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CEO NARCISSISM IN M&A DECISION-MAKING AND ITS IMPACT ON FIRM PERFORMANCE

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Abstract

Using a large sample of about 1,900 M&A deals from 1993 to 2005, and data on more than 3,100 CEOs, I explore merger and acquisition activities from a psychological perspective, and provide another explanation for M&A motives and associated firm stock performance. Specifically, I empirically test if highly narcissistic CEOs are more likely to conduct mergers or acquisitions than lowly narcissistic CEOs. I also examine the impact of high level of CEO narcissism on the market reaction to firm M&A announcements, and also long run post-M&A stock returns. In addition, I empirically investigate the impact of the parallel CEO narcissistic tendency of target firm on acquiring firm M&A performance. Three proxies for CEO narcissism are used in this study: Holder67, a CEO option exercise-based measure, CEO media portrayal, and a third new measure based on the formal content analysis of actual CEO speech.

I find empirical evidence that CEOs with high level of narcissism are more likely to conduct mergers and acquisitions than other CEOs. My results also suggest that a high level of acquiring firm CEO narcissism has a significantly negative impact on acquiring firm short run M&A performance. Post-acquisition, I find that deals conducted by highly narcissistic CEOs significantly underperform those by lowly narcissistic CEOs. Moreover, my results show that a high level of target firm CEO narcissism similarly negatively affects acquiring firm short run M&A performance.

In an additional analysis, I find that the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is stronger and the impact of CEO narcissism on firm M&A performance is more negative in large firms than that in smaller firms. My results also show that the negative impact of CEO narcissism on firm short run M&A performance is strongest when both acquiring firm and target firm CEO narcissism coexist concurrently. However, I find that the level of CEO narcissism is negatively associated with the quality of corporate governance, and the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is weaker in firms with good corporate governance than that in firms with poorer corporate governance, which may suggest that effective corporate governance mechanisms might play positive roles in curbing CEO narcissistic tendencies and in helping to ameliorate, to some extent, the adverse impact of high level of CEO narcissism on firm M&A decision making.

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Chapter 1 Introduction

This chapter introduces the thesis together with the background and motivation for the research. The chapter consists of seven sections. Section 1.1 introduces the background to this research. Section 1.2 presents the research gaps and raises my research questions. On the basis of the research questions, Section 1.3 clarifies the aims of this research. Section 1.4 outlines the research approach. An overview of the key findings is provided in Section 1.5. Section 1.6 states the research contributions and outlines the suggestions for future research. Finally, Section 1.7 introduces the basic structure of the thesis.

1.1 Background of this study

The strategic management and psychology literature views managers as being prone to a high degree of narcissism in their personalities, and this narcissistic tendency is particularly widespread among CEOs. One reason is that such personality traits of high narcissism (HN) managers, such as high levels of outward self-confidence, enthusiasm, and a strong drive to attain prestige, help such individuals to rise to powerful positions within an organization (Lubit, 2002). As a result, HN managers are more likely to become CEOs than low narcissism (LN) managers. The literature suggests that a narcissistic personality can play an important role in CEO decision-making, and consequently have a significant impact on firm performance. As HN CEOs have very inflated self-views (Campbell, Goodie, and Foster, 2004), they tend to be overconfident in their abilities to achieve positive results. Their excessive optimism and self-confidence, together with their intense need for attention

and applause, another important trait of a narcissistic personality, can thus lead CEOs to engage in dramatic and attention-attracting behaviours, such as mergers and acquisitions (Chatterjee and Hambrick, 2007). The aim of this study is to explore empirically the role and impact of such a CEO narcissistic tendency in M&A activity.

M&A activity is one of the best studied phenomena in finance, and there is an extensive research literature exploring both the acquiring firm long run post-acquisition performance and short run announcement period performance. The majority of studies report negative abnormal returns over the longer-term post-M&A time horizon, which suggests that M&A deals at the aggregate level underperform in the long run. However, although the research results about M&A short run (announcement) performance are more mixed, nonetheless, many studies that find positive announcement returns also suggest that those for the acquiring firms are very small and almost all of the gains go to the target firms (Asquith, 1983; Bradley, Desai, and Kim, 1983).

So, if there is no gain for acquiring firm shareholders, why do we observe so many mergers and acquisitions occurring in the market place? What are the real drivers of these deals? What are the factors that lead to the generally negative long run post-acquisition performance? Various interpretations are offered in the literature from the traditional finance perspective, which assume that managers always make rational M&A decisions; however this may not always be the case in reality. In this study, I explore the potential role that CEO narcissistic tendencies, as characterized by an inflated sense of self-importance, overestimation of self-ability and

achievement, and excessive seeking of admiration (Lubit, 2002), may play in helping to explain such paradoxical M&A behaviour.

As early as 1986, Richard Roll proposed a “hubris hypothesis” for takeovers. He argues that the hubris of the individual decision makers in the bidding firms may result in overbidding. Since then, more and more academics have begun to study the apparent M&A “anomaly” from a behavioural perspective, arguing, for example, that managers may be prone to such cognitive biases as overconfidence in their acquisition decisions. Based on a sample of 330 takeovers, Berkovitch and Narayanan (1993) report evidence that hubris drives many takeover decisions. Fanto (2001) also provides evidence of the presence of behavioural biases (or psychological factors) during the decision-making process of mega-mergers, in his psychologically-oriented study. In particular, he reports the existence of over-optimism bias in the Banc One/FC deal (1998), Daimler/Chrysler deal (1998), NationsBank/BA (1998), Norwest/Wells Fargo (1998), Travelers/Citicorp (1998), MCI/Sprint deal (1999), Qwest/US West deal (1999), AOL/TW (2000), Chase/J.P. Morgan (2000), Chevron/Texaco (2000), and Firstar/U.S. Bancorp (2000). Malmendier and Tate (2008) conduct an empirical study to explore whether CEO overconfidence is related to the likelihood of conducting an M&A deal, and the associated market reaction to the announcement event, using a sample of 477 large Forbes firms from 1980 to 1994. Their results suggest that CEO overconfidence can be one of the drivers of the merger decision and it has a negative impact on firm short run stock price performance around the announcement date of the deal, consistent with Roll (1986).

However, the psychology and management literature (e.g. Kets de Vries, 1990) argues that a narcissistic personality stirs hubris or overconfidence and it is the more ingrained trait (Chatterjee and Hambrick, 2007). Therefore, in this study, I treat hubris or overconfidence as a trait of narcissism and thus work with the term "narcissism", staying away from the label "hubris" or "overconfidence". Further justification of my use of the term "narcissism" and more discussion about the associated conceptual issues are presented in section 2.3.3.2.

1.2 Research gaps and research questions

Based on a comprehensive review of the extant literature, I identify five research gaps.

First, very limited attempts have been made to study empirically the role and impact of a CEO narcissistic personality in the context of M&A deals based on a large recent sample of firms across the full size spectrum.

Second, prior studies mainly focus on the effects of CEO overconfidence on firm short run M&A performance, and very few researchers have looked at the impact of such overconfidence on firm long run post-acquisition performance.

Third, previous studies only consider the CEO overconfidence in acquiring firms, failing to take any parallel bias among target firm CEOs into account when examining the impact of CEO overconfidence on firm performance.

Fourth, extant work is constrained to use imperfect and indirect proxies for CEO overconfidence. Some of these proxies may suffer from the "non-deal-specific" problem, which therefore calls for the development of a "deal-specific measure.

Finally, the terms "hubris" and "overconfidence", widely used in the finance area, are very loose concepts and their definitions are inconsistent in the extant literature. Some academics (Kwan and colleagues, 2004) claim that many inconsistent findings and arguments about "hubris" or "overconfidence" may result from the obscure definitions of these concepts, as most previous related studies tend to use these different definitions interchangeably. The problems associated with the use of such loose and ill-defined terms call for a more fundamental and coherent concept – narcissism.

To fill these research gaps, I conduct an empirical study to explore the link between the level of CEO narcissism and the likelihood of the CEO conducting an M&A deal, and to examine the impact of such a narcissistic tendency (of both acquiring firm CEOs and target firm CEOs) on acquiring firm short run M&A announcement performance and long run post-acquisition performance, using a large recent sample of 2,129 firms across the full size spectrum from 1993 to 2005.

Specifically, the following four main research questions are raised in this study: (1) Are highly narcissistic CEOs more likely to conduct M&A deals than lowly narcissistic CEOs? (2) What is the impact of the degree of acquiring firm CEO narcissism on the market reaction to the M&A announcement? (3) What is the impact

of the extent of acquiring firm CEO narcissism on acquiring firm long run post-acquisition performance? (4) What is the impact of the level of target firm CEO narcissism on acquiring firm M&A performance?

Besides the four main research questions, in order to further investigate the impact of CEO narcissism on M&A activities in firms of different sizes, the relationship between the quality of corporate governance and CEO narcissism, and the impact of concurrent coexistence of acquiring firm CEO narcissism and target firm CEO narcissism, I also raise three additional questions as follows: (1) Does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms? (2) Can good corporate governance help to ameliorate the potential adverse consequences (if any) of CEO narcissism on shareholder wealth in the context of M&A? (3) What is the impact of CEO narcissism on firm M&A performance when such narcissistic tendency exists in both the acquiring firm and the target firm concurrently?

In addition, I introduce into my study the psychology-based concept “narcissism” which has already been widely applied in the managerial literature. I also attempt to measure this personality construct more directly by content analyzing the CEO’s actual narratives about the particular M&A deal.

1.3 Research aims

Based on my research questions, I further refine my research aims as follows:

(1) To empirically test the link between CEO narcissism and the probability of a CEO conducting M&A deals and provide new evidence based on a large sample of firms and CEOs.

(2) To investigate if the market reacts to the M&A deals conducted by highly narcissistic CEOs and those by lowly narcissistic CEOs differently. If it does, what is the relationship between the market reaction and the level of CEO narcissism? Positive or negative?

(3) To explore empirically the impact of acquiring firm CEO narcissism on acquiring firm performance over the two-year post-acquisition time window, controlling for other factors.

(4) To test if CEO narcissistic tendency in target firm has any effects on acquiring firm short run and long run M&A performance by including the proxy variable of target firm CEO narcissism in my regression models.

(5) To explore the role of corporate governance in helping ameliorate the potential negative impact (if any) of CEO narcissism in M&A activities.

(6) To examine if CEO narcissism in large firms have the same (or same degree of)

impact on M&A decision-making and firm performance as that in small firms.

(7) To construct a new content analysis-based measure of CEO narcissism.

1.4 Research approach

The research method I use has three parts: (1) regression models to test the hypotheses I establish, (2) an event study approach, and (3) the development of appropriate metrics to measure CEO narcissism.

To address the questions and fill the research gaps, a set of hypotheses are established based on the extant literature in this area which are then tested through regression analyses. Two types of regression model are employed in this study – the logistic regression model and OLS multivariate regression model. The logistic regression is conducted to explore the role of CEO narcissism in the firm's M&A decision-making, with the binary dependent variable equal to 1 if the firm announces at least one deal (successful bid and completed deal) in a specific firm year, and 0 otherwise, and with the main independent dummy variable *HN* equal to 1 for a highly narcissistic CEO, and 0 otherwise, together with a group of control variables. The OLS multivariate regression models are employed to examine the potential impact of CEO narcissism on firm short run M&A performance and long run post-acquisition performance. The dependent variable in these regressions is either announcement period CAR (cumulative abnormal return) or post-acquisition BHAR (buy-and-hold abnormal return), which are derived using an event study approach.

To test the established hypotheses, I first need to address two methodological issues: how to calculate CAR and BHAR and how to construct the variable *HN* (the measure of CEO narcissistic tendency).

In this research, the event study approach is employed to evaluate firm M&A announcement period, and long run post-acquisition performance. In the short run event study, I calculate the CARs of the acquiring firms over the announcement time window based on the market model. For the purpose of robustness check, I use both the CRSP equally weighted and value weighted index as the market indices, and Ordinary least squares (OLS) and Scholes-Williams betas as the methods of parameter estimation of the market model. In the long run event study, I calculate the BHARs for the acquiring firms over a relatively long post-acquisition period, using the benchmark portfolio method, as introduced in section 4.3.3.

Another important methodological issue in this study is the measure of CEO narcissism. Three alternative measures of CEO narcissism are employed, two non-M&A deal-specific measures of CEO narcissism already used in the literature, the Holder67 proxy (a CEO unexercised in-the-money option-based measure), and CEO portrayal in the financial press (CEO media portrayal keyword count), together with a new measure based on formal content analysis of actual CEO comments about the particular acquisition bid. The rationale of these measures and the way to construct them are detailed in section 4.2.

1.5 Main results

A series of analyses are conducted to address my research questions. The key results are summarised in this section.

In my first logistic regression analysis, aiming to investigate the link between the level of CEO narcissism and the likelihood of conducting an M&A deal, my results demonstrate that high narcissism CEOs are almost 40% more likely to conduct mergers and acquisitions than low narcissism CEOs, which is consistent with Malmendier and Tate's (2008) finding and provides new supporting evidence for Roll (1986), Gervais, Heaton and Odean (2003), and Aktas et al (2005). This strong relationship between CEO narcissism and acquisitiveness behaviour might be interpreted in four ways. First of all, high narcissism CEOs might be more likely to conduct an M&A deal if they (often) mistakenly believe they can perform better than target firm CEOs due to their narcissistic personality inter alia characterised as excessive confidence in their own abilities. Second, such CEO narcissistic tendency may lead to an increase in the bid premium that the CEO is prepared to pay leading to an increase in the probability of winning the auction. Third, my results are also consistent with the proposition in the strategic management literature that high narcissism CEOs may be using M&A activity as a way of gaining attention and admiration. And finally, my findings may reflect such key characteristics of the narcissistic personality as "glory-building", "excitement-seeking", etc (Chatterjee and Hambrick, 2007; Lubit 2002).

Besides the degree of CEO narcissism, I also find that some other factors have a

significant impact on firm acquisitiveness. First of all, my results suggest that the CEOs of larger firms are more likely to conduct M&A deals than the CEOs of small firms. This size effect can be explained in two ways. First, large firms usually have fewer financial constraints compared to small firms when making M&A decisions. Second, the CEOs of larger firms might have a greater propensity to exhibit a high degree of narcissism because of their associated greater power, authority, reputation or public profile. In addition, I find that the firms with higher cash flows are more likely to conduct M&A deals, which is consistent with the traditional free cash flow hypothesis that firms with rich cash flow tend to invest more. Moreover, my results suggest that firms with a high Tobin's Q are more likely to conduct M&A deals than those with a low Tobin's Q, which can be explained by the Q theory of mergers (Servaes, 1991) that M&A activity can be a response to profitable reallocation opportunities.

In my second regression analysis, I examine the impact of acquiring firm CEO narcissism on firm M&A announcement performance (short run performance). My results show a significant negative association between the level of CEO narcissism and firm M&A announcement cumulative abnormal returns. I also calculate the average CAR for the deals conducted by high narcissism CEOs and by low narcissism CEOs respectively, and the results show that the average (-1,+1) three-day CAR for the deals conducted by high narcissism CEOs is 61 basis points below that for the deals by low narcissism CEOs. These findings suggest a significant negative impact of CEO narcissism on acquiring firm short run (announcement) performance, consistent with Malmendier and Tate (2008). In this regression analysis, I also find

that the cumulative abnormal return over the announcement period for cash payment deals is higher than that for non-cash payment deals; the short run performance of small acquirers is better than that of large acquirers; and the market reaction to the deals conducted by firms with good corporate governance is better than that to the deals conducted by firms with poor corporate governance. The possible interpretations of these findings are detailed in Chapter 6.

My third regression analysis aims to examine the effects of CEO narcissism on firm long run post-acquisition performance. I find a significantly negative relationship between acquiring firm CEO narcissism and a firm's 2 year post-acquisition buy-and-hold abnormal return, and the results show that the M&A deals conducted by high narcissism CEOs significantly underperform those conducted by low narcissism CEOs in the (1, 24) month event window by between -1.7% and -2.4%. In the long run analysis, these findings support the propositions (Chatterjee and Hambrick, 2007) that a CEO's narcissistic tendency can destroy shareholder value in the long run. Besides CEO narcissism, I also find that CEO vested option holding is positively associated with firm long run post-acquisition performance; cash payment deals perform better in the long run; and an effective corporate governance mechanism has a significant positive impact on firm long run post-acquisition performance. The explanations for these results are also presented in Chapter 6.

My fourth and fifth regression analysis aim to explore the impact of target firm CEO narcissism on acquiring firm M&A announcement (short run) performance and its long run post-M&A performance. My results demonstrate a negative relationship

between the level of target firm CEO narcissism and acquiring firm M&A announcement period CAR across all my three models (based on three alternative measures for CEO narcissism). These results thus suggest that a high level of CEO narcissistic tendency in the target firm has a negative effect on the market reaction to the announcement of the M&A deal, which provides supporting evidence for the speculative proposition raised in the unpublished working paper of Malmendier and Tate (2003). This negative impact might be interpreted in terms of an "overpayment" argument that high narcissism target firm CEOs may believe that they can manage the firm at least as well as the bidding firms' CEOs (or are more "entitled" to do this) and therefore require a higher bid premium, which may lead bidders to pay more than the optimal premium to win the deal. It seems that the market may be identifying such an overpayment and discount the value of the acquiring firm's share accordingly. On the other hand, in the long run analysis, I do not find any significant impact of target firm CEO narcissistic tendency on the acquiring firm's 2-year post-acquisition buy-and-hold abnormal return. However, it is possible that the impact of target firm CEO narcissism may be swamped by many other factors in the long run.

Based on my main analyses, I also conduct a series of additional analyses to further explore the impact of CEO narcissism on M&A activities in firms of different sizes, the role and impact of corporate governance in curbing CEO narcissism and ameliorating associated adverse effects in M&A, and the impact of the concurrent coexistence of acquiring firm CEO narcissism and target firm CEO narcissism on firm M&A performance. .

My first additional analysis is to address the question “Does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms?”. My results show that the positive link between CEO narcissism and the likelihood of a CEO conducting a deal is stronger in large firms than that in small firms. I also find that CEO narcissism has more negative impact on firm short run and long run M&A performance in large firms than in small firms. It appears that the problems associated with the high level of CEO narcissism in M&A activities are severer in large firms than in smaller firms. Higher CEO compensation and more public attention might be two possible explanations for these findings. CEOs of large firms usually have higher compensation and attract more public attention, compared with those of small firms. A CEO’s inflated self-image may be further reinforced by such high level of compensation and public attention, which may result in a higher degree of CEO narcissism and consequently cause a more negative impact on firm M&A decision-making and performance.

My second additional analysis is to address the question “Can good corporate governance help to ameliorate the potential adverse consequences (if any) of CEO narcissism on shareholder wealth in the context of M&A?”. I report evidence that the level of CEO narcissism is negatively associated with the quality of corporate governance (measured as corporate governance index). In other words, a high level of CEO narcissism is associated with poor corporate governance, and a low level of CEO narcissism is associated with strong corporate governance. Furthermore, in my logistic regression analysis, I find that the positive link between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals is stronger in firms

with poor corporate governance than in firms with good corporate governance.

These findings may suggest that effective corporate governance may help to curb CEO narcissism somewhat and mitigate its adverse impact in M&A decision-making to some extent. Strong corporate governance mechanisms may play important roles in dealing with the problems associated with high level of CEO narcissism in such ways as identifying highly narcissistic individuals at early stage and preventing them from rising to the position of CEO in the first place, removing value-destroying high narcissism CEOs before they do more harm, curbing the absolute power of high narcissism CEOs, and effectively monitoring the decision-making process .

My final additional analysis is to address the question "What is the impact of CEO narcissism on firm M&A performance when such narcissistic tendency exists in both the acquiring firm and the target firm concurrently?". I report the most negative impact of CEO narcissism on firm short run M&A (announcement) performance when acquiring firm and target firm CEO narcissism coexist concurrently. This result might be interpreted as the exacerbated overpayment problem resulting from the coexistence of acquiring firm and target firm CEO narcissism. As high narcissism target firm CEOs are likely to overvalue their firm or to be overconfident about their own ability to create value (believe they can create at least as much value as bidding firm's management team), they may require a higher than optimal bid premium. On the other hand, high narcissism CEOs of bidding firms are more likely to accept such a higher than optimal premium as they are overconfident about their ability to extract value from the deal or they have a deep feeling of entitlement to win the bid.

Therefore the existence of high level of CEO narcissism on both sides may result in a more serious overpayment problem. It appears that the market is able to identify this severer overpayment problem and discount it in share price more heavily.

1.6 Contributions and future research

This study contributes to the literature along 6 dimensions. First of all, my results provide original empirical evidence about the role of CEO narcissism in M&A decision-making and extend our understanding of the effects of managerial narcissism on firm performance and shareholder value. Compared with Malmendier and Tate (2008), the more comprehensive sample structure in this study allows me to investigate my research questions more completely and draw much stronger conclusions from my analysis. Second, to the best of my knowledge, this study is the first to empirically examine the impact of target firm CEO narcissism on M&A performance. Third, this study also empirically examines the impact of CEO narcissism on firm long run post-acquisition performance; most previous studies only focus on the short run (announcement period) effects of such narcissistic tendencies. Fourth, I develop a novel measure of CEO narcissism based on the formal content analysis of CEO speeches and discourses about the specific M&A deal, which may help to overcome some drawbacks associated with the previous Holder67 and CEO media portrayal proxies used to measure “overconfidence”. Fifth, my study highlights the potential role of effective corporate governance mechanisms in addressing the problems associated with high level of CEO narcissism. Finally, drawing on the strategic management and psychology literature, I explicitly introduce into my study the psychology-based construct of “narcissism”, which has

both motivational and cognitive dimensions (Chatterjee and Hambrick, 2007) to help explain the motivation and performance of M&A deals. This is a richer and more coherent construct which goes beyond “overconfidence” or “hubris”.

However, I also admit the limitations of this study, which in turn suggest several opportunities for future research. First, underlying theory relating to CEO narcissism can be further developed and more refined ways of measuring this construct should be delineated. Related to this, a more comprehensive set of keywords that can capture different aspects of CEO narcissism needs to be developed and used to construct my media portrayal measure in any future study. Second, the potential role of specific corporate governance mechanisms (e.g. board structure, compensation package, ownership structure, etc.) in reducing the problems arising from CEO narcissism needs to be further explored. Third, my current study could be extended to investigate the role and impact of CEO narcissism in other corporate finance areas such as IPOs, capital structure decisions and dividend policy, etc, not only in M&A deals. Finally, using other methodologies, such as surveys and personality questionnaires may provide rich sources for us to construct more direct and robust measures of CEO narcissism and generate other interesting results.

1.7 Structure of the thesis

This thesis consists of eight chapters. In Chapter 1, starting by introducing the background and motivation for this study, I present my research questions and aims. The chapter then describes the research methods and data and briefly discusses the main findings and conclusions. The contributions, limitations, and future research are

also outlined in this chapter.

Chapter 2 presents the extant relevant literature from which the research gaps are identified and the testable hypotheses developed. The following streams of literature are reviewed: research about M&A performance (short run and long run); research on M&A motivations; the literature about the concept, role, and impact of the narcissistic personality, and papers about the closely-related constructs of managerial overconfidence and hubris. Based on this comprehensive literature review, I identify the research gaps and raise my research questions.

To address the research questions, in Chapter 3, I develop five main hypotheses based on the finance, strategic management and psychology literature. Hypothesis 1 addresses the relationship between acquiring firm CEO narcissism and M&A decision-making. Hypothesis 2 and 3 relate to the potential impact of acquiring firm CEO narcissism on firm M&A short run (market reaction) and long run post-acquisition performance. Hypothesis 4 and 5 focus on the potential impact of target firm CEO narcissism on acquiring firm M&A performance.

To empirically test my established hypotheses, I need to address the following three methodological issues: (1) How to measure CEO narcissism?; (2) How to calculate firm short run M&A (announcement) and long run post-acquisition performance?; and (3) How to examine the link between CEO narcissism and M&A decision-making and performance. Therefore, in Chapter 4, I first introduce my three measures of CEO narcissism – Holder67, the CEO option exercise based measure,

media portrayal, and content analysis of CEO speech. Then I present the event study methods used to evaluate the firm M&A announcement period performance and long run post-acquisition performance. Finally, I introduce my regression models (including the definitions of the variables) employed to test the developed hypotheses.

To empirically test the established hypotheses, the following six groups of data are required: (1) CEO data; (2) firm data (firm characteristics and performance data); (3) M&A data; (4) CEO media portrayal data; (5) CEO speeches about M&A deals; and (6) other supplementary data. Chapter 5 details the data sources, sampling process, data selection criteria, and data descriptions for these datasets.

Chapter 6 provides and discusses the main results of this study. Starting by investigating firm M&A performance (short run and long run), I then conduct a series of regression analyses to examine the role and impact of CEO narcissism on M&A activity. The results are presented in two parts. First, I show and discuss the results of my event studies on acquiring firm short run and long run M&A performance. In the short run study, I report and analyse acquiring firm M&A announcement period abnormal return (AR) and cumulative abnormal return (CAR) based on two models (the market model and the Scholes-Williams Model) and two market indices (CRSP equally weighted index and value weighted index) respectively. In the long run study, I report and discuss acquiring firm buy-and-hold abnormal return based on the benchmark portfolio approach over relatively long post-acquisition time horizons. I also compare my CAR and BHAR results of

acquirers with previous studies. Second, I present and discuss the results of my regression analyses in testing the hypotheses that aim to address my research questions. More specifically, the results of five sets of regressions are reported: logistic regressions to explore the relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals, regressions to examine the impact of acquiring firm CEO narcissism on firm M&A short run (announcement) performance (market reaction), regressions to test the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance, regressions to explore the impact of the target firm CEO narcissism on acquiring firm M&A short run (announcement) performance, and regressions to examine the impact of the target firm CEO narcissism on acquiring firm long run post-acquisition performance.

In addition to the main analyses in Chapter 6, in Chapter 7, I also address my additional research questions relating to the impact of CEO narcissism on M&A activities in firms of different sizes, the role and impact of corporate governance in curbing CEO narcissism and ameliorating associated adverse effects, and the impact of the concurrent coexistence of acquiring firm CEO narcissism and target firm CEO narcissism. I first develop a set of additional hypotheses relating to my additional research questions. Then I introduce the regression models used to test these hypotheses. Finally, the results of my additional analyses are presented and discussed.

Chapter 8 summarises the empirical results of this study, discusses the main findings and draws conclusions relating to my research questions. It also presents the main contributions and implications of this study. In addition, the limitations of my current

work are also discussed and suggestions for future study are provided.

Chapter 2 Literature review

2.1 Introduction

In this chapter, I review previous work related to my current research. As the aim of this work is to explore the role of CEO narcissism in M&A decision-making and its impact on firm M&A short run and long run performance, this study relates to two strands of literature: (1) M&A literature (M&A performance and drivers of M&A activities); and (2) the literature relating to CEO narcissism. For the first strand of literature, I review studies on M&A long run performance, short run performance, and drivers of M&A activities respectively. For the second strand of literature, I first review research relating to the narcissistic personality in the psychology and strategic management literature; and then I review the studies on closely related constructs in the extant finance literature.

The aim of this chapter is to identify research gaps and raise my research questions through a comprehensive review of the relevant studies in the finance, psychology and management literature. This review is important for the establishment of my testable hypotheses, the identification of control variables, and the discussion of my findings in later sections.

This chapter is organized as follows. Section 2.2 explores the M&A literature. M&A long run performance, short run performance, and motivations are reviewed and discussed respectively in sub-sections 2.2.1, 2.2.2, and 2.2.3. Section 2.3 examines

the concept and role of CEO narcissism in managerial behaviour. It consists of three sub-sections. Sub-section 2.3.1 reviews the concept of narcissism in the personality and psychology literature. 2.3.2 discusses previous studies on CEO narcissism in the strategic management literature. Sub-section 2.3.3 reviews two closely-related constructs – hubris and overconfidence – in the extant finance literature. In the second part of sub-section 2.3.3, I also discuss the labelling issues associated with these constructs and justify my introduction of the CEO narcissism concept in this study. Section 2.4 summarizes this chapter, identifies the research gaps and raises my research questions.

2.2 Literature review about M&A performance and drivers of M&A activities

M&A is one of the most significant and important phenomena in corporate finance. Merger and acquisition activities also have a great impact on corporate short run and long run performance. The majority of extant studies have explored the drivers and performance of M&A deals. In the following sub-sections, the studies of long run post-acquisition performance, short run M&A (announcement) performance, and motivations for M&As are reviewed respectively.

2.2.1 Review of long run post-acquisition performance

The majority of studies on M&A performance report negative abnormal returns over the long post-M&A time horizon (e.g. Dodd and Ruback, 1977; Conn, Cosh, Guest, and Hughes, 2003; Asquith, 1983; Loderer and Martin, 1992; Malatesta, 1983; Kennefy and Limmack, 1996; Gregory, 1997; Agrawal, Jaffe, and Mandelker, 1992;

Kohers and Kohers, 2001; Louis, 2002; Varaiya and Ferris, 1987; Ferris and Park, 2001; Rosen, 2003; Langetieg, 1978), suggesting that M&A deals, on average, may destroy firm value in the long run.

Although Malatesta (1983) and Franks, Harris, and Titman (1991) posit that it is possible that the observed long run abnormal returns might just be statistical artefacts or results of inappropriate benchmarks being used, many studies report negative long run post-M&A abnormal returns consistently when employing a range of different benchmarks and calculation techniques. For example, Gregory (1997) conducts a comprehensive study on the long run post-acquisition returns of acquiring firms in the UK. His data set consists of all successful UK deals (bidder value is more than £10 million) between 1984 and 1992. Six different models (CAPM, DM[1], SS[2], a multiple-index model, a value-weighted multiple-index model, and the Fama French three-factor model) are used to calculate abnormal returns. He reports significantly negative two-year CAARs[3] ranging from -0.1182 to -0.18 across all six models. Gregory (1997) together with a lot of other studies (e.g. Kennedy and Limmack, 1996; Ferris and Park, 2001; Rosen, 2003 etc) suggest that the observed negative post-acquisition abnormal returns are not just statistical artefacts, but reflect real post-M&A underperformance.

Post-M&A underperformance leads to two questions. First, if M&A deals do not create value (or even destroy firm value), why have so many M&A deals been conducted? Second, how to explain such long run M&A underperformance? In this

[1] Dimson and Marsh risk and size adjustment model.
[2] Simple size control-portfolio-model.
[3] Cumulative average abnormal returns.

study, I propose that that CEO narcissism can be at least a possible driver[4], among others, of M&A deals and an alternative explanation for long run post-M&A underperformance. The relevant literature about CEO narcissism is reviewed in Section 2.3 and associated hypotheses are established in Chapter 3.

2.2.2 Review of short run M&A performance

In the literature of short run M&A performance, although more of the previous studies report significant positive cumulative abnormal returns around the deal announcement[5] than those that report negative returns[6], the empirical results are rather mixed and less clear than those relating to long run performance.

In addition to the research on the sign (positive or negative) of short run M&A abnormal returns, some studies focus on the effect of some deal characteristics (e.g. business relatedness and payment method) on firm short run M&A performance. For example, Sicherman and Pettway (1987) examine the impact of the relatedness of activities between acquiring firm and target firm on acquiring firm short run (announcement) abnormal returns, utilizing a sample of 147 US mergers and acquisitions taking place between 1983 and 1985. Their results show that announcement period cumulative abnormal returns in the case of mergers or

[4] Other drivers of M&A activities are reviewed in Section 2.2.3.

[5] E.g. Kummer and Hoffmeister, 1978; Jarrell and Bradley, 1980; Malatesta, 1983; Sicherman and Pettway, 1987; Bradley, Desai and Kim, 1982, 1988; Lang, Stulz, and Walkling, 1989; Jarrell and Poulsen, 1989; Maquieira, Megginson, and Nail, 1998; Kohers and Kohers, 2000, 2001; Leeth and Borg, 2000; Floreani and Rigamonti, 2001; Fuller, Netter, and Stegemoller, 2002; Rosen, 2003; Bouwman, Fuller, and Nain, 2003; Bhagat, Dong, Hirshleifer, and Noah, 2005; Moeller, Schlingemann, and Stulz, 2005; Bradley, 1980.

[6] E.g. Asquith, Bruner, and Mullins, 1987; Morck, Shleifer, and Vishny, 1990; Servaes, 1991; Healy, Palepu, and Ruback, 1992; Kaplan and Weisbach, 1992; Byrd and Hickman, 1992; Berkovitch and Narayanan, 1997; Mulherin and Boone, 2000; Walker, 2000; Houston, James, and Ryngaert, 2001; Delong , 2001, 2003; Kuipers, Miller, and Patel, 2003; Moeller, 2005.

acquisitions of related businesses are significantly higher than those in the case of unrelated businesses.

Healy, Palepu, and Ruback (1997) report consistent results in their study of the 50 largest US industrial takeovers over the period 1979-1984. They find that the short run performance of a merger of acquisition is better when the acquirer and the target have highly overlapping businesses than in the case of a deal involving the acquisition of unrelated businesses. Fan and Goyal (2006) also show that vertical mergers generate significantly larger positive wealth effects than diversifying mergers in their study of a larger sample of 2,162 completed mergers over a longer period of time (1962-1996).

In addition, previous studies suggest that another deal characteristic, method of payment, may also have an impact on short run M&A performance. For example, Travlos (1987) examines the impact of method of payment on firm announcement period abnormal returns using a sample of 167 M&A deals for the period 1972 through 1981. A significant difference in acquiring firm abnormal returns between stock offers and cash offers is reported. Stock returns of stock-financing bidding firms are significantly negative during the event announcement period, whereas shareholders of cash-financing bidding firms earn a “normal” return on the announcement of a takeover. Travlos claims that his results are consistent with the signalling hypothesis, which proposes that the use of stock as the payment method conveys the negative signal that the bidding firm’s stock is overvalued, and therefore the market reacts negatively.

Besides deal characteristics, previous studies suggest that some firm characteristics (e.g. Tobin's Q, corporate governance, ownership structure, etc) may also have an impact on M&A performance. For example, Lang, Stulz, and Walkling (1989) (LSW) use a sample of 211 successful tender offers over the period 1968-1980 to examine the relationship between Tobin's Q and takeover gains. They find that the stock returns for high Q bidders are significantly higher than the stock returns for low Q bidders. They claim that, as Tobin's Q is a measure of managerial performance, their results are consistent with the view that takeovers of targets with poor management teams by well-managed acquirers have higher gains. However, the sample used by LSW consists only of tender offers, and some important variables such as deal attitude (hostile versus friendly), payment method, and relative size of target and bidder are not controlled for. Therefore, building upon LSW (1989), Servaes (1991) re-examines the relation between M&A gains and Tobin's Q using a sample of 704 mergers and tender offers over the period 1972-1987. Consistent with LSW (1989), he finds that announcement period returns for a bidder are larger when the bidder has a high Tobin's Q and the target has a low one. However, Servaes shows that LSW's results hold not only for tender offers, but also for mergers. Furthermore, the relation between M&A gain and Q ratio is even stronger when additional takeover characteristics are taken into account.

Byrd and Hickman (1992) explore the impact of another characteristic of firm, corporate governance, on firm M&A short run performance. Specifically, they test the relation between one important aspect of corporate governance, outside directors,

and bidding firm announcement period abnormal return, utilizing a sample of 128 tender offer bids made between 1980 and 1987. They report a negative announcement return for bidding firms over the 2 day event (announcement of tender offer) window (-1, 0). However, bidding firms with at least fifty percent of board seats held by independent outside directors have significantly higher (less-negative) announcement period abnormal returns than bidding firms with less then fifty percent of the board seats held by independent outside directors. This evidence confirms the traditional view that independent outside directors can efficiently monitor the M&A decision-making process on behalf of shareholders' interests.

Besides the characteristics of acquiring firm (e.g. Tobin's Q and corporate governance of acquiring firm), pervious studies suggest that some characteristics of target firm (e.g. high-tech status, growth stage of target firm, etc) may also have a significant impact on firm M&A short run performance. For example, Kohers and Kohers (2000) report that announcement cumulative abnormal returns for acquirers of high-tech targets are significantly positive. In addition, they suggest that growth stage of target and relative size of target may also influence bidder announcement returns.

In summary, through reviewing the literature on short run M&A performance, I identify deal or firm characteristics that may have impact on firm short run announcement returns, such as business relatedness, payment method, Tobin's Q, corporate governance, ownership structure, high-tech status, growth stage of target firm, and relative size of target. Therefore, in this study, I control for these factors in

my regression models when testing the impact of CEO narcissism on firm M&A performance.

2.2.3 Review of the literature on the drivers of (motivations for) mergers and acquisitions

Previous studies in both finance and strategic management show that that mergers and acquisitions may be driven by a complex variety of motives. Some main explanations given in the literature for M&A activities are efficiency (synergies), managerial competition (the market for corporate control), Q-theory, and the agency problem.

In the strategic management literature, efficiency theory as an explanation of mergers and acquisitions is well established. According to this theory, purpose of mergers and acquisitions is to achieve synergies. Academics in the strategic management area often divide synergies into three categories: financial synergies, operational synergies, and managerial synergies. Financial synergies refer to the synergies resulting from the lower costs of capital after mergers or acquisitions, which can be achieved in two ways. One way is to reduce the systematic risk of a company (or a company's investment portfolio) through the acquisition of unrelated businesses. The other way is to increase firm size though mergers or acquisitions, with the larger firm generally believed to have greater ability to gain access to cheaper capital. Operational synergies resulting from the combining of the operations of different business units and/or from knowledge transfers (Porter, 1985) may reduce the production costs of the business units within the corporation. Operational synergies may also improve the company’s ability to provide unique products and services. The third type of

synergy, managerial synergy, usually results from the bidder's managers' superior management skills. However, there is very limited empirical evidence supporting this efficiency theory. Synergy effects in M&A activities are not detected in many studies (e.g. Rumelt, 1986; Montgomery and Singh, 1984).

A derivative of efficiency theory, the management competition model, is proposed by Jensen (1986). This model views takeover as a market for corporate control. Managers who perform poorly are threatened by outside competing management teams, which provide an external incentive on the incumbent managers to improve performance. Jensen (1984, 1986) provides supportive evidence for his management competition model.

Related to management competition model, Q-theory of investment is used by academics in the economics and finance area to explain both motivation for the M&A and post-M&A performance. (Q is the ratio of firm market value to its replacement cost of capital). Servaes (1991) proposes that mergers are a channel through which capital flows to better projects and better management.

However, some studies cast doubt on these management competition-based models. For example, Porter (1987) and Ravenscraft and Scherer (1987) find that acquiring firm performance (operating performance) is actually below-average prior to a merger or acquisition, and target firm performance (operating performance) prior to a merger or acquisition is above-average, which is not consistent with the management competition model argument.

Unlike efficiency theory, management competition model, and Q-theory of investment, the agency theoretic explanation for M&A activities (i.e. the agency problem) takes a different perspective. According to this theory, managers tend to maximize their own utility, instead of shareholder value, in conducting mergers or acquisitions (Rhoades, 1983; Black, 1989), and consequently this agency problem may destroy firm value in the long run.

All of the theories or models reviewed above, except the agency problem, have their limitations in explaining the well-documented long run post-acquisition underperformance in the literature. According to efficiency theory, management competition model, and Q-theory of investment, M&A activities should enhance firm value through achieving synergies or removing ineffective management teams. However, most empirical evidence on M&A long run performance reported in the literature is contradictory to the predictions of these models. Although the agency problem may help to explain the motivation for M&A and long run post-M&A underperformance to some extent, it has its limitation in explaining that many CEOs conduct value-destroying M&A deals with no private benefits gained. Therefore, to better understand the causes and consequences of M&A activities, we need to further explore other explanations. In this study, I propose that CEO narcissism could be a possible driver, among others, of M&A activities and may provide an alternative explanation for M&A performance. .

