16.082) than their counterparts with low narcissism (mean = 10.719). Also, when computing the average fees paid per financial advisor firm in a deal, CEOs with high narcissistic

tendencies pay higher fees (mean = 10.275) than those with low narcissistic tendencies (mean = 6.075). However, both results might be driven by narcissistic CEOs conducting larger deals (mean = 5667.067) compared to non-narcissistic ones (mean = 3874.628). As mentioned before, deal size strongly influences advisor fees. Therefore, one should examine percentage advisor fees by dividing the total fees by deal size. The percentage advisor fees for CEOs with high narcissism (mean = .782) are insignificantly lower than for those with low narcissism (mean = .810), which supports the idea of narcissistic CEOs having smaller advisor engagements.

Multiple regression analysis is applied to test the hypotheses. The strength of (significant) Pearson correlation (r), as suggested by Cohen (1988, 79-81), is interpreted as follows: small (r = .10 to .29), medium (r = .30 to .49), and large (r = .50 to 1.0). Hypothesis 1 concerns models of direct effects (Frazier, Tix, and Barron 2004). Testing hypothesis 1, financial advisor fees are regressed on CEO narcissism in a regression in which control variables are entered simultaneously with the independent variable CEO narcissism. A significant (p-value < .05) negative relationship between CEO narcissism and financial advisor fees is required to confirm hypothesis 1. Hypotheses 2 and 3 concern models of moderator effects. All variables in the moderating regressions are standardized to avoid multicollinearity effects (Frazier, Tix, and Barron 2004). Testing hypothesis 2, financial advisor fees are regressed on CEO narcissism, deal size, and the product term representing the interaction between CEO narcissism and deal size, controlling for process length and the number of financial advisor firms. Testing hypotheses 3, process length is regressed in similar ways as in testing hypothesis 2, controlling for deal size and the number of financial advisor firms. To confirm the moderator effect hypotheses, the direction or the significance of the standardized variables themselves cannot be interpreted. However, the interaction term needs to show a significant relationship with financial advisor fees (Baron and Kenny 1986). To conclude, when the regression results indicate an interaction, a slope analysis will be conducted to ensure the correct interpretation of the effects.

# 4. Results

## 4.1 Correlations

The bivariate correlations among the variables are presented in Appendix G due to space restrictions. One can derive from the matrix that the financial advisor fees are uncorrelated ($r = .06$; p-value = .4526) with CEO narcissism. Although the correlation is not significant, the positive direction is surprising, given that we expect a negative one. The positive direction can be explained by controlling for deal size, which results in a negative, but still insignificant correlation ($r = -.08$; p-value = .3050) between CEO narcissism and percentage financial advisor fees (divided by deal size). Similarly, when computing the partial correlation between CEO narcissism and advisor fees while controlling for deal size, the insignificant correlation is negative ($r = -.007$; p-value = .927). As expected, the deal size itself shares a large correlation ($r = .78$; p-value < .01) with financial advisor fees, which supports the initial statement that the size of the financial advisor engagement is largely determined by the size of the deal. Additionally, the number of financial advisor firms shows a large correlation ($r = .54$; p-value < .01) with the total financial advisor fees. Moreover, as one can expect, financial advisor fees also increase as the length of the M&A process increases ($r = .42$, p-value < .01).

Surprisingly, all subgroups (salary, bonus, cash, non-cash) of compensation, as well as the total compensation of both the CEO and second-highest paid executive, show relatively large correlations ($.25 < r < .67$, p-value < .01) with financial advisor fees. However, if one controls for deal size, the correlations become insignificant.

## 4.2 Regression Analysis

In line with the methods described in chapter 3.3 Statistical Analysis, multiple regression analysis is used to evaluate the hypotheses. The results are presented in Tables 2 and 3.

***Hypothesis 1***

Hypothesis 1 states that the narcissistic tendencies of a CEO are negatively linked to the size of the financial advisor engagement, which is measured by the fees paid to the advisor. The results are displayed in Table 2. One can infer from the results that CEO narcissism is insignificant in all models and, thus, not a good predictor for the total financial advisor fees. In fact, Model 1, where CEO narcissism is the only independent variable, is insignificant (p-value: .453), and the adjusted R Square of it is even negative (-.003). When one includes different sets of control variables, Models 2 to 4 become significant (p-value < .01) but CEO narcissism as the independent variable stays insignificant. Thus, the results do not confirm hypothesis 1.

Similarly, when computing the average fees per financial advisor firm as another dependent variable, the CEO narcissism variable is also insignificant in all models, which seems to support the disconfirmation of hypothesis 1 and the robustness of the dependent variable. The results can be found in Appendix H.