2.3 CEO narcissism

While the concept of narcissism has been well researched in both the psychology and management literature, it has received surprisingly little attention in the area of finance research. In this section, I first provide an overview of the concept of narcissism in the personality and social psychology literature, then review the research employing this concept in the management literature and the related studies in the corporate finance area.

2.3.1 The concept of narcissism in the personality and psychology literature

The term “narcissism” comes from a figure in Greek mythology, whose name was Narcissus. He believed that he was much better than others and distained the people who loved him. Eventually, he fell in love with his own reflection in a lake and finally died of frustration. This concept was first introduced to the psychology literature by Ellis (1898) and then further developed by Freud (1914). Freud referred to narcissism as “a state of being the centre of a loving world in which the individual could act spontaneously and purely out of desire”. Freud (1957, 14: 7-66) further identified a set of different manifestations of narcissism, such “as self-admiration, self-aggrandizement, and a tendency to see others as an extension of one’s self”. Most studies of this concept in the area of psychology have their roots in Freud’s work on this topic.

Researchers in clinical psychology originally used the term narcissism as a label for a mental disorder. They diagnosed individuals who think they are special and unique,

who overestimate their ability, and exaggerate their achievements as suffering from narcissistic personality disorder (NPD) (DSM IV - *Diagnostic and Statistical Manual of Mental Disorders,* American Psychiatric Association, 2000). In the aspect of interpersonal relations, individuals suffering from NPD tend to be arrogant and lack empathy for others.

Though narcissism was initially treated as a clinical syndrome, in later research, psychologists re-conceptualize it as a personality dimension (Raskin and Hall, 1979; Raskin and Terry, 1988; Emmons, 1987). The development of the Narcissistic Personality Inventory (NPI), a psychometric scale for narcissism, by Raskin and Hall (1979), represents a crucial step in establishing a formal measure of such a personality dimension. Raskin and Hall constructed a list of 220 items that are believed to be a reflection of the narcissism tendency, using the DSM-III behavioural criteria for the narcissistic personality as a conceptual template. Then, they use this measure to explore individual differences in narcissism in non-clinical populations. In a series of later follow-up studies, they continued culling the NPI items using an internal consistency approach, and finally produced a 54-item measure of narcissism with high internal consistency. Other research by psychologists related to the construct validity of the NPI has also helped to enrich the understanding of the concept of narcissism and its measurement. For example, Emmons (1984) conducts research on the NPI using a principal-components analysis. He finds four NPI components and labels them Exploitativeness/Entitlement (I insist upon getting the respect that is due to me); Leadership/Authority (I like to be the centre of attention); Superiority/Arrogance (I am better than others); and Self-Absorption /

Self-Admiration (I am preoccupied with how extraordinary and special I am). In his follow-up work (Emmons, 1987), he identified the same four NPI components as he had found in Emmons (1984), using factor analysis.

In a similar way, Brunell, Gentry, Campbell, Hoffman, Kuhnert, and DeMarree (2008) conceptualize narcissism as a personality that contains three basic characteristics: (1) “positive and inflated views of the self”, (2) “a pervasive pattern of self-regulation that maintains positive self-views—often at the expense of others”, and (3) “interpersonal relationships that lack warmth and intimacy”. They further explain the first characteristic, “positive and inflated views of the self”, as possessing three sub-features: self-centred (Emmons, 1987), self-focused (Emmons, 1987; Raskin & Shaw, 1988), and self-serving (Rhodewalt and Morf, 1998). “Narcissists believe that they are more intelligent and attractive than others”, and “they are overconfident individuals who exaggerate their beliefs about their abilities and achievements and inflate their own performance in achievement domains”. The second and the third characteristics refer to the relationship of narcissists with others. Previous studies (John and Robins, 1994; Farwell and Wohlwend-Lloyd, 1998; Campbell, Reeder, Sedikides, and Elliot, 2000) show that narcissists often have an inflated perception about their own positive input while feeling reluctant to acknowledge others’ input. The authors further point out that narcissists usually have some interpersonal strategies for maintaining their self-esteem.

Other studies also explore the social relationship of narcissists with other people. Bushman and Baumeister (2002) find that narcissists often oppose people who give

negative feedback to them. Narcissists usually like to draw attention away from others (Buss and Chiodo, 1991), have a strong need for admiration from others (Morf and Rhodewalt, 2001; Rosenthal and Pittinsky, 2006), and often derogate others in order to maintain their self-esteem (Morf and Rhodewalt, 1993; John and Robins, 1994). Narcissists are not interested in building intimacy with others through social relationships, but use social relationships as the tool for maintaining their inflated self-views.

2.3.2 Narcissism in the managerial literature

Brown (1997) employs the theory of narcissism in the analysis of organizational behaviour. He points out that "narcissism is an important label that permits us to group cognitions and behaviours, which have, as their common factor, a role to play in the regulation of self-esteem". Based on the previous literature, he summarises the characteristics of the narcissistic personality into six broad tendencies: (1) denial ("a primitive and desperate unconscious method of coping with otherwise intolerable conflict, anxiety, and emotional distress or pain which can lead to increased confidence and feelings of invulnerability", (2) rationalization ("an individual's attempt to justify or find reasons for unacceptable behaviour or feelings and thus present them in a form consciously tolerable and acceptable"), (3) self-aggrandizement ("a general tendency of an individual to overestimate his or her abilities and accomplishments"), (4) attributional egotism ("the tendency of an individual to offer explanations for events that are 'self-serving' or 'hedonic' and that typically involve the attribution of favourable outcomes to causes internal to the self and unfavourable outcomes to external causes"), (5) sense of entitlement ("a

strong belief in his/her right to exploit others and an inability to empathize with the feelings of others" accompanied by "an insatiable eagerness to obtain their admiration and approval"), and (6) anxiety ("narcissists 'cannot live without an admiring audience. His apparent freedom from family ties and institutional constraints does not free him to stand alone or to glory in his individuality. On the contrary it contributes to his insecurity'"). Individuals who have a narcissistic personality are prone to these tendencies unselfconsciously "in response to a deeply felt need to preserve self- esteem". The first five tendencies are ego-defence mechanisms and the sixth tendency, "anxiety", is actually "not an ego-defense mechanism but what the ego-defense mechanisms are designed to ameliorate". The main contribution of Brown's work is that it demonstrates that the theory of narcissism is very useful for the research on cognitions or behaviours, not only at the individual level, but also at the group or organization levels.

A series of later studies show that narcissism is a widespread tendency in leadership roles, such as those of CEOs and other top executive managers (Deluga, 1997; Maccoby, 2000; Rosenthal and Pittinsky, 2006) and that these narcissistic personalities of leaders are often associated with risky decision-making (Chatterjee and Hambrick, 2007), counterproductive behaviour (Penney and Spector, 2002; Judge, LePine, and Rich, 2006), and poor performance (Blair, Hoffman, and Helland, 2006; Judge, LePine, and Rich, 2006). Lubit (2002) extensively discusses such negative impact of destructive narcissism of managers on organizations. He explicitly distinguishes healthy narcissism and destructive narcissism, and compares them from several different aspects. "Healthy narcissism is based on relatively secure

self-esteem that can survive daily frustrations and stress", while destructive narcissism is often "a reaction to fragile self-esteem". Another key difference is that an individual with destructive narcissism is obsessed with power, admiration, etc, while an individual with healthy narcissism may enjoy them without obsession. He defines destructive narcissism from three aspects: (1) grandiosity ("inflated sense of self-importance, arrogance, preoccupation with power and wealth, excessive seeking of admiration"), (2) a sense of entitlement ("a sense that they are entitled to have whatever they want, including a willingness to exploit others to get it"), and (3) interpersonal relations ("the lack of concern for and devaluation of others"). He points out that the destructive narcissism of CEOs can have a negative impact on organizations. On the one hand, CEOs with destructive narcissistic tendencies tend to make disastrous business decisions because "their personal agendas take precedence over the company's best interests". Their glory-seeking and need for excitement often make them engage in such behaviours as empire-building and "rapid change of course", which impede the "prudent" growth of a company. On the other hand, the traits of destructively narcissistic CEOs limit their ability to work with other people in the organization effectively.

If the narcissistic personality is associated with ineffective leadership, why do individuals with a narcissistic tendency rise to positions of leadership? What are the origins of such destructive narcissism? Lubit (2002) and Brunell, Gentry, Campbell, Hoffman, Kuhnert, and DeMarree (2008) raise these questions. Brunell, Gentry, Campbell, Hoffman, Kuhnert, and DeMarree (2008) conduct three studies directly to investigate the link between narcissistic personality and leader emergence, using

traditional research methods (questionnaire and group discussion) in the areas of personality and psychology. Their results show that narcissism predicts emergent leadership and that highly narcissistic individuals are more likely to emerge as leaders during “leaderless group discussions”. They conclude that “narcissists have skills and qualities that are beneficial for becoming leaders”. Consistent with Brunell, Gentry, Campbell, Hoffman, Kuhnert, and DeMarree (2008), Lubit (2002) also claims that such destructive narcissism personality traits as high levels of expressed self-confidence and extremely strong driving ambitions may actually help mangers to rise to top positions within organizations. In addition, he discusses two possible origins of destructive narcissism, based on two streams of theories. According to psychodynamic theories, destructive narcissism is a defence mechanism of “fragile self-esteem”. According to social learning theory, narcissistic behaviour is learnt by observing others, and influenced by outside reinforcement (e.g. reward or punishment for behaviour). He also proposes the potential roles that corporate governance mechanisms (e.g. performance measurement, the reward system, and the hiring process) can play in dealing with the destructive narcissism of managers.

Different from above studies, Chatterjee and Hambrick (2007) conduct a large sample empirical test on the narcissistic tendency of CEOs and its impacts on firm strategy and general performance. They conceptualize narcissism as a personality dimension where individuals can be assigned low, medium or high scores along a continuum, based on Emmons (1987). A set of hypotheses are developed on the basis of relevant managerial and psychological literature. First, they consider the impact of CEO narcissism on a firm’s strategy and hypothesise that “the greater the narcissistic

tendencies, the greater the dynamism of the company's strategy". Second, they establish a link between CEO narcissistic tendencies and a specific strategic decision of firms – acquisition – and hypothesise that "the greater the narcissistic tendencies of a CEO, the greater the number and size of acquisitions made by the company". Their third and fourth tests are about the relation between CEO narcissism and firm performance. They hypothesise that "the greater the narcissistic tendencies of a CEO, the more extreme the company's performance" and "the greater the narcissistic tendencies of a CEO, the greater the fluctuation in the company's performance". To test these hypotheses about CEO narcissism, they construct a 5-item narcissism index using five unobtrusive, publicly-available indicators: (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) relative cash pay ("the CEO's cash compensation divided by that of the second-highest-paid executive in the firm); and (5) relative non-cash pay ("the CEO's non-cash compensation divided by that of the second-highest paid executive in the firm"). Then, based on their measure of narcissism, they empirically test their four hypotheses, using a sample of CEOs in the computer software and hardware industries between 1992 and 2004. They conclude that CEO narcissism is positively related to strategic dynamism and grandiosity, and that it affects the number and size of the acquisitions undertaken by the firm. Their results suggest that the narcissistic tendency makes a CEO favour bold, attention-attracting actions, and consequently results in extreme and fluctuating firm performance.

2.3.3 Closely related constructs

2.3.3.1 Review the closely related constructs – hubris and overconfidence

Two closely-related constructs to managerial narcissism used in the extant finance literature are hubris and overconfidence, drawing on the behavioural finance cognitive psychologically based literature.

As early as 1986, Richard Roll proposes a "hubris hypothesis" of takeovers, which provides another possible explanation of M&A activities. He argues that the hubris of the individual decision makers in the bidding firms may result in overbidding, and firms may suffer from this hubris in takeover activities. Since then, the term managerial "hubris" has become widely used in finance studies.[7]

Berkovitch and Narayanan (1993) and Hayward and Hambrick (1997) are two studies that empirically investigate Roll's "hubris hypothesis".

Berkovitch and Narayanan (1993) investigate into the drivers of takeovers, using a sample of 330 tender offers made during 1963-1988. They develop a test based on the correlation among target, acquirer, and total gains to distinguish synergy motive, agency motive and hubris motive. Their results show strong evidence that many takeover decisions are driven by hubris, although the agency problem seems to be the major reason for the value-destroying takeovers.

[7] Bollaert and Petit (2009), however, point out that hubris is essentially a literary concept, not a psychological one, originating in Greek mythology. It refers to "excessive beliefs and behaviours linked to defiance or contempt for every day laws, destiny and the gods", with consequences that are almost invariably fatal. As such, the concept is elusive without a precise definition, making it difficult to measure for research purposes.

Hayward and Hambrick (1997) use a sample of 106 large acquisitions conducted in 1989 and 1992 to investigate the link between the CEO's hubris and the size of the premiums paid for acquisitions. They use four indicators as proxies for CEO hubris: (1) the acquiring company's recent performance, (2) recent media praise for the CEO, (3) the CEO's self-importance (CEO relative compensation), and (4) a composite factor of these three indicators. They find that these indicators have a strong association with the size of the premiums paid for acquisitions. First, they find that firms with better recent performance tend to pay higher premiums for acquisitions. The authors suggest that this is because the recent success makes the CEO more confident in his or her own ability to create greater value through the acquisition and therefore would like to pay a higher price for it. Second, their results suggest that the recent media praise "conveys to the CEO an external validation of his or her capabilities", which further confirms and strengthens his or her inflated view about his or her personal ability. The belief in their superior ability makes them feel that they can generate great benefits that will recoup the extremely large acquisition premium. Third, they find a positive association between the size of the acquisition premium and the CEO's self-importance, which is measured by the CEO's pay relative to the pay of the second-highest-paid executive. Finally, they report a strong association between the comprehensive hubris factor and the acquisition premiums. Their results also demonstrate a negative relation between the CEO hubris factor and the firm performance. In addition, they find that the firms that pay larger premiums suffer greater losses during the one-year period after acquisition.

On the basis of Roll (1986), some academics have extended the research on hubris by

studying, theoretically or empirically, overconfidence bias in managers' decision-making and its effects on firm performance.

Gervais, Heaton and Odean (2003), Heaton (2002) and Paredes (2005) are three theoretic studies in this area.

Gervais, Heaton and Odean (2003) conduct theoretical work to explore the role of managerial overconfidence and optimism in corporate investment policy and corporate incentive mechanisms. Their study suggests that overconfident and optimistic CEOs are more likely to undertake risky projects than rational CEOs. However, they argue that a moderate level of overconfidence and optimism may benefit the shareholders and create value for firms through reducing the underinvestment problem. In addition, they propose that managerial overconfidence and optimism could reduce the need for the stock option compensation that is designed to reduce underinvestment problems. The authors suggest that overconfidence and optimism can actually play a positive role in the corporate investment decision making and provide an alternative solution to the underinvestment problem.

Heaton (2002) theoretically explores the relationship between managerial optimism and free cash flow in a firm based on a simple "three date-two period corporate finance model". This study presents two features of overoptimistic managers: first, overoptimistic managers believe that the market undervalues their firms' stocks and therefore they may decline positive NPV projects if they have to finance that project

externally; second, optimistic managers often overvalue the projects they like, and therefore they may choose negative NPV projects unconsciously. He suggests that the managerial irrationality may result in the behavioural cost that is different from the cost due to asymmetric information and the traditional rational agency problem.

Paredes (2005) further investigates the relationship between behavioural bias (especially overconfidence) and corporate governance. He proposes that CEO overconfidence might be actually a product of corporate governance. High CEO pay may give CEO positive feedback and make the CEO believe that he performs well and has a very high capability. The positive feedback makes a CEO feel that he is better than many others, and facilitates the formation of overconfidence. Based on pure theoretical analysis, Paredes suggests that it is possible that there is a link between CEO compensation and CEO overconfidence. He further points out that a CEO is more likely to become overconfident if he has a very strong and concentrated power within the firm. This might particularly be the case in the US, because the "CEO-centric model" dominates in US firms.

Besides theoretical studies, several empirical studies on the role of psychological factors in corporate decision-making, particularly in M&A decision-making, have also been conducted.

Fanto (2001) provides evidence of the presence of behavioural biases (or psychological factors) during the decision-making process of mega-mergers, based on a psychologically-oriented empirical study. He finds a set of behavioural biases in

the mega-mergers between 1998 and 2000 through analyzing the documents that reflect the decision-making process. For example, he reports strong " Over-optimism bias" in the Banc One/FC deal (1998), Daimler/Chrysler deal (1998), NationsBank/BA (1998), Norwest/Wells Fargo (1998), Travelers/Citicorp (1998), MCI/Sprint deal (1999), Qwest/US West deal (1999), AOL/TW (2000), Chase/J.P. Morgan (2000), Chevron/Texaco (2000), and Firstar/U.S. Bancorp (2000). His research suggests that, to gain a better understanding of M&A activities, it is necessary to study the role and impact of behavioural biases in M&A decision-making.

Ulrike Malmendier and Geoffrey Tate are two of the pioneers in empirically examining the overconfidence bias involved in M&A activities and other corporate decisions. Malmendier and Tate (2008) suggest that overconfidence can be one of the drivers of the merger decision. They argue that most traditional explanations for M&A activities and firm performance around and after M&As are based on the assumption that managers can always make decisions rationally, but that might not always be the case in reality and top managers may be prone to overconfidence bias. They conduct an empirical investigation of the role of CEO overconfidence in M&A decision-making, using a sample of 477 large, publicly-traded US firms that are listed in the Forbes 500 over the period 1980-1994. In this study, they invent three proxies for CEO overconfidence: Holder67, Longholder, and press portrayal.[8] The first two are based on the managers' option exercising behaviour: according to the Holder67 measure, CEOs are classified as "overconfident" CEOs if they fail to

[8] Section 4.2.1 introduces these measures in detail.

exercise their vested options that are highly in the money (67% in the money) in the fifth year prior to expiration. According to the Longholder measure, CEOs are identified as “overconfident” CEOs if they hold an option until expiration, even though the option is at least 40% in-the-money entering its final year. The third measure for CEO overconfidence is based on the outsiders’ perception of a CEO. Malmendier and Tate set the overconfidence indicator as equal to 1 when the number of “confident” and “optimistic” mentions for a CEO exceeds the number of “not confident”, “not optimistic”, and “reliable, cautious, practical, conservative, steady, frugal” mentions in LexisNexis and The Wall Street Journal searches. Their results show a strong relationship between overconfidence and the probability of undertaking mergers. The relationship is the strongest in diversifying mergers and M&A deals with internal financing. They also find that the market reacts more negatively to the announcement of a merger decided by overconfident CEOs. Using a three-day window, they calculate the CAR around the bids and find that, on average, the CARs for “overconfident” bids are roughly 78 basis points lower than those for “rational” bids.

Malmendier and Tate (2005) have also conducted other research, aiming to explore managerial overconfidence in explaining the distortion of corporate investment decisions. Unlike Malmendier and Tate (2008), who focus on the overconfidence bias in M&A decision making, this research explores the role and impact of managers’ overconfidence in a much broader context – general corporate investment decisions. The same sample of 477 large, publicly-traded firms in the Forbes 500 as that in Malmendier and Tate (2008) is used in this study. Three proxies for CEO

overconfidence are used in this research – Holder67, Longholder, and "Habitually buyer of stock". The first two measures are the same as those used in Malmendier and Tate (2008). The third different measure is based on CEO's stock purchase activities. In brief, CEOs are classified as "overconfident" CEOs if they are "habitual purchaser (or net buyer) of the firm's stock". This measure is reviewed in detail in section 4.2.1. This study concludes that overconfident CEOs "overinvest when they have abundant internal funds, but curtail investment when they require external financing". Results of this study also suggest that a CEO's personal characteristics (e.g. financial education, financial employment, status in the company, military service, membership in the 1920-1929 birth cohort and technical background) may have an impact on corporate investment decision-making.

Not only the role and impact but also the source of managerial overconfidence interests researchers. Billett and Qian (2008) explore the source of managerial overconfidence in the context of M&A through studying the history of deals made by individual CEOs, using a sample of 4,051 mergers and acquisitions during the period 1980-2002. They use managerial "Net Purchase" of shares[9] as their proxy for "overconfidence". They find that the higher the "deal order"[10], the greater the CEO's net purchase of shares preceding the deals. Their results also show that higher-order deals suffer more negative announcement returns than lower-order deals. Although the likelihood of a CEO conducting a deal increases with the positive performance of previous acquisitions, past positive performance does not mitigate the negative wealth effects in subsequent acquisitions. They explain their results as evidence that

[9] The "Net Purchases" measure is reviewed in section 4.2.1.

[10] Billetta and Qian define the "deal order" within each firm based on the number of deals conducted in the preceding five years. (The "Deal order" is defined based on a five-year rolling window.)

self-attribution results in CEO overconfidence, which leads to poor M&A deals. In addition, their results suggest that the market anticipates future deals according to a firm's M&A activities in the past and that these expectations are reflected in the firm's stock price.

Besides studies about the role and the source of CEO overconfidence in M&A decision-making, Aktas, De Bodt and Roll (2005) go one step further to ask "Can CEOs learn from past experience?" Their theoretical study suggests that, if the corporate governance system allows overconfident or overoptimistic CEOs to survive for long enough, CEOs could correct their overconfidence or overoptimism gradually through a learning process, and, therefore, the CEOs could reduce value destruction from deal to deal. However, such an analytical approach is very different to a perspective that views personality characteristics as relatively fixed.

2.3.3.2 Hubris, overconfidence and narcissism

In this sub-section, I discuss the distinction between narcissism and the traditional constructs (overconfidence and hubris) and justify my use of narcissism as the label in this study.

Distinction between narcissism and the traditional constructs

Although hubris, overconfidence and narcissism are closely related constructs and are often used interchangeably in management research, they are different in several aspects. First of all, they follow two different psychological traditions (or

approaches). Narcissism belongs to personality psychology and overconfidence (or hubris) belongs to cognitive psychology. (Bollaert and Petit, 2009). In other words, narcissism is a personality construct while overconfidence is often treated as a cognitive bias. Second, many psychology and management studies propose that narcissism is a more fundamental property than such cognitive bias as overconfidence (Emmons, 1984; Chatterjee and Hambrick, 2007). Hubris or overconfidence is only an offshoot of narcissism (Ketsde Vries, 1990). Finally and importantly, overconfidence is only one cognitive trait of the narcissistic personality, while narcissism is a much richer concept consisting of both cognitive (overestimation of his/her abilities) and motivational (intense needs for affirmation) elements (Chatterjee and Hambrick, 2007)

Justifications of my use of narcissism as the label in this study

While the terms "hubris" and "overconfidence" are widely used in the field of finance, they are inexact concepts and often have different meanings across studies. For example, Moore and Healy (2008) report that over 60% of empirical papers on overconfidence use the definition that "overconfidence is the overestimation of one's actual ability, performance, level of control, or chance of success", roughly 5% employ the definition that "people believe themselves to be better than others, such as when a majority of people rate themselves better than the median", and the remaining 30% or so use the definition that "overconfidence is excessive certainty regarding the accuracy of one's beliefs". Moore and Healy further point out that researchers routinely assume, explicitly or implicitly, that the overconfidence constructs they work with, although based on different definitions, are, nonetheless,

the same and can be used interchangeably. Consequently, as Kwan et al (2004) explain, many of the inconsistent findings and arguments about the underlying overconfidence phenomenon that researchers are seeking to measure result from the lack of a clear definition.

Both hubris and overconfidence lack a theoretical grounding. Hubris is more of a literary term, rather than a theoretically sound concept. Studies on overconfidence in M&As rely heavily on Roll's (1986) hubris hypothesis and lack a solid psychological foundation. Bollaert and Petit (2009) point out the problem in this subject area that "the link between a particular characteristic and observed effect is not clearly established with reference to psychology theory".

The problems associated with loose or inconsistent definitions of hubris and overconfidence thus motivate me to introduce a more fundamental and coherent concept into this research – narcissism – drawing on the psychological and management literature.

Narcissism is a coherent and measurable psychological construct that is widely used in the management literature to explain managerial behaviour. It contains "both a cognitive frame and a motivational mechanism - consisting simultaneously of a belief in one's superior abilities and an intense, continuous need for affirmation" (Chatterjee and Hambrick, 2007) and makes a deeper understanding of managerial behaviour possible. Narcissism, as a dispositional trait, is a more fundamental property than cognitive bias (Emmons, 1984). A narcissistic personality stirs up

hubris or overconfidence, and "we can look at hubris as a predicable offshoot of unbridled narcissism" (Kets de Vries, 1990). Therefore, narcissism should be treated as the more ingrained trait (Chatterjee and Hambrick, 2007). Thus, I work with the personality attribute of "narcissism" as an important determinant of managerial behaviour in line with the psychological and strategic management literature.[11] In my study, I treat hubris or overconfidence as traits of narcissism and therefore use the term "narcissism", staying away from the label "hubris" or "overconfidence".

2.4 Summary

To explore the role and impact of CEO narcissism on a firm's M&A activities (performance and drivers), I first review the studies of long run and short run M&A performance and the drivers of M&A deals. Then, I explore the concept of narcissism in the personality, psychology, and strategic management literature. Finally, I review the role of CEO narcissism (and its closely related constructs) in M&A decision-making and its impact on firm M&A performance.

Based on the literature review, I identify the following research gaps: first, the empirical studies on the role of CEO narcissism personality on M&A decision-making are very limited in the finance literature. Second, previous studies in this area only focus on M&A short run performance, and there are very few studies examining the impact of CEO narcissism on firm long run post-M&A performance.

[11] According to the American Psychiatric Association (2000), narcissistic personalities are characterized by a grossly inflated sense of their own importance, and overestimate their achievements and personal capacities. They feel an excessive need for admiration, consider themselves to be special and unique, expecting this to be recognized by their colleagues, and display an overweening sense of entitlement, assuming that they will be rewarded accordingly. In addition, such individuals believe that they are envied by everyone and develop fantasies regarding their personal power.

Third, to my knowledge, the role of target firm CEO narcissism has never been empirically examined in the extant literature. Fourth, the measures of the related constructs used in the finance literature to date are indirect measures and have some drawbacks. Finally, the key studies in this area by Malmendier and Tate (2005, 2005b, 2008) only focus on a sample of 477 large Forbes firms from 1980 to 1994. Therefore, a study based on a larger sample and covering a longer period is needed.

To fill these research gaps, I posit my four main research questions as follows:

(1) Are highly narcissistic CEOs more likely to conduct M&A deals than lowly narcissistic CEOs?

(2) What is the impact of the degree of acquiring firm CEO narcissism on the market reaction to the M&A announcement?

(3) What is the impact of the extent of acquiring firm CEO narcissism on acquiring firm long run post-acquisition performance?

(4) What is the impact of the level of target firm CEO narcissism on acquiring firm M&A performance?

These questions are designed to explore the role of CEO narcissism in M&A from two dimensions: cause (its impact on the M&A decision) and consequence (its impact on the M&A performance). The framework is shown in Figure 2-1. A set of

control variables is also derived from the relevant literature.

Besides these four main research questions, I also raise three additional questions to further investigate the impact of CEO narcissism on M&A activities in firms of different sizes, the relationship between the quality of corporate governance and CEO narcissism, and the impact of concurrent coexistence of acquiring firm CEO narcissism and target firm CEO narcissism. Specifically, my three additional research questions are as follows:

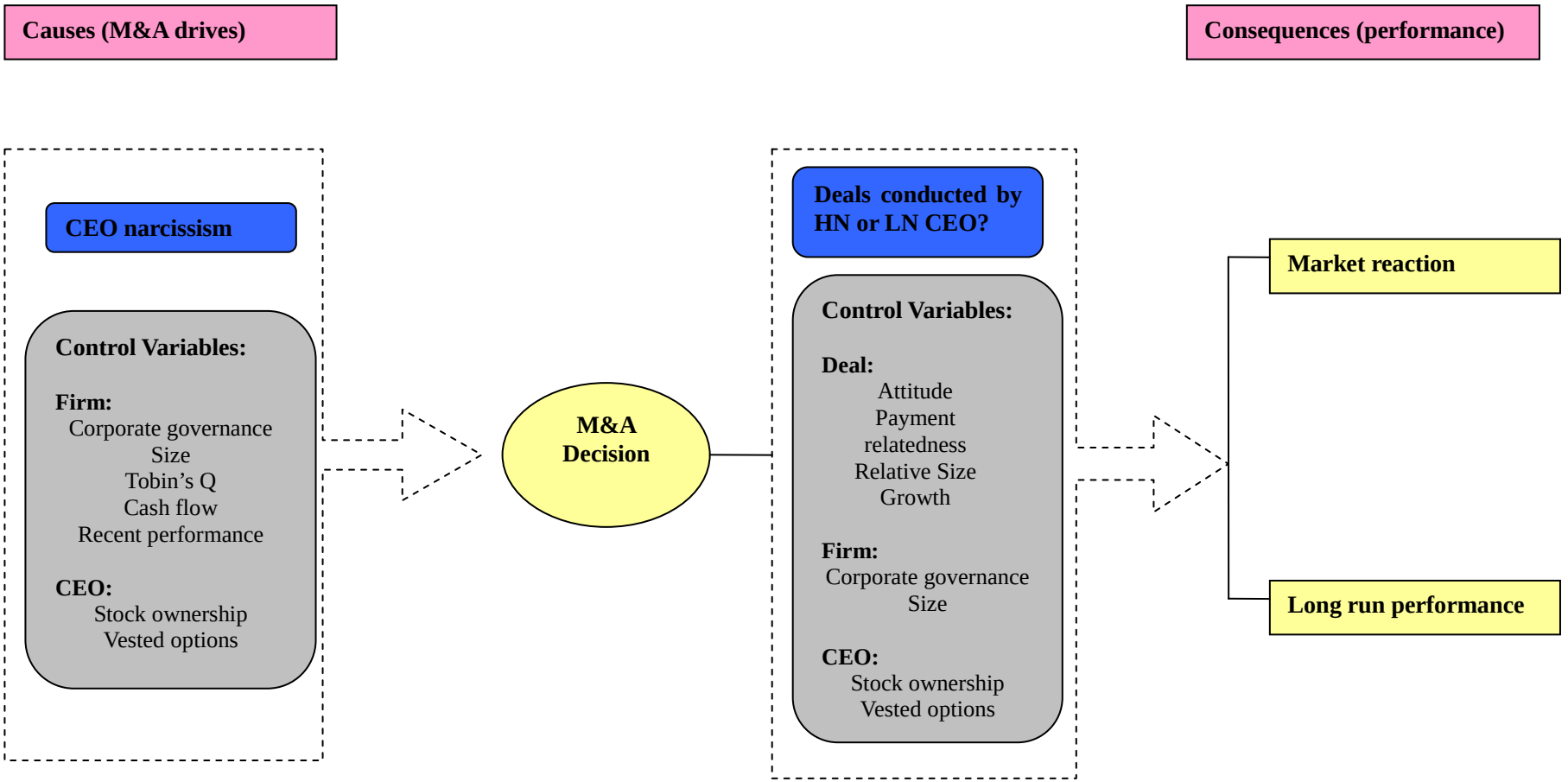
(1) Does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms?

(2) Can good corporate governance help to ameliorate the potential adverse consequences (if any) of CEO narcissism on shareholder wealth in the context of M&A?

(3) What is the impact of CEO narcissism on firm M&A performance when such narcissistic tendency exists in both the acquiring firm and the target firm concurrently?

To address these research questions, I test a set of hypotheses using a large, recent sample of firms across the full size spectrum from 1993 to 2005. In addition, I develop a new measure of CEO narcissism based on the content analysis of CEO speech. The testable hypotheses relating to my main and additional research questions are developed in Chapter 3 and Chapter 7 respectively.

Figure 2-1 The framework for testing the impact of CEO narcissism on M&A decision-making and firm M&A performance



Chapter 3 Hypotheses development

3.1 Introduction

In the last chapter, I review the literature about M&A performance (both short run and long run) and the motives for M&A deals. Then, the concept of narcissism in both the psychology and strategic management literature is fully discussed. On the basis of the extant literature, I identify the research gaps and raise my research questions.

To fill the research gaps and to answer the research questions, I develop my five main testable hypotheses in this chapter. The first hypothesis aims to test the link between CEO narcissistic personality and M&A decision-making. The second and the third hypotheses aim to examine the impact of CEO narcissism on acquiring firm short run (announcement) M&A performance and long run post-acquisition performance. My fourth and fifth hypotheses relate to the target firm CEO narcissism. In particular, I explore if a parallel narcissistic tendency in the target firm has any impact on the acquiring firm announcement period abnormal return and long run post-acquisition buy-and-hold abnormal return. The empirical models employed to test these hypotheses are introduced in chapter 4 and the results are presented and discussed in chapter 6.

In addition to the five main hypotheses developed in this chapter, a set of additional hypotheses (nine hypotheses) relating to the effect of firm size, the role of corporate governance, and the impact of concurrent coexistence of acquiring firm CEO

narcissism and target firm CEO narcissism are also developed and tested in Chapter 7.

The rest of this chapter is organized as follows. Section 3.2 develops the testable hypotheses based upon the discussion of the relevant literature and arguments. Section 3.3 concludes with a summary of these hypotheses.

3.2 Hypotheses development

Starting with a discussion about the concept and the main traits of CEO narcissistic personality, I develop the following three categories of hypotheses about the role of CEO narcissistic tendency in M&A activities: (1) CEO narcissism and M&A decision-making (hypothesis 1); (2) Acquiring firm CEO narcissism and firm M&A performance (hypothesis 2 and 3); and (3) the role of the target firm CEO narcissism (hypothesis 4 and 5).

3.2.1 CEO Narcissism and M&A decision-making

The extant literature provides a rich source of studies on how managers make decisions. Richard Roll (1986) proposed a “hubris hypothesis” for takeovers, which provides another possible explanation for M&A activities complementary to such conventional arguments as synergy, market expansion, industry shock, etc. He argues that the hubris of the individual decision makers in the bidding firms may result in overbidding. Hayward and Hambrick (1997) point out that a sense of self-importance, a central trait of a narcissistic personality, is actually “a precursor of hubris”.

The central idea of narcissism is that “individuals have a need to maintain a positive sense of self, and they engage in ego-defensive behaviour in order to preserve self-esteem” (Brown, 1997). Lubit (2002) summarises the four defining characteristics of the “destructive narcissist” as “grandiosity (inflated sense of self-importance, arrogance and excessive seeking of admiration), a sense of entitlement, lack of concern for, and devaluation of others, and a lack of enduring attachment to a set of values and an inner emptiness that leads them to seek excitement despite high risks”. Campbell, Goodie, and Foster (2004) define highly narcissistic CEOs as those who have very inflated self-views and who are preoccupied with having these self-views continuously reinforced. In my study, I treat CEO narcissism as a personality dimension which consists of both cognitive and motivational elements. “On the cognitive side, narcissism entails a belief in one’s superior qualities”, and “on the motivational side, narcissism carries an intense need to have one’s superiority reaffirmed.” (Chatterjee and Hambrick, 2007)

As shown in the literature review in Chapter 2 Section 2.3, a narcissistic tendency is widespread in leadership roles, such as CEOs and other top executive managers (Deluga, 1997; Maccoby, 2000; Rosenthal and Pittinsky, 2006). Several studies show that the narcissistic tendency of leaders often has a negative impact on firms or organizations (Penney and Spector, 2002; Chatterjee and Hambrick, 2007; Blair, Hoffman, and Helland, 2006; Judge, LePine, and Rich, 2006; Lubit, 2002). If narcissistic leaders have such a negative impact on firm performance, why then do we observe so many narcissistic leaders (CEOs) surviving and rising in an

organization (firm)? In the more specific context of M&A activities, why do we observe so many narcissistic CEOs surviving even after many value destructive deals? Brunell, Gentry, Campbell, Hoffman, Kuhnert, and DeMarree (2008) raise this question, and they give one possible explanation that "narcissists have skills and qualities that are beneficial for becoming leaders". Lubit (2002) also proposes that narcissistic CEOs are often very good at company politics.

Another possible explanation is that it is difficult for investors to arbitrage away the consequences of managerial narcissism via takeovers or other corporate governance mechanisms due to the extremely high transaction costs involved in such activities (Heaton, 2002). Furthermore, the traditional corporate governance mechanisms, paradoxically, are not only limited in addressing managerial narcissism directly, but can even increase such narcissistic tendencies. For example, the way many firm compensation systems are constructed, leading to high CEO rewards, may result in providing reinforcing positive feedback to the CEO, making him/her believe that they are performing well, have superior abilities, and are better than other CEOs, enhancing their level of narcissism and belief in their own self-worth and entitlement (Paredes, 2005).

Another reason for the persistence of the adverse impact of high levels of managerial narcissism in M&A decision-making is that feedback about deal success/failure is slow, impeding the managers' ability to learn appropriately from the results of past decisions. As a result, narcissistic managers may make more value-destroying deals before their propensity to destructive narcissism is recognized. In addition, even after

several years, managers with a high level of narcissistic tendency may still be unable to acknowledge the consequences of their decisions due to the feedback they receive being very noisy. Too many other factors can be viewed as leading to poor post-acquisition performance, and highly narcissistic managers are likely to attribute such adverse outcomes to outside factors rather than their own decisions, leaving their self-image untouched. Such opportunities for self-attribution can, thus, further exacerbate the problem of high levels of CEO narcissism (Billett and Qian, 2008; Brown, 1997).

Empirical studies on the impact of managerial narcissism in M&A deals are limited. Rovenpor (1993) conducts a psychology study to examine the relationship between CEO personality characteristics and firm M&A activities, using as a sample the CEOs of the top 350 firms in the Forbes 500 list of 1988. He finds that a high level of CEO self-confidence is associated with a high level of M&A activity. Fanto (2001), in his psychologically-oriented empirical study of recent mega-mergers, reports strong managerial over-optimism in such deals. He proposes that the manager may overestimate the value of a potential merger because he/she believes that his/her leadership or management skills are “better than average”. Malmendier and Tate (2008) provide empirical evidence that a strong relationship exists between level of CEO overconfidence and the probability of undertaking mergers. Importantly, Chatterjee and Hambrick (2007) formally establish a connection between CEO narcissism and their strategic decisions and performance outcomes. They point out that narcissistic managers will favour acquisitions both because they are highly confident in their ability to perform better than the target firm managers, and, also,

because they view M&A activity as a perfect stage on which to act out a drama to attract attention and to feed their need for admiration. My first hypothesis is thus derived as follows:

H1: High narcissism CEOs are more likely to conduct mergers and acquisitions than low narcissism CEOs.

To test this hypothesis, I first divide my sample of CEOs into two groups: high narcissism (HN) CEOs and low narcissism (LN) CEOs using two measures: Holder67 and media portrayal. The comparative acquisitiveness behaviour of the two groups of CEOs is next examined. I then explore the relation between CEO narcissism and CEO acquisitiveness behaviour. I do not seek to conduct a similar analysis using my narrative content analysis-based measure of CEO narcissism in this case, as I cannot measure this for non-bid situations, as there is no relevant CEO comment. The detailed methodology issues associated with hypothesis testing is discussed in section 4.

3.2.2 Acquiring firm CEO narcissism and firm performance in M&A

According to traditional finance theory, the rationale for undertaking mergers or acquisitions is to increase (maximize) shareholder wealth through the synergies created by such deals. However, the extensive extant literature demonstrates that mergers and acquisitions only benefit the shareholders of the target firms with, at best, on average, no significant gains for the shareholders of the acquiring firms. In

fact, many studies even suggest that M&A deals destroy firm value in the long run.[12] But, if such mergers and acquisitions cannot enhance shareholder wealth, why then do we observe so many value destroying deals? Why do so many firms underperform in the long run after making acquisitions?

Several explanations are provided in the management and finance literature, such as efficiency (synergies) (Kitching, 1967; Chatterjee, 1986), management competition (Jensen, 1986), managerial timing of market overvaluations (Shleifer and Vishny, 2003), Q-theory (Jovanovic and Roussear, 2002), and the agency problem (Rhoades, 1983; Black, 1989).

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Such potential explanations for value-destroying M&A activities, however, are partial or only valid in some cases; they are far from complete. Richard Roll (1986) proposes that value-destroying takeovers may result from "hubris". On this basis, Lys and Vincent (1995) conduct a case study on AT&T's acquisition of NCR, and suggest that the massive value-destruction in that deal may have resulted from managerial hubris.

Malmendier and Tate (2008) find that overconfident CEOs are more likely to undertake diversifying mergers, which are unlikely to create value on average. Their results also suggest that the market prefers the bids of less overconfident managers: cumulative abnormal returns around the bid announcement date are roughly 75 basis

[12] E.g., Dodd and Ruback (1977), Conn, Cosh, Guest, and Hughes (2003), Asquith (1983), Loderer and Martin (1992), Malatesta (1983), Kennefy, Limmack, Gregory (1997), Agrawal, Jaffe, and Mandelker (1992), Kohers and Kohers (2000), Louis (2002), Varaiya and Ferris (1987), Ferris and Park (2001), Rosen (2003), Langetieg (1978).

points lower on average in the case of overconfident managers. Doukas and Petmezas (2007) also provide evidence consistent with Malmendier and Tate (2008), using a sample of UK M&A deals. Aktas, De Bodt, and Roll (2005) further point out that managerial hubris may lead to an increase in bid premium to raise the likelihood of doing the deal (winning the auction). Since this premium is partly a distorted perception of reality, the market reaction will be negative (if the capital markets are efficient). Such overbidding is an important channel by which high levels of CEO narcissism can lead to value destruction. These findings in the finance studies are actually highly consistent with the results of relevant studies in the managerial literature, which show that the leaders with narcissistic personalities are often involved in counterproductive behaviour (Penney and Spector, 2002; Judge, LePine, and Rich, 2006) and risky decision-making behaviour (Chatterjee and Hambrick, 2007), consequently leading to poor performance (Blair, Hoffman, and Helland, 2006; Judge et al., 2006). Lubit (2002) also proposes that the destructive narcissism of CEOs can have negative impacts on organizations in two ways. First, a narcissistic tendency often drives highly narcissistic CEOs to make disastrous business decisions because “their personal agendas take precedence over the company’s best interests”. Second, highly narcissistic CEOs often engage in such activities as empire-building and “rapid change of course”, in order to feed their need for excitement and glory. These activities can disturb a firm’s normal operation and impede the “prudent” growth of a company, and consequently destroy firm value.

Thus, in general, previous work predicts that mergers conducted by HN CEOs will perform worse on average than mergers conducted by LN CEOs, and will lead to the

destruction of the firm value. I thus develop my second and third hypotheses:

H2: The impact of CEO narcissism on firm M&A announcement performance is negative.

H3: The impact of CEO narcissism on firm long run post-acquisition performance is negative.

To test this hypothesis, I first conduct event studies to measure the respective announcement period M&A deal cumulative abnormal returns (CARs), and long run buy-and-hold abnormal returns (BHARs). I then examine the relation between level of CEO narcissism and firm performance (CARs or BHARs) using a multiple regression model approach which includes a comprehensive set of control variables.

3.2.3 The impact of target firm CEO narcissism on acquiring firm performance

Previous research only focuses on the potential impact of implicit acquiring firm CEO narcissism. There is no similar formal empirical study of target firm CEO narcissism, although Malmendier and Tate (2003) briefly mentioned this point. In this study, I argue that the CEO narcissistic tendency, as a personality characteristic, may also exist in target firms. In other words, target firm CEOs can equally be prone to high levels of narcissism, and an associated sense of inflated self-worth and confidence in their ability to create value. As a result, they may overestimate the value of their firm to a bidder, pushing the bid premium up. On this basis, it is reasonable to expect that acquirers might have to pay more for targets with HN CEOs,

and the resulting overpayment above an optimal bid premium will have a negative impact on acquiring firm performance. This leads to my fourth and fifth hypotheses:

H4: Target firm CEO narcissism has a negative impact on firm M&A announcement performance.

H5: Target firm CEO narcissism has a negative impact on firm long run post-acquisition performance.

It is worth stressing here that this study has no intention of asking and addressing the question of who (the acquiring firm CEOs vs the target firm CEOs) are more likely to be HN CEOs. My argument here is that the role of target firm CEO narcissism should be appropriately considered and examined in the study of M&A activities. Actually, it would be unsurprising to find a large number of HN CEOs in the target firms, as HN CEOs are usually associated with ineffective leadership and poor performance, and the firms that have poor management and performance are more likely to become targets of acquisitions according to the management competition model of M&A drives (Jensen, 1986).

3.3 Summary

To address my research questions, I develop a set of testable hypotheses based on the literature reviewed in the previous chapter. The test of my first hypothesis (*H1*) aims to examine the link between CEO narcissism and the likelihood of a firm conducting an M&A deal. The second hypothesis (*H2*) is designed to explore the market reaction

to the deals announced by highly narcissistic CEOs. The third hypothesis (*H3*) tests the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance. Finally, my fourth and fifth (*H4* and *H5*) hypotheses are aimed at examining the role of target firm CEO narcissism in explaining firm short run M&A (announcement period) performance and long run post-acquisition abnormal returns.

The methodological issues associated with hypothesis testing are introduced and discussed in the next chapter.

Chapter 4: Methodology

4.1 Introduction

This chapter discusses the research methodology used in this study. To test the hypotheses developed in chapter 3, three methodological issues need to be addressed: (1) How can CEO narcissism be measured? (2) How can a firm's abnormal return during and after M&A deals be calculated? (3) How can the impact of CEO narcissism on M&A decision-making and firm performance be tested?

Therefore, in this chapter, I start with one of the most important aspects of my study, the construction of my measures of CEO narcissism. Specifically, I detail the methods and steps for constructing my three CEO narcissism measures: Holder67, media portrayal, and content analysis on CEO speech. At the beginning of the measures construction section, I also briefly review the measures used to date in both the finance and managerial literature. Following this discussion of my measures of CEO narcissism I describe the event study methods employed in this study to calculate firm short run (announcement period) M&A abnormal returns and long run post-M&A abnormal returns. Finally, I introduce my three regression models and the variables used to test my hypotheses.

The rest of this chapter is organized as follows: Section 4.2 introduces the construction of my CEO narcissism measures. There are two sub-sections. Sub-section 4.2.1 reviews nine measures used in previous studies in both the finance

and strategic management areas: Holder67, Longholder, Net Purchase Ratio (NPR), Net buyer, Media portrayal, Prominence of the CEO's photograph, CEO prominence in company press releases, CEO's use of first-person singular pronouns, and Relative pay. Sub-section 4.2.2 introduces the three measures used in this study. The procedures used to construct these measures are detailed in this sub-section respectively. Section 4.3 describes the event study methods employed in this research. Both short run and long run event studies are discussed in sub-sections 4.3.1 and 4.3.2. Section 4.4 introduces the three regression models used in this study: a logistic regression model and two OLS regression models. For each model, the dependent variable, independent variable, and control variables are defined and discussed. Finally, Section 4.5 summarises the methodology employed.

4.2 CEO narcissism measures

4.2.1 Review of the measures of CEO narcissism (and the related construct)

In the finance and management literature, academics have developed some direct or indirect measures of CEO narcissism. It worth repeating here that, as overconfidence is a key trait of a narcissistic personality, the CEO overconfidence measures reviewed in the following sub-section are directly or indirectly proxying for the more fundamental construct with better construct validity, CEO narcissism, although the "overconfidence" label is still used here in order to be consistent with the literature.

4.2.1.1 Holder67 ("Holding options too long")

Malmendier and Tate's (2005, 2008) studies of the effect of CEO overconfidence on

a firm's investment (including M&A) decision-making develop a measure of overconfidence, Holder67, to identify CEO overconfidence based upon the timing of option exercise. Based on a benchmark for the extent of options of "in the money" at which a rational CEO should exercise their options, Malmendier and Tate construct their Holder67 variable by examining each CEO's actual option-exercising behaviour. The rationale for this measure is that economically rational and under-diversified CEOs should exercise at least some portion of their vested options if the amount of in-the-money of their options is beyond a benchmark level. However, overconfident CEOs will tend to overestimate the future returns from their investment projects. Therefore, they believe that their firm's stock prices will continue to rise under their leadership more than they should expect objectively. As a result, their overconfidence will induce them to postpone their option exercise in order to benefit personally from their expected future gains.

In Malmendier and Tate (2005), according to Holder 67, a CEO is identified as "overconfident" if he/she failed to exercise their highly in-the-money options at least twice since year 5 (including year 5).[13] As only CEOs who exhibit such late exercising behaviour at least twice are classified as "overconfident", this measure can capture "a 'permanent' rather than 'transitory' overconfidence effect".

In Malmendier and Tate (2008), the definition of Holder67 is slightly different from Malmendier and Tate (2005), though based upon the same rationale. They classify a CEO as an "overconfident" CEO if he/she does not exercise their options that are

[13] Malmendier and Tate (2005) consider the option exercising decision since year 5, as most options in their sample "have a ten-year duration and are fully vested only after year four".

highly in-the-money (at least 67% in-the-money) in the fifth year prior to expiration. 67% in-the-money is used as the threshold corresponding to a risk aversion of three in a constant relative risk-aversion (CRRA) utility specification.[14]

However, this measure may suffer from some disadvantages. One drawback is that it primarily captures CEO overconfidence about overall firm performance rather than overconfidence about the potential merger project. In addition, there are some potential alternative explanations for holding options that are highly in the money. For example, a CEO might hold a highly in-the-money option not because he or she is overconfident, but because he or she has inside information that stock prices will rise and will therefore tend to hold the option longer in order to reap larger profits. Another potential alternative explanation is signalling. CEOs may wish to send positive signals to the market through holding their highly in-the-money options. Though admitting there are these potential alternative explanations associated with Holder67, Malmendier and Tate (2005, 2008) alleviate such concerns in their discussion.

4.2.1.2 Longholder ("Holding option forever")

Longholder is another measure of CEO overconfidence used in Malmendier and Tate (2008). A CEO is classified as an "overconfident" CEO if he or she holds an in-the-money option until expiration.[15] Unlike Holder67 (Malmendir and Tate, 2008),

[14] According to Hall and Murphy (2002), CEOs should exercise the vested option if it is 67% in the money. This threshold corresponds to a risk aversion of 3. (The level of risk version is based upon a CRRA utility specification.)

[15] Malmendier and Tate (2008) identify CEOs as "overconfident" CEOs if they "hold an option until the year of expiration, even though the option is at least 40% in-the-money entering its final year".

that only captures the CEO's behaviour in option exercise in the fifth year prior to expiration, Longholder can capture the behaviour beyond the fifth year prior to expiration. However, as the Longholder measure is also based on the timing of option exercise to identify overconfidence, which is the same idea as with Holder67, this measure suffers from similar disadvantages.

4.2.1.3 Net Purchase Ratio (NPR)

Billett and Qian (2008) construct a measure of overconfidence, Net Purchase Ratio (NPR), in their study of the source of managerial hubris in mergers and acquisitions. The rationale of this measure is that, if managers believe that mergers or acquisitions will create value, they would want to increase their holding of firm stock before deal announcements. If managers are overconfident, we would expect to observe them exhibiting abnormal purchase behaviour (with purchasing level exceeding the normal level), but, if the drivers of M&A deals are agency problem issues or market overvaluation of acquiring firm, managers should want to decrease their stake in the firm before deal announcements as they know the truth and do not believe that the deals will create value for the firm. Based on this principle, Matthew and Yiming (2005) measure overconfidence through the investigation of the trading activities of the acquiring firm's CEO before the M&A deals. They develop NPR to quantify insider trading activities, and then use abnormal NPR, or abnormal insider trading activity (using normal insider trading activity as the benchmark) to identify CEO overconfidence. The construction of the measure consists of four steps.

First, they calculate the CEO's "Net purchase" using the following formula:

Net Purchase = number of shares bought from the open market or other source

+ share purchase by exercising options

- number of shares sold

Then, they calculate the NPR using the following formula:

$$NPR = \frac{Net\,Purchase}{Total\,Volume\,of\,the\,Insider\,Transaction}$$

Next, they construct the normal insider trading benchmark in the following two ways:

(1) A cross-sectional control: the benchmark is the mean NPR for a size-matched portfolio of firms during the 180 days before an acquisition announcement.

(2) A time-series control, the benchmark is the acquiring firm's NPR measured from days (-360, -180) before the announcement of the firm's first deal in the preceding five years.

Finally, they calculate abnormal NPR by comparing the firm's NPR with benchmark NPR.

The major advantage of this measure is that it can capture a CEO's overconfidence about a specific merger and acquisition deals he/she engages in rather than about the companies' general performance. In addition, it takes both the stock purchase and the option exercise into account. However, NPR does not consider the real market misvaluation. That is, the CEO may be the "net purchaser" only because he or she intends to take advantage of the market misvaluation, rather than because he or she is overconfident.

4.2.1.4 Net buyer ("Habitual buyer of stock")

Considering that CEOs can not only choose to hold or exercise their options but also choose to buy or sell their shares, Malmendier and Tate (2005) construct an alternative indicator, "Net buyer" ("Habitual buyer of stock"), to measure overconfidence. This proxy uses the habitual acquisition of the company stock to identify CEO overconfidence. Specifically, Malmendier and Tate classify CEOs who are net buyer of stocks during their first five sample years as "overconfident". They define "a net buyer" as "someone who bought stock on net at least one more year than he sold stock on net during his first five sample years".[16] Though this measure has the same rationale as the NPR measure, it is slightly different. NPR measures a CEO's trading behaviour over a specific time window before the specific M&A deal he/she engages in and therefore it can help to capture the CEO's overconfidence about the deal. In contrast, Net buyer measures a CEO's trading behaviour over a time period that is not necessarily before the deal, in an attempt to capture CEO habitual overconfidence.

In sum, the strength of this proxy is that it can capture the "permanent or habitual" rather than "transitory" overconfidence effect, as the measure is based on the examination of CEO habitual stock purchase behaviour. However, like other measures, Net buyer also has some disadvantages. First, it can only capture CEO overconfidence about overall firm performance rather than the specific M&A deal. Second, this proxy might be affected by restrictions on CEO stock purchase. Finally, there are some other alternative explanations for CEO stock purchase behaviour.

[16] Ulrike Malmendier and Geoffrey Tate (2005), CEO overconfidence and corporate investment, Journal of Finance, Vol.60 Issue 6, pp. 2661-2700.

4.2.1.5 Media portrayal

Media portrayal is the measure of overconfidence developed by Malmendier and Tate (2003, 2005b). Unlike the measures reviewed so far (Holder 67, Longholder, NPR and Net buyer), which are based on the CEO's option exercise or stock purchase activities, Media portrayal relies on outsiders' views to identify CEO overconfidence. A systematic search for articles referring to the CEO in the mainstream press is conducted. The number of articles referring to the CEO as "confident", the number of articles referring to him as "optimistic", and the number of articles referring to him as "reliable", "conservative", "cautious", "steady", "practical", or "frugal" are recorded. Then Malmendier and Tate construct an indicator variable which takes the value 1 whenever the number of "confident" and "optimistic" articles on the CEO (removing any "not confident" or "not optimistic" articles) exceeds the number of "reliable", "conservative", "cautious", "steady", "practical", and "frugal" articles.

The main advantage of this measure is that it can capture outsiders' (or the market's) perceptions about CEO overconfidence. The disadvantage is that the words that the media use may be very subjective. In addition, there is much less abundant exposure (media) information about small and medium-sized companies than about big ones. This may result in the restriction of the sample to the large companies that are more likely to attract media attention.

So far, measures for a key trait of CEO narcissism – CEO overconfidence – have been reviewed. Chatterjee and Hambrick (2007) develop four direct but unobtrusive measures of CEO narcissism: the prominence of the CEO's photograph, the CEO's prominence in press releases, the CEO's use of first-person singular pronouns, and the CEO's relative pay. In the following sections, these measures are reviewed respectively.

4.2.1.6 Prominence of the CEO's photograph

Chaterjee and Hambrick (2007) point out that the firm's annual report provides a stage on which a CEO can "showcase himself or herself as the firm's leader". Through discussions with communications specialists, they further provide evidence that CEOs usually pay a lot of attention to and have control over their image in the annual report. Therefore, they measure the prominence of the CEO's photograph, based on an expectation that "the highly narcissistic CEO will seek a great deal of visibility in the annual report, both as an exercise of vanity and as a strong declaration that he or she is more important than all others in the firm". They rate the proxy according to the size of the CEO's photograph in the firm's annual report and whether the photograph is of the CEO alone. Then they use this proxy to indicate the CEO's narcissistic tendency.

4.2.1.7 CEO prominence in company press releases

CEO prominence in company press releases is another measure of CEO narcissism developed by Chatterjee and Hambrick (2007) and based on the content analysis of

companies' press releases on a wide range of corporate issues. Again, based on their discussions with communications specialists, they point out that CEOs have full control over companies' press releases and, therefore, narcissistic CEOs may use these messages as a tool to remind outsiders how important they are. They expect that the "highly narcissistic CEO will insist on being mentioned as often as possible, both as an exercise of vanity and out of a desire to showcase his or her authority". Based on this rationale, they construct the measure, CEO prominence in company press releases, by calculating the CEO prominence using the following formula:

$$CEO\ prominence = \frac{Number\ of\ times\ the\ CEO's\ name\ was\ mentioned\ in\ the\ company's\ press\ releases}{The\ total\ number\ of\ words\ in\ all\ the\ company's\ press\ releases}$$

4.2.1.8 CEO's use of first-person singular pronouns

As the use of such first-person singular pronouns as "I", "me", "mine", "my", "myself" in speech can reflect self-absorption, a key characteristic of narcissism, (Raskin and Shaw, 1988), Chatterjee and Hambrick (2007) construct a measure of CEO narcissism based on a count of first-person singular pronouns in transcripts of interviews with CEOs. They count the number of first-person singular pronouns (I, me, mine, my, myself) the CEO uses and the number of first-person plural pronouns (we, us, our, ours, ourselves), respectively. Then, they calculated the percentage of first-person singular pronouns by using the following formula:

$$Percentage\ of\ \ first\ \ person\ sin. = \frac{The\ number\ of\ \ first\ \ person\ sin.\ pronouns}{The\ number\ of\ \ all\ \ first\ \ person\ pronouns\ (both\ sin.\ and\ \ plu.)}$$

4.2.1.9 Relative pay

Drawing on the literature (Tosi and Gomez-Mejia, 1989; Bebchuk and Fried, 2004) that shows CEOs have a great impact on decisions regarding their own compensation package, Chatterjee and Hambric (2007) propose that CEO narcissism can be reflected in the CEO's pay relative to other executive officers in the firm, as narcissistic CEOs view themselves as more valuable and more important than others in the firm and consequently tend to pay themselves more. Based on Hayward and Hambrick's (1997) measure of self-importance, they develop two measures of CEO narcissism: CEO relative cash pay[17] and CEO relative non-cash pay.[18] These two measures are calculated as follows:

$$\mathrm{Re}lative\,cash\ pay = \frac{CEO's\ cash\ pay}{Second\_highest\_paid\_executive's\ cash\ pay}$$

$$\mathrm{Re}lative\,non\_cash\ pay = \frac{CEO's\ non\_cash\ pay}{Second\_highest\_paid\_executive's\ non\_cash\ pay}$$

In sum, these unobtrusive measures of narcissism developed in Chatterjee and Hambrick (2007) have both advantages and disadvantages. On the one hand, these measures are not prone to the problems of reactivity or social desirability bias, that are often associated with some research methods (e.g. surveys) in social studies, as they are based on "non-participant observation, documentary sources, and the written and spoken words" to identify the narcissistic personality. On the other hand, they can be very noisy. For example, in the case of the relative pay measure, other factors, such as CEO tenure and past performance, may have an impact on CEO compensation.

[17] Cash pay includes salary and bonus.
[18] Non-cash pay includes deferred income, stock grants, and stock options.

At the end of this section, I summarise the key features of the reviewed measures in Table 4-1.

Table 4-1 Summary of CEO narcissism (or related constructs) measures and their advantages/disadvantages

Label (term)	Measure	Method of measuring	Advantages	Disadvantages
Overconfidence	Holder67	Malmendier and Tate (2005): a CEO is classified as an "overconfident" CEO if he/she failed to exercise highly in-the-money option at least twice since the fifth year after the grant of the options. Malmendier and Tate (2008): a CEO is identified as an "overconfident" CEO if he/she doesn't exercise their options that are highly in-the-money (at least 67% in-the-money) during the fifth year prior to expiration.	It can capture the "habitual" rather than "transitory" overconfidence effect.	1. It primarily captures overconfidence about the firm's performance rather than overconfidence about potential M&A projects. 2. It may suffer from alternative explanations, such as insider information, signalling, stock price bubbles, and stock price volatility.
	Longholder	CEOs who during their tenure hold an in-the-money (at least 40% in-the-money entering the final year) option until expiration are considered "overconfident".	Longholder considers the CEO's option exercising behaviour beyond the fifth year prior to expiration.	It has the same disadvantages as Holder67, as it is also based on the timing of the option exercises.
	Net buyer (Habitual Buyer of Stock)	A CEO is considered "overconfident" if he/she was a net buyer of stock for more years than he/she was a net seller during their first five sample years.	It can capture the habitual" rather than "transitory" overconfidence effect.	1. It can only capture the CEO's overconfidence about overall firm performance rather than the M&A deal. 2. Restrictions on the CEO's share purchase may have significant effects on this proxy.

	Net Purchase Ratio (Insider trading activity)	It uses abnormal insider trading activity to identify "overconfidence". Net Purchase = the number of shares bought from the open market or other private source +share purchase by exercising options - the number of shares sold NPR: standardizing the "Net Purchase" by using the total volume of the insider transactions.	1. It can capture the CEO's overconfidence about specific merger and acquisition deals rather than about the firm's general performance. 2. It takes both the stock purchase and the option exercising into account.	NPR does not consider the potential market misvaluation. The "net purchaser" might not be overconfident about his/her own abilities, but simply intend to take advantage of market misvaluation.
	Media Portrayal	A systematic key word search for media portrayals of a CEO is conducted. A CEO is considered "overconfident" if the number of articles describing the CEO as "confident" and "optimistic" exceeds the number of those describing him/her as "reliable," "conservative," "cautious," "steady," "practical," and "frugal".	It can capture the outsiders' (or market's) perception about the CEO's overconfidence.	The words that the media use may be very subjective.
Narcissism	Prominence of photograph	It uses the prominence of the CEO's photograph in the annual report as an indicator of CEO narcissism. The indicator is rated in different points based on the size of the CEO's photo and whether the photo was of the CEO alone.		

	Prominence in company press releases	It uses the number of times the CEO's name was mentioned relative to the total number of words in the firm's press releases as an indicator of narcissism.	These unobtrusive measures are based on "non-participant observation, documentary sources, and the written and spoken words" to identify a narcissistic personality, alleviating the problems of reactivity or social desirability bias often associated with some research methods (e.g. survey) in social studies.	These measures might be affected by many other factors. Therefore, they can be very noisy.
	Use of first-person singular pronouns	It uses the number of first-person singular pronouns relative to the number of first-person plural pronouns as an indicator of narcissism.		
	Relative pay	It views the cash pay and non-cash pay of a CEO relative to the second highest paid executive as a reflection of his/her narcissism tendency (inflated sense of self-importance).		

4.2.2 Three measures for CEO narcissism in this study

In this study, I use three proxy variables to measure CEO narcissism: Holder67, media portrayal, and content analysis of CEO speech. The first two measures are based on CEO option exercise behaviour and media comments on CEOs respectively. The third proxy content analysis measure which is original to the literature is based on the analysis of CEOs' speeches about M&A deals. In this sub-section, I introduce the construction of these three measures of CEO narcissism and discuss the potential issues related to these proxies.

4.2.2.1 Holder67

Holder67 is used as one proxy for CEO narcissism in this study. As reviewed in the last sub-section, this measure is developed by Malmendier and Tate (2003, 2005, and 2008) and based on CEO option exercise timing behaviour. It is used as a measure of the CEO's belief in his/her ability to generate superior returns, and the associated self-value, which are key aspects of a narcissistic personality. We would expect a high narcissism CEO's elevated self-image to lead to his/her expectation that the firm's stock price will continue to rise under his/her leadership more than is objectively justified. Therefore, as a result, highly narcissistic CEOs will tend to postpone their option exercise to benefit personally from the future gains they see themselves as generating, even if the amount in-the-money is beyond a rational benchmark.

However, there is some debate about whether this measure is necessarily a clean

measure, since CEOs may hold their deep in-the-money options for other reasons. One possible reason is insider information. If CEOs have, or believe they have, some positive inside information which makes them believe that their firm's stock price will rise in the future, to profit from this they would choose to hold their option longer even if deep in-the-money. However, Malmendier and Tate (2008) argue that, if insider information drives a CEO late option exercise, the return for holding the options should be positive. However, their evidence shows that CEOs do not profit from a delay in the option exercise, which helps to rule out this explanation. Another issue relating to the use of Holder67 is that the CEO option exercise behaviour could also relate to the firm's prior performance. Good recent past performance may lead CEOs to expect that their firm will continue to perform well in the future, leading to the non-exercise of deep in-the-money options in order to benefit from the expected further increase in share price. To control for this explanation, I include a 1-year lagged return in my cross-sectional regression analyses.

In addition, some academics argue that CEOs may fail to exercise their in-the-money options not for psychological reasons, but because they want to increase their ownership stake in the firm. However, I believe that this explanation is unlikely, as the previous literature (e.g., Ofek and Yermack, 2000; Bartov and Mohanram, 2004) documents evidence that executives tend to sell nearly all of their shares acquired through option exercise, rather than retain them.

Malmendier and Tate (2003, 2005, 2008) use the Hall and Liebman (1998) and Yermack (1995) data set, from which they extract the data required for the

construction of Holder67. The virtue of that data set is that it provides detailed information on the stock ownership and set of option packages — including exercise price, remaining duration, and number of underlying shares — for the CEO of each company year by year, which makes the construction of Holder67 possible. However, this data set only includes 477 large firms[19] for the period 1980-1994, leading to potential problems in generalizing their results to smaller size firms and, importantly, to recent periods, including the technology bubble period. To deal with these issues, I construct my Holder67 measure based on Standard & Poor's ExecuComp database, which covers the compensation data of top managers in S&P 500, S&P 400 Midcap and S&P Smallcap 600 companies. The status of each individual option package and the option exercise activity of each sample CEO are examined. The percentage of in-the-money of the option package for each CEO is also calculated. Then, the option exercise behaviour of each sample CEO is used to classify CEOs into two categories: highly narcissistic (HN) CEOs and lowly narcissistic (LN) CEOs. Based on Hall and Murphy (2002), and following Malmendier and Tate (2005; 2008) I use 67% in-the-money as the threshold. The option that is 67% (or higher) in the money is considered as a highly in-the-money option.

The construction of my Holder67 measure requires three steps. First, the information of each CEO's option package is extracted from the ExecuComp database. Second, the percentage of in-the-money of each CEO's option portfolio in a particular firm year is calculated. Finally, a CEO is classified as an "HN" CEO if he or she failed to exercise his or her vested options which are at least 67% in-the-money at least twice

[19] Firms were on the lists of the largest US companies compiled by Forbes Magazine in the period 1984-1994.

during the sample period.[20] Otherwise, a CEO is classified as an "LN" CEO. To be classified as an "HN" CEOs, the CEO is required to exhibit the failure of option (highly in-the-money option) exercise at least twice, as I attempt to capture the CEO's habitual rather than transitory narcissistic tendency.

4.2.2.2 Media Portrayal

I use third party media portrayal as another proxy for the level of CEO narcissism. This variable classifies CEOs as HN or LN based upon how the media portray each individual CEO, or, in other words, how they are perceived. The main strength of this proxy is that it can capture the outsiders' (or market's) perception about CEO narcissism.

To construct this measure, I conduct a systematic search for articles and news about each of my sample CEOs in a range of 37 media sources via Factiva databases.[21] The same set of keywords used by Malmendier and Tate (2008) and Brown and Sarma (2007) is also employed in my study. These keywords reflect the outsiders' views about a central aspect of a narcissistic personality – the overestimation of his/her achievements and their personal capacities. Considering the potential endogeneity problem that CEOs may change their tenor to send positive signals during M&A bids, or the media may be more likely to perceive acquiring CEOs as confident, I restrict the article coverage to those published in the period before the bid was announced. If a CEO conducted more than one M&A deal during his/her

[20] For robustness checks, I also 50% in-the-money and 80% in-the-money as thresholds to construct the option exercise behaviour-based measures of CEO narcissism. My results remain unchanged. (The regression results are presented in Appendix 3.)

[21] The media sources are introduced in detail in Section 5.2.

tenure, I restrict the sample to articles up to his/her first merger or acquisition. I record the number of articles that describe the CEO as: (1) “optimistic” (including “optimism”) and “confident” (including “confidence”); (2) “reliable”, “cautious”, “conservative”, “steady”, “practical”, “frugal”, “disciplined”, “conscientious”, “not confident”, and “not optimistic”. I use N (1) and N (2) to represent the number of articles that describe the CEO as these two categories of words respectively. If N (1) > N (2), the CEO is classified as an HN CEO; otherwise, an LN CEO. I exclude the observations whenever N (1) = N (2), as, in that case, it is impossible to classify a CEO as HN or LN according to this measure.

4.2.2.3 Content analysis of CEO speech

As mentioned in the review of CEO narcissism measures, the major disadvantage of Holder67 and Media portrayal is that they are not “M&A deal-specific” measures. In other words, such proxies can only capture any CEO narcissistic tendency in relation to the CEOs’ beliefs about their firm performance and their roles generally, rather than in terms of their beliefs in the specific M&A context. To address this problem, I construct a new direct measure of CEO narcissism based on the content analysis of CEO speech regarding a specific M&A deal. This measure can capture the CEO’s beliefs about his/her ability to extract value from the particular M&A deal.

Webb et al. (1966) point out the importance of the use of the written and spoken words of people as a way to “learn about their preferences, perceptions, and personalities”. In the area of psychology, researchers have constructed some unobtrusive measures based on the word usage to detect individual differences in

personalities (Pennebaker, Mehl, and Niederhoffer, 2003). In the area of strategic management, Chatterjee and Hambrick (2007) highlight that "speech is a form of expressive behaviour, reflecting the most dominant and consistent personality traits of an individual". However, this method has received little attention in finance studies.

In this study, I develop my third CEO narcissism measure based on content analysis of CEO speeches about M&A deals. The analysis of CEO speeches (narratives) is conducted through the content analysis software, Diction 5.0.

Diction 5.0 is a Windows-based program that examines the verbal tone of a text, based on a 10,000-word corpus. It uses a series of dictionaries to search the content for five semantic features – Activity, Optimism, Certainty, Realism and Commonality (with thirty five sub-features). It has a theoretical basis in applied linguistics and focuses on the linguistic structure in narratives. It has been widely used in psychology studies (e.g. Bligh, Kohles, and Meindl, 2004), politics studies (e.g. Forsythe, 2004; Blighn and Hess, 2007), and management studies (e.g. Finkelstein, 1997; Emrich, Brower, Feldman, and Garland, 2001; Bligh and Hess, 2007; Alexander, Ober, and Zhao, and Davis, 1999).

This software is appealing for use in this study for three reasons. First, the semantic features it searches for fit well the purpose of my study. Second, the focus of the Diction analysis fits very well with the nature of the texts, CEO speeches, to be analyzed in this study. More specifically, Diction 5.0 focuses on rhetorical narralogy

(Hart, 1985) and the speeches of CEOs are notorious for their great rhetoric. Finally, the software can generate objective scores of the verbal tone of a text, free from the researchers' subjective judgements.

In this study, the Diction variable OPTIMISM[22](optimistic tone) is used to construct my content analysis of CEO speech measure of CEO narcissism. The score on variable OPTIMISM obtained in the content analysis of a CEO's speech about a specific M&A deal he/she engages in reflects the CEO's belief in his/her ability to extract value from the particular deal. The abnormally high score on variable OPTIMISM may reflect the CEO's distorted belief in his/her superior (better-than-average) quality and ability to generate returns in M&A. This "overconfidence" or "overestimation" of his/her ability is a core characteristic of a narcissistic personality. Therefore, I use the abnormally high OPTIMISM score to detect high level of CEO narcissism in this study. In addition, as the CEO narrative passages we are interested in here are business-related texts (CEO speeches), to give us greater specificity, I employ Diction's built-in "Business: Corporate Public Relations" as the normative profile. The Corporate Public Relations normative profile is developed from a broad range of collection of "official mission statements, public pronouncements, and CEO speeches in behalf of major American corporations from 1960s through the mid-1990s".[23]

There are four steps in the construction of my Content analysis of CEO speech measure of CEO narcissism. First, I extract CEO speeches (discourses) or statements

[22] See Appendix 1 for the formulae and word lists used to construct variable OPTIMISM in Diction 5.0. In addition, an example of the output of Diction 5.0 is presented in Appendix 2.
[23] DICTION 5.0 THE TEXT-ANALYSIS PROGRAM User's Manual.

about the deal from 8-K SEC-filed documents, other relevant documents (e.g. proxy statements), and the same wide-range of financial media sources used in deriving my media portrayal measure.[24] Second, I transform the file format into the format required by Diction. Third, I conduct content analysis on those CEO narrative passages and obtain the Diction score for variable OPTIMISM. Finally, I obtain the value of the binary variable *HN* (measure of CEO narcissistic tendency) by comparing the OPTIMISM score with the Diction defined normal score range (the range of normal level of narcissism). *HN* = 1 (the CEO is classified as highly narcissistic CEO) if the OPTIMISM score is greater than the upper limit of the normal OPTIMISM score range, otherwise 0.

I remove the observations if the CEO's OPTIMISM score is equal to the upper limit of the normal OPTIMISM score range, as, in that case, it is impossible to decide whether a CEO should be classified as highly narcissistic or not, according to this measure. In addition, if a CEO has more than one narrative passage about a deal, I obtain the OPTIMISM score for each narrative separately and then use the average score of these narratives as the CEO's OPTIMISM score. However, if a CEO has conducted more than one deal and has more than one narrative passage about different deals, I obtain the OPTIMISM score for each deal separately and classify a CEO as HN (HN=1) and LN (HN=0) CEO based on the CEO OPTIMISM score for each deal. This means that it is possible for a CEO to have two different OPTIMISM scores if he/she has conducted more than one deal.

[24] The data collection procedure is introduced in detail in section 5.5.

4.3 Method used to evaluate M&A short run and long run performance

As the main aim of this study is to explore the relationship between CEO narcissism and firm M&A performance, I first need to evaluate firm performance in the context of M&A. Therefore in this section, the methods used to measure firm short run and long run performance are discussed.

4.3.1 Event study methodology

In this study, an event study method is employed to evaluate firm M&A announcement and long run post-acquisition performance.

An event study is a method for examining the impact of an event (e.g. the announcement of an M&A deal) on firm (stock) performance, and it has been widely used in finance and economics studies. The basic assumption of this method is that the capital market is efficient and the impact of an event will be reflected in the repricing of an asset consequent on the announcement of the event. The central idea of this method is to detect the abnormal return due to an event. To achieve this, researchers need to conduct a series of calculations. A typical event study often consists of three steps. First, the normal (or benchmark) return needs to be calculated. Second, the abnormal return is calculated by comparing the firm's actual (or realised) return with the normal (or benchmark) return. Finally, the abnormal returns need to be aggregated over time or (and) across securities (firms). However, this is only the general procedure. There are many different models that can be used to conduct the

calculations in each step. Which specific method should be used depends on the type of study, the purpose of the study, and the characteristics of the data.

According to the length of the event window, event studies are often divided into two categories: short run event studies and long run event studies. Short run event study examines stock performance during a short time window around the event, while a long run event study measures the firm (stock) performance over a relatively long period of time after the event. As this study examines the impact of CEO narcissism on both short run firm M&A performance and long run post-acquisition performance, both short run and long run event study methods are employed. These two types of event study methods are very different in terms of how they measure normal return, the method for calculating abnormal return and the procedure for aggregating abnormal returns. Therefore, in the following sub-sections, I introduce my short run event study method and long run event study method respectively.

4.3.2 Short run event study

The short run event study method is employed to evaluate firm stock performance around the announcement of a merger or acquisition. The event is a merger or acquisition; t=0 is the deal announcement date; and daily stock data is used in the calculations. The abnormal return is defined as follows:

$$AR_{it} = R_{it} - E(R_{it} \mid X_t)$$

Where R_{it} is the return of stock i at time t; and

X_t is the conditioning information for the normal return model.

To calculate the abnormal return, I first need to derive the normal return that would be expected if the event did not occur. The market model is used to estimate the normal or benchmark return:

$$r_{it} = \alpha_i + \beta_i r_{Mt} + \varepsilon_{it} \qquad (\ E(\varepsilon_{it}) = 0, \quad \text{var}(\varepsilon_{it}) = \sigma^2_{\varepsilon_i} \ )$$

Where r_{it} is the return at time t on the stock (firm) i; and

r_{Mt} is the return at time t on the market portfolio; and

α_i, β_i the parameters of the market model; and

ε_{it} the disturbance term.

Model parameters are estimated from the data over an estimation period. In this short run event study, the minimum estimation period is (-145, -46) days and the maximum estimation period is (-345, -46) days.[25] Both the CRSP equally weighted and the value weighted indices are used as the market index. Ordinary least squares (OLS) and Scholes-Williams betas are used in the parameter estimation of the market model. Then I derive the abnormal return that is the error of the prediction obtained from the market model:

$$AR_{it} = r_{it} - \hat{\alpha}_i - \hat{\beta}_i r_{Mt}$$

Where AR_{it} is the abnormal return at time t on stock (firm) i; and

$\hat{\alpha}_i$ is the OLS estimator of the parameter α_{ii} in market model; and

$\hat{\beta}_i$ is the OLS estimator of the parameter β_i in market model.

[25] My choice of minimum and maximum estimation period is based on Peterson (1989), which shows that the general estimation periods for short run (daily) event study range from 100 to 300 days.

Finally, the abnormal returns are aggregated for a defined announcement event window (τ_1, τ_2). In this study, for short run stock performance, the cumulative abnormal returns (CARs) for the 3-day event window (-1, +1) are calculated:[26]

$$CAR_i(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_{it}$$

Where $CAR_i(\tau_1, \tau_2)$ is the cumulative abnormal return on stock (firm) i over the event window (τ_1, τ_2), in this case (-1, +1).

4.3.3 Long run event study

A long run event study method is also employed to evaluate acquiring firm long run post-M&A performance. For each acquiring firm, I compute the buy-and-hold-abnormal return (BHAR) by comparing the buy-and-hold return on the acquiring firm over a post-M&A window with the buy-and-hold return on a benchmark portfolio. The time horizon is (+1, +24)[27] months, commencing one month following the event date t=0. The BHARs are derived as follows:

$$BHAR\ (\tau_1, \tau_2) = \prod_{t=\tau_1}^{\tau_2}[1 + r_{it}] - \prod_{t=\tau_1}^{\tau_2}[1 + R_{pt}]$$

Where r_{it} is the return at time t on stock (firm) I; and

(τ_1, τ_2) is the post-M&A window, in this case (+1, +24); and

R_{pt} is the return at time t on benchmark portfolio.

[26] For robustness checks, the cumulative abnormal returns over the event window (in days) (-2, +2), (-3, +3), (-5, +5) and (-10, +10) are also used in the short run performance regression analysis. My results remain unchanged.

[27] For robustness checks, the buy-and-hold abnormal returns over the post-acquisition period (in month) (+1, +12) and (+1, +18) are also used in the long run performance regression analysis. My results remain unchanged.