TABLE 2

**The relationship between CEO narcissism and the total fees paid to the financial advisor**

Dependent Variable: Total financial advisor fees

| | **Model 1** | | **Model 2** | | **Model 3** | | **Model 4** | |
|---|---|---|---|---|---|---|---|---|
| Variables | Beta | p-value | Beta | p-value | Beta | p-value | Beta | p-value |
| (Constant) | | 0.000 | | 0.000 | | 0.009 | | 0.329 |
| CEO narcissism | 0.060 | 0.453 | -0.090 | 0.135 | -0.006 | 0.898 | 0.070 | 0.191 |
| Process length | | | 0.186 | 0.004 | 0.145 | 0.008 | 0.079 | 0.106 |
| Deal size | | | | | 0.726 | 0.000 | 0.629 | 0.000 |
| CEO salary | | | 0.617 | 0.000 | | | -0.268 | 0.754 |
| Year announced | | | | | | | -0.045 | 0.326 |
| CEO age | | | | | | | 0.010 | 0.842 |
| CEO gender | | | | | | | 0.031 | 0.498 |
| CEO tenure | | | | | | | -0.035 | 0.478 |
| CEO bonus | | | | | | | -2.640 | 0.469 |
| CEO cash pay | | | | | | | 2.444 | 0.553 |
| CEO non-cash pay | | | | | | | -0.052 | 0.586 |
| Second-highest cash pay | | | | | | | 0.279 | 0.001 |
| Second-highest non-cash pay | | | | | | | -0.232 | 0.291 |
| Top-3 total compensation | | | | | | | 0.304 | 0.253 |
| Number of financial advisor firms | | | | | | | 0.094 | 0.110 |
| No. of observations | 157 | | 156 | | 156 | | 151 | |
| R | 0.060 | | 0.695 | | 0.791 | | 0.866 | |
| R Square | 0.004 | | 0.483 | | 0.625 | | 0.750 | |
| Adjusted R Square | -0.003 | | 0.472 | | 0.618 | | 0.722 | |
| Standard Error | 17.642 | | 12.824 | | 10.904 | | 9.390 | |
| F-statistics | 0.567 | 0.453 | 47.248 | 0.000 | 84.616 | 0.000 | 27.018 | 0.000 |

Note: Standardized coefficients are presented

Due to the strong influence of deal size on the total financial advisor fees in Model 3 and 4, additional analysis is conducted to investigate the effect of CEO narcissism on the financial advisor fees while controlling for deal size. It means computing the percentage financial advisor fees by dividing the total fees by deal size. The results can be found in Appendix I. All three models are insignificant, supporting the strong influence of deal size on financial advisor fees. These results seem to support the disconfirmation of hypothesis 1.

***Hypothesis 2 and 3***

Hypothesis 2 and 3 state that the influence of CEO narcissism on financial advisor fees is moderated by the deal size (H2) and/or the process length (H3) in such a way that the negative relationship between CEO narcissism and financial advisor fees is stronger when the deal size is small than when the deal size is large (H2), or when the process length is long than when the process length is short (H3). Table 3 shows the result of the multiple regressions for both hypotheses.

TABLE 3

**The moderation effects between CEO narcissism and deal size and process length**

Dependent Variable: Total financial advisor fees

| | **Model 1** | | **Model 2** | |
|---|---|---|---|---|
| Variables | Beta | p-value | Beta | p-value |
| (Constant) | | 0.000 | | 0.000 |
| CEO narcissism MC | -0.033 | 0.478 | -0.057 | 0.291 |
| Deal size MC | 0.797 | 0.000 | 0.731 | 0.000 |
| Process length MC | 0.132 | 0.009 | 0.118 | 0.025 |
| CEO narcissism MC x Deal size MC | -0.232 | 0.000 | | |
| CEO narcissism MC x Process length MC | | | -0.139 | 0.022 |
| Number of financial advisor firms MC | 0.092 | 0.109 | 0.106 | 0.085 |
| No. of observations | 156 | | 156 | |
| R | 0.824 | | 0.809 | |
| R Square | 0.680 | | 0.655 | |
| Adjusted R Square | 0.669 | | 0.643 | |
| Standard Error | 10.151 | | 10.539 | |
| F-statistics | 63.659 | 0.000 | 56.888 | 0.000 |

Note: Standardized coefficients are presented; MC stands for mean-centered

In Table 3, Model 1 concerns hypothesis 2. The interaction term of CEO narcissism and deal size is significant at $p < .01$. The adjusted R Square is .669, which can be interpreted in the way that the model explains 66.9% of the variance in financial advisor fees. The overall model is significant at $p < .01$, controlling for process length and number of financial advisor firms.

Model 2 covers hypothesis 3. While the overall model is also significant at $p < .01$, the interaction effect of CEO narcissism and the process length is only significant at $p < .05$, controlling for deal size and number of financial advisor firms. This lower level of significance is not reflected in the adjusted R Square, which is also relatively high at .643. Hence, the model explains 64.3% of the variance in the financial advisor fees.

The results shown in Table 3 indicate an interaction for hypotheses 2 and 3, which is why a slope analysis will be conducted next to ensure the correct interpretation of the effects.

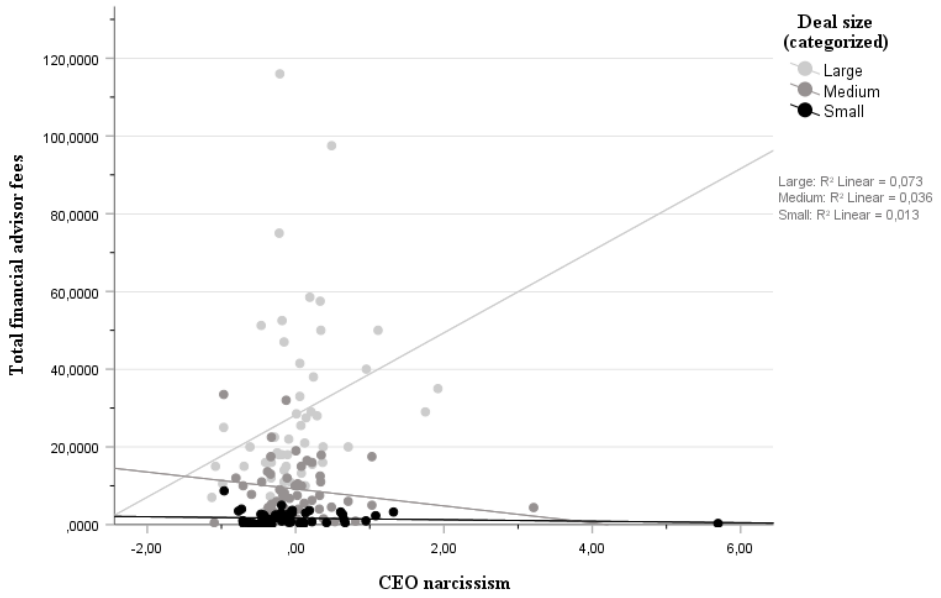
***Further analysis***

Regarding hypothesis 2, the moderation effect between CEO narcissism and the size of the M&A deal seems to have a significant (at $p < .01$) influence on the total fees paid to the financial advisor. Graph 1 shows a grouped scatter plot between CEO narcissism and total financial advisor fees, grouped by deal size, to deduce the direction of the effect. For this purpose, the continuous variable deal size is categorized into three equally sized bins using the 33- and 66-percent percentiles. A linear fit line is shown for each deal size group.