The return on the benchmark portfolio is used as an estimate of the unobservable "status quo" return that an acquiring firm would have had if the merger or acquisition had not happened. I construct my benchmark portfolios based on the industry, firm size and book-to-market ratio (BE/ME).[28]

I extract the information about all non-financial and non-utility stocks[29] listed on NYSE, AMEX and NASDAQ. Then I classify all stocks into 10 industry groups, following the industry classification process used by Fama and French.[30] Following that, I first divide the firms in each industry group into 3 portfolios based on their size, and then further break down each portfolio into 3 sub-portfolios based on their book-to-market ratio (BE/ME). Through this process, I obtain 90 (10×3×3) benchmark portfolios.

4.4 Regression models and variables

This section introduces the models[31] used to test the hypotheses developed in chapter 2. Two types of regression model are used in this study: the logistic and ordinary least squares (OLS) regression models. I introduce these two types of regression model in the following sub-sections respectively.

[28] For robustness checks, I also include a momentum factor in the construction of benchmark portfolios. My results remain unchanged.
[29] I include all stocks for which the relevant data are available.
[30] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#HistBenchmarks. I exclude financial and utility industries from Fama-French's 12 industry portfolios, leaving 10 industry groups in my study.
[31] For robustness checks, I add the variable High_tech_dummy (a dummy variable that indicates the high-tech status of a firm) in the models introduced in this chapter to test if my results are driven by high-tech firms. My results remain unchanged. (The regression results are presented in Appendix 4.) In addition, my regression models used in Chapter 7 also include the variable High_tech_dummy.

4.4.1 Logistic regression

To explore the role of CEO narcissism in M&A decision-making, more specifically, to examine the relation between the likelihood of a CEO conducting deals and the CEO narcissism tendency, I test my first hypothesis *H1*.

H1: High narcissism CEOs are more likely to conduct mergers and acquisitions than low narcissism CEOs.

The following logistic regression model is used to test this hypothesis:

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8 return_{year-1} + \varepsilon \qquad (1)$$

As my dependent variable *Y* is a binary variable, the ordinary least squares (OLS) model is unsuitable here. Therefore, in this case, I chose the logistic regression technique that is often used when the dependent variable is a binary. As the assumptions of logistic regression model and OLS model are very different, the estimator significance test and goodness of fit tests for these two types of model are also different. In this logistic regression analysis, the likelihood ratio (LR) statistic is used to test the goodness of model fit, and the z-statistic is used to test the significance of the regression variables. In the rest of this section, I introduce the variables in this model.

The dependent variable *Y* is a binary variable, which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year. I derive

the value of *Y* based on the historical data of firm M&A activities.

The main independent variable is *HN*, a binary variable equals to 1 for high narcissism CEOs, and equals to 0 otherwise. Two proxies for CEO narcissism – Holder67 and Media portrayal, are used in this model. The value of *HN* is derived from these two narcissism measures respectively. The Content analysis of CEO speech measure is not used in this model, as the construction of this measure requires the CEO to have conducted at least one M&A deal during the sample period (in other words, the content analysis measure can only be constructed for CEOs who have ever conducted deals), while in this regression model the observations include both CEOs who have ever conducted deals and those who have not.

To control for other factors that might impact on the M&A decision, a set of control variables is also included in the model. Specifically, variable *Size* controls for firm size, since there is some evidence (e.g., Moeller and Stulz, 2004) that the CEOs of larger firms are more likely to suffer from hubris. In my study, *Size* is the natural logarithm of the acquirer's total assets at the end of the last fiscal year (before the deal announcement year), as used by Malmendier and Tate (2008).

Variables *SO* (stock ownership) and *VO* (CEO holding of vested options) are included to control for the impact of the CEO compensation package on their M&A decision making. *SO* is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. *VO* is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. Variable *CF* is

used to control for the firm's internal level of resources. *CF* is the normalized ratio of firm cash flow. Variable *Q* (Tobin's Q) is used to control for growth opportunities, and is defined as the market value/book value of the assets.

Variable *CG* (G-index) is used to control for corporate governance quality. Most previous studies only use a single corporate governance variable, such as the number of board members (Malmendier and Tate, 2008) or CEO tenure (Sudarsanam and Huang, 2006), which lead to weak proxies for the overall corporate governance regime. Therefore, I use a more comprehensive and sophisticated proxy for the quality of corporate governance, the G-index, in this study. The G-index is a number based on 24 different governance provisions in several governance areas and provides a comprehensive measurement of the quality of the firm's governance mechanism (Gompers, Ishii, and Metrick, 2003).[32] It is worth mentioning here that the G-index is constructed in such a way that, the higher the G-index, the poorer the corporate governance quality.

Finally, I also include a lagged return variable $return_{year-1}$ in my regression to control for the impact of prior returns on firm acquisitiveness behaviour.

In this study, the Pearson residual is used to test for outliers.[33]

[32]The G index is firstly constructed by Gompers, Ishii, and Metrick, and then issued by IRRC (Investor Responsibility Research Center. The index I used here is downloaded from http://finance.wharton.upenn.edu/~metrick/data.htm.

[33] The Pearson residual is the raw residual divided by the square root of the variance function. An observation is identified as an outlier if its Pearson residual is not in the normal range (-2.0, +2.0).

4.4.2 Ordinary least squares (OLS) regression models

To examine empirically the impact of CEO (both acquiring firm CEO and target firm CEO) narcissism on firm performance in the context M&A, I need to test the hypotheses developed in chapter 2 as follows:

H2: The impact of CEO narcissism on firm M&A announcement performance is negative.

H3: The impact of CEO narcissism on firm long run post-acquisition performance is negative.

H4: Target firm CEO narcissism has a negative impact on firm M&A announcement performance.

H5: Target firm CEO narcissism has a negative impact on firm long run post-acquisition performance.

Conventional ordinary least squares (OLS) regression models are used in testing these hypotheses. The t-stat is used to test the significance of each predictor variable, and the adjusted R^2 and F-test are used to test the model fit.

4.4.2.1 The regression model used in examining the impact of acquiring firm CEO narcissism on the announcement return of the acquiring firm

The following regression model is used to examine the impact of acquiring firm CEO narcissism on acquiring firm M&A announcement performance (or the market reaction) to the deal announcement. (Test for the hypothesis *H2*.)

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon \quad (2)$$

Variables *SO, VO, CG,* and *Size* follow the same definitions as in equation (1).

The dependent variable in this regression is the 3-day event window (-1, 1) cumulative abnormal return (CAR) around the event day t=0 (5-day, 7-day, 11-day, 21-day and 41-day CARs are also calculated for robustness check purposes.). The method for calculating CARs has been introduced in section 4.3.2.

HN is the main independent variable of interest, which is equal to 1 for high narcissism CEOs, and equal to 0 otherwise. Its value is derived from three measures for CEO narcissism – Holder67, Media portrayal, and Content analysis of CEO speech respectively.

To control for the impact of other factors on firm performance, I use a group of control variables. These controls are extracted from the literature which suggests that these factors may have an influence on firm performance in M&A.

Variable *RSize* represents the relative size of the target firm and is calculated as the ratio of the acquirer's size/target size. The literature (Kohers and Kohers, 2000) shows that relative size of target to bidder has a significant impact on the bidder's announcement returns.

Variable *Attitude* is a binary variable, where 1 signifies that the deal attitude is

classified as “hostile”, and 0 signifies it to be “friendly” or “neutral”.[34] Some previous studies show that the performance of the acquiring firms that conduct “hostile” takeovers is significantly better than that of those conduct “friendly” deals. However, some academic argue that this difference might actually be a reflection of the difference in the types of deals – non-tender offers or tender offers. In the literature, there is evidence that tender offers tend to perform better than non-tender offers, while most “hostile” deals are tender offers.

Variable *relatedness* is a binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same, 0 otherwise. I include this variable in the set of controls, as previous studies suggest that the M&A performance is associated with the relatedness of the acquiring firm’s business and the target firm’s business. For example, Sicherman and Pettway (1987) report that the CAR for the mergers or acquisitions of related business are significantly higher than those of mergers or acquisitions of unrelated business, which suggests that the acquisition of related business units enhances the acquiring firm’s value while the acquisition of unrelated business may have a negative impact on the acquiring firm’s shareholder value. Healy, Palepu, and Ruback (1992) also find that the announcement period return of the takeover is higher when the acquiring firm’s business and the target firm’s business are highly overlapping compared with the return of the acquisition of unrelated business. Fan and Goyal (2006) also show evidence that vertical mergers perform better than diversifying mergers.

[34] I follow the TOB deal attitude definition: “Friendly” indicates the target firm’s board recommends the offer; “Hostile”, that the target firm’s board officially rejects the offer but the acquirer persists with the takeover; and “Neutral”, that the target firm’s board has nothing to do with the transaction.

Variable *Growth* is the target's market/book (M/B) ratio, which is used to proxy for growth options. Morck, Shleifer, and Vishny (1990) report that acquiring firm M&A short run (announcement) performance is better if the acquisitions involve the purchase of a fast growing target (high M/B ratio) firms. Kohers and Kohers (2000) also show that the short run performance of acquiring firms is significantly positive when the targets are high-tech firms (high-tech firms usually have high M/B ratios.)

Variable *Payment* is a binary variable, where 1 signifies that the method of payment of the deal is cash, otherwise 0. There are a lot of studies on the relation between the financing methods of M&A deals and firm M&A performance. The results of most studies show that the abnormal returns for acquiring firms can vary significantly across the different payment methods. Franks, Harris and Mayer (1988) find that the performance of the acquiring firms that conduct cash payment deals is better than that of the acquiring firms conducting equity payment deals. Travlos (1987) also report a significant difference in the abnormal returns of acquiring firms between stock offers and cash offers They find that the returns of the bidding firms with equity offer are significantly negative during the announcement period, while the returns of the firms with cash offers gain normal (zero abnormal) returns. Therefore, they propose that this result reflects the signalling effect that the stock offer conveys the negative signal that the bidding firm's stock is overvalued, and therefore the market reacts negatively.

In this model, I also control for the corporate governance quality by including the Variable *CG* in the regression. Some previous studies show that corporate

governance has a significant impact on firm M&A performance. For example, Byrd and Hickman (1992) find that bidding firms with good corporate governance (at least 50% of the board seats held by independent outside directors) have a significantly higher announcement abnormal return than those with poor corporate governance (less than 50% of the board seats held by independent outside directors). They conclude that strong corporate governance can efficiently monitor the M&A decision-making process and help protect shareholders' interests.

4.4.2.2 The regression model used in examining the impact of acquiring firm CEO narcissism on acquiring firm long run post-acquisition performance

The following regression model is used to examine the impact of acquiring firm CEO narcissism on acquiring firm long run post-acquisition performance. (Test for the hypothesis *H3*.)

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon \quad (3)$$

The independent variables follow the same definitions as in equation (2).

The dependent variable in this regression is acquiring firm long run performance, the 2-year window (+1, +24 month) buy-and-hold abnormal return (BHAR) commencing one month after the event date. 1-year, 1.5-year and 3-year BHARs are also calculated for robustness check purposes. The method for calculating BHARs was introduced in section 4.3.3.

4.4.2.3 The regression model used in examining the impact of target firm CEO narcissism on the announcement return of the acquiring firm

In the hypotheses development in Chapter 3 section 3.2.3, I have shown that not only acquiring firm CEO narcissism but also target firm CEO narcissism can have an impact on acquiring firm announcement performance. To examine such an impact, I use the following regression model to test the hypothesis *H4*:

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon \quad (4)$$

Similar to equation (2), the dependent variable in this regression is the 3-day event window (-1, 1) cumulative abnormal return (CAR) around the event day t=0 (5-day, 7-day, 11-day, 21-day and 41-day CARs are also calculated for robustness check purposes).

The variables *SO, VO, CG, RSize, relatedness, Growth, Attitude, Payment, and Size* follow the same definitions as in equation (2).

HN_A and HN_T are the main independent variables of interest. HN_A is the binary variable of acquiring firm CEO narcissism, which is equal to 1 for high narcissism acquiring firm CEOs, and equal to 0 otherwise. The value of HN_A is derived from three measures of CEO narcissism – Holder67, Media portrayal, and Content analysis of CEO speech separately. HN_T is the parallel binary measure of target firm CEO narcissism, which is equal to 1 for high narcissism target firm CEOs, and equal to 0 otherwise. The value of HN_T is derived from two measures for CEO

narcissism – Holder67 and Media portrayal. I did not use the Content analysis of CEO speech proxy as the measure of target firm CEO narcissism for two reasons. First, there is limited target firm CEO speech data available. Second, and more importantly, target firm CEO speeches on the deal convey very limited information about their beliefs in their own ability to manage the firm, as target firm CEOs will not be in the CEO position after acquisitions, in most cases. In other words, unlike acquiring firm CEOs, target firm CEOs have rather passives role in acquisitions. Therefore their speeches often do not reflect the CEO's volition and we would not expect to extract much information about their self-view from their speeches about the M&A deals.

4.4.2.4 The regression model used in examining the impact of target firm CEO narcissism on acquiring firm long run post-acquisition performance

The following regression model is used to examine the impact of target firm CEO narcissism on acquiring firm long run post-acquisition buy-and-hold abnormal returns. (Test for the hypotheses *H5*)

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon \quad (5)$$

The dependent variable in this regression is acquiring firm long run performance, the 2-year window (+1, +24 month) buy-and-hold abnormal return (BHAR) commencing one month after the event date. 1-year, 1.5-year and 3-year BHARs are also calculated for robustness check purposes. All of the independent variables follow the same definition as in Equation (2).

4.4.3 Summary table of variables

Table 4-2 provides a summary of the definitions of the variables used in the regression models.

Table 4-2 Definitions of variables

Variable	Definition
Y	A binary variable, which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year.
HN,	A binary variable equals to 1 for high narcissism CEOs, and equals to 0 otherwise. The value is derived from three measures of CEO narcissism – Holder67, Media portrayal, and Content analysis of CEO speech separately.
HN_A	A binary proxy variable for acquiring firm CEO narcissism, which is equal to 1 for high narcissism acquiring firm CEOs, and equal to 0 otherwise. The value is derived from three measures of CEO narcissism – Holder67, Media portrayal, and Content analysis of CEO speech separately.
HN_T	The parallel binary measure of target firm CEO narcissism, which is equal to 1 for high narcissism target firm CEOs, and equal to 0 otherwise. The value is derived from two measures of CEO narcissism – Holder67 and Media portrayal.
CAR	The 3-day event window (-1, 1) cumulative abnormal return around the event day t=0. Five-day, Eleven-day and Twenty-one-day CAR are also calculated for robustness check purposes.
BHAR	The acquiring firm's 2-year window (+1, +24 month) buy-and-hold abnormal return commencing one month after the event date. 6 months,12 months, 18 months, 30 months, 36 months BHARs are also calculated for robustness check purposes.
Size	Equal to the natural logarithm of acquirer total assets at the end of the last fiscal year (before the deal announcement year).
SO	Equal to the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year.
VO	Equal to the CEO's holdings of exercisable options, as a fraction of common shares outstanding.
CF	Equal to the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by the beginning of the year capital.
Q	(Tobin's Q). It is defined as the market value of assets/the book value of assets.
CG	G-index: a number based on 24 different governance provisions in several governance areas and provides a comprehensive measurement of the quality of the firm's governance mechanism (Gompers, Ishii, and Metrick, 2003). The G-index is constructed in such a way that, the higher the G-index, the poorer the corporate governance quality.
RSize	The relative size of the target firm. It is defined as the ratio of the acquirer's size to target size.
relatedness	A binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same, 0 otherwise.
Growth	The target firm's market/book (M/B) ratio.
Attitude	A binary variable where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral".
Payment	A binary variable where 1 signifies that the payment method of the deal is cash, otherwise 0.
$return_{year-1}$	1-year lagged stock return of acquiring firm.

4.5 Summary

This chapter discusses the methodological issues associated with the measurement of CEO narcissism, the calculation of firm short run and long run M&A performance, and the testing of the hypotheses. First, starting with a detailed review of the proxies for CEO narcissism and related constructs in the extant strategic management and finance literature, I then introduce the ways to construct my three measures of CEO narcissism – Holder67, Media portrayal, and Content analysis of CEO speech. Second, I describe the short run and long run event study methods employed to calculate firm M&A announcement cumulative abnormal return and long run post-acquisition buy-and-hold abnormal return. Finally, I present the logistic and OLS regression models used in hypothesis testing. The variables in the regression models are also defined and discussed.

The following chapter will describe the data used in my empirical analysis. The data sources, sampling procedure, and sample descriptions are presented in detail.

Chapter 5 Data, data sources, sampling process, and sample description

5.1 Introduction

To test the hypotheses developed in chapter 3, I conduct an empirical study on a large sample of CEOs and mergers & acquisitions. This chapter details the data sources, sampling process and data selection criteria. Data descriptions are also provided.

As this study aims to examine CEO narcissism in decision-making and its impact on firm performance in the context of mergers and acquisitions, six broad categories of data are essential: (1) CEO data; (2) firm data (firm characteristics and performance data); (3) M&A data; (4) CEO media portrayal data; (5) CEO speeches about M&A deals; and (6) other supplementary data. The fourth and the fifth categories of data are used to construct my two measures of CEO narcissism: media portrayal and content analysis of CEO speech.

Briefly, the data collection and sampling process consists of six steps. First, from ExecuComp database, CEOs at any time during the period 1993-2005 who meet my data selection criteria are identified, and their compensation and other relevant data are extracted from the ExecuComp database. At the same time, the firms' CUSIP codes and tickers corresponding to these selected CEOs are also identified. Financial and utility firms are then excluded.[35] Second, I search the Thompson One Banker (TOB) SDC database for the mergers or acquisitions conducted by the sample CEOs

[35] Following Fama and French (2001) and DeAngelo, DeAngelo, and Skinner (2004), I define firms with SIC codes outside the ranges 4900–4949 and 6000–6999 as financial and utility firms.

during their tenure. Deal announcement date, SDC deal number, target firm, deal value and other relevant characteristics are also obtained in this step. Third, I obtain the necessary stock return data from the CRSP database for event study purposes. Fourth, I then match various financial (accounting) items from COMPUSTAT with my CEO data set, M&A deals dataset, and CRSP data. Fifth, the CEO media coverage data required for constructing the alternative CEO narcissism measure, media portrayal, is obtained from 37 financial media sources in the Factiva database through systematic keyword searches.[36] Finally, the M&A deal-related CEO discourses (speeches) required for the construction of my content analysis-based CEO narcissism proxy measure are extracted from SEC form 8-K filings as well as the same 37 media sources as used in the derivation of the media portrayal measure (via the Factiva database).

This chapter is organised as follows: section 5.2 describes the sampling process and selection criteria for CEO data and firm data; section 5.3 introduces the sampling process for M&A deals; section 5.4 presents the data sources, collection process and description of the media coverage data related to the CEO media portrayal measure; section 5.5 describes the data sources, data selection and description of CEO speeches (narratives) and about M&A deals; section 5.6 presents the data sources for other supplementary data; section 5.7 provides a description of my samples; and section 5.8 summarises the data and sample issues.

[36] The 37 media sources are listed in Appendix 1.

5.2 CEO data and firm data

In this study, CEO stock option holding data, stock ownership, tenure and some other CEO personal characteristics are essential to the construction of the CEO narcissism measure Holder67 and to the associated empirical analysis. Therefore, the starting point of the whole sampling process is Standard & Poor's ExecuComp database, which is one the most complete and comprehensive databases of executive compensation and other related data available. It includes more than 80 compensation (salary, bonus, options and stock awards, etc) and personal information items on over 12,500 executives, and covers the companies included in the S&P 500, S&P 400 Midcap and S&P Smallcap 600 indexes and also those companies that were once part of the S&P 1500. The data is annual, collected from each company's annual proxy statement,[37] and dates back to 1992.

To ensure that the CEO narcissism measure Holder67 is constructed appropriately, I only include in my sample CEOs whose compensation data meets the following two criteria:

Criterion 1: The CEO has at least 2 years' compensation data in ExecuComp

Criterion 2: At least over a 2 year period, the CEO has some options that are both in-the-money and exercisable.

Criterion 1 aims to ensure that I have enough data for constructing my CEO narcissism measure Holder67. Since I classify a CEO as "highly narcissistic" if the

[37] DEF14A SEC form.

CEO failed to exercise his/her vested options when the options are more than 67% in-the-money at least twice during the sample period, I need at least 2 years of compensation data for a particular CEO in order to examine his/her option exercising behaviour.

Criterion 2 also needs to hold in constructing my CEO narcissism measure Holder67, since it helps me to rule out the possibility that the CEO failed to exercise his options not because he was highly narcissistic but because the options were out of money or unexercisable.

Initially, from the ExecuComp database, I identify 4,988 CEOs, 2,754 firms and a total of 29,464 observations from January 1992 to December 2005, where each observation represents the data serial for a particular CEO of a particular company in a particular year. On this basis, I exclude the observations that fail to meet my two CEO selection criteria and those firms not covered (tickers and CUSIP codes not recognized) by the Thomson One Banker SDC database.[38] I also exclude financial and utility firms. This selection process leaves a total of 3,162 CEOs, 2,129 companies, and 22,103 observations in my final sample. Table 5-1 provides the details of my sample selection process.

[38] I require that the tickers or CUSIP codes of the sample firms must be recognised in the Thomson One Banker SDC (TOB SDC) database because I need to use these identifiers to extract the information of the M&A deals conducted by the sample firms from that database.

Table 5-1 Sample selection process – CEOs and firms

Procedure	Number of CEOs	Number of firms	Observations
Available from the Execucomp database by December 2005 (starting from 1992)	4,988	2,754	29,464
Less CEOs not meeting criterion 1	906	192	
CEOs with a minimum of 2 years compensation data in Execucomp	4,082	2,562	
Less CEOs not meeting criterion 2	665	214	
CEOs meeting my two selection criteria	3,417	2,348	
Less the firms with tickers or CUSIP codes not recognized by the Thompson One Banker SDC database	21	14	
Less the finance and utility firms	234	205	
Total	**3,162**	**2,129**	**22,103**

At this stage, the firms' identifiers, such as firm names, tickers, and CUSIP codes corresponding to these sample CEOs, are also obtained. This identifying information is essential to the collection of other data.

5.3 Data about the mergers and acquisitions

Based on the CEO-firm sample obtained from the ExecuComp database, I extract the M&A deals conducted by my sample CEOs during their tenures and announced between January 1 1993 and December 31 2005, from the Thompson One Banker SDC database. The announcement date of the deal follows the Thompson One Banker SDC "date announced" definition.[39] Three types of transaction are included in my sample: merger, acquisition of majority interest, and acquisition of assets.[40]

I require both acquirer and target to be public firms, for data requirement purposes. I also require that the deal value is at least $1 million. In addition, I only consider deals in which the value of the target is greater than 5% of the value of the acquirer, because acquisitions of small units of another company may not require direct input from the acquirer's CEO. The 5% cut-off point follows Morck, Shleifer, and Vishny (1990).

Table 5-2 shows the screening criteria for mergers and acquisition data.

[39] Thompson One Banker SDC defines the "date announced" as "The date one or more parties involved in the transaction makes the first public disclosure of common or unilateral intent to pursue the transaction (no formal agreement is required). Among other things, Date Announced is determined by the disclosure of discussions between parties, disclosure of a unilateral approach made by a potential bidder, and the disclosure of a signed Memorandum of Understanding (MOU) or other agreement".

[40] I follow the TOB SDC definitions of these three types of transactions as follows:
Merger: "A combination of business takes place or 100% of the stock of a public or private company is acquired"; Acquisition of majority interest: "the acquirer must have held less than 50% and be seeking to acquire 50% or more, but less than 100% of the target company's stock."; Acquisition of assets: "deals in which the assets of a company, subsidiary, division, or branch are acquired. This code is used in all transactions when a company is being acquired and the consideration sought is not given".

Table 5-2 Sample screening (mergers and acquisitions)

Request	Criteria
Database	All Mergers & Acquisitions
Acquirer Nation	United States of America
Target or Acquirer Public Status	Public
Deal Status	Completed
Deal Type	Mergers, Acquisitions (acquisition of majority interest, and acquisition of assets)
Date Announced	01/01/1993 to 12/31/2005
Deal Value ($ Mil)	Higher than 1
The ratio of the value of the target to the value of the acquirer	Greater than 5%

From the TOB SDC database, I extract the following information about each M&A deal: deal number, announcement date, deal type, deal value, acquirer SIC code, target SIC code, and payment method (Cash/stock).

5.4 Media data

To construct the media portrayal measure of CEO narcissism, I collect data on how the media portrays each CEO over the sample period via the Factiva database.[41] The 37 media sources searched are shown in Table 5-3.

[41] The Factiva database covers more than 25,000 leading news and business publications from around the world. Highly targeted and precise search results can be obtained through its advanced search tools.

Table 5-3 List of media sources

Country	Name	Country	Name
1 (US)	The Atlanta Journal-Constitution	20 (US)	Newsday (N.Y.)
2 (US)	The Baltimore Sun	21 (US)	Newsweek
3 (US)	Barron's	22 (US)	Orlando Sentinel (Fla.)
4 (US)	The Boston Globe	23 (US)	The Philadelphia Inquirer
5 (US)	BusinessWeek	24 (US)	Pittsburgh Post-Gazette
6 (US)	Charlotte Observer (N.C.)	25 (US)	San Antonio Express-News
7 (US)	Chicago Sun-Times	26 (US)	San Jose Mercury News
8 (US)	Chicago Tribune	27 (US)	Seattle Post-Intelligencer
9 (US)	Daily News (New York)	38 (US)	South Florida Sun-Sentinel
10 (US)	The Dallas Morning News	29 (US)	St. Louis Post-Dispatch
11 (US)	Detroit Free Press	30 (US)	St. Petersburg Times (Fla.)
12 (US)	Denver Post	31 (US)	Time
13 (US)	Dow Jones Business News	32 (US)	Times-Picayune
14 (US)	Dow Jones News Service	33 (US)	USA Today
15 (US)	Forbes	34 (US)	The Wall Street Journal
16 (US)	Fortune	35 (US)	The Washington Post
17 (US)	Los Angeles Times	36 (UK)	The Economist
18 (US)	The Miami Herald	37 (UK)	The Financial Times
19 (US)	The New York Times		

For each individual CEO, I conduct a systematic keywords search for articles and news in a range of 37 media sources. The set of keywords are: “optimistic” (including “optimism”), “confident” (including “confidence”), “reliable”, “cautious”, “conservative”, “steady”, “practical”, “frugal”, “disciplined”, “conscientious”, “not confident” and “not optimistic”. I tabulate the number of articles that describe a CEO as: (1) “optimistic” (including “optimism”) and “confident” (including “confidence”); (2) “reliable”, “cautious”, “conservative”, “steady”, “practical”, “frugal”,

"disciplined", "conscientious", "not confident", "not optimistic". I exclude any article that contains mixed descriptions across these two keyword groups.

As I have mentioned in Chapter 4, considering the potential endogeneity problem that CEOs may change their tenor to send positive signals during M&A bids, or the media may be more likely to perceive acquiring CEOs as confident, I restrict the article coverage to those published in the period before the bid was announced. If a CEO conducted more than one M&A deal during his/her tenure, I restrict the sample to articles published up to his/her first merger or acquisition.

Table 5-4 shows that my final data set of media coverage includes a total of 4,110 articles. 2,548 articles describe CEOs as "optimistic" (including "optimism") and "confident" (including "confidence"), covering 62% of the full sample. 1,562 articles describe CEOs as "reliable", "cautious", "conservative", "steady", "practical", "frugal", "disciplined", "conscientious", "not confident", and "not optimistic", which covers 38% of the full sample of articles.

Table 5-4 Description of media coverage (articles)

Mention _ group (1) is the articles that describe a CEO as: "optimistic" (including "optimism") and "confident" (including "confidence"). Mention _ group (2) is the articles that "reliable", "cautious", "conservative", "steady", "practical", "frugal", "disciplined", "conscientious", "not confident", "not optimistic".

	Number of articles	% of full sample of articles
Mention _ group (1)	2,548	62%
Mention _ group (2)	1,562	38%
Total number of articles	4,110	100%

5.5 CEO speeches (narratives) about M&A deals

To construct the direct CEO speech measure of CEO narcissism, I collect CEO discourses about M&A deals from 8-K (current event) filings, other documents (e.g. proxy statements) and media sources.

Form 8-K is the "current report" that publicly traded companies are required to file with the SEC to announce major events, such as mergers or acquisitions. It usually includes a CEO's comments on the reported merger or acquisition.

If the 8-K document of a deal is unavailable from the TOB database or if the 8-K file does not include the CEO's comments on the deal, I further search the firm's other relevant SEC documents (e.g. proxy statement) for CEO narratives via the TOB database. If the CEO comments on the deal are not included in any documents in the TOB database, I conduct a further search across the same wide-range of financial media sources (37 publications) used for deriving the media portrayal measure via the Factiva database to collect a CEO's narratives about a specific M&A deal.

After the extraction of the raw data of the CEO speeches (discourses) or statements about the deal from those sources, I remove non-narrative words or phrases in the raw CEO speech data, leaving only the actual narratives. For example, the raw CEO speech data is as follows:

Homi B. Patel, president and chief executive of Hartmarx said, "With this acquisition, our annualized women's segment revenues will exceed $100 million and will enable us to accomplish our long-term goal of a 50/50 split between men's tailored and non-tailored categories much sooner than originally anticipated".

I remove the non-narrative text “Homi B. Patel, president and chief executive of Hartmarx said” from the raw passage and only leave the naked actual narratives.

Finally, I transform the file containing CEO narratives into the format required by Diction.

Table 5-5 shows that the final sample includes a total of 1,229 narrative passages, with 204 extracted from 8-K SEC filing documents, 21 from other documents and 1,004 from media publications via the Factiva database. The average length of the narrative passages of the full sample is 63 words. The average length of the passages extracted from the Factiva database is only 52 words, which is significantly shorter than the narratives extracted from SEC documents via Thomson ONE Banker platform, as news journalists often quote only part of the CEO speeches. To ensure that Diction has sufficient words to analyse, I exclude any narratives shorter than 20 words. The final sample of CEO narrative passages covers a total of 1,076 M&A deals. The number of CEO’s speeches is greater than the number of deals because, in some cases, a CEO has more than one narrative passage about a specific deal.

Table 5-5 Description of the sample of CEO narrative passages

Data sources	Total number of CEO passages	Length of passages (Mean: words)	Number of M&A deals
8-K SEC filing documents	204	114	204
Other documents	21	106	21
Other media sources (Factiva database)	1,004	52	851
Total	1,229	63	1,076

5.6 Data sources for other supplementary data

I employ an event study approach to measure firm (stock) performance around the bid announcement event and for the post-acquisition period, using stock data obtained from CRSP. To calculate firm cash flow and Tobin's Q, I also extract the following financial (accounting) data items from COMPUSTAT: total asset, earnings before extraordinary, depreciation, capital (property, plant and equipment), common share outstanding, fiscal year closing price, total liabilities, preferred stock, deferred taxes, and convertible debt. The proxy of quality of corporate governance, the G-index,[42] is obtained from the Investor Responsibility Research Centre.

5.7 Sample description

This section provides descriptions of the samples of firms, CEOs and M&A deals.

5.7.1 Firms and CEOs

Table 5-6 provides descriptive statistics on firm and CEO characteristics. The average acquiring firm has a total asset of $2,896 million and a market value of $4,151 million, with median of the total assets and market values of the sample firms are $971 million and $1,176 million respectively, which are much lower than their mean numbers. This demonstrates that the firm sample includes some very large firms, though most are medium- or small-sized firms. The average acquiring firm CEO owns around 3% of the firm's shares and holds exercisable options that are

[42] The G-index is firstly constructed by Gompers, Ishii, and Metrick (2003), and then issued by the IRRC (Investor Responsibility Research Centre. It is an integral part of the IRRC Governance database (also known as the IRRC Takeover Defence database). This index is constructed based upon 28 governance provisions.

approximately 1% of the firm's common stocks outstanding. These statistics show that the CEO holds a very small portion of firm shares on average. In addition, the average CEO tenure is around 6 years and the mean age of my sample CEOs is approximately 57 years.

Table 5-6 Summary statistics for firms (acquirers) and CEOs' characteristics

Size is the acquirer's total assets at the end of the last fiscal year (before the deal announcement year). CG is the G-index, the proxy for corporate governance quality. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by beginning of the year capital (here, capital is measured as property, plant and equipment). Q represents Tobin's Q, defined as the market value of assets/book value of assets, where the latter = total assets, and the former = total assets + market equity - book equity. Market equity = common share outstanding×fiscal year closing price; and Book equity = total assets-total liabilities-preferred stock + deferred taxes. SO is the fraction of the firm's stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding.

Variables		**Mean**	**Median**	**Standard deviation**
Firm Characteristics	Total assets ($m)	2,896	971	8,083
	Market value ($m)	4,151	1,167	11,593
	Cash Flow	0.63	0.42	0.97
	Q	2.01	1.53	1.53
	CG	9.64	10	2.65
CEO characteristics	SO	0.03	0.004	0.06
	VO	0.009	0.005	0.01
	Tenure (years)	6.23	6	2.76
	Age (years)	57.44	57	7.6

5.7.2 M&A deals

Table 5-7 presents the descriptive statistics of my sample of 1,888 mergers and acquisitions during the period January 1, 1993 to December 31, 2005. It shows that there is no significant time clustering problem in the sample of deals. The number of deals increases steadily from 22 deals in 1993 and peaks in 1999 with 191 deals (see Figure 5-1). The mean of deal values increased from $271.6 million in 1993 and peaks at $1,608 million in 1999, before falling until 2004 (see Figure 5-2). The median of deal values also increases gradually, from $121.5 million in 1993 to a peak of $289.3 million in 1999. These statistics illustrate that my sample well captures the fifth merger wave (1993-2000), that is well-documented in the literature (e.g. Moeller, Schlingemann, and Stulz, 2005).

Table 5-7 also presents the number of deals conducted by S&P500 firms, S&P400 Midcap firms, and S&P600 Smallcap firms respectively. Figure 5-3 shows that the general trends in the number of deals conducted by large (S&P500) and medium-sized firms (S&P400) are upwards until 2000, and then reverse. Unlike those by S&P500 and S&P400 firms, the number of deals conducted by S&P600 Smallcap firms increases steadily throughout the sample period.

Table 5-7 Table Summary statistics for M&A deals

This table presents the number of M&A deals, the mean deal value and the median deal value in my full sample by years. The numbers of deals conducted by S&P500, S&P400 Midcap, S&P600 Smallcap, and others sub-sample acquirers are also presented.

Year	No. of Deals (Full sample)	Mean deal value ($mil)	Median deal value ($mil)	No. of deals (S&P500)	No. of deals (Midcap)	No. of deals (Smallcap)	No. of deals (Others)
1993	22	683.5	296.8	11	3	1	7
1994	89	271.6	121.5	29	15	5	40
1995	139	634.9	130.0	36	22	5	76
1996	158	449.2	158.0	52	21	13	72
1997	152	520.2	165.5	29	28	24	71
1998	175	1,040.8	272.0	53	25	19	78
1999	191	1,608.0	289.3	55	29	35	72
2000	170	1,529.4	281.3	62	24	39	45
2001	171	800.2	177.0	36	44	52	39
2002	156	626.9	109.5	34	26	58	38
2003	155	458.2	142.5	40	36	54	25
2004	171	800.9	161.0	35	39	61	36
2005	139	1,596.6	230.0	40	28	52	19
Total	1,888	1,694.7	195.1	512	340	418	618

Figure 5-1 Numbers of M&A deals across sample period

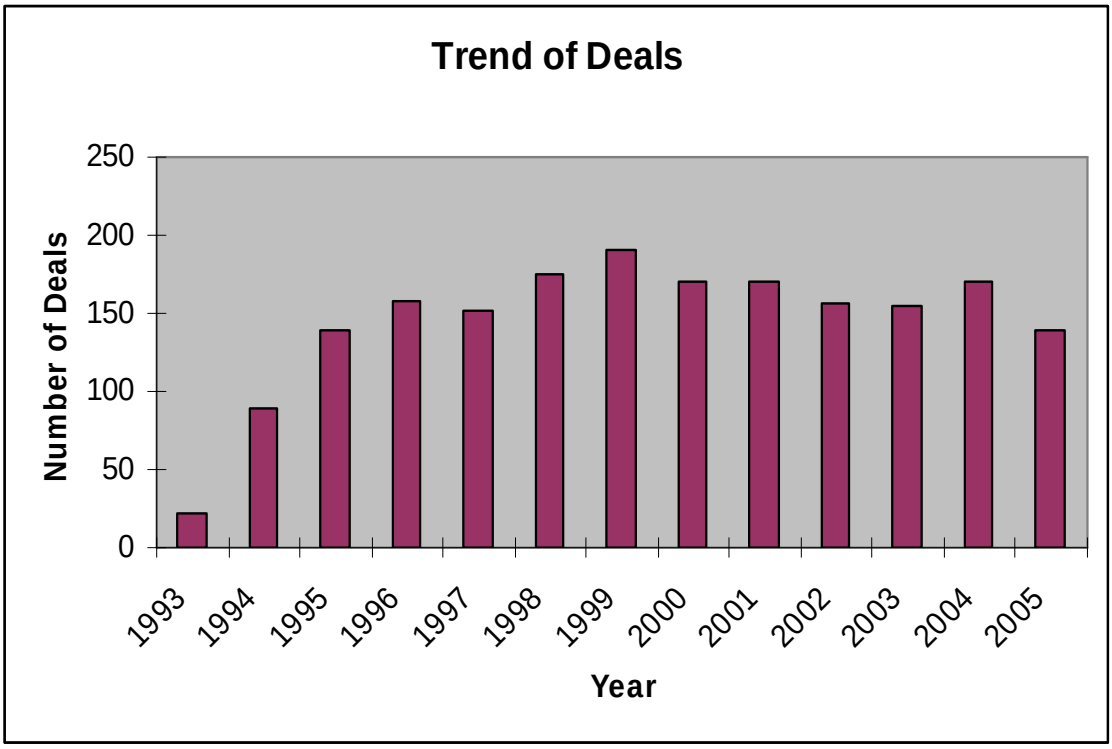

Figure 5-2 Mean and median deal value by year

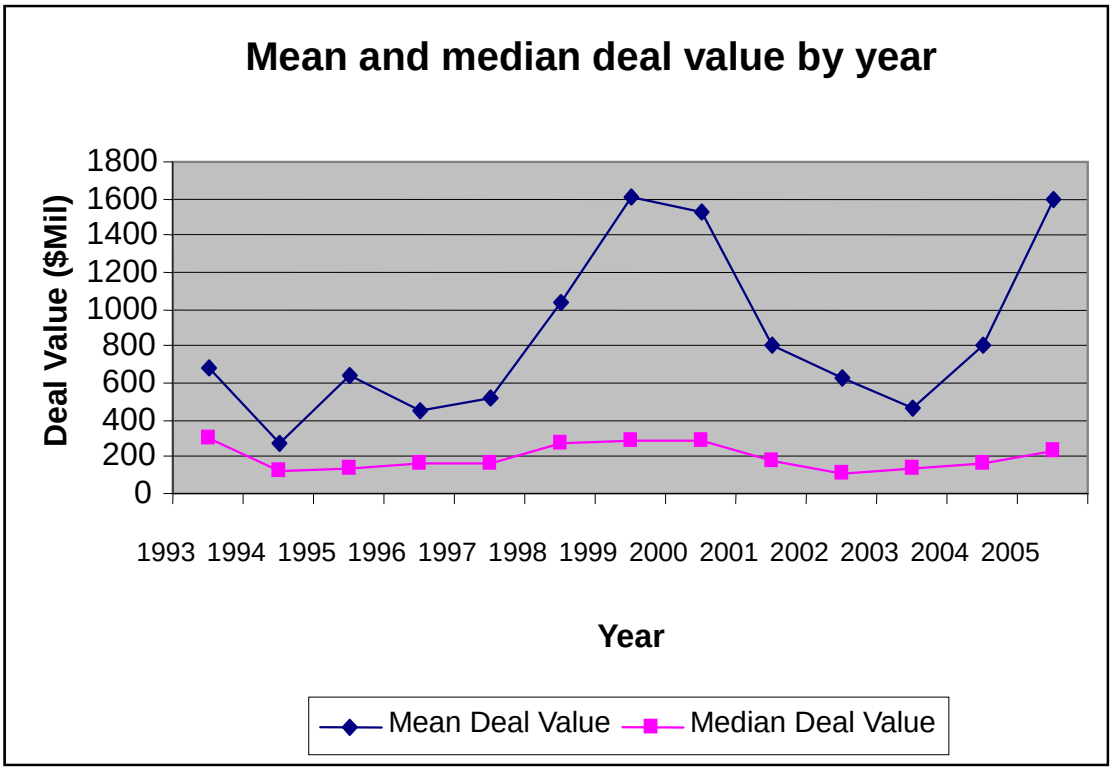

Figure 5-3 Numbers of deals (sub-samples: S&P500, S&P400, and S&P600)

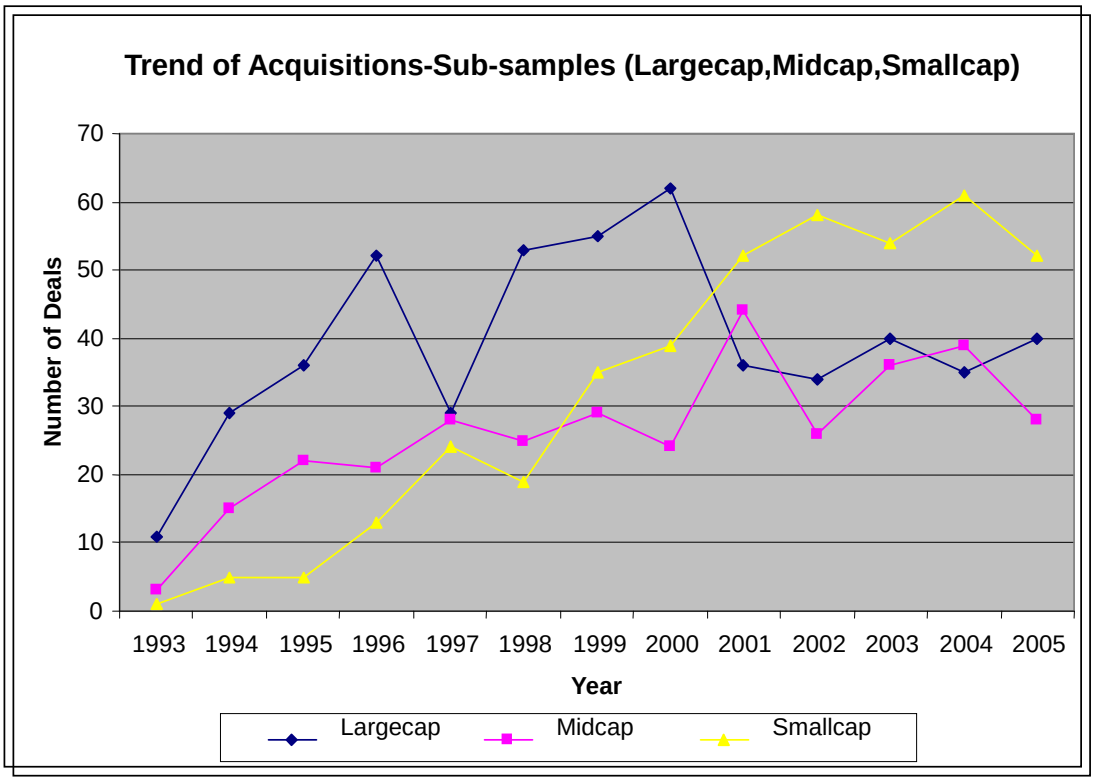

Table 5-8 presents the yearly distribution of deals with high-tech acquirers and the deals with high-tech targets. It is clearly shown that the number and percentage of deals conducted by high-tech firms was increasing until 2001, and then declined (see Figure 5-4). This trend could be a reflection of the "bursting" of the dot.com bubble in 2001. Many high-tech firms lost the ability to make acquisitions, as they ran out of capital or even were liquidated when the bubble collapsed. Therefore, it is unsurprising that the number of deals conducted by high-tech firms fell between 2001 and 2002.

Table 5-8 Yearly distribution of the deals with high-tech acquirers and the deals with high-tech targets

Year	Deals with high tech acquirers	% of sample	Deals with high tech target firms	% of sample
1993	10	45.45%	6	27.27%
1994	50	56.18%	29	32.58%
1995	76	54.68%	52	37.41%
1996	71	44.94%	37	23.42%
1997	61	40.13%	40	26.32%
1998	77	44.00%	54	30.86%
1999	84	43.98%	62	32.46%
2000	89	52.35%	74	43.53%
2001	102	59.65%	87	50.88%
2002	84	53.85%	64	41.03%
2003	84	54.19%	70	45.16%
2004	84	49.12%	76	44.44%
2005	80	57.55%	68	48.92%

Figure 5-4 Numbers and percentages of deals with high-tech acquirers across the sample period

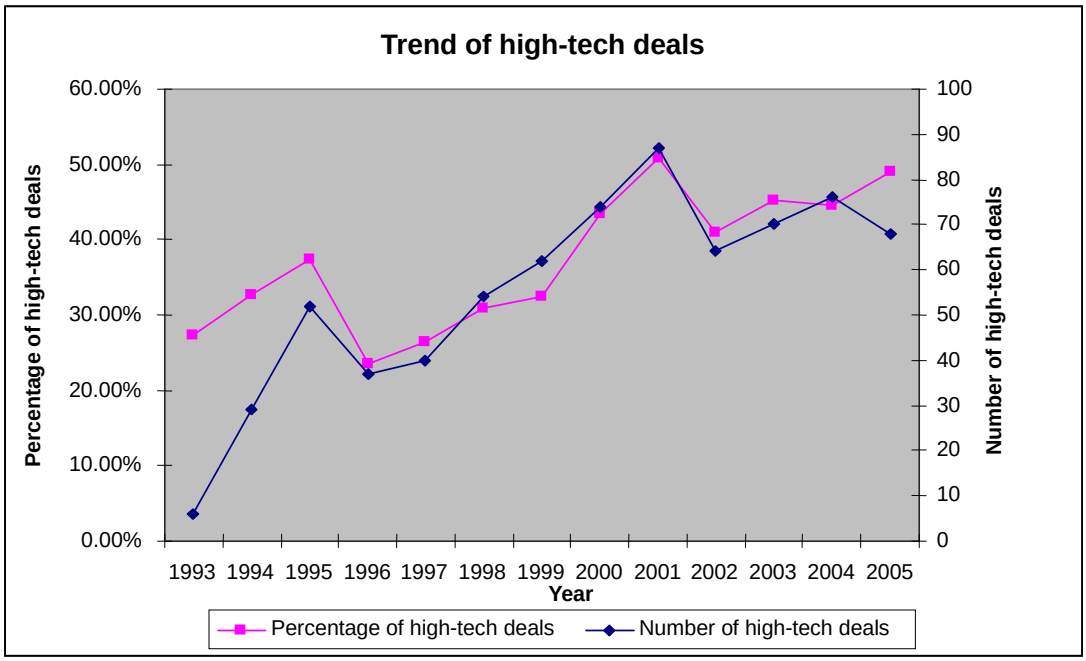

Table 5-9 presents the distribution of cash payment deals and non-cash payment deals between 1993 and 2005. As shown in figure 5-5, before 2002, approximately 60% of the sample deals are non-cash payment deals and the remaining 40% are cash deals, while, after 2002, cash payment has replaced non-cash payment as the more popular payment method in mergers and acquisitions. A potential explanation of this trend is that, during the high valuation period (the bull stock market) before 2001, acquirers tend to use their overvalued stock as "cheap currency" to acquire a business or asset. In 2001, as the dot.com bubble deflated, the stock market turned from a bull into a bear market, and stock was no longer "cheap currency". As such since 2003 acquirers appear to prefer cash to stock as the payment method.

It worth mentioning here that, although I use the two-payment-mechanism categorisation (cash payment deals and non-cash payment deals) due to the data availability in this study, it would be interesting to further explore the impact of payment method on firm M&A performance based on the three-payment-mechanism categorisation (pure cash payment deals, pure stock payment deals, and mixed payment deals). Sudarsanam (2003) shows that the mixed offers increased in number between 1995 and 1999 and the M&A short run (announcement) returns of pure (cash or stock) offers and mixed offers have different patterns. Therefore, further breaking down the non-cash payment deals into two categories – pure stock payment deals and mixed payment deals in future study may help us to gain more insights into the impact of payment method on M&A performance.

Table 5-9 Yearly distribution of cash payment and non-cash payment deals

Year	Full sample	Cash deals	% of sample	Non-Cash deals	% of sample
1993	22	7	31.82%	15	68.18%
1994	89	42	47.19%	47	52.81%
1995	139	53	38.13%	86	61.87%
1996	158	68	43.04%	90	56.96%
1997	152	66	43.42%	86	56.58%
1998	175	62	35.43%	113	64.57%
1999	191	78	40.84%	113	59.16%
2000	170	70	41.18%	100	58.82%
2001	171	66	38.60%	105	61.40%
2002	156	65	41.67%	91	58.33%
2003	155	84	54.19%	71	45.81%
2004	171	98	57.31%	73	42.69%
2005	139	77	55.40%	62	44.60%
Total	1,888	836	44.28%	1,052	55.72%

Figure 5-5 Distribution of payment methods (cash Vs non-cash deals)

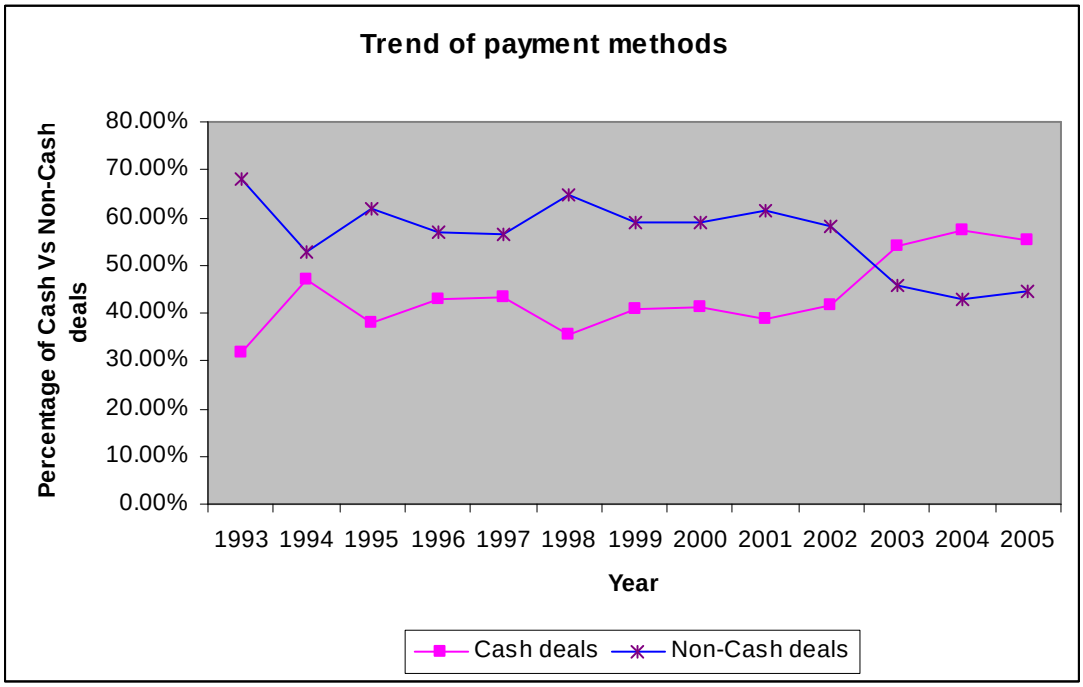

Table 5-10 Panel A shows that the mean deal value is $1,695 million. The mean market value (4 weeks prior to deal announcement) of the acquirers is $4,191 million, which is about 2.6 times that of the target firm.

Panel B presents the distribution of transaction types in the deal sample. The full deal sample consists of 912 mergers (approximately 48% of the deal sample) and 976 acquisitions (incl. acquisition of majority interest and acquisition of assets) (approximately 52% of the deal sample), indicating a well-balanced deal sample between different transaction types.

Panel C presents the distribution of payment methods across two categories of deals: tender offer and non-tender offer. There are 178 tender offers and 1,710 non-tender offers in the deal sample. The statistics show that the majority of tender offers (approximately 58% of the total) are cash payment deals and only 42% of tender offers are non-cash payment deals. In contrast to tender offers, only 43% of non-tender offers are cash deals and the majority (57%) are non-cash payment deals. This is consistent with previous studies and observations that tender offers are usually financed via cash, whereas most mergers use common stocks as the method of payment (Datta, Iskanda-Datta, and Raman, 2001; Travlos, 1987). One possible explanation for this phenomenon is associated with the regulatory acts. A cash tender offer is subject only to the Williams Act,[43] and the filing of relevant documents with

[43] In the 1960s, a large number of takeovers occurred unannounced. This created difficulties for managers and stockholders, who were forced to make crucial decisions with very little preparation. The Williams Act was created in order to protect investors from these occurrences. The Williams Act of 1968 amended the Securities and Exchange Act of 1934 (15 U.S.C.A. § 78a et seq.) to require the

the Securities and Exchange Commission (SEC), and then the offer may start after the required waiting period, whereas mergers and non-cash tender offers are subject to the Securities Act of 1933, which usually involves a long review process and often causes a significant delay (Gilson, 1986). This practical effect of the subjections to different regulatory acts is that we observe more cash payment deals in tender offers.

mandatory disclosure of information regarding cash tender offers. The act requires any person who makes a cash tender offer (which is usually 15 to 20 percent in excess of the current market price) for a corporation that is required to be registered under federal law to disclose to the federal SECURITIES AND EXCHANGE COMMISSION (SEC) the source of the funds used in the offer, the purpose for which the offer is made, the plans the purchaser might have if successful, and any contracts or understandings concerning the target corporation (Sources: Investopedia and http://law.jrank.org/pages/11330/Williams-Act.html).

Table 5-10 Summary statistics of the characteristics of sample M&A deals

My sample consists of 1,888 completed M&A deals during the period January 1, 1993, to December 31, 2005. Three types of transaction are included in my sample: merger, acquisition of majority interest, and acquisition of assets. I follow the Thomson One Banker and SDC platinum definitions of these three types of transaction as follows: merger – a combination of businesses takes place or 100% of the stock of a public or private company is acquired, the acquisition of majority interest – the acquirer must have held less than 50% and be seeking to acquire 50% or more, but less than 100% of the target company's stock, and acquisition of assets – deals in which the assets of a company, subsidiary, division, or branch are acquired. Both acquirer and target are public firms and the deal value is at least $1 million. The value of the target is greater than 5% of the value of the acquirer.

Panel A: Deal value and market value of the acquiring firm and target firm

	Mean	Median	Standard Deviation
Deal value ($ mil)	1,695	195	13,028
Acquirer Market Val 4 Weeks Prior to Announcement ($ mil)	4,151	1,168	11,594
Tgt. Market Val 4 Weeks Prior to Announcement($ mil)	1,602	379	4,801

Panel B: Distribution of transaction types

Transaction type		Number of deals	Proportion (%)
Merger		912	48.31
Acquisition	Acquisition of majority interest	55	2.91
	Acquisition of assets	921	48.78
Total		1888	100.00

Panel C: Distribution of payment methods

Payment method	Tender offer deal	Percentage	Non-tender offer deals	Percentage
Cash	103	57.87%	742	43.39%
Non-cash	75	42.13%	968	56.61%
Total	178	100.00%	1710	100.00%

5.8. Summary

This chapter presents the data sources, selection criteria, collection process and sample descriptions for CEO, firm, and M&A deal datasets respectively. Media coverage data and CEO speeches, the two types of data required in the construction of my two narcissism measures – Media portrayal and Content analysis of CEO speech – are also discussed.

In summary, my samples have the following features:

First, the full samples cover 2,129 firms across the full size spectrum – S&P 500, S&P 400 Midcap, and S&P 600 Smallcap firms. This allows me to consider the size effect when I explore the role and impact of CEO narcissism in M&A activities.

Second, my M&A sample includes 1,888 mergers and acquisitions during the period January 1, 1993, to December 31, 2005. The statistics for both deal numbers and deals values show that this sample successfully captures the recent (fifth) merger wave between 1993 to 2000.

Third, the yearly distribution of the deals with high-tech acquirers shows that both the number and the percentage of deals involving high-tech acquirers had been increasing until 2001, and then declined dramatically between 2001 and 2002, well reflecting the dot.com “Bubble Bursts” in 2001.

Fourth, my sample of M&A deals consists of 912 mergers (approximately 48% of the full sample) and 976 acquisitions (approximately 52% of the full sample), and therefore it is well-balanced in terms of transaction type.

Finally, my sample of M&A deals consists of 836 cash payment deals (44.28% of the full sample) and 1,052 non-cash payment deals (55.72% of the full sample). The trends in the weights of these two payment methods over time show that the stock payment method is dominant before 2001, while, between 2001 and 2002, the weight of cash deals had increased dramatically. From 2003, the cash replaced stock as the dominant payment method.

Using the samples I introduced in this chapter and employing the event study method and the regression models, I conduct a series of empirical analyses to examine the role and impact of CEO narcissism in M&A activities. The next chapter presents and discusses my regression results (test of hypotheses) and the results of event studies on firm M&A performance.

Chapter 6 Results and Analysis

6.1 Introduction

To examine the role of CEO narcissism in M&A decision-making and its impact on firm M&A performance, I first evaluate firm short run (announcement) M&A performance and long run post-acquisition performance by conducting event studies on my sample of M&A deals. Then, I examine the potential link between CEO narcissism and a firm's M&A activities through regression analysis. Therefore, in this chapter, I first present the results of firm short run (announcement) M&A performance and long run post-acquisition performance. Then, I present the results of my regression analyses (tests of my hypotheses).

This chapter is organized as follows. Section 6.2 presents the results of firm M&A performance, consisting of three sub-sections. Sub-section 6.2.1 discusses the results of the event studies on firm short run (announcement) M&A performance. Acquiring firm abnormal return (AR) and cumulative abnormal return (CAR) based on two models (the Market Model and the Scholes-Williams Model) and two market indices (CRSP equally weighted index and value weighted index) are reported respectively. In sub-section 6.2.2, the results of event studies on firm long run post-acquisition performance (abnormal return and buy-and-hold abnormal return) are presented. In sub-section 6.2.3, I compare my CAR and BHAR results of acquirers with previous studies. Section 6.3 reports the results of my regression analyses to test the hypotheses developed in chapter 3. This section includes four sub-sections. In

sub-section 6.3.1, the correlations between the independent variables are presented. In sub-section 6.3.2, I discuss the results about the link between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals. Sub-section 6.3.3 examines the market reaction to the M&A deals conducted by highly narcissistic CEOs. Sub-section 6.3.4 discusses the impact of acquiring firm CEO narcissistic tendency on firm long run post-acquisition performance. Sub-section 6.3.5 focuses on the potential role and impact of target firm CEO narcissistic tendency on acquiring firm announcement and long run post-acquisition performance. Section 6.4 provides a summary of my results.

6.2 Firm M&A performance

6.2.1 Firm short run (announcement) M&A performance

In this sub-section, I examine the market reaction to the M&A announcement by conducting event studies on my sample M&A deals. Although my basic event study uses the standard market model and CRSP equally weighted index, I also run additional event studies using the Scholes-Williams market model and CRSP value weighted index as robustness checks, as some prior studies suggest that the choice of market models or market indices may affect the results of event studies. For example, Scholes and Williams (1977) and Dimson (1979) show that the estimates of market model parameters based on OLS are biased when there is nonsynchronous trading, and propose ways to address the potential thin trading problem. In addition, Brown and Warner (1980) demonstrate that the evaluation of security price performance may be affected by the choice of market indices (e.g. equally weighted index vs

value weighted index). For these reasons, I run my event studies by employing both the standard market model and the Scholes-Williams market model, and using both CRSP equally weighted and CRSP value weighted indices.

Table 6-1 presents the short run (announcement) daily mean abnormal returns of my sample deals based on the CRSP equally weighted index over the 41 day (-20, +20) time window. Column 2-4 demonstrate the results based on the market model. They show that the significant mean abnormal returns from day -1 to day 2 are -0.13%, 0.10%, 0.39%, and 0.16%, respectively. Column 5-7 present the results based on the Scholes-Williams Market Model, which shows that there are significant abnormal returns from day -1 to day 2, with -0.14%, 0.10%, 0.40%, and 0.16% respectively. The results based on both models show that the most significant abnormal returns are detected over the (-1, +2) day time window and the highest mean abnormal return is observed in day 1, one day after the deal announcement. The highly consistent results based on both models suggest that thin trading may not be a serious problem in my sample of deals.

Table 6-1 Acquiring firm abnormal returns around M&A deal announcement (Market index: CRSP Equally Weighted Index)

This table provides the daily mean abnormal returns (AR) of the sample deals around the M&A announcement date. The calculation is based on the use of the CRSP equally weighted index as the market index. Column 1 is the day relative to the deal announcement date (day=0). Column 2 shows the mean abnormal return for each day. Columns 3 and 4 present the Patell Z statistic and generalized sign Z statistic respectively. The results in Columns 2-4 are based on the employment of the market model. Columns 5-7 report parallel results and test statistics based on the employment of Scholes-Williams Market Model.

	Market Model			Scholes-Williams Market Model		
Day	Mean Abnormal Return	Patell Z	Generalized Sign Z	Mean Abnormal Return	Patell Z	Generalized Sign Z
-20	0.03%	0.663	0.952	0.03%	0.754	0.743
-19	-0.04%	-0.291	-0.229	-0.04%	-0.181	-0.343
-18	-0.02%	-0.869	-0.606	-0.02%	-0.842	-0.673
-17	0.12%	0.952	-0.276	0.12%	1.112	-0.343
-16	0.07%	0.694	1.094	0.08%	0.793	0.696
-15	0.04%	0.493	-0.606	0.04%	0.445	-0.673
-14	0.12%	1.698*	1.802*	0.13%	1.792*	2.490**
-13	-0.24%	-2.566**	-2.259*	-0.25%	-2.686**	-2.373**
-12	0.01%	0.102	0.196	0.01%	0.089	-0.059
-11	-0.12%	-1.801*	-2.023*	-0.11%	-1.743*	-1.901*
-10	-0.03%	-0.561	0.905	-0.04%	-0.672	0.554
-9	0.14%	2.018*	0.763	0.14%	1.993*	1.168
-8	0.03%	0.358	0.102	0.03%	0.319	0.366
-7	-0.05%	-0.823	-0.323	-0.04%	-0.693	-0.107
-6	0.05%	1.268	0.857	0.05%	1.215	0.979
-5	-0.03%	-0.366	0.008	-0.03%	-0.399	0.271
-4	-0.05%	-0.385	0.432	-0.05%	-0.443	0.271
-3	0.14%	1.730*	1.377$	0.13%	1.542$	1.027
-2	0.08%	0.713	0.810	0.06%	0.553	0.271
-1	-0.13%	-2.082*	-1.362$	-0.14%	-2.150*	-1.004
0	0.10%	2.567**	2.227*	0.10%	2.588**	2.160*
+1	0.39%	9.230***	5.626***	0.40%	9.305***	5.371***
+2	0.16%	4.003***	1.377$	0.16%	3.904***	1.357$
+3	0.01%	0.947	0.810	0.00%	0.865	0.696
+4	0.13%	2.032*	2.274*	0.13%	2.075*	2.443**
+5	0.01%	0.141	-0.134	0.02%	0.183	-0.201
+6	0.00%	0.247	0.244	0.00%	0.253	0.366
+7	0.00%	-0.033	0.244	0.00%	-0.075	0.413
+8	0.01%	0.426	1.330$	0.02%	0.451	1.404$
+9	-0.01%	-0.100	-0.087	-0.01%	-0.129	-0.390
+10	-0.02%	-0.023	-0.040	-0.02%	-0.037	-0.059
+11	-0.01%	0.415	0.291	0.00%	0.405	-0.012
+12	-0.02%	0.168	-0.229	-0.02%	0.245	-0.201
+13	-0.04%	-0.016	0.999	-0.04%	-0.106	0.932
+14	0.01%	0.109	0.480	0.01%	0.034	0.224
+15	0.06%	0.873	-0.701	0.05%	0.851	-0.012
+16	-0.05%	-0.581	-0.701	-0.05%	-0.571	-0.107
+17	-0.02%	-0.263	0.291	-0.02%	-0.264	-0.390
+18	-0.05%	-0.498	-0.276	-0.04%	-0.520	-0.720
+19	-0.05%	-1.059	-2.070*	-0.05%	-1.009	-1.712*
+20	-0.15%	-2.012*	-0.842	-0.15%	-2.027*	-0.815

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

As mentioned above, considering the potential effects of the choice of market index on the evaluation of firm performance, I run additional event studies based on the CRSP value weighted index. Table 6-2 presents the short run (announcement) daily mean abnormal returns of my sample deals over the 41 day (-20, +20) time window. Columns 2-4 demonstrate the results based on the market model. They show that the significant mean abnormal returns from day -1 to day 2 are -0.15%, 0.05%, 0.38%, and 0.16%, respectively. Columns 5-7 present the results based on the Scholes-Williams Market Model, which show that there are significant abnormal returns from day -1 to day 2, with -0.14%, 0.05%, 0.38%, and 0.15% respectively. The signs of the abnormal returns over the (-1, +2) time window are exactly the same as those reported in Table 6-1. The magnitudes of such abnormal returns are very close to those based on the CRSP equally weighted index. In addition, the results also show that most significant abnormal returns are detected over the (-1, +2) day time window and the highest mean abnormal return is observed in day 1, one day after the deal announcement. The high consistency of the results based on the CRSP equally weighted index and CRSP value weighted index suggests that the choice of market index has no significant effect on my results.

Table 6-2 Acquiring firm abnormal returns around M&A deal announcement (Market index: CRSP Value Weighted Index)

This table provides the daily mean abnormal returns (AR) of the sample deals around the M&A announcement date. The calculation is based on the use of the CRSP value weighted index as the market index. Column 1 is the day relative to the deal announcement date (day=0). Column 2 shows the mean abnormal return for each day. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively. The results in Columns 2-4 are based on the employment of the market model. Columns 5-7 report parallel results and test statistics based on the employment of the Scholes-Williams Market Model.

	Market Model			Scholes-Williams Market Model		
Day	Mean Abnormal Return	Patell Z	Generalized Sign Z	Mean Abnormal Return	Patell Z	Generalized Sign Z
-20	0.00%	0.389	0.331	0.01%	0.503	0.375
-19	-0.06%	-0.729	-0.047	-0.07%	-0.708	-0.003
-18	-0.03%	-1.205	-0.661	-0.02%	-1.120	-0.522
-17	0.08%	0.527	-0.708	0.10%	0.813	-0.333
-16	0.08%	0.697	0.236	0.07%	0.565	0.045
-15	0.07%	0.756	0.425	0.08%	0.812	0.469
-14	0.10%	1.205	0.897	0.11%	1.281	1.413$
-13	-0.24%	-2.834**	-3.399***	-0.25%	-2.968**	-2.977**
-12	-0.01%	-0.343	-0.378	-0.02%	-0.357	-0.805
-11	-0.10%	-1.576$	-2.030*	-0.08%	-1.382$	-1.938*
-10	-0.08%	-1.318$	0.661	-0.08%	-1.408$	0.705
-9	0.15%	1.963*	0.897	0.15%	1.924*	1.649*
-8	0.04%	0.515	0.614	0.04%	0.511	0.753
-7	-0.04%	-0.856	-0.236	-0.04%	-0.755	-0.239
-6	0.07%	1.458$	0.425	0.07%	1.461$	0.705
-5	-0.05%	-0.927	-0.897	-0.05%	-0.861	-0.239
-4	-0.07%	-1.035	0.189	-0.07%	-1.050	-0.286
-3	0.14%	1.435$	1.464$	0.13%	1.290$	0.753
-2	0.08%	0.461	0.472	0.06%	0.309	0.469
-1	-0.15%	-2.502**	-1.747*	-0.14%	-2.408**	-1.513$
0	0.05%	1.456$	1.652*	0.05%	1.600$	2.216*
+1	0.38%	8.877***	4.721***	0.38%	8.868***	4.907***
+2	0.16%	3.692***	1.700*	0.15%	3.553***	1.225
+3	0.01%	0.955	0.142	0.01%	0.930	0.328
+4	0.14%	1.976*	1.983*	0.14%	2.041*	2.216*
+5	-0.01%	-0.339	-0.283	-0.01%	-0.359	0.045
+6	-0.03%	-0.135	-0.094	-0.02%	-0.082	0.045
+7	-0.01%	-0.285	-0.425	-0.01%	-0.345	0.045
+8	0.01%	0.464	1.558$	0.01%	0.436	1.886*
+9	-0.03%	-0.448	0.095	-0.03%	-0.502	-0.144
+10	-0.07%	-0.680	-1.039	-0.06%	-0.578	-1.372$
+11	-0.01%	0.271	-0.142	0.00%	0.427	-0.003
+12	-0.04%	-0.157	0.614	-0.04%	0.011	0.753
+13	-0.06%	-0.340	0.142	-0.06%	-0.358	0.092
+14	0.01%	-0.005	0.567	0.01%	0.037	0.705
+15	0.02%	0.012	-0.850	0.02%	0.054	-0.569
+16	-0.09%	-1.521$	-1.463$	-0.09%	-1.540$	-1.749*
+17	-0.02%	-0.344	0.095	-0.02%	-0.384	-1.136
+18	-0.03%	-0.382	0.519	-0.03%	-0.573	0.139
+19	-0.07%	-1.563$	-1.794*	-0.06%	-1.505$	-1.702*
+20	-0.17%	-2.553**	-0.991	-0.17%	-2.409**	-0.616

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

To evaluate the aggregate effects of M&A announcement on acquiring firm stock price, I then calculate the cumulative abnormal returns for the sample deals over a series of different time windows. The results are summarised in Table 6-3. Panel A presents acquiring firm mean cumulative abnormal returns based on the use of the CRSP equally weighted index as the market index. It shows significant CARs of 0.36%, 0.60%, 0.74%, 0.82%, and 0.93% for (-1, +1), (-2, +2), (-3, +3), (-5, +5), and (-10, +10) time windows respectively (based on the standard market model). These CARs are significant at the 0.1% level. This finding suggests that, at the aggregate level, the market views M&A announcements as good news and reacts positively to them, as consistent with most prior studies (e.g. Malatesta, 1983; Sicherman and Pettway, 1987; Leeth and Borg, 2000; and Rosen, 2003). My results show that there is no significant cumulative abnormal return detected for the 41 day time window (-20, +20). Actually, as demonstrated in Tables 6-1 and 6-2, the observed cumulative abnormal returns mainly come from the significant abnormal returns generated from day -1 to day 2. In other words, the time window (-1, +2) captures most of the announcement effects. In addition, I do not find any significant change in my results when using the Scholes-Williams Market Model.

Panel B presents acquiring firm mean cumulative abnormal returns based on the use of the CRSP value weighted index as the market index. Though slightly lower in magnitude, the results are similar to those based on the CRSP value weighted index, which again suggests that the choice of market index has no significant impact on my results.

Table 6-3 Acquiring firm cumulative abnormal returns (CAR) around M&A deal announcements (Market index: Equally Weighted Index and CRSP Value Weighted Index)

This table presents the mean cumulative abnormal returns (CARs) of the sample deals around the M&A announcement date. Panel A shows the results based on the use of the CRSP equally weighted index as the market index. Column 1 is the time window used to calculate CARs (the deal announcement date is day 0). Column 2 shows the mean cumulative abnormal return for each time window. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively. The results in Columns 2-4 are based on the employment of the market model. Columns 5-7 report parallel results and test statistics based on the employment of the Scholes-Williams Market Model. Panel B reports the parallel results based on the use of the CRSP value weighted index as the market index.

Panel A: Cumulative abnormal returns (Market index: Equally Weighted Index)

	Market Model			Scholes-Williams Market Model		
Days	Mean CAR	Patell Z	Generalized Sign Z	Mean CAR	Patell Z	Generalized Sign Z
(-1,+1)	0.36%	5.609***	5.154***	0.36%	5.625***	4.993***
(-2,+2)	0.60%	6.454***	5.296***	0.58%	6.351***	5.087***
(-3,+3)	0.74%	6.466***	6.051***	0.72%	6.277***	6.315***
(-5,+5)	0.82%	5.587***	5.485***	0.80%	5.434***	5.607***
(-10,+10)	0.93%	4.650***	5.296***	0.91%	4.506***	5.040***
(-20,+20)	0.58%	2.736	4.446*	0.57%	2.689	3.812*

Panel B: Cumulative abnormal returns (Market index: Value Weighted Index)

	Market Model			Scholes-Williams Market Model		
Days	Mean CAR	Patell Z	Generalized Sign Z	Mean CAR	Patell Z	Generalized Sign Z
(-1,+1)	0.27%	4.521***	4.721***	0.29%	4.653***	4.576***
(-2,+2)	0.51%	5.359***	4.296***	0.50%	5.331***	4.435***
(-3,+3)	0.66%	5.433***	5.240***	0.64%	5.345***	5.048***
(-5,+5)	0.66%	4.236***	5.240***	0.66%	4.195***	5.379***
(-10,+10)	0.68%	3.214***	4.957***	0.68%	3.181***	4.907***
(-20,+20)	0.12%	0.786	2.219*	0.17%	0.902	1.933*

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

6.2.2 Firm long run post-acquisition performance

One of the aims of my study is to investigate the impact of CEO narcissism on firm performance over a relatively long time horizon after M&A. To examine such an effect empirically, I first need to evaluate firm long run post-acquisition stock returns. Therefore, in this sub-section, I calculate acquiring firm post-acquisition buy-and-hold abnormal returns (BHARs) by conducting an event study on my sample M&A deals. The calculation method was introduced in section 4.3.3.

Table 6-4 presents the results of acquiring firm long run post-acquisition performance. Column 2 shows the mean abnormal returns (ARs) for each month. Columns 3 and 4 give the statistics for the Patell Z and generalized Sign Z test. The results show that the mean abnormal returns are negative in most months after the M&A announcement, while the ARs show positive signs in the months (-1, -2, -3, -4, -5, -6) prior to the M&A deal announcement. Table 6-5 further shows these effects on an aggregate level. Negative mean buy-and-hold abnormal returns are detected over all time windows (6 months, 12 months, 18 months, 24 months, and 36 months). Although only the BHARs over 18 months, 24 months, and 36 months time windows are significant, all BHARs show strong significance (at 0.1% level) in the Generalized Sign Z tests. These results suggest that, at the aggregate level, acquiring firm long run post-acquisition performance is negative. In other words, the acquiring firms underperform their benchmark portfolios in the long run.

Table 6-4 Acquiring firm post-acquisition abnormal returns

This table provides the monthly mean abnormal returns (AR) of the sample deals after the M&A deal announcement. Column 1 is the month relative to the deal announcement date. Column 2 shows the mean abnormal return for each month. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively.

Month	Mean Abnormal Return	Patell Z	Generalized Sign Z
-6	0.76%	1.522$	-0.670
-5	0.94%	2.459**	0.737
-4	0.88%	3.080**	0.034
-3	0.61%	1.605$	0.128
-2	0.53%	1.671*	-1.748*
-1	0.98%	3.052**	0.362
0	1.49%	5.024***	2.191*
+1	0.10%	0.446	-1.982*
+2	-0.09%	0.081	-2.358**
+3	0.28%	0.610	-1.092
+4	-0.27%	-0.217	-2.311*
+5	-0.54%	-1.901*	-2.545**
+6	-0.27%	-1.712*	-2.663**
+7	-0.30%	-0.207	-1.162
+8	-0.26%	-0.578	-2.687**
+9	-0.47%	-1.741*	-2.078*
+10	0.02%	0.378	-1.607$
+11	-0.10%	-1.175	-2.267*
+12	-0.59%	-1.568$	-2.951**
+13	-0.04%	0.382	-2.435**
+14	-0.32%	-0.862	-3.765***
+15	-0.36%	-2.326**	-3.151***
+16	-0.72%	-1.941*	-3.701***
+17	0.23%	0.371	-2.967**
+18	-0.16%	0.060	-0.962
+19	-0.39%	-0.696	-2.804**
+20	-0.26%	-1.032	-2.351**
+21	0.39%	1.137	-1.968*
+22	0.16%	1.239	-1.366$
+23	-0.54%	-0.923	-1.970*
+24	-0.08%	0.387	-1.196
+25	-0.13%	-1.003	-1.608$
+26	0.35%	0.548	-0.705
+27	-0.13%	0.164	-2.416**
+28	0.30%	1.095	-0.748
+29	-0.12%	70.171	-3.701***
+30	-0.30%	-2.323*	-2.670**
+31	0.66%	2.607**	-0.397
+32	-0.47%	-1.771*	-3.198***
+33	0.46%	1.505$	-0.590
+34	0.06%	-0.241	-1.460$
+35	-0.02%	-0.137	-1.959*
+36	0.58%	2.215*	0.370

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

Table 6-5 Acquiring firm post-acquisition buy-and-hold abnormal returns (BHAR)

This table presents the mean post-acquisition buy-and-hold abnormal returns (BHAR) of the sample deals. Column 1 is the time window used to calculate the BHARs (deal announcement month is month 0). Column 2 shows the mean buy-and-hold abnormal returns for each time window. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively.

Months	Mean BHAR	Patell Z	Generalized Sign Z
(+1,+6)	-0.83%	-1.099	-5.734***
(+1,+12)	-2.34%	-2.185	-7.750***
(+1,+18)	-3.68%	-2.800**	-11.548***
(+1,+24)	-3.64%	-2.432**	-11.173***
(+1,+36)	-2.77%	-1.604$	-10.751***

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

For robustness checks, I also calculate acquiring firm post-acquisition buy-and-hold abnormal returns (BHARs) by including a momentum factor in the construction of an alternative benchmark portfolio. There is not significant changes in my results. (Results are presented in Table 6-6 and 6-7. .

Table 6-6 Acquiring firm post-acquisition abnormal returns (based on the alternative benchmark portfolio)

This table provides the monthly mean abnormal returns (AR) of the sample deals after the M&A deal announcement. Column 1 is the month relative to the deal announcement date. Column 2 shows the mean abnormal return for each month. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively.