One can infer from Graph 1 that CEO narcissism might have a positive relationship (R Square Linear = .073) with advisor fees for large deal sizes (light grey line). If one looks at medium-sized deals (dark grey line), the slope of the linear fit line turns around and lets us assume a negative relationship (R Square Linear = .036) between CEO narcissism and advisor fees. For smaller deal sizes (black line), the relationship (R Square Linear = .013) also seems

to be negative but not as strong as for medium-sized deals. Considering the significance of the interaction term between CEO narcissism and deal size, the results confirm hypothesis 2.

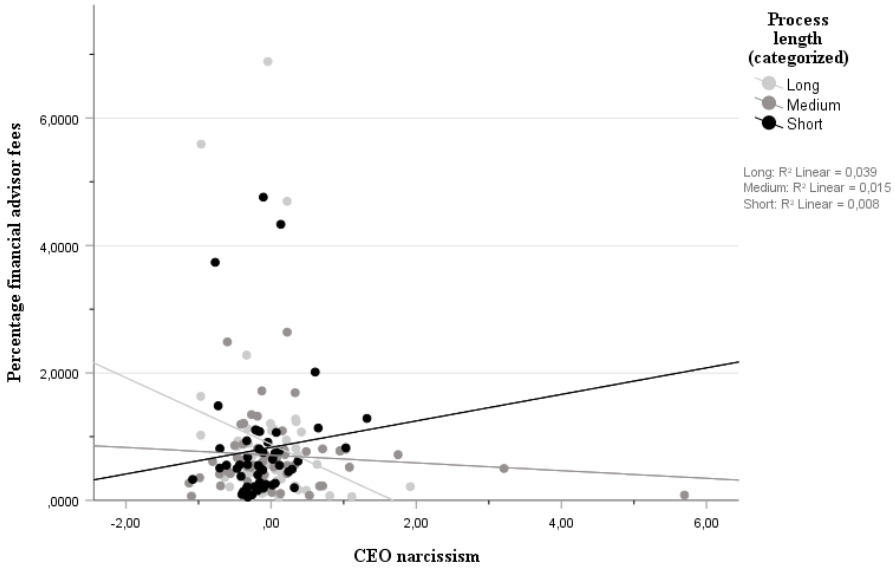
**Graph 1: The moderation effect between CEO narcissism and deal size**




Regarding hypothesis 3, the moderation effect between CEO narcissism and the length of the M&A process seems to have a significant (at $p < .05$) influence on the total fees paid to the financial advisor. Graph 2 shows a grouped scatter plot between CEO narcissism and the percentage financial advisor fees, grouped by the continuous variable process length, categorized into three equally sized bins using the 33- and 66-percent percentiles. In Graph 1, it is not possible to control for deal size as it is part of the interaction term, whereas, in Graph 2, I use the relative advisor fees (total fees as a percentage of deal size) to control for the strong effect of deal size. A linear fit line is again shown for each process length group.

One can infer from Graph 2 that the relationship between CEO narcissism and relative advisor fees is positive for short process lengths (black line) (R Square Linear = .008). It reverses and becomes negative for medium (dark grey line) (R Square Linear = .015) and long process lengths (light grey line) (R Square Linear = .039). Considering the significance of the interaction term between CEO narcissism and process length, the results confirm hypothesis 3.

**Graph 2: The moderation effect between CEO narcissism and process length**




# 5. Discussion

Drawing on the description of how CEO narcissism respectively narcissistic tendencies might influence the fees paid to the financial advisor, hypothesis 1 posited that CEO narcissism would be negatively related to financial advisor fees. However, total, average, and relative fees did not seem to depend on CEO narcissism, which disconfirmed hypothesis 1.

Hypothesis 2 and 3 were based on the idea of moderating variables influencing the relationship between CEO narcissism and financial advisor fees. Hypothesis 2 postulated that the size of the deal might moderate the relationship between CEO narcissism and financial advisor fees. The results of the regression analysis confirmed the moderating effect, controlling for process length and the number of financial advisor firms. Further analysis confirmed hypothesis 2, indicating that CEO narcissism has a negative relationship with financial advisor fees for small and medium-sized deals, whereas the relationship is the opposite for larger deals. The results support the argument that smaller deals are relatively less important to the firm than larger deals. Hence, a narcissistic CEO should have more power in smaller deals.

Hypothesis 3 stated that the length of the deal process might moderate the relationship between CEO narcissism and advisor fees. The results of the regression analysis confirmed the

moderating effect, controlling for deal size and number of advisor firms. Further analysis confirmed hypothesis 3, indicating that the effect of CEO narcissism on advisor fees is negative for long (and medium) process lengths. For shorter lengths, the effect reverses. This could be explained by narcissistic CEOs being sensitive to public embarrassments such as a long M&A process. Hence, they could try to blame the advisor and renegotiate the size of the engagement.

In summary, the outcomes give a mixed picture. CEO narcissism, as an independent variable, cannot explain the size of the financial advisor engagement. Nevertheless, for smaller deal sizes and longer process lengths, there seems to be an effect.