Month	Mean Abnormal Return	Patell Z	Generalized Sign Z
-6	0.80%	2.373**	-0.262
-5	0.92%	2.968**	0.328
-4	0.91%	3.698***	0.286
-3	0.63%	2.147*	0.117
-2	0.58%	2.201*	-1.780*
-1	0.99%	3.645***	0.539
0	1.12%	4.177***	1.129
+1	0.11%	0.661	-2.750**
+2	-0.10%	0.083	-2.412**
+3	0.35%	1.469$	-1.738*
+4	-0.10%	0.388	-2.455**
+5	-0.54%	-2.077*	-2.792**
+6	-0.38%	-2.260*	-3.720***
+7	-0.10%	0.780	-0.472
+8	-0.35%	-1.055	-3.257***
+9	-0.54%	-2.343**	-3.787***
+10	0.06%	0.678	-1.735*
+11	-0.09%	-1.411$	-2.879**
+12	-0.42%	-0.570	-3.134***
+13	-0.07%	0.317	-2.796**
+14	-0.39%	-1.412$	-4.395***
+15	-0.18%	-1.415$	-2.606**
+16	-0.74%	-2.477**	-4.508***
+17	0.18%	0.162	-3.699***
+18	-0.11%	0.340	-1.256
+19	-0.38%	-0.779	-3.920***
+20	-0.33%	-1.607$	-3.644***
+21	0.21%	0.690	-3.021**
+22	-0.05%	-0.097	-1.723*
+23	-0.50%	-1.069	-3.395***
+24	-0.21%	-0.249	-2.505**
+25	-0.14%	-0.909	-1.828*
+26	0.10%	-0.151	-2.156*
+27	-0.16%	-0.105	-2.882**
+28	0.30%	1.191	-1.051
+29	-0.32%	-1.002	-4.236***
+30	-0.51%	-3.439***	-3.487***
+31	0.82%	3.984***	-0.820
+32	-0.39%	-1.935*	-3.316***
+33	0.28%	0.846	-1.574$
+34	0.21%	0.844	-1.348$
+35	-0.28%	-1.509$	-2.694**
+36	0.33%	1.439$	-1.118

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

Table 6-7 Acquiring firm post-acquisition buy-and-hold abnormal returns (BHAR based on the alternative benchmark portfolio)

This table presents the mean post-acquisition buy-and-hold abnormal returns (BHAR) of the sample deals. Column 1 is the time window used to calculate the BHARs (deal announcement month is month 0). Column 2 shows the mean buy-and-hold abnormal returns for each time window. Columns 3 and 4 present the Patell Z statistic and Generalized sign Z statistic respectively.

Months	Mean BHAR	Patell Z	Generalized Sign Z
(+1,+6)	-0.46%	-0.708	-5.237***
(+1,+12)	-1.49%	-1.629$	-7.303***
(+1,+18)	-2.66%	-2.383**	-8.905***
(+1,+24)	-3.48%	-2.702**	-11.518***
(+1,+36)	-3.68%	-2.393**	-12.024***

The symbols $,*, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a 1-tail test.

6.2.3 Comparison between my CAR and BHAR results of acquirers with previous studies

In order to compare my CAR and BHAR results with previous studies, I first summarize previous studies of M&A performance in Table 6-8. As shown in the table, the majority of studies report negative abnormal returns over the post-M&A (long run) period and suggest that M&A deals, on average, under-perform in the long-run. As for the M&A short-run (announcement) performance, most of the previous studies report significant positive cumulative abnormal returns around the deal announcement, although the empirical results are somehow mixed and less clear than those about long-run performance. As shown in Table 6-8, in my review, 18 studies report positive announcement returns and 14 studies detect negative announcement

returns.

My results of short run (announcement) M&A performance show significant positive cumulative abnormal returns (CARs) for acquirers at M&A announcements, which suggest that the market views M&A announcements as good news and reacts positively to them. This finding is consistent with most previous studies.

For the long run post-M&A performance, my study reports significant negative buy-and-hold abnormal returns (BHARs) over the long run post-M&A time window. These findings are consistent with the majority of previous studies.

Table 6-8 Summary of the studies about acquiring firms long-run and short-run (announcement) performance

Long run performance		Short run performance	
The sign (+/-) of abnormal return (number of the studies)	**Studies**	**The sign (+/-) of abnormal return (number of the studies)**	**Studies**
+ (4 studies)	Mandelker (1974); Magenheim and Mueller (1988); Loughran and Vijh (1997); Rau and Vermaelen (1998).	+ (18 studies)	Malatesta (1983); Kummer and Hoffmeister (1978); Sicherman and Pettway (1987); Maquieira, Megginson, and Nail (1998); Kohers and Kohers (2000); Jarrell and Bradley (1980); Leeth and Borg (2000); Floreani and Rigamonti (2001); Bradley, Desai and Kim (1982); Kohers and Kohers (2001); Rosen (2003); Fuller, Netter, and Stegemoller (2002); Bouwman, Fuller, and Nain (2003); Bhagat, Dong, Hirshleifer, and Noah (2005); Lang, Stulz, and Walkling (1989); Moeller, Schlingemann, and Stulz (2005); Jarrell and Poulsen (1989); Bradley (1980).
- (13 studies)	Dodd and Ruback (1977); Conn, Cosh, Guest, and Hughes (2003); Asquith (1983); Loderer and Martin (1992); Malatesta (1983); Kennefy and Limmack; Gregory (1997); Agrawal, Jaffe, and Mandelker (1992); Kohers and Kohers (2000); Louis (2002); Varaiya and Ferris (1987); Ferris and Park (2001); Rosen (2003); Langetieg (1978).	- (14 studies)	Delong (2001); Byrd and Hickman; (1992) Asquith, Bruner, and Mullins (1987); Houston, James, and Ryngaert (2001); Berkovitch and Narayanan (1997); Morck, Shleifer, and Vishny (1990); Delong (2003); Servaes (1991); Healy, Palepu, and Ruback (1992); Kaplan and Weisbach (1992); Mulherin and Boone (2000); Walker (2000); Kuipers, Miller, and Patel (2003); Moeller (2005).

6.3 Regression results

To examine the role of CEO narcissism in M&A decision-making and in explaining firm M&A performance empirically, I run a series of regression analyses to test the hypotheses established in chapter 3. In this section, the regression results are presented and discussed. The three parallel measures of CEO narcissism – Holder67, media portrayal, and content analysis of CEO speech – are used in each regression. In each result table, the parameter estimates, t-Statistic (or Z-Statistic), and F-test (or LR statistic) are reported.

6.3.1 Correlation matrix

Table 6-9 shows the correlations between the independent variables used in my regression models. In general, the correlations between most of the variables are very low. Three variables (*VO*, *CG*, and *Payment*) have correlations higher than 0.1 with variable *HN* (proxy for high level of CEO narcissism). The correlation between *VO* (CEO's vested option holding) and *HN* is 0.17. This correlation may result mechanistically from the method of variable *HN* construction, since classification as HN CEOs according to the Holder67 measure requires the CEOs to hold the highly in-the-money vested options for longer, which may lead to the high CEO's vested option holding. The correlation between *CG* index (the higher the index, the poorer the corporate governance quality) and variable *HN* is 0.12, which may suggest the positive role of the corporate governance mechanism in curbing the CEO narcissistic tendency. That is, the poorer the corporate governance quality, the higher the *HN*. Finally, the correlation between variable *Payment* (*Payment*=1 for cash financing

deals) and variable *HN* is 0.18. One possible explanation of this positive correlation is that, due to his/her inflated self-view and excessive confidence, the highly narcissistic CEO often feels that his/her firm's stock is undervalued and therefore they would be reluctant to use stock as the payment method in M&As. In other words, in the eyes of narcissistic CEOs, using the undervalued stock to make the payment is relatively expensive compared with a cash payment.

Table 6-9 Correlation matrix

HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67.) Size is the natural logarithm of acquirer total assets at the end of the last fiscal year before the deal announcement year. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by beginning of the year capital. (Here, capital is measured as property, plant and equipment.) Q represents the Tobin's Q, defined as the market value of assets/book value of assets, where the book value of assets = total assets, and the market value of assets = total assets + market equity - book equity. Market equity = common share outstanding x fiscal year closing price, and book equity = total assets-total liabilities - preferred stock + deferred taxes. CG is the GIM's G index, the proxy for corporate governance quality (the higher the index score, the poorer the corporate governance quality). Rsize is the relative size of the target firm. $return_{year-1}$ represents the 1-year lagged stock return. Growth is the target's M/B ratio, which is used to proxy for a firm's growth options. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same.

	HN	*Size*	*SO*	*VO*	*CF*	*Q*	*CG*	*RSize*	$return_{year-1}$	*Growth*	*Attitude*	*Payment*	*relatedness*
HN	1												
Size	0.09*	1											
SO	-0.03*	-0.16*	1										
VO	0.17*	-0.15*	0.09*	1									
CF	0.09	0.07*	0.05*	0.13*	1								
Q	0.07*	-0.27*	0.08	0.07*	0.26*	1							
CG	0.12*	0.16*	-0.09*	-0.10*	-0.05*	-0.11*	1						
RSize	0.09	-0.32**	-0.04	-0.05	0.04	0.06	0.09	1					
$return_{t-1}$	0.06	0.04	0.02	-0.03	0.11*	0.13*	-0.06	0.03	1				
Growth	0.04	0.05	0.05*	0.06*	0.05	0.04*	-0.05	-0.08	0.04	1			
Attitude	0.03	0.02	0.03	0.02	-0.05	0.03	0.02	0.04*	-0.03	0.05	1		
Payment	0.18*	-0.08	0.07	0.09	0.08*	-0.09	0.04	-0.31*	0.06	0.06	-0.16	1	
relatedness	0.09	-0.09*	0.05	0.08	-0.07*	-0.05	-0.08	0.06	-0.04	0.06	0.03	0.06	1

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

6.3.2 The impact of CEO narcissism on M&A decision-making

My first logistic regression analysis is to test the hypothesis *H1* relating to the impact of CEO narcissism on M&A activity, and aims to answer the question "Are highly narcissistic CEOs more likely to conduct mergers than lowly narcissistic CEOs?" Table 6-10 provides the results of this regression.

In model 1, I find a positive and significant (at the 5% significance level) coefficient 0.32 on variable *HN* (Holder67), which suggests a positive relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals. This result supports my first hypothesis *H1*. It appears that a high narcissism CEO is more likely to conduct M&A deals than a low narcissism CEO. To gain better intuition, I convert the parameter estimates to odds ratios. On this basis, the odds ratio of 1.38 indicates that the odds of an HN CEO conducting a deal are around 40% higher than the odds of an LN CEO doing so. This result is consistent with Malmendier and Tate (2008), and provides new evidence to support previous theoretical propositions (e.g., Roll, 1986; Gervais, Heaton and Odean, 2003). We might explain this apparent strong relation between CEO narcissism and the acquisitiveness of a firm in four ways. First, HN CEOs, by virtue of their personality, have excessive confidence in their own abilities, and believe that they will perform better than the target CEOs. Therefore, they are more likely to conduct a merger or acquisition. Second, CEO narcissism leads to an increase in the bid premium that he/she is prepared to pay, which increases the probability of winning the auction (conducting the deal). Third, importantly, my results are consistent with HN CEOs using M&A activity as their stage on which to act out a drama to gain attention and admiration (Chatterjee and

Hambrick, 2007). Finally, as highly narcissistic CEOs are usually glory-seekers and have a strong need for a "rapid change of course" (Chatterjee and Hambrick, 2007; Lubit 2002), they tend to use M&A activity as a way of building up their glories and feeding their need for excitement.

My results also show that three control variables are significant. The odds ratio for *Size* is 1.26, and significant at the 1% significance level, suggesting that the CEOs of larger firms are a quarter more likely to conduct mergers or acquisitions compared with those of smaller ones, which is consistent with the prior literature. One possible explanation for the firm size effect on firm acquisitiveness is that large firms have fewer financial constraints (i.e., more internal and external resources) than smaller firms in making M&A deals. In addition, we may surmise that the CEOs of larger firms are likely to have a greater propensity to exhibit high levels of narcissism because of their associated greater power, authority, compensation, reputation and public profile compared to the CEOs of smaller firms, and thus be more likely to conduct M&A deals. Another control variable, *CF*, is also found to be positively related to firm acquisitiveness. The parameter estimate for CF is 0.22 and significant at the 10% level. This finding is consistent with the free cash flow hypothesis in the literature. That is, firms with large amounts of excessive cash flow tend to invest in such projects as mergers or acquisitions, as they have abundant internal resources to conduct such deals. I also find a significant (at the 5% level) positive coefficient of 0.17 for *Q*. This suggests that firms with a higher value of Tobin's Q are more likely to conduct a merger, which is consistent with the Q theory of mergers (Servaes, 1991). It seems that a firm's M&A activity may partly be a response to profitable reallocation opportunities (Jovanovic and Rousseau, 2002). In addition, the one-year

lagged stock return is positively associated with firm acquisitiveness at the 10% significance level. We may explain this from two aspects. On the one hand, inefficient markets often overvalue good past performance, and the consequently overvalued stock is then used as "cheap currency" by CEOs to conduct M&A deals (Dong, Hirshleifer, Richardson, and Teoh, 2006). On the other hand, we may speculate that good recent stock market performance may serve to provide positive feedback reinforcing a CEO's narcissistic personality characteristics, further inflating his/her self-view leading to additional M&A deals.

Table 6-10 also presents the regression results of model 2 that uses media portrayal as the CEO narcissism measure. The results are similar to those of model 1, although the significance level for some parameter estimates changes slightly. The coefficient on *HN* is still positive and significant (at the 10% level), although the odds ratio is slightly lower, down from 1.38 using the Holder67 measure to 1.27, and the significance level decreases from 5% to 10%. On the whole, my results are not sensitive to the change of measure for CEO narcissism.

As mentioned before, the content analysis of CEO speech measure is not used here, as the construction of this measure is based on the analysis of CEO speech about a specific deal, and it is impossible to have such a speech from the CEO who has never conducted an M&A deal. (In this regression, the observations include both CEOs who have conducted deals and those who have not.)

Table 6-10 Logistic regression: CEO narcissism and M&A decision making

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8\ return_{year-1} + \varepsilon$$

The dependent variable *Y* is a binary variable which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year during the period from January 1, 1993 to December 31, 2005, otherwise 0. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1 and the media portrayal narcissism proxy measures in model 2). CG is the GIM's G index, the proxy for corporate governance quality. Size is the natural logarithm of acquirer total assets at the end of the last fiscal year before the deal announcement year. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by the beginning of the year capital. (Here, capital is measured as property, plant and equipment.) Q represents Tobin's Q, defined as the market value of assets/book value of assets, where the book value of assets = total assets, and the market value of assets = total assets + market equity - book equity. Market equity = common share outstanding x fiscal year closing price, and book equity = total assets-total liabilities-preferred stock + deferred taxes. I report the regression results based on using Holder67 and media portrayal as the measures of CEO narcissism respectively. $return_{year-1}$ represents the 1-year lagged stock return. This table also shows the coefficients in the form of odds ratios.

Variables	Model 1 (Based on Holder67)			Model 2 (Based on media portrayal)		
	Coefficient	Odds ratio	z-Statistics	Coefficient	Odds ratio	z-Statistics
HN	0.32	1.38	2.51**	0.24	1.27	1.76*
CG	0.01	1.01	0.64	0.00	1.00	0.48
Size	0.23	1.26	2.76***	0.22	1.24	2.54**
SO	-0.89	0.41	-0.76	-0.94	0.39	-0.66
VO	-0.53	0.59	-0.61	-0.51	0.60	-0.44
CF	0.22	1.24	1.80*	0.20	1.22*	1.77*
Q	0.17	1.19	2.08**	0.18	1.20	2.11**
$return_{year-1}$	0.10	1.10	1.73*	0.08	1.08	1.75*
LR statistic	64.12***			59.71***		
Observations	22,103			16,418		

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

6.3.3 The impact of CEO narcissism on M&A short run (announcement) performance

To examine empirically the market reactions to the M&A deals announced by highly narcissistic CEOs, I conduct a multiple regression analysis to test my second hypothesis *H2* relating to the impact of CEO narcissism on M&A announcement performance. The results are presented in Table 6-11. The dependent variable is the 3-day (-1, +1) event window CAR. The binary variable *HN* is derived from three measures of CEO narcissism-Holder67, media portrayal, and content analysis of CEO speech in models 1, 2, and 3, respectively.

The regression results of model 1 show a significant (at the 5% level) negative coefficient of -0.015 for variable *HN* (Holder67). I also find a significant (at the 5% level) negative coefficient of -0.037 for variable CG (proxy for quality of corporate governance).[44] In addition, the coefficients of two other control variables, *Payment* and *Size*, are also found to be significant. The coefficient on variable *Payment* (the payment method of a deal) is 0.013 and it is significant at the 1% level. The coefficient of the variable *Size* is -0.190 and significant at the 5% level. When using the media portrayal measure (model 2), I find a coefficient of -0.009 for variable *HN* and the significance level decreases to 10%. When content analysis of the CEO speech measure is used in model 3, a significant (at the 5% level) negative coefficient of -0.013 is reported, similar to the result for model 1. On the whole, the use of different proxies for the level of CEO narcissism does not have significant effects on my results, though the magnitude of the coefficients and

[44] The CG index is constructed in such a way that, the higher the index, the lower the corporate governance quality.

the significant level for some coefficients do change slightly.

The results thus suggest that CEO narcissism has a significant negative impact on acquiring firm short run cumulative abnormal returns, which support my hypothesis *H2*. It seems that the market is able to identify the M&A deals announced by HN CEOs and responds accordingly, which is consistent with the findings of Malmendier and Tate (2008).

Table 6-11 Multiple regression: the impact of acquiring firm CEO narcissism on firm short run (announcement) M&A performance

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common the shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which is used to proxy for firm growth options. Size is the natural logarithm of acquirer total assets.

Variable	Model 1 (Based on Holder67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.015	-2.336**	-0.009	-1.920*	-0.013	-2.581**
CG	-0.037	-2.492**	-0.039	-2.399**	-0.021	-1.779*
SO	0.078	1.227	0.080	1.106	0.057	0.971
VO	0.112	1.021	0.107	1.193	0.120	1.204
Attitude	-0.002	-0.177	-0.001	-0.183	-0.000	-0.149
Payment	0.013	2.845***	0.012	2.737***	0.015	2.911***
relatedness	0.007	1.001	0.006	0.974	0.004	0.834
RSize	0.145	0.183	0.147	0.179	0.129	0.163
Growth	0.121	0.328	0.130	0.301	0.172	0.297
Size	-0.190	-2.481**	-0.183	-2.330**	-0.158	-1.905*
Adjusted R^2	0.06		0.05		0.05	
F- test	9.67***		9.58***		13.49***	
Observations	1,888		1,722		1076	

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

To further investigate the market reaction to CEO narcissism tendency in M&A deals, I divide the full M&A sample into two groups: deals conducted by high narcissism CEOs and those conducted by low narcissism CEOs. Then I calculate the average cumulative abnormal returns to the acquiring firms in each group respectively. Table 6-12 presents the results. The average three-day cumulative abnormal return (CAR) in my full sample is 0.36% (significant at 1% level). The average CAR to the deals conducted by high narcissism CEOs is 0.12% (significant at 5% level) and it is 0.73% (significant at 1% level) for the deals conducted by low narcissism CEOs. The average CAR for the deals by HN CEOs is 24 basis points below the full sample average and 61 basis points below the average CAR for the deals by LN CEOs. There are two potential interpretations of this negative impact of CEO narcissism on firm short run performance. First, high narcissism CEOs make a bid due to their inflated self-views and excessive confidence and the market can identify this unrealistic expectation and react negatively. Second, as high narcissism CEOs are prone to the overbidding problem, the market views the bids by HN CEOs as bad news.

Table 6-12 Average CARs of the deals conducted by HN and LN CEOs

This table presents the results of the mean cumulative abnormal returns (over the three-day announcement time window) of the full sample deals, the deals conducted by highly narcissistic CEOs and the deals conducted by lowly narcissistic CEOs, respectively.

	Full sample (%)	Deals conducted by HN CEOs (%)	Deals conducted by LN CEOs (%)
Mean CAR (-1, +1) day	0.36	0.12	0.73
Patell Z Statistics	5.609***	2.793**	4.368***

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

Besides *HN*, my regression results also show that some control variables have a significant impact on firm short run M&A performance.

The quality of corporate governance has the expected effect: better corporate governance (lower *CG*) is associated with better short-term (announcement) performance, which is consistent with the generally accepted argument that good corporate governance can mitigate the agency problem and enhance firm value.

My results also demonstrate that the short-term (announcement event window) market reaction to firms conducting cash payment deals is better than that to firms conducting non-cash (mainly stock financing) payment deals. This finding is consistent with most of the previous M&A literature (e.g., Travlos, 1987; Asquith, Bruner, and Mullins, 1987). One explanation for the payment method effect is the signalling hypothesis: if the CEO believes that the firm's stock is overvalued in the market, he/she would prefer to use equity to finance the deal. If the CEO believes that the firm's stock is undervalued, he/she would prefer cash payment to stock payment. Therefore, in the eyes of investors, the firm's decision to use cash to finance the deal constitutes a positive signal about the real value of the firm's stock, and, in parallel, the firm's decision to use stock financing conveys a negative signal about its future prospects.

In addition, my finding that the acquirer's size is negatively associated with M&A announcement performance at the 5% level is consistent with the results of Moeller,

Schlingemann, and Stulz (2004).[45] A possible explanation of this size effect from a narcissism perspective is that, once again, the CEOs of large firms usually receive higher rewards and more attention than those of small firms, thus increasing their tendency to adopt narcissistic beliefs and behaviour, and generally reinforcing their narcissistic personality. Consequently, the CEOs of large firms are more likely to conduct value-destroying deals than those of smaller firms, driven by their greater propensity towards destructive narcissism.

6.3.4 The impact of CEO narcissism on firm long run post-M&A performance

In examining the impact of CEO narcissism on firm long run post-M&A performance, my hypothesis *H3* is tested through regression analysis using equation (3). In this case, the dependent variable is the 2-year (1, 24 month) post-M&A deal event window BHAR. The binary variable *HN* is derived from three measures of CEO narcissism – Holder67, media portrayal, and the content analysis of CEO speech in models 1, 2, and 3, respectively. The results are reported in Table 6-13.

I find significant and negative coefficients -0.019, -0.017 and -0.024 on variable *HN* in all three models, significant at the 5% level using Holder67, and at the 10% level using media portrayal and content analysis of CEO speech. This finding suggests that, on average, a high level of CEO narcissism has a significantly negative impact on acquiring firm long run post-M&A performance. This result supports my hypothesis *H3* and is consistent with the findings of previous finance and management studies (e.g. Aktas et al, 2005; Chatterjee and Hambrick, 2007).

[45] They find that the acquirer announcement return is roughly two percentage points higher for small acquirers than large acquirers, irrespective of the form of financing.

Table 6-13 Multiple regression: the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourses in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of the common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which is used to proxy for a firm's growth options. Size is the natural logarithm of acquirer total assets.

Variable	Model 1 (Based on Holder67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.019	-2.444**	-0.017	-1.743*	-0.024	-1.828*
CG	-0.023	-2.571**	-0.020	-2.336**	-0.016	-2.203**
SO	0.068	0.794	0.065	0.647	0.053	0.564
VO	0.174	2.939***	0.169	2.788***	0.148	2.510**
Attitude	0.000	0.109	0.000	0.117	0.000	0.097
Payment	0.015	1.769*	0.015	2.417**	0.011	1.836*
Relatedness	0.049	0.877	0.052	0.909	0.061	0.845
RSize	0.065	0.157	0.057	0.174	0.049	0.148
Growth	-0.031	-0.210	-0.033	-0.312	-0.021	-0.316
Size	-0.091	-0.844	-0.088	-0.902	-0.069	-0.887
Adjusted R^2	0.05		0.04		0.05	
F- test	8.96***		8.73***		11.44***	
Observations	1,888		1,722		1076	

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

To investigate further the impact of CEO narcissism tendency on firm long run post-acquisition performance, I compare the buy-and-hold abnormal returns to the deals conducted by high narcissism CEOs and those conducted by low narcissism CEOs. Table 6-14 shows the results. The average two-year buy-and-hold abnormal return (BHAR) in my full sample is -3.64% (significant at 5% level). The average BHAR for the deals conducted by high narcissism CEOs is -4.74% (significant at the 5% level) and it is -2.43% (significant at the 5% level) for the deals conducted by low narcissism CEOs. The average BHAR for the deals by HN CEOs is 110 basis points below the full sample average and 231 basis points below the average BHAR for the deals by LN CEOs. This result further confirms my regression results, and suggests a negative association between level of CEO narcissism and firm long run post-acquisition performance.

Table 6-14 Average BHARs of the deals conducted by HN and LN CEOs

This table presents the results of the mean buy-and-hold abnormal returns (over a one-year post-acquisition time window) of the full sample deals, the deals conducted by highly narcissistic CEOs and the deals conducted by lowly narcissistic CEOs, respectively.

	Full sample (%)	Deals conducted by HN CEOs (%)	Deals conducted by LN CEOs (%)
Mean (+1, +12) month BHAR	-3.64	-4.74	-2.43
Patell Z Statistics	-2.432**	-2.397**	-2.361**
Cross-correlation adjusted t-test[46]	-2.365**	-2.328**	-2.272*

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

[46] I also report the adjusted t-test using Mitchell and Stafford (2000) to account for cross-correlation (cross-sectional dependence) of BHARs

A possible interpretation of the negative relationship between CEO narcissism tendency and firm long run post-M&A performance is as follows. The M&A decision of HN CEOs may often be driven by their destructive narcissistic personalities, with them mistakenly believing that they have superior abilities, and that "they can run the acquired firm better than the incumbent management" (Chatterjee and Hambrick, 2007). However, in reality, HN CEOs are "frequently weak at implementing programs" as "their lack of attachment to a set of values" often leads to sudden changes in organizational plans, "never finishing the process of building needed core competencies" (Lubit, 2002). The poor post-M&A integration problem, reported in the strategic management literature, clearly reflects this attribute of CEO narcissistic personality, and is a plausible explanation for the long run M&A underperformance.

My results also show significant positive coefficients of 0.174 (significant at the 1% level), 0.169 (significant at the 1% level), and 0.148 (significant at the 5% level) for variable *VO* (CEO vested option holdings) in model 1 (based on Holder67), model 2 (based on media portrayal), and model 3 (based on content analysis of CEO speech). This finding suggests that the higher the CEO vested option holdings are, the better the long run post-merger performance. A possible explanation for this is that the CEO's stock option compensation package aligns his/her interests with those of the shareholders, thereby improving firm performance.

Another control variable, *Payment* (the payment method of a deal), is also found to be significantly positively associated with firm long run post-M&A buy-and-hold

abnormal returns. The coefficients of the variable *Payment* are 0.015 (significant at the 10% level), 0.015 (significant at the 5% level), and 0.011 (significant at the 10% level) in models 1, 2, and 3, respectively. These results are consistent with findings in previous studies (Franks, Harris and Mayer, 1988; Agrawal, Jaffe, and Mendelker, 1992) and suggest that, as in the regression analysis of firm short run performance, firms that conduct cash deals also perform better in the longer run than those that conduct non-cash (mainly stock) deals. A possible explanation of this is as follows: a firm whose stock is undervalued in the market is more likely to finance a deal by cash, because stock financing would be relatively more expensive. After a period of time, the price of the undervalued stock will gradually move up to a more normal level, and therefore we observe better long-term post-M&A performance in cash deals. Similarly, a firm whose stock is overvalued by the market is more likely to finance a deal through equity, since this is relatively "cheap currency". However, after a period of time, the price of the overvalued stock will gradually move down to a more normal level. In this case, we would observe the relatively poorer long-term post-M&A performance of equity deals compared with the performance of cash deals.

Finally, the significant negative coefficients -0.023, -0.020, and -0.016 for the variable *CG* are reported in models 1, 2, and 3, respectively. The significance levels are 5% across all models. This result confirms the generally accepted view that a good corporate governance mechanism can monitor the M&A decision-making, mitigate agency problem, and consequently enhance firm value.

6.3.5 The impact of target firm CEO narcissism on M&A announcement and long run post-M&A performance

As mentioned before, previous studies only focus on the CEO narcissism (or related constructs) of acquiring firm, with any potential parallel impact of the narcissistic personality of the target firm CEO not considered. In this study, I argue that CEO narcissistic tendency, as a personality trait, can equally exist among target firm CEOs. Therefore, in this sub-section, I include variable HN_T (target firm CEO narcissism dummy) in my multiple regression model to examine the parallel impact of target firm CEO narcissism on M&A announcement and long run post-acquisition performance. My two hypotheses, *H4* and *H5*, are tested.

Results are presented in Tables 6-15 and 6-16. The dependent variable is again the 3-day (-1, 1) event window CAR when examining the impact of target firm CEO narcissism on acquiring firm M&A announcement performance in Table 6-15, and the 2-year (1, 24 month) event window BHAR when examining the impact of target firm CEO narcissism on acquiring firm long run post-M&A performance in Table 6-16. The value of HN_A is derived from the Holder67 measure in model 1, the media portrayal measure in model 2, and the content analysis of CEO speech measure in model 3. The value of HN_T is derived from the Holder67 measure in model 1, and the media portrayal measure in models 2 and 3. Here, I do not use the content analysis of CEO speech proxy to measure the level of target firm CEO narcissism. The reasons for this have been discussed in section 4.4.2.3.

Table 6-15 shows the results of model 1 which report a significant (at the 10% level)

negative coefficient -0.007 for variable HN_A, while the coefficient for variable HN_T is -0.008 but not significant. The results for models 2 and 3, however, report significantly negative coefficients for both variables. In model 2, the coefficient of HN_A is -0.012, which is more negative than that of model 1, but the significance level decreases from 5% to 10%. The coefficient of HN_T is -0.005 and significant at the 5% level. In model 3, the coefficient of HN_A is -0.009 and significant at the 5% level. The coefficient of HN_T is still negative (-0.003), though the significance level decreases from 5% to 10%. In brief, the coefficients for the variables HN_A and HN_T are reported as being significantly negative across all three models except for the coefficient of HN_T in model 1. This exception might be a reflection of the small sample size in model 1, with only 342 observations. The sample size of model 1 (based on Holder67) is smaller than that of models 2 and 3 because the model requiring the construction of Holder67 for both the acquiring and target CEO limits my sample to a small number of cases in which one of my sample firms acquired another one of my sample firms. In other words, I only have 342 such acquirer-target CEO (firm) pairs in my CEO dataset.

The results for models 2 and 3 thus support my hypothesis *H4*, and suggest a negative impact of such a narcissistic tendency on acquiring firm cumulative abnormal returns during the announcement period. A possible explanation could be the overpayment (overbidding) problem. More narcissistic target firm CEOs are likely to have an inflated idea of their own self-worth and abilities, and believe that they can perform at least as well as, or even better than, the potential takeover management. They will therefore require a higher price during the bidding process,

leading to the acquirer having to pay a higher than optimal premium to complete the deal successfully. The market seems to have the ability to detect such a potential overpayment, and consequently, target firm CEO narcissism is reflected in the firm's cumulative abnormal returns during the short run deal announcement period negatively. My regression results on M&A short run performance thus highlight the role of target firm CEO narcissism in explaining M&A short run performance and provide empirical evidence for the original prediction made by Malmendier and Tate (2003), but not empirically tested by them.

Table 6-16 shows the regression results for the test of target firm CEO narcissism on acquiring firm long run post-acquisition performance. I do not find any significant link between target firm CEO narcissism and acquiring firm long run post-acquisition BHARs. Although three negative coefficients (-0.001, -0.003, and -0.002) for variable HN_T are reported in models 1, 2 and 3 respectively, none of them is statistically significant. However, it is possible that the impact of target firm CEO narcissism on firm long run post-acquisition performance is overwhelmed by many other effects as there are so many other factors that could affect firm long run performance.

Table 6-15 Multiple regression: the impact of target firm CEO narcissism on acquiring firm short run (announcement) M&A performance

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN_A measures the acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer total assets.

Variable	Model 1 (HN_A: Holder67, HN_T: Holder67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.007	-2.092*	-0.012	-2.140*	-0.009	-2.236**
HN_T	-0.008	-1.509	-0.005	-2.227**	-0.003	-1.880*
CG	-0.028	-1.396	-0.030	-1.742*	-0.017	-1.429
SO	0.025	1.171	0.067	1.203	0.049	1.193
VO	0.055	0.924	0.113	1.011	0.098	0.979
Attitude	-0.000	-0.095	-0.002	-0.142	-0.000	-0.127
Payment	0.017	2.470**	0.011	2.682***	0.013	2.593***
relatedness	0.010	1.397	0.007	1.416	0.006	1.725*
RSize	0.155	0.148	0.132	0.177	0.100	0.165
Growth	0.188	0.299	0.127	0.357	0.153	0.318
Size	-0.130	-1.973*	-0.174	-2.482**	-0.149	-2.230**
Adjusted R^2	0.07		0.06		0.06	
F- test	9.17***		12.46***		10.71***	
Observations	342		1316		661	

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

Table 6-16 Multiple regression: the impact of target firm CEO narcissism on acquiring firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN_A measures acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer total assets.

Variable	Model 1 (HN_A: Holder67, HN_T: Holder67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.028	-1.791*	-0.031	-2.220**	-0.025	-0.819*
HN_T	-0.001	-0.916	-0.003	-0.987	-0.002	-0.933
CG	-0.029	-1.812*	-0.018	-2.438**	-0.025	-2.301**
SO	0.086	0.701	0.056	0.803	0.071	0.785
VO	0.146	1.861*	0.152	2.606***	0.137	2.362**
Attitude	0.000	0.134	0.001	0.185	0.001	0.160
Payment	0.020	1.509	0.011	2.214**	0.009	1.836*
relatedness	0.031	0.587	0.045	0.792	0.057	0.613
RSize	0.022	0.133	0.064	0.194	0.038	0.168
Growth	0.001	0.147	-0.028	-0.217	-0.015	-0.194
Size	-0.037	-0.662	-0.071	-0.829	-0.064	-0.714
Adjusted R^2	0.06		0.05		0.06	
F- test	8.99***		13.75***		11.50***	
Observations	342		1,316		661	

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

6.4 Summary

In this chapter, I first investigate acquiring firm short run (announcement) M&A performance and long run post-acquisition performance by conducting event studies based on different models and market indices. Then, I empirically examine the role of CEO narcissism in M&A decision-making and its impact on firm M&A performance by conducting a series of multiple regression analyses. My five hypotheses are tested respectively.

My results from the event studies report significant cumulative abnormal returns around the M&A announcement, which suggest that, at the aggregate level, the market views an M&A announcement as good news and reacts positively. On the other hand, in the long run event studies, significant negative mean BHARs are reported, which suggest that, at the aggregate level, acquiring firms underperform their benchmark portfolios in the long run. My results are not sensitive to the choice of different models and market indices.

Following the evaluation of firm M&A performance, I examine the role and impact of CEO narcissism in M&A activity. The main results of my multiple regression analyses are as follows:

First, in my logistic regression analysis, a significantly positive relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals is detected, which supports my first hypothesis *H1*. The result suggests that a high narcissism CEO is more likely to conduct M&A deals than a low narcissism CEO, as

consistent with Malmendier and Tate (2008). My results also suggest that the CEOs of larger firms are a quarter more likely to conduct mergers or acquisitions compared with those of smaller ones; CEOs of firms with abundant cash flows are more likely to conduct M&A deals; and CEOs of firms with a high Tobin's Q are more likely to conduct M&A deals. The results of the two models using Holder67 and media portrayal as CEO narcissism measures are very similar.

Second, my result of OLS multiple regression analysis of firm short run M&A performance supports my hypothesis *H2*, and suggests that acquiring firm CEO narcissism has a significant negative impact on acquiring firm short run (announcement) cumulative abnormal returns. The three parallel measures of CEO narcissism – Holder67, media portrayal, and content analysis of CEO speeches – are used in the regression analysis, and the results are similar across all three measures. In addition, I find that, in the short run, cash financing deals perform better than non-cash financing deals; smaller acquirers perform better than large acquirers; and the market reaction to a deal conducted by a firm with good corporate governance is better than that conducted by the firm with poor corporate governance.

Third, my multiple regression analysis of firm long run post-M&A performance reports a significantly negative relationship between acquiring firm CEO narcissism and firm post-acquisition buy-and-hold abnormal return. This result supports my hypothesis *H3* and suggests that, on average, CEO narcissism negatively impacts on firm long run performance. In addition, my results suggest that the CEO vested option holding is positively associated with firm long run post-acquisition

performance; acquirers with good corporate governance have better long run post-acquisition performance; and cash payment deals perform better than non-cash payment deals in the long run.

Finally, the results of my parallel multiple regression, including target firm CEO narcissism, support my hypothesis *H4*, and show a significantly negative relationship between target firm CEO narcissism and acquiring firm cumulative abnormal returns during the announcement period. On the other hand, there is no significant relationship detected between target firm CEO narcissism and acquiring firm long run post-acquisition performance.

Chapter 7 Additional analysis

7.1 Introduction

In last chapter, I examined the role of acquiring firm and target firm CEO narcissism in M&A decision-making and their impact on acquiring firm M&A short run and long run performance by testing a series of hypotheses. The main research questions of this study have been addressed and discussed. However, there are three interesting questions needing to be further investigated. First of all, does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms? Second, can good corporate governance help to ameliorate the negative impact of CEO narcissism in M&A? And finally, what is the impact of CEO narcissism on firm M&A performance when such a narcissistic tendency exists in both the acquiring firm and the target firm concurrently?

To address these questions in this chapter, I first develop a set of hypotheses and then conduct a series of additional regression analyses to test these hypotheses. I also calculate and compare the average CG score of the firms with high narcissism CEOs and that of the firms with low narcissism CEOs to investigate the potential association between corporate governance and CEO narcissistic tendency.

This chapter is organized as follows: section 7.2 develops a set of hypotheses regarding the three additional research questions. Section 7.3 present the regression models employed in additional analyses. Section 7.4 reports and discusses the results of the additional regression analysis. Section 7.5 summarises the chapter.

7.2 Hypotheses

7.2.1 CEO narcissism in large firms and small firms

In this sub-section, I develop my hypotheses regarding the relation between firm size and CEO narcissism and its impact on a firm's M&A activity, based on three perspectives – CEO compensation, public attention, and comprehensiveness.

There is a rich literature (e.g. Ciscel and Carroll, 1980; Murphy 1985; Gomez-Mejia, Tosi, and Hinkin, 1987; Kostiuk 1989; Finkelstein and Hambrick, 1989; Zhou, 2000) exploring the link between firm size and CEO compensation and the majority of previous studies suggest a strong positive relationship between CEO pay and firm size. That is, CEOs of large firms receive higher compensation than those of small firms. High CEO compensation may provide positive feedback (Paredes, 2005), which could promote excessive CEO confidence (a key characteristic of a narcissistic personality) about his/her own abilities or reinforce his or her already existing narcissistic tendency. Therefore, it is reasonable to expect that on average the CEOs of large firms have a higher degree of CEO narcissism than those of smaller firms and consequently this may have a larger impact on firm M&A decision-making and performance.

Besides CEO compensation, the different degrees of public attention received by CEOs of large and small firms could be another reason why we expect different degrees of CEO narcissism in firms of different sizes. The literature (e.g. Hayward, Rindov, and Pollock, 2004) shows that CEOs of large firms are more likely to attract

public attention (media coverage) and to become “celebrity” than those of small firms. Such media eulogising may again lead to a CEO overestimating his/her abilities and promoting an inflated self-image, which consequently triggers, or further enhances existing narcissistic tendencies. Therefore, I propose that such public attention and praise could be a second channel leading to a higher degree of CEO narcissistic tendency in large firms compared to that in small firms.

Finally, previous studies suggest that psychological factors have a stronger impact on decision-making when an individual faces a situation with higher degree of complexity (Nofsinger, 2005). The literature (e.g. Fredrickson and Iaquinto, 1989) shows that the complexity is positively related to firm size. In other words, the larger the firm, the more complex the situation that a decision-maker faces. Therefore, we may expect that CEO narcissism has a stronger impact on M&A decision-making in large firms than that in small firms as the situation in large firms is usually more complex.

Although the potential links between the impact of CEO narcissism and firm size in the context of M&A have not been formally examined so far, some related suggestions have been raised in previous studies. For example, Moeller, Schlingemann and Stulz (2004) find that large firms often pay a higher premium than small firms in an M&A deal; they explain their finding as evidence that managerial overconfidence (a key characteristic of a narcissistic personality) has a stronger impact on M&A decision-making and performance in large firms.

Drawing on these perspectives, I establish the following hypotheses:

Hypothesis 1. The positive link between CEO narcissism and the likelihood of a CEO conducting a deal is stronger in large firms than that in small firms.

Hypothesis 2. Acquiring firm CEO narcissism has a more negative impact on firm short run M&A announcement performance in large firms than that in small firms.

Hypothesis 3. Acquiring firm CEO narcissism has a more negative impact on firm long run post-M&A performance in large firms than that in small firms.

7.2.2 Corporate governance and CEO narcissism

The empirical results in Chapter 6 have shown that there is a positive relation between CEO narcissism and firm acquisitiveness, and such a CEO narcissistic tendency has a significantly negative impact on firm M&A performance in both the short run and long run. If CEO narcissism reduces the firm value in M&A, can good corporate governance curb such a destructive narcissistic tendency? This question can be broken down into two sub-questions: (1) what is the relation between the quality of corporate governance and the existence of highly narcissistic CEOs? (2) what is the role of corporate governance in ameliorating the negative impact of CEO narcissism in M&A? To address these questions, I first develop further hypotheses around the two questions in this sub-section, and then I empirically test these hypotheses in next section.

According to the theory of corporate governance, the basic function of corporate governance is to ensure that managers maximize shareholder value, and value-destroying managers should be removed through the governance mechanisms. However, many ineffective managers (e.g. CEOs with highly destructive narcissistic tendency) may survive due to weak corporate governance. For example, Shleifer and Vishny (1988; 1989) show that strong managerial entrenchment (usually closely associated with poor corporate governance) can reduce the probability of an ineffective manager to be replaced. Weisbach (1988) finds that the association between firm performance and CEO turnover is stronger at the firms that have "outsider-dominated" boards than the firms that have "insider-dominated" boards. In addition, Ippolito (2005) suggests that managers often use anti-takeover mechanisms (e.g. poison pills, staggered boards, anti-greenmail, etc) to prevent themselves from being taken over, even with evidence of poor performance.

So weak corporate governance could be a possible explanation for the continued existence of CEOs with high narcissistic tendency in firms although they have a negative impact on firm performance as my results in previous analyses have shown. On the other hand, strong corporate governance mechanisms may effectively identify and remove CEOs with high narcissistic tendency, or even prevent highly narcissistic managers rising to the position of CEO in the first place.

Hence, I set up the following hypothesis which is related to my first sub-question:

Hypothesis 4. The relationship between CEO narcissism and the quality of corporate governance is negative. That is, high CEO narcissism is associated with poor corporate governance and low CEO narcissism is associated with good corporate governance.

Besides the role that corporate governance plays in identifying and removing highly narcissistic CEO or even preventing highly narcissistic individuals from rising to the position of CEO in the first place, good governance mechanisms may also play an important role in curbing CEO narcissistic tendency in the process of M&A decision-making in two ways. First, effective corporate governance mechanisms may help to correct the distorted beliefs of highly narcissistic CEOs consequently preventing them from making value-destroying decisions. For example, a strong board with a large proportion of outside directors may be capable of "drawing managerial attention to information that might indicate that their perceptions are wrong" (Heaton, 2002). Second, good corporate governance can help keep a CEO's power under control (curb his/her absolute power), which means that even if a CEO has a highly narcissistic tendency and tends to make value-destroying decisions, he/she will lack the absolute or dominant power to get his/her proposal approved. Indeed, not only the CEO's narcissistic tendency but also "the ability of the CEO to impose his or her views on the firm's decisions" (Brown and Sarma, 2007) matters. In these ways, then, effective governance mechanisms may serve to curb the adverse impact of CEO narcissism in M&A decision-making, consequently ameliorating its negative impact on firm performance. Hence, the following hypotheses are laid out:

Hypothesis 5. The positive link between CEO narcissism and the likelihood of CEO conducting a deal is weaker in firms with good corporate governance, and such link is stronger in firms with poor corporate governance.

Hypothesis 6. Acquiring firm CEO narcissism has less negative impact on firm short run M&A announcement performance in firms with good corporate governance than in firms with poor corporate governance.

Hypothesis 7. Acquiring firm CEO narcissism has less negative impact on firm long run post-M&A performance in firms with good corporate governance than in firms with poor corporate governance.

7.2.3 The impact of the coexistence of acquiring firm CEO narcissism and target firm CEO narcissism

In this study, I argue that not only acquiring firm CEOs, but also target firm CEOs can be prone to a highly narcissistic tendency. In the regression analysis in Chapter 6, I examine the impact of acquiring firm CEO narcissism and target firm CEO narcissism on M&A respectively. The empirical results show that both acquiring firm and target firm CEO narcissism have a negative impact on firm short run and long run M&A performance (though the impact of target firm CEO narcissism on firm long run M&A performance is not significant). In this chapter, I will go one step further by raising the question – what is the impact of CEO narcissism on a firm M&A performance when CEO narcissism exists in both the acquiring firm and the target firm concurrently?

As already discussed (Chapter 3, Section 3.2.3; Chapter 6, Section 6.3.5), highly narcissistic target firm CEOs are likely to overestimate the value of their firm to a bidder and to be overconfident about their own ability to create value (they believe they can create as much as or even higher value than the potential acquiring firm's management team). Consequently, such target firm CEO narcissism can push the bid premium up. Facing a much higher than optimal bid premium, potential acquiring firm CEOs with high narcissistic tendency may be more likely to accept this than CEOs with low narcissistic tendency as they will overestimate their ability to recoup the high premium paid or feel entitled to be successful in completing the deal. In this sense, we may expect that the most serious overpayment problem occurs, with most negative impact on firm M&A performance, when both acquiring firm and target firm CEO narcissism exist concurrently. This leads to my last two hypotheses:

Hypothesis 8. The negative impact of CEO narcissism on firm short run M&A announcement performance is strongest when both acquiring firm and target firm CEO narcissism exist concurrently.

Hypothesis 9. The negative impact of CEO narcissism on firm long run post-M&A performance is strongest when both acquiring firm and target firm CEO narcissism exist concurrently.

7.3 Regression models in additional analysis

To examine the set of hypotheses developed in last section, I run a series of additional regressions using my earlier models with relevant interaction terms.

Specifically, I add three interaction terms in the models used in Chapter 6: *HN*Size*, *HN*CG*, HN_A*HN_T. The interaction of *HN* with *Size* is used to examine if CEO narcissism in large firms has the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms (Hypotheses 1, 2, 3). The interaction of *HN* with *CG* is employed to explore if good corporate governance can help to ameliorate the negative impact of CEO narcissism in M&A (Hypotheses 5, 6, 7). The purpose of the interaction term HN_A*HN_T is to examine the impact of CEO narcissism on firm M&A performance when such narcissistic tendency exists in both the acquiring firm and the target firm concurrently (Hypotheses 8 and 9). The five regression models of my additional analysis are as follows:

Model 1: (Logit regression): to test the relationship between CEO narcissism and M&A decision-making

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8 return_{year-1} + \beta_9 High\_tech\_dummy + \beta_{10} HN * Size + \beta_{11} HN * CG + \varepsilon \quad (1)$$

Model 2: to test the impact of acquiring firm CEO narcissism on firm M&A short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \gamma_{12} HN * Size + \gamma_{13} HN * CG + \varepsilon \quad (2)$$

Model 3: to test the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \gamma_{12} HN * Size + \gamma_{13} HN * CG + \varepsilon \quad (3)$$

Model 4: to test the impact of the (concurrent) coexistence of both acquiring and target firm CEO narcissism on acquiring firm short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \gamma_{13} HN_A * Size + \gamma_{14} HN_A * CG + \gamma_{15} HN_A * HN_T + \varepsilon \quad (4)$$

Model 5: to test the impact of the (concurrent) coexistence of both acquiring and target firm CEO narcissism on acquiring firm long run post-M&A performance

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \gamma_{13} HN_A * Size + \gamma_{14} HN_A * CG + \gamma_{15} HN_A * HN_T + \varepsilon \quad (5)$$

Different from the definitions in previous chapters, in this chapter, *Size* is defined as the natural logarithm of acquirer market capitalisation at the end of the last fiscal year and *RSize* is the relative size of the target firm, which is defined as the ratio of the acquirer's size (market capitalisation) to target's size (market capitalisation).

7.4 Results of additional analysis

This section presents and discusses the results of the regressions that address my three additional research questions. Tables 7-1, 7-2, 7-3, 7-5, and 7-6 report the regression results.

7.4.1 CEO narcissism in large firms and small firms

To investigate the hypotheses (1, 2, and 3) regarding the role and impact of CEO narcissism on M&A decision-making and performance in firms of different sizes, I run additional regressions analyses by including the interaction term *HN*Size* in my models.

In the logistic regression analysis which examines the relationship between level of CEO narcissism and the likelihood of a CEO conducting an M&A deal (Table 7-1), I find that the coefficient on the interaction of *HN* with *Size* is positive (0.15 based on Holder67 measure and 0.13 based on media portrayal measure) and highly significant (significant at 1% level). This result supports Hypothesis 1 and suggests that the relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals is stronger in large firms than that in small firms. Besides the three explanations (CEO compensation, public attention, and complexity of situation) discussed in section 7.2 on the development of hypotheses above, we may also interpret this finding from another two aspects. First, in general, CEOs of large firms often have a higher reputation and public profile and greater power and authority, which makes them more likely to dominate the M&A decision-making process, while CEOs of small firms usually lack such dominant power. In other words, CEOs of small firms may lack the power to get their M&A proposal approved even if they have a highly narcissistic tendency. Second, large firms usually have fewer financial constraints (i.e., more internal and external resources) than small firms when making M&A decisions. In small firms, the highly narcissistic CEOs who would conduct an M&A deal if they had sufficient financial resources may not

be able to do so due to financial restraints. Therefore we may observe a weaker link between level of CEO narcissism and firm acquisitiveness in small firms than large firms.

I also run another two additional regressions to investigate if CEO narcissism in large firms have the same (or same degree of) impact on firm M&A performance as that in small firms. The results are presented in Table 7-2 (short run performance) and Table 7-3 (long run performance). The negative coefficients on the interaction term *HN*Size* are reported in both short run and long run performance regressions and they are highly significant across all of the three measures of CEO narcissism (Holder67, media portrayal, and content analysis of CEO speech). Specifically, in the CAR regression, the coefficients on the term *HN*Size* are -0.032 (significant at 5% level), -0.040 (significant at 1% level), and -0.036 (significant at 5% level) based on the Holder67 measure, media portrayal measure, and content analysis of CEO speech measure respectively (Table 7-2). In the BHAR regression, the comparative coefficients on the term *HN*Size* are -0.073 (significant at 5% level), -0.081 (significant at 1% level), and -0.068 (significant at 5% level) based on Holder67 measure, media portrayal measure, and content analysis of CEO speech measure respectively (Table 7-3). These results suggest that the negative relationship between CEO narcissism and M&A performance is stronger in large firms. In other words, CEO narcissism has more negative impact on M&A performance (both short run and long run) in large firms than in small firms. This finding supports Hypothesis 2 and Hypothesis 3.

Table 7-1 Additional logit regression: CEO narcissism and M&A decision making

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8 return_{year-1} + \beta_9 High\_tech\_dummy + \beta_{10} HN * Size + \beta_{11} HN * CG + \varepsilon$$

The dependent variable *Y* is a binary variable which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year during the period from January 1, 1993 to December 31, 2005, otherwise 0. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1 and the media portrayal narcissism proxy measures in model 2). CG is the GIM's G index, the proxy for corporate governance quality. Size is the natural logarithm of acquirer market capitalisation at the end of the last fiscal year. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by the beginning of the year capital. (Here, capital is measured as property, plant and equipment.) Q represents Tobin's Q, defined as the market value of assets/book value of assets, where the book value of assets = total assets, and the market value of assets = total assets + market equity - book equity. Market equity = common share outstanding x fiscal year closing price, and book equity = total assets-total liabilities-preferred stock + deferred taxes. We report the regression results based on using Holder67 and media portrayal as the measures of CEO narcissism respectively. $return_{year-1}$ represents the 1-year lagged stock return. High_tech_dummy equals to 1 if the acquiring firm is classified as high-tech firms by Thomson One Banker, otherwise 0. This table also shows the coefficients in the form of odds ratios.

Variables	Model 1 (Based on Holder 67)			Model 2 (Based on media portrayal)		
	Coefficient	Odds ratio	z-Statistics	Coefficient	Odds ratio	z-Statistics
HN	0.29	1.34	2.44**	0.22	1.25	1.74*
CG	0.02	1.02	0.89	0.02	1.02	0.59
Size	0.23	1.26	2.69***	0.20	1.22	2.48**
SO	-0.89	0.41	-0.69	-0.92	0.40	-0.63
VO	-0.52	0.59	-0.61	-0.49	0.61	-0.38
CF	0.20	1.22	1.78*	0.23	1.26	1.82*
Q	0.15	1.16	2.02**	0.18	1.20	2.13**
$return_{year-1}$	0.11	1.12	1.81*	0.08	1.08	1.70*
High_tech_dummy	0.02	1.02	0.76	0.03	1.03	0.82
HN*CG	0.13	1.14	2.11**	0.11	1.12	1.83*
HN*Size	0.15	1.16	2.92***	0.13	1.14	2.74***
LR statistic	69.17***			62.84***		
Observations	22,103			16,418		

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

Table 7-2 Additional regression: the impact of acquiring firm CEO narcissism on firm short run (announcement) M&A performance

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \gamma_{12} HN * Size + \gamma_{13} HN * CG + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common the shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. RSize is the relative size of the target firm, which is defined as the ratio of the acquirer's size to target's size. Growth is the target's M/B ratio, which is used to proxy for firm growth options. Size is the natural logarithm of acquirer market capitalisation. High_tech_dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (Based on Holder 67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.014	-2.31**	-0.010	-1.99**	-0.012	-2.50**
CG	-0.036	-2.38**	-0.038	-2.40**	-0.022	-1.78*
SO	0.072	1.14	0.084	0.97	0.054	0.97
VO	0.104	1.01	0.100	1.19	0.109	1.04
Attitude	-0.000	-0.17	-0.001	-0.18	-0.002	-0.16
Payment	0.009	2.62***	0.007	2.59***	0.010	2.60***
relatedness	0.007	0.84	0.006	0.90	0.004	0.77
RSize	0.138	0.18	0.140	0.17	0.125	0.16
Growth	0.117	0.28	0.121	0.20	0.159	0.20
Size	-0.184	-2.32**	-0.176	-2.17**	-0.161	-2.13**
High_tech_dummy	0.008	1.31	0.012	1.69*	0.009	1.48
HN*CG	-0.021	-1.38	-0.014	-1.29	-0.027	-1.41
HN*Size	-0.032	-2.58**	-0.040	-2.64***	-0.036	-2.58**
Adjusted R^2	0.06		0.08		0.07	
F- test	11.39***		12.96***		14.53***	
Observations	1,888		1,722		1076	

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

Table 7-3 Additional regression: the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \gamma_{12} HN * Size + \gamma_{13} HN * CG + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourses in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of the common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. RSize is the relative size of the target firm, which is defined as the ratio of the acquirer's size to target's size. Growth is the target's M/B ratio, which is used to proxy for a firm's growth options. Size is the natural logarithm of acquirer market capitalisation. High_tech_ dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (Based on Holder67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.016	-2.38**	-0.019	-1.99**	-0.020	-1.78*
CG	-0.020	-2.46**	-0.019	-2.30**	-0.017	-2.24**
SO	0.080	1.01	0.070	0.74	0.068	0.68
VO	0.173	2.81***	0.169	2.80***	0.157	2.61**
Attitude	0.000	0.12	0.001	0.12	0.001	0.13
Payment	0.019	1.80*	0.017	2.47**	0.014	1.99**
relatedness	0.039	0.79	0.048	0.89	0.056	0.75
RSize	0.066	0.20	0.058	0.18	0.045	0.19
Growth	-0.032	-0.19	-0.039	-0.44	-0.025	-0.40
Size	-0.087	-0.79	-0.092	-0.92	-0.069	-0.85
High_tech_dummy	-0.015	-0.95	-0.019	-1.00	-0.016	-0.10
HN*CG	-0.041	-1.25	-0.018	-1.13	-0.035	-1.20
HN*Size	-0.073	-2.43**	-0.081	-2.89***	-0.068	-2.41**
Adjusted R^2	0.07		0.06		0.06	
F- test	11.07***		10.96***		13.99***	
Observations	1,888		1,722		1076	

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

7.4.2 The role and impact of corporate governance in ameliorating the adverse impact of CEO narcissism in M&A.

In this section, I examine the role of corporate governance in curbing CEO narcissistic tendency and in mitigating the impact of such tendency on M&A decision-making and performance. As mentioned before, this additional research question can be decomposed into two sub-questions: (1) what is the relation between the quality of corporate governance and the level of CEO narcissism? (2) what is the role of corporate governance in ameliorating the negative impact of CEO narcissism in M&A? I present and discuss my results regarding these two questions in the following two sub-sections respectively.

7.4.2.1 The relation between the quality of corporate governance and the level of CEO narcissism.

To investigate the relationship between CEO narcissism and corporate governance, I divide my full sample of CEOs into two groups: the HN group (high narcissism CEOs) and the LN group (low narcissism CEOs). Then I compare the value of CG (the proxy for the quality of corporate governance) in the HN group with that in the LN group, based on the use of Holder67, media portrayal, and content analysis of CEO speech as respective measures of CEO narcissism. The independent-sample t test and Mann-Whitney test (z test) are used as parametric and non-parametric tests here.

Results are presented in Table 7-4. The mean value of CG is 9.92 (based on the Holder67 measure), 9.76 (based on the media portrayal measure), and 9.86 (based on

the content analysis of CEO speech measure) in the HN group. The mean value of CG is 9.50 (based on the Holder67 measure), 9.38 (based on the media portrayal measure), and 9.47 (based on the content analysis of CEO speech measure) in the LN group. The median value of CG is 11 in the HN group and 10 in the LN group, and this result is consistent across all of three CEO narcissism measures. These results show that both the mean and the median value of the CG of the HN group are higher than that of the LN group across all three CEO narcissism measures. The CG score (mean and median) difference between HN group and LN group is highly significant (at the 1% significance level) using both the independent-sample t test and Mann-Whitney test (z test). As the CG index is constructed in such a way that, the higher the value of CG, the poorer the quality of corporate governance, this finding suggests that, on average, the corporate governance of the firms with high narcissism CEOs is significantly poorer than that of firms with low narcissism CEOs. In other words, low CEO narcissism is associated with relatively better corporate governance and high CEO narcissism is associated with relatively poorer corporate governance, which supports my Hypothesis 4. These results might indicate that good corporate governance mechanisms may help effectively remove value-destroying high narcissism CEOs or even prevent the individuals with highly narcissistic tendency from rising to the post of CEO.

We may speculate that some important components of a corporate governance regime may help to curb CEO narcissism and mitigate its negative effects. For example, an appropriate performance measurement and compensation scheme may provide CEOs with feedback that avoids reinforcing a CEO's narcissistic tendency;

effective board monitoring may be able to identify CEO narcissistic tendencies at early stage and prevent narcissistic CEOs from making value-destroying decisions; and well-structured external governance mechanisms (e.g. the market for corporate control) may help remove value-destroying narcissistic CEOs in a timely manner. At the same time, we need to be aware that it is also possible that an HN CEO may tend to ensure a weaker corporate governance regime so he/she is under less control. Therefore, the causality between the level of CEO narcissism and the quality of corporate governance mechanisms needs to be further investigated in future study.

Table 7-4 Value of the CG index (high narcissism Vs low narcissism CEOs)

The full sample of CEOs is divided into two sub-samples according to their level of narcissistic tendency – the HN (high narcissism) sub-sample and LN (low narcissism) sub-sample. Column 2-7 presents the mean CG (corporate governance index), the median CG, the standard deviation of CG for each sub-sample. Column 2 and 3 are based on the use of Holder67 as the CEO narcissism measure; column 4 and 5 are based on the use of media portrayal as a CEO narcissism measure; and column 6 and 7 are based on the use of content analysis of CEO speech as the CEO narcissism measure. The independent-sample t test is reported as the test of the difference between the means of the two sub-samples. The non-parametric test – Mthe ann-Whitney test z-test) is also reported.

	CEO narcissism measure					
	Holder 67		Media portrayal		Content analysis of CEO speech	
	HN sub-sample (n=1014)	LN sub-sample (n=2148)	HN sub-sample (n=792)	LN sub-sample (n=1517)	HN sub-sample (n=298)	LN sub-sample (n=476)
Mean CG	9.92	9.50	9.76	9.38	9.86	9.47
Median CG	11	10	11	10	11	10
Standard deviation	2.44	2.86	2.79	2.71	2.58	2.62
T-test	2.97***		3.14***		2.91***	
Mann-Whitney Test (Z-test)	-2.71***		-2.58***		-2.64***	

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

7.4.2.2 What is the role of corporate governance in ameliorating the negative impact of CEO narcissism in M&A?

To further investigate the role of corporate governance in ameliorating the negative impact of CEO narcissism in M&A, I run additional regressions analyses including the interaction term *HN*CG* in the models. The results of these regressions are presented in Table 7-1, 7-2 and 7-3.

In the logistic regression analysis which aimed to examine the relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals (Table 7-1), I find that the coefficient on the interaction of *HN* with *CG* is positive (0.13 based on the Holder67 measure and 0.11 based on the media portrayal measure) and significant (significant at 5% level based on the Holder67 measure and significant at 10% level based on the media portrayal measure). This result supports Hypothesis 5 and suggests that the relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals is stronger in firms with poor corporate governance than in the firms with good corporate governance.

In the CAR and BHAR regressions, I find consistently negative coefficients on the interaction term *HN*CG* though none of them is significant. In the CAR regression (Table 7-2), the coefficients are -0.021, -0.014, and -0.027 based on Holder67, media portrayal, and content analysis of CEO speech measure respectively. In the BHAR regression (Table 7-3), the coefficients are -0.041, -0.018, and -0.035 based on the three CEO narcissism measures. It seems that poor corporate governance strengthens the negative relationship between CEO narcissism and M&A performance (both

short run and long run) and good corporate governance ameliorates such negative relationships, although this finding is not statistically significant.

7.4.3 The impact of the coexistence of acquiring firm CEO narcissism and target firm CEO narcissism

To examine Hypotheses 8 and 9 regarding the impact of CEO narcissism on M&A performance when acquiring firm and target CEO narcissism coexist, I run additional regressions analyses by including the interaction term HN_A*HN_T in the models. The results of regression are presented in Table 7-5 and 7-6.

In the short run performance regression, I report significant negative coefficients on the interaction term $HN_A*HN_{T.}$ They are -0.103 (significant at 5% level), -0.125 (significant at 1% level), and -0.117 (significant at 5% level) based on Holder67, media portrayal, and content analysis of CEO speech measure respectively. This result suggests that the negative impact of CEO narcissism on firm short run M&A performance is strongest when both acquiring firm and target firm CEO narcissism exist concurrently. It appears that the market can identify the serious overpayment problem resulting from the coexistence of acquiring firm and target firm CEO narcissism and consequently discount it more heavily in share price. On the other hand, in the long run M&A performance regression, I do not find any significant coefficients on the interaction term $HN_A*HN_{T.}$ As mentioned in last chapter, the insignificance of the impact of target firm CEO narcissism on firm long run post-acquisition performance might simply reflect that the overpayment problem resulting from target firm CEO narcissism may be swamped by many other factors in the long run.

Table 7-5 Additional regression: the impact of target firm CEO narcissism on acquiring firm short run (announcement) M&A performance

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \gamma_{13} HN_A * Size + \gamma_{14} HN_A * CG + \gamma_{15} HN_A * HN_T + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN_A measures the acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. RSize is the relative size of the target firm, which is defined as the ratio of the acquirer's size to target's size. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer market capitalisation. High_tech_dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (HN_A: Holder 67, HN_T: Holder 67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.006	-1.93*	-0.011	-2.16*	-0.008	-2.25**
HN_T	-0.007	-1.49	-0.003	-2.21**	-0.002	-1.87*
CG	-0.024	-1.38	-0.028	-1.74*	-0.015	-1.40
SO	0.026	1.16	0.071	1.40	0.049	1.19
VO	0.048	0.72	0.098	0.79	0.101	0.97
Attitude	-0.000	-0.09	-0.000	-0.12	-0.001	-0.13
Payment	0.014	2.37**	0.011	2.69***	0.013	2.59***
relatedness	0.009	1.39	0.008	1.38	0.005	1.71*
RSize	0.161	0.15	0.139	0.19	0.112	0.21
Growth	0.187	0.29	0.119	0.28	0.142	0.32
Size	-0.127	-1.93*	-0.172	-2.40**	-0.147	-2.23**
High_tech_dummy	0.007	1.31	0.011	1.70*	0.010	1.42
HN_A*CG	-0.017	-1.37	-0.015	-1.31	-0.024	-1.39
HN_A*Size	-0.028	-2.48**	-0.033	-2.60***	-0.031	-2.57**
HN_A*HN_T	-0.103	-2.26**	-0.125	-2.98***	-0.117	-2.38**
Adjusted R^2	0.08		0.07		0.08	
F- test	11.72***		14.66***		13.52***	
Observations	342		1316		661	

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

Table 7-6 Additional regression: the impact of target firm CEO narcissism on acquiring firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \gamma_{13} HN_A * Size + \gamma_{14} HN_A * CG + \gamma_{15} HN_A * HN_T + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN_A measures acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. RSize is the relative size of the target firm, which is defined as the ratio of the acquirer's size to target's size. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer market capitalisation. High_tech_dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (HN_A: Holder 67, HN_T: Holder 67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.019	-1.72*	-0.024	-2.18**	-0.017	-1.74*
HN_T	-0.002	-0.92	-0.004	-0.99	-0.002	-0.93
CG	-0.025	-1.77*	-0.016	-2.45**	-0.022	-2.20**
SO	0.085	0.71	0.061	0.88	0.072	0.77
VO	0.148	1.83*	0.157	2.59***	0.136	2.31**
Attitude	0.001	0.14	0.001	0.17	0.000	0.15
Payment	0.019	1.48	0.015	2.25**	0.013	1.90*
relatedness	0.025	0.53	0.039	0.74	0.050	0.58
RSize	0.024	0.14	0.062	0.20	0.041	0.17
Growth	-0.009	-0.15	-0.016	-0.17	-0.007	-0.18
Size	-0.036	-0.63	-0.069	-0.81	-0.061	-0.68
High_tech_dummy	-0.009	-1.32	-0.014	-1.46	-0.011	-1.39
HN_A*CG	-0.033	-1.18	-0.017	-1.12	-0.029	-1.17
HN_A*Size	-0.069	-2.39**	-0.076	-2.76***	-0.063	-2.38**
HN_A*HN_T	-0.091	-0.17	-0.087	-0.16	-0.079	-0.10
Adjusted R^2	0.07		0.08		0.06	
F- test	11.83***		16.32***		14.58***	
Observations	342		1,316		661	

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

7.5 Summary

This chapter explores three additional research questions: (1) Does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms? (2) Can good corporate governance help to ameliorate the negative impact of CEO narcissism in M&A? (3) What is the impact of CEO narcissism on firm M&A performance when such narcissistic tendency exists in both the acquiring firm and the target firm concurrently? To address these questions I first develop a set of hypotheses and then conduct a series of additional regression analyses which include relevant interaction terms to test these hypotheses.

In summary, my key findings are as follows:

First, the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is stronger in large firms than that in small firms. I also find that acquiring firm CEO narcissism has more negative impact on firm M&A performance (both short run announcement performance and long run post-M&A performance) in large firms than that in small firms. These results suggest that the problems associated with high level of CEO narcissism in the context of M&A may be severer in large firms than in smaller firms. Higher CEO compensation, more public attention, higher complexity of situation, more dominant power of CEO, and less financial constraints associated with large firms might be some possible explanations for these results. Therefore curbing the absolute power of a CEO, effectively monitoring the use of financial resources, and setting an adequate level of

CEO compensation in large firms may help ameliorate the strong adverse impact of CEO narcissism on M&A decision-making and performance in these firms.

Second, I find evidence that the level of CEO narcissism is negatively associated with the quality of corporate governance. That is, high CEO narcissism is associated with poorer corporate governance and low CEO narcissism is associated with stronger corporate governance. My results also show that the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is weaker in firms with stronger corporate governance, and such link is stronger in firms with poor corporate governance. These empirical results might suggest that effective corporate governance mechanisms may help to curb a CEO's narcissistic tendency and ameliorate, to some extent, the negative impact of high level of CEO narcissism on firm M&A decision-making. Specifically, strong corporate governance mechanisms may be able to effectively remove value-destroying high narcissism CEOs, prevent high narcissism individuals from rising to the post of CEO in the first place, or correct the distorted beliefs of high narcissism CEOs in the process of decision-making.

Finally, I find evidence that the negative impact of CEO narcissism on firm short run M&A performance is strongest when both acquiring firm and target firm CEO narcissism coexist concurrently. This result may suggest that target firm CEO narcissism might further exacerbate the overpayment problem. On the one hand, high narcissism target firm CEOs tend to require higher than optimal premium as they are likely to overvalue their firm or they believe they can create at least as much value as

bidders' management team. On the other hand, high narcissism CEOs of potential acquiring firms may be more likely to accept the higher than optimal bid premium as they are overconfident about their ability to extract value from the deal. Consequently this may cause a more serious overpayment problem. The market appears to be able to detect such exacerbated overpayment problem and discount it more heavily in share price. Realising the coexistence of acquiring firm and target firm CEO narcissism and understanding its impact on firm M&A performance could be useful for investors to make investment decisions.

Chapter 8 Summary, conclusion and future research

8.1 Introduction

This thesis aims to investigate the role of a CEO's personality characteristic – CEO narcissism – in explaining the motives and the performance of M&A activity. Specifically, this study intends to address the following four main research questions: (1) are HN (high narcissism) CEOs more likely to conduct mergers and acquisitions than LN (low narcissism) CEOs? (2) what is the impact of the degree of CEO narcissism on the market reaction to the M&A announcement? (3) what is the impact of the extent of CEO narcissism on acquirer long run post-acquisition performance? (4) what is the impact of the level of target firm CEO narcissism on acquiring firm M&A performance?

In addition, to further investigate the impact of CEO narcissism on M&A activities in firms of different sizes, the relationship between the quality of corporate governance and CEO narcissism, and the impact of the concurrent coexistence of acquiring firm CEO narcissism and target firm CEO narcissism, I raise three additional questions as follows: (1) Does CEO narcissism in large firms have the same (or same degree of) impact on M&A decision-making and firm performance as that in small firms? (2) Can good corporate governance help to ameliorate the negative impact of CEO narcissism in M&A? (3) What is the impact of CEO narcissism on firm M&A performance when such a narcissistic tendency exists in both the acquiring firm and the target firm concurrently?

These research questions are raised on the basis of a comprehensive review of the literature. First, I review the literature about long run and short run (announcement) M&A performance. Second, previous studies about the drives (or motives) of M&A deals are reviewed. Third, I explore the concept of narcissism and related studies in personality, psychology, and the strategic management literature. Finally, I review the role of CEO narcissism and related constructs in M&A activity.

Based upon the review and discussion of the relevant literature, a set of hypotheses is developed in Chapter 3 and 7. To test these hypotheses, or, more specifically, to empirically explore the role and impact of CEO narcissism in M&A decision-making and performance, I need to address three methodological issues: (1) the measurement of CEO narcissism; (2) the evaluation of firm M&A performance; and (3) the way to examine the link between CEO narcissism and M&A decision-making and performance. Therefore, Chapter 4 introduces my research methods from the following three aspects. First, I describe the way I construct my three CEO narcissism measures: Holder67, media portrayal, and content analysis of CEO speech respectively. Second, I introduce the event study methods employed to evaluate firm short run (announcement period) M&A performance and long run post-M&A performance. Finally, I present my logistic and OLS multivariate regression models used to test the hypotheses. The dependent variables, independent variables, and control variables are also introduced.

The test of the developed hypotheses and the construction of my CEO narcissism measures require six types of data: CEO data, firm data (stock price and financial

items), M&A data, CEO media portrayal dada, CEO speeches about M&A deals, and other supplementary data. Thus, in Chapter 5, the data sources, sampling procedure, data selection criteria, data descriptions and other related issues are introduced in detail.

Chapter 6 presents and discusses the main empirical results of this study. To examine the impact of CEO narcissism personality on firm M&A performance, I first conduct a series of event studies on M&A deals to evaluate firm short run (announcement) M&A performance and long run post-acquisition performance. Specifically, I calculate the cumulative abnormal returns (CARs) around deal announcement and long run buy-and-hold abnormal returns (BHARs) for each M&A deal. Then I examine the link (if any) between the level of CEO narcissism and likelihood of a CEO conducting a deal through logistic regression analysis, and investigate the impact of CEO's narcissistic tendency on firm M&A short run and long run performance through a set of OLS multivariate regression analyses. The key findings and associated analyses are summarised in the following section.

On the basis of the main empirical analyses presented in chapter 6, I go one step further in chapter 7 to address my three additional research questions. I first develop a set of additional hypotheses relating to the impact of CEO narcissism on M&A activities in firms of different sizes, the relationship between the quality of corporate governance and CEO narcissism, and the impact of the concurrent coexistence of acquiring firm and target firm CEO narcissism. Then I conduct a series of additional analyses to test these hypotheses by including relevant interaction terms in my

regression models. In addition, I explore the potential association between the quality of corporate governance and CEO narcissism tendency through the calculation and comparison of average CG (corporate governance index) scores of firms with high narcissism CEOs and that of firms with low narcissism CEOs. The empirical results of these additional analyses and the associated discussion are summarised in the following section.

The rest of this chapter is organized as follows: section 8.2 presents a summary and discussion of the empirical findings in this study. Section 8.3 shows the main contributions and implications of this research. Section 8.4 discusses the limitations of current study and section 8.5 outlines the potential directions for future research.

8.2 Summary and discussion of the key results

There are a lot of studies on the performance of mergers and acquisitions in the finance literature. As shown in the literature review, the majority of studies suggest that M&A deals under-perform on average in the long run. Although some studies report positive short run announcement abnormal returns, most gains go to the shareholders of the target firms and the shareholders of the acquiring firms do not benefit from such deals.

In this study, I argue that the personality characteristic of CEO narcissism can play an important role in explaining the cause and consequence of M&A activities. A high level of CEO narcissism, among others, can be one driver of M&A deals and may have a significant impact on firm M&A performance. Drawing on literature from the

fields of finance, strategic management and psychology, a set of hypotheses are developed to test if there is a relationship between CEO narcissism and the likelihood of a CEO conducting a deal; if the level of CEO narcissism has an impact on firm M&A short run and long run performance; and if the target firm CEO narcissism also matters in explaining M&A performance. These hypotheses are tested through a series of regression analyses based upon a large sample of 3,162 CEOs and 1,888 M&A deals from 1993 to 2005.

One of the most challenging parts of this study is the construction of my CEO narcissism measures. Three measures are used in this study: Holder67, media portrayal, and content analysis of CEO speech. Holder67 uses the CEO's own option exercise timing behaviour to identify a high level of CEO narcissism, while media portrayal measures CEO narcissistic tendency based on how CEOs are perceived by outsiders (media). These two measures have been used before. In this study, I construct a third new measure for CEO narcissism based upon the content analysis of CEO speeches on M&A deals. More specifically, I identify a CEO's high narcissistic tendency through examining the verbal tone of CEO narratives related to a specific M&A deal using the software Diction 5.0. Interestingly, in most cases, I report similar results when using these three measures, which confirms the construct validity of these measures to some extent.

To test these hypotheses, I first evaluate firm short run and long run M&A performance through event studies. I calculate the short run (announcement) daily mean abnormal returns of my sample deals based on the market model and CRSP

equally weighted index from day -20 to day +20. The results show that the most significant mean abnormal returns are detected over the (-1, +2) day time window and they are -0.13% in day -1, 0.10% in day 0, 0.39% in day +1, and 0.16% in day +2, respectively. The highest mean abnormal return is observed in day 1, one day after the deal announcement. On the basis of this calculation, to examine the aggregate effects of M&A announcement on the firm's stock price, I then compute the cumulative abnormal returns (CAR) for the sample deals over different time windows. The results (based on a market model and CRSP equally weighted index) show significant positive (at 0.1% significant level) CARs 0.36%, 0.60%, 0.74%, 0.82%, and 0.93% for (-1, +1), (-2, +2), (-3, +3), (-5, +5), and (-10, +10) time windows respectively, which suggests that, on average, the market views the M&A announcement initially as good news and reacts positively. These results are consistent with the findings of Malatesta (1983), Sicherman and Pettway (1987), Leeth and Borg (2000), and Rosen (2003).

On the other hand, in the long run event studies, my results show that the mean abnormal returns are positive in the months (-1 month, -2 month, -3 month, -4 month, -5 month, -6 month) before M&A deal announcement and are significantly negative in most months after M&A announcement, which indicates the negative effects of M&A on firm long run performance. To evaluate aggregate long run effects, I calculate the buy-and-hold abnormal return (BHAR) of each M&A deal over different time windows (6 months, 12 months, 18 months, 24 months, and 36 months). Significantly negative mean BHARs are reported over 18 months, 24 months, and 36 months time windows, which suggest that in the long run horizon, on

average, acquiring firms under-perform their benchmark portfolios. This result further confirms the general findings in the literature that most mergers and acquisitions destroy firm value in the long run (Asquith, 1983; Loderer and Martin, 1990; Malatesta, 1983; Louis, 2002; Varaiya and Ferris, 1987; Ferris and Park, 2001; Langetieg, 1978). If mergers and acquisitions do not benefit the shareholders of acquiring firms, what is the driver of such deals? To investigate this question, I then test my first hypothesis to examine the potential link between CEO narcissism and firm acquisitiveness.

My logistic regression analysis reports a significantly positive relationship between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals. I find the odds ratio of variable *HN* (Holder67) is 1.38 (significant at the 5% level), which indicates that the odds of a high narcissism CEO conducting a deal are 38% higher than the odds of a low narcissism CEO doing so. The odds ratio of variable *HN* is 1.27 and significant at 10% level, when media portrayal is used as the measure of CEO narcissism. These findings are consistent with Malmendier and Tate (2008), and support the propositions in Roll (1986) and Gervais, Heaton and Odean (2003). I interpret this result from the following four aspects: (1) high narcissism CEOs usually have excess confidence in their abilities due to their inflated self image, and they mistakenly believe that better performance will be achieved under their leadership; (2) a high level of CEO narcissistic tendency often makes a CEO willing to pay more than the optimal price, which consequently increases the chance to win the auction. Therefore, we observe more successful bids by high narcissism CEOs; (3) using M&A as their stage, CEOs act out a drama in order to feed their needs for

attention and admiration (Chatterjee and Hambrick, 2007); and (4) this result is a good reflection of some key characteristics of a narcissistic personality, such as "glory-building", "excitement-seeking" and "rapid change of course" (Chatterjee and Hambrick, 2007; Lubit 2002).

In the logistic regression, I also find that some control factors are significantly associated with firm acquisitiveness. My result suggests that the CEOs of large firms are about a quarter more likely to conduct mergers or acquisitions than small firms. One interpretation is that large firms often face fewer financial constrains than small firms when making decisions. In addition, it is found that the firms with a higher level of cash flow are more likely to conduct M&A deals, which is consistent with the traditional free cash flow hypothesis that firms with large excessive cash flow tend to invest in more projects. My results also suggest that firms with a high Tobin's Q are more likely to conduct M&A deals, which provide supporting evidence for the Q theory of mergers developed by Servaes (1991) and are consistent with the proposition of Jovanovic and Roussear (2002), that a firm's M&A activity may partly be a response to profitable reallocation opportunities.