## 5.1 Theoretical and Practical Implications

This research builds on the "hubris hypothesis" of Roll (1986), which was supplemented by the "narcissism hypothesis" of Chatterjee and Hambrick (2007). The results contribute to both the behavioral acquisition as well as the financial advisor literature and build on the findings of Custódio and Metzger (2013). They found that CEOs with experience in the target industry are less likely to hire a financial advisor.

The results show that CEO narcissism is not related to the size of the financial advisor engagement. This is inconsistent to some degree with previous findings, which suggested that CEO effects on acquisition behavior are larger than firm effects. Considering that narcissistic CEOs have the power to conduct larger and more frequent M&A deals, one could expect that they can also influence other M&A related decisions such as the size of the financial advisor engagement. However, narcissistic CEOs seem to either not have the power or the interest to influence that. The significant moderation effect of deal size supports the idea that it is the lack of power rather than the lack of interest that prevents narcissistic CEOs from reducing the size of the engagement. For smaller and medium-sized M&A deals, there seems to be a negative effect. This might indicate that narcissistic CEOs can only influence the size of the financial

advisor engagement for smaller deals, which should be less important to the overall firm than a larger acquisition. The findings of the significant moderation effect of process length support the argumentation that narcissistic CEOs are embarrassed by the potential failure of an M&A and hence could try to find someone else to blame for this.

Finally, my findings also have important implications for practitioners. My findings suggest that corporate governance entities and stakeholders of the M&A process should step in the decision about the financial advisor engagement at an early stage of the process and ensure an adequate size of the engagement to 'balance' the (mis-) behavior of a narcissistic CEO.

## 5.2 Limitations and Strengths

One strength of this study is its nature of being partly exploratory in an area of M&A not studied yet. Moreover, using unobtrusive indicators of narcissistic tendencies allows capturing personality traits as sensitive as narcissism, unaffected from social desirability bias. Next, relative pay being a continuous narcissism proxy is consistent with the prevailing view of narcissism in psychology and emphasizes that even low levels of CEO narcissism can be important.

This research also has several limitations. To start, as the financial advisor engagement serves as a signaling role, financial advisor fees are determined to a high degree by deal size, leaving only little variance for other factors. Furthermore, financial advisor fees do not directly measure the size of the engagement. The fees could be influenced by other factors, such as the negotiation skills of the company's procurement department. Moreover, although it has been argued that relative pay measures narcissism rather than hubris or overconfidence, I do not hypothesize about narcissism but about something that is arguably linked to narcissism. Also, since capturing all five items of Chatterjee and Hambrick (2007) was not feasible within the timeframe and extent of this study, I focus only on the last two items. This leads to a low Cronbach's alpha, which, despite the relatively high correlation coefficients with the three other

items, limits the validity of my narcissism measure. Moreover, narcissistic CEOs could still engage financial advisors for signaling reasons but could choose not to listen to them. Furthermore, CEO narcissism is not independent of deal size, as narcissistic CEOs tend to conduct larger M&A deals. This leads to difficulties in interpreting the moderating effect of deal size on advisor fees as both can be simultaneously influenced by CEO narcissism. Lastly, the moderating effect of process length cannot be fully theoretically explained, as the size of the financial advisor engagement is generally decided at the beginning of the process. It is unclear whether a CEO would have the power to renegotiate and reduce the engagement size ex post.

## 5.3 Directions for Future Research

Future research should work around these limitations, for instance, by applying more advanced measures for CEO narcissism in this context. Future research is also invited to investigate whether narcissistic CEOs engage financial advisors 'later' in the process. They might only use advisor skills for less strategic tasks in later stages compared to more strategic ones in early stages, such as the target selection. Another interesting field worth examining could be the relationship between narcissistic CEOs in both the bidding and the target firm and how this could intertwin with the engagement of financial advisors on both sides.

## 5.4 Conclusion

Value-destroying and excessive M&As have drawn attention to CEO personality biases in the context of M&A. This research has addressed the relationship between CEO narcissism and the engagement of financial advisors. However, CEO narcissism seems not to be a strong determinant for the size of the engagement in general, although there seems to be an effect for smaller deal sizes and longer process lengths. Nevertheless, this work contributes to the behavioral acquisition literature providing more detailed knowledge about narcissistic CEOs in the context of M&A for both future research and stakeholders of the M&A process.

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# Appendix

## Appendix A: Further distinction between personality biases

Both CEO narcissism and CEO hubris involve the concept of overly positive self-assessment (Hiller and Hambrick 2005). Therefore, Hiller and Hambrick (2005) use the psychological concept of 'core self-evaluation' to further differentiate the construct of executive self-concept, or similar, hubris. The four dimensions are *self-esteem*, *self-efficacy*, *locus of control*, and *emotional stability*. In this context, besides being the center of the narcissism construct, self-importance also accounts for one part of managerial hubris, namely a very high level of self-esteem. As explained, both CEO narcissism and CEO hubris share the theme of overly positive self-assessment. That is why the existing literature theorized them as being closely correlated. Tang, Mack, and Chen (2018) found in their work, where they analyzed the differential effect of CEO narcissism and CEO hubris on the amount of a firm's corporate social responsibility, that the two constructs share a correlation coefficient of 0.11, being significant at $p < .05$. Hence, in general, firm behavior seems to be influenced by the two upper echelons' psychological biases in similar ways (Tang, Mack, and Chen 2018).

Another psychological bias in this context is overconfidence. It has been conceptualized as the overestimated certainty about producing a specific outcome or being correct (Russo and Schoemaker 1992; Hiller and Hambrick 2005, 302). Malmendier and Tate (2008, 22) define overconfidence as "the overestimation of outcomes related to own abilities (such as IQ or managerial skills)". Often, overconfidence and hubris are being used interchangeably by research (Tang, Mack, and Chen 2018). However, overconfidence, being a milder form of hubris in some sense, is often viewed by researchers to not emanate from individual differences (Hiller and Hambrick 2005, 302-306). Besides, overconfidence and narcissism also positively correlate with a correlation coefficient of .29, being significant at $p < .01$.

## Appendix B: ADP-IV statements and financial advisor reasoning

The argumentation, why narcissistic CEOs want to reduce the size of the financial advisor engagement can also be backed up, using the "Assessment of DSM-IV Personality Disorders" questionnaire (ADP-IV). It is a self-report measure for "Diagnostic and Statistical Manual of Mental Disorders" (DSM) personality disorders like narcissism. The ADP-IV is commonly accepted in Europe and used to assess personality traits and distress characteristics (Schotte et al. 1998; Schotte et al. 2004). The ADP-IV questionnaire is specially designed for personality traits that can be problematic and difficult to change. The person taking the test needs to answer 94 "I"-statements on a scale from 1 to 7. 12 personality traits can be tested using the ADP-IV, one of which is narcissism. 9 out of the 94 statements are directly associated with narcissism. One can find the German version of the ADP-IV on the website of the Medical University of Vienna (MedUni). Table 4 shows a comparison between each of these nine narcissism statements (translated to English) and how this statement could influence a CEO's decision about a financial advisor's engagement.

TABLE 4

**Narcissism statements and the decision about financial advisor engagement size**

(*NA* stands for not applicable.)

| No. | ADP-IV Item No. | ADP-IV Statement | Narcissistic CEO's reasoning behind having a smaller financial advisor engagement |
|---|---|---|---|
| 1 | 7 | *"To my surprise, others find me complacent, even though I have excellent skills and accomplish extraordinary things."* | *"I am the only one who is capable of choosing the right target. Financial advisors do not generate added value for the deal."* |
| 2 | 19 | *"I frequently find myself envisioning realities in which I am very successful, powerful, great, beautiful, or popular."* | *"I will be the only one who gets the admiration and attention of this M&A deal."* |
| 3 | 31 | *"Since I am unique and extraordinary, only extraordinary people can understand me; I only want to deal with top people."* | *NA* |
| 4 | 43 | *"Compared to others, I need much more admiration and attention to feel comfortable."* | *"I do not want to share the admiration and attention of a well-executed M&A."* |

| | | | |
|---|---|---|---|
| 5 | 55 | *"I am convinced that I am someone who deserves priority and who is entitled to preferential treatment."* | *NA* |
| 6 | 67 | *"I believe it is completely normal and acceptable to use others as a means to achieve what I want."* | *NA* |
| 7 | 79 | *" I find it exhausting to show understanding for or interest in the feelings and needs of others."* | *NA* |
| 8 | 89 | *"While most people envy me for my abilities and successes, I still find it unfair that some people are undeservedly even more successful than I am."* | *"I enjoy the upcoming envy for a successful M&A deal, and I do not want to share this success with another party, such as financial advisors."* |
| 9 | 93 | *"The amateur-like behavior and bumbling around of others demands a lot of patience from me."* | *"Even though financial advisors should be experts in their field, I am still superior and more efficient when they are not around."* |

Source: MedUni

## Appendix C: Variable definitions

| Variable | Definition |
|---|---|
| ***Dependent Variable*** | |
| Total financial advisor fees | The total amount of fees paid to the financial advisor by the acquiring firm (in Million $) |
| ***Independent Variables*** | |
| CEO narcissism | The mean of the standardized variables CEO relative cash pay and CEO non-cash pay |
| CEO relative cash pay | The total cash (salary + bonus) compensation of the acquiring CEO divided by the total cash compensation of the second-highest paid executive in the firm |
| CEO relative non-cash pay | The total non-cash (Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants) compensation of the acquiring CEO divided by the total non-cash compensation of the second-highest paid executive in the firm |
| ***Other Variables*** | |
| Year announced | The year of the original announcement of the deal |
| CEO age | The age of the acquiring CEO in years |
| CEO gender (dummy) | Dummy variable: the gender of the acquiring CEO (1 for male, 0 for female) |

| | |
|---|---|
| CEO tenure | The tenure of the acquiring CEO at original announcement of the deal (measured in weeks; to address error in measurement) |
| CEO salary | The annual salary of the CEO (in Thousands $) |
| CEO bonus | The annual bonus of the CEO (in Thousands $) |
| CEO cash pay | The total cash (salary + bonus) compensation of the CEO (in Thousands $) |
| CEO non-cash pay | The total non-cash compensation of the CEO (Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants) (in Thousands $) |
| CEO total compensation | The total compensation of the CEO (Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants) (in Thousands $) |
| Second-highest cash pay | The total cash (salary + bonus) compensation of the second-highest paid executive (in Thousands $) |
| Second-highest non-cash pay | The total non-cash compensation of the second-highest paid executive (Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants) (in Thousands $) |
| Second-highest total compensation | The total compensation of the second-highest paid executive (in Thousands $) |
| Top-3 total compensation | The sum of the total compensation of the next three highest paid executives in the firm (in Thousands $) |
| Process length | The length of the entire M&A process, measured by the difference (in days) between the day of the original annoucement of the deal and the day the deal got effective |
| Deal size | The total size of the M&A deal (in Million $) |
| Days until financial advisor added | The difference (in days) between the day of the original announcement of the day and the day the financial advisor of the acquiring firm was added |
| Number of financial advisor firms | The number of acquiror financial advisor firms |

## Appendix D: Financial advisor fees compared to financial advisor firms

I do not focus on the absolute number of financial advisor '*firms'* in a specific deal as a dependent variable in this model. While fees reflect the total size of the advisory engagement for an M&A deal, the number of firms shows how many different advisor firms are employed. This variable contains less information for this work's research question, as narcissistic CEOs might prefer to have a smaller total engagement of financial advisors, whereas having only fewer financial advisor firms might not be of strong interest to them. For instance, a narcissistic CEO could hire two financial advisor firms, both with relatively small engagements. At the same time, a non-narcissistic CEO could engage only one financial advisor firm but with a relatively large engagement.

## Appendix E: Correlations of five measures of CEO narcissism

*Descriptive Statistics and Correlations (2-year averages, Pearson correlations) of Five Indicators of Narcissistic Tendencies (N = 111) from the study of Chatterjee and Hambrick (2007)*

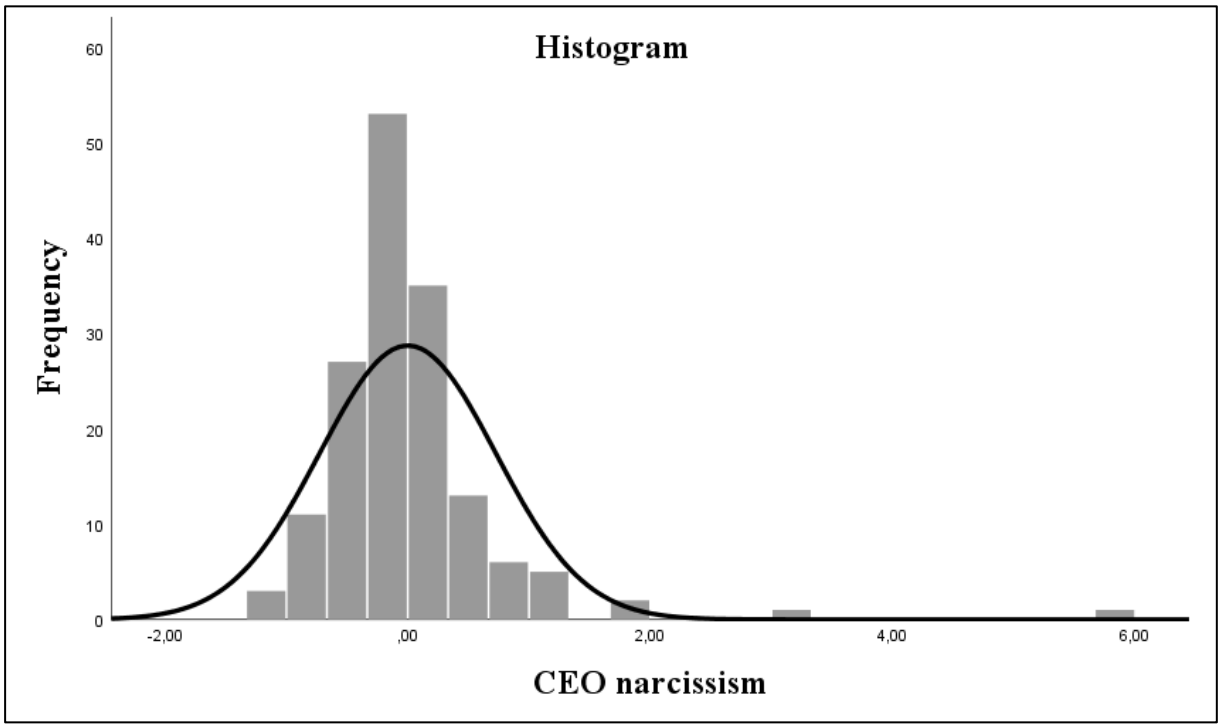
| Variable | Mean | Standard Deviation | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1. CEO prominence in annual reports | 2.52 | 0.79 | | | | |
| 2. CEO prominence in press releases | 6.21 | 3.09 | .37** | | | |
| 3. Use of first-person singular pronouns | 0.21 | 0.09 | .43** | .39** | | |
| 4. CEO relative cash compensation | 1.65 | 0.72 | .49** | .24** | .32** | |
| 5. CEO relative non-cash compensation | 2.55 | 2.35 | .33** | .29* | .36** | .51** |

* p < .05; ** p < .01

Source: (Chatterjee and Hambrick 2007)

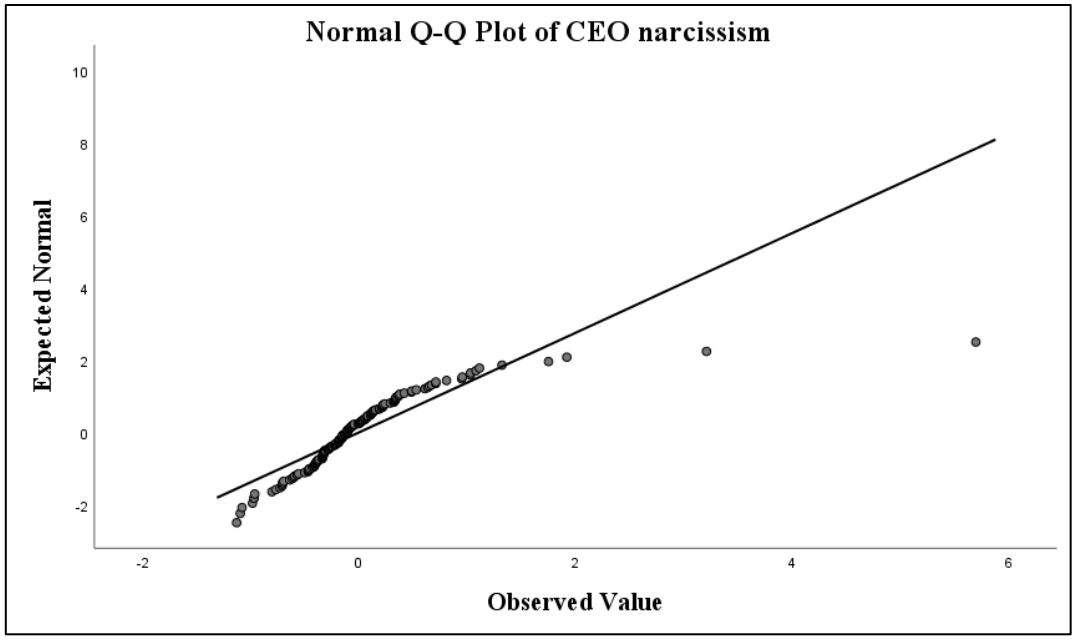
## Appendix F: Normal distribution of CEO narcissism

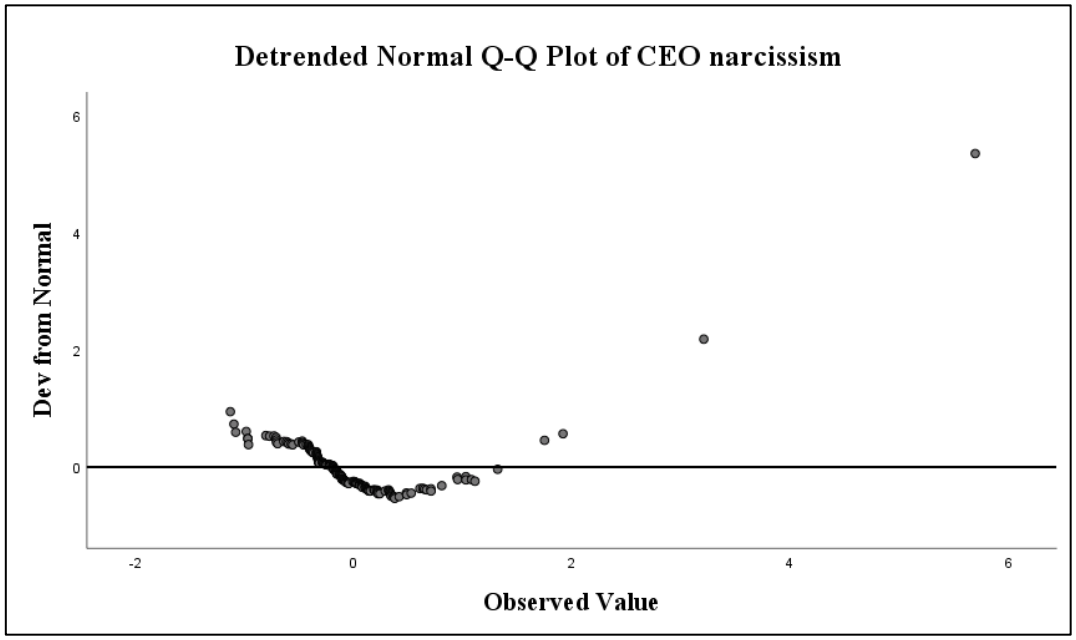
To test for normal distribution, the skewness and kurtosis of the CEO narcissism index are compared to those of the normal distribution at first. Ideally, both values should be zero, which would represent a perfectly normal distribution. However, the skewness of the index is 3.860, which shows that the distribution is skewed right, respectively, that there are more CEOs with lower narcissistic tendencies than those with strong narcissistic tendencies. The kurtosis is 25.640, which shows that the distribution is leptokurtic, respectively peaked. This deviation from the ideal normal distribution can also be seen when comparing the distribution of the narcissism index with the normal distribution curve (black line) in the following histogram.




Next, the levels of significance of the Shapiro-Wilk and the Kolmogorov-Smirnov test are below .000, which disconfirms the null hypothesis that the narcissism index is normally distributed. However, since the sample (n = 157) is relatively large, one must be careful when interpreting these tests' results.

Therefore, one should also graphically analyze the Q-Q plot, which maps the observed values compared to the values expected under a normal distribution, as well as the detrended Q-Q plot, which similarly compares the deviation of the observed values from the values under a normal distribution.




The results indicate that CEO narcissism might be approximately normally distributed to some degree, but there are some extreme outliers for very strong narcissistic tendencies.

# Appendix G: Correlation Matrix

**Correlation Matrix**

| Pearson Correlation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** Total financial advisor fees | | | | | | | | | | | | | | | | | | | | |
| **2** Number of financial advisor firms | .54** | | | | | | | | | | | | | | | | | | | |
| **3** CEO relative cash pay | -.05 | .05 | | | | | | | | | | | | | | | | | | |
| **4** CEO relative non-cash pay | .14 | -.05 | .06 | | | | | | | | | | | | | | | | | |
| **5** CEO narcissism | .06 | .01 | .73** | .73** | | | | | | | | | | | | | | | | |
| **6** Year announced | -.06 | -.06 | -.07 | .13 | .04 | | | | | | | | | | | | | | | |
| **7** CEO age | .19* | .15 | -.24** | .02 | -.16 | .04 | | | | | | | | | | | | | | |
| **8** CEO gender (dummy) | .09 | .04 | .05 | .12 | .12 | .09 | -.20* | | | | | | | | | | | | | |
| **9** CEO tenure | .01 | .00 | -.05 | .07 | .01 | -.05 | .41** | -.05 | | | | | | | | | | | | |
| **10** CEO salary | .67** | .45** | .08 | .27** | .24** | .03 | .25** | .12 | .13 | | | | | | | | | | | |
| **11** CEO bonus | .25** | .28** | .15 | .14 | .20* | .04 | .18* | .06 | .20* | .47** | | | | | | | | | | |
| **12** CEO cash pay | .36** | .35** | .15 | .18* | .23** | .04 | .21** | .08 | .20* | .63** | .98** | | | | | | | | | |
| **13** CEO non-cash pay | .52** | .54** | .01 | .20* | .15 | .12 | .15 | .09 | .04 | .63** | .18* | .29** | | | | | | | | |
| **14** CEO total compensation | .56** | .57** | .05 | .23** | .19* | .12 | .19* | .10 | .09 | .72** | .42** | .52** | .97** | | | | | | | |
| **15** Second-highest cash pay | .33** | .29** | -.09 | .01 | -.06 | .07 | .24** | .06 | .22** | .44** | .76** | .76** | .23** | .40** | | | | | | |
| **16** Second-highest non-cash pay | .34** | .49** | -.05 | -.19* | -.17* | .14 | .09 | .07 | .00 | .28** | .04 | .10 | .71** | .66** | .17* | | | | | |
| **17** Second-highest total compensation | .39** | .52** | -.07 | -.18* | -.17* | .14 | .13 | .07 | .05 | .36** | .20* | .25** | .71** | .70** | .37** | .98** | | | | |
| **18** Top-3 total compensation | .45** | .54** | -.07 | -.12 | -.13 | .17* | .15 | .06 | .03 | .44** | .24** | .30** | .79** | .78** | .37** | .95** | .98** | | | |
| **19** Process length | .42** | .30** | .00 | .06 | .04 | -.16* | .12 | .03 | .00 | .38** | .18* | .24** | .30** | .33** | .15 | .17* | .19* | .22** | | |
| **20** Deal size | .78** | .53** | .00 | .12 | .08 | -.04 | .19* | .06 | .04 | .64** | .47** | .55** | .45** | .55** | .35** | .28** | .34** | .40** | .37** | |
| **21** Days until financial advisor added | .13 | .10 | .07 | -.01 | .04 | -.22** | -.04 | .03 | -.12 | .07 | .01 | .02 | -.02 | -.01 | -.02 | -.01 | -.01 | -.01 | .74** | .04 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

# Appendix H: Average fees per financial advisor firm

**The relationship between CEO narcissism and the average fees paid per financial advisor firm**

Dependent Variable: Average fees per financial advisor firm

| | **Model 1** | | **Model 2** | | **Model 3** | |
|---|---|---|---|---|---|---|
| Variables | Beta | p-value | Beta | p-value | Beta | p-value |
| (Constant) | | 0.000 | | 0.197 | | 0.390 |
| CEO narcissism | 0.113 | 0.158 | -0.004 | 0.959 | 0.074 | 0.342 |
| Process length | | | 0.164 | 0.025 | 0.200 | 0.005 |
| CEO salary | | | 0.484 | 0.000 | -0.535 | 0.671 |
| Year announced | | | | | -0.059 | 0.388 |
| CEO age | | | | | 0.018 | 0.812 |
| CEO gender | | | | | 0.050 | 0.450 |
| CEO tenure | | | | | -0.094 | 0.195 |
| CEO bonus | | | | | -4.960 | 0.356 |
| CEO cash pay | | | | | 5.265 | 0.386 |
| CEO non-cash pay | | | | | -0.016 | 0.908 |
| Second-highest cash pay | | | | | 0.160 | 0.196 |
| Second-highest non-cash pay | | | | | -0.280 | 0.385 |
| Top-3 total compensation | | | | | 0.500 | 0.199 |
| Number of financial advisor firms | | | | | -0.372 | 0.000 |
| No. of observations | 157 | | 156 | | 151 | |
| R | 0.113 | | 0.566 | | 0.672 | |
| R Square | 0.013 | | 0.321 | | 0.452 | |
| Adjusted R Square | 0.006 | | 0.307 | | 0.396 | |
| Standard Error | 8.352 | | 6.986 | | 6.562 | |
| F-statistics | 2.016 | 0.158 | 23.926 | 0.000 | 8.016 | 0.000 |

Note: Standardized coefficients are presented

# Appendix I: Percentage financial advisor fees

**The relationship between CEO narcissism and the percentage fees paid to the financial advisor (as a percentage of deal value)**

Dependent Variable: Percentage financial advisor fees

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| Variables | Beta | p-value | Beta | p-value | Beta | p-value |
| (Constant) | | 0.000 | | 0.000 | | 0.953 |
| CEO narcissism | -0.083 | 0.305 | -0.064 | 0.446 | 0.016 | 0.878 |
| Process length | | | -0.005 | 0.957 | -0.009 | 0.925 |
| CEO salary | | | -0.067 | 0.459 | -1.317 | 0.429 |
| Year announced | | | | | 0.005 | 0.955 |
| CEO age | | | | | 0.169 | 0.095 |
| CEO gender | | | | | -0.017 | 0.850 |
| CEO tenure | | | | | -0.075 | 0.428 |
| CEO bonus | | | | | -5.250 | 0.459 |
| CEO cash pay | | | | | 5.873 | 0.463 |
| CEO non-cash pay | | | | | -0.086 | 0.642 |
| Second-highest cash pay | | | | | 0.050 | 0.759 |
| Second-highest non-cash pay | | | | | 0.033 | 0.938 |
| Top-3 total compensation | | | | | 0.060 | 0.906 |
| No. of observations | 156 | | 155 | | 151 | |
| R | 0.083 | | 0.105 | | 0.203 | |
| R Square | 0.007 | | 0.011 | | 0.041 | |
| Adjusted R Square | 0.000 | | -0.009 | | -0.050 | |
| Standard Error | 0.982 | | 0.989 | | 1.019 | |
| F-statistics | 1.059 | 0.305 | 0.557 | 0.644 | 0.455 | 0.946 |

Note: Standardized coefficients are presented