Following the logistic regression analysis, I conduct multivariate OLS regression analyses to further examine the short run (announcement) market reaction to the deals conducted by high narcissism CEOs. My regression results show a significantly negative association between CEO narcissism and firm announcement cumulative abnormal returns. The coefficient of variable *HN* (high narcissism) is -1.5% (based on holder 67 measure), -0.9% (based on media

portrayal measure) and -1.3% (based on content analysis of CEO speech measure) respectively. This negative relationship holds across all three models (based on three alternative CEO narcissism measures). Furthermore, I calculate the average announcement cumulative abnormal returns for the deals conducted by high narcissism CEOs and low narcissism CEOs respectively, and find the average three-day CAR for the deals by HN CEOs is 0.12%, 24 basis points below the full sample average (0.36%) and 61 basis points below the average CAR to the deals by LN CEOs (0.73%). These results thus suggest a significant negative impact of CEO narcissism on acquiring firm short run (announcement) performance, which is consistent with the findings of Malmendier and Tate (2008). Two possible explanations are given in my analysis: (1) high narcissism CEOs make a bid in line with their inflated self-image and excessive confidence in their own abilities, and therefore the market identifies this unrealistic expectation and discounts the CEOs' distorted self-views in the stock price; and (2) the market reacts to the potential overpayment problem associated with bids by high narcissism CEOs.

In this regression analysis, some other control factors are also reported to be significantly associated with M&A short run performance. First, I find cash financing deals perform better than non-cash financing deals in the short run, which is consistent with the results in Travlos (1987) and Asquith, Bruner, and Mullins (1987). This finding provides the supporting evidence to the signalling hypothesis that the market views firm's decision to use stock financing as a negative signal about its future prospects. In other words, if the firm's stock is overvalued, the firm would prefer to use overvalued stock as "cheap currency" to finance the M&A deal, and

therefore the market will know that the firm's stock is overvalued through the firm's stock financing decision. Second, I find that smaller acquirers perform better than large acquirers in the short run, which is consistent with the finding in Moeller, Schlingemann, and Stulz (2004). A potential interpretation of this size effect is that the CEOs of large firms have a greater propensity to destructive narcissism than those of small firms, as they usually receive higher rewards and more attention, which increases and reinforces their tendency towards narcissistic beliefs and behaviour, and consequently towards making more value-destroying deals. Finally, I find that the market reaction to the deals conducted by firms with good corporate governance is better than that towards those conducted by firms with poor corporate governance, which supports the generally accepted argument that good corporate governance can mitigate the agency problem somewhat and therefore enhance firm value.

In my long run post-acquisition performance regression analysis, I report a significantly negative relationship between acquiring firm CEO narcissism and the firm's 2 year post-acquisition buy-and-hold abnormal return. The coefficient of variable HN (high narcissism) is -1.9% (based on the Holder67 measure), -1.7% (based on the media portrayal measure) and -2.4% (based on the content analysis of CEO speech measure) respectively. To further investigate the impact of CEO narcissism tendency on firm long run post-acquisition performance, I calculate and compare the buy-and-hold abnormal returns for the deals conducted by high narcissism CEOs and those by low narcissism CEOs respectively. The results show that the average BHAR for the deals conducted by high narcissism CEOs is -4.74%,

231 basis points below the average BHAR for the deals by LN CEOs (-2.43%) and 110 basis points below the full sample average (-3.64%). These results thus suggest that, on average, CEO narcissism has a significantly negative impact on firm long run post-acquisition performance, and provide new empirical evidence to support the propositions of Aktas et al (2005) and Chatterjee and Hambrick (2007). Such problems associated with the CEO's narcissistic personality as overconfidence in their management ability and poor implementation skills are plausible interpretations of the long run underperformance of the deals conducted by high narcissism CEOs.

In my long run regression analysis, my results also suggest that some control factors have a significant impact on firm long run post-acquisition performance. First, a significantly positive association between CEO vested option holding and firm long run post-acquisition performance is detected, which could be a reflection of the positive role of CEO stock option incentive package in aligning the CEO's interests with those of the shareholders thereby improving firm long run performance. Second, similar to the finding about short run performance, I also find that a cash payment deal performs better in the long run. As mentioned before, a firm would prefer to finance an M&A deal by cash if its stock is undervalued and by stock (non-cash) if its stock is overvalued. After a period of time, we would expect that undervalued stock (in cash payment deals) will move up to a "normal" value and overvalued stock (in stock payment deals) will move down to its "normal" value, if the market is efficient. Therefore, we observe that cash payment deals perform better than stock payment deals in the long run. Finally, I find that the quality of corporate governance has a significantly positive impact on firm long run post-acquisition performance,

which again confirms the generally accepted view that good corporate governance mechanisms can effectively monitor managers' behaviour, thereby enhancing firm value.

Besides the CEO narcissism of acquiring firms, in this study, I also argue that CEO narcissistic tendency can equally exist among target firm CEOs and may have an impact on M&A performance. To empirically test such an effect, I conduct multivariate regression analysis including the target firm CEO narcissism (variable HN_T) in the model. In the short run regression analysis, a negative relationship between target firm CEO narcissism and acquiring firm M&A announcement period CAR is reported across all three models (based on the Holder67 measure, media portrayal measure, and content analysis of CEO speech measure). Such a relationship is significant when using media portrayal and content analysis on CEO speech as the CEO narcissism measures, though it is not significant when using the Holder67 measure. The finding thus suggests a negative impact of target firm CEO narcissistic tendency on the market reaction to the deal announcement. One plausible interpretation for this negative association is the "overpayment" problem resulting from the highly narcissistic personality of a target firm CEO. That is, high narcissism target firm CEOs tend to require a very high premium, as they believe that they can perform at least as well as the bidding firm management due to their inflated view of their self-worth and abilities, which will lead successful acquirers to have to pay more than the optimal price. The market appears to be able to identify and to respond to such potential overpayment problems associated with a high level of target firm CEO narcissistic tendency. This finding

supports my argument that target firm CEO narcissism can also help explain the M&A short run performance and provides original evidence for the prediction made by Malmendier and Tate (2003).

In addition to the tests of my hypotheses relating to my main research questions in Chapter 6, in Chapter 7 I also test a set of additional hypotheses relating to the impact of CEO narcissism on M&A activities in firms of different sizes, the relationship between the quality of corporate governance and CEO narcissism, and the impact of the concurrent coexistence of acquiring firm and target firm CEO narcissism.

In my first additional analysis (the test of a set of additional hypotheses relating to the impact of CEO narcissism on M&A activities in firms of different sizes), I find a significant positive coefficient (0.15 based on Holder67 measure and 0.13 based on media portrayal measure) on the interaction of *HN* with *Size* in my additional logistic regression. This result suggests that the positive link between CEO narcissism and the likelihood of a CEO conducting a deal is stronger in large firms than that in small firms. In my additional M&A short run (announcement) and long run performance regressions, I find significantly negative coefficients on the interaction term *HN*Size* across all of the three measures of CEO narcissism. In CAR regression, the coefficients are -0.032 based on the Holder67 measure, -0.040 based on the media portrayal measure, and -0.036 based on the content analysis of CEO speech measure; in BHAR regression, the coefficients are -0.073 based on the Holder67 measure, -0.081 based on the media portrayal measure, and -0.068 based on the content

analysis of CEO speech measure. These results support my hypothesis that CEO narcissism has more negative impact on firm short run and long run M&A performance in large firms than in small firms. In sum, my findings might suggest that the problems associated with the high level of CEO narcissism in M&A activities are severer in large firms than in smaller firms. Higher CEO compensation and more public attention might be possible explanations for my results. Specifically higher compensation and more public attention associated with CEOs of large firms may further promote a CEO's inflated self-image, leading to a higher degree of CEO narcissism in large firms compared with that in small firms and consequently causing a more negative impact on firm M&A decision-making and performance. Therefore a well-designed CEO compensation package and an effective monitoring mechanism that can correct a CEO's distorted self-view may help ameliorate the strong adverse impact of CEO narcissism in large firms.

My second additional analysis further explores the role of corporate governance in ameliorating the negative impact of CEO narcissism in M&A. I report evidence that a high level of CEO narcissism is associated with poor corporate governance. The mean value of CG of the HN group (9.92 based on the Holder67 measure, 9.76 based on the media portrayal measure, and 9.86 based on the content analysis of CEO speech measure) are significantly higher than that of the LN group (9.50 based on the Holder67 measure, 9.38 based on the media portrayal measure, and 9.47 based on the content analysis of CEO speech measure) across all three CEO narcissism measures, which suggests that corporate governance of the firms with high narcissism CEOs is significantly poorer than that of firms with low narcissism CEOs. In addition, I find

that the positive link between the level of CEO narcissism and the likelihood of a CEO conducting M&A deals is stronger in firms with poor corporate governance than in firms with good corporate governance. In my additional logistic regression analysis, significantly positive coefficients (0.13 based on the Holder67 measure and 0.11 based on the media portrayal measure) on the interaction of *HN* with *CG* are reported.

These results might indicate that strong corporate governance mechanisms may help to mitigate CEO narcissism and ameliorate the negative impact of CEO narcissism in M&A decision-making to some extent. Effective governance mechanisms may be able to identify highly narcissistic individuals at early stage and prevent them from rising to the position of CEO in the first place and be able to remove value-destroying high narcissism CEOs before they do more harm. In addition, strong board monitoring may help to curb the absolute power of high narcissism CEOs in M&A decision-making. .

My final additional analysis is to examine the impact of the concurrent coexistence of acquiring firm and target firm CEO narcissism on acquiring firm M&A performance. The result of my additional short run M&A performance regression shows that the impact of CEO narcissism on firm short run M&A performance is most negative in the case of both acquiring firm and target firm CEO narcissism coexisting concurrently. We might interpret this result as the exacerbated overpayment problem resulting from the coexistence of acquiring firm and target firm CEO narcissism. It appears that the market can detect this more serious overpayment problem and consequently discount it more heavily in share price.

In conclusion, this study empirically examines the role of CEO narcissism in M&A decision-making and its impact on firm M&A short run and long run performance. My main findings are as follows. First, high narcissism CEOs are more likely to conduct mergers and acquisitions than low narcissism CEOs. Second, acquiring firm CEO narcissism has a significantly negative impact on firm short run announcement performance and long run post-acquisition performance. Third, target firm CEO narcissism also has a significantly negative impact on the acquiring firm short run announcement performance, while it has no significant impact on acquiring firm long run post-acquisition performance.

I also find that the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is stronger and CEO narcissism has a more negative impact on firm M&A performance in large firms than that in smaller firms. The result of my additional analysis also shows that the negative impact of CEO narcissism on firm short run M&A performance is strongest when both acquiring firm and target firm CEO narcissism coexist concurrently. However, I find that level of CEO narcissism is negatively associated with the quality of corporate governance and the positive link between CEO narcissism and the likelihood of a CEO conducting an M&A deal is weaker in firms with good corporate governance than that in firms with poorer corporate governance. These findings may suggest that effective corporate governance mechanisms might play positive roles in curbing CEO narcissistic tendencies and in helping to ameliorate, to some extent, the adverse impact of high level of CEO narcissism on firm M&A decision-making.

8.3 Contributions

The contribution of this study is six-fold:

First, my results provide new empirical evidence on the role of CEO narcissism in M&A decision making and its impact on firm M&A performance. Compared with Malmendier and Tate (2008), which is based on a sample of 477 large Forbes companies and 3,900 firm-year observations for the period 1980-1994, my study encompasses all non-financial, non-utility firms covered by ExecuComp that meet the necessary data requirements, and covers the period 1993-2005, including the recent M&A wave and the Dot-com bubble. In total, I work with a total of 2,129 firms across the full size spectrum (S&P500, S&P 400 midcap, and S&P600 smallcap) and 22,103 firm-year observations. As such, my more comprehensive sample structure allows me to investigate my research questions more completely, and draw stronger conclusions from my analysis.

Second, prior studies only focus on acquiring firm CEO narcissism in M&A deals, failing to take potential target firm CEO narcissism into account. In this study, I argue that such CEO narcissistic personality can equally exist among the CEOs of target firms. High narcissism target firm CEOs' inflated self-views (self-worth and ability) can make them believe that they can perform at least as well as the potential acquirer's CEOs and therefore require a higher price, which may lead to the acquiring firms paying too much to win the bids. This overpayment (overbidding) problem may consequently impact on firm M&A performance. In my empirical test, the result shows that target firm CEO narcissism does have a significant negative

effect on firm M&A short run announcement performance. Furthermore, I find that the negative impact of CEO narcissism on firm M&A short run performance is strongest when both acquiring firm and target firm CEO narcissism coexist concurrently. To the best of my knowledge, this study is the first to empirically test the impact of target firm CEO narcissism on M&A performance.

Third, most previous studies in this area focus on the impact of CEO narcissism on firm short run announcement performance. The impact of such narcissistic tendency on firm long run post-acquisition performance has received very limited attention. In this study, I empirically test the effect of CEO narcissistic tendency on firm M&A performance over both the short run and long run horizon.

Fourth, I develop a new measure of CEO narcissism based on the formal content analysis of CEO speeches and discourses about the specific M&A deal. This measure is appealing for three reasons. First, compared with the Holder67 (option exercise-based measure) and media portrayal measures used in the literature to date, which are only able to measure CEO narcissism in a general way, this new proxy is a measure of CEO narcissism as it relates directly to the particular acquisition. In other words, this new measure can help to overcome the "non-specific" problem. Second, this new measure can help to surmount the data availability problem associated with the construction of the Holder67 measure as there is no need for CEO option holding data. Third, this new measure leverages the strength of psychological and linguistic studies to help research the implications of CEO personality characteristics in the finance area. That such rich information about

managerial psychological propensities can be provided by a formal content analysis of his/her own words suggests that this approach can also have value in researching other corporate finance-related decision domains. However, I also acknowledge that, like most other measures used to date, this content analysis measure is also noisy as the tone of a CEO's speech can be influenced by many other factors.

Fifth, my results have potential implications for the construction of corporate governance mechanisms and investment practice. Realising the existence of CEO narcissism in M&A decision-making, firms may need to emphasize particular governance mechanisms, for example, real board independence, to mitigate this problem and reduce any potential adverse costs. In addition, from an investment perspective, if an investor can detect CEO narcissism (i.e., identify high narcissism CEOs) and understand the impact of such a narcissistic tendency on firm short run and long run performance, *inter alia*, in the context of M&A bids, then this insight could usefully be brought to bear when making investment decisions.

Finally, I introduce the well-established psychology-based concept of narcissistic personality as relating to firm CEOs engaged in M&A deals into my study. This concept has both motivational and cognitive dimensions, and its characteristics are well described in both the psychological and strategic management literature. Narcissism provides a richer and more valid construct to work with than the terms hubris and overconfidence used to date in the literature which suffer problems due to their inconsistent and lack of precise definitions. In fact, narcissism provides an overarching measure, incorporating what both concepts are seeking to convey, and

potentially enabling us to make a further connection between different aspects of CEO behaviour in corporate decision-making.

In addition, I summarise the differences between my work and Malmendier and Tate (2008), a pioneering work in this area, in the following table.

Table 8-1 Differences between Malmendier and Tate (2008) and my study

(My incremental contribution to knowledge)

	Malmendier and Tata (2008)	My study
Sample size	A sample of 477 large Forbes firms and 3,900 firm-year observations	Larger sample across the full size spectrum (S&P 500 largecap, S&P 400, madcap, and S&P600 small cap): 2,129 firms 22,103 firm-year observations
Time period	1980-1994	1993-2005
Concept/term used	CEO overconfidence	CEO narcissism-a richer concept to work with than CEO overconfidence
Acquiring firm / target firm	Only focus on acquiring firm CEO narcissism.	Both acquiring firm and target firm CEO narcissism are empirically tested.
Short run / long run performance	Only focus on short run M&A announcement period performance	The impact of CEO narcissism on both short run M&A announcement period and long run post-M&A performance are examined.
Measures	Two measures used: Holder67, media portrayal	Three measures used: Holder67, media portrayal, and a third new measure based on the formal content analysis of CEO speeches and discourses.
Media sources	Media portrayal measure is based on the keywords searching in five leading business publications: The wall Street Journal, The New York Times, BusinessWeek, Financial Times and The Economist.	Media portrayal measure is based on the keywords searching in a much wider range of media sources (37 business publications).

8.4 Limitations

Due to data availability and some practical reasons, this study may suffer from the following limitations:

First of all, the proxies for CEO narcissism are not perfect and the imperfection of the measures may introduce bias into the study. After all, measuring such a psychological propensity as narcissism is always a challenging task for researchers. New cleaner measures need to be developed and the measures used in this study need to be further improved.

Second, this study focuses on “destructive” CEO narcissism (i.e., the dark side of the narcissistic personality). However, some academics (e.g. Maccoby, 2007) argue that CEO narcissism may play a positive role in some circumstances (i.e., the positive side of the narcissistic personality). Therefore, “constructive” CEO narcissism needs to be further studied and discussed in the future.

Finally, my current M&A deal sample only consists of completed (successful) deals. A further study using a sample including both successful and unsuccessful M&A bids will help us to understand the role and impact of CEO narcissism in a broader context.

8.5 Future research

My current study empirically tests the role and impact of such a personality tendency as CEO narcissism in the context of M&A decision-making, based on three proxies for CEO narcissism. However, as mentioned in the last section, the current study has its limitations in several aspects, which needs to be further addressed. In addition, there are still some interesting unanswered questions, suggesting opportunities for future research. More specifically, the current study can be further extended from the following four aspects:

First, the keywords used to construct the media portrayal measure are basically the words that capture only one key characteristic of CEO narcissism-overconfidence, and they are unable to capture some other characteristics of a narcissistic personality. Therefore, I should develop a more comprehensive set of key words to construct my media portrayal measure, in order to capture different aspects of the narcissistic tendency.

Second, the role of corporate governance mechanisms in addressing the problems associated with the high CEO narcissistic tendency needs to be further explored. Analyses in this study are solely based on the use of corporate governance index as the proxy for the quality of corporate governance. Further decomposition of this comprehensive index into sub-components may help us to understand the role of some specific governance mechanisms (e.g. board structure, compensation, ownership structure, etc.) in curbing CEO narcissistic tendency and therefore provide more insights

into the construction of effective corporate governance mechanisms.

Third, the purpose of this study is to examine the role and impact of CEO narcissism in M&A decision-making. A potential direction to extend my current work is to investigate the CEO narcissistic tendency in a broader context, for example, in the decision-making of general corporate investment policies, such as the IPO (initial public offering), dividend payment and project investment, not specifically in the context of M&A decision-making.

Finally, in my current study, I make inferences about CEO narcissistic tendency based upon publicly available data (i.e., option holding data, media coverage, or CEO's public speeches). However, the data collected through other methodologies, such as personality questionnaires and surveys, may provide much richer sources for us to construct direct measures of CEO narcissism and to further explore the role of such a narcissistic tendency in corporate decision-making and its impact on firm performance.

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Appendices

Appendix 1: Formula and word lists used to construct variable OPTIMISM (Source: Diction 5.0 User Manual)

Formula: OPTIMISM= [Praise + Satisfaction + Inspiration] -[Blame + Hardship + Denial]

Word list	Description/ number of words/ sample words
Praise	*Description:* Affirmations of some person, group, or abstract entity. Included are terms isolating important social qualities, physical qualities, intellectual qualities, entrepreneurial qualities, and moral qualities. All terms in this dictionary are adjectives. *Number of words:* 195 *Sample words:* best, better, capable, favorable, good, great, important, positive, profitable, strong, successful
Satisfaction	*Description:* Term s associated with positive affective states, with moments of undiminished joy and pleasurable diversion, or with moments of triumph. Also included are words of nurturance. *Number of words:* 315 *Sample words:* applaud, attracts, celebrate, comfortable, confident, delighted, enjoy, enthusiasm, excited, pleased, satisfied
Inspiration	*Description:* Abstract virtues deserving of universal respect. Most of the terms in this dictionary are nouns isolating desirable moral qualities as well as attractive personal qualities. Social and political ideals are also included. *Number of words*: 122 *Sample words:* commitment, dedication, enrichment, improvement, loyalty, productivity, progress, promise, quality
Blame	*Description:* Terms designating social inappropriateness as well as downright evil compose this dictionary. In addition, adjectives describing unfortunate circumstances or unplanned vicissitudes are included. The dictionary also contains outright denigrations. *Number of words:* 346 *Sample words:* adverse, bad, bleak, careless, costly, grim, hard, mediocre, struggling, troubled, unstable, upsetting
Hardship	*Description:* This dictionary contains natural disasters, hostile actions and censurable human behavior. It also includes unsavory political outcomes as well as normal human fears and incapacities. *Number of words:* 470 *Sample words:* alarmed, conflict, depressed, disappointing, discouraged, fail, fear, hardship, problem, regret, setback, unfortunately, weakness
Denial	*Description:* A dictionary consisting of standard negative contractions, negative functions words, and term s designating null sets. *Number of words:* 39 *Sample words:* aren’t, cannot, didn’t, shouldn’t, don’t, nor, not, nothing

Appendix 2: An example of the output of Diction 5.0

Arbortext.txt

Total Words Analyzed: 128

Total Characters Analyzed: 882

Average Word Size: 5.67

Number of Different Words: 92

Alpha-numeric Identifier: 0 0 0 0 0 0 0 0

Active Custom Dictionaries:

Character Counts: (none)

View Character Counts: No

View Word Counts: No

Small File Option: Report extrapolations

Large File Option: Averaged (Analyze maximum 500,000 words)

Numeric File Name: C:\Program Files\Diction\Data\Research.num

Use Comma Separator: Yes

Print Input Text: No

View Input Text: Yes

Normative Values

Class: Business

Type: Corporate Public Relations

Standard Dictionary Totals

Variable	Frequency	% of Words Analyzed	Normal Range Low	Normal Range High	Standard Score	Out of Range
Numerical Terms	0.00	0.00	3.14	16.12	-1.48	*
Ambivalence	3.91	0.78	2.89	17.50	-0.86	
Self-reference	0.00	0.00	0.00	7.97	-0.62	
Tenacity	27.34	5.47	18.94	36.19	-0.03	
Leveling Terms	19.53	3.91	4.79	13.36	2.44	*
Collectives	0.00	0.00	4.32	13.69	-1.92	*
Praise	7.81	1.56	3.12	10.48	0.28	
Satisfaction	0.00	0.00	0.23	5.93	-1.08	*
Inspiration	0.00	0.00	1.46	15.84	-1.20	*
Blame	0.00	0.00	0.00	2.86	-0.82	
Hardship	7.81	1.56	0.83	7.79	1.01	*
Aggression	3.91	0.78	1.54	8.16	-0.29	
Accomplishment	26.98	5.40	14.27	37.71	0.08	
Communication	27.34	5.47	0.72	9.92	4.79	*
Cognition	19.53	3.91	5.09	15.93	1.66	*
Passivity	3.91	0.78	2.40	8.45	-0.50	
Spatial Terms	5.86	1.17	3.09	15.12	-0.54	
Familiarity	136.72	27.34	107.28	144.30	0.59	
Temporal Terms	23.44	4.69	5.12	17.76	1.90	*
Present Concern	11.13	2.23	8.10	17.63	-0.36	
Human Interest	7.81	1.56	14.27	44.85	-1.42	*
Concreteness	15.63	3.13	10.02	27.58	-0.36	
Past Concern	7.79	1.56	0.25	5.40	1.94	*
Centrality	7.83	1.56	2.72	10.45	0.32	
Rapport	0.00	0.00	0.89	4.50	-1.49	*
Cooperation	0.00	0.00	0.28	11.55	-1.05	*

Diversity	7.81	1.56	0.32	4.70	2.42	*
Exclusion	0.00	0.00	0.00	3.47	-0.94	
Liberation	0.00	0.00	0.00	4.01	-0.95	
Denial	7.81	1.56	0.61	7.95	0.96	
Motion	0.00	0.00	0.00	3.78	-0.94	

Words for Insistence Score

Word	Occurrences
INFORMATION	3
MANUAL	2
NEEDS	2
PROCESS	3
PUBLISHING	2
TOOLS	2

Calculated Variables

Variable	Frequency	Normal Range		Standard	Out of
		Low	High	Score	Range
Insistence	32.81	9.40	99.67	-0.48	
Embellishment	0.44	0.27	0.94	-0.48	
Variety	0.72	0.45	0.53	5.42	*
Complexity	5.67	4.62	5.40	1.69	*

Master Variables

Variable	Score	Normal Range		Out of
		Low	High	Range
Activity	52.96	48.16	52.43	*
Optimism	46.84	48.21	55.58	*
Certainty	47.56	48.44	52.71	*
Realism	46.17	44.40	50.67	
Commonality	47.24	48.40	54.08	*

Appendix 3: Robustness check – different thresholds in the option exercise behaviour-based measure of CEO narcissism (3 tables)

Table 1 Logistic regression: CEO narcissism and M&A decision making

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8 \, return_{year-1} + \varepsilon$$

This table presents the regression results when different thresholds (50%, 67%, 80% in-the-money) are applied in the option exercise behaviour-based measure of CEO narcissism are applied. The dependent variable *Y* is a binary variable which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year during the period from January 1, 1993 to December 31, 2005, otherwise 0. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN is derived from Holder X. CG is the GIM's G index, the proxy for corporate governance quality. Size is the natural logarithm of acquirer total assets at the end of the last fiscal year before the deal announcement year. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by the beginning of the year capital. (Here, capital is measured as property, plant and equipment.) Q represents Tobin's Q, defined as the market value of assets/book value of assets, where the book value of assets = total assets, and the market value of assets = total assets + market equity - book equity. Market equity = common share outstanding x fiscal year closing price, and book equity = total assets-total liabilities-preferred stock + deferred taxes. I report the regression results based on using Holder67 and media portrayal as the measures of CEO narcissism respectively. $return_{year-1}$ represents the 1-year lagged stock return. This table also shows the coefficients in the form of odds ratios.

Variables	Threshold applied in the option exercise behaviour-based measure of CEO narcissism (Holder X)								
	50%			67%			80%		
	Coefficient	Odds ratio	z-Statistics	Coefficient	Odds ratio	z-Statistics	Coefficient	Odds ratio	z-Statistics
HN	0.31	1.36	2.46**	0.32	1.38	2.51**	0.32	1.38	2.53**
CG	0.02	1.02	0.68	0.01	1.01	0.64	0.01	1.01	0.66
Size	0.23	1.26	2.69***	0.23	1.26	2.76***	0.22	1.25	2.74***
SO	-0.85	0.43	-0.72	-0.89	0.41	-0.76	-0.90	0.41	-0.78
VO	-0.50	0.61	-0.58	-0.53	0.59	-0.61	-0.52	0.59	-0.60
CF	0.21	1.23	1.78*	0.22	1.25	1.80*	0.23	1.26	1.84*
Q	0.18	1.20	2.05**	0.17	1.19	2.08**	0.17	1.19	2.06**
$return_{year-1}$	0.09	1.09	1.71*	0.10	1.11	1.73*	0.09	1.09	1.70*
LR statistic	62.89			64.12***			65.03		
Observations	22,103			22,103			22,103		

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

Table 2 Multiple regression: the impact of acquiring firm CEO narcissism on firm M&A short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon$$

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \varepsilon$$

This table presents the regression results when different thresholds (50%, 67%, 80% in-the-money) are applied in the option exercise behaviour-based measure of CEO narcissism. The dependent variable is the 3-day (-1, 1) event window CAR or the 2-year (1, 24 month) BHAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN is derived from Holder X. CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common the shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which is used to proxy for firm growth options. Size is the natural logarithm of acquirer total assets.

Variable	Threshold applied in the option exercise behaviour-based measure of CEO narcissism (Holder X)					
	CAR			BHAR		
	50%	67%	80%	50%	67%	80%
HN	-0.014**	-0.015**	-0.015**	-0.020**	-0.019**	-0.019**
CG	-0.038**	-0.037**	-0.037**	-0.022**	-0.023**	-0.022**
SO	0.079	0.078	-0.077	0.068	0.068	-0.067
VO	0.113	0.112	0.111	0.172***	0.174***	-0.175***
Attitude	-0.001	-0.002	-0.002	0.000	0.000	0.000
Payment	0.013***	0.013***	0.014***	0.016*	0.015*	0.015*
relatedness	0.005	0.007	0.008	0.047	0.049	0.048
RSize	0.143	0.145	0.145	0.064	0.065	0.065
Growth	0.122	0.121	0.120	-0.029	-0.031	-0.030
Size	-0.189**	-0.190	-0.190**	-0.090	-0.091	-0.091
Adjusted R^2	0.06	0.06	0.06	0.05	0.05	0.05
F- test	9.63***	9.67***	9.70***	8.89***	8.96***	9.02***
Observations	1,888	1,888	1,888	1,888	1,888	1,888

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

Table 3 Multiple regression: the impact of target firm CEO narcissism on acquiring firm short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon$$

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \varepsilon$$

This table presents the regression results when different thresholds (50%, 67%, 80% in-the-money) are applied in the option exercise behaviour-based measure of CEO narcissism. The dependent variable is the 3-day (-1, 1) event window CAR or the 2-year (1, 24 month) BHAR for the acquiring firm. HN_A measures the acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables, derived from Holder X, equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer total assets.

Variable	Threshold applied in the option exercise behaviour-based measure of CEO narcissism (Holder X)					
	CAR			BHAR		
	50%	67%	80%	50%	67%	80%
HN_A	-0.008*	-0.007*	-0.007*	-0.026*	-0.028*	-0.027*
HN_T	-0.007	-0.008	-0.007	-0.002	-0.001	-0.001
CG	-0.029	-0.028	-0.028	-0.029*	-0.029*	-0.030*
SO	0.027	0.025	0.026	0.082	0.086	0.085
VO	0.053	0.055	0.054	0.143*	0.146*	0.147*
Attitude	-0.001	-0.000	-0.000	0.001	0.000	0.000
Payment	0.018**	0.017**	0.017**	0.018	0.020	0.021
relatedness	0.010	0.010	0.009	0.033	0.031	0.030
RSize	0.154	0.155	0.155	0.018	0.022	0.021
Growth	0.190	0.188	0.187	0.001	0.001	0.002
Size	-0.129*	-0.130*	-0.130*	-0.036	-0.037	-0.037
Adjusted R^2	0.07	0.07	0.07	0.06	0.06	0.06
F- test	9.26	9.17***	9.20	9.10	8.99***	9.02***
Observations	342	342	342	342	342	342

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

Appendix 4: Robustness check – high-tech dummy (5 tables)

Table 1 Logit regression: CEO narcissism and M&A decision making

$$Y = \alpha_0 + \beta_1 HN + \beta_2 CG + \beta_3 Size + \beta_4 SO + \beta_5 VO + \beta_6 CF + \beta_7 Q + \beta_8\ return_{year-1} + \beta_9 High\_tech\_dumy + \varepsilon$$

The dependent variable *Y* is a binary variable which equals 1 if the firm announced at least one deal (successful bid and completed deal) in a specific firm year during the period from January 1, 1993 to December 31, 2005, otherwise 0. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1 and the media portrayal narcissism proxy measures in model 2). CG is the GIM's G index, the proxy for corporate governance quality. Size is the natural logarithm of acquirer total assets at the end of the last fiscal year. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options, as a fraction of common shares outstanding. CF is the normalized ratio of firm cash flow, given by earnings before extraordinary items plus depreciation, divided by the beginning of the year capital. (Here, capital is measured as property, plant and equipment.) Q represents Tobin's Q, defined as the market value of assets/book value of assets, where the book value of assets = total assets, and the market value of assets = total assets + market equity - book equity. Market equity = common share outstanding x fiscal year closing price, and book equity = total assets-total liabilities-preferred stock + deferred taxes. We report the regression results based on using Holder67 and media portrayal as the measures of CEO narcissism respectively. $return_{year-1}$ represents the 1-year lagged stock return. High-tech dummy equals to 1 if the acquiring firm is classified as high-tech firms by Thomson One Banker, otherwise 0. This table also shows the coefficients in the form of odds ratios.

Variables	Model 1 (Based on Holder 67)			Model 2 (Based on media portrayal)		
	Coefficient	Odds ratio	z-Statistics	Coefficient	Odds ratio	z-Statistics
HN	0.31	1.36	2.49**	0.25	1.28	1.78*
CG	0.01	1.01	0.63	0.01	1.01	0.47
Size	0.24	1.27	2.70***	0.21	1.23	2.59**
SO	-0.92	0.40	-0.77	-0.94	0.39	-0.65
VO	-0.51	0.60	-0.56	-0.53	0.59	-0.49
CF	0.21	1.23	1.80*	0.19	1.21	1.77*
Q	0.17	1.19	2.03**	0.18	1.20	2.07**
$return_{year-1}$	0.09	1.09	1.72*	0.09	1.09	1.76*
High-tech dummy	0.03	1.03	0.86	0.02	1.02	0.79
LR statistic	65.33***			60.92***		
Observations	22,103			16,418		

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

Table 2 Multiple regression: the impact of acquiring firm CEO narcissism on firm M&A short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common the shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which is used to proxy for firm growth options. Size is the natural logarithm of acquirer total assets. High-tech dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (Based on Holder 67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.012	-2.21**	-0.007	-1.90*	-0.011	-2.46**
CG	-0.033	-2.30**	-0.036	-2.37**	-0.019	-1.70*
SO	0.075	1.22	0.090	1.11	0.060	0.98
VO	0.109	1.02	0.102	1.19	0.117	1.20
Attitude	-0.001	-0.17	-0.002	-0.19	0.000	-0.15
Payment	0.010	2.76***	0.009	2.67***	0.013	2.84***
relatedness	0.009	1.00	0.007	0.98	0.005	0.84
RSize	0.142	0.18	0.145	0.18	0.127	0.16
Growth	0.119	0.32	0.126	0.28	0.165	0.28
Size	-0.187	-2.43**	-0.179	-2.29**	-0.153	-1.83*
High-tech dummy	0.011	1.51	0.014	1.72*	0.012	1.69*
Adjusted R^2	0.05		0.06		0.06	
F- test	10.01***		10.47***		13.98***	
Observations	1,888		1,722		1076	

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

Table 3 Multiple regression: the impact of acquiring firm CEO narcissism on firm long run post-acquisition performance

$$BHAR = \alpha_0 + \gamma_1 HN + \gamma_2 SO + \gamma_3 VO + \gamma_4 CG + \gamma_5 RSize + \gamma_6 relatedness + \gamma_7 Growth + \gamma_8 Attitude + \gamma_9 Payment + \gamma_{10} Size + \gamma_{11} High\_tech\_dummy + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN is a dummy variable equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. (HN is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourses in model 3.) CG is GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of the common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and those of the target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which is used to proxy for a firm's growth options. Size is the natural logarithm of acquirer total assets. High-tech dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (Based on Holder67)		Model 2 (Based on media portrayal)		Model 3 (Based on content analysis of CEO speech)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN	-0.017	-2.40**	-0.018	-1.97*	-0.022	-1.79*
CG	-0.021	-2.49**	-0.020	-2.34**	-0.015	-2.16**
SO	0.072	0.91	0.066	0.70	0.055	0.57
VO	0.169	2.79***	0.171	2.84***	0.148	2.51**
Attitude	0.001	0.13	0.000	0.12	0.001	0.13
Payment	0.016	1.78*	0.015	2.42**	0.013	1.97*
relatedness	0.046	0.85	0.054	0.98	0.059	0.79
RSize	0.063	0.15	0.060	0.18	0.042	0.14
Growth	-0.028	-0.17	-0.035	-0.40	-0.023	-0.39
Size	-0.090	-0.79	-0.089	-0.92	-0.067	-0.85
High-tech dummy	-0.018	-0.99	-0.022	-1.00	-0.019	-1.01
Adjusted R^2	0.06		0.05		0.05	
F- test	9.34***		9.19***		12.25***	
Observations	1,888		1,722		1076	

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

Table 4 Multiple regression: the impact of target firm CEO narcissism on acquiring firm short run (announcement) performance

$$CAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatednes\,s + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \varepsilon$$

The dependent variable is the 3-day (-1, 1) event window CAR for the acquiring firm. HN_A measures the acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer total assets. High-tech dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (HN_A: Holder 67, HN_T: Holder 67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.008	-2.09*	-0.014	-2.27**	-0.010	-2.24**
HN_T	-0.008	-1.51	-0.006	-2.29**	-0.004	-1.92*
CG	-0.027	-1.38	-0.031	-1.77*	-0.017	-1.43
SO	0.024	1.16	0.069	1.33	0.047	1.18
VO	0.052	0.87	0.101	0.83	0.104	1.09
Attitude	-0.001	-0.10	-0.000	-0.13	-0.000	-0.13
Payment	0.016	2.39**	0.010	2.61***	0.011	2.45**
relatedness	0.012	1.41	0.008	1.42	0.007	1.74*
RSize	0.154	0.15	0.133	0.19	0.105	0.20
Growth	0.190	0.32	0.124	0.31	0.146	0.33
Size	-0.129	-1.96*	-0.175	-2.43**	-0.150	-2.26**
High-tech dummy	0.01	1.47	0.012	1.71*	0.009	1.44
Adjusted R^2	0.070		0.070		0.060	
F- test	9.29***		12.88***		11.03***	
Observations	342		1316		661	

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

Table 5 Multiple regression: the impact of target firm CEO narcissism on acquiring firm long run post-acquisition performance.

$$BHAR = \alpha_0 + \gamma_1 HN_A + \gamma_2 HN_T + \gamma_3 SO + \gamma_4 VO + \gamma_5 CG + \gamma_6 RSize + \gamma_7 relatedness + \gamma_8 Growth + \gamma_9 Attitude + \gamma_{10} Payment + \gamma_{11} Size + \gamma_{12} High\_tech\_dummy + \varepsilon$$

The dependent variable is the 2-year (1, 24 month) BHAR for the acquiring firm. HN_A measures acquiring firm CEO narcissism, and HN_T the equivalent for the target firm. HN_A and HN_T are dummy variables equal to 1 for highly narcissistic CEOs, and equal to 0 otherwise. HN_A is derived from Holder67 in model 1, media portrayal in model 2, and content analysis of CEO discourse in model 3. HN_T is derived from Holder67 in model 1, and media portrayal in models 2 and 3. CG is the GIM's G index, a proxy for corporate governance quality. SO is the fraction of company stock owned by the CEO at the end of the last fiscal year before the deal announcement year. VO is the CEO's holdings of exercisable options as a fraction of common shares outstanding. Attitude is a binary variable, where 1 signifies that the deal attitude is classified as "hostile", and 0 signifies "friendly" or "neutral". Payment is a binary variable, where 1 signifies that the method of deal payment is cash, otherwise 0. relatedness is a binary variable, where 1 signifies that the first two digits of the SIC code of the acquirer and target are the same. Rsize is the relative size of the target firm. Growth is the target's M/B ratio, which proxies for firm growth options. Size is the natural logarithm of acquirer total assets. High-tech dummy equals to 1 if the target firm is classified as high-tech firms by Thomson One Banker, otherwise 0.

Variable	Model 1 (HN_A: Holder 67, HN_T: Holder 67)		Model 2 (HN_A: media portrayal, HN_T: media portrayal)		Model 3 (HN_A: content analysis of CEO speech, HN_T: media portrayal)	
	Coefficient	t Statistics	Coefficient	t Statistics	Coefficient	t Statistics
HN_A	-0.025	-1.77*	-0.029	-2.20**	-0.022	-1.80*
HN_T	-0.001	-0.90	-0.003	-0.96	-0.001	-0.88
CG	-0.027	-1.79*	-0.019	-2.50**	-0.024	-2.29**
SO	0.079	0.68	0.054	0.79	0.069	0.75
VO	0.153	1.90*	0.161	2.69***	0.142	2.37**
Attitude	0.001	0.14	0.000	0.17	0.001	0.16
Payment	0.024	1.53	0.014	2.24**	0.011	1.84*
relatedness	0.027	0.58	0.043	0.78	0.054	0.59
RSize	0.020	0.13	0.059	0.19	0.036	0.16
Growth	-0.013	-0.16	-0.019	-0.20	-0.011	-0.19
Size	-0.036	-0.65	-0.070	-0.80	-0.063	-0.69
High-tech dummy	-0.015	-1.42	-0.019	-1.69*	-0.017	-1.56
Adjusted R^2	0.06		0.05		0.06	
F- test	9.14***		14.28***		11.98***	
Observations	342		1,316		661	

